



The Multi-crew Pilot License

Part II: The MPL Data - Capturing the Experience

*- A review and analysis of the results from a
global online survey on the worldwide
experiences with the Multi-crew Pilot License*

Rickard Wikander & Dr. Nicklas Dahlström



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Abstract

This report is as a follow up to a previous report on the MPL – “*The Multi Crew Pilot License (MPL) – Evolution, Revolution or not even a Solution?*” (2014) by the same authors. The intention of this study is to continue to explore and discuss MPL, especially where the previous report identified a need for further review and research. Different methods have been used in this study to ensure that the collected information would as much as possible provide different perspectives on the MPL. Initially, in an attempt to find the most recent updates on the MPL and the positions of different stakeholders, a literature review was conducted. This was followed by a quantitative (survey data) and qualitative (comments) collection of data in the form of an online survey, involving a wide spectrum of groups involved in MPL training.

As per the results MPL pilots overall perform well in regards to the competencies related to application of procedures and automated flight, while situational awareness and workload management seem to be more challenging for them. Manual flying skills were highlighted as another challenging competency. If the weaker areas should be addressed with an increase of time spent in small aircraft, as suggested by many captains and MPL graduates, or a change in how that time and training is performed in the simulators, is a question that the industry should explore further. The same goes for the most effective way to train manual flying skills; research is needed to decide if the best outcome comes from flying manually in a small aircraft or by removing automation more or less completely for flight training in simulators.

Line Captains was the most sceptical target group towards the MPL throughout the study, while regulators and managers were by far the most supportive group. In many groups, especially among the Line Captains, there were individuals who seemed to have been left outside of the loop in regards to information about the MPL. They had been offered limited information not only about the MPL concept, but also about what to expect from MPL pilots. More importantly they had limited opportunities to share their concerns in any structured manner within their organisations. From the data it was clear that there has been, and still are, shortcomings in provision of information on MPL in many of the organisations involved in delivering MPL training.

In regards to competency-based training (CBT), the number of MPL programs being completely competency-based, and thus completed in regards to the organisational transition, was around 90% as per the views of managers and regulators. The view of MPL instructors, students and graduates is that this is true for around 50% of the programs. What the reality is remains a question as there appeared to be uncertainty among respondents about what CBT is supposed to entail, and if around half of the programs would be an accurate number this would be a disappointment ten years after the introduction of MPL, as CBT is central in the training paradigm of the concept. As with information on the MPL concept, there is a great need for a more engaged and enduring sharing of information about CBT in the organisations involved in MPL.

A broad majority of respondents, from all target groups, expressed frustration and resignation on the effects of the MPL license restriction – from both an industry and individual perspective. As this report was about to be finalised, the news arrived that this license restriction has been removed within EASA regulated states. The effects of this change will provide an interesting opportunity for further development of the MPL. Perhaps now, with more equal career opportunities compared to other pilot training options, focus can be turned more towards improving the content and training – something that may promote further acceptance and spread of the MPL.

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1. Introduction

1.1 - Picking up the Trail – A Summary of the Previous MPL Report

1.1.1 - Background of the previous report

This report is as a follow up to a previous report on the MPL – “*The Multi Crew Pilot License (MPL) – Evolution, Revolution or not even a Solution?*” (2014) by the same authors. The intention of this study is to continue to explore and discuss MPL, especially where the previous report identified a need for further review and research. For that reason this summary of results and conclusions of the previous report is intended as a helpful prerequisite for the content of this report.

The first author, Rickard Wikander, was at the time of the previous report still an MPL cadet who worked together with his supervisor, Dr. Nicklas Dahlström, to carry out the previous report as his Bachelor thesis. The thesis was finalised in 2014 and was an attempt to review and analyse the emergence, current situation and future for the MPL training concept. The overall aim was to put forward a broad outline of the background, development and introduction of the MPL and at the same time provide a critical analysis and suggest ways forward for the MPL training concept. It was also aimed to prompt increased interest, awareness and discussion on the perception and performance of the MPL concept, based on openly available material that could also be easily reviewed by any reader. Although this report originally was not intended as an in-depth research project, with the help and contribution from representatives from authorities, airlines, subject matter experts and others in the civil aviation training industry, it did however result in a basic but comprehensive review of the MPL.

1.1.2 - The start of the MPL

It was in fact industry consensus that led to the initiative to review and revise current pilot training with the aim of finding new and improved ways to deliver such training (IATA, 2013). At the time, the pilot training legacy was almost 70 years old and ever since the 1940s it had seen very limited changes in both training philosophy and content. One aspect behind the initiative was that ”inventory-based” or “task-based” pilot training was increasingly seen as being limited in its ability to develop the type of pilot skills needed for airline operations of increasingly technologically and procedurally advanced aircraft (IATA, 2013). By now there were also new insights as well as more modern technology readily available to be used as training tools, but so far legacy legislation had prevented them from being fully utilised (Scheck, 2006). The introduction of an alternative to traditional pilot training came in 2006 when the International Civil Aviation Organization (ICAO) introduced the MPL. However, the discussion on whether or not the MPL had achieved its goal of delivering pilots who were better trained for the airline operations was found to still create disagreement.

The MPL was linked to a new training methodology called Competency-Based Training (CBT). This methodology has as its primary target, and unit for measurement of progression, the achievement of specific competencies rather than an inventory-based accumulation of training time or events. The targeted competencies are aimed to equip the pilot to handle not only events covered by procedures, but also unforeseen events that could occur during a flight. However, based on the results of the previous study the methodology itself appears to be new only in the context of civil aviation training as it has since long been used in pilot training of armed forces, as well as in many other industries (IATA, 2011). Part of the philosophy behind competency-based training is that it strives towards early introduction and exposure of the environment in which work is later to be performed. In the case for airline pilots this mean an early introduction to the specific aircraft type in which the pilots will operate. Another term commonly used with this same meaning, but in different contexts, is “on-the-job-training”. In line with this, the MPL includes more training in different types of Flight Simulation Training Devices (FSTDs) rather than flying time in small single- and multi-engine aircraft. Ever since before the introduction of the MPL this has been an aspect that has become intensively discussed and what true effect the training philosophy has on the performance of pilots coming through the training even remain a major topic of debate today - almost ten years later. Both competency-based training and the increased use of FSTDs were reviewed in the previous report and are topics that will be continued to be discussed also in this one, as new insight and knowledge develops constantly over time.

Although the MPL became an approved way of training in 2006 the concept experienced an initial slow rate of adoption and acceptance. Data reviewed in the previous study from 2013-2014 revealed that the concept steadily had continued its expansion and that it had taken a stronger hold in airline pilot training, especially in Asia and the Middle East. The most recent data available will be presented as an update in this study.

One of the more surprising results from the first report was that a transfer from the traditional task-based training to this new competency-based approach appeared to be a challenge that is not easy to overcome. In fact, it was questionable if any MPL training provider actually had fully accomplished this feat. The authors suggested that this was not the case, primarily as existing regulations did not facilitate or even allow for the full transfer to competency-based training to be fully implemented. A contributing reason was also thought to be that the seven years that had passed at the time would likely not have been enough for flight training organisations, regulators and airlines to complete their respective organisational transition towards an entirely new and different mind-set. More recent information points towards that there may also be other obstacles, and these will be further discussed in this study. Even today the question remains if any training provider, or any other airline industry organisation for that matter, has managed to successfully complete the shift from traditional inventory-based training to that of competency-based training.

1.1.3 - Findings and recommendations

The results and discussions of the previous study were summarised and divided into a number of conclusions and proposed recommendations. The recommendations were in turn also divided into two categories and intended for two different target groups. One target group was current MPL training providers who strive towards improving their current training while fitting into regulation that is already in place. Such recommendations included how to optimise existing training content, the importance of standardisation and cooperation between the ATO, airline and regulator as well as the need for effective management and use of training data. It was also advised to include feedback from MPL cadets and graduates in the internal development process, as they are the ones who are most closely involved and affected by the training quality and outcome. The results of collected data pointed at the time towards that such input had been under-utilised. This in spite of that continuous data collection, evaluation and iterative development is a key to success in the philosophy of Instructional Systems Design (ISD) - on which the MPL training and associated curriculums have their foundation.

The other target group was those who were involved and engaged in MPL and its future development. One of the main findings was a need for an update of the theoretical knowledge training content and requirements, together with a request for updated and renewed co-branded MPL guidance material. It was also stated that regulators and authorities that are to oversee the MPL require as much training on this new training approach themselves as the people and organisations who intends to deliver it. To put it simple, training for competency requires a significantly developed understanding of not only all the associated concepts (i.e. what is a competency, what is TEM etc.), the knowledge and skills of the many men and women working for regulators, airlines and authorities also need to be developed in order to succeed. Some words were also delivered on the possible drawbacks of not having any representatives from the next generation of aviators involved in the overall development, as it in some cases appears to have distorted the view on the MPL. The aviation industry needs to work together and not against each other to continue improving – with this next generation of aviation professionals closely involved.

Furthermore, from texts and comments it seemed as if the MPL concept had been perceived not as a new training methodology, but as an alternative training system where the pilot cadets simply are “products” of that alternative same system. The authors argued that this view comes with some risk. One of the reasons for this is that identical training input will most likely not result in identical learning output for two different trainees. As such, pilot training cannot now or ever be delivered as a mass-producing factory-like industry with an expected assembly line result. Still, one of the more important recommendations would be for the civil aviation training industry to engage and invest in more research related to pilot training, for instance in the increased use of FSTDs in preference of time spent in real aircraft. Although some research has been performed there is a lot that remains to be done if the debate on this is ever to move from being an unproductive political debate to constructive

progression and development. At the time of the previous study, progress on the MPL development was found to be slow at best and research into pilot training to be very limited.

The MPL was introduced as a developing and evolutionary project for pilot training and should therefore not be expected to provide conclusive evidence of its potential benefits within seven years. As the needs of stakeholders change and as research as well as practice reveals new problems and opportunities, competency-based training itself will change. When such change occurs, the intentions of competency-based training will hopefully affect the shape that the MPL eventually takes. However, one of the findings that seemed more troubling was the fact that regulators all around the world have been locally changing and adapting MPL to their current understanding of competency-based training. From the initial ICAO recommendations in PANS-TRG, the European Aviation Safety Agency (EASA) has developed their interpretation and has drastically increased regulation. Asian regulators have other unique requirements for MPL and today the latest information pointed towards that the Federal Aviation Administration (FAA), who not yet has approved the MPL, also has the intention of adding different or additional unique prerequisites to the MPL (or an US-version of the MPL). Under these circumstances it is not hard to understand that a global harmonisation of training standards may quickly move out of reach. The previous study concluded that competency-based training preferably should evolve while being mutually recognised. To be able to do this, some form of communication platform and co-developed guidance between all involved parties should be created, as previously stated. This in order to make sure that every regulator, airline and ATO not would have to reinvent the “MPL-wheel” and risk making training standardization and development a greater challenge than it already is today.

1.1.4 – Concluding words on the previous report

With all this being said there was however at this point in time no information to support that the MPL should have any significant shortcomings in comparison with traditional airline pilot training. Also, it was argued that it should be difficult even for opponents of the MPL to ignore the increasingly large amount of positive feedback from airlines that at the time was available from several corners of the world. However, the remaining question was how training organisations would be able to effectively plan for a training program when predictability of time, and thereby arguably financial resources, should be of secondary importance. As economic aspects play a key role also for pilot training it was argued that one of the most important questions on how the MPL develops in years ahead would not only be if it provides improved pilot training, it would also be if it can be delivered efficiently in terms of cost or if it is mainly a better but more expensive route to the pilot profession. On this aspect only limited data was found from which no conclusions could be made. If the costs are related only to the initial training of an airline pilot, one possible solution to this issue perhaps lies in the development of the screening and selection process of future airline pilots.

It should also be added that potential increases of economic efficiency could come in many different forms, with increased safety, training quality and flexibility being some of these

forms. This is an issue where market powers over time probably will favour which type of training that will provide the greatest benefits for the end users of the “training product”, i.e. the student pilot being the “training product” and the airlines and other operators being the end users. A question asked at this time was if the playing field in the pilot training industry would allow for competition between different types of training. With opponents and proponents seemingly locked in positions there is great resistance as well as unsupported optimism to be found in the arguments made in regards to different forms of pilot training. However, finding a way forward in these discussions is a question that should unite everyone in the aviation industry to focus on supporting further research into pilot training, in regards to following up and comparing the now available types of training.

What the MPL had at this point in time is probably potential for development beyond its current state of implementation. The current available knowledge of human performance and learning is vast and should be used to improve pilot training. Beyond technical flying skills there is full recognition on that individual skills, i.e. information processing, workload management and decision making, as well as team skills, i.e. communication, cooperation and leadership, are of vital importance to flight operations. Knowledge of selection as well as how to facilitate learning effectively has continued to grow and been used for development of instructional techniques. There are new types of training technology to be used and in addition there is immensely valuable experience already available in the aviation training industry that is not fully used today. Putting all of these elements together should make it possible to improve pilot training and to design the best possible training curriculum. In reality, there is a lot more work to do to come close to using the full repertoire of available resources to move forward with pilot training. The MPL is simply one of many possible initiatives to improve pilot training and more effort will be needed to capitalise on the opportunities it provides.

As a summary of the conclusions, what the previous study clearly showed was that development and delivery of competency-based training in general, and the Multi-crew Pilot Licence in particular, can be difficult and challenging in many ways. There was no doubt that the aim of the initiatives behind competency-based training and the MPL has been to improve pilot training. Although there was only preliminary information to guide whether this aim had been achieved, the feedback from MPL host airlines have overall been, and still is, solidly positive. Beyond this, the final proof of success for the MPL over the longer term still remains to be seen.

Finally, the previous study should probably be seen as an initial initiative in reviewing the MPL. It identified several strengths, but also several challenges, that will need to be addressed and it argued for the need of more detailed studies to be performed. Any improvement of the MPL in particular and pilot training in general will depend on the contributions, critical or supportive, of those who are involved in the aviation training industry. In fact, the findings pointed towards that the MPL was caught up in a political discussion as opponents of it criticise the concept while proponents salute and promote it. This will certainly mean that there will be many more arguments for and against the MPL presented by its opponents and

proponents and some of them will be part of this continuing study. However, regardless of position on the MPL everyone concerned with flight safety and pilot training should be able to unite behind the importance of further development of pilot training in order to maintain and improve the safety records of the aviation industry. Safety and training quality are not static parameters in a changing world - they are always improving or deteriorating. This is what should be the starting point for further industry research and discussion on the MPL as well as on competency-based training and pilot training in general - and this is where the authors now pick up the trail to continue such research and discussion based on new insight together with both quantitative and qualitative data collected worldwide.

1.2 - Purpose and aim

The primary purpose of this study has been to respond to an aviation industry call for data on the worldwide experiences of the MPL. Given the MPL debate, as described in the introduction of this report, this call has always been more or less present. However, as the acceptance and adoption of the MPL grew with an initial slow rate following the introduction in 2006, finding enough data during the first years to base any findings or conclusions on would likely have been difficult. When ICAO launched the MPL concept they also made a commitment to the aviation industry training community to *“review the concept, to evaluate successes, challenges and determine the way forward”*. In December 2013, and as part of honouring that commitment, ICAO held an MPL “Proof of Concept”-symposium aiming to collect feedback on the MPL experiences to learn and determine what areas were considered as strengths and what areas called for improvement. Despite being an experience-sharing opportunity, including an industry exhibition of both current and emerging MPL programs, one of the conclusions at this symposium following three days of insight into the MPL world actually was a call for even more industry data. Again, the development of the MPL appears to be halted with both proponents and opponents seemingly locked into positions, and so far no known initiatives has been triggered as a response to that conclusion that perhaps could act as part of a solution – until now.

Another aim of the study was to collect and analyse MPL data, based on the experiences from those who have first-hand experience of MPL training. Who this was considered to include is described beneath the section covering methodology. More specifically, the aim is that any findings and conclusions of such data could show just how the MPL has been received, the perceived true strengths and weaknesses of the training concept from different corners of the MPL reality and in what direction the MPL has continued to develop. The aim is also, in close connection to the hope and expectations of the authors, that these findings can put an end to the political debate that so far mainly seem to be based on beliefs and opinions and instead turn into combined and united focus with energy directed towards the areas that both deserve and calls for it – but this time based on knowledge and sound rationale.

An additional aim and purpose of this study has been to provide an update on the current situation of the MPL in a global perspective, including a review of industry and regulatory stakeholder positions together with an outline on how and where the MPL training is being performed today. As with the previous study, the authors have tried to create a report that is easily accessible and readable to allow it to be disseminated beyond managerial levels in the industry and prompt increased interest, awareness and discussion both on the MPL as well as on pilot training in general.

1.3 - Methodology

Different methods have been used in this study to ensure that the collected information would as much as possible provide different perspectives on the MPL. Initially, in an attempt to find the most recent updates on the MPL and the positions of different stakeholders, a literature review supported by interviews were the primary methods. The literature review was mainly based on openly available material from electronic sources. Attendance on conferences by the authors allowed access to industry experts who presented on the MPL and the presentations themselves. This also expanded the network of contacts within the aviation training industry that was created with the previous study. In turn, this network has facilitated further identification of contacts with experience and expertise in regards to the MPL and some of these were then contacted for interviews.

In regards to the setup of the data collection, a five-step approach was applied. Firstly, objectives were set and these are described with the purpose and aim of this study. Secondly, the authors worked their way backwards from these objectives when trying to determine the survey methodology and specific questions needed to gather the data that relate to the objectives. Thirdly, special attention was given to allow for a bias-free data collection process. Once these first three steps had been solved, there would be a need to run a test survey to confirm that questions would provide relevant data and to receive some early feedback on how respondents from different cultures and with different levels of experience with the MPL interpreted the questions. The final step was then to collect and analyse the data.

Responding to the need for data on the MPL turned out to be a challenge that was not so easy to overcome. The approach chosen was one that was aimed at both quantitative and qualitative data.

1.3.1 – The quantitative data approach

Quantitative research has its main purpose in quantification of data, especially when the intention is to collect data from large sample sizes. The method allows reliable generalisations of the sample results that also can also reveal any existing level of incidence of different views and opinions within that targeted sample. Quantitative experiments are often time consuming and hence also expensive as they require a lot of time to prepare and perform. When faced with the options of different data collection methods, the quantitative approach seemed suitable for representing responses, relations between responses and groups of respondents in an overall large sample. However, it also had a significant drawback in being less suitable when attempting to reveal underlying reasons and motivations behind these relationships. Any such reason and motivation was considered important to try and find in this context, especially considering that the nature of the MPL debate, as previously mentioned, seemed too often be founded on beliefs and opinions. Quantitative research strives to use strictly structured data collection techniques with pre-formulated content. In the case of this study, an online survey platform and service was the chosen option for the survey.

1.3.2 - Quantitative research tool selection: Online survey

As a quantitative research approach had been chosen, the next step was the selection of a suitable tool that could support an effective data collection process. The decision was early made to do an online survey as it was considered to offer several advantages. A survey comes with the ability to handle large samples of quantitative data, it offers efficient options for distribution and can provide integrated tools for the analysis process. Equally important, it also allowed for high levels of anonymity and security, an indispensable prerequisite for the integrity of respondents and confidentiality of the data collection. A provider was chosen that fulfilled the requirements and it was an online survey platform called SurveyMonkey (SurveyMonkey, n.d.).

1.3.3 – Survey target groups

Identification of the MPL survey target groups and work with the design of the questions was done over a longer time period to ensure the relevance of these methodological choices. In regards to target groups the aim was to seek out training experience from those delivering the training as well as those receiving it first-hand, in other words groups ranging from Line Training Captains and other instructors to MPL students and MPL graduates. However, as work began with survey and question design it quickly became clear that there were both a need and opportunity to extend the scope to more target groups. In the end, the survey was aimed towards seven different target groups – all with assumed different perspectives on the MPL based on their experiences with the concept. These target groups are listed below:

1. **Line Captains** – *Individuals flying with MPL graduates in line flying operations, after the completion of their initial operation experience (IOE) and completed line check.*
2. **Line Training Captains** – *Individuals flying with MPL graduates during their initial operating experience (IOE), line checks and captain upgrade programs.*
3. **MPL Ground or Flight Instructors, Synthetic Flight Instructors (SFIs), Type Rating Instructors (TRIs)** – *Individuals involved with MPL training during the initial training before the initial operating experience (IOE).*
4. **MPL Graduates** - *Individuals holding, or who previously held, an MPL license following graduation from an MPL training program.*
5. **MPL Students** – *Individuals currently involved in an MPL training program who not yet had graduated.*
6. **Regulators** – *Individuals engaged in MPL training development, approval, oversight and continuous improvement from a regulatory organisation and perspective.*
7. **ATO/Airline Managers and Responsible** – *Individuals engaged in MPL training development, approval, oversight and continuous improvement at managerial levels of responsibility and influence with an MPL training organisation or airline.*

1.3.4 – Survey question design and structure

The design phase of the survey and survey questions included consultation with different researchers, MPL stakeholders and other interested parties. This was done to as far as possible develop and formulate unbiased questions that would support representative and reliable results. The first attempt was a review of existing questions from other questionnaires, but it was challenging to find questions suitable to the prevailing topic and many also contained difficult wording considered to restrict comprehension on part of the survey participants. Instead, special care was given to formulate new questions using specific wording but with the foundation of bias-free questions from previous studies. As described, the main idea behind the questions was a combination of the conclusions found in the previous study together with areas of interest where no answers currently could be found. Each question was formulated to avoid it leading to assumptions, to not be presented in a leading way and with the possibility to provide written comments. On some questions considered suitable, the Likert scale was applied which gave respondents a choice to assign levels of agreement or disagreement to a provided statement. For every target group there was also an open-ended option that allowed respondents to include any additional comment and/or feedback that they perhaps wanted to provide.

The survey question structure was initiated by collecting demographic information of the participants in the form of gender and approximate age. The third initial question then asked for the participant's personal relation to MPL training where it was possible to choose one of the seven different target groups previously mentioned. Depending on this choice, the respondent was then directed to a page that contained a number of questions specifically aimed for each respective target group. Excluding the initial three questions, some of the specific target group questions were identical for all groups while others were unique. Many of these asked questions were reviewed with the results section in this study and all of them can later be found with the raw data appendix. An early thought was to require a mandatory response to all of the questions in order to get maximum data from the respondents and to help if some questions were inadvertently missed, however it was also considered a risk to lose some data by forcing people to answer a question that they perhaps did not want to. It was therefore decided only to have the initial three questions asking for demographic information mandatory, regardless of target group.

1.3.5 – Survey respondent anonymity and data security

To address the issue with integrity and anonymity, survey respondents were never asked to reveal their identity or name of associated organisation or company. The only respondent data collected was the demographic information. The survey itself was SSL (Secure Sockets Layer) encrypted, meaning that there was a secure line created between the respondent and the server to encrypt sensitive information being sent through the website. This type of encryption is commonly used by banks and e-commerce companies. There were also early plans to have the survey password protected, but after some consideration and weighing risks

against potential benefits it was thought to hinder the already challenging process of finding respondents even more and the risk of misuse was deemed small.

No control could be done on the written comments and feedback where respondents were allowed to speak freely. For this reason and to assure the integrity of users, the only editing that has been done on the official version of the raw data is where these comments were considered to be sensitive to the integrity of the responder. In those cases, the sensitive part of the comments were de-identified or, although rarely, removed when de-identification was not possible.

1.3.6 – Survey support, distribution and data collection process

One of the challenges with this initiative was how it would be possible to reach out to MPL providers and to encourage these organisations and individuals in them to participate in this study. Without the support from MPL stakeholders and the industry, it would simply not be achievable to get sufficient data for analysis. This challenge was resolved by initially seeking worldwide support, primarily from organisations and individuals with a relation to or experience with the MPL at a managerial level or who in a different way was well known to the aviation training industry. By using the network of contacts that was created while working on the first report, the authors found support for the task at hand. One of those who were approached and agreed to support the research was Dieter Harms. Known as “the father of the MPL”, Harms is a well-known name in the aviation training industry and, more importantly in this context, assists the International Air Transport Association (IATA) in collecting and updating a document called “the MPL Course Tracker”. This document is included as an appendix in this report and provides for a global overview of the status and development of the MPL. Keeping this document up to date had allowed Harms to collect contact information for managers responsible for MPL at practically every airline and approved training organisation involved or linked to MPL training. Via Harms involvement and these contacts, more crucial support could be sought and found to contribute with the distribution of both information of the survey and later the data collection tool within their respective organisations once it was ready to be launched. It could also be sent together with a request for additional contacts to for instance their respective associated regulatory organisations, which would allow for an even more extended reach. In addition, support was also given by the Halldale group by providing published articles in the Civil Aviation Training (CAT) Magazine announcing the survey and encouraging people to participate, later also with reminders.

Once the survey was considered to be preliminary completed, it was sent to a few selected individuals within all of the target groups who were asked to do a “test run” and to return with feedback on their experience. This proved to be an important part in the process as some questions were revised or removed and some new questions were included where there was a newly identified need for specific information.

The live data collection then began with the official launch of the survey on the 25th of June 2015. Using the network that had been developed, now consisting of around 70-80 selected individuals at management levels with airlines, regulators and ATOs, emails were sent out. These contained a link to the survey, together with the information needed to participate, intended for the contact person as well as for them to forward the link within their respective organisations. The survey quite quickly reached 200 respondents but then halted for some time. Following a reminder with some updated information the number of survey respondents again rapidly increased and when the survey closed on the 20th of August 2015, 817 data sets had been collected. Out of these 817 collected data sets 459 were complete, meaning that every question had been answered, which gave a completion rate of just over 56%.

1.3.7 – The qualitative data approach

The quantitative research approach was followed by a qualitative research approach aimed to allow for a more in-depth understanding of the collected data, particularly in order to explore any underlying reasons for that data. The qualitative method is normally less structured and was initially intended to consist of stakeholder interviews as well as targeted questions sent to focus groups. These groups would contain individuals from the different survey target groups that voluntarily had provided their contact information and were willing to be contacted for further questions. However, there was a surprisingly large amount of written comments provided by the survey respondents to such an extent that the idea with additional focus groups could be deselected. The qualitative data would instead consist of these written comments together with a few stakeholder interviews included as appendices.

Being more exploratory in nature, the qualitative approach could not be used as a basis for initial generalisations or conclusive results. Instead, it provided an opportunity to elicit a greater understanding and comprehensive view of the generalisations made from the survey outcome. Given the current situation of the MPL development, with seemingly locked political positions, developing a deep understanding and knowledge of these positions was considered important to provide a base for future actions and decisions on MPL. Maybe then the industry could find new paths towards improved cooperation, harmonisation and development.

1.4 - Limitations

The raw data material collected from the online survey resulted in an extensive summary document. Although it was assembled to allow for an easy overview of the raw data results, the amount of data available for analysis called for a number of limitations to facilitate analysis. For this reason some questions have been analysed to a greater depth than others with a focus on those questions containing what has been assessed as more valuable insights. The complete raw data-set will be available as an optional appendix for those interested to review the original data. The only editing that has been made were on the comments sections where certain provided information has been removed or de-identified to assure the integrity of participating individuals and organisations.

Some limitations were identified with the choice of data collection methods. Quantitative studies are usually accompanied by statistical analysis. This would have provided methodological rigour but probably not more information than what was given in the simple metrics of the responses. Thus a simple descriptive approach to the data was preferred over one based on statistical analysis. The questions used were derived from the conclusions of the previous report, as well as from the areas where answers were sought but could not be found. This created a challenge in comprehensively proving any hypotheses as generalisations of the data would have required a different approach. As such the results of the quantitative part of the report are generalisations and may not be valid as conclusive evidence. That having been said, the data in the majority of the target groups is based on a solid number of participants and should still be considered as providing a reasonable and relevant insight into the view of MPL from different respondents.

A second limitation with the quantitative approach is that it tends to generate results of a “black-or-white” character. With this type of measurements there is little room for uncertainty and grey areas. The authors believe for the social sciences, including for education and training, the answers are a lot more complex than what such simple responses can reveal. This is another reason behind the attempt to combine quantitative and qualitative research approaches, as well as the reason for selected cross-references between questions and responses that were considered of particular interest.

The qualitative approach was guided by the results from both the first study and the online survey. It appears to be a frequently held view that quantitative approaches are “objective” while qualitative approaches are seen as “subjective”. This is an oversimplification. In the case of this study, the attempt has been to provide insight into the strengths and weaknesses of the MPL from the viewpoints of every different type of target group related to MPL. Given the many different target groups and how they represent different viewpoints on MPL, it can be argued that when put together they represent as much of an “objective” view on the MPL as any quantitative approach could provide.

When highlighting limitations it should also be noted that every performed interview was edited and sent back to the respective interviewed stakeholder for content confirmation and approval before being published in this study.

Finally, the report makes no claims to have had full and extensive access to detailed insider knowledge and experience from top levels of rule-making agencies or management in the industry. In some cases information received could not be published due to organisational reasons. It is the use of officially approved and available information, the quantitative and qualitative data as well as direct and indirect contacts with stakeholders that are the sources for this report. This transparency should allow for the report to be critically reviewed by the industry. Nevertheless, the approach of putting this report together has been the same as for the previous one in regards to the intent to collect, analyse and discuss data, i.e. to do so in order to gain understanding of the MPL.

2. Results

As part of the survey preparation there was also a need and intention to again map the global MPL implementation status and growth. This would not only provide an idea of the theoretical sample size from which data could be collected but also act as a continued indication of how the MPL had further developed since the previous report. As such and before turning the focus towards the survey results, the results of this updated mapping is provided.

2.1 - MPL today – The facts

In the previous report, an equivalent mapping done in November 2013 revealed that there were at the time 52 states who had adopted MPL regulations, regardless of if there were, or ever had been, active MPL training programs in these states or not. In terms of active MPL training programs there were found to be 22 with a few more expected to be launched shortly after (Romero, 2013).

The most recent information (December, 2015) shows that there has been very little change in the number of states who has chosen to adopt and accept the MPL. The previous 52 have increased to not more than 53 in two years with the Czech Republic being the new addition. An overview of these states and their associated MPL programs can be viewed in the following charts.

States which have adopted MPL regulations	States which have approved MPL courses	ATO / Operator
Armenia		
Austria	X	Aeronautx / FlyNiki
Australia	X	Alteon / Xiamen Airlines (2006-2009)
Belgium		
Brazil		
Bulgaria		
Canada	X	CAE / Air Asia (until end of 2012)
Chile		
China	X	a) CAFUC / Air China b) CAFUC / China Eastern Airlines c) CAFUC / China Southern Airlines
Croatia		
Cyprus		
Czech Republic		
Denmark	X	CAPA / Sterling (2006-2009)
Estonia		
Ethiopia	X	Flighpath International / Ethiopian Airlines
Finland		
Germany	X	a) LFT / Lufthansa b) LFT / German Wings c) LFT / Lufthansa City Line d) TFC-Kaeufer / Air Berlin e) TFC-Kaeufer / Condor

Figure 2.1. (1) – Overview of states who has adopted MPL regulations and associated MPL training programs (Source: IATA, 2015)

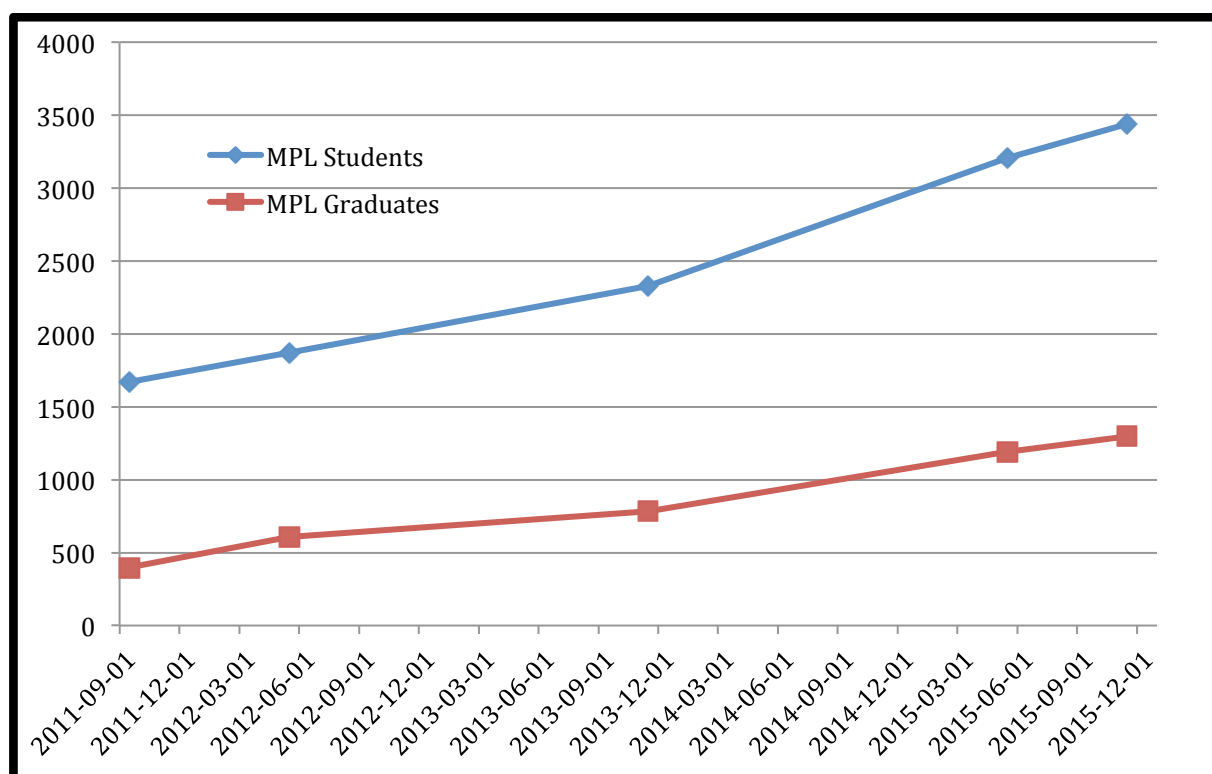
States which have adopted MPL regulations	States which have approved MPL courses	ATO / Operator
Ghana		
Greece		
Hong Kong	X	CAE-OAA/Dragonair
Hungary		
Iceland		
Ireland		
Italy		
Japan	X	a) LFT / All Nippon Airlines b) CAE / Japan Airlines
Jordan		
Latvia		
Lithuania		
Luxembourg		
Malaysia	X	CAE / Air Asia (from 2013 onwards)
Maldives		
Malta		
Netherlands	X	Stella Aviation / Flybe
Norway		
Pakistan		
Philippines	X	Alpha Aviation / Cebu Pacific
Poland		
Portugal		
Qatar	X	a) CTC / Qatar Airways b) QAC / Qatar Airways c) STAA / Qatar Airways
Romania		
Russia		
Singapore	X	a) STAA / Tiger Air b) CAE-OAA / Tiger Air
Slovakia		
Slovenia		
Spain		
Sweden	X	a) L.U.S.A / Skyways (2008-2010) b) L.U.S.A / City Airline (2008-2010) c) L.U.S.A / Norwegian Air Shuttle (2010 -) d) L.U.S.A / Scandinavian Airlines (2014 -) e) L.U.S.A / Primera Air (2014 -)
Switzerland	X	SAT / SWISS Int. Airlines
Syrian Arab Republic		
Thailand	X	TFT / Thai Airways
Togo		
Ukraine		
United Arab Emirates	X	a) Alpha Aviation / Air Arabia b) Etihad Flight Academy / Etihad
United Kingdom	X	a) CAE-OAA / Flybe b) FTE / Flybe c) CTC / Monarch Airlines d) CTC / EasyJet e) CTC / Virgin Atlantic f) FTE / BA-CityFlyer

Figure 2.1. (2) – Overview of states who has adopted MPL regulations and associated MPL training programs (Source: IATA, 2015)

Another previous finding was that the MPL experienced a slow rate of initial acceptance as only 7%, or 12 states, of the over 190 ICAO contracting states had adopted the MPL regulations in 2010 – four years after the concept was first introduced (IATA, 2013). However, the information in 2013 also pointed towards that the acceptance between 2010 and 2013 had increased and was expanding to new corners of the world, especially in Asia and The Middle East. With this updated comparison the finding clearly shows that the MPL has continued to grow, but mainly within states who already have MPL programs and regulations up and running while it on the other hand appear that again two years later any further spread and acceptance to new ICAO states has almost completely seized.

In 2013 there were 22 active MPL training programs and that number has two years later increased to 27, suggesting that the only continued growth has been occurring within the countries with regulation already in place and with previous experiences of the MPL.

The final numbers that could be compared was the number of enrolled MPL students and MPL graduates. In September 2011 there were 1671 MPL students and 399 MPL graduates. The same numbers in November 2013 were 1872 MPL students and 606 MPL graduates and the most recent information from November 2015 states 3450 MPL students and 1296 MPL graduates. Some data has also been found for periods in between and for an easier overview this data was put in a chart which is displayed below.



*Figure 2.1. (3) – Overview of enrolled MPL students and MPL graduates 2011-2015
(Source: Harms, 2013-2015)*

The numbers are based on information retrieved from the IATA MPL Course Tracker (Harms, 2015), and this course tracker can also be viewed in appendix 1 where a more detailed overview of the different MPL training programs can be found. The tracker does

however also include MPL programs that are no longer active and a few that are in the approval process and have not yet been launched.

By looking at both the numbers and the curves there is a good indication of that the MPL has continued to grow, although with a fluctuating rate. Between 2011 and 2013 there were not much difference in growth between the numbers of enrolled MPL students and MPL graduates and could possibly be seen as another limited period in terms of growth and acceptance. However, during the recent two years the numbers of both students and graduates have doubled. As students will only be students for a limited time, eventually the number of graduates will of course pass, so the real indication of development in training acceptance and interest would be more related to the number of currently enrolled students. With the increase from 22 to 27 active MPL training programs there is additional support for MPL growth to be found. The interesting development to see would be if the MPL will manage to convince additional states to follow or if growth will simply continue to occur at already established locations as the current 27 MPL programs are spread across only 19 states.

2.2. The survey results – What has the data revealed?

Although the methodical approach was described with the introduction, one thing that was not mentioned was that the preparation and effectuation of the survey from start to finish was around six months of work. With the important and invaluable support from the aviation industry and stakeholders the survey results in the form of both collected data from the questions and written comments could act as an important basis and sound rationale for future decision making and focus areas.

The analysis of the survey will be divided into different sections. The first sections will provide the demographic results followed by the results from each separate survey target group. Not every survey question will be analysed in detail, but the results from every question will however still be available to review with the optional raw data appendix. The selected questions will be presented also explaining the authors' reasons for including them in the survey together with the question results, associated written comments and some generalisations that can be made from the specific target group data.

Following this separate analysis, a discussion section will follow where results are more thoroughly discussed and also cross-compared between the target groups using a thematic approach.

2.2.1 – Demographic information of the survey respondents

As with any scientific approach it is of interest to gain insight into the participants' demographic information. Three questions were asked with the survey relating to demography; gender, age span as well as personal relation to MPL training. The choice of personal relation to MPL training would also affect which series of question that was presented to the respondent. Results from each question were as follows;

Question 1 – Gender

Answer Choices	Responses
Female	6.98% 57
Male	93.02% 760
Total	817

Figure 2.2.1. (1) – Survey demographic result: Respondents gender

Question 2 - Age

Answer Choices	Responses
< 25	39.90% 326
26 - 35	27.29% 223
36 - 45	14.20% 116
46 - 55	11.63% 95
> 55	6.98% 57
Total	817

Figure 2.2.1. (2) – Survey demographic result: Respondents age span

Question 3 – What is your personal relation to MPL training?

Answer Choices	Responses
Line Captain (flying with MPL co-pilots in line flying operations, after completion of IOE).	9.42% 77
Line Training Captain (flying with MPL graduates during IOE, line checks and captain upgrade programmes).	6.12% 50
MPL Ground- or Flight Instructor, SFI, TRI (in initial training before the IOE begins).	13.10% 107
MPL Graduate (First Officer or Captain).	20.56% 168
MPL Student (currently involved in an MPL training program, but not yet graduated).	39.41% 322
Regulators engaged in MPL training development, approval, oversight and continuous improvement.	2.33% 19
ATO/Airline Managers and Responsibles engaged in MPL training design, development, approval, implementation and continuous improvement.	9.06% 74
Total	817

*Figure 2.2.1. (3) – Survey demographic result:
Respondents' personal relation to MPL training*

The numbers in the charts are however misleading. As it was only these three initial questions that were mandatory for the respondents to respond to, the number of respondents also varied with every other question. A deeper look into respondent data showed that several people had opened the survey and answered these three initial questions only to then have a look at the other questions. More accurate numbers related to the specific target groups are as follows.

Line Captains ~ 50 respondents

Line Training Captains ~ 35 respondents

MPL Ground- or Flight Instructors, SFIs, TRIs ~ 75 respondents

MPL Graduates ~ 115 respondents

MPL Students ~ 200 respondents

Regulators ~ 15 respondents

ATO/Airline Managers and Responsible ~ 50 respondents

In total ~ 540 respondents

The survey closed with 459 fully completed data sets which in relation to around the 540 active respondents gave a true completion rate of around 85%.

2.2.2 – Line Captains – Survey Results

Introductory words

As noted with the demographic results, 9.2% or around 50 out of around 540 respondents belonged to the Line Captain target group. Line Captains, later also together with Line Training Captains, would prove to be the selected target groups that were most challenging to reach. These two are also the target groups where the authors could have wished for a higher number of respondents. What follows are selected questions from the Line Captain survey target group.

Question

- *When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?*

Response alternatives and results

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	5.66%	3
I was at first indifferent, but now I am negative.	30.19%	16
I was at first positive and remain positive.	3.77%	2
I was at first positive but now I am negative.	5.66%	3
I was at first negative and remain negative.	33.96%	18
I was at first negative but now I am positive.	13.21%	7
I have no opinion on the MPL.	7.55%	4
Other (please specify in comments).	0.00%	0
Total		53

Respondents' written comments excerpts

- *My company used MPL to further reduce training and therefore cost for training. In the meantime there are >500 students ready but who do not get a job in our company. Due to MPL they have a license with no use. They are not able to take an employment at a different company. Very sad!*
- *The MPL wasn't "developed" with time but IS developing with time.*
- *I suspected that an MPL would have limitations however was willing to give it a go. Subsequently, it is a disaster.*
- *A big disadvantage nevertheless is that the MPL-student's license initially is only valid for a specific operator.*

- *We already have significant cadet pilot numbers from traditional training routes. I expected a similar standard of cadet pilot. In most cases it is possible to pick the MPL pilots from the normal cadets. For clarity NOT in a positive way. They are significantly out of their depth for an extended (read years) period of time.*
- *This is not negative on the Trainee itself, as they are victims of the system that put them there. They are extremely well educated however lack the experience when a situation “outside” the book presents itself.*
- *As a line captain, you do not expect having to train co-pilots every single day you fly. If transmitting my “humble” knowledge is part of my conception of doing the flight, the gap is just too big. I am full of compassion, but...there are limits, and these limits are crossed in every single aspect by my company. Just as a very simple example, how on earth could they (managers, with thousands of hours of experience as training captains), hire a candidate aged 18? Are they short of candidates? NO! Would they hire this candidate to replace me in the OFFICE? Obviously the answer is NO! So why on earth did they hire him to replace me in case something happens to me? This is INSANE!*
- *I think my initial reaction was biased by own training experience. A lot of my colleagues remain negative about the MPL program, but flying with cadets I am now convinced it is a very good way to train airline pilots.*

Authors’ comments

During the work on the first MPL report there were found to be a wide range of industry thoughts and opinions on the MPL. This question was created, for every target group, to get a better understanding of these thoughts and opinions and to map existing industry positions, regardless of what reasons they were based upon. At the time of the survey, the MPL had been running for around 9 years and the many different experiences seen throughout this period of time could also have had an impact on the opinions.

In the case of the Line Captains, the first glance reveals a pessimistic community of individuals. Out of the 53 respondents to this question, 37 or almost 70%, are taking up a negative position towards the MPL. Regardless of if the numbers would have been reversed, the number of respondents immediately also becomes a factor to consider in how reliable or what level of actual industry representation these numbers provide. Theoretically there are thousands of Line Captains with experience in flying with MPL pilots and there is no proper way to tell how many different MPL training programs the survey actually reached out to.

However, with these numbers the next natural question would also be to ask why Line Captains take up their respective positions. Some answers can be found in the written comments where one mentioned reason appear to be of regulatory nature rather than related to the MPL training itself – namely the MPL license restriction. Other reasons are also found with later questions but the results do nevertheless call for further exploration.

It is also worth mentioning that the biggest change has occurred with the people who have gone from being positive to negative or the other way around. In these cases there are more

than twice as many who has become positive from initially being negative and although these numbers does not lead to any distinct conclusions, it allows for an early generalisation of the wide range in program quality that likely exists, just as it does with traditional training. This will also be further discussed later.

Question

- *How did you get information about the MPL? (Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
From structured preparation by my airline	27.45%	14
From other pilots	49.02%	25
From electronic sources	11.76%	6
From magazines/litterature	15.69%	8
I have not received much information about the MPL	21.57%	11
Other (Please specify in comments)	9.80%	5
Total Respondents: 51		

Respondents' written comments excerpts

- *Researched.*
- *...from our student pilots.*
- *It has never been documented or presented to line pilots.*
- *My airline didn't offer any information. My pilot's organisation / union did.*
- *From my union.*
- *Pilots union.*
- *Fait accompli. We were told that the company was going down the MPL cadet route but not given any further information with regards to the course or training. Most of what we know has come from the MPL cadets themselves once on line.*
- *I am an active member of several professional organisations that have had input to the MPL programme.*
- *Company documentation.*
- *I read a lot of information myself.*

Authors' comments

Harms (2013) was asked during the first report what he would have done differently if given a second chance to take part in the MPL implementation and introduction. Without hesitation, his response was *“better guidance material and information”*, as there have been many different beliefs in why the MPL first was created and what it is and is not. Still today, there is a range in perceptions of the concept although some of the early misunderstandings have been clarified or corrected. One example of such perception was that the MPL would be a quick fix and response in a pilot supply and demand equation.

During the research period, published information or material was not easy to find and a structured preparation appeared to have been necessary in order to assure to everyone involved, regardless of which phase in the training, received both necessary and correct information. It would also have been required to allow the Line Captains to know what to expect from their newly graduated First Officers.

From what the results show, structured preparation of the Line Captain community has been lacking as only around one in four, or just over 27%, state to have received it. This question is in many ways closely related to the previous one. With the main source of information being a simple word-of-mouth flow between pilots it becomes impossible to know what such information has been based upon. If the source is personal opinions, as in accordance with another previous finding also appears to be the case at higher level of management and regulatory discussions, then the results on the opinions towards the MPL come as no surprise.

However, despite that having been said, the opinions and industry positions needs to be taken seriously and the sources of information should be validated with structured preparation also to be provided to the Line Captains. Whether or not the information they have received is accurate, their concerns risk having an impact on their attitude towards pilots with an MPL background and needs to be investigated further as they also suggest that the MPL concept is seriously degrading training standards and/or negatively affects pilot career opportunities.

There are two sides of this discussion. Some argue that by the time the MPL graduates have passed their line check and training is completed, there should not be a need to inform the Line Captain as the MPL First Officer should have reached a sufficient level of proficiency to act on the line. Others state the exact opposite and require some company information in order to know what to expect and how to best apply a level of mentorship to continue the personal development and transfer of experiences to future commanders. Training does not end on graduation - from any training program.

With the written comments it can be found that some information has been provided by pilot unions or by the MPL pilots themselves. Later results will show that even the MPL pilots who have gone through the training have different levels of understanding of the philosophy and change of emphasis with MPL training, although they are of course aware of their training elements.

In regards to the pilot unions, it is good that there is information available, but again it becomes uncertain if such information is unbiased and what affect it has had. The unions have in many regions been regarded as opponents to the MPL implementation, not least in the US.

Question

- *How would you describe your knowledge and understanding about competency-based training?*

Response alternatives and results

Answer Choices	Responses
I feel confident in the background, purpose and desired training outcome.	38.46% 20
I have no knowledge about the background, but good understanding of the purpose and desired training outcome.	19.23% 10
I have some knowledge but do not know any details about how it could affect me.	23.08% 12
I have heard the term sometime but never thought about what it meant.	3.85% 2
I have never heard of it.	15.38% 8
Total	52

Respondents' written comments excerpts

- *Competency-based training is all talk. The MPL program has severe limitations and pilots are put on line prematurely and robbed of the training and experience the conventional pilot streams have. For example, MPL pilots are not getting raw data flying or visual flying during their line training as the primary focus is a safe landing.*
- *Competency-based training is a really good thing, if the competency is assessed in a thorough and honest way.*

Authors' comments

Understanding and delivering competency-based training was found to be one of the major challenges with the MPL during the first report. This question was one of a series of questions aimed to get a perspective on the industry perception of competency-based training, from all of the different target groups. In connection to this question the Line Captains were also asked to provide their level of knowledge and understanding of the MPL background, purpose and underlying training principle both before and after they had started to fly with MPL pilots – without mentioning the role of competency-based training as intended with the MPL. Their response was later also benchmarked against how many MPL pilots they had flown with where, on average, a Line Captain respondent in this survey had flown with around 13 MPL pilots.

All of this was intentional but came with some additional challenges when analysing the results since it was not possible to add a description of competency-based training as this would create a leading question where the answers would have been impossible to validate.

Instead the answers show what the respondents themselves believed, but with the obvious drawback of not knowing if that belief was aligned with the original theory and concept.

The top two answer choices could be interpreted as providing confidence while the bottom three are more or less providing insecurity in regards to understanding the competency-based concept. What the data on this question shows, also supported by the result of the other mentioned questions related to competency-based training, is that just over half of the Line Captain community feels confident in their understanding and knowledge. Assuming that this is a representative generalisation of the MPL world, it is still difficult to say if it is a good or poor result when evaluated since the basis for their information seems to come from both legitimate and questionable sources.

An interesting parallel is that the 15% who have never heard the term had actually flown with between five and twenty MPL pilots that indicate either that training content or background is a rare discussion in the operational flight deck or that the MPL pilots themselves as well are unaware about the intended competency-based focus of their own training. When looking at the responses of MPL students and graduates, the latter at least seems both accurate and unfortunate and will be further discussed with those target groups.

Competency-based training was an identified challenge, perhaps easy to understand in theory, but difficult to transfer to an organisational mind-set and to the craftsmanship of instructors in practice. This question is another one in line that reveals a significant difference in the different MPL training program quality. The written comments excerpt also highlights the wide range in different beliefs towards the MPL in this context.

Question

- Which competency areas provide the main challenges in line operations for MPL pilots?
(Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
Application of procedures	3.85%	2
Communication	15.38%	8
Situation Awareness	63.46%	33
Leadership and Teamwork	23.08%	12
Problem solving and Decision making	42.31%	22
Manual flight path control	50.00%	26
Automatic flight path control	13.46%	7
Workload management	48.08%	25
Application of Aeronautical knowledge and understanding	26.92%	14
Other (Please specify in comments)	9.62%	5
I do not notice any difference compared to other pilots.	21.15%	11
Total Respondents: 52		

Respondents' written comments excerpts

- They cannot fly the aircraft below 200 feet. Take-off and landing. The critical parts.
- Actually, compared to inexperienced pilots with other background (ab-initio etc.) MPL students have a big advantage. CRM, SOP and so on. Poor SA is common for every new pilot.
- Lacking a little finesse in the last 100 feet of the approach and landing but didn't we all when we had 200 hours!
- Flying skills seem comparable to any junior pilot, however, ability as 2nd in Command of the aircraft is highly questionable and in most cases negligible.
- Many of our MPLs are fixated on "looking inside" on landing just following the glide slope on a visual landing which then leads them to not taking in visual clues of what is happening outside the aircraft. E.g. Drift, runway perspective and actual weather conditions.
- Landing is the main difficulty that I have seen.

- *Ground operations. In discussion with one MPL crew member, he said he was unsure about taxiing as the simulator sessions generally started at the holding point as simulator time was limited.*
- *The ATC communication has been a problem for a number of the MPL cadets. Other areas seem to be handled well.*

Authors' comments

Please see the next question.

Question

- *In which competency areas do MPL pilots perform particularly well in line operations? (Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
Application of procedures	58.70%	27
Communication	17.39%	8
Situation Awareness	4.35%	2
Leadership and Teamwork	4.35%	2
Problem solving and Decision making	2.17%	1
Manual flight path control	8.70%	4
Automatic flight path control	36.96%	17
Workload management	4.35%	2
Application of Aeronautical knowledge and understanding	10.87%	5
Other (Please specify in comments)	4.35%	2
I do not notice any difference compared to other pilots	26.09%	12
Total Respondents: 46		

Respondents' written comments excerpts

- *Nothing that distinguishes them over a normal cadet apart from the fact that they cannot take off and land. Very surprising.*
- *The MPL's that I fly with have outstanding knowledge of the manuals. The SOPs are well known, however when a situation develops that may not meet a text book definition in the SOPs they lack operational experience to deal with it.*
- *In general: NONE of the above.*

- *Big lack of aviation science, flight dynamics, aerodynamic knowledge.*
- *Maybe it's just me, but MPL cadets seem more motivated and dedicated in making sure they "get it right". But this may be a personal thing with no evidence at all.*

Authors' comments

These two questions were aimed to collect data within the framework and terminology of competency-based training to find out experienced performance related strengths and challenges from flying with MPL pilots.

Initially and by just looking at the data, the major identified challenges are situational awareness followed by manual flight path control and workload management. With only minor discrepancies between the target groups this would prove to be the perception from the majority of the MPL training industry. The same goes for the perceived strengths being standard operating procedures and automatic flight path control.

It was seen as a surprise that communication only was considered a challenge by 15% of the respondents since communication has been a returning topic to be addressed at several different industry conferences and by different industry initiatives. Even more as there still is a regulation required by some authorities to have advanced ATC simulation using speech recognition in the simulators – a technology that is not yet fully developed. There is an alternate means of compliance in force that for instance allows the instructor to act as an air traffic controller, cabin crew, ground staff and so on but it is thought to have a possible negative effect on the training as it is easy to simplify or ignore during the training in a way that is not possible during real flying. That having been said, communication is not considered as a strength by many respondents either.

These two questions highlight an important aspect of the MPL concept that also was brought up with the first report. One of the major benefits of the concept as a whole was found to be its clear framework that still allowed for a highly flexible training content. The training content could be dedicated and tailored to the end user and specific type of line operations – much in line with evidence-based training. When there is an identified weakness or missing item, they need to be addressed by updating the training curriculum. As the written comments excerpt reveals, there are different experienced shortcomings from different individuals and likely different training programs.

It is a strong recommendation to every MPL training provider and airline not to assume that their respective training is as good as it could get and to really utilise the theory behind Instructional Systems Design (ISD) as an iterative process that is never finished. This is especially true in regards to the MPL as the training concept still is just around ten years, a time frame not likely to be close to enough when attempting to find the best ways to deliver the training.

Question

- In general, how would you rate the line performance of MPL pilots in comparison to the line performance of new airline pilots which came through any other training route?

Response alternatives and results

Answer Choices	Responses	
MPL pilots perform very well, generally far above the average standard of new airline pilots.	3.92%	2
MPL pilots perform well, generally above the average standard of new airline pilots.	1.96%	1
MPL pilots perform at the average standard of new airline pilots, there is no obvious difference.	25.49%	13
MPL pilots perform poorly, generally below the average standard of new airline pilots.	33.33%	17
MPL pilots perform very poorly, generally far below the average standard of new airline pilots.	7.84%	4
MPL pilots perform differently in comparison to other pilots (please comment in what way)	17.65%	9
I do not have enough experience of flying with MPL pilots in order to be able to make a fair comparison.	9.80%	5
Total		51

Respondents' written comments excerpts

- *Due to good CRM/SOP (the student has been around those areas very early in the education), it can sometimes come as a surprise to the CPT when a beginner's mistake is made. SOP is as good as an experienced FO (CPT maybe lower his guard), which can make the MPL student a "sleeper".*
- *More conservative (a good thing for someone with only 200 hours)*
- *Lack of experience*
- *Upon superficial analysis, there appears to be no real difference to other junior pilots. The issue lies in the real world experience of being solely responsible for an aircraft and all passengers on board in challenging conditions. The MPL seems to discount the value of Captaining an aircraft (even a light aircraft), in preference to the efficacious process of teaching the individual to "pass the test". This is extremely short sighted and ultimately a great disservice to the individual pilot. He/she is never afforded the chance to be trained as a true professional and rather, is short tracked as a mere "seat-filler" (undoubtedly the primary driving force behind the MPL scheme). While basic airline flight assessments can be adequately handled by MPL cadets, their Captaincy development (including 2nd in Command role with Captain absent from the flight deck) is never properly addressed and Risk Management/Mitigation has become the answer for Airlines in order to deal with such inexperienced individuals in the FO seat.*

- *There is a noticeable difference in the sense that situational awareness is not as widespread as in conventionally trained pilots as well as some basic flying skills are less developed and understood by MPL pilots.*
- *Excellent knowledge of the manuals however manual flying skills are generally poor.*
- *To put it in simple words: KNOWING/LEARNING by doing seem to be the motto in my company. Too many MPL are simply not ready to be on line, and most, if not all, totally lack maturity to do the job.*
- *Generally knowledgeable and driven but poor handling skills. An over reliance on automation and flight director cues. Landings are noticeably inferior to the traditional cadet training stream.*
- *MPL are good “operators”, a lot less “aviators”. Automations became a necessity and few MPL dare to disconnect them, this is reflected in relatively average manual flying skills compare to before.*

Authors’ comments

In hindsight, this would prove to be a poorly designed question as it was unclear exactly what the MPL pilots should be benchmarked against. There is a realisation in that very few airlines historically have taken cadets directly out of flight schools and put them in the right hand seat of an airliner jet which perhaps would have been the proper comparison. A newly hired airline pilot has more commonly been a “ready-entry” pilot with a higher amount of flying hours and more importantly a greater exposure to both normal and abnormal operational events that has helped to build his or her knowledge, skill and attitude over time.

Without knowing exactly what the respondents compare the MPL pilots with, there are still several important aspects to highlight. It is an obvious finding that Line Captains are in general dissatisfied with the performance of MPL pilots as around 41% state that they perform below (33.3%) or far below (7.8%) the average standard of new airline pilots. Some of the reasons behind their dissatisfaction can be found with the written comments, for instance in relation to experienced poor handling skills.

Almost 18% respond that MPL pilots perform differently, despite having optional answers stating that MPL pilots perform better or worse when compared. Some has again commented in what way and when excluding comments about better or worse performance it becomes difficult to understand what is being perceived as different. Perhaps that the early exposure to automation and SOP, earlier identified as operational strengths, instead hinders the development of other more or less important competency areas. It is especially interesting as also was commented when those competency areas becomes a significant unbalanced strength and the pilot’s SOP and CRM are equal to an experienced pilot but the other ones are more compared to a junior pilot. The training curriculum arguably has to address all of the core competencies to a necessary level, and the training providers need to have an assessment and evaluation system in place that allows for such development to be made.

25% believes that MPL pilots perform at the average standard of new airline pilots while only around 6% believes that the performance is better. All of these numbers are much in line with the general perception of the MPL with Line Captains and again provides another indication of the large differences between both MPL training programs and associated perceptions.

Question

- Is there anything you think could have been done differently during the initial training (before the IOE) to better prepare the MPL pilots for the airline operations?

Response alternatives and results

Answer Choices	Responses	
No. the initial training has prepared them well for the airline operations.	9.80%	5
I have very limited knowledge about the initial training and cannot say.	58.82%	30
Yes (Please specify)	31.37%	16
Total		51

Respondents' written comments excerpts

- *Maybe it is a generation shift, but even though the MPL student is very well prepared, sometimes the humble approach to the captain is missing. "Support your captain" is generally something that could be mentioned more often. Things are not always black or white.*
- *More hands-on flying in full motion simulators, to practice landing skills and technique.*
- *MPL training should not allow to reduce manual practice, and more important long waiting times to complete MPL training should not be allowed!!*
- *Unfortunately MPL is a scheme that circumvents the need or ability to gain real experience, which was an integral part of traditional methods of entry into airline operations. Unfortunately nothing in their initial training can simply replace experience, apart from hours of dealing with real world problems under real workloads and real environmental conditions. Aircraft serviceability, exhaustion, fatigue, heat stress and passenger issues cannot be "taught". This need for experience is often scoffed at these days, however it is clearly evident in the comparatively poor performance of these candidates. And whilst they may be able to gain experience at an airline, unfortunately airline management has not put the resources in place to provide this, and continue to expect these guys to perform as well as vastly more experienced and qualified pilots, which lets down both the MPL pilot and the flying public. You cannot treat these guys simply as if they were the same as a pilot who started his airline career with already 5000 hours under his belt.*
- *Significantly increase the basic flying component to develop SA and basic airmanship.*

- *More actual flight training, including structured solo and mutual flying with another student.*
- *They need to do more flying in both small and larger aircraft as it will provide a base for their flying skills, give them more confidence in their ability and lighten the load on Line Captains. Unfortunately this is incompatible with the basic premises of MPL (and costs money).*
- *Basic flying, team work, respecting others (also cabin staff) roles...*
- *I do not believe that the manual flying component in light aircraft should be reduced. Basic decision making skills should not be learned in the cockpit of a modern airline. Remember, the first time that the MPL may experience a real emergency by themselves will be in the cockpit of a modern jet.*
- *More flying on single pilot operation light aircraft.*
- *They need to do more flying in aeroplanes. It is obvious when flying with MPL pilots that they have VERY limited experience. You cannot teach airmanship in a simulator.*
- *Yes, absolutely AGE limit, Minimum University level, live experience, psychological guidance throughout, Act on jump seat as safety pilots for minimum one year etc.*
- *Despite seeming superfluous and not relevant to airline operations, the flying elements that have been removed from the syllabus to create the MPL course all add to overall flying proficiency and exposure. These pilots will have seen less and done less. This affects both their manual flying ability and the breadth of experience that they can draw from when they graduate to command in the future.*
- *The skills that were previously developed while acting as PIC are significantly under-developed while teamwork skills are generally improved. The issue here is that SOP and aircraft design methodology is rarely perfect and sometimes needs to be challenged. I believe these skills are critical to sound airmanship due to the greater involvement of technocrats in almost all areas of the aviation system and to a large extent the MPL has been driven by a number of needs, safety and training not being the only two.*

Authors' comments

The Line Captain community seem to agree on the need of more manual practice as well as increased exposure to real flight experience during the initial training. This position also represents one side of the industry debate on the increased use of flight simulators very well. It is no surprise that this is still advocated by the pilots who have a more traditional training background as they know what they have learned from their experiences. However, more surprisingly is that they will later find support for their arguments from the MPL pilots themselves and as such this topic is further discussed later in the report.

Question

- Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?

Response alternatives and results

Answer Choices	Responses	
A modular route via PPL, CPL and IR	23.53%	12
An ab-initio integrated frozen ATPL	58.82%	30
An MPL training program	7.84%	4
Other	9.80%	5
Total		51

Respondents' written comments excerpts

- *MPL is a little vulnerable aiming for one airline only. Hard question though. If going through the whole education including line training you are better off as a MPL student.*
- *I would not recommend anyone to be an airline pilot these days. The pay and conditions along with the “dumping down” of the profession to cater for the lowest common denominator have turned it into an unrewarding career.*
- *A MPL course is in my opinion the fastest way to the airline job! But be aware of the steep learning curve and lack of PIC time for future upgrade to Captain!*
- *An integrated frozen ATPL gives the future pilot right away the necessary theoretical knowledge and practical knowledge to reach his goal with the advantage that the future pilot has the option to diverse into other aviation operations when economical situations require this. Now some MPL pilots are stuck in their situation because the (non-airline) companies they work for do not want to spend extra money on getting the required hours for an ATPL. Basically gaining SIC time but not advancing in their career.*
- *I would recommend any kind of training that makes the applicant independent of the future airline/airline group.*
- *The traditional PPL, CPL and IR route is best for recreational piloting or as a secondary career. Due to the changing nature of the Airline industry, it is now becoming impossible or at least extremely difficult to attain employment with an airline unless a cadet scheme route is followed.*
- *MPL is tied to one operator, which is a big disadvantage for the student pilot.*

- *Unfortunately this type of candidate does not get a look in today's airline environment. The route into an airliner has been subverted by increased direct cadet recruitment where low experience is catered for by relying on the experience in the left hand seat.*
- *A University program integrated with the traditional route, I think, is ideal. The knowledge seems to be better and they also get the benefit of a lot more flying before moving into an Airline. We have cadets, not MPL, that have come in via this route and they are a better standard than the MPL's.*
- *MPL has a license bound with the airline for the first 1500 hours, which put the candidates in unfair positions.*
- *A more traditional route of previous experience prior to joining an airline still provides the best candidates.*
- *There is one reason for not recommending MPL, and it has nothing to do with the quality of the training, it has to do with career stability. What happens if their airline goes broke? What happens if they get fired? They have nothing. None of their training apart from some single piston time is recognised. This is a huge disadvantage compared to their colleagues who have a CPL.*
- *Also because there is guaranteed line flying experience. Since for some pilots from modular and/or integrated training it is very hard to find the first airline job with only about 200 hours.*

Authors' comments

This question will be reviewed with every target group except the MPL Students to show the spread in opinions towards the MPL when benchmarked against other training methods. Very few Line Captains would recommend the MPL to future airline pilots today and in review of the written comments many mention the MPL license restriction as a major disadvantage. From what is known this license restriction is about to be removed from the regulation that governs the MPL, at least within EASA, and will be further discussed with the discussion topics.

Regardless, it would seem that the pilots' opinions towards any training concept are more about what path offers a more strategic career advantage rather than better or worse training and foundation to enter the industry with. This is a logical outcome as it is what mainly affects the pilots themselves, but from a training analysis perspective it would have been of equal interest to get the opinions on the actual training. It can also be viewed as evidence on the many different existing beliefs on what the MPL is and is not, for instance through the comment stating that the MPL is bound to a specific airline to 1500 hours. It may be a local contracting requirement with a specific airline, but nothing that relates to the current regulation governing the MPL.

Question

- Is there any other information you would like to provide or comment you would like to make?

Response alternatives and results

Answer Choices	Responses	
No	61.54%	32
Yes! (Please provide information and/or comments in the box below.)	38.46%	20
Total		52

Respondents' written comments excerpts

- *My company train cadets through an ab-initio system (CPL) and an MPL programme. There is a noticeable difference in the average standard between the two courses. The CPL cadets have better handling skills and communication skills and more confidence. One issue is that the majority of our candidates are from a crowded large Asian city and have largely been brought up in a school system where they rarely participate in sports, rarely drive and hardly get involved in any outdoor activities. Most of them have never ridden a bicycle! Consequently, they lack motor skills and the reduction in pure aircraft handling throughout the MPL course has been detrimental. Also the synthetic environment of the simulator is not representative of real flying and they struggle with radio communication.*
- *A poorly introduced program where even the very weak cadets have been protected and pushed through to line flying. In the end it makes the line pilots days MUCH harder. The days of having someone next to you that you fully trust and rely on are well and truly over.*
- *MPL has proven over the last years that employers use it to put pressure on MPL-students and even more on pilot's associations / unions. Building up piles of unemployed MPL-pilots and not giving them a job has become a method to put pressure on them. With an ATPL applicants could look for other jobs outside the original company.*
- *MPL is viewed by most pilots as being a short cut training methodology that will save money. It does not produce an acceptable outcome for the quality of pilot graduates and places significant additional stress onto the operating captain. Safety and efficiency is significantly compromised by the MPL process.*
- *As it stands, MPL is a suitable Training program and licensing level for 2nd Officer duties only (i.e. non window seat pilots). It is an 'On-The-Job' training/licensing platform due to its lack of real world basis, and would allow the Airline a probationary period (2-3 years) in order to assess whether the individual is suited to flying and shows potential for advancement to actual flying positions (F/O & Captain). I am very interested in the future competency and proficiency of professional pilots, whose job it is to fly the travelling public safely from one airport*

to another. I see the MPL as a gross shortcutting and undermining of professional standards in the Airline industry for purely financial reasons. This may well not be the intention, however it will be the outcome. I know of no other industry that has been made to suffer such extensive and radical undermining of the practical element of its basic professional training. I would relate it to doctors no longer needing to do an internship or tradesman forgoing apprenticeships. Certainly training methods have been and continue to be improved by use of simulation, but it is hubristic to believe that these methods can replace real world proven programs for training in this highly practical/hands-on job. While the MPL satisfies the requirement of airlines to produce readymade F/Os (and incidentally justify a reduction in professional salaries), it actually just kicks the can down the road requiring extra expense at the IOE, Check-to-Line stages and of course, at the Command upgrade stage. The role of the Captain and flight safety has accordingly been adversely affected. In the case of an emergency, often there is no depth of experience to draw upon within the crew, which undermines the whole CRM process and directly affects flight safety. In the past this problem was automatically risk managed in an airline by the fact there were only a small percentage of junior pilots in the cockpit, with the majority being senior/experienced individuals. My airline (which is an MPL pioneer), has already identified this false economy and has returned to employing experienced pilots in preference to solely MPL cadets - a true life example of the shortcomings of this program, both in flight safety and fiscal terms.

- *I understand the idea behind MPL and it sounds like it should work. The reality of doing this job still requires people who can fly the aircraft in all possible scenarios be the aircraft degraded or not. When an MPL first comes on line this is not the case and requires significant compensation from the left seat. Even more so than with a traditional cadet who is marginally better to begin with thanks to more time actually flying an aircraft. Eventually, with a good work ethic and reasonable intelligence, an MPL or any other cadet should be competent. It is a question of experience. It is just what happens whilst they gain that experience that is the problem as compared to a traditional airline recruit (ex-general aviation with experience in piston, turbo prop and possibly light jet operations) they don't have the back ground knowledge and handling skills required at this level of operation. It is not a kindergarten for pilots, yet that is what the line Captain of today is expected to deal with.*
- *I feel the constant reduction and de-valuing of actual flight experience is a troubling trend. The flight deck of a modern airliner is simpler than it used to be however the fundamentals of flight have not changed. This is true of Airbus/Boeing and light SE aircraft. The lessons learned in light aircraft are not always taught but gained through exposure to actual conditions and actual decision-making. To expect commanders to make up for short falls in fundamental abilities in the co-pilot reduces overall safety. I've had co-pilot make comments like "I've never flown in real clouds before", "what do I do if the wind changes while landing" and "I'm not very good at taxiing because I've never really been shown how to". When these pilots eventually make their way to the left seat, we will have a generation of Captains who will be making their ever first real decisions.*
- *The original concept of the MPL was a noble one but it has become inconsistent and driven to varying degrees by airlines and state regulators to the priorities of time and money. What a disservice to the flying public and young aspiring aviators to compromise their safety and future by such short-sighted motivations of regulators*

and operators alike. Some do it well, many produce a minimum standard product. We are already experiencing a dilution of state boundaries and protections which is not necessarily a bad thing but when mixed with sloppy standards and tick box regulation and the greater use of self-regulation the outcome can become very toxic with true change invariably becoming retrospective as a consequence of foreseeable accidents.

Authors' comments

These final comments were selected as they very well summarises a generalised view on MPL training from the Line Captain community. They highlight matters that should be seriously investigated and that in many aspects are in complete contradiction to the MPL experience being represented by managers and responsible at official forums such as aviation conferences over the past years. This is also another topic that will return, but it is a clear conclusion that actual flight training and experience need to be properly validated through a more scientific approach.

2.2.3 – Line Captains – Concluding Words

What has been highlighted above is an excerpt of the questions asked to the Line Captain community that well represent their summarised view on the MPL. In this summary it is fair to say that Line Captains are to the majority pessimistic in their feedback from the operational end, but at the same time not united. They bring forward aspects on MPL training that has not previously been well known or properly discussed and addressed at aviation training conferences or regulatory meetings. They should be taken seriously and further explored. The data and comments also reveal clear signs on several occasions that there is a significant difference in the level of training quality between different MPL training programs.

It is equally clear that Line Captains in many ways have been left in the dark with little or no information about the MPL and what to expect from these junior pilots. As was mentioned, training does not end on graduation and also experienced pilots should agree on that the learning process is lifelong and continuous. However, the need to continue that learning process would be significantly greater for a junior pilot with less experience and the Line Captain community should also be given fair pre-requisites to allow such industry mentorship to continue.

2.2.4 – Line Training Captains – Survey Results

Introductory words

Only around 35 out of 540 respondents, or about 6.5%, belonged to the Line Training Captain target group. In a way this was an unsatisfactory result as the data from the line training experiences is one of the more important one to be compared against the experience and feedback from both before the MPL students reach the line training stage as well as the phase that follows where the MPL pilots are released for normal line flying duties as any other First Officer.

Nevertheless, the data available is valuable with a similar note as with the Line Captain that it is based on a limited number of respondent's feedback in comparison to the theoretical sample size. The questions being highlighted are the same as for the Line Captains.

Question

- *When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?*

Response alternatives and results

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	14.29%	5
I was at first indifferent, but now I am negative.	8.57%	3
I was at first positive and remain positive.	17.14%	6
I was at first positive but now I am negative.	22.86%	8
I was at first negative and remain negative.	20.00%	7
I was at first negative but now I am positive.	8.57%	3
I have no opinion on the MPL.	2.86%	1
Other (please specify in comments).	5.71%	2
Total		35

Respondents' written comments excerpts

- *At first I was negative. I am still slightly negative, but not as much I originally was.*
- *I've seen some very positive results from the MPL program and also a lot of wasted resources of MPL pilots that do not make the grade.*
- *The number of genuine MPL programs, based on a real ISD, is very scares. Most MPL programs are only cost-cutting exercises.*
- *Recruiting the right MPL students is very important, as they have no history to look at.*

By own experience, some of the MPL students I have trained, show very little or lack of skills for being an airline pilot. Finding a good/safe way of selecting suitable MPL students, I think it is OK!

- *I am still sceptical about all this. Flying is not only a matter of pure theory but is made also of experience. Experience requires time and steps to gain confidence. After your initial training as a commercial pilot on small and light aircraft you cannot be thrown over a big and automated liner. We tend to justify this with the use of simulation. Be careful, because simulation is not real life. If things get tough you cannot reset and restart the whole exercise all over again. In real life you do not have a second chance. This pushing of young pilots directly from simulation environment to the line flying big jets in complicated environments is a bit risky. It creates highly self-esteeming personalities, which can lead to a too high degree of confidence in an automated cockpit with the results of being very good system managers but poorly performing basic skills pilots. It is unfortunately only business and business does not always fly in wing with safety, most of the times.*
- *There was no way a temptation toward commercial short cuts would not occur.*
- *The idea to comb out outdated stuff from flight training seemed smart, also the focus on multi-crew operations.*

Authors' comments

On this question, the Line Training Captains reveal a beginning of a trend. If put together, it is still around 50% that has chosen a negative response option while 40% are positive and if benchmarked against the coming target groups the change continues towards being more positive. Throughout the study the Line Captains will remain as the most sceptical respondents. Why this is will be a difficult question to find an answer to although some insight can later be found with how the target groups have been informed about the MPL.

There are many thoughtful contributions left with the written comments. The previous study concluded that the number of genuine, competency-based, MPL programs would be either none or very few based on a combination of regulatory inertia and too little time to allow for the organisational transition to a completely new mind-set. If commercial shortcuts and cost-cutting exercises represent a reality, it adds another dimension to the development that supports a negative trend.

However, it is interesting that the Line Training Captains does not replicate the results of the Line Captain community. Theoretically the MPL pilots should show an equal and improving level of performance once the line training is over and a line check is successfully completed. One theoretical reason could be that the respondents represent different organisations, which again would support an obvious difference in training quality between the programs. Another reason could be that some MPL students have experienced extended waiting times between the end of the type rating training and before being allowed to start the line training. However, the many different views on the MPL appears to be affected by much more than observable performance, something that complicates the analysis of the data even further on all target groups.

Question

- How did you get information about the MPL? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
From structured preparation by my airline	45.71%	16
From other pilots	20.00%	7
From electronic sources	8.57%	3
From magazines/literature	14.29%	5
I have not received much information about the MPL	20.00%	7
Other (Please specify in comments)	17.14%	6
Total Respondents: 35		

Respondents' written comments excerpts

- *I was involved in the JAA rulemaking for the implementation of MPL in the JAR-FCL1.*
- *Information was given during examiner meeting by the authority.*
- *MPL Instructor Course.*
- *JAR/EASA briefings.*
- *Airline briefings were poor and agenda hidden. I became concerned and sought more information myself via the Internet.*
- *Classroom instruction by my company's training department.*
- *Participation in SAT MPL program development.*

Authors' comments

Line Training Captains appears to have had a better preparation process than the Line Captains where at least around half of the community has been provided with structured preparation. Although having improved, this is still another disappointing result. Poor information and preparation is not only likely making the training process less efficient, it also acts as indications of poorly working communication and cooperation between the different ATOs and airlines who are involved in MPL training. Having all parties closely involved in the training process was another considered prerequisite for a more successful training outcome.

Question

- *How would you describe your knowledge and understanding about competency-based training?*

Response alternatives and results

Answer Choices	Responses
I feel confident in the background, purpose and desired training outcome.	48.57% 17
I have no knowledge about the background, but good understanding of the purpose and desired training outcome.	28.57% 10
I have some knowledge but do not know any details about how it could affect me.	17.14% 6
I have heard the term sometime but never thought about what it meant.	2.86% 1
I have never heard of it.	2.86% 1
Total	35

Respondents' written comments excerpts

- *Competency-based training is all talk. The MPL program has severe limitations and pilots are put on line prematurely and robbed of the training and experience the conventional pilot streams have. For example, MPL pilots are not getting raw data flying or visual flying during their line training as the primary focus is a safe landing.*
- *Competency-based training is a really good thing, if the competency is assessed in a thorough and honest way.*

Authors' comments

Competency-based training is supposed to be the backbone that differentiates the MPL from the more traditional training – to train to a desired level of competency on top of the already since long defined tasks and training standards. In discussions with pilots or aviation conference participants, it is common to get a reaction stating something like “*isn't this what we have always done*”. The answer to that question is probably both yes and no.

It could very well be true that individual instructors in a good way have focused on training the individual more tailored rather than simply focusing on specified tasks, but traditional training has still mainly been oriented towards a fixed number of box-ticking training items and target training time as the final units of progression. Still today, many MPL programs contain a fixed number of training sessions without any updates on the assessment and evaluation methods.

Although 75% state that they in fact understand competency-based training, it is an outcome that would need to be further explored – for all of the target groups. As was mentioned with the Line Captains, the knowledge that the respondents refer to when answering this question remains unknown. Although there were very limited relevant written comments left with this question, the few that were alone highlights a misunderstanding when saying that MPL do not

get any visual flying. That statement has no direct link to a competency-based training principle but is more related to how each unique training syllabus is designed. To simply understand the theory behind competency-based training when saying that the goal should be to train for a desired level of competency rather than assuming that the pilots in fact have become competent after a number of training sessions is very easy. But to transfer that theoretical understanding into practical knowledge and to how it should be achieved while moving away from other better known training methods and philosophies appears to be a much greater challenge.

Question

- Which competency areas provide the main challenges during the IOE / line checks / captain upgrade programs for MPL pilots? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
Application of procedures	8.57%	3
Communication	40.00%	14
Situation Awareness	74.29%	26
Leadership and Teamwork	17.14%	6
Problem solving and Decision making	40.00%	14
Manual flight path control	74.29%	26
Automatic flight path control	17.14%	6
Workload management	28.57%	10
Application of Aeronautical knowledge and understanding	40.00%	14
Other (Please specify in comments)	8.57%	3
I do not notice any difference compared to other pilots.	5.71%	2
Total Respondents: 35		

Respondents' written comments excerpts

- *Basically lack of exposure to aviation is evident.*
- *No situation awareness, no idea of the dangers of weather, no pride in what their personal performance results in. This is only a desk job to most of the MPL candidates and is going to result in an accident.*
- *As mentioned, from hearsay more problems in basic flying, instrument scanning and landing.*
- *Assertiveness.*

Authors' comments

This question is self-explanatory and is a continuing comparison between how the different target groups perceive the performance outcome of the MPL training. Situation awareness and manual flight path control was also considered the major challenges by Line Captains followed by workload management while the Line Training Captains finds communication and problem solving/decision making as the third most challenging areas. A more thorough comparison on these questions will be provided with the discussion section.

Question

- *In which competency areas do MPL pilots perform particularly well during the IOE / line checks / captain upgrade programs? (Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
Application of procedures	61.76%	21
Communication	20.59%	7
Situation Awareness	0.00%	0
Leadership and Teamwork	2.94%	1
Problem solving and Decision making	0.00%	0
Manual flight path control	5.88%	2
Automatic flight path control	32.35%	11
Workload management	2.94%	1
Application of Aeronautical knowledge and understanding	17.65%	6
Other (Please specify in comments)	2.94%	1
I do not notice any difference compared to other pilots	20.59%	7
Total Respondents: 34		

Respondents' written comments excerpts

- *Theoretical knowledge.*
- *Because this is all they know. A computer program and how to push the buttons rote learned from the books*
- *Points that could be checked in this question have a lot to do with attitude and talent, which are mostly based on a thorough selection in my opinion.*

Authors' comments

Also in well performing areas there is a red thread with application of procedures as well as automatic flight path control being the highlighted strengths.

Question

- In general, how would you rate the line performance of MPL pilots in comparison to the line performance of new airline pilots which came through any other training route?

Response alternatives and results

Answer Choices	Responses	
MPL graduates perform very well, generally far above the average standard of pilot graduates.	2.86%	1
MPL graduates perform well, generally above the average standard of pilot graduates.	5.71%	2
MPL graduates perform at the average standard of pilot graduates, there is no obvious difference.	45.71%	16
MPL graduates perform poorly, generally below the average standard of pilot graduates.	14.29%	5
MPL graduates perform very poorly, generally far below the average standard of pilot graduates.	2.86%	1
MPL graduates perform differently in comparison to other pilot graduates (please comment in what way).	25.71%	9
I do not have enough experience of flying with MPL graduates in order to be able to make a fair comparison.	2.86%	1
Total		35

Respondents' written comments excerpts

- *MPLs are usually very motivated and have prepared themselves more than other pilot graduates. In areas where experience is necessary (i.e. hand flying, unusual episodes etc.) the MPL usually perform below average.*
- *Most MPL graduates have a very good competency in Application of Procedures, but lack Situation Awareness, and a lot of them have Manual Handling issues, especially during dynamic phases (take off/flare).*
- *The MPL candidates' lack of experience within aviation in general is evident during training.*
- *Theoretically they perform very good! "Stick and rudder" generally lower standard! Especially landing phase!*
- *MPL graduates handles normal operations better and are better with the FMC, but when things go outside the box they tend to fall out of the loop faster. Manual flying, like visual approaches, and energy management is also generally below average by MPLs.*
- *As I said before they are very good system managers, in that they know how to cope with automation itself. What they do not know, with few exceptions, is the environment in which and with which they are dealing and the loss of automation in a real poor weather condition is a proof.*

- *The MPL student performs generally better when it comes to SOP, technical knowledge and CRM but normally they have more problems flying visual approaches.*
- *Some are quite skilled and perform well. A larger proportion are not as competent as cadets who go through our extended program.*
- *The talented ones are very good. Unfortunately there are many who simply do not have the natural skills, maturity and basic airmanship you would expect.*
- *Out of the box thinking and decision-making.*
- *Good in procedures, but no airmanship.*
- *Whilst technical knowledge is at or slightly above CPL candidates, MPL candidates through all phases of training lack the handling ability. They are either over confident with their abilities or under confident, but rarely confident. This leads to poor decision-making.*

Authors' comments

Since Line Training Captains and Line Captains were the target groups where limited feedback on the MPL had been previously collected, it was also difficult to have any expectations on the results. It was well known that there were a lot of critique and potential drawbacks highlighted by some of the world's pilot unions and organisations who in many ways represent the line pilot community, but it was still not possible to objectively validate their opinion without any additional information behind their statements.

Based on that scepticism (which was highlighted on several occasions also with the previous report), one early assumption was that the majority of captains would be more or less negative, but actually more than what is shown with the results of this question. One out of two Line Training Captains states that MPL pilots perform at an equal (45.7%) or higher (8.6%) level when being compared to new airline pilots with a different training background.

As can also be seen around 17% feels that the level of performance is worse, but what is more interesting is the nearly 26% stating that MPL pilots perform differently. Before being analysed in depth, a different or better performance was arguably one of the ambitions and goals with the implementation of the MPL when aiming to train pilots who could also handle the unforeseen on top of the everyday tasks and standards in the daily operations.

However, in what way the performance is worse and/or differs is at least in part provided with the written comments. Many of the respondents seem to again agree on the need of more manual flying and exposure to situations that better provide them with tools to handle less frequent or more challenging occurrences. Normally this is what experience provides, and the discussion on how lack of experience can be addressed in training is a discussion that will need to continue also with this report.

Question

- *Is there anything you think could have been done differently during the initial training (before the IOE) to better prepare the MPL pilots for the airline operations?*

Response alternatives and results

Answer Choices	Responses	
No. the initial training has prepared them well for the airline operations.	27.78%	10
I have very limited knowledge about the initial training and cannot say.	38.89%	14
Yes (Please specify)	33.33%	12
Total		36

Respondents' written comments excerpts

- *More legs of observer flights*
- *Solo navigation.*
- *The MPL graduates would take a large benefit to get experience on glider flying and aerobatics.*
- *More PIC time.*
- *As stated before I see the need for more visual manoeuvring. One more session in the simulator covering this aspect would probably be sufficient*
- *Airline internal procedures examples. Approach energy management. Better knowledge and examples.*
- *More jump seat preparation to understand their role from experienced crew and CRM development.*
- *Better and more honest screening, not just having the money. More exposure to the real environment (weather, airspace, ATC, real airplanes...).*
- *More training sectors to ensure they are at the same standard as other pilot streams. The system relies on experienced line captains to continue significant amounts of general handling training but the eventual risk is, this will not occur as newer generations of captains are products of a system based on automation and an SOP bureaucracy trying to counter generational airmanship issues.*
- *In the initial training it has to be assured, that every MPL pilot acquires profound basic flying skills (pitch/power etc.), no exemptions. It is the basic core skill of any pilot, from a C-152 up to an A380/B747. As a lot of MPL pilots entered our fleet, we have seen a lot of problems here and the line-training (with PAX on board) is not the right training phase to correct the training lack in terms of basic flying skills.*

- *More actual flying time.*

Authors' comments

This question was brought as a highlight for two reasons. Firstly for the literal content to discuss which areas the Line Training Captains would like to add or change to create a more prepared foundation for the airline transition. On that topic there is a range of opinions and all are likely more or less relevant to the many different existing MPL programs. This topic will return.

However, what this question secondly highlights from a different perspective is the challenge of harmonisation. Another ambition with the MPL was to create better and more harmonised international training standards. With the many different local attempts to address, understand and implement competency-based training it was argued in the previous report to more likely and rapidly create a more diverse rather than harmonised training reality. It is really difficult, if not impossible, to find solutions to the many different opinions on how training should be performed in order to be optimal.

More research is necessary, likely also together with better developed tools that better can address the difference in human personalities and capabilities to tailor training to individual needs.

Question

- *Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?*

Response alternatives and results

Answer Choices	Responses	
A modular route via PPL, CPL and IR	22.86%	8
An ab-initio integrated frozen ATPL	54.29%	19
An MPL training program	20.00%	7
Other	2.86%	1
Total		35

Respondents' written comments excerpts

- *At least with an ab-initio course the student gets to fly solo and develops that survival instinct that the MPL do not have.*
- *A frozen ATPL would give the pilot better decision-making skills since he/she had to operate flights of their own.*
- *The big problem is that if you fail to succeed during your MPL training there are no good procedure to get a CPL which might have given you the opportunity for another*

employment, e.g. taxi or corporate.

- *No binding to an airline.*
- *Military training and civilian training to a regional airline level is the best preparation for a capable candidate.*
- *One BIG downside of MPL is the operator limitation in the license. We currently have about 900 MPL Students in training (or already finished) who will not get a job with the operator in the license and are not able to apply anywhere else (due to the operator limitation). This set-up is totally unacceptable – for the individual, but also for our industry. Well trained pilots, who cannot do what they were trained for has only produced costs and brought no benefit for our industry. Second to this, it should be reviewed if the MPL training provides enough stick time in a real airplane for the student. A FTD does not provide the same dynamic of the real world due to lack of other traffic, difficult ATC environment etc.*
- *The problem is of economical nature. The MPL student is bound to an airline. If the airline does not need any pilot by the end of the students course, the students faces a challenging problem.*

Authors' comments

On this question we have a similar result as with the Line Captains on the response alternatives recommending a modular and/or ab-initio integrated frozen ATPL. With 20% recommending the MPL the number is more than doubled compared to Line Captains. It is still a poor result.

It is also clear that the MPL license restriction remains a heavily considered drawback, however the restriction is a factor more related to regulation than training quality and outcome. For that the reason a similar survey should be reinitiated when and if the heavily debated regulatory aspects changes. The MPL license restriction is increasingly central with the MPL and has also its own topic with the discussion part.

Question

- Is there any other information you would like to provide or comment you would like to make?

Response alternatives and results

Answer Choices	Responses	
No	82.86%	29
Yes! (Please provide information and/or comments in the box below.)	17.14%	6
Total		35

Respondents' written comments excerpts

- *Today my training with MPL students sometimes feels like Flight training more than Line training! It should be the other way around! Finding a way of selecting/recruiting the best suitable students for MPL I think it has a future though!*
- *Upgrade requirements should be revisited for MPL. With minimum hours I do not believe an MPL has had the necessary exposure to be suitable for upgrade.*
- *MPL (and to a lesser degree cadet ATPL/CPL) find it difficult to differentiate between what “can” be done and what “should” be done, in the operating environment. This leads to a blind following of procedures sometimes to an undesirable outcome and confusion over what is needed to change that outcome*
- *MPL candidates are now realizing themselves they have been robbed of training. We have a concurrent cadet program at our airline and the consensus is that the MPL program is not giving pilots sound training and is budget driven. Also, I have personally approached corporate safety and employee assistance programs with my concerns at the high levels of stress the MPL cadets are experiencing compared to the cadet program. They are isolated and have no soft skills in dealing with the rigors and professional stress that many of us were coached in via peers and generational knowledge.*
- *The seemingly higher problems of MPL students in the area of the core competencies of a pilot (flying the aeroplane) should be taken seriously. Loss of Control in Flight (LOC-I) is the most deadly cause in air transport accidents nowadays. The industry is researching heavily possible ways to reduce LOC-I accidents. It would be ironic to fight a problem that is at the same time probably worsened in initial training. There is also a moral argument against the MPL. As a student pilot you are bound to one operator, changing the relationship between trainee and first employer tremendously in favour of the employer. As a MPL student, you are basically a hostage to the needs and wills of your training-employer. As the aviation industry is extremely cyclical and has become very ruthless on the initial job level, this makes the prospect of entering the industry via MPL extremely unattractive for any individual who makes rational decisions. It is very unattractive to invest 100k into an MPL, where you could possibly end up with no licence as long as your training employer has no seat for you. Classical frozen ATPL on one hand allows for cheaper training, but also for a wide range of employment opportunities at the end of your training. Since the MPL does not make training cheaper or faster, and does not produce better pilots (it seems quite the opposite), it should be discarded for these moral reasons. I say this as a responsible citizen and not as a pilot, the MPL system creates dependencies where none should be, considering the usual debt levels required to get an MPL.*
- *In our airline MPL/ATPL courses have kind of merged into the same program, with very few differences.*

Authors' comments

This question was included to share the additional thoughts from the Line Training Captain community. Again, the authors could have wished for a greater number of respondents in this target group to also have more insight to share. Regardless, the written comments on this question speak for themselves.

2.2.5 – Line Training Captains – Concluding Words

There are many interesting discussions that could be based only on the comparison between the feedback from Line Captains and Line Training Captains. At first glance it would appear that the MPL cadets actually become worse pilots after the line training and line check is successfully completed, as Line Captains are more critical towards the concept. This is not likely the complete truth.

As the analysis continued of the different target group results it appears to be a connection between how informed and prepared you have been compared to how you perceive both the MPL pilots and the MPL concept as a whole. It quickly becomes necessary to differentiate these two. There is a returning critique to matters related to regulation, most of all to the MPL license restriction, but these have little to do with the outcome of the training itself.

Regardless of being involved as Line Training Captains or just operating the line, the captain community as a whole agreed on the performance related challenges in the different competency areas and there were only minor difference in the perceived strengths. At the end of the report, all similar feedback will be collected in the form of recommendations.

2.2.6 – MPL Ground or Flight Instructors, SFIs, TRIs – Survey Results

Introductory words

The third target group was the instructors from all phases of MPL training until the type rating was completed and just before the cadets moved on to the airline line training. In this target group there were around 75 out of 540 respondents, or around 13.9% of all participants.

Line Captains and Line Training Captains provided the feedback from line flying and line training. The ambition with including the instructors was to retrieve the perspectives from inside the initial parts of MPL training and from the individuals where the majority likely also did not have a management perspective or responsibility.

Question

- When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?

Response alternatives and results

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	21.33%	16
I was at first indifferent, but now I am negative.	12.00%	9
I was at first positive and remain positive.	30.67%	23
I was at first positive but now I am negative.	6.67%	5
I was at first negative and remain negative.	9.33%	7
I was at first negative but now I am positive.	12.00%	9
I have no opinion on the MPL.	4.00%	3
Other (please specify in comments).	4.00%	3
Total		75

Respondents' written comments excerpts

- At our school, the students' time in the airplane was cut in half going from our syllabus at the time to MPL. I thought how could we possibly reach the same level of competency in that amount of time?! At one point there were even rumours that the students would never solo (thank goodness that was just a rumour, bad idea by the way). As we learned to compress the items required on each lesson it got easier to do. This has made me a better instructor in my opinion forcing me to be more organized and able to relate many areas together so the bigger picture for the student is realized sooner.*
- I do not consider the MPL to be fundamentally different than a traditional license in the core phase.*

- *I do however think it is important to make clear that we as MPL training providers need to maintain focus on the quality aspects of training. Constantly looking for ways to improve the training. The goal with MPL has in my opinion always been to provide the market with better trained pilots. There is always a risk that potential Host Airlines are looking towards MPL as a way to recruit cheaper and/or "pay-to-fly" pilots. We all need to bring these issues to the surface. What effect does it have on recruitment and selection of students, competency based training, flight safety and future career development? I think this needs to be addressed more regularly.*
- *Was first indifferent; now somewhat positive, but think more development is required. Still somewhat sceptical.*
- *When started I did not have full knowledge however now very strongly support MPL*
- *MPL flying experience is getting pruned to the bare minimum with hardly any meaningful stick time.*
- *To less practice on flying skills and the Knowledge of aerodynamics*
- *I first thought that the quality of the training would be worse but now I know that it does not have to be the case. It completely depends on the ATO if the MPL or CPL education has good quality or not, not the type of training.*
- *I was first positive, now I'd say I am indifferent at best.*

Authors' comments

Again there is a wide range in reflective opinions towards the MPL. If added together the instructor responses weighing towards a positive position is around 64% while the negative counterpart becomes around 28%.

The written comments raise some interesting perspectives about the MPL perception that is also industry represented and in line with the results of previous report. The natural reaction for many appears to be scepticism and disbelief that in time with better information and preparation as well as going through the experience changes the opinion of many. This does not mean that every, or perhaps any, MPL program is up to the desired standard. It is more an indication of that the spontaneous reaction on the MPL when first hearing about it is not necessary the final opinion when being closer involved and informed over time. More and better structured information and preparation again appears to be needed for everyone involved.

That having been said, there are other issues less related to information that remain and as was commented, those issues need to be surfaced and properly addressed.

Question

- How did you get information about and prepared for your role in MPL training? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
By attending an MPL Instructor training course.	66.22%	49
From information/preparation by my ATO.	56.76%	42
From other instructors and/or pilots.	21.62%	16
From electronic sources.	12.16%	9
From magazines/literature.	8.11%	6
I have not received much information about the MPL.	4.05%	3
Other (Please specify in comments).	1.35%	1
Total Respondents: 74		

Respondents' written comments excerpts

- *This course didn't really teach me how to teach with such a compressed syllabus just explained the hours required and what it all meant to the industry.*
- *The preparation for me as instructor was very poor. I am used to classic CPL-training and when I started working at my ATO I did not get much information of the basic ideas of MPL-training such as competency-based training. I did get some self-study material and a half-day of lecture so I could get the permission to act as an instructor in the MPL program, but it was not enough in my opinion.*

Authors' comments

In the best of worlds the results to this question would have been a 100% response rate where every instructor had attended an MPL Instructor training course. Although this was a multiple choice question and without any possibilities to validate the information and preparation provided by the ATOs, it reveals a fundamental problem – especially when connected to the next question about the MPL Instructor requirements.

Even when provided with the course and in accordance to the written comments, some instructors still feel unprepared for the task required of them. It has been mentioned many times throughout both this and the previous report that competency-based training perhaps is easy in theory but challenging in practice. The finding that few or none had fully completed the organisational transition finds additional support in this question where many instructors are still missing structured preparation. Furthermore, the bare minimum legal requirements seem not enough for some.

Question

- In order to become an MPL Instructor there are special requirements that needs to be fulfilled. These requirements also differ between phases. What is your opinion on the MPL instruction requirements?

Response alternatives and results

Answer Choices	Responses
I think any Flight Instructor could deliver MPL training, there is no need for specific preparation or training.	15.28% 11
I think the requirements are too high (please comment in what way).	1.39% 1
I think the requirements are too low (please comment in what way).	8.33% 6
I think the requirements are good, there is a need for specific preparation for an MPL Instructor.	70.83% 51
I am not aware of these requirements.	4.17% 3
Total	72

Respondents' written comments excerpts

- *There are some issues that I would like to comment further regarding instructional requirements. The initial requirements are stringent (referring to EASA). However I think an MPL instructor should have his/her competencies checked on a more regular basis than for example once every three years in order to maintain a high level of training. Just because an instructor made the initial training and once had 1500 hours of MPA experience doesn't necessary mean that the instructor is able to provide the student the required level of competency and with up to date information. Follow up is important. The overlap between core, basic, intermediate, advanced must be seamless from a student's perspective. Every instructor through the chain from FI's to SFI/TRI's need to be on the same page. It's very important. The ATO is overall responsible for the level of competency being offered.*
- *Instructors conducting core and basic require training in evaluation and documentation. The instructors conducting intermediate and advanced required very little training.*
- *The SYLLABUS OF THEORETICAL KNOWLEDGE FOR THE ATPL (=MPL) together with the official European test questions (CQB) reflects outdated knowledge at least for the subjects 010 Air Law, 070 Ops and 090 Com. Both need to be tailored in order to suit the requirements of a competency based MPL training for modern aircraft.*
- *Many decision makers ignore the rationale behind and positive intentions in the idea of MPL Training. This results in many instructors (flight and ground) I know which do not grasp the idea behind MPL and which are underqualified, especially in fields like andragogy's, didactic etc.*
- *The ability to assess the CRM should be set more into focus. It was just checking the*

boxes during Training.

- *I think there should be a requirement that all instructors after the core phase need to have some line flight experience. Maybe a minimum of 500 hours to act as an instructor in the basic and intermediate phases. And if you have between 500 and 1500 hours you need to attend simulator sessions as in today's requirements.*
- *1 hour Introduction to specify the differences is more than enough! No special Instructor License required at all.*

Authors' comments

This question was included as it has been another hot topic of debate and many ATOs have shared their challenges in finding enough qualified instructors. However, qualified in this context refers to being qualified in accordance with regulation and several voices have been heard saying that those requirements are too stringent - but no one seems to have asked the instructors themselves.

It is a clear finding that the majority of the instructors feel that the requirements are good (70.8%) or even to low (8.3%). This gives another dimension to that MPL training is experienced differently from the view points of the instructors and perhaps it is a good suggestion for organisations and MPL industry experts that create guidance material to also create a standardised and more comprehensive MPL Instructor training course. Regardless, the requirements should not be removed or even reduced with the interpretation of the industry data.

Question

- *How would you describe your knowledge and understanding about competency-based training?*

Response alternatives and results

Answer Choices	Responses
I feel confident in the background, purpose and desired training outcome.	60.56% 43
I have no knowledge about the background, but good understanding of the purpose and desired training outcome.	26.76% 19
I have some knowledge but do not know any details about how it could affect me.	11.27% 8
I have heard the term sometime but never thought about what it meant.	1.41% 1
I have never heard of it.	0.00% 0
Total	71

Respondents' written comments excerpts

- *I had some knowledge and understanding. It improved over time.*

- *There is strong evidence that when we started almost nobody had a clue of what we were doing.*

Authors' comments

These questions, regardless of target group, remain as one of those that need more research to be fully interpretable. It is difficult to say if it is a good or a bad thing that over 87% of the respondents are either confident or at least has good understanding of competency-based training. It is good if it represents the actual reality and that their knowledge and understanding is applied in their everyday instructional practice, however, given the results of many of the other questions (including the next one) and the discovered challenges related to organisational transition, that is unfortunately not likely to be the reality.

Furthermore, it is also troubling if the confidence level is higher than what it reasonably should be. Individuals as well as organisations who feel that they have fully grasped the competency-based training principle are not likely to easily question their own strong beliefs in search for improvement and personal and/or organisational development.

Supported by the written comments – a lot of work remains to be done in the areas and topics related to competency-based training.

Question

- *Is your MPL training program a competency-based training program?*

Response alternatives and results

Answer Choices	Responses	
Yes	58.33%	42
No	6.94%	5
During some phases, but not consistently	27.78%	20
I do not know, but I think so	5.56%	4
I do not know, but I do not think so	1.39%	1
Total		72

Respondents' written comments excerpts

- *My feeling is that it is an overall difficult task for an ATO to make sure CBT is consistent through all training phases. Boiling it down to one training session CBT can easily start to break down when for example an instructor simultaneously has to deal with safety, time, and economy related aspects of training. The training organization is overall responsible to make sure everyone within the training organization share the same goal with regard to CBT.*

- *Almost, but still there are time limits during the training. You need at least 240h in total, you need at least x h in real aircraft (depending on which school and experience), you need at least 12 TGL etc. Why not the whole training?*
- *We still have to do 240 hours, whereof 70 flight hours and 12 TGL...*
- *Since Simulator time is very limited there is no CBT but in line training on the A/C there is seen a kind of CBT.*
- *Especially the core phase is very similar to conventional CPL-training and the competency is not always a factor.*

Authors' comments

This question was created to give perspective on how instructors perceive their own training programs. It was actually an expectation to find the highest response rates on the options stating “No” and “During some phases, but not consistently”, as there still are regulation in place that prevents the programs to be completely competency-based. As seen, the results show something else.

The question is then brought up how almost 60% so clearly states “Yes” with the other response options available. Although it in one way would be scientifically inappropriate to assume that the result is inaccurate, when put in context with other results both in this survey and the previous report it becomes challenging to simply accept that so many individuals, and in turn programs, have successfully made the organisational transition. Again, these topics really need to be further explored and preferably beyond the scope of this report.

Question

*Which competency areas provide the main challenges in initial training for MPL students?
(Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
Application of procedures	24.29%	17
Communication	24.29%	17
Situation Awareness	50.00%	35
Leadership and Teamwork	27.14%	19
Problem solving and Decision making	37.14%	26
Manual flight path control	52.86%	37
Automatic flight path control	11.43%	8
Workload management	48.57%	34
Application of Aeronautical knowledge and understanding	22.86%	16
Other (Please specify in comments)	0.00%	0
I do not notice any difference compared to other pilot students.	15.71%	11
Total Respondents: 70		

Respondents' written comments excerpts

- *Since most students are selected through challenging pre-testing they have good manual skills (most of them). However with the syllabus being so compressed finding ways to give them an adequate amount of scenarios to build their Decision Making, Situational Awareness and Leadership/Teamwork skills is difficult and takes away training time from getting just normal procedures down.*
- *IFR is to a much lower standard. The lack of a proper 3rd party failable flight test reduces quality assurance when commercial pressures are considered.*
- *I would say the main challenges are universal for all "inexperienced pilots". Not only MPL students.*
- *Communications initially quite poor required remedial training with local university. This also effected decision making.*
- *They simply do not get enough time to thoroughly train and practice it.*
- *They don't have the experience as students with more hours have. So when they get to the basic phase they do not have as much experience to rely on when making decisions.*

- *Experience in the air can't be substituted by academics and only partially by simulator training. To be able to manoeuvre an aircraft safely during special situations is important. Commercial pressure seems to be greater than safety.*

Authors' comments

Instructors see challenges in the same competency areas during the initial training as the line and training captains do later with the line flying. That is an interesting finding, as it suggests that the difficulties in these areas are first of all not appearing when the students transfer to the line flying environment and secondly that they need to be better addressed at an earlier stage.

It is a returning suggestion that the students need to have more exposure to scenarios and more time to gain a greater foundational experience level before proceeding to the airline jets. Perhaps that will become part of an improving solution as similar requests were to be found also from the MPL pilots themselves.

Question

- *In which competency areas do MPL students perform particularly well? (Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
Application of procedures	58.57%	41
Communication	27.14%	19
Situation Awareness	21.43%	15
Leadership and Teamwork	20.00%	14
Problem solving and Decision making	22.86%	16
Manual flight path control	17.14%	12
Automatic flight path control	24.29%	17
Workload management	10.00%	7
Application of Aeronautical knowledge and understanding	17.14%	12
Other (Please specify in comments)	2.86%	2
I do not notice any difference compared to other pilot students.	14.29%	10
Total Respondents: 70		

Respondents' written comments excerpts

- *Communication is good for the most part except for Asian students who seem to struggle the most. Manual control is safe by the end of solo phase and good by end of*

nav phase. Almost all students are solid in knowledge and procedures (being above average in knowledge).

- *Improvements in the Leadership and Teamwork section normally have quite a noticeable improvement. This generally also leads to a higher level of situational awareness.*
- *The training gives the student a more overall picture. It does not stop at ME IR SP, it continues further with the final goal.*
- *Highly motivated since they know where the training will take them.*
- *Anything outside the box is overwhelming them. Creative decision-making is reduced in favour of application of standardised knowledge.*

Authors' comments

Application of procedures has been highlighted as the area where MPL pilots have great proficiency from the start. Perhaps the procedural performance has even become too good as the application becomes poorly balanced when compared to other competency areas.

Already with this result it would be a recommendation to the MPL training providers to review their training syllabuses to maybe move some focus away from the SOPs and change the training content to better address the identified weaknesses. Some respondents have commented that MPL pilots have difficulties to act and respond to situations where the correct action in the interest of safety would be to deviate from the SOP, or even responding to situations where there are no SOPs. It seems only logical that with limited previous experience, the MPL pilots are familiar with the standardised procedures since they have been part of the very core of training since an early stage.

The MPL was meant to address SOP-challenges and in that way it can be seen as a success that now only needs tuning. Equally interesting is that communication got a higher number of responses than the use of automation from the instructors. Based on the insight gained with aviation training conferences, communication has been a major challenge due to the lack of high-fidelity technological ATC-replacements in the simulators. However, communication is so much more in the context of CRM and maybe this suggests that communicative skills have actually also improved. It is also known that communication challenges are more difficult in some parts of the world than others, as was also commented.

As a summary though, besides the procedural outcome, the other response rates are fairly low and that from an overall perspective suggests that much remain to be done if the initial theory behind competency-based training is really to succeed.

Question

- *Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?*

Response alternatives and results

Answer Choices	Responses	
A modular route via PPL, CPL and IR	9.86%	7
An ab-initio integrated frozen ATPL	35.21%	25
An MPL training program	53.52%	38
Other	1.41%	1
Total		71

Respondents' written comments excerpts

- *If airline sponsored the MPL route. If self-sponsored the modular route.*
- *As long as the initial screening and selection process is not compromised or 'watered down' and candidates can handle the stress, I would make the recommendation for MPL*
- *For any student being tagged to an airline is paramount (which all MPL programs are).*
- *I think it comes down to the decision-making. I have a current student that learned to fly at a university. He had five different instructors, no ab-initio style learning and almost no experience making decisions. I basically had to start over even though he had a PPL.*
- *The main problem with MPL is the fact you are locked to 1 potential employer. If that employer is unable or chooses not to hire you there are very limited options available.*
- *I believe that the frozen ATPL will still offer a more sound career choice for most pilots as it provides a backup in case their employment situation changes (i.e. they will be able to go work for a smaller airline/charter service in case things go wrong with their airline contract initially). In the long term if their initial employment goes well then the MPL is clearly the better choice, however there is greater risk in this.*
- *MPL training program will train more airline-adaptive pilots.*
- *The result obtained on this MPL course was so good all involved were of the opinion that this is a very effective training Airline Pilots.*
- *MPL takes you to the right hand seat during training and gain experience without the uncertainty what to do after initial training with 200 piston hours...*
- *There is much more real flying involved in this kind of training. In my opinion the most valuable training for a "pedestrian" is manually flying an airplane. Maybe there is even more manual flying involved in the modular route but the outcome (becoming an airline pilot) is rather secure with an ab-initio-training (also the financial risk).*
- *The quality of MPL training is good. The only trouble our students have is that they*

are not free to choose an employer in case of no demand at the educating operator.

- *The problem with MPL: you must stay with one operator.*
- *Recently the aviation market is very unstable that's why it is preferable to have the modular type then a training concept, which is linked to an airline. With the last option you are depending on the airline.*
- *ATPL provides the graduate with overall more job opportunities.*
- *Mostly due to the tough climate for new pilots. Most airlines require experience, which you get in an MPL program.*
- *Had already students who were not taken by the airline after the initial training and with choosing the MPL way they didn't have any licence and had to get an expensive additional training in order to get finally a pilot licence. Other problem could also be waiting time before starting the airline operation, during which the student is not able to fly even privately as he does not hold a licence.*

Authors' comments

The trend with more respondents recommending the MPL compared to previous target groups continues, but it is still difficult to put the results in a pure training quality context. The comments again reveal a lot of opinions more related to job security and career opportunities and based on this it becomes difficult to find any conclusive indications of what training currently delivers a better foundation to reach the airline with.

Question

- In your opinion, could something be done in a different way during the initial training to better prepare the MPL students for the airline operations?

Response alternatives and results

Answer Choices	Responses	
No. the initial training prepares them very well for the airline operations.	39.44%	28
I have very limited knowledge about the airline operations and cannot say.	19.72%	14
Yes (Please specify)	40.85%	29
Total		71

Respondents' written comments excerpts

- *Nowadays the human factors are the core qualification (the hidden Major in any flight school...) for flying a modern airliner. Science, especially in the human factors, has improved in large steps since the current training paradigms have been devised. The paradigms lag the scientific knowledge by approximately two decades! They have to urgently be revised! Problem is, this would likely disrupt the current MPL schemes.*

- *They do not learn enough what they need for flying, but they have to learn a lot what they never need and what makes really no sense.*
- *The current EASA approach of having an overblown question catalogue with repetitive questioning is not conducive to effective learning. Current test practices (both ATPL and MPL) are based on rote learning and students have great difficulty to relate test knowledge to the task at hand.*
- *Practical and theoretical training should be seamlessly integrated as far as possible. Basic concepts of airline operations such as standard operating procedures should be introduced (although carefully) already at an early stage.*
- *Even if we have had the MPL for almost 8 years it is still under development and improvement. Much of the contents to day are good but some fine tunings are still necessary.*
- *There should be a possibility for the students to see how they (as pilots) work as a part of the whole system, e.g. they should visit several departments of the related airline or authorities like ATC.*
- *More aircraft flying time preparing for manual flying skills. Simulators are generating generic scenarios of landings, this is no comparison to real flying.*
- *First step minimum 15h gliding experience to achieve basic stick & rudder skills, energy management and landing picture understanding. Introduce motor flying before fixed based training. After fixed base training re-introduce actual multi engine flying.*
- *1) Use an appropriate platform for initial training, not necessarily a SEP aircraft. 2) Integrate heavily UPRT, now most of the flight schools do not have the appropriate fleet to deliver such training.*
- *Change standardized off-the shelf training to individualized, competency-based training that combines latest scientific knowledge with acquiring vast/sufficient practical experience. Change standardized to individualized grading. We will not be able to replace it, no matter what we postulate or calculate (with oftentimes very poor statistics and not many people able to Interpret done mistakes...). We do not have to revert to ATPL, but thoroughly renovate MPL.*
- *This is very much dependent on each individual training organization.*
- *Basic ground instruction of fundamentals of flight (up to private pilot level) should be taught parallel to initial flight training, so that a thorough understanding of basic aerodynamics and principles of airplane control can be established. That understanding can then be transferred to more advanced airplanes.*
- *Continue to integrate real life area of operations into initial training and get applicants used to the pace of professional aviators early on, to further ease the transition into high performance platforms and professions.*

Authors' comments

The written comments included on this question were only a few of the ones provided. Together they represent the many different views on areas calling for improvement from the instructors and the ones not included are highlighting equal or very similar aspects as the ones above.

2.2.7 – MPL Ground or Flight Instructors, SFIs, TRIs – Concluding Words

From an overall perspective the MPL Instructors were found to be more supportive of the MPL concept than the captain categories. They were also better prepared with a larger proportion having been provided with structured information and training and there still appears to be a connection between the level of preparedness and stated opinion.

However, the instructors also bring up many important aspects from MPL training that need to be addressed. Some are well known, like the statements related to outdated theoretical knowledge requirements. But other areas, such as the identified competency challenges being similar to those found also at later stages of training in combination with the highly confident responses about the knowledge, understanding and above all existing application of competency-based training is of more concern.

As with the other target groups, not all questions asked to the instructors have been included in this report that still deserves some comments. The first one was how instructors perceive the training performance of MPL students in comparison to the training performance of students involved in other types of airline pilot training. Around 42% saw no difference, while just over 36% stated that they generally are above the average standard and 4% that MPL pilots are far above the average standard. Only around 8% stated their training performance to be below average and just over 1% responded far below. Finally 7% said they performed differently and the remaining 2% did not have enough experience to properly answer the question. This result is another dimension to MPL training, but training performance should arguably be closer related to the quality of the training itself with very close connection to the initial selection of students. As such, this is another indication on the importance of thorough selection – regardless of training methodology.

The instructors were also asked if they had been given any opportunities to help develop their training programs. 40% stated “Yes” and that they also had helped to improve, but another 38% stated “No” while also saying that they think they could and also would like to help. Here is an important piece to the puzzle in instructional systems design (ISD) and the iterative process of continuous development that has to be better utilised. Whatever feedback is available should at least be assessed and evaluated in order to not be limited by the old adage saying “if it isn’t broke, don’t fix it” – as this is in contradiction to the principle of ISD. It is a challenge to question aspects that more or less function in any context, but even when they do not function as intended and as one respondent commented *“nobody is interested in looking at and correcting mistakes, because that costs Money and Reputation.”* There are always some aspects of training that could and should be improved and as another respondent

commented *“good feedback to management is essential for MPL to succeed and advance.”* This is true and need to be better recognised.

Finally and to summarise the results from the instructors they were also asked if there were any additional comments they would like to provide. Although few in numbers, one state that the *“MPL was not “sold” well to the industry”* and that *“the airline industry historically equates experience with performance”* while also saying that his is a paradigm that needs to be adjusted. It is more dependent on the quality of the training than the letters printed on the first page of the syllabus.

2.2.8 – MPL Graduates – Survey Results

Introductory words

With the fourth target group we move on to the individuals who previously have been involved in the very core of training – the MPL graduates. In this target group there were around 115 out of 540 respondents, or around 21.3% of all participants.

It was considered highly important to include both MPL students and graduates as target groups for the survey for several reasons. Firstly because their feedback and reflections on their own training from an inside perspective cannot be better provided by anyone else. But more importantly, it seemed as if no one had asked these individuals how they had perceived their own training and if it really had prepared them as well as intended.

This would be the first real insight into the thoughts of the people who also are the results of both the current and previous MPL training programs.

Question

- *When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?*

Response alternatives and results

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	24.35%	28
I was at first indifferent, but now I am negative.	13.91%	16
I was at first positive and remain positive.	36.52%	42
I was at first positive but now I am negative.	13.91%	16
I was at first negative and remain negative.	0.87%	1
I was at first negative but now I am positive.	2.61%	3
I have no opinion on the MPL.	3.48%	4
Other (please specify in comments).	4.35%	5
Total		115

Respondents' written comments excerpts

- *The program itself is not bad if the training is continuously provided. This is unfortunately these days not everywhere given as my own experiences showed as well as the situation of flight students in later courses of my own airline and in another company where either only the base training was provided or no type rating at all. Therefore students are extradited to their airline without any alternative.*

- *Never thought that my fear of getting stuck after graduation without any licenses to find work worldwide would materialise.*
- *I was at first positive, but now I am indifferent since I see some good benefits of MPL combined with problems.*
- *Less training is never good for safety. It's very basic, but in no regards necessary.*
- *Was really hard to find any information and the things you can find is mainly negative rumours.*
- *The only negative thing about the MPL was, that the licence had to stick to only one operator and if the licence couldn't be finished at one operator the student has nothing but a PPL (like this it was with Lufthansa)*
- *The new MPL course initially had many questions about what it could offer but proved to be an effective way of controlling the spiralling cost of training.*
- *The training is good, the problem is that the aviation community does not know how good it is! There are many widespread negative rumours of the MPL.*
- *First indifferent then both positive and negative. Positive because I liked the fact that from the very beginning you are always in the "co-pilot role". Negative because MPL is connected to a specific airline. If the airline doesn't employ you, your chances at other airlines are bad.... They all want an ATPL.*
- *My own opinion for the certificate and training itself is positive. But my experience after graduation has of course been that the MPL-certificate has been a brake pad in a couple of situations, unfortunately.*
- *Positive on the concept as whole but pessimistic on certain implementation aspects.*
- *Since I did not really understand what it meant, it was hard for me to have an opinion from the beginning.*
- *It is still a negative that upgrade to captain requires more PIC/PICUS than a CPL. Should be the same.*
- *My company recruiters did a good job at selling their MPL courses. After a complete graduation, no possibilities of transferring to the airline after the training and the operator commitment, the outlook is VERY negative.*

Authors' comments

The results of this question reveal mainly two important things. The written comments again tell that the license restriction and career opportunities have been a major consideration before answering this question. The balance here is around 60% leaning towards a positive position with 30% being negative and the rest with no or other opinion. It would be interesting in a deeper study to ask about their position when simply focusing on the training quality. The comments indicate that the training itself has been more positive.

The MPL graduates also confirm the challenge in finding proper information while simultaneously mentioning that there are several negative rumours to be found. Perhaps these rumours in turn are a result of that lack of information and they clearly have had an effect on how the industry has received the MPL concept as was discovered with the previous study.

Question

- *Who was involved in the selection process before you started your MPL training program?*

Response alternatives and results

Answer Choices	Responses	
The ATO.	21.74%	25
The partnering airline.	33.04%	38
Both the ATO and the partnering airline.	39.13%	45
I do not know.	3.48%	4
I did not go through any selection process.	2.61%	3
Total		115

Respondents' written comments excerpts

- *External agency held the assessment on behalf of the airline.*
- *What is ATO? I was tested by the airline and an organization they use to determine the strength and qualification of the applicants.*
- *2 day assessment with the ATO and one day assessment with airline.*
- *I'm actually not sure if the airline was involved behind the scenes but interview was only with psychologist and representative from the school.*
- *My airline.*

Authors' comments

The overall recommendation for any MPL program is to develop a close cooperation between the ATO, the airline and the regulator that is to oversee the training. The initial selection has also been argued as one of the most important aspects for a successful training outcome and as such should at the very minimum be performed as a joint initiative by at least the ATO and the associated airline. Again, the results reveal a reality that differs from the recommendations with only 40% having that experience and more than half (54%) of the graduates only having been selected by one of the partners. The 6% that did not know or did not go through any selection process provides further indications of great concern.

There are more dimensions as to why selection is so important in an MPL program. One of them is the greater absence of “natural selection” in MPL training. A student application process will never provide a 100% result where every selected candidate in the end is as suitable for the profession as initially thought. Selection helps, but needs to be continuously evaluated not only to provide proper students but also to continuously meet and deliver on the industry changing expectations of the role.

However, and when compared to the more traditional path to the commercial aviation industry, the MPL with its more direct route towards the airline profession has less opportunities to discover the indications of that perhaps the selected MPL student should be discontinued. If the pressures of investments in terms of both time and money are added on top together with the current MPL regulation that leaves the student with almost nothing that he or she can be accredited for in case of such discontinuity, it comes as no surprise that both the student and ATO and/or airline perhaps are reluctant to put an unexpected early end to the training even when that is the correct action.

The financial focus of the industry also in training is a problem for the MPL. Not because the MPL necessarily is more or less expensive but because the changing training philosophy brings both cost-related challenges and windows of opportunity. With the previous report it was argued as an additional challenge to the implementation of competency-based training as the development of competencies, and no longer units of time, was the new unit to measure progression with. Time can also be spelled cost, and when time no longer should matter it could be interpreted as either a way to save or add time and thereby also save or increase costs. For that reason and as long as aviation training has a price tag, proper selection is the only resource and method that in one way could predict the time needed and thereby also the cost needed to develop the necessary levels of competency.

The aviation industry need to raise the question how much a proficient new airline-entry pilot is allowed to cost. All pilots, regardless of experience level, could become safer aviators and operators with more training and thereby with more costs. However, where the level between the calculated risk and “necessary” cost lies will never be known until it is crossed with a serious incident or accident as a result. From another perspective, as long as accidents continue to happen that could have been prevented if only the pilots were better trained and prepared and unless those accident are included in the calculated risk - the industry is on the wrong side of that line.

Question

- Which position do you have today?

Response alternatives and results

Answer Choices	Responses	
First Officer	85.96%	98
First Officer currently involved in/preparing for Captain upgrade.	5.26%	6
Captain	1.75%	2
I am no longer an operational pilot (feel free to specify any reason in comments).	7.02%	8
Total	114	

Respondents' written comments excerpts

- *For me the only exciting part was planning the approach, and managing the turn-around on the ground. The rest of the time basically is just me waiting for something to go wrong so there is something to do in a loud environment. I don't see why airlines would put out ads that they're looking for tech savvy persons, because in the end a really tech savvy person will not enjoy looking at the same sunset or whatever 100+ times.*
- *Unemployed since line training*
- *In a different airline than was trained.*
- *My partnering airline went bankrupt. Finding a new job, with acceptable terms and management, was difficult. I was given a great opportunity outside the aviation industry. Considering my current employment and the declining aviation industry standards, I have remained outside aviation.*
- *No job right now as my airline doesn't offer any jobs. Due to operator restriction no chance to work for a different airline.*

Authors' comments

This question was mainly intended as a simple mapping of the MPL pilot positions and although it was nine years since the MPL was launched very few have gone through a command upgrade with the absolute majority remain in the first officer position. Perhaps the result shows a beginning of a trend with more FOs getting ready for upgrade, but the question also raised another reflection in regards to expectations.

With the previous question “natural selection” was discussed from an industry perspective. Here that selection process can be resurfaced but from the perspective of the MPL pilots. Selection is important to ensure that the appointed candidates have the necessary prerequisites to become proficient airline pilots, but what about the other way around to ensure that the airline profession is the right choice for them? With the comments there are indications of

such mismatch and where the expectations on the profession itself was not at all aligned with how it had been perceived by the graduate.

With the traditional path the aspiring future airline pilot may have had more time to create realistic expectations – that is if the route to the airline has gone via several different aviation jobs and experiences. If the discussion instead relates to pilots entering the commercial airlines immediately following the completion of initial training and regardless of that initial training concept being MPL or more traditional in nature, the challenge is more on how the industry should communicate expectations to the future pilots. Such communications are necessary and what a mismatch leads to becomes obvious when reviewing the comments. The industry does not want to attract pilots who are so under motivated, or even complacent, in their work that they are simply “*waiting for something to go wrong so there is something to do in a loud environment*”.

Question

- *Was your MPL training program a competency-based training program?*

Response alternatives and results

Answer Choices	Responses	
Yes	48.25%	55
No	4.39%	5
During some phases, but not consistently	19.30%	22
I do not know, but I think so	24.56%	28
I do not know, but I do not think so	3.51%	4
Total		114

Respondents' written comments excerpts

- *It was mentioned a couple of times, but not very well focused on.*
- *Feedback to Admin: This question could be clarified.*
- *Especially in the flying phases, concrete skills were taught and required by trainers.*
- *We were developing the MPL program as we went along.*

Authors' comments

Before providing any thoughts on this question it should be mentioned that the MPL graduates also were asked about their level of understanding of the original purpose and underlying training principle of the MPL. In these questions nothing was mentioned about competency-based training. 39% agreed (36.5%) or strongly agreed (2.5%) on that they had understood the purpose and training philosophy before their training started while the

remaining 61% was either unsure or disagreed at the time. “Today”, following graduation from their MPL training 85% agreed (60%) or strongly agreed (25%) to that same statement.

However, when reading the written comments it becomes questionable what exactly the respondents agree to have understood. Comments range from *“it was basically communicated that this is less training and therefore cheaper, but only behind the scenes, never officially”* to *“...in the training process and the upcoming trouble with the partner airline I began to understand the purpose and principle of the MPL program”*. Furthermore, the respondent who wrote *“feedback to admin: this question could be clarified”* was clearly not familiar with the term is his or her training reality. In none of the comments there is any mentioning of competency-based training and the indication of that any sensation of understanding arrives long into the training process is troubling.

If focus instead is turned towards this specific question that was more direct, even more perspectives are found. The first interpretation assumes that the results are correct and representative which would indicate that about half of the MPL graduates have been through an adequate competency-based program and another 20% a program that at least in part was competency-based. Although only 4% answered “No”, the more insecure response options basically means the same thing as arguably the program is not properly focusing on and assessing competencies if the students themselves are unaware of it.

Putting these questions together the true combined results becomes difficult to find. In the assumption of that the result really are true, it is still somewhat of a disappointment that only around half of the MPL programs actually have become competency-based almost ten years after the implementation. Furthermore, this result is not at all matching the data provided by regulators or managers and responsible who were asked the same question about their respective MPL programs and where the results were in the high nineties (this mentioned data can be found with their target group results and is later presented). If the results are inaccurate, which is more likely, it is a real concern to the MPL development. Adding the perspective that there still are rumours and interpretations, or facts, about cost-cutting exercises must be interpreted as the industry still have problems understanding the MPL or that the financial parts in the end really is more important than the training quality and outcome. Both are equally unfortunate.

With the previous study there were also a section that focused on the generational differences between what commonly has been described as “digital immigrants”, meaning those born and raised before the rapid digital and technical development and the “digital natives” that instead were raised in today’s highly technological environment. The discussion touched how these different environments also have had an effect on training and learning styles. As a final word on these questions, the generational aspects are clearly present as one respondent who also were uncertain about the meaning of the question answered – *“had to Google it”*.

Question

- Which competency areas provided the main challenges for you during your line training?
(Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
Application of procedures	18.92%	21
Communication	27.93%	31
Situation Awareness	36.94%	41
Leadership and Teamwork	12.61%	14
Problem solving and Decision making	21.62%	24
Manual flight path control	27.03%	30
Automatic flight path control	16.22%	18
Workload management	38.74%	43
Application of Aeronautical knowledge and understanding	18.92%	21
Other (Please specify in comments)	13.51%	15
I did not have any particular challenges.	15.32%	17
Total Respondents: 111		

Respondents' written comments excerpts

- Landings.
- Setting of priorities in real airliner environment.
- Sim skill test in January, Base Training in March, first flight for IOE in July -> too inexperienced to keep up the high knowledge level from the simulator phase. Very high focus on abnormal situations therefore small problems with SOPs in the beginning (2-3 days). Situational Awareness and Workload Management only in the beginning. Line flying is just so much different compared to simulator.
- FSTD training not realistic enough to simulate real life situation, profile management, CRM including cabin crew.
- Ground-OPS and the many different influences on operation (delay, weather, ATC, catering, PAX, wrong OFP, etc., etc.) also flying in the real environment with all the influences that cannot be simulated yet.
- Landing technique.
- I felt difficulties to communicate over radio due to the different dialects and phrases which I was not used to hear. Decision making was difficult because you have not

experienced this other than normal situations when you have to coordinate with cabin crew, handling, technician, OPS, etc.

- *Priority of tasks.*
- *CRM.*
- *No one specific area but being in the actual aircraft does have a profound effect on capacity.*
- *The lack of real-world experience with IFR-communications and the long time out of an actual airplane during simulator training made coming back directly into heavily trafficked international airspace a challenge.*
- *Flew a lot of manual control (Direct Law) on the Airbus 320 during training. Manipulation of the FCU and management and understanding of the FMGC, Nav Database and the FMA was kept to a minimum. You cannot simulate radio communications in a busy traffic environment in the simulator, combining RT with other tasks was initially very difficult.*
- *The MPL program provides very little exposure to real world situations such as ATC and weather. It takes some time in Line Training to get used to them.*
- *Looking back one realizes the lack of experience in flight path planning.*
- *The lack of experience in operating in different countries in regard to ATC and airport procedures was something that could steal some capacity in the early stages of line training. I guess that this is something that is difficult to teach students before line training anyway.*
- *Flare. Energy management.*
- *It's hard to simulate everything going on around the operation of the aircraft. After 100hrs in a simulator I had my box with walls made of procedures and theory. When I started line flying I realised that the box had to be flexible and during this "realisation-period" I would say workload management was my biggest challenge.*
- *I believe that both the ATO and airline should have better trained us for application of some complex procedures and point out to us the areas of great importance throughout our A320 operational, procedural, and systems knowledge and provide us with better clarity and consistency throughout line, ground and recurrent training.*
- *Stabilization on short final, possibly due to a bad visual provided by the fixed base simulators (no correct eye point).*
- *Radio Communication.*
- *Adequate descent planning and monitoring during high workload.*
- *The Biggest problem was the time pressure and energy management during flight.*

- *The thing I found most difficult was "fitting in" among colleagues. It seemed like a lot of my colleagues had a hard time accepting us MPL's. This affected CRM a bit I would say. Power distance was too big in the cockpit.*

Authors' comments

The result of this question is perhaps one of the more important in the entire report. Not only does the feedback from the MPL graduates themselves almost perfectly match the feedback from the line flying captains, the written comments also indicate that it is due to the same reasons related to lack of experience and exposure. This is huge topic for discussion and it will be continued after the results section. For now, the results and written comments speak for themselves.

Question

- *In which competency areas did you feel that your training had prepared you particularly well? (Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
Application of procedures	69.37%	77
Communication	44.14%	49
Situation Awareness	38.74%	43
Leadership and Teamwork	45.05%	50
Problem solving and Decision making	43.24%	48
Manual flight path control	46.85%	52
Automatic flight path control	51.35%	57
Workload management	30.63%	34
Application of Aeronautical knowledge and understanding	32.43%	36
Other (Please specify in comments)	1.80%	2
I did not feel particularly well prepared in any competency areas.	0.90%	1
Total Respondents: 111		

Respondents' written comments excerpts

- *I felt ready. But I have always taken any chance to get extra training, as far as it was possible with the airlines' failure policy. My motto was: If I can get it, I take it. That got my some extra hours compared to my colleagues.*
- *Systems knowledge was a large focus in the training, but the information only started making sense on the line.*

Authors' comments

Again the results match the other target groups with application of procedures and automation being considered as the biggest strengths. Worth noting is that manual flight path control, communication, leadership and teamwork and problem solving/decision making is not far behind when the MPL graduates are to evaluate their own performance. Perhaps no one is right or wrong and that the reality is actually a matter of expectations. In other words, what do the line and training captains expect in terms of level of performance from the MPL pilots compared to what they expect from themselves after graduation.

Question

- *Could something have been done differently during your initial training to better prepare you for the airline operations?*

Response alternatives and results

Answer Choices	Responses	
No, nothing that I could think of	61.61%	69
Yes (Please specify)	38.39%	43
Total		112

Respondents' written comments excerpts

- *More lessons in the aircraft instead of FSTD for a better understanding of environmental challenges.*
- *Instructors in the final stages of training (type rating) could be current pilots from your airline so that they can impart useful knowledge, skills and SOPs for line operations.*
- *More contact with the airline during flight school e.g. for motivation.*
- *More flight hours (Not FSTD).*
- *More actual aircraft time on pistons (at least 100 hours IFR)*
- *Com Training*
- *Maybe after completion of all the abnormal stuff a few (like 3-5?) sessions of normal operation, but without flying the complete route.*
- *Training for normal OPS like decent planning and "everyday"-stuff should be improved.*
- *More manual handling.*
- *I would have liked more information from the airline. It is linked, but the flow of information and what you do in flight school compared to what you do now was not*

good.

- *Workload management.*
- *Need instructors from airlines to enlighten us how a rookie pilot should do and should behave in real working environment.*
- *More flying hours on the 2-eng a/c.*
- *Better connection with the host airline from day one. Arrange jump seat rides with the company during initial training to get inspiration and also to know what to prepare for. I did commute back and forth to my school and managed to get the jump seat at least 10 times which I think made me more prepared for the airline operation.*
- *We had long delays during our training. Longest delay was from end of basic phase to beginning of intermediate phase (18months). Also too little training in the real aircraft. The FSTD do not simulate the real environment well enough. After I finally got my A320 rating without IOE, I completed a CRJ900 Rating with a different operator then I was originally intended for. Now I am flying my IOE with this different operator since two months but I again have to wait, because there is a lack of TRIs. Flew 8 Sectors in whole July and am scheduled to fly 12 sectors only in whole August. To my mind, the MPL-Program has many advantages compared to the ATPL program but the airlines and ATOs I experienced are not up to the challenge. Therefore all positive effects are countered and only the negative effects prevail. As long as ATOs and Airlines are doing their planning ad-hoc, they should not try to participate in the MPL-Program.*
- *More missions in the a/c.*
- *In our training we first had 1 year of theoretical knowledge without any flying. This should be avoided under all circumstances. My company even changed this after half a year because the understanding of the theoretical stuff is much better after the first hours of flight.*
- *There is a lot more admin involved in the airline world then I was told about during training.*
- *Instructors have to be from the particular airline in order to standardize procedures.*
- *More flight hours in "real" airplane*
- *I think a bit more training on communications would have been good and maybe some more jump-seating. That manual flying is a challenge with the small amount of training I think is to be expected, and I'm not sure what could be done differently, without more time. Even though it was challenging it wasn't undoable.*
- *Would have been good to start observation flights with the company during the simulator phase of the training to see the theory and sim-based training lessons in action. Things would have clicked a lot earlier and the line training learning curve would have been less steep.*

- *More landing practices for everyone*
- *1. More real aircraft flying (handling in the sim and actual aircraft are dramatically different) 2. Same aircraft type for FSTD and actual aircraft to fly in the airline 3. it is different to fly with your MPL classmate and a captain (not sure what can be done for this)*
- *More hours on real flying.*
- *Narrower runways, more crosswind, higher demands on landing accuracy. More theory regarding energy management, techniques, experienced pilots describing different scenarios.*
- *Training should be aim towards the captain's seat. I have tried to find an answer to how many hours are required for upgrading MPL to ATPL but received different answers. Is it 70hrs (+230PICUS), 100hrs (+150PICUS) or some other number? Anyhow I think a MPL-pilot should be just as "upgradeable" as the CPL/ATPL upon graduation. I had 37 PIC hours when I graduated.*
- *Flying at bigger airports with more traffic.*
- *More training on descend planning for normal approaches.*
- *To teach the same airline procedures and not the academics own in simulator.*
- *Openness of requirements as to what the airline was looking for, standardisation between the training school and the airline.*
- *Training on ATC communication from real-life situations. Except during initial flight training, this was given negligible focus. Also the simulator training, especially during the final phases of type rating training, should be adjusted to better reflect everyday real life flying, e.g. include fuel saving techniques and put more focus on energy management.*
- *I wished there was some part of the training that prepares you for the every-day challenges (turnaround, normal descent profiling without abnormalities...)*
- *Been better prepared with the full procedures, from start up to shutdown. Energy management during approaches.*
- *More training and studying in the OM A + B. Scenarios from a day on line. Not just jump seating. But small problems that you as a crew can encounter on a normal day: Late baggage, wait or fly. Late passengers, wait or fly? CTOTs? What is it, when are we allowed to depart. etc.*

Authors' comments

Although 60% appears to be fully satisfied with their training, those who felt that some elements were missing and left thoughts on how to improve made a large contribution. Most of their comments that were not a complete repetition of others were kept on this question as they highlight the many differences in what the MPL graduates would have wanted more

exposure to and preparation for during the training. Which comments that are applicable to which programs of course differs, as well as to different individual needs. There is a summary of recommendations at the end of the report, but it is appropriate to already here advise the organisations involved with MPL to go back to basics with their training. In other words, collect the feedback from the individuals involved at the core of the training, use the iterative process of instructional systems design to get a continuous development of the training syllabus and not least focus on harmonise the expectations of both students, ATO, airline and regulator while also using a proper and functional competency-based evaluation and assessment tool.

Question

- *Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?*

Response alternatives and results

Answer Choices	Responses	
A modular route via PPL, CPL and IR	9.91%	11
An ab-initio integrated frozen ATPL	27.93%	31
An MPL training program	54.95%	61
Other	7.21%	8
Total		111

Respondents' written comments excerpts

- *That question is way too complex to be reduced to 3 choices. Factors like financial and educational background, but also whether that someone has been through college and maybe already started working in another field play into that recommendation.*
- *Depending on age and money to spend. I would recommend ab initio ATPL or de modular way.*
- *No specific opinion... every license has certain advantages and disadvantages.*
- *Either a sponsored ab-initio training or the modular way while working in another job to have a fallback in case no job is available after training.*
- *I would not recommend anyone to become an airline pilot*
- *Strongly depending on the type of job one is looking for. As a MPL holder is nearly impossible to get a job in the general aviation. If one gets the chance to join a MPL program I would definitely recommend him / her to do so.*
- *Either program will be fine..*

- *As mentioned above, airlines are not up to the structural challenges required by the MPL-program. I would never ever participate in an MPL-program again and would never recommend it to anyone.*
- *Depends! If you want to be an instructor, the MPL education is not good!*
- *To be trained for an airline significantly increases your SOP knowledge and you can become better at the airlines specific type of aircrafts. The MPL provides you with the good tools you use when you work in a team and act as a team, as in today's commercial aircrafts.*
- *I'd recommend them to find a sponsored training course if they can, regardless of which type of program it is. I'd tell them to think really long and hard about it if they need to pay for their own training, with the sorry state of the airline business. I think the MPL works well, at the right school, with the right connections, and the right students.*
- *Each has its merits.*
- *I think MPL is the way forward, it prepares you for what to come. But the industry still needs to improve so for example we can become CPT without 500 h PICUS.*

Authors' comments

As with the previous target groups there are a lot of ranging opinions. Those who feels that their MPL training has been a good experience recommends it also to others, while those who have been trapped in the system and where expectations have not been met has a negative view towards either the MPL or to the industry profession as an airline pilot in general. Again, career opportunities have a greater focus that steals reflections from feedback more related to training quality.

There is another industry concern to be surfaced with these comments. All around the world the industry are now (spring, 2016) starting to experience challenges with pilot supply as the growth continues and many who are retiring or in other ways leaving are becoming increasingly difficult to replace with new hires. If the airline profession has become a reality where even the new recruits are having second thoughts about their career choice after such short period of time it is yet another concern that needs to be addressed.

Question

- *At the completion of your MPL training, how prepared did you feel for the professional role as an airline pilot?*

Response alternatives and results

Answer Choices	Responses	
I felt very well prepared for the professional role as an airline pilot.	27.43%	31
I felt well prepared for the professional role as an airline pilot.	55.75%	63
Unsure	13.27%	15
I felt poorly prepared for the professional role as an airline pilot.	2.65%	3
I felt very poorly prepared for the professional role as an airline pilot.	0.88%	1
Total	113	

Respondents' written comments excerpts

- *However the real good training came along with the line training at the end*
- *It was okay. I have to admit, that I think the school was good and probably one of the best I could attend. But still, the solution could and should be better.*
- *The line-training within the company prepared us well!*
- *But I will caveat that answer with the fact that I feel like I missed out on a lot of valuable experience flying smaller aircraft.*
- *Good preparation but more actual hours would have been nice.*
- *In most areas but not in all.*

Authors' comments

Before providing some concluding words about the data from the MPL graduates this question is another way to summarise their own perception of how well the training has delivered on its goal to prepare them for the airline profession. From both comments and data results with around 83% feeling well or even very well prepared for the role a general conclusion has to be that the MPL still creates a sufficient foundation to join the airlines according to the majority. That does not mean that the ATOs and airlines or the industry in general should be satisfied, but continue their efforts to improve as the results also have revealed many areas still calling for improvement.

2.2.9 – MPL Graduates – Concluding Words

The MPL graduates have probably brought some of the more important insights to this report and the already provided comments from the authors together with the results themselves speak a clear language in what areas are good and what areas both deserves and needs more attention. As have been mentioned, these areas will also be further discussed after the results section in different contexts.

One major area that has only been briefly mentioned with the results above is the one related to the MPL license restriction. As this has been a returning topic from all of the target groups it will also be more thoroughly and overall discussed later.

Results from other question that were also asked in the survey but not highlighted here in the report are for instance if the graduates have been given any opportunities to help develop their MPL programs. Here only 23% answered “Yes” and that they had actually helped. Although another 11% also answered “Yes” but at the same time believed that they couldn’t be of any help it was actually over 44% who answered “No” with the opinion that they also could and would like to help. The remaining 22% had not been asked but did not either think that they could help which is a bit surprising perhaps as everyone should have some reflections on their own training experience. As was true for the instructors, this is feedback that needs to be better utilised in the developing processes.

That MPL graduates were also asked a large number of simple numerical data collecting questions related to their training programs about actual flight hours, hours in FSTDs, hours in multi-engine aircraft, number of landing during base-training etc. All of those results can be found with the complete raw data collection appendix.

2.2.10 – MPL Students – Survey Results

Introductory words

In the fifth target group the focus is kept on the individuals who are involved in the very core of MPL training but this time the ones who not yet have graduated, namely the MPL students. In this target group there were around 200 out of 540 respondents, or around 37% of all participants.

200 unique respondents is an impressive result to any survey and the only aspect to challenge why these results are not industry representative is that it remains impossible to identify how many different MPL training program their responses represent. So far one of the conclusions has been that there are major differences between different programs in terms of both content and quality.

Question

- *When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?*

Response alternatives and results

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	18.81%	38
I was at first indifferent, but now I am negative.	19.31%	39
I was at first positive and remain positive.	30.69%	62
I was at first positive but now I am negative.	15.35%	31
I was at first negative and remain negative.	5.45%	11
I was at first negative but now I am positive.	5.94%	12
I have no opinion on the MPL.	1.49%	3
Other (please specify in comments).	2.97%	6
Total		202

Respondents' written comments excerpts

- *I was positive and I am still positive. But it depends on the airline. The MPL makes the student very dependent on the airline. Thus, I think the airlines should be involved even more in the training and should make more commitments to the students.*
- *I am now negative because the airline for which I will be graduating does not have any needs for new pilots and therefore I will be confronted with me finishing with less flying hours than an ATPL graduate.*
- *The MPL appears to have a bad reputation from other pilot trainees and some instructors. I do not know how it is seen in other parts of the industry but most of the*

bad reputation is due to lack of understanding of the MPL scheme as a whole.

- *I was initially worried that I wouldn't get a broad experience because I thought the course was very tailored. However, I have grown to like the MPL as it focuses on what is important and current e.g. flying using glass-cockpit, GPS as well as allowing practise of more traditional ways of navigation e.g. NDB. While I still think the course is very tailored, I see this as a very positive element of the MPL. Due to the 'broad-but-tailored' training, I am confident I will arrive at the right-hand-seat with the necessary skills of a modern-day multi-crew airline pilot. Having to do everything single pilot during this course i.e. aviate, navigate, communicate, brief, complete checklists is useful as it builds mental capacity and confidence. Overall, I am very pleased with the MPL.*
- *I was first confused about this training, but after I know about the training, privilege and limits of this license, its connection with airline transport operation and how can I get ATPL, I am positive.*
- *As a student waiting on a type and line training MPL is a bad choice because we can't fly for other airlines like you could do with an ATPL*
- *Operator binding is negative and the reduction of flying hours compared to ATPL is negative. Also the fact that you do not hold any other licences like CPL etc. which were part of the ATPL in the MPL training make you completely addicted to the training company.*
- *From what I heard, MPL was very limiting than a regular CPL. Now more knowledge about it has given me a more positive view.*
- *Due to the airline restriction, I can't go to another airline. So right now, I'm waiting for 3 years.*
- *First, I only worried about the reduced number of training hours. This was no factor until now in the training. But now I am completely dependent on the airline where I completed the training. At the moment there are no jobs and thus I am obliged to wait without other alternatives.*

Authors' comments

There are not really any additional interpretations to this question than what has already been mentioned with the previous target groups. Although the results point towards that there are more positive than negative positions towards the MPL with the MPL students, the need for better and harmonised information is clear. The returning topic of the consequences of the license restriction has also had an obvious impact on the responses and as mentioned this restriction will be thoroughly explored in the discussions section following the results.

Question

- *Who was involved in the selection process before you started your MPL training program?*

Response alternatives and results

Answer Choices	Responses	
The ATO.	7.61%	15
The partnering airline.	38.07%	75
Both the ATO and the partnering airline.	40.10%	79
I do not know.	12.18%	24
I had no selection process.	2.03%	4
Total		197

Respondents' written comments excerpts

- *Trying to save money was never cheap...*

Authors' comments

The results on this question are quite similar to the results from the MPL graduates. There is a light shift from “The ATO” (≈21% with the MPL graduates) towards “The partnering airline” (≈33% with the MPL graduates) and the option of not knowing who was involved. The result remained around 40% for students who had been selected by both the ATO and partnering airline.

As the results from the MPL graduates was basically a look back in time, the results with the students is a view that better represents the current situation. There were not many written comments provided with this question that could provide additional insight but it is still an unfortunate finding that there has been no development in how MPL training partners work together with the selection of their students and future pilots. Especially as, again, selection has been found to be one of the more important aspects to a successful MPL training and as someone commented; *“Trying to save money was never cheap...”*

Question

- *What is the planned duration of your MPL training program? (From start to the completion of Base Training)*

Response alternatives and results

Answer Choices	Responses	
Less than 15 months	5.13%	10
15 - 18 months	12.82%	25
19 - 22 months	14.87%	29
23 - 26 months	32.82%	64
More than 26 months	34.36%	67
Total		195

Respondents' written comments excerpts

- *By the time we have finished our type rating it will be a time span of 30 months.*
- *I started in September 2011. After 1 year theoretical knowledge I went straight to the VFR flying phase. Thereafter, I had almost 1 year waiting time between VFR and IFR flight phase. Up to now the waiting phase after IFR phase for the type rating are 14 months, I am expecting at least 5 more months until the begin of TR.*
- *18 months.*
- *It's been 4 Years now and the end is not in sight yet.*
- *57 months till base training...*
- *More than one, very long break during training.*
- *Took more than 6 months longer due to instructor shortage/mismanagement...*
- *Originally planned 23 months, changed to 30 months during training but actually 55-60 months.*

Authors' comments

Originally this question was created as one of many to evaluate how well the theory of competency-based training was being applied where the achievement of competency rather than time is to be used as a unit of progression. This question was followed by "What was the actual duration of your MPL training program" with the MPL graduates and the number of deviating responses could act as indications together with the other questions asked about competency-based training.

The results did reveal that there were a large discrepancy between planned and actual training time, especially as the written comments reveal, but the reasons behind this discrepancy did not seem related to a finding that competency-based training had been successfully utilised. The reason were more related to organisational issues such as lack of MPL instructors or airlines not offering line training after the completion of the type rating which made the students locked in positions without any possibilities to graduate. As shown so many times before with this report, the MPL license restriction has had a negative effect of the training although lack of qualified instructors perhaps is a different challenge. Regardless, for these reasons the question could not provide any indications of how well the competency-based training approach had been applied.

However, by just looking at the results there are some things of obvious importance and in particular that there are huge differences in the planned duration of MPL programs. Although not a single reason for a difference in quality between the programs, it is very clear that a student arriving to training with no previous flight experience will have a significantly harder time to reach a level of proficiency in 15 months or less even if competency-based training as intended would be applied.

It is good that the majority of the programs appears to be at least around two years or more, however to think that it is possible to be ready in even less than 15 months as just over 5% responded is a disappointing finding. Not only is it unfair towards the students, it is a likely confirmation of that some providers actually are running cost-cutting exercises and using the potential benefits of the MPL concept in a detrimental manner. Furthermore, those programs have a negative effect on the entire MPL community that are working hard to try and improve pilot training as it has already shown to be easy to judge the MPL pilots as a group rather than as individuals.

Question

- Has your MPL training program been performed as a competency-based training program?

Response alternatives and results

Answer Choices	Responses	
Yes	45.03%	86
No	4.19%	8
During some phases, but not consistently	21.47%	41
I do not know, but I think so	22.51%	43
I do not know, but I do not think so	6.81%	13
Total		191

Respondents' written comments excerpts

- *Have learnt about the background, but not fully understand all of the knowledge.*
- *I don't know what you mean with competency-based training.*
- *In theory, the company waiting periods are very destructive for my learning progress.*
- *Although I have met competencies, I have experienced being compared to ATPL trainees and how we MPL are good at following checklists but not so good at understanding why the checklist says what it does and not looking at the bigger picture. One instructor commented that he finds MPL students to be scared to look at the context and adapt procedures/checklists as necessary. He encouraged looking at the bigger picture but on a very fast-paced course like this, I feel this will come with time and experience.*
- *Competency criteria were outlined and described in detail. Training goals and actual performance could be compared by standardized definitions.*
- *Have felt pressure since it is an intensive pressure and I always want to do my best. But one of my weaknesses is that I don't put much thought into what and how the program will be executed. I just do what I am told to do basically!*
- *I don't understand the question.*

Authors' comments

Just as with the previous question the results to this question very well align with how the MPL graduates responded again indicating no or limited change and development to how the MPL programs are being performed. The authors' comments provided with the MPL graduates target group applies also here to the students. As have been mentioned countless times, if done as intended the MPL should be an iterative developing process – even when being completely competency-based. From what is found, it is not.

The written comments provided above were actually also related to a question that asked how the MPL students describe their knowledge and understanding about the competency-based training principle and although the majority of the comments likely not have been provided by the ones who answered “Yes”, the results remain questionable for the reasons already discussed with the other questions related to this topic. However, and what is important to note, is that the fourth and fifth comment shows that there is hope and that some programs (or individuals taking the matter into their own hands in search for personal growth and development) have advanced further in their understanding. Those comments very well describe core theories and challenges in the competency-based approach to training. More information and recommendations on how to improve and understand competency-based training is later provided.

Question

- Which competency areas have provided the main challenges for you during your initial training so far? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
Application of procedures	26.46%	50
Communication	19.58%	37
Situation Awareness	35.98%	68
Leadership and Teamwork	25.40%	48
Problem solving and Decision making	28.57%	54
Manual flight path control	30.16%	57
Automatic flight path control	7.94%	15
Workload management	50.26%	95
Application of Aeronautical knowledge and understanding	23.28%	44
Other (Please specify in comments)	3.17%	6
I have not experienced any challenges during my initial training so far.	14.81%	28
Total Respondents: 189		

Respondents' written comments excerpts

- *When in flight, trying to link the aircraft systems knowledge and apply it to what we see in the cockpit.*
- *I think the hardest part is the management. Flying an ILS NDB VOR is just in your blood, and easy. Building up your system for the approach, which nav freq. where, VLOC/ Bearing /aux on nav 1 or nav 2 , how to setup the aircraft for raw data approach and departure during touch n go, doing everything in harmony with SOP and so you just need to push 1-2 buttons for the entire approach/departure is a challenge.*
- *Aviation specific situation awareness is something which has developed a lot during my training, I believe this is something which only really comes with more time and experience in an aircraft (or simulator).*
- *Long breaks between aircraft training made it hard to develop some sort of routine.*
- *Except of some issues in landing technique no further challenges.*

Authors' comments

It was a long discussion whether or not to include this and the next question also with the MPL students as they perhaps not had progressed far enough to provide any valuable data. On the other hand, finding the areas that was considered challenging and/or well prepared also at an earlier stage would allow for interesting comparisons. For this reason the questions were eventually included.

The competency areas are subject to a more extended discussion following the results. What is interesting right now is that as a summary of the initial training, and before the students' progress into airline line training, the considered challenges are fairly similar to how the other target groups have responded. Workload management followed by situational awareness and manual flight path control are still the major challenges and have almost the same results with the MPL graduates who were asked the same question but related to the line training.

Question

- *In which competency areas do you feel that your initial training has prepared you particularly well so far? (Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
Application of procedures	61.50%	115
Communication	64.17%	120
Situation Awareness	54.55%	102
Leadership and Teamwork	57.22%	107
Problem solving and Decision making	54.01%	101
Manual flight path control	52.41%	98
Automatic flight path control	38.50%	72
Workload management	49.20%	92
Application of Aeronautical knowledge and understanding	43.32%	81
Other (Please specify in comments)	2.14%	4
I do not feel particularly well prepared in any competency areas so far.	4.28%	8
Total Respondents: 187		

Respondents' written comments excerpts

- No comments provided.

Authors' comments

When the MPL graduates were asked this question they were very clear in their response when saying that application of procedures (69.3%) and automatic flight path control (51.3%) were considered the competencies best prepared for. However, in general the response rates were lower and in average at around 40%.

With the students the results show that the areas considered best prepared for before line training is communication and leadership and teamwork, perhaps to be considered as the cornerstones in modern theories related to CRM, but more interestingly that the average response rates is somewhere between 50-60%. In other words, MPL students on average rate themselves as better performers in terms of competency than the MPL graduates who have successfully gone through the entire training.

This first word that comes to mind with that finding is “expectations” and in hindsight a question on these expectations perhaps would have brought more insight. How it is possible that the same programs deliver MPL pilots that feel less prepared at a later stage in training can only be answered by theories at this stage. One theory is related to expectations where the reality of the everyday practical work in the airline pilot role is not the same as the students are expecting and that there is a discrepancy between the preparing training and the operational requirements that later follows. A continuing theory is also that the daily work places higher demand on pilot performance as soon as the better known training environment is left behind and new and less or previously inexperienced situations brings challenging but learning experiences. That aspect again raises the question on how well any training can prepare a future airline pilot and what simply has to be learned from the experiences that follow after the training is completed. Exposure becomes a keyword where many have an opinion. As have been mentioned many times before, training and learning really does not end with graduation.

Question

- Is there any other information you would like to provide or additional comment you would like to make?

Response alternatives and results

Answer Choices	Responses	
No	75.94%	142
Yes! (Please provide information and/or comments in the box below.)	24.06%	45
Total	187	

Respondents' written comments excerpts

- Initially I was not aware of the restrictions the MPL poses. However now I'm in the situation where I have finished everything including a Type Rating and Skill Test, but due to the fact that I don't get line training, I am stuck with an operator restriction.*

This leaves me unable to do anything but to wait until someone decides I get line training.

- *I think the most crucial negative aspect of the MPL is the fact that you do not get to collect as many flying hours as an ATPL graduate. In addition to that many airlines all over the world still do not accept the MPL, which makes finding a job in aviation and especially in airline business really hard.*
- *During the training the evaluation was extremely dependent on the instructor's opinion and expectations, which in turn varied a lot between different instructors. It seemed like an evaluation standard was missing or at least not precisely specified / applied.*
- *I think life without an airline sponsored MPL Program is very hard, if the partner airline does not need Pilots because of its financial situation. The Student Pilot cannot apply to another airline, if the Supervision is not completed. There must be a minimum of flight hours (e.g. 1000 hours) included in the MPL Program to have the chance to get a job. If the Student Pilot is grounded for 2-3 years, the hard work and skills gained are lost and the safety/ competency of the Pilot is not as good as 2-3 years after completion of the education. In addition to that the bank loan of the student pilot is always in his mind and decrease the lifestyle and safety.*
- *If you compare yourself and your classmates to those from a free/normal ATPL course, you know why there are 1500 pilots without job in my country. There are too many people, who just don't have the personality and leadership/ style team thinking and professionalism for flying. In some parts I think it's bad that you don't do a CPL because sometimes the training is more like: oh you haven't done that yet? Never flown and circling approach or engine failure during...? Anyway you don't have any skill test on that you are going to MCC and type rating, so you don't know how to do it.*
- *The use of simulation at the start of the core phase, in a different type to that which will be flown in the core phase, is a confusing use of resources. All the same objectives can be met in a light aircraft with the addition of familiarisation. The use of simulation obviously a major part of the later stages of training, however its use should not be at the detriment of actual aircraft usage where possible.*
- *Due to missing time restriction, I am in MPL + LIFUS training 3+ years now. Shouldn't there be some kind of regulation?*
- *The MPL seems to me, and my course-mates, to be a faster pace (so far) than the ATPL route and more challenging - there is very little time to consolidate new skills compared to the ATPL however, I was not made aware of this before enrolling.*
- *Operator restriction is unacceptable. There should be more flight training in real aircraft to improve manual flying skills.*
- *Basic flying skills are very important in my opinion, therefore it would be helpful to make a higher minimum basic flying training time mandatory. (And it would be even better to do it in real aircraft, since real flying still is very different to simulator time).*

Authors' comments

The concluding and open comments have been a good way to collect information and retrieve additional feedback that has not been targeted with the other questions and so also in this case. There were many more comments given than what is provided above, but again and again there are data revealing the negative impacts of the MPL license restriction. As have been promised, that restriction will be thoroughly discussed following the results section and comments considered as immediate repetition were removed. However, there are more key words that are subject to discussion and that have been mentioned now in many contexts. For instance, the amount of exposure to and experience in real aircraft versus in the simulators as well as evaluation based on individual opinions rather than perhaps those opinions measured against objective performance criteria. A proper functioning evaluation tool is still an indispensable prerequisite in competency-based training.

2.2.11 – MPL Students – Concluding Words

When discussing with ATO and airline representatives at different events it has previously become clear that the MPL students are not or very little considered as a valuable resource that could contribute to any improvement. The argument has been that they not yet have any experience to base such feedback on and the sensation instead appears to be that the students' function is a more or less as an unfinished product of a system. Although the authors hold a different opinion, it was a long consideration whether or not to include the MPL student target group in the survey as this experienced industry opinion perhaps would mean that the efforts of analysing any data would have less chance to lead to any difference. In the end, the personal opinion that the reality was more towards the opposite was what led to the decision to include them. The results have in several cases been relevant and especially as a benchmark towards the other target groups.

The recommendation for training providers given in the previous report that the students should be included in the process of training development strongly remains. In fact, the students were also asked if they had been given any such opportunity to help improve. The results to that question is shown below and speak for themselves where every one out of two students think that they could and also would like to help, but have simply not been asked to do so.

Answer Choices	Responses	
No, but I think I can and would like to help.	49.74%	94
No, and I do not want to / do not think I can be of any help.	14.81%	28
Yes, but I do not think I can be of any help.	18.52%	35
Yes, and I have helped to improve it.	16.93%	32
Total		189

Fig 2.2.11 – Results from the question “Have you been given any opportunities to help improve and develop your current MPL program?” asked to MPL students.

The MPL student data, especially when analysed in comparison to the MPL graduates data, reveal that there appears to be a gap between the initial training and the line training and subsequent line flying. If that gap exists due to expectations not being properly communicated and discussed, due to lack of proper information and knowledge at this earlier stage or because the training occasionally is focusing on less important items and thereby stealing valuable training time from what really needs to be trained remains unanswered. There are of course also more theoretical reasons, such as if the preparation time as a whole is not enough even when focusing on all the proper items and training them in an effective and efficient manner. Or perhaps initial training can only be as good as it is and the remaining necessary knowledge and performance comes with experience. The truth is likely different for different training programs as well as for different individuals and regardless of the level of training program quality no one will be fully learned at such an early stage of their airline career as immediate after graduation.

That leads back to expectations. Not only the expectations placed on the students, but also what the aviation industry can and should expect in terms of performance from a pilot who has just finished the initial training. On that statement there are likely again as many thoughts as opinions as there are pilots and more research is needed.

Additional numerical data collection question related to for instance flight- and simulator hours, training costs etc. can be found with the complete raw data appendix.

2.2.12 – Regulators – Survey Results

Introductory words

Another challenge that was early realised was how to best reach the regulators and furthermore to get their contribution in the survey. With this target group the end results showed around 15 of 540 respondents or just below 3% in total. Although 15 is a low number the majority of states who have chosen to adopt the MPL have only one appointed person in charge of the MPL-related regulation. According to the most recent update (Dec, 2015) there are now 53 states who has approved the MPL and with one person per state in general the response rate is actually more around 28% of the total theoretical sample size. Furthermore and if compared with the 19 States who have MPL course up and running the response rate could theoretically also be close to 80%, but as there was no question about which state the respondents represented this theory could not be confirmed.

Despite the identified challenge the decision to include regulators as a target group was taken early. With the previous report the authors found that regulatory inertia had hindered the development of MPL in general and competency-based training in particular and in discussion with ATOs and airlines the frustration appeared to be primarily focused around regulators and regulation. This would be an opportunity to get the perspectives from the regulators.

Question

- *When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?*

Response alternatives and results

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	18.75%	3
I was at first indifferent, but now I am negative.	0.00%	0
I was at first positive and remain positive.	56.25%	9
I was at first positive but now I am negative.	12.50%	2
I was at first negative and remain negative.	0.00%	0
I was at first negative but now I am positive.	6.25%	1
I have no opinion on the MPL.	6.25%	1
Other (please specify in comments).	0.00%	0
Total		16

Respondents' written comments excerpts

- *Most of the authorities around the world have screwed-up in the development and implementation of the regulatory framework to support the MPL. They chose to bolt-on the new provisions into the same structures that were supporting traditional*

programmes. The end result is that many programmes are tweaked versions of airline cadet programmes.

- *The MPL has not been as successful as hoped, although it has found a place in the world. It has not taken off in North America, although Canada has introduced the licence in regulation.*
- *When I first heard about MPL (early 2000) I was converted to efficiency of this new kind of training.*

Authors' comments

From the regulators that have responded there does not appear to be any major regulatory resistance in their approach towards the MPL concept as a whole. As can be seen the majority was at first and still remain positive.

Those who has selected the opposite has gone from being positive to negative and possibly for the reasons provided with the written comments where the previously described regulatory inertia is experienced even within the regulatory bodies themselves. It has been an easy resort to blame regulation for the lack of development, however, in this context it would be important to differentiate between regulators and regulation as the people who work close to regulation may very well be as pinned down by the regulatory provisions as the remaining industry. Changing regulation has never been easy.

Question

- How did you get information about the MPL? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
From ICAO documents/publications	68.75%	11
From other organisations	18.75%	3
From electronic sources.	12.50%	2
From magazines/literature.	0.00%	0
I have not received much information about the MPL.	6.25%	1
Other (Please specify in comments).	37.50%	6
Total Respondents: 16		

Respondents' written comments excerpts

- *JAR FCL.*
- *I was a Flight Crew Licensing and Training Panel member.*

- *We had a close connection to the respective ICAO WG.*
- *Through IFALPA and IPTC.*
- *Received wings from the Royal Canadian Air Force, which has conducted a purist version of competency-based pilot training for over half a century.*
- *I was in the ICAO Flight Crew Licensing and Training Panel which developed the SARPS for MPL.*

Authors' comments

A proper understanding of the MPL concept has always been considered an indispensable prerequisite for both a successful implementation and later continuous development. ICAO publications remain a main source for information which of course if legit.

However, it should be noted that also ICAO together with other organisations such as IATA and IFALPA who has published available guidance material on the MPL, has been through a learning process since the implementation of PANS-TRG in 2006 (Harms, 2015). The most recent guidance material is effective from July 2015 (IATA, 2015) and contains many updated recommendations although the material is based mainly on ICAO documents and Annex 1 together with EASA Part-FCL. Even ten years after the implementation there are still many learning experiences.

With the written comments it can also be seen that some involved in regulation have received information first hand while being involved in the developing process or in connection to the ICAO Flight Crew Licensing and Training Panel (FCLTP). The authors would like to remind the industry about the MPL still being a developing process and by saying that information received with the development may have changed, as the concept has developed and possibly changed.

Question

- *How long did the first approval process take?*

Response alternatives and results

Answer Choices	Responses
Less than 12 months	20.00% 3
12 - 18 months	53.33% 8
19 - 24 months	20.00% 3
25 - 30 months	6.67% 1
More than 30 months	0.00% 0
We are still in the the process	0.00% 0
Total	15

Respondents' written comments excerpts

- *Rolling approval process.*
- *Rulemaking took a long time, more than 30 months. The MPL program was first authorized by policy measures, using a loophole in regulations.*
- *Due to long and interesting exchanges with our national advisory board.*

Authors' comments

Another returning critique towards MPL implementation found with the previous report was that the time required from idea to implementation was so extended that it had caused reluctance towards initiating the process. For that reason this question was included to provide a better overview for the industry on what to expect if thinking about launching a MPL program in terms of time required for the approval.

The data shows that an approval process most often took up to 18 months with some being up to 24 months. As the concept becomes more recognised and more experience is gained the regulatory processes should also be able to become more effective.

Question

- *How would you describe your knowledge and understanding about competency-based training?*

Response alternatives and results

Answer Choices	Responses
I feel confident in the background, purpose and desired training outcome.	93.33% 14
I have no knowledge about the background, but good understanding of the purpose and desired training outcome.	6.67% 1
I have some knowledge but do not know any details about how it could affect me.	0.00% 0
I have heard the term sometime but never thought about what it meant.	0.00% 0
I have never heard of it.	0.00% 0
Total	15

Respondents' written comments excerpts

- No comments provided

Authors' comments

Moving on to the questions related to perhaps the biggest MPL cornerstone and a returning topic, namely competency-based training, the first one would as previously be to map the

personally considered level of knowledge and understanding of the competency-based concept.

The results are really quite significant as every regulator appears to have a crystal clear understanding in this context. Not even a single written comment was provided. At this point and without putting the results in any other context it would not be possible to question them and they would also seem reasonable given the regulators work and sources of information. However, as the questions continue and those results are placed in comparison to data from previous target groups there are more perspectives to be found.

Question

- *Is the MPL training program you are involved in a competency-based training program?*

Response alternatives and results

Answer Choices	Responses	
Yes	92.86%	13
No	7.14%	1
During some phases, but not consistently	0.00%	0
I do not know, but I think so	0.00%	0
I do not know, but I do not think so	0.00%	0
Total		14

Respondents' written comments excerpts

- *Entirely. No PPL or CPL pre-requisites.....all MPL from the beginning to end.*

Authors' comments

Here is a result that is more troubling. It was a clear finding with the previous report that there was still existing prescriptive regulation in force that prevented MPL program from being completely competency-based. Such regulation, for instance the minimum number of hours in the programs or number of landings with the type rating base training, is still in force and is in immediate conflict with the result on this question.

However, regardless of if any hindering regulation would have been altered or removed, the results is still in conflict with the results from the other target groups where clearly there are steps to take towards making the existing MPL programs competency-based. Instructors, students and graduates were even occasionally confused about the question. An interesting comment was provided with the first question on this target group, stating that regulators have *"chosen to bolt-on the new provisions into the same structures that were supporting traditional programmes. The end result is that many programmes are tweaked versions of airline cadet programmes."* These statements have been heard before, and it is not unlikely a

reality today where the different training paths have in several cases become entwined. This was also discussed with the previous report under the topic “MPL vs. CPL – or is it in fact MCPL”.

If the regulators are so convinced about both their understanding of the competency-based concept, and that the programs they are supervising and auditing lives up to that perception, it becomes a major struggle to help both the respective training programs and regulatory bodies to rethink their position with the aim of improvement and development. They are already convinced.

Question

- Which competency areas provide the main challenges in licensing checks for MPL students/graduates? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
Application of procedures	14.29%	2
Communication	21.43%	3
Situation Awareness	28.57%	4
Leadership and Teamwork	35.71%	5
Problem solving and Decision making	42.86%	6
Manual flight path control	64.29%	9
Automatic flight path control	14.29%	2
Workload management	28.57%	4
Application of Aeronautical knowledge and understanding	14.29%	2
Other (Please specify in comments)	7.14%	1
I do not have enough insight to answer this question properly.	21.43%	3
Total Respondents: 14		

Respondents' written comments excerpts

- *Adapting to the very large increase in sensory stimulation (ATC chatter, Aircraft noise and movement, etc.) once out of the FSTD and on the real aircraft during base training phase.*

Authors' comments

These questions have now been included with every target group only to show that there is a strong consistency in the results. Manual flight path control remains as an identified challenge, and while the other target groups also identified workload management and/or

situation awareness as high ranked challenges, the regulators actually considers problem solving and decision making and leadership and teamwork as the secondary areas where more focus would be needed in training.

Few comments were provided from such a small sample size as 15 respondents, but it would have been interesting to understand what different perspectives and experiences the different target groups use as a basis for their response. They are all assessing more or less the same type of trained pilots and although the programs have been found to be very different in terms of quality and content the results from all target groups have had the same prerequisites before responding to the questions. Again, the competency-performance questions are more in-depth discussed following the results section.

Question

- *In which competency areas do MPL students/graduates perform particularly well in licensing checks? (Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
Application of procedures	66.67%	10
Communication	26.67%	4
Situation Awareness	20.00%	3
Leadership and Teamwork	20.00%	3
Problem solving and Decision making	13.33%	2
Manual flight path control	6.67%	1
Automatic flight path control	60.00%	9
Workload management	13.33%	2
Application of Aeronautical knowledge and understanding	20.00%	3
Other (Please specify in comments)	0.00%	0
I do not have enough insight to answer this question properly.	26.67%	4
Total Respondents: 15		

Respondents' written comments excerpts

- No comments provided.

Authors' comments

Just as with the other target groups the areas where MPL pilots performs well remain application of procedures and automatic flight path control also according to the regulators. From those two there is a long step to the third ranked competency area.

Question

- In general, how would you rate the performance of MPL students/graduates in licensing checks and theoretical knowledge examinations in comparison to the performance of pilot students/graduates which came along any other training route?

Response alternatives and results

Answer Choices	Responses	
MPL students/graduates perform very well, generally far above the average standard of pilot students/graduates.	7.69%	1
MPL students/graduates perform well, generally above the average standard of pilot students/graduates.	53.85%	7
MPL students/graduates perform at the average standard of pilot students/graduates, there is no obvious difference.	23.08%	3
MPL students/graduates perform poorly, generally below the average standard of pilot students/graduates.	0.00%	0
MPL students/graduates perform very poorly, generally far below the average standard of pilot students/graduates.	0.00%	0
MPL students/graduates perform differently in comparison to other students/graduates (please comment in what way)	0.00%	0
I do not have enough experience of different types of training in order to be able to make a fair comparison.	15.38%	2
Total		13

Respondents' written comments excerpts

- *If the students have to pass the same selection process (done by the respective airline) in order to start the training conventional or MPL, the outcome/qualification as pilot must be equal.*

Authors' comments

With the previous questions, and with every target group, there is a problem with the analysis as it is not possible to weigh the results against something else. For that reason it is not possible to see if any competency area in fact is poor in general or only seems poor when being compared to areas in which the MPL pilots perform better. This is another aspect that will be included in the competency area discussion following the results.

By simply looking at the results to the question above it would seem that the majority of regulators involved in MPL training actually have found that MPL pilots perform at an equal or, more commonly, better level than an average pilot student/graduate.

Question

- *Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?*

Response alternatives and results

Answer Choices	Responses	
A modular route via PPL, CPL and IR	0.00%	0
An ab-initio integrated frozen ATPL	60.00%	9
An MPL training program	40.00%	6
Other	0.00%	0
Total		15

Respondents' written comments excerpts

- *No limitation regarding SP operation.*
- *At the same time the authorities must see what can be done with the credit MPL students who don't get a job in an airline will have, so that the applicant can fly with SE aircraft.*
- *ONLY IF the authorities get their act together and properly implement a CBT regulatory framework and a more responsible certification process.*
- *Industry in my country has not accepted the MPL so the frozen ATPL is the best alternative.*

Authors' comments

As so many times before, the results to this question and in turn recommendation remain with focus on career opportunities instead of training quality.

Question

- *In your opinion, could something be done in a different way during the initial training to better prepare the MPL students for the airline operations?*

Response alternatives and results

Answer Choices	Responses	
No. the training prepares them very well for the airline operations.	33.33%	5
I have very limited knowledge about the airline operations and cannot say.	13.33%	2
Yes (Please specify)	53.33%	8
Total		15

Respondents' written comments excerpts

- *More instrument flying practise.*
- *The link with regard to procedures, policies, culture etc. between the school and the Airline must be strong to ensure an effective training outcome.*
- *Longer IOE phase.*
- *Improvements in FSTD simulated ATC environment; better schedule of instruction in knowledge to be integrated with the practical skills instruction.*
- *ATC problems. Emotional involvement.*
- *More scenario-based training with ATC background chatter and natural airplane buffet and noise levels toward the end of the FSTD training in Phase 4.*
- *Good MPL programs apply a systems approach to training. Poor ones are converted traditional programs. MPL programs need to be based on systems methodology, not converted integrated ATP courses.*
- *In order to approve the MPL program, we asked the ATO/Airline to perform initial phase of ISD process with the scheme of ATQP requirement. This enforced the job analysis.*

Authors' comments

There is not really a need to add many comments here. These questions were included in the survey to get a collected industry view on how training could and should be improved. The written comments above are the regulators opinions and a summary from all target groups will be provided with the discussion section.

2.2.13 – Regulators – Concluding Words

In summary of the regulators survey results it is a fair generalisation to say that regulators who have become involved with MPL training hold to the majority a positive position towards the MPL. With the aviation industry MPL debate there have been many discussions and opinions on a still developing industry best practice to training where regulators are thought to trail behind and in some cases even causing inertia to that same development. It is true that there are different regulatory aspects that have affected the development in itself, such as the MPL license restriction or any prescriptive regulation that has remained from previous approaches to training. The regulators themselves also had many opinions on that license restriction but it has been an immense and in many ways central topic with many target groups that it came to deserve its own topic, later to be provided. Another example of a returning topic that also will be covered is the theoretical knowledge requirements that remain the same as for the ATPL.

However, one early considered aspect of MPL and not least competency-based training that should allow for great improvement was that you could tailor training to all identified requirements of the professional role in order to be safe and proficient. In turn and following a thorough selection it would also be possible to make sure that such requirements were met by using relevant knowledge, the craftsmanship of good instructors and a proper assessment and evaluation tool. For this reason, among others, the MPL framework in itself is clear but the content to put into that framework is highly flexible – one reason behind the diverse training curriculums in different MPL programs.

This comes with some risk. Organisations who see an opportunity to improve training with these methods and to turn focus towards aspects more relevant to their type of operations or culture would achieve a benefit compared to traditional training that instead, simply put, assumes that every future pilot will reach identical levels of performance after having been through identical training courses. However, with the results in this survey it has also been found that there is big difference in training quality, content and time. Although time should not be a unit to measure progression with in MPL training, going through a less than 15 month course or a 24-36 month course will arguably have some effect on the end performance.

In other words, organisations that appear to misuse the MPL framework in order to find shortcuts in training practice are not only being unfair to their respective students, they also have detrimental effect on the world view of the MPL. For those reasons, regulation that perhaps continue to cause inertia, unfortunately, may be needed but should be provided in forms where development still can continue and where organisations who try to misuse the MPL framework and intention are identified and guided in the right direction or discontinued while the others are supported.

With the voluntary additional comments one regulator left this note; *“I am concerned about the knowledge of MPL of the CAA's outside EASA. It was very hard for the MPL pilots to be*

accepted when seeking job” The need for more information about the MPL is more present than ever if the understanding and discussion of what this concept is and is not is ever to reside and turn towards structured development based on sound rationale.

Just as with the other target groups there were more questions provided than what has been included above and to those interested they are available with the raw data appendix.

2.2.14 – Managers and Responsible – Survey Results

Introductory words

With the seventh and final target group focus was turned towards individuals who held management positions or in any way had appointed responsibilities in relation to MPL training and development. In this target group there were around 50 or just over 9% out of the around 540 total survey respondents.

The opinions and statements from the industry management is what usually has been presented and provided on conferences and other forums and should therefore also be more familiar than what has been highlighted with the previous target groups. Although there was a more clear view on what positions respondents in this target group generally took based on these industry presentations and available information there were also many additional incentives to include them. First of all that the perceived opinions perhaps would be completely different as one of the initial ambitions behind this initiative was to collect complete representative data from all corners of the MPL world. The management views would also be of vital importance to compare against the remaining target groups to see where there was industry agreement and/or disagreement and what such findings were based upon.

Management and responsible individuals are also most commonly the persons with greatest opportunities to create a difference in the development as their responsibilities usually also involves decision-making. For that reason, the following data could reveal where the industry leaders feel a need for greater focus and based on their responses also perhaps where development has and/or will continue to be hindered or supported - and for what reasons.

Question

- *What role and/or responsibilities do you have? (Select any answers applicable to you)*

Response alternatives and results

Answer Choices	Responses	
ATO and/or Airline MPL Course designer and developer	41.18%	21
ATO Head of Training	25.49%	13
ATO Chief Flight Instructor / Chief Ground Instructor	11.76%	6
ATO Accountable	13.73%	7
Airline Head of Training	15.69%	8
Airline Chief Flight Instructor / Chief Ground Instructor	5.88%	3
Airline Operations Manager	5.88%	3
Other (please specify in comments)	17.65%	9
Total Respondents: 51		

Respondents' written comments excerpts

- *Retired in 2005, was not in charge any more when MPL became in force; engaged in the endeavour to adapt the governing rules for ab-initio training to the changing challenges of modern civil jet transport operation since 1985; was advisor to the German member of the ICAO FCLT Panel which developed MPL between 2001 and 2006; engaged in the global implementation of MPL as a Consultant since then.*
- *GI and AM at our ATO.*
- *Regulatory Affairs Officer supporting MPL internationally.*
- *Brand Manager for retail sales team for launch of first UK MPL.*
- *Course Designer/Developer and also a multi role MPL-instructor (Phase 1-4).*
- *Corporate Sr. Manager.*
- *Assistant Head of Training Standards; responsible for communication with the competent Authority and legal matters.*
- *Develop, design and oversight of MPL program for two different airlines. Accountable to a Civil Aviation Authority in Asia.*
- *Head of Recruitment.*
- *MPL Course designer for a major Asian airline.*
- *Additional role includes Training Compliance for the Airline.*
- *Former head of ab-initio school, 3 TRTOs and training policy for large airline. Prompted MPL to airlines on behalf of IATA for 8 years. Co-championed an MPL program for an Asian Airline*

Authors' comments

This question was included to get a demographic perspective of the respondents in this target group. As “Airline/ATO managers and responsible” was a wide range of individuals it was of interest to get a more specified division if it in turn would be of interest to see if certain roles answered in a certain way to different questions.

For now, the results together with the written comments provide a good overview on who has contributed to the data and results on the questions that follows.

Question

- When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?

Response alternatives and results

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	9.80%	5
I was at first indifferent, but now I am negative.	1.96%	1
I was at first positive and remain positive.	70.59%	36
I was at first positive but now I am negative.	1.96%	1
I was at first negative and remain negative.	1.96%	1
I was at first negative but now I am positive.	5.88%	3
I have no opinion on the MPL.	0.00%	0
Other (please specify in comments).	7.84%	4
Total		51

Respondents' written comments excerpts

- *CBT training regardless MPL or not was the singular factor that I found and still find attractive. To improve training I think you need to break away from time and task based training. MPL make you take step in that direction.*
- *With the significant workload required in developing an MPL course with the Regulator and ATO, a positive attitude is a must for success!*
- *Coming from AQP airlines, I am very positive about MPL*
- *The idea and concept of the MPL is great, however I do have second thoughts of the way the MPL has become a quick fix to the industry.*
- *I am in general positive towards MPL, however ICAO regulations remain far behind current needs. Especially restrictions with regard to IOE are a major burden of MPL, especially when the originally planned operator cannot support line flying in due time. While MPL is also evidence based driven, the minimum number of landings during base training are often much too high with the associated costs.*
- *My first thought was that "this is the way modern aviation training intended for airline pilots should be conducted".*
- *But in my opinion the attention should be turned towards more training time in real aeroplanes.*
- *With military background in competency-based training, the MPL came as no surprise. I would have thought the transition to MPL was overdue.*

- *Following the flawed "more is better" argument, I did initially think that there was a downside for having such little time at the controls of an aircraft. After getting educated on the philosophy of MPL, it clearly has the ability to provide better-trained pilots to our airline cockpits.*
- *MPL is the best airlines training solution to improve the quality of the new generation pilots to operate the flight safely and efficiently.*
- *I believe that the MPL initiative is a far more appropriate training platform for the Airline Industry's needs in today's industry. It also allows AOC's to tailor their training program from the first day of training without overly prescriptive regulations, and allows for the implementation of relevant and company specific training needs based on operating data and training performance data (amongst other things). Overall, I believe this is the way training needs to be heading, especially for airlines implementing an EBT training basis.*
- *MPL has been needed in the airline industry since the 1980s and could not arrive soon enough*

Authors' comments

Even to those less familiar with the MPL it is probably no longer a surprise that organisations who have chosen to engage in MPL training to the majority are satisfied with the results and take up positive and defending positions towards the concept. The results to this question show no change in those positions and with over 94% being positive there is strong confirmation in an obvious established belief in the potentials and results of the MPL concept once the decision to launch MPL training has been taken.

The three respondents who took a negative position on this question all held positions as Head of Training either for an airline or an ATO. As the reasons behind a positive position is more or less well known and most often related to satisfaction primarily in the performance of the MPL pilots, efforts were taken to find the reasons behind the negative positions. No comments were provided to this question from the respondents who chose those response options but comments could be found on other questions from them.

It turned out that the reasons were quite different. On one hand they were focused on the regulatory aspects, for instance the MPL license restriction, the MPL instructor qualification requirements, the increase in required base training and a general increased complexity in license control. In turn it was mentioned that this overall increase in complexity did not make up for an increase in quality and the opinion was that there were no obvious differences between MPL and traditional ATPL cadets.

From another perspective came the opinion that although the MPL was thought to be a great concept there was a sensation of that some organisations had started to use the training system as a money making tool. There was a perception that the quality and performance from subsequent batches of students was significantly worse when being compared against their

first predecessors and that a big concern was their attitude when arriving for line training where “Goose and Maverick” came to mind.

As has been mentioned throughout the report there is an obvious finding in that MPL programs are different not only in training content but also in training quality. Again, regulatory aspects become increasingly difficult to develop and change as they should be loose in order to allow flexibility to those who “can handle it” but at the same time strict towards those who consciously or unconsciously will try and possibly succeed to misuse it. As soon as focus is turned towards only making or saving money, the aspect of quality will be a low priority or completely lost. However, it would be an illusion to assume that financial resources and cost could be completely excluded from the equation even from individuals with proper mind-sets and intentions and to create a training concept where quality and performance improves without also resulting in increased expenditure is probably what has to become a reality if the MPL is to be a long-term success.

From what was found in the previous report the MPL training as such does not immediately mean a higher training cost. The organisations that had continued to deliver both traditional and MPL training found no obvious difference with the note that the different approaches to training in a way had become entwined and perhaps used common overhead costs. There will be costs in the transition to MPL for instance when acquiring new training equipment and with the additional training required for instructors. However, such cost-related arguments could not be related to the example provided above where one of the respondents found the quality of MPL pilots to reduce with later programs. On the contrary, if used as intended the instructional systems design approach should allow for an increase in quality when using previous experiences as a learning foundation on how to continuously improve.

Question

- How did you get information about the MPL? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
From ICAO documents/publications	72.55%	37
From IATA documents/publications	43.14%	22
From other organisations	52.94%	27
From electronic sources.	27.45%	14
From magazines/literature.	19.61%	10
I have not received much information about the MPL.	0.00%	0
Other (Please specify in comments).	17.65%	9
Total Respondents: 51		

Respondents' written comments excerpts

- *I have been involved in MPL courseware development at two organizations and have used PANS-TRG at both.*
- *From the ATO I work for and from personal research online and in Competent Authority documents.*
- *This has been an ongoing process. When MPL was new there were not much information available other than brief information sheets in either ATO material or magazines. Now much more information is available and it is difficult to sort out the most relevant information.*
- *Conferences*
- *Other organizations to evaluate equipment, time, resources and construction of Phases. Majority of the information from the MPL Tracking Spreadsheet of global MPL programs.*
- *The father of the MPL Capt. Dieter Harms.*
- *I was also lead MPL Inspector for an ICAO contracting state regulatory authority.*

Authors' comments

As this was a multiple choice question the first obvious finding is that management and responsible individuals in general have used a more broad foundation of information than previous target groups. It was an early indication that the opinion towards the MPL had a connection to both what sources of information and what level of preparation had been provided.

Question

- *Why did chose to launch MPL within your ATO/Airline? (Select any number of alternatives)*

Response alternatives and results

Answer Choices	Responses	
Due to training quality.	78.00%	39
Due to training time.	22.00%	11
Due to training costs.	6.00%	3
Other (please specify in comments).	30.00%	15
Total Respondents: 50		

Respondents' written comments excerpts

- *Increased the number of hired FO direct after finishing the training.*

- *Selection by airline.*
- *Customers (Airlines) wanted it.*
- *My organization perceived a business opportunity to deliver a high-quality training program and provide the airline industry with a pilot applicant whose training and mind-set was oriented to airline operational requirements from the beginning of his/her training.*
- *Training safety.*
- *As a LCC we were not attracting enough local pilots. This was seen as a way of getting well trained local pilots into our cockpits.*
- *To investigate whether there was a better way of doing things.*
- *We provide MPL training / consulting to customers.*
- *Quality was a big factor, but as an ATO, any cadet programme where an airline is involved early on in the selection process and makes a conditional job offer will be attractive. It is so rare for an airline to be involved before ab initio training and in the case of our connected airline they funded about 1/3 of the costs. It is extremely rare for an airline to invest in ab initio training, so the airlines' interest in conducting an MPL was an opportunity not to miss. Furthermore, it sits well with our ATOs ethos of innovation.*
- *Engaging in MPL program with other operator.*
- *Technically, MPL has not yet been adopted by our NAA, but we have integrated a number of the virtues.*
- *To satisfy the huge demand on new pilots still fulfilling the high quality standards.*
- *Integrated CPL/IR with same competency level is much more expensive.*
- *Airline we provided with classically trained frozen ATPL-graduates, approached us to start MPL*
- *Time and cost were never a factor in pursuing the MPL route. It so happened that MPL could take shorter time but cost is not necessary the case.*
- *The training quality is the most important factors and the bi-product is time saving.*
- *Due to training quality and being able to have another source to recruit from.*
- *The program allows for a far more robust training program to be developed that is specific to the airline and considers relevant and up-to-date safety, training and performance data.*

Authors' comments

It was of obvious interest to find what incentives were behind the reason to launch MPL training. The data clearly shows that training quality was the main reason, but the written comments also provided additional perspectives. Many have found benefits in having an immediate connection between the initial training and the end goal with an airline, as was one of the argued improvements already before the MPL was implemented. Others have discovered business opportunities and although not possible to explore in this context it would be of interest to see if the possible differences in training quality has a connection to the difference in relation between the ATO and the airline. In other words, if there is a difference when the airline itself also represents the ATO or when the airline has made a business agreement with an external ATO who perhaps even more is looking for the monetary rewards.

Given the positive positions that the majority of respondents in this target group has taken it would also seem reasonable to say that there has been an experienced improvement in training quality that has delivered on their expectations.

Question

- *How would you describe your knowledge and understanding about competency-based training?*

Response alternatives and results

Answer Choices	Responses
I feel confident in the background, purpose and desired training outcome.	94.12% 48
I have no knowledge about the background, but good understanding of the purpose and desired training outcome.	1.96% 1
I have some knowledge but do not know any details about how it could affect me.	3.92% 2
I have heard the term sometime but never thought about what it meant.	0.00% 0
I have never heard of it.	0.00% 0
Total	51

Respondents' written comments excerpts

- *I think there must be a lot more to be learnt though.*
- *Once again, while working in a development role, I have learned a lot during the process.*
- *I still have some doubt, about consistency of CBT (12 base training landings minimum irrespective of competency on MPL within EASA mandated). Course approvals do not allow varying training times based on competency of the trainee, but merely foresees to ADD more hours if required. This is what a serious ATO always did, even before CBT was an issue.*

- *It took some deliberations with the airlines professionals to feel confident about CBT.*
- *From joining the MPL training symposium in Montreal, Canada 2013, I received more information and confirm that MPL is suit for all airlines especially new generation aircraft (Glass cockpit). I needed more support about the associated Pilots Thesises about MPL competency performance indicators in details.*

Authors' comments

The challenges found already with the previous report related to competency-based training have been reinforced with the data from this global MPL survey. The regulators were found to be united and close to completely convinced on that their knowledge and understanding on competency-based training was strong and in turn that their associated MPL programs were to the majority completely competency-based. From the results of managers and responsible the results are close to identical to that of the regulators.

There were more questions asked on this topic also with this target group. For instance a statement on how well they had understood the origin, underlying training principle and purpose of the MPL before and after becoming engaged in the MPL training compared to today. The results on those questions were also strong where 74% agreed (40%) or strongly agreed (34%) on that they had a proper knowledge before becoming engaged and 98% (32% agreed and 66% strongly agreed) on that same statement as of today.

Why these results become hard to simply accept is a combination of different aspects. First of all given the data from the other target groups where the understanding is far from as strong and united as with these two more recent target groups. It is difficult to agree on that a competency-based training has been properly implemented and successful if the individuals who both deliver it in the form of instructors and those who receive it in form of MPL students and graduates – are unaware.

With the previous report it was also found that the term “competency-based training” had become used in an increasing number of different contexts and suggested that also the interpretation or direct meaning of the word was completely different to different people. Perhaps that also has had an effect on why the results were so strong. However, regardless of what interpretation is taken into account before answering these questions the absolute majority of the respondents are nevertheless convinced in that their personal perception is the correct one. Perhaps it is, perhaps it is not, but when the other results, comments and previous results are taken into account it becomes conclusive that not all are correct. In addition, the response option “I have some knowledge but don’t know any details on how it could affect me” were selected by two respondents who turned out to be one ATO Head of Training and one MPL course designer and developer suggesting that even those closest involved in the development and delivery of MPL training have steps to take in their understanding of how this theory is best applied into practice. That likely also applies to many others.

One concern with these results in a way becomes more related to human nature where research has shown that we are less prone to question our own beliefs if we do not have a strong reason to do so. On the contrary, and when placed in the context of aviation related theory of human factors, the term “confirmation bias” instead makes us look for evidence to reinforce our beliefs rather than to challenge them. The fact that almost every respondent is convinced becomes a problem if competency-based training ever is to become that harmonised and improved approach to training as originally intended. However, even the individuals who were part of the actual development of the MPL agreed to have learned a lot since the implementation in 2006 and that the concept is not the same today as it was ten years ago (Harms, 2015).

Some comments that were provided with these other competency-based training questions were *“we were early adopters and learned more as we went along”, “when tasked with the MPL project I had limited knowledge of the concept” and “there was very little information available for those involved from the beginning and the UK LASORS section on MPL was only four pages long, whereas the Integrated fATPL section was probably over 100 pages long”* – that again highlight the problem with lack of information and support.

Others said that they *“spent a great deal looking up documents and publications but it was the close association with Dieter that I fully grasped the industry's mixed attitude towards MPL. Unfortunately many airlines are shying away from MPL not because they disagree with the underlying training principle but they cannot change the dynamics in the economic benefits of many layers of "agents" or "associates" involved in the commercial pilot training business.”* Economics keep returning as a problematic aspect.

In summary, this topic will continue to call for a lot of attention long after this report is being published.

Question

- Is the MPL training program you are involved in a competency-based training program?

Response alternatives and results

Answer Choices	Responses	
Yes	84.00%	42
No	2.00%	1
During some phases, but not consistently	12.00%	6
I do not know, but I think so	2.00%	1
I do not know, but I do not think so	0.00%	0
Total		50

Respondents' written comments excerpts

- *Part FCL do not fully support competency based training and it is a real struggle to convert from time/task oriented training into competency based training. It's more than a new syllabus.*
- *We have applied competency-based training where we can, but are still help to a traditional SUI grading scheme at the final check.*
- *We train to competency and beyond. Weak performing students get additional hours to reach required level of competency, sharp students are trained beyond, as we may not adapt (reduce) training times, once they reach level of competency. This is not competency based training.*
- *In general yes, the problem comes with growing numbers. The approach has to change, defining the normal progress and taking care of those who have problems to gain the competencies.*
- *All the way in the Clean MPL.*

Authors' comments

Please see comments on the previous question, these are all related to the same topic and the results on this question reinforce those thoughts.

Question

- Which competency areas provide the main challenges in training/line flying for MPL students/graduates? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
Application of procedures	6.12%	3
Communication	40.82%	20
Situation Awareness	34.69%	17
Leadership and Teamwork	18.37%	9
Problem solving and Decision making	28.57%	14
Manual flight path control	26.53%	13
Automatic flight path control	4.08%	2
Workload management	26.53%	13
Application of Aeronautical knowledge and understanding	22.45%	11
Other (Please specify in comments)	8.16%	4
I do not have enough insight to answer this question properly.	20.41%	10
Total Respondents: 49		

Respondents' written comments excerpts.

- *ATC is the same issue as for all on IOE, however MPLs shows less experience. Of course, clever as they are they progress fast...no problem. Visual approaches should be taught as MDR, energy management and in simulators from random positions.*
- *Communication due to the limited interaction with ATC. L & T, simply because it appears to be harder to assess in Core Flying Skills Phase due to single-pilot emphasis.*
- *I do not think this so much different from other kinds of training but more of a general nature. The above selections are what I deemed challenging in every training course I've been involved in.*
- *Normal inexperienced Student progress challenges. Not able to assess graduates to date.*
- *Our course is designed and students are instructed in a way that there is no specific challenge observed and reported by the airline. Again, I believe this also is a result of proper screening.*
- *From my association with post MPL graduates, the main challenge is working with "seasoned" Captains, while some were very objective in evaluating the MPL FO while*

others are trying to find fault.

- *Looking at KSA, can we clarify from 9 competencies above that which one is or are the K, S or A identically or and relationship among them.*
- *Threat and error management.*
- *ATC communication - we recommend to include observations flights for the program.*
- *This is a question that needs a greater level of detail. The challenges evolve throughout each phase of the program as the pilot develops their skills set and builds on their competencies.*
- *Except to say that theory / knowledge was initially weak due to the continued need to update these requirements by ICAO.*

Authors' comments

This is actually one of the more interesting questions where the results were found to differ from other target groups. The competency areas will be compared and discussed as a discussion topic following the results.

Question

- In which competency areas do MPL students/graduates perform particularly well in training/line flying? (Select any number of alternatives)

Response alternatives and results

Answer Choices	Responses	
Application of procedures	60.42%	29
Communication	29.17%	14
Situation Awareness	20.83%	10
Leadership and Teamwork	35.42%	17
Problem solving and Decision making	20.83%	10
Manual flight path control	20.83%	10
Automatic flight path control	37.50%	18
Workload management	29.17%	14
Application of Aeronautical knowledge and understanding	20.83%	10
Other (Please specify in comments)	8.33%	4
I do not have enough insight to answer this question properly.	16.67%	8
Total Respondents: 48		

Respondents' written comments excerpts

- *It is my understanding based on limited feedback that the graduates from our MPL courses perform substantially better than traditionally trained pilots in all of the above areas. One report from a Captain stated that he was surprised to learn that his MPL graduate F/O was recently out of IOE and had less than 400 hours total time; this Captain thought his F/O had at least 1,500 hours of line flying.*
- *Due to much more TEM/CRM, which should be built into any AB-initio pilot program.*
- *Cadets were strong on application of procedures due to more emphasis and standardization. Manual flight path control appeared to be more refined. There was a lot more emphasis on the pre and post-flight briefings that were not typical for the traditional training platform.*
- *My answer is not really based on any real evidence. In reality there are so many individual differences that I can't relate these to which training they have received. However with the amount of MCC-training an MPL-student undergoes I think I've seen a slight difference in cockpit communication and teamwork.*
- *As far as I know, there are some troubles during transition from instrument to visual part of final approach.*

- *Multi-crew introduced early in training has led to strong procedures, communication and CRM.*
- *The ticked boxes are the usual feedbacks from the airlines.*
- *This again is a question that needs a greater level of detail. The challenges evolve throughout each phase of the program as the pilot develops their skills set and builds on their competencies.*

Authors' comments

As mentioned with the previous question, the competency areas will be compared and discussed as a discussion topic following the results.

Question

- *In general, how would you rate the performance of MPL students/graduates in licensing checks and theoretical knowledge examinations in comparison to the performance of pilot students/graduates which came along any other training route?*

Response alternatives and results

Answer Choices	Responses	
MPL students/graduates perform very well, generally far above the average standard of pilot students/graduates.	18.37%	9
MPL students/graduates perform well, generally above the average standard of pilot students/graduates.	53.06%	26
MPL students/graduates perform at the average standard of pilot students/graduates, there is no obvious difference.	14.29%	7
MPL students/graduates perform poorly, generally below the average standard of pilot students/graduates.	2.04%	1
MPL students/graduates perform very poorly, generally far below the average standard of pilot students/graduates.	0.00%	0
MPL students/graduates perform differently in comparison to other students/graduates (please comment in what way)	2.04%	1
I do not have enough insight of different types of training in order to be able to answer this question.	10.20%	5
Total		49

Respondents' written comments excerpts

- *But this requires a very comprehensive preparation of all stakeholders involved in the ATO and the partnering airline and the respective CAA;*
- *Some performed exceptionally well.*
- *So far we have seen no significant differences between CPL and MPL graduates,*

apart from in the area of ATC comprehension (worse) and CRM/TEM (better).

- *As most MPL students are recruited from the "best in class", of course the outcome has to show this. Therefore NO compare between the programs is a valid indicator.*
- *As this is our first course and only Core Flying Skills has been completed, I have found the MPL cadets performed well and above average. I can't wait to see how other courses perform as the ATO and instructors grow and become more proficient in delivering competency-based training.*
- *Generally where I have been involved there are not enough results to make a scientific comparison between different training programmes. There are in my opinion too many variables in place to make a comparison between MPL students and other students. There have been different selection processes. Different course structures and every course have had their own issues depending on either logistics such as time available, available equipment (aircrafts, simulators) and different instructors. The impact of these cannot be estimated. At the moment I see no specific differences between MPL-students and other students in relation to performance or proficiency. However with that said it should also be mentioned that I think that current MPL-schemes have not reached their full potential and I think that in the future there will be a noticeable difference. Currently I would say that the practical difference is that an MPL-graduate is ready and proficient for the job (on a specific type), while a CPL-graduate only has the required diploma.*
- *Again, current flight training Students nearing the end of Core. From the data collected so far, the MPL Students are progressing with higher retention and application.*
- *We see better performance through MPL students mainly because they go through a screening process. Comparing MPL and classic training, MPLers have a big MCC-advantage and perform excellently during Phase 4, where as a classically trained student only has 20 hours of MCC ahead of the type rating. On the medium run I have no doubt and evidence that this "MPL-advantage" will even out and the classic student will even out his disadvantage in MCC within the first 100 - 200 hours of flight time. We see the MPL advantage as a short-term benefit from a skill point of view.*
- *The benchmark has to be defined; if the former programme is striving for an above normal "quality", the neutral point changes.*
- *This comparison between the CPL and MPL students is made at the Base Training and IOE phases.*
- *The problem is the Instructors not clearly understanding of "How to teach base" on Competency-based training. Some of them still using the traditional training and stuck themselves with "monkey see monkey do" training. It is difficult to keep them track on Scenario based training by using CBT approaches.*

Authors' comments

This question is included to show how managers and responsible in general benchmark the performance of MPL pilots when compared to junior pilots with other training backgrounds. The positive approach continues and the results and written comments provide a clear indication of their perception and the reasons behind it.

Question

- *Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?*

Response alternatives and results

Answer Choices	Responses
A modular route via PPL, CPL and IR	4.00% 2
An ab-initio integrated frozen ATPL	10.00% 5
An MPL training program	80.00% 40
Other	6.00% 3
Total	50

Respondents' written comments excerpts

- *If done correctly MPL better prepares for the job.*
- *It depends on if they are going to fly in the USA or not. The US does not recognize MPL training yet so that is not an option. Other countries I would recommend MPL if cadets can get sponsored by an airline.*
- *Quality of training does not necessary relates to the type of the scheme but relates to the ATO.*
- *This depends on the airline. The legacy carriers have two advantages over the LCCs, time and resources. A legacy carrier would typically have a pilot for at least 10 years before command. In this time the candidate will experience most facets of the operation and observe many scenarios. They will also fly with captains who have been with the company for decades and are seeped in the company culture. The resources help in that almost all of the training will be done "in house" by active or recently active company pilots. SOPs will be second nature, manuals will be developed by the same teams and the "company indoctrination" starts on day one. The candidate will also be more likely to stay with the legacy company for an entire career which means they will feed back into the system making it better over time. At the LCCs the training is outsourced. Irrespective of how many briefings, memos and observation flights we organize, the candidate is being trained by someone who may never have flown a jet let alone flown for our company. There will always be a "tainting of the product" because of this lack of cultural experience. Then you add to this the fact that our captains originate from a multitude of nationalities, experience & discipline levels and training backgrounds and that our organisational turnover is higher than a legacy*

airline. The MPL is not as well equipped to deal with this environment as a pilot who joins a company with more experience.

- *The MPL concept today produces a specifically-trained multi-crew pilot and will only evolve into an even better path over the coming years.*
- *But the MPL programme should have a robust "parachute" / failure protection process in place to mitigate against performance issues.*
- *Having graduated 36 MPL cadets and currently training 25 more with many more in the pipe-line, and having trained or being responsible for training well over 100 Ab-initio pilots and a similar number of Airline pilots graduating from Ab-initio conventional courses, the difference in quality of the MPL cadet at the point of entry into the airline is very apparent. The fact that they are already in an airline (if successful) makes them highly motivated to 'prove to their Airline' that they are good pilots. Airline supervision of the training at various phases will also help to heighten this motivation*
- *MPL has shown to be less acknowledged worldwide, and many MPL students has been left in the dark when the associated airline makes a cut back or goes bankrupt :(*
- *The negative sides of MPL, especially the restrictions to be tied to only one operator, do not balance the advantages. I would recommend ab-initio ATPL training with competency based training contents.*
- *For a pilot with a non-general aviation interest, airline only - MPL is the way. If they have an interest in different facets of aviation, Instruction or flying different equipment, ATPL is the general license to provide that need. MPL is not for everyone. Who will teach the MPL Students without FI's? Aviation is too big for just the airlines.*
- *Modular training all in all is the best choice for quality and flexibility. We have adapted all our modular courses towards MPL standards of performance and therefore have high calibre graduates on the modular path. Adding an extra 10 - 20 hours to the standard MCC-course will deliver the highest possible quality. This gives the best of both worlds. Better than MPL.*
- *I would like to train the person to be an airline pilot from day one. It does not make sense to take a convoluted route if the option for a direct and better training methodology route is an option.*
- *It is the most modern, efficient and effective form of training. It gives a good level of understanding of the individual's performance and allows for an early detection of problems/issues that may require reinforcing.*

Authors' comments

All of the target groups except for the MPL students have been asked this question and the results show a significant difference between how respondents in the different target group have answered. There has been an increasing trend showing that the different recommendations are linked to both a level of knowledge of the concept including how much and from what sources information has been given as well as what the relation to MPL

training is. At the bottom end the Line Captains were found where less than 8% would recommend the MPL to future aspiring pilots. The Line Captains were also found to have been left in the dark in regards to both what the MPL is and what to expect from recently graduated MPL pilots. It is not a surprise that something new, different and unknown will be harder to immediately accept and especially if there are some bad experiences related to it. With managers and responsible the recommendation of MPL has ten folded and become 80%.

All of the target groups have mentioned the career-related possibilities with different licenses and where the MPL is considered to have some major drawbacks. Most frequently mentioned is again the restriction that ties the MPL student to a specific airline until the IOE is completed, or that you are only multi-crew qualified which makes it difficult if you would want to pursue a commercial career within an aviation sector on smaller aircraft. Those drawbacks have clearly affected many respondents answer choice on this question. Although similar aspects have been taken into account by respondents in this target group there is also a greater focus on what the training has been found to deliver – which was the greater purpose to compare. In other words, while there are obvious drawbacks there are also a number of benefits to be found and it becomes important to differentiate what drawbacks are with the training itself and what drawbacks are more related to regulatory and/or career aspects.

There is also the risk for some bias as these respondents probably have invested both parts of their career as well as financial resources into the decision to engage in MPL training.

Question

- In your opinion, could something be done in a different way during the initial training to better prepare the MPL students for the airline operations?

Response alternatives and results

Answer Choices	Responses
No. the initial training prepares them very well for the airline operations.	39.58% 19
I have very limited knowledge about the airline operations and cannot say.	10.42% 5
Yes, something could be done to in a different way during the initial training to better prepare the MPL students for the airline operations. (Please specify)	50.00% 24
Total	48

Respondents' written comments excerpts

- *More "normal operation" LOFT in the final part of Phase 4 and thorough preparation for the Base Training in the FFS.*
- *Absolutely. We need to address the students what they themselves have to take responsibility for, during the training program. The expectations from the ATO should be known and understood. A relation between FI and students has to be created at a systematic way and every FI/GI must be focused on this task.*

- *Find better methods to improve ATC communication skills.*
- *Train from the very beginning as an airline pilot, using airline-style SOPs, callouts, procedures, etc. Incorporate leadership soft skills training, CRM (Crew Resource Management) and TEM (Threat & Error Management) and training as a crew from Day 1. Do not expect that traditional PPL, CPL, IR and ME training with an add-on Multi Crew Competencies module will provide the equivalent of true competency-based training.*
- *The initial training is the foundation. Our experience is that the ATOs are reluctant to be too "harsh" early in the training. We then find that we have basic problems that have to be solved at a late stage on a big, expensive jet. In a traditional route to the airline a candidate has more time to discover weaknesses and then work on them. The MPL candidate does not have this. It must be replaced by a critical and disciplined training organisation (at all levels, including academics) as early as possible. This may mean taking brave decisions to terminate training at an early stage, despite the fact that it will be unpopular with the target airline, the ATO owners and the individual candidate.*
- *More manual flying with emphasis based on situational awareness and problem solving.*
- *Allow glider flying to count for MPL core flying skills phase and - require aerobatic category aircraft (may be gliders as well) for upset recovery training.*
- *More consolidation following demonstration of competency in circuit flying, to provide enhanced experience in the landing phase.*
- *Ensuring training is competency and performance based with creditable data to substantiate.*
- *The Single- engine (Core Phase) flying could adopt 'Airline' type cockpit procedures and make the Check-lists into actual CHECKLISTS and not "Do Lists" as is now in SE/ Single Pilot flying.*
- *A minimum of 18 month duration, should make sure that a foie gras MPL becomes less attractive for the less quality minded airlines.*
- *When students are trained to only strictly adhere to procedures, the use of common sense remains underdeveloped. More guided freeplay needs to be introduced, with decision making processes to be discussed. Generally only MPL students are trained. This prevents students to gain expertise through the exchange of experience with experienced pilots. This is often one of the biggest shortcomings of MPL.*
- *ATC communications in the Phase 4 must be improved to ensure the student is confident for airline style communications.*
- *The training need to be focused on the end result. If we want a safe and efficient A320 pilot we need to provide them with the required knowledge skills and attitudes to become one. There is no point in studying the ICAO DOC.4444. What we need to do is*

practise the communications that are useful.

- *A little more manual flying in real aeroplanes.*
- *We have had great success in a building-block method of learning. We separate a 60hr communications course just after Theory. We then progress to a basic flying device emphasizing just basic pitch-power coordination skills and general handling 60hr course. THEN, the student's progress to the beginning of Core knowing how to use the radio, what to pitch to and a system to learning procedures. Building-blocks are very effective!*
- *Underlying theoretical knowledge training according to the needs of airline operations.*
- *More manual flying in the simulator.*
- *TK could be more suitable for the MPL Program. An adjustment of some subjects needs to be done.*
- *Introduction to the airline environment at an early stage i.e. structured observer sessions and introduction to an operational environment e.g. ATC, route flying, cockpit procedures etc. as observers in the early stages of training. More partner Airline participation in Phase 2, 3 and 4 training. CFI-MPL and HOT should be current on aircraft type and procedures of the participating airline and must form part of the Airlines training team working in the FTO/ATO.*
- *No ATO that I know is conducting MPL strictly as outlined in doc 9868. Some still require up to three small aircraft types in the process. Therefore all programs are in some small or large way 'bolt-on' / hybrid CPL + MPL. This survey is therefore not strictly comparing apples with apples. The reason for this is usually because regulators insist on retain legacy elements of CPL. There needs to be a more coordinated thrust to get States to recognise MPL as the only new airline pilot license for 70 years and needs to be fully understood*
- *Basic flying skills, scanning*

Authors' comments

There are a lot of good thoughts and ideas on how to improve MPL training here and not really a great need to add additional comments on them. Some of them likely apply differently to different programs, but it becomes an unequal opportunity to create a new and stronger industry MPL training curriculum by using the experiences found to be effective over the last ten years and now also taking advantage of the collected ideas on how to improve.

Question

- In your opinion, what are the weaknesses of the MPL concept?

Response alternatives and results

Answer Choices	Responses	
I can not think of any weaknesses.	15.69%	8
I think that there are the following weaknesses...(Please provide information and/or comments in the box below.)	84.31%	43
Total		51

Respondents' written comments excerpts

- *In EASA it is overregulated or not clear in the following areas: 1. the license restriction until successful completion of the IOE Phase with the initial partnering airline leads to unnecessary delays for the MPL graduate to find a job in case the initial partnering airline stops hiring during or at the end of the course 2. Requiring a minimum of 12 T/O and LDGs in BT is not competency based. ICAO allows for a reduction to 6 if the competency is assured 3. Procedure for inner EASA cross border not clear.*
- *CBT take time to perform. It must be a process over time. The focus has to be transformed from the instructors' point of view to a student point of view. The progress you might take with a student always has its starting point in the individual student.*
- *Basic phase should be done on type specific and not generic.*
- *Limited options for graduates - very airline specific. Should that option not work out, the cadets have few other options to pursue. Less real world flying also limits ATC communication abilities and general situational awareness.*
- *The only weakness is that airlines need to face up to the fact that if they expect to meet their future flight crew staffing needs, they are going to have to pay for the majority of the costs of training carefully selected pilot candidates. Being an airline pilot may be a wonderful job but it is a terrible career given the uncertainties associated with the industry.*
- *ATC communication, exposure to real weather, manage with real life traffic management and threat foreseeing's, portability of licence (benefit for sponsoring airline though),*
- *The Aviation Authorities are denying approvals for cross border MPL courses, with an ATO sitting in a country and the operator sitting in another one. If the authorities do not change their approach MPL can get compromised.*
- *Lack of confidence building, lack of realism, no jeopardy in a too relaxed environment, communication skills lag due to simulator environment restrictions.*
- *There is insufficient time allocated in the MPL program for personal development. A*

young pilot grows quicker when they have to make decisions (even small ones) by themselves, for themselves. An example: A friend wanted to build hours while undergoing an integrated course. He decided to take his parents on a trip lasting 10 days around South Africa. He had to do everything, including hotel bookings, refuelling and flight plans. Now, while this is not airline specific, he learnt a lot about the integration of the system we call aviation. He also had to make some tough calls when the weather turned sour (he did not have an instrument rating at the time of this flight.) When speaking to MPL candidates, while they carried out some cross-country flying, this was all done in a protected and somewhat contrived environment. When the course is outsourced there is a disconnect between the ATO and the airline. No briefing will truly bridge this. One of the aspects of the MPL is training in a multi crew environment. In a true two pilot operation you need a proper gradient. In our experience the fact that both candidates are on the same level detracts from this aspect somewhat. When confronted by a "real" captain some candidates are reluctant to speak up. (This is no different, generally, from our low time integrated candidates. But no definitive step forward in assertiveness has been made.).

- *Knowing the books and procedures does not make you a pilot, a lot of work need to be done WRT to SA, CRM, leadership and problem solving. Not enough manual flying.*
- *License restriction in EASA - Base training not competency based.*
- *MPL requires tight coordination between ATO, airline and regulator.*
- *Exposure to ATC environments.*
- *1) ATC Comms practice 2) Phase 2 training must be in a similar type of aircraft.*
- *During training using FNPT II should be exchanged for the type of airline aircraft. E.g. A320/B737/ Embraer etc.*
- *Great if the trainee is successful but can be costly if it goes wrong with the only deliverable from failure during the applied phases being 14 ATPL exams.*
- *Sound data collection and analysis Base Training Theoretical training consistent with MPL design and not traditional TK methods Good ISD design with strong ATO QMS.*
- *Lack of reduced time on 'Live' RT Comms is a big drawback. Asking SFIs in the Sim to keep RT accurate is a difficult but necessary task. Introduction of background RT in the Sim is long overdue.*
- *MPL has shown to be less acknowledged worldwide, and many MPL students has been left in the dark when the associated airline makes a cut back or goes bankrupt :(*
- *Airline business of today is very fluctuating and unstable. During the time it takes for a student to pass through training there might be airlines going bankrupt or in other ways changing. This puts MPL-students in a vulnerable situation and has the potential of rendering the student with a useless training/license. There are also in my opinion threats to the quality of training as the airline business is too cost driven. Risks of exploitation: Airlines using MPL-students as cheap and temporary Pay-to-fly resources without any intention to hire.*

- *My concern is that MPL, if applied as a shortcut, will fail in some instances; therefore, creating a negative opinion and perhaps threatening the future.*
- *Cost of the course and lack of commitment from regulators.*
- *There is little regulation on MPL so ATO can fall in the trap of providing a faster and cheaper course with the lack of vision in the end result. Specifics should be followed regarding the type of training device either more type D for better .Manual flight skills are essential and need to be a training point that has become weak in the last decades in aviation. Not because we use less automation but because statistics prove that it is a working area for safety improvement. Specifics should also be followed regarding the reinforcement of manual flight skills and SPIC flying.*
- *In my opinion the system is too inflexible in licensing issues and therefore sometimes too restrictive for the airlines.*
- *Lack of support from the regulator, business or environmental inhibitions. A successful MPL program needs pillars to support - Financial, Open-minded Authority, Integrated Airline, Qualified Professional ATO Staff and continuous improvement.*
- *EASA: Operator restricted license all: late issue of the license - Student is ready for IOE but has to wait for the authority.*
- *Lack of flexibility for smaller operators. Student is tied to one operator and one type and might face long training and waiting periods. This degrades performance and competencies of the trainee/graduate.*
- *We are not confident about their behaviours under pressure in flight due to lack of real flight training time.*
- *Actually I have only a comment: Not enough emphasis and investment to train MPL Instructors. I am hoping that aviation institutions of higher learning could take on this role to train MPL Instructors to an "industry standard" for Phases 1-4.*
- *If the students fail the Line Training they don't get any Pilot License Students with ATPL frozen should get some credits (TK i.e.).*
- *Not enough time in actual aircraft.*
- *1. Performance indication may be needed more precise and specific. 2. Balance of student aircraft handling skills (manual flying) 3. Selection process shall be clear enough and more precise. 4. Training course, hours, time for MPL around the world should be similar, needs more studying from IATA and ICAO 5. Phase 3, FSTD shall be more specific 6. " Norm" for assessment requires more explanation*
- *The MPL program during the 4 phases is concentrated on Abnormal procedures; it is better to introduce some sessions in normal procedures in the phase 4 of the program.*
- *Regulators should require airlines to develop and implement thorough screening processes to help ensure that those hired have the aptitude to maintain the highest*

levels of safety, professionalism, and performance. • Regulator, airlines, and training providers should, in consultation with official pilot representatives of pilot representative associations, develop training curriculums that focus on proficiency and academics rather than hour-based licensing minimums.

- *Same weakness any low timer would have. Lack of experience etc. That is potentially compensated by a more appropriate training which aims to prepare the student for a multi pilot modern airliner environment in a better way than the old ab-initio fATPL schemes or the modular schemes.*
- *For now, I think the major setback is exposure to real time ATC environment during the training phases. TK needs to be overhauled and the need to introduce relevant subjects to the modern environment. The difficulty in finding Instructors for the conduct of Phase 2 training.*
- *1) The general lack of regulatory and industry understanding of what MPL is and is not. 2) Prescriptive regulations that inhibit the design process (e.g. arbitrary setting of 240 hours of flight time, or the requirement for a minimum number of solo hours etc.).*
- *Regulatory understanding of MPL and lack of updated TK requirements at ICAO level, and better UPRT simulation. Outstanding technical requirement to properly simulate ATC communications in FSTDs, (a continued threat factor in flight operations) and distractor to simulator trainers and examiners. Also see comment to Q22*
- *Legal restrictions on licence, add. Instructor qualification for MPL, increased base training, increased complexity in licence control.*

Authors' comments

From the managers and responsible of the MPL world and reality these comments provide a unique insight into where the industry need to use collaborative increased future efforts and work towards improvement. A summary of recommendations based on the results of the entire survey is provided as part of the concluding parts of the report.

Question

- In your opinion, what are the strengths of the MPL concept?

Response alternatives and results

Answer Choices	Responses	
I can not think of any strenghts.	7.84%	4
I think that there are the following strengths... (Please provide information and/or comments in the box below.)	92.16%	47
Total		51

Respondents' written comments excerpts

- *Students are in many ways more prepared for the role as co-pilot in commercial operations.*
- *1. Better preparation to successfully handle the challenges of modern Jet Transport operation by developing the necessary competencies on top of the tasks to handle the unforeseen; 2. Better preparation for the job by starting conducting the training in the future airline multi-crew environment earlier during the course (from phase 2 onwards).*
- *As an ATO you may create a much greater ownership in the program. Your tight cooperative work with an AOC will give you and your students a great value in the process creating the FO for the future.*
- *More orientated to airline operation, trainee gets more simulator experience on commercial jet.*
- *Prepares cadets for the FO role, eliminates unnecessary and irrelevant training, thereby reducing costs and training times.*
- *A graduate of a quality MPL program has all of the knowledge, skills, and attitudinal competencies required of an airline pilot and should be able to demonstrate superior performance during IOE and subsequent line flying in comparison to traditionally trained pilots.*
- *Safe ab-initio training setup, usage of advanced FSTDs (subject to ATO's device selection), MCC exposure, structured non-tech skill provisions, focusing to core competencies, duration of program, above all revisions of outdated training concepts*
- *Quality, Airline related, Multi Crew in a very early stage.*
- *It delivers a tailored product for each airline, with the aim to meet the needs of each particular airline.*
- *Crew coordination, CRM, airplane knowledge and understanding.*
- *URPT. Integrated course, unbroken by periods "when the money runs out." Company SOPs and airline culture can be introduced early. If done in house, the company "indoctrination" starts on day one by people who know, understand and who are passionate about the company.*
- *Manual flying skills - automation - much longer training on type if the MPL course is designed well.*
- *Early crew training; integrated airline procedures/discipline; potential to maximize learning in FSTD; tight coordination between ATO, airline, regulator - this is also a challenge/weakness if the parties can't come onside.*
- *Thinking the Airline way from an early stage of training.*
- *1) Familiar with Heavy aircraft handling. 2) Familiar with aircraft type environment.*

- *Airline procedures. Get to know the aircraft type rather than waste time on solo flight which is not going to happen in airline operation.*
- *Competency based, learner centred training Focussed on the end game Airline involvement TEM Early development of appropriate attitudes.*
- *Pilot training designed for specific purpose and concentrated to that end state; much like many military pilot training programs.*
- *1. The amazingly high level of Manual Flying skills (better than a large percentage of Senior F/O's and even Captains! 2. Very conversant with the specific Airline procedures.*
- *Airline involvement and putting their skin in the game early is always good. The job security aspect is also very good. The fact that the cadet is trained for a specific airline, using their SOPs and ethos from the beginning is a strength. Finally, the coherence of the syllabus and the competency based nature are the best strength of all.*
- *Much more focus on Leadership/Teamwork/TEM/CRM and decision making makes the MPL strong, but this can be (should be) a part of any professional pilot training programme.*
- *Competency based grading. TEM.*
- *Students are trained for and ready for the job when finished training. Strong emphasize on important non-technical skills. If applied correctly, competency based training should in theory reduce the likelihood of substandard performance go unnoticed and an overall improved standard should be achieved. Students can't start training without an airline willing to receive them.*
- *Relevance, ADM development, TEM, SA, applicability to the career of a professional pilot, mandatory UPRT, and pilot selection*
- *Competency is managed and tracked at all phases this removes the weak & poor performing students at an early stage saving time and costs.*
- *As mentioned before it is focused on the end result of a safe and efficient qualified pilot.*
- *Overall good preparation for the future workplace.*
- *Efficient - laser focused on the end goal. Practical - Students are more engaged when they know the goal and have expectations established. Modern - multi-crew introduction early on in training better equips Pilots for the modern multi-crew coordinated cockpit of managed aircraft. Safe - if solo flight is reconsidered out of MPL and SPIC is accepted, the end result is the same, a confident pilot but a much more safe training environment.*
- *Strictly airline oriented training no waste, lean concept.*

- *Extensive MCC training.*
- *Early adoption of airline SOP's, strong identification with future employer.*
- *Competency-based training and integrated training.*
- *Strong competency-based program.*
- *The Syllabus is an ab-initio from day 1 to the skill test and landings.*
- *There are several but I feel the following are most important: 1. A large portion of manual handling training on the big jets albeit in the FBS or FSS 2. Early introduction to MCC 3. Phase 2 training provides the commercial jet training consolidation that a type rating can never offer even if the student underwent a pre-type MCC course.*
- *Close follow up.*
- *Greater utilization of simulator technology which allows trainees to obtain highly relevant training - better preparing them for their future job.*
- *Specific, situational base training.*
- *Good CRM Being trained to airline standard.*
- *1. Pilots Quality to serve the aircraft in the present and the future 2. More knowledge 3. Cost benefit concept compare between time and investment in training 4. Direct to airline Pilots only. 5. Reduce the AOC training cost 6. Good training cooperation between ATO and AOC.*
- *A measured and structured program. Weakness and deficiencies are captured at a very early stage. Leadership and teamwork qualities are reinforced and identified at a very early stage. The understanding and application of automation in the modern day jet including decision-making skills introduced gradually within the different phases.*
- *According to IATA (2011), airline pilots require 3 basic competencies: • Technical • Procedural • Interpersonal All have to be equally developed, with interpersonal competency increasingly becoming more important in modern aircraft. Whereas pilots from the early days were concerned about aviating, navigating, and communicating – a mantra that has held well over the years – modern pilots are faced with additional critical tasks, for example systems management. In addition, on modern multi-crew flight decks, non-technical (cognitive and social) skills have been deemed essential for improving the safety and effectiveness of flight operations.*
- *Training is purposeful and give students a good preparation for working in a modern airliner.*
- *1) It prepares the students far better for entry into their first airline job and gives them a more focused and well refined set of core competencies and a more appropriate and fine-tuned skills set. 2) It allows the airline to truly tailor the training program to meet the needs of the airline.*

- *Total airline focus from the start. Minimum negative training on light aircraft Immersion in multi-crew in FSTDs. TEM embedded Competency based reduction in latent pathogens from irrelevant learning at the start of flying training UPRT as a requirement (still to be properly addressed).*

Authors' comments

Just as the previous question showed what areas of MPL training need to be focused on for future necessary improvement, this question and the written comments provide the opposite and include many arguments and experiences as to why MPL has been found to be an effective training form. Although a lot remain to be done in order for this concept to be as successful and effective as it potentially could be it is important to also highlight the areas that actually has been found to work.

Question

- *Is there any other information you would like to provide or comment you would like to make?*

Response alternatives and results

Answer Choices	Responses	
No	66.67%	34
Yes! (Please provide information and/or comments in the box below.)	33.33%	17
Total		51

Respondents' written comments excerpts

- *UPRT should be included in Advanced phase.*
- *Although MPL is a great concept, I do feel that many organisations are using this as a money making tool. Our first batch of MPL students that came through the system performed really well. In fact most are coming up for command soon. However, subsequent batches have been found lacking in many aspects of aviation. A big concern is the attitude of the students when they arrive for IOE. Goose and Maverick spring to mind...*
- *Renovate PANS TRG to clear up the competency confusions - renovate theoretical knowledge instruction.*
- *Data collection (data points) and analysis must be improved globally to substantiate MPL and diffuse naysayers.*
- *The Best of the MPL and the Integrated ATPL should be mixed in a completely revised PART FCL based on the experience gained from the MPL*
- *MPL was a great idea, and when it is regarded an evolutionary step in pilot training, then I would regard it a great program. However, as any training program, MPL*

should be made fit for the future. IOE Flying, theoretical content, incorporation of new learning techniques, reducing number of base training landings on evidence based training data etc. have to be revised.

- *I honestly always had the bad feeling that MPL is industry driven (airlines and FSTD manufacturers) and I still have not lost that feeling. MPL has its great benefits, but also its weaknesses. Why not combine these benefits with the good things in traditional training? Our ATO has increased quality of traditional, modular training by learning from MPL and we also try to get the good things from modular training into MPL.*
- *I would like some feedback from people they have experience in MPL training; I heard some negatives comments coming from IFALPA & others associations that surprise me; I need some arguments to convince people to adhere to the MPL program*
- *It's a robust, effective and efficient programme and I would like to see more involvement of the concerned airline in the development of the MPL course. At the same time, I think the issue of instructor qualifications needs to be urgently addressed especially for Phase 2 and it should be in the interest of the airline to assist and support in the development of the instructors delivering the course by training, qualifying and standardizing them. The instructors should be exposed as observers to understand the airlines operating procedures so as to deliver an effective programme.*
- *MPL rollout was a victim of the global recession. ATOs resources to add FSTDs to their inventory were not there MPL as per doc 9868 is not perfect, but compared to the basic set of ICAO CPL requirements it is light years ahead in relevance and quality as a pilot training process for airlines*
- *The additional amount of complexity does not make up for the resulting Quality. There is no obvious difference in MPL/CPL students.*

Authors' comments

Even when all is thought to have been mentioned there are more interesting comments to find. These comments will also conclude the presentation of the results and more analysing comparisons will be continued with the discussion section next.

2.2.15 – Managers and Responsible – Concluding Words

The data based on responses from managers and responsible individuals with a relation to MPL training is likely what was previously best known by the industry in general as these views frequently have been surfaced at aviation conferences or with other official sources of information. While some of the results also could be found with the other target groups, there are a lot of data that differ and finding the true reasons behind these is not a simple task.

There are many aspects to consider in the analysis of such immense data and without doubt there are many more conclusive or probable conclusion to be made from the results than what has been provided in this report. Given that it was the first ever data collection initiative on

the MPL the results are also difficult to validate over a longer term as the industry has been found to be very dynamic.

As with the other target groups there were more questions asked also to managers and responsible than what has been included in the excerpt above. Some of these relate to topics that will be covered with the discussion section, such as the license restriction, actual versus simulator flying time and the need to update the theoretical knowledge requirements. However, there were also numerical data collected related to for instance how many MPL courses had been finished or how long the development, implementation and approval phases took. All additional data is available with the survey raw-data appendix.

3. Discussion

From a general perspective the MPL survey data has provided more insight into the reality of MPL than was expected when the initiative was launched. Although some outcomes perhaps were more expected, based on findings from the authors' previous report on the MPL, these could now be better confirmed and explained with the survey results and comments. Examples of this are the reluctance towards the MPL due to the license restriction and the many challenges which came with the shift from inventory based to competency-based training. However, there have also been several areas where the data still show conflicting results, such as how the MPL is being perceived and if it actually has delivered on its goal of producing better trained airline pilots. It continues to be difficult and complex to determine the reasons behind these results and how they should be addressed.

It has been an endeavour to provide the industry with a suggestion of an MPL best practice-program based on balanced combinations of scientifically collected information and data based on industry experiences. With the first report it turned out to be impossible as there were too many unknown factors behind the findings that made them difficult to validate and more importantly there was no industry data available at the time. With the survey data that challenge is still not removed, but there is a lot more information available and when the results broken down by the different target groups it is possible to outline the important cornerstones of MPL training best practice.

Due to the similar nature of this report it was again deemed productive to combine the discussion section with both survey results and a literature review that could be followed by recommendations. The results used would this time be founded on the MPL survey data. Other scientific studies have been sourced in attempts of finding answers where questions remain. Therefore the discussion section will continue to contain cross-references to stakeholder statements and literature.

3.1 –The captured MPL experience – Facts, opinions, beliefs or prejudices?

Hundreds of individuals have been met and discussed with throughout the work with both this and the previous MPL report and without exception every single one who had heard about the MPL has also had something to say about it. Ranging from knowledge on regulatory facts to balanced opinions or even rumours and misconceptions these many different statements are very well reflected in the survey data, but it would not surprisingly prove incredibly complex to differ between what really should be considered as findings of facts and what is more of opinions, beliefs or prejudices affecting the responses when all is mixed together.

Throughout the brief history of MPL there have been different interpretations of its intentions and later also if the concept should be considered as a success or a failure. From the data there obviously still are different interpretations today and it quickly became of great interest to discuss and to try to determine the reasons behind the diverse and conflicting results.

One of the more troubling results regarding the perception of the MPL, which may be an overarching reason behind its slow development, is the wide range of statements and opinions on MPL from the industry. This range also represents a polarisation of different positions on MPL that has led to a politicised discussion with seemingly locked positions. The survey results ranged from critical Line Captains with a positive/negative relation of 23%/70% (with 7% stating to have no opinion) to managers and others responsible of MPL with a comparable relation of 86%/6% (with 8% having an opinion that was not possible to pre-select in the survey). From this it is not difficult to understand firm positions taken in regards to believed and perceived benefits and drawbacks of the MPL concept.

It would be impossible to say who is right and who is wrong in this debate, as it has so far not been possible to establish a standardised benchmark to compare statements about the MPL against. Yet the debate continues to be all about who is right or wrong. In other words, everyone could be right in their statements of perception and opinion, hence the strong debate, but if that at the same time is what is right when compared to reality is a different question.

Some explanations to the conflicting results could be found by simply using the results of the survey where respondents have provided reasons behind their opinion or where responses could be cross-referenced to other questions in search of answers. One such explanation that at least indicated part of the conclusion was how the different target group members had been informed and/or prepared on the MPL concept. It seemed obvious that a combination of lack of openly available information and poor or even completely absent structured preparation of the airline industry in general has resulted in a community that more have personal interpretations and beliefs from rumours rather than having been offered opportunities to base such positions on validated facts and discussion.

In review of the MPL Instructor data the effect of this finding became reinforced. MPL Instructors are likely the individuals with the best possibility to experience both sides when coming from previous background that most often had nothing to with MPL and then going through different levels of preparation for their new role followed by a constant training exposure and experience. Furthermore, since most of them probably not had any major involvement in the decision to actually launch MPL training the probability of a strong biased position also becomes less likely. As was mentioned with the survey results, the first natural reaction for many MPL Instructors appears to be scepticism and disbelief that in time with better information and preparation as well as going through the experience changes the opinion of many to be more supportive. It was argued that it not necessarily meant that the MPL programs should be considered up to the desired training standard, it was more an indication of that the spontaneous reaction on the MPL when first hearing about it seemed probable to change to a different final opinion when being closer involved and informed over time.

With that finding it becomes a strong request that the parts of the aviation industry, who still remain less informed and left outside of the loop (such as the Line Captains), are being offered opportunities to learn, understand and share their concerns. At the same time, regulators and people with management positions should take actions to include or at least

address the previously unknown feedback from the operational ends. However, why the spontaneous reaction of many appears to lie closer to scepticism than support is interesting and also important to try to understand.

To bring another perspective on this discussion a perhaps slightly provocative statement would be to say that humans in general do not seem well equipped to manage change. There are several explanations on important drawbacks to the human brain when it comes to change and development that in part could explain the inertia also to the MPL development.

In review of the human brain, Gospic (2016) states that although the different brains may be younger or older, the basic model is actually more than 40 000 years old. Humans have a fundamental programming to seek fast rewards and to avoid all that is unfamiliar, unpleasant or painful (Gospic, 2016). We tend to like what feels familiar and safe. Humans are timesavers and always strive towards being accepted by our social groups, whatever that group consists of. A disagreement activates our fight-or-flight signal simply because it is more unpleasant. In the context of the modern world and as Gospic (2016) puts it, *“we are not rational decision makers”*.

Scientists at the Harvard University asked 19 000 people between the age of 19 and 68 questions on their personality, their values and their taste and interests, ten years ago, now, and ten years into the future. What they found is that we have no problem to admit that our personality, taste, values etc. has changed and developed earlier in life, but when trying to look forward the belief is that we will not change that much in the future (Quoidbach, Gilbert and Wilson, 2013). *“People, it seems, regard the present as a watershed moment at which they have finally become the person they will be for the rest of their lives”* (Quoidbach et al., 2013). This conclusion considered to bedevil our decision-making. Although the change was found to decline with age, and as Quoidbach, Gilbert and Wilson (2013) puts it, *“people may believe that who they are today is pretty much who they will be tomorrow, despite the fact that it isn’t who they were yesterday”*.

One possibility could be that humans in general have a fundamental misconception about their future selves. *“Time is a powerful force that transforms people’s preferences, reshapes their values, and alters their personalities, and we suspect that people generally underestimate the magnitude of those changes”* (Quoidbach et al., 2013). Most people like themselves, the self-perception are that we have the right values, correct opinions and good taste. On top of this, most also believe that the self-perception in itself is correct. So, if we both have high thoughts of ourselves and at the same time believe that this image is a reflection of the reality, there is not much support for us to deviate from it.

A second explanation is the cognitive difference between looking back and looking forward (Quoidbach et al., 2013). To use our memory and recreate our past experiences is so much easier than trying to imagine alternatives or a future of which we have very little knowledge. This supports why we have a tendency to dislike change or take up defensive positions to new suggestions that we have limited knowledge about. *“We call this tendency to underestimate the magnitude of future change the end of history illusion”* (Quoidbach et al., 2013).

To place all of this in the context of the report and what it has to do with the perception and development of the MPL should now not be difficult to imagine. The MPL is still something new and different to what has been an unchallenged method of pilot training for decades. The survey data is most likely a complete mix of what will eventually be proven as facts together with opinions, beliefs and prejudices. People reluctant to change most likely still disagree with that these reasons should have anything to do with their opposing position and opinions, but in line with a general self perception being normally interpreted as correct the opposite is what would be more surprising.

An early ambition with this report was to make a contribution strong enough for the political debate to come to an end and more structured discussion to take over. It is still an expectancy that the data could act as a basis for much needed arguments on how to continue from here, but since there are supporting findings for both proponents and opponents there is also risk that the data will become misused and add even more to belief and prejudice. The responsible use of the data will become part of the more important follow up of this work.

3.2 – Training in real aircraft vs. Flight simulators

A central topic of discussion on the MPL, starting long before it was approved, has been if training in flight simulators can replace that in a real aircraft. In the previous report the literature and scientific findings on transfer of training from simulators to aircraft was studied as well as the effects of different levels of fidelity on this transfer.

In general there is solid evidence of a positive transfer of training between simulators and aircraft (Mikhailov, 2011). In fact, training done in simulators that had been combined with training done in aircraft had shown to be more effective than training done in aircraft alone (Hays et al., 1992). However, more recent studies pointed to that the level of pilot experience matters and that there is a correlation of experience to the level of effectiveness of training in simulators (Taylor et al., 2007). In other words a more experienced pilot will be able to recreate and integrate experiences from previous flying and training into the simulator training and thereby also increase the fidelity and effectiveness of the simulator training. As the MPL comes with no requirements of previous flight experience the impact of simulation in training is probably far less predictable for a novice, something that also places higher demands on understanding the effects of such training and how to optimise it. On this topic, much research remains to be done.

As flight simulators and simulator training was thoroughly discussed in the previous report, the focus on the discussion in this report is instead placed on the findings from the MPL survey data and what recommendations could be made based on that data. What follows here are results on questions specifically designed to address this discussion. To start the discussion data will be presented from the survey in a similar way as they were in the results section, but now for all target groups together. Six of the seven target groups were asked a version of the following question with the MPL students being the only exception;

The MPL regulations allow for training in basic piston engine driven airplanes to be reduced and training on FSTDs representing the future work place to be extended. What do you believe is the effect of this change in regards to how prepared trainees/you are for their/your future role as an airline pilot?

The respondents had the following response options to choose between;

- *It makes them/me much less prepared for the role*
- *It makes them/me less prepared for the role*
- *It makes them/me better prepared in some areas, but less prepared in other areas*
- *It makes no difference in how prepared they are/I am*
- *It makes them/me better prepared for the role*
- *It makes them/me much better prepared for the role*

The results from each target group have been summarised in a chart on the next page.

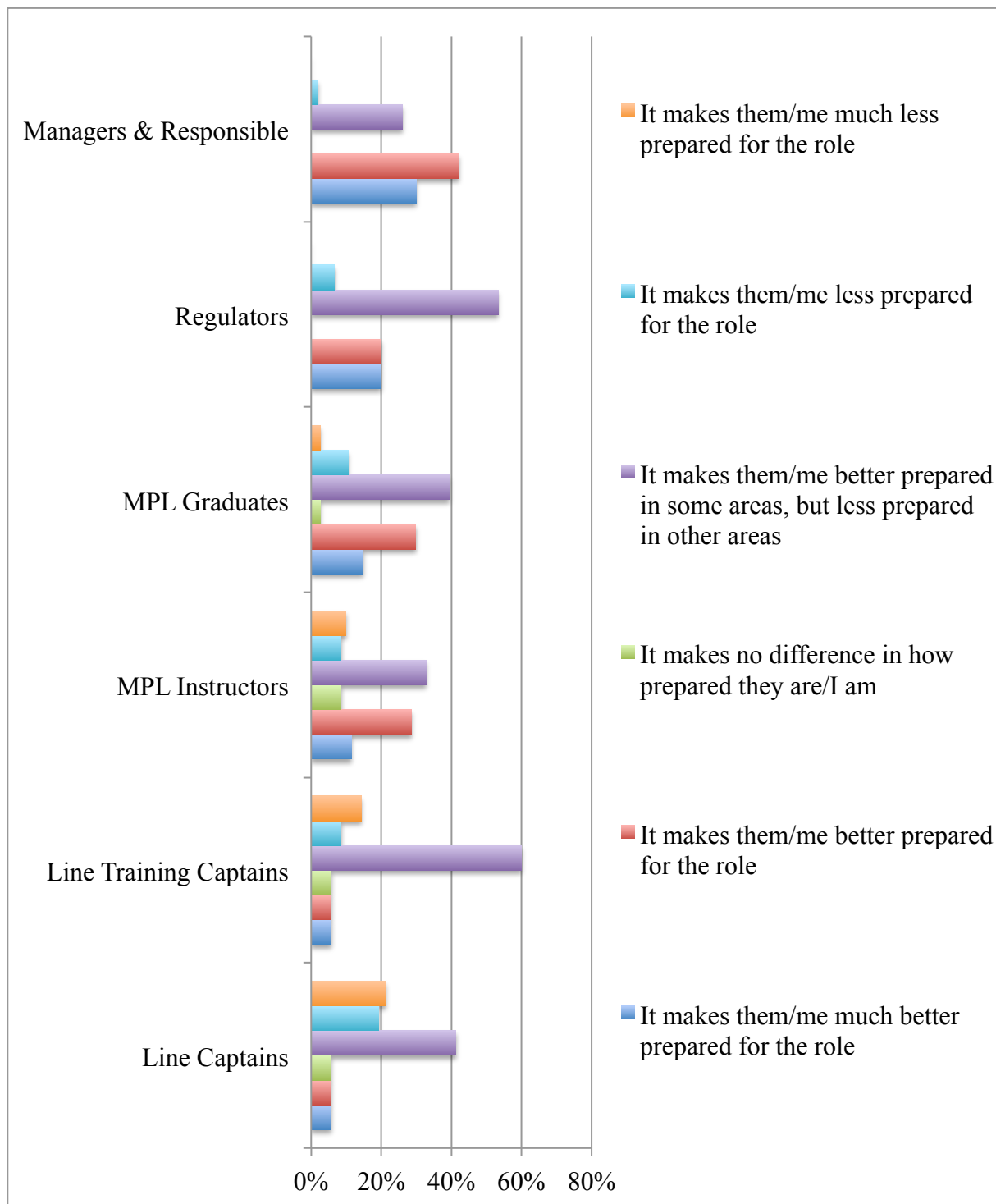


Fig 3.2 – Results from all target groups on the question of what effects replacing training time in actual aircraft with time in simulators has had.

There are widely differences in how the various target groups have responded to this question. Starting with the Line Captains, around 40% believes that it makes MPL pilots less (19%) or much less (21%) prepared, another 40% that it makes them better in some areas and worse in others and only 12% thinks it makes them better prepared. The final percentage belonged to those who thought it made no difference. With the written comments more information and understanding of the statements were provided.

- *More experienced in CRM/SOP, but perhaps less experienced in other areas.*
- *Simulator training prepares for day-to-day operations from A to B and back. Some things cannot be trained in a simulator and comes with time and experience.*
- *There is no substitute for real world Captaincy experience, even if gained in only basic piston engine aircraft. The sense of responsibility, achievement and professionalism associated with this not only develops maturity and discipline, it simply cannot be taught in a simulator or classroom and is certainly not gained during tenure as a FO in the very “vanilla” environment of Airline flight operations.*
- *There is nothing better for training than real flying time in real aircraft!!!!*
- *They can apply the SOP but cannot fly an aircraft to the level expected of an airline pilot. They are able to pass a V1 cut in the simulators but consistently struggle with a 10-knot crosswind on landing in the actual aircraft. Often you see unexpected actions either through the automatics or aircraft controls, particularly in high workload periods (i.e. take-off and landing). Their aviation knowledge is minimal and things that would be considered commonplace in this occupation can often surprise them. Simple things can scare them with unexpected consequences, as they have no experience behind the knowledge that they have rote learned in a 12-month course. Even experienced GA pilots new to jet operations can sometimes provide surprises but nowhere near the frequency and degree of that of the MPL cadet in my experience. It is the difference between a university graduate with on the job experience and a primary school student who has been playing computer games. I have had MPL cadets completely shut down on a number of occasions including during go-arounds or with significant system failures.*
- *Most of MPL pilots are not prepared to work as PF. They are good to follow orders and I cannot see the picture in their mind.*
- *It just makes sense to me. It appears to be based on science, and trains pilots for what their role will be.*

In summary the Line Captains opinion could be seen as that simulators in general makes the MPL pilots better at CRM and SOP elements but that they still lack some tools to handle elements that are unexpected and would require more experience. If this is true the MPL training related to these responses have failed to deliver on one of the early ambitions behind the concept – to train pilots who are able to handle unforeseen events. One solution, according to the Line Captains, would be to spend more time in smaller aircraft in order to build confidence and be more widely exposed to situations requiring individual responsibility and decision-making. Before making any generalisations, all of the target groups result will be presented since this question is so central in the discussions on the MPL.

From the Line Training Captains the results were in some areas similar to the Line Captains but in others different. Again, 12% believed that the training replaced with flight simulators made MPL pilots better prepared, but now down from 40% to just over 21%. Many still

believed it made them less prepared and instead 60% thought it had a better effect on some areas and a worse on others.

- *MPL graduates are very proficient in procedures and knowledgeable about automation, but they really lack the sense of the air, and situation/risk awareness.*
- *If they were allowed to achieve this rather than to have the program squashed because of costs. Proving there is a cost for safety.*
- *As an extreme example, MPL cadets are often frightened by light to moderate turbulence due their lack of aeronautical exposure. They have no idea where to look for a runway in visual conditions due to a lack of elemental experience.*
- *Better prepared for use of modern jet auto-flight systems, but less prepared in manual aircraft control.*

Despite the differences with the results, both Line Training Captains and Line Captains seem to agree on the MPL pilot proficiency in adherence to procedures as well as having good capabilities in handling aircraft automation, but that again their low level of experience becomes evident in their operational behaviour.

Next would be the MPL Instructors. Here the previous 12% who considered that simulators made MPL pilots better prepared for their professional role has turned into 40%. Now only just under 19% stated that simulators makes them less (8, 5%) or much less (10%) prepared and around 33% that it is both for good and for bad.

- *The FSTD must offer high fidelity to achieve a satisfactory outcome.*
- *The biggest problem is the time needed to expose them to unusual situations that require decision-making, situational awareness and teamwork. For procedures and IFR flying the FSTDs are great but not for building real life flying experience that includes dealing with weather (thermals, turbulence, diversions) traffic alerts and avoidance and radio telephony while all the time also flying the plane. The simulator is not dynamic enough.*
- *Manual flying skills tend to suffer from the strong focus on non-technical elements.*
- *It depends largely on the FSTD equipment, and where the training is implemented; my feeling is it is often too early in their training; before basic flying skills have a solid foundation.*
- *Overall I think that the piston training itself does not give the big advantage. The big advantage is that the student can fly and create experience on smaller aircraft. Especially if they decide to take the SEP single pilot endorsement. Maybe start with a PPL during the first part of the MPL training. Still PIC is PIC independent of which aircraft you fly.*
- *Part task trainers and FFS proved to be very effective in training sequences. This training transferred very well to aircraft as demonstrated on 12 touch and go landings on the 737 aircraft.*

- *Basic flying knowledge and understanding of aerodynamic effects as well as "energy management" is worse.*
- *No more feeling for the aircraft.*
- *It's a disaster waiting to happen! We are delivering drones instead of competent pilots.*
- *Manual flying skills are sacrificed.*
- *Given today's training devices, teaching methods and strategies and training personnel selection and development, and - foremost - the organisational structure, necessities and monetary frame of a western airline, how should the students become better prepared!*
- *The ATC environment and the traffic situations in real life cannot be simulated in an FSTD. That's why it is crucial that flying an SEP A/C should be kept or even extended in Basic MPL training.*
- *The use of piston engine aircrafts is very important as this is the only real flight experience the students receive. There has to be a very well thought out balance between aircrafts and FSTDs in order to be efficient.*
- *They are better prepared for procedures and instrument flying but less prepared for real life situations that are hard to simulate, things that just happens when there is for example other traffic around, real weather deteriorations and technical problems. Things that does not follow a strict training program.*
- *There is no substitute for hands on flying experience, with experience also meaning some form of consolidation of basic flying skills. Sims can't replicate the real thing well enough and therefore more time on the simulator cannot compensate the relative lack of basic skill training*

Although the MPL Instructors held a more positive view towards training in simulators instead of aircraft according to the data, the results from the written comments are still very much in line with the feedback from the captains and suggests that the MPL students and graduates need to be more exposed to aircraft flying as again some elements seem difficult to replace with simulator training only.

As this discussion mainly has played out between MPL proponents and opponents at managerial or unionised levels it was considered a large contribution if it would be possible to find feedback from the pilots who had gone through the training themselves. No one should be able to provide better perspectives on how well their training had prepared them for what they later experienced when arriving at the real life line training and later line flying.

The MPL Graduates have yet another different approach to simulator training. Now only 13% found that it made them less prepared and around 45% that it made them better (30%) or much better (15%) prepared. Still, almost 40% responded that they had become better on

some areas but probably worse in others with the final 2-3% that it had no effect. However, the comments again provided similarities with feedback from the previous target groups.

- *Easier start with multi crew task sharing. But less real flying, basic flying skills.*
- *Actual flying skills less developed through simulator usage but systematics can be practiced much better in a FSTD.*
- *Good preparation for jet flying, missing skills in decision making due to few PIC hours.*
- *Aircraft knowledge and overview better, basic flying skills not that good.*
- *Improved skills in multi crew operations and task sharing, worse skills in basic aircraft handling ("stick and rudder").*
- *I felt very well prepared for multi-crew cockpits.*
- *Pro: good CRM Con: lack of experience hence a lack in decision (non-emergency) making but that's why you normally continue line flying after IOE*
- *If the FSTD training were on a full flight simulator, it would be much better. And less visual flying means less visual skills in big jet.*
- *You simply prepare different for a simulator than for a plane.*
- *The meaning is that you will work in a multi crew environment so I believed this made me much more prepared rather than flying more hours alone in a SEP airplane.*
- *Simulator training allows for more non-normal events which prepares you better to make decisions in a demanding situations. Piston flying does not provide this experience to the same extent, but you lose the practice with communication through radios with different dialects/interference etc.*
- *We see a better FMS understanding but MPL pilots don't look outside even after the 4 years my CPT's sometimes tell me: "look outside its beautiful there :-)".*
- *Training was more relevant to flying on the line in a multi crew environment.*
- *Improves multi crew components, but reduces hand flying capabilities.*
- *Simulator training makes it possible to focus more on the important parts of the lessons to be learned during each session. But basic flying skills must not be neglected either.*
- *Better prepared: SOP, CRM Less prepared: Basic pilot skills, also the lack of solo time means less confidence and decision-making skills.*

Flying a twin piston powered aircraft with simple avionics is very much different from

flying a turbofan-powered aircraft with advanced and complex avionics. For starters, being trained directly on an Airbus gets me ready for real line ops and is very relevant in what I'm doing today as compared to the twin piston aircraft.

- *Better CRM, better knowledge regarding normal and non-normal procedures specific for the type, less confidence in hand flying, less solo experience - fewer decisions made alone. Good pilots in the multi crew environment. Less knowledge/experience to fall back on in case of pilot incapacitation.*
- *I think I could not be any more prepared for my duties when it was time to start line flying. Also comments from captains were that the MPL-F/Os had a very high entry standard.*
- *The preparation for MCC and in technical aspects is better, but I feel less prepared regarding Basic Flying Skills*
- *Less preparation in basic flying skills, a bit better preparation for normal and abnormal handling in the jet. Overall a negative trend.*

From the authors' perspective these results are considered as one of the more important contributions to how the MPL should be further developed as the increased use of simulations calls for a greater understanding of the training outcome than before. The results are still slightly confusing when reviewing the data as the combined majority believes simulators provides a better platform, or a platform that makes the MPL pilots better at some elements but worse at others. However, the written comments suggests that some items possible to train in smaller piston aircraft cannot be replaced with the simulators, together with a request of more training time in actual aircraft. Why a more equitable approach to the use of simulators has not yet been utilised becomes easier to understand when reviewing the results from regulators and managers.

With the regulators 40% believed that the training in simulators made MPL pilots better (20%) or much better (20%) prepared. Around 53% stated that it has a double effect with both improvement and deterioration of the training and only 7%, or in the case of the regulators one respondent, believed it made them less prepared. Unfortunately, the regulators did not leave many written comments to explain their responses as only one were provided and were more of a regulatory nature.

- *In Canada it is recognized that graduates require additional training and certification if they want to exercise single-pilot in command privileges in a commercial operation.*

Nevertheless, the regulators would find support from managers and responsible individuals involved in MPL training. In this target group only 2% believed that it made MPL pilots less prepared. A previous majority of respondents, who believed that the effect of simulator training again made them better prepared in some areas and less in others, was now reduced to 26%. A remarkable majority of 72% believed that it made them better (40%) or even much better (32%) prepared. As before, the written comments provided more indications on the reasons behind the results.

- *1.500 hours as a CFI in single-engine piston aircraft followed by an ATPL checkride does absolutely nothing to prepare a person to act as a crew member in a multi-engine, turbine-powered, crew-served airplane.*
- *It all depends on the extent of airline involvement in early phases of trainings.*
- *The last 200ft will continue to provide challenges until such time as the FSTDs can accurately simulate the dynamics of the real world at low level.*
- *A drawback that comes to mind for moving towards more Synthetic Training is the simple fact of realism. There is no eminent threat of being harmed or death when training in a simulator. The gut feeling you get when doing a crosswind landing with strong crosswinds and mechanical turbulence that can't be duplicated in the simulator. The simulator can be reset / repositioned, the aircraft cannot. Eventually, you have to land.*
- *I do not find any suitable alternative for this question. The important thing is not "How much/for how many hours" but rather "what you do under these hours" that counts. There is no substitute for real flight time, but also no substitute for quality simulator time. A sound balance is what is needed to gain the absolute optimum. This balance might vary between different organizations as many other factors also play a role.*
- *If you intend on driving a tractor-trailer for a career, why spend so much time driving a car? The more experience Students get in the end MP, type-aircraft, the better. Without a doubt, MPL Students will be more knowledgeable, confident, resilient and capable spending more time in the intended aircraft path. Furthermore, solo time in MPL is not relevant and statistically unsafe. Solo time needs to be re-evaluated by ICAO in MPL.*
- *MPLers have a benefit in MCC preparation, however this will even out with a classically trained pilot within a few hundred hours of line flying. On the other hand they lack quite some basic experience in manoeuvring and flying experience they never will acquire at a later stage because of airline automation policies.*
- *Some are already arguing that the basic phase is not necessary in the MPL, but I feel it is absolutely necessary to start a person in a flying career. The basic skills are the basis for the pilot to appreciate operating the 50 tonner.*
- *Provided the FSTDs are able to represent or replicate the training aircrafts*

As noted there have been contradictive responses on the perceived effects of replacing training time in aircraft with simulators. One possible conclusion is that training needs to be designed to address individual challenges rather than assuming that the same training input will lead to the same training outcome for different individuals (in line with the aims of CBT). However, perhaps the “real effects” of simulator versus aircraft training do not matter at this stage, since the polarised industry seems to be more about perceived and psychological effects. In order to be to continue the development of the MPL, the concept needs to find a greater acceptance from the aviation industry. Too much focus remains on who is right and

who is wrong, instead of what is right or wrong, or at least what are the possible steps towards improvement.

From the conflicting results one thing is clear - the issue of training in simulators versus training in aircraft should be much better researched, especially in the context of the MPL. Target groups of student pilots without any previous flight experience needs to be targeted to explore the effects of previous experience on the perceived fidelity of flight simulation and the consequences on training transfer. One solution could be to increase the amount of time spent in an aircraft, especially on time as pilot-in-command, and at the same time launch projects that could investigate differences in training effect and outcome. However, another solution would be to more intensively work with calibrating simulator training to maximise its effectiveness towards the currently perceived shortcomings of simulator training. Regardless of choice of way forward, these different options should all be centred on key concepts such as exposure and experience with relevance for final training outcome. Also, regardless of way forward the end goal remains a training setup focused on the proficient and continuous application of the pilot core competencies.

3.3 – Theoretical Knowledge requirements

In the development process of the MPL the ICAO Flight Crew Licensing and Training Panel also identified a need to review the theoretical knowledge requirements, but elected not to do so at the time. This topic has resurfaced regularly since but has so far not seen any changes and the theoretical knowledge requirements for the MPL remain the same as for the ATPL.

The main reasons for a review of the theoretical knowledge requirements is that these had not been through any thorough modernisation for a long time. This means that these requirements thus still refer to an inventory-based training regime and are still validated via the conventional ATPL theory examination, using multiple-choice questions. This is problematic when for MPL a competency-based approach is the aim. Although this may primarily have an effect on practical parts of the training the risk of a mismatch between practical and theoretical training is obvious. Adding to this it is questionable if the theoretical knowledge requirements are aligned with the current industry expectations on the pilot role. Another potential problem is that of the theoretical knowledge requirements being focused on training that is aimed at passing examinations rather than at being trained to actual proficiency, as is the aim of competency-based training.

One solution for the MPL would be to align theoretical and practical training to follow the MPL training philosophy of being competency-based by making also the theoretical training event- or scenario-based. Theoretical topics could thereby be better matched with practical lesson content and this should provide potential for more effective knowledge acquisition compared to a linear theory curriculum without integration of practical application.

To get an industry perspective on the topic of the theoretical knowledge requirements all of the seven target groups were asked the following question;

The Theoretical/Technical Knowledge (TK) requirements are the same for MPL training programs as for the traditional integrated ATPL training programs which have remained unchanged for a long time. What is your position in regards to this?

The respondents had the following response options to choose between;

- *I have no position on this.*
- *I do not have enough knowledge/experience in order to answer this question.*
- *This is good, the TK requirements do not need to be revised and should remain the same MPL/ATPL training programs.*
- *This is not good and requires revision, the TK requirements need to be revised for MPL/ATPL training programs.*
- *This is not good and requires extensive revision, the entire TK requirements need to be revised for MPL/ATPL training programs.*

The results from each target group have been summarised in a chart on the next page.

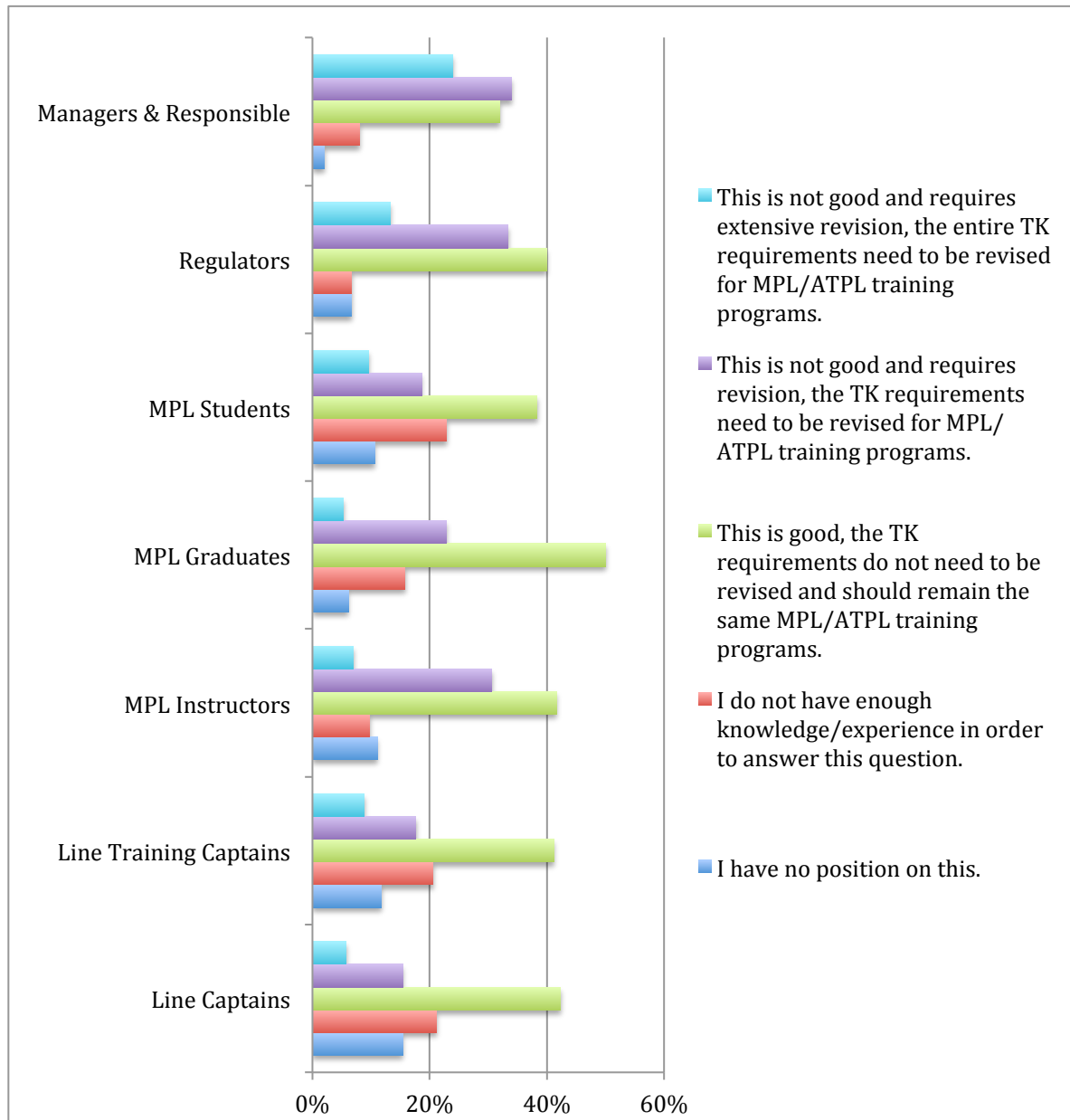


Fig 3.3 – Results from all target groups on the question about position in regards to the theoretical training requirements having been left unchanged for a long time.

In the previous report the need for a change appeared clear so the results to this question was a bit surprising as respondents in all target groups responded that there is no need to revise the theoretical requirements (represented by the green bar in the chart). However, when added up those responses that represent a call for a revision or even an extensive revision were still in a majority.

In hindsight the responses may have been affected by the question being poorly formulated. It can be interpreted as a question on whether or not the theoretical knowledge requirements should be changed for the MPL but be left unchanged for the ATPL, thereby creating a difference in the requirements. This was confirmed by the comments in the written responses, but this was not the intention with the question. The industry call for an update relates to both the MPL and ATPL and in both cases in regards to content and training methodology. The

comments to this question provide an indication of how the theoretical requirements are being perceived as they are delivered today. Excerpts from all target groups are provided below.

Line Captains

- *They don't have the experience to apply the TK that they gain and by the time that they do most of the TK will be starting to fade. People learn and retain knowledge best when it can be applied to practical experience. A lot of what they are taught cannot be as they are yet to gain experience.*
- *Today's aircraft is all electronics, knowing World War II TK is useless.*
- *They can pass the exam but they are poorly to understand.*
- *This is not just an MPL problem. Aviation is changing quickly, especially with regards to automation, navigation (GPS etc.) and teaching content needs to reflect this change.*
- *Only radio navigation could be revised in my personal relation. More practical and daily operational knowledge would make the theoretical training more efficient and interesting.*

Line Training Captains

- *More depth and checking required to ensure knowledge is understood, not just a box to be ticked.*
- *Theoretical/Technical knowledge should be made free from outdated stuff, irrespective if a student trains the normal way or the MPL way.*

MPL Instructors

- *Revision of some LO's are needed, some are outdated or overly detailed, but there should definitely not be a difference in TK between MPL and ATPL. An MPL pilot automatically becomes an ATPL pilot after 1500 hrs. (Under many regulators).*
- *Actual test scores do not reflect the student's true knowledge. This is primarily due to the use of question banks in very compressed ground courses and a complete lack of recurrent training/testing.*
- *It needs to be fully integrated with the MPL training programme. Focus should be on competencies. Not multiple-choice questions. Quite naturally students tend to focus on short-term goals instead of competencies. Making the exam is more important than getting a long term good understanding of the subject and what effect the topic has on the student's role as a future airline pilot. It cripples my everyday efforts to do a good job as a theoretical instructor.*
- *Overall the knowledge needs to be same, however from what the ground school offers I believe there should really be a greater emphasis on the nontechnical aspects such as teamwork and decision-making. When it comes to theory study the emphasis still seems to be passing the exams rather than taking away long-term knowledge.*

- *Trainees are using outdated material, and the level of rote knowledge is alarming. They can pass a test without having any real knowledge.*
- *New training structure need new TK structure.*
- *TK courseware should be reviewed and updated periodically but should not require major change.*
- *The theoretical knowledge is the same but outdated. Some Learning Objectives could be updated to the existing technology and know-how for instance regarding human performance.*
- *E.g.: There are still some very old subjects in ground school like celestial navigation or Loran C...*

MPL Graduates

- *A lot of useless knowledge, of systems no longer used in aviation.*
- *Theoretical stuff is in some chapters out of date and should be adapted to current technology in aviation.*
- *I believe that requirements of TK should be harmonized in the EU with regards to the examination process itself. I believe that studying for all exams at once and in short time is just as good for long term TK retention as studying half of the material, i.e. senseless. Consensus needs to be found on which topics are truly relevant in modern aviation today. Given that our information access to increased largely, I do not see the point in learning how many crash axes and megaphones are needed on board and many other details!*
- *EASA theoretical knowledge requirements are far too extensive. This is used to justify shortcomings in practical training in both ATPL and MPL training programs in Europe.*
- *The theoretical system is focusing too much on knowledge that you don't have any use of at all when working as a commercial pilot. Like systems that are only used in old aircrafts or navigation systems that are old and barely used in the world. If you would fly an aircraft with that equipment or in that area you would be given that training or read it up yourself. Also the questions used for examination gives you multiple answers that are tricky to understand that you basically need to know what wording they use on beforehand to understand fully the questions and answers given.*
- *The questions at the LBA are really bad and not purposeful, because everybody just learns the questions by heart and nobody has an understanding. I tried it with learning the material and not the questions and I nearly failed the LBA. At the end it was better for me because today I know more than my colleagues, but for the LBA I have to tell the new ongoing pilots that they just stupidly should learn the questions to pass the EXAM. In our training we first had one year of theoretical knowledge without any flying. This should be avoided under all circumstances. My company even changed this after half a year because the understanding of the theoretical stuff is much better after the first hours of flight.*

- *Some of the TK is obsolete, and other is missing, for example Loran-C vs GNSS (RNP)*
- *The problem is not that the requirements are the same for the two programs, this is fine. The problem is that a lot of focus is put on old or outdated or irrelevant knowledge and the means of testing don't favour real knowledge, only studying for tests.*
- *I believe that the original TK requirements are outdated and distanced from the real life in the cockpit of a commercial airliner. Just like the original CPL program. Update the TK requirements for MPL to be more relevant to the everyday work.*
- *The TK requirements are generally way too quantitatively oriented and do not put enough focus on relevant knowledge for the role as an airline pilot. The method of testing is especially outdated and ineffective.*

MPL Students

- *The Tech Knowledge phase is extremely important in a cadet's early stages in helping him to gain invaluable knowledge for his future. However, a consideration can be done to make it compulsory to integrate perhaps 10 hours of flying during the Tech Knowledge phase to allow a cadet to have better understanding of what he is studying.*
- *TK taught to students is outdated and in some cases completely redundant. The examination system in itself is broken, the multiple choice questions reward students who learn questions rather than those who learn content. A knowledge application based exam would be a better judge of students' abilities.*
- *'Question Banking' heavily, but not exclusively, is the best way to pass the exams in such a short period of time as many FTOs schedule however, it is not the best way to actually learn the material. Multiple choice exams are too easy and allow people to pass with very little understanding.*
- *Though I accept that they are important and used sometimes as standby instruments, I felt traditional flight instruments were taught in too much detail and I don't understand why INS was taught at all, considering modern jets fly using IRS.*
- *A lot of learning just "for the test" is done by nearly all students. My school did not prepare too well for the LBA exam, so you had to buy a software and just click through all the material (which is not too much related to reality either). Bring both worlds (theory and reality) together!*
- *I strongly support the idea, that the requirements / level of theoretical knowledge for ATPL / MPL is the same (high level). However, I think the contents of the TK syllabus should be revised in order to be up to date to the current technical developments. (Never heard of CPDLC, etc. during my training, but had long lectures about classic gyro instruments...)*
- *The training should contain more practically relevant items.*
- *... I learned how to navigate a DC3 over the ocean and how those instruments work...*

Regulators

- *The MPL TK was aligned with the ATPL TK in ICAO Annex 1 for ease of development. This can be much improved through the development of specific knowledge tests that allow the integration of instruction in underpinning knowledge with the related practical training segments.*
- *When saying that, we must realise that TK LO's and syllabus are revised at a regular basis in the EASA rulemaking programme. Next revision will be issued before the end of 2015. Both industry and authorities participate in this work.*
- *ATPL exams are based on a completely different premise. An MPL exam needs to validate to the authorities that the student has the ability to apply the knowledge in an operational context.*
- *Knowledge requirements for MPL need to exceed knowledge requirements for ATPL. My country has developed MPL examinations for this purpose.*
- *In fact the theoretical knowledge instruction has to be conducted all the long of training in order to be more pragmatic. Avoid talking about A320 systems during or before core flying (for example).*

Managers & Responsible

- *You also need a change in form of examination. The way the authorities chose to control examination has to be reformed. The examination has the greatest impact on students how he/she will study, no matter of which type of student we are talking about. The syllabus also needs to be reformed but not just for MPL students.*
- *It sometimes seems as though a large amount of time is spent studying subject that are no longer relevant while subjects (including theoretical knowledge) that are in daily use need to be taught on the line. An example will be the concepts of RNP and modern navigation. No instruction or testing is given in this field.*
- *Align TK with competency-based approach. Employ EBT approach for training emphasis.*
- *Whilst I am aware of industry opinion on this, the MPL course development provided an opportunity for our regulator to align their previously outdated TK syllabus with the EASA one, so in our regulatory environment, the EASA syllabus is "cutting edge"!*
- *More theoretical knowledge on Human behaviour (not just HPL) and more stress on modern navigation including ADS-B, RNAV, RVSM.*
- *The EASA ATPL TK Syllabus has a lot of superfluous material in it and needs to be revised for both MPL and ATPL from a Competency based approach. The syllabus is bloated with irrelevant information because it was designed by a committee of JAA and EASA Member states, each nation of which had disparate agendas leading to a bloated and disparate syllabus.*

- *Theoretical knowledge requirements are stuck in the 70'ies. This needs to be changed!*
- *While I think that the Theoretical Knowledge syllabus should be revised I do not see why there should be different requirements for MPL vs ATPL. In the end it all intends to end at the same result = an ATPL after 1500 flight hours. Also I think that it is good to not have too many standards. An MPL can be converted to a CPL/IR without too much hassle and therefore the TK standards should be similar.*
- *I believe the TK requirements need to be revised globally for all programs, not just MPL...*
- *There is little guidance regarding the TK for MPL courses. Authorities should regulate better and adjust the TK e.g. performance to the applicable requirements of today's airline pilot.*
- *ATO's should be given the ability to comply with Learning Objectives but customize it to their training program. For example, EASA LO's M&B are 737-200 and TriStar - outdated and irrelevant aircraft for a customized MPL program. There are many opportunities to clean up the LO's and make TK about learning the theory to fly and apply it practically to their career, not learning the answers to a test paper because it was relevant 20 years ago. FANS type TK needs to be introduced and a working group formed by ICAO with MPL program managers would be a great start. I am very willing to help out and support change - part of the solution.*
- *It is quite obvious that some form of integration between TK and the MPL program is required. I believe the current arrangement came about because of convenience. I feel the TK should be segregated into 2 parts: the "basic TK" before Phase 1 and the "advanced TK" before Phase 2.*
- *The TK for MPL should be revised by specify the direct "Need to know" concepts and relate from the basic knowledge to advance. Some ATPL topics have to change to match with the experiences of the MPL trainee.*
- *The contents and lesson objectives of TK needs a major overhaul to remain relevant. Some subjects and contents are obsolete and needs to be removed from the syllabus. A competency based approach, student centered tools considering KSA objectives should be implemented A working committee needs to be set up to recommend and develop the TK based on the current and future requirements.*
- *This is a critical area that needs to be worked on. The teaching of some of the LO's currently required is absolutely contrary to the entire design process of an MPL program.*

Despite the probably poorly formulated question there seems to be widespread support for a change and update on the theoretical knowledge requirements., There has been an initiative to update the question bank that should have been completed by the end of 2015, but just changing the questions cannot represent a complete solution.

3.4 – The challenges of Competency-Based Training

One of the more important topics for discussion in this report is that related to Competency-Based Training (“CBT” will be used but is not to be mistaken with Computer-Based Training, which shares the same acronym).

The previous report attempted to explore and understand if CBT has been implemented and is being applied as originally intended with the MPL. In the report, the concept of CBT was broken down into the foundational ideas fetched from Instructional Systems Design, where training design is made around the end goal, as well as into other building blocks that make up CBT. There is no need to repeat this exploration here, but the survey data as well as updated guidance material prompts a reason to return experience of CBT in practice.

The previous report concluded that CBT had created confusion in the aviation training industry and the term was being used in an increasing number of different contexts. The concept in itself was found to have roots all the way back to the 1950s, with a peak sometime during the 1970s. It had since long been an established training methodology in military pilot training as well as in other industries (Hodge, 2007). There was however little knowledge on the effects of this training method in the context of the civilian aviation industry.

The concept of CBT is related to the progression of technology that had been applied to many different areas and called for more complex skills as well as more practical and applied forms of training program design (Harris et al., 1995). Given this background it was a surprise that CBT had not reached the civilian pilot training industry long before, given the highly technological advancements made in aviation.

The first challenge of CBT is to formulate the skills and competencies required for qualified and operational airline pilot. The core competencies and behavioural indicators as documented by ICAO, IATA and IFALPA has been left outside the scope of both of our reports since only limited background information could be found on the development of these. No strong reasons have been found to question them. Even though the competencies occasionally have been named differently by other organisations, IATA (2015, p.19) states that as the competencies required to operate an airliner safely are largely the same regardless of crew origin it should be possible to translate them into a global standard. This lies in line with the findings of both MPL reports and the competencies seem to entail similar core behaviours, which shows that the industry is coherent in regards to competencies. For this reason the core competencies were also used as references in the design of the survey questions.

Harms (2015) has stated that in hindsight the initial form of the MPL concept was far not as complete as it could have been when it was implemented in 2006 and the development process had to continue after the implementation. A problematic aspect was that the core competencies did not exist at the time and the term “competency units”, consisting of the different phases of flight instead of the core competencies, were used to describe the essence

of CBT. This created a damaging confusion in regards to competency, where opponents could argue that the MPL only was marginally different to traditional training. Evidence of this is confirmed by the survey data (see below). The governing bodies involved in the development of the MPL have as well learned a lot since the implementation and in 2015 a second edition of the official MPL guidance material was published. This material contains an improved explanation of the now revised view on CBT in the MPL context (IATA, 2015).

CBT was an identified challenge already in the previous report. The finding was that understanding CBT in as a concept seems easy enough; i.e. to train for a desired level of competency rather than assuming that each and every trainee has reached the required levels of performance following a fixed number of training sessions. However, to actually bring this new paradigm, perspective and mind set into the training organisations and to transfer understanding of CBT into practical application using the craftsmanship of the instructors has been found to be a significantly greater challenge.

Questions raised in the survey aimed to find clarity in how well the CBT concept had been understood and implemented. Responses are provided in the survey results, e.g. the self-perceived level of knowledge and understanding of CBT, levels of performance benchmarked against the competency areas and to which extent the respondents considered “their” MPL program to be competency based.

MPL students and graduates were asked about the planned duration of their MPL training programs, followed by the actual duration of the training. As per CBT, the achievement of competencies rather than progression of time is what should determine when training is successfully completed. For that reason it was considered interesting to compare planned and actual duration as an indication of how well the CBT concept had been implemented. There were many responses on discrepancies between planned and actual duration of the training programs, suggesting that CBT was applied. However, the reasons behind the differing timeframes appeared to be more related to organisational challenges rather than effective use of CBT. The main reasons for the differences were instead due to negative consequences of the MPL license restriction, especially when the associated airline was unable to offer line training. This left students locked in a situation where they could not go on to graduate and where training organisations had problems to provide enough qualified instructors for this. In turn it also caused delays in the training ranging between a few months to several years. This seems unacceptable to the cadet pilots as well as to the industry as a whole due to that these gaps may risk reducing the quality of the overall training. Based on the interviews, some training organisations with this experience stated that once the training was able to recommence, the experience showed that not much extra training was needed to bring the students back on track (Kamps, 2015), but comments from the students indicated some disagreement with this.

Because of other influences on the training duration, the data on this could not be used to make generalisations related to what extent CBT was being applied. The fact that the duration of different MPL programs ranged from everything from between 14-15 months to more than

three years has to be considered to have an effect on the end result of cadet pilot performance and may reflect the range in quality of different MPL programs. Even with the best CBT assessment and evaluation system and the most effective training organisation and instructors, it should not be possible to reach equal levels of performance in less than half of the time of another program, especially since there are no requirements of previous flight experience in the MPL programs.

The question to respondents regarding their level of understanding of CBT provided further needs of interpretation. The question was presented to survey participants without any information on the actual philosophy and intention of CBT, meaning that the survey respondents replied simply based on their own perceptions and interpretations. Being aware of that this setup would make it impossible to validate the results against the actual original intention and information, there were no alternatives found that kept the question from being unbiased or leading. It was also the case that CBT appears to have been interpreted differently by different authorities during the implementation of MPL. This has created different regulatory deviations from the original PANS-TRG document published by ICAO in 2006, suggesting then that in reality more than one interpretation of CBT could be considered as “correct”. This is truly troubling, especially in regards to the efforts of creating more and better harmonised training standards globally.

Nevertheless, the results to these questions provided some interesting numbers. They were all provided with the result section but for an easier overview and reminder on how the different target groups responded a chart of the results is also presented on the next page.

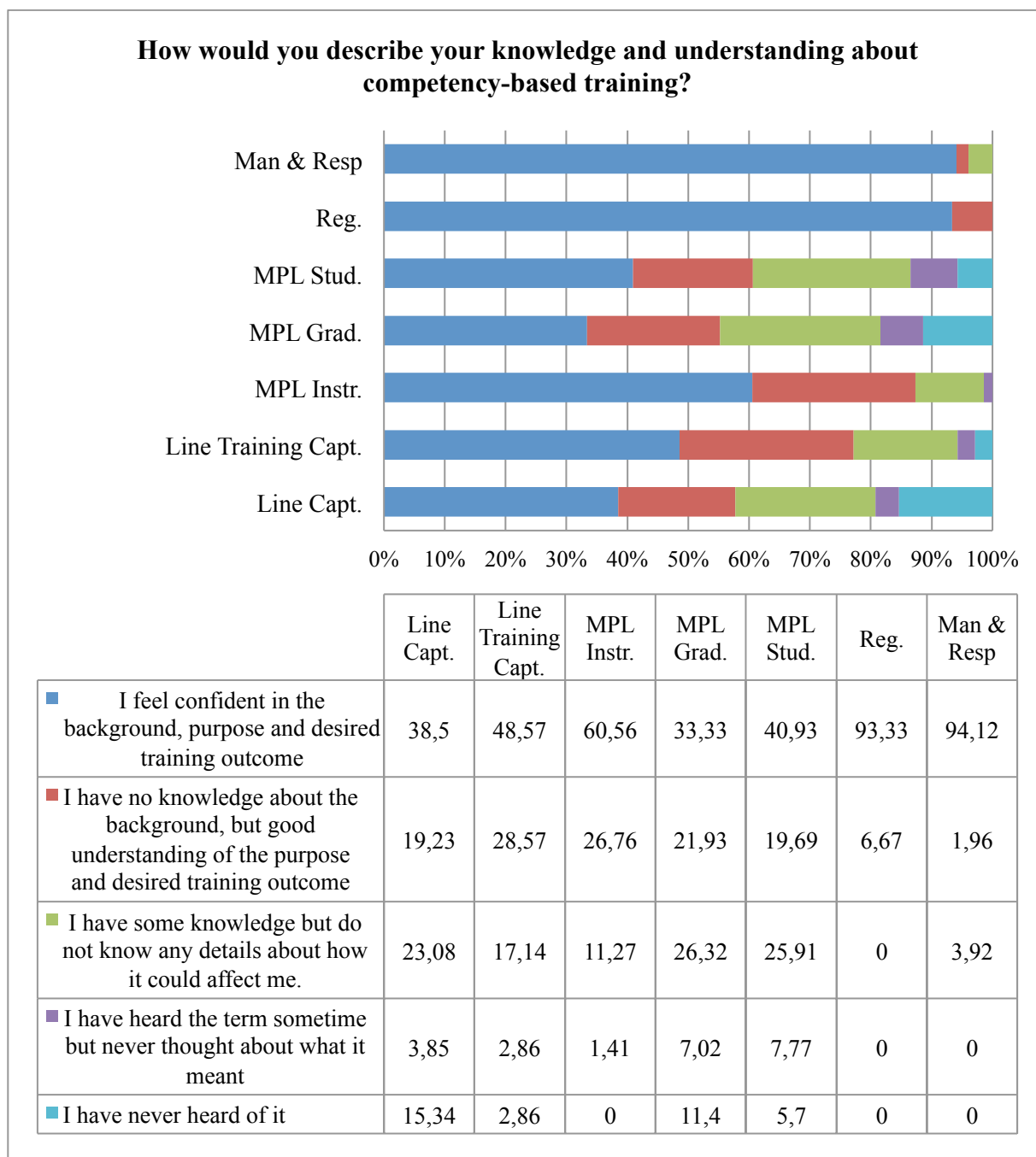


Fig 3.4.1 – Survey results from all of the target groups who were asked about their level of knowledge and understanding about CBT.

Regulators, together with respondents with managerial responsibilities were convinced on that they know and understand CBT. At the other end of the scale MPL students and graduates and Line Captains were uncertain or even lacking in knowledge and understanding of MPL. These results are interesting when compared to the question on if the MPL training programs were performed as competency-based training programs. An overview of these results is provided below.

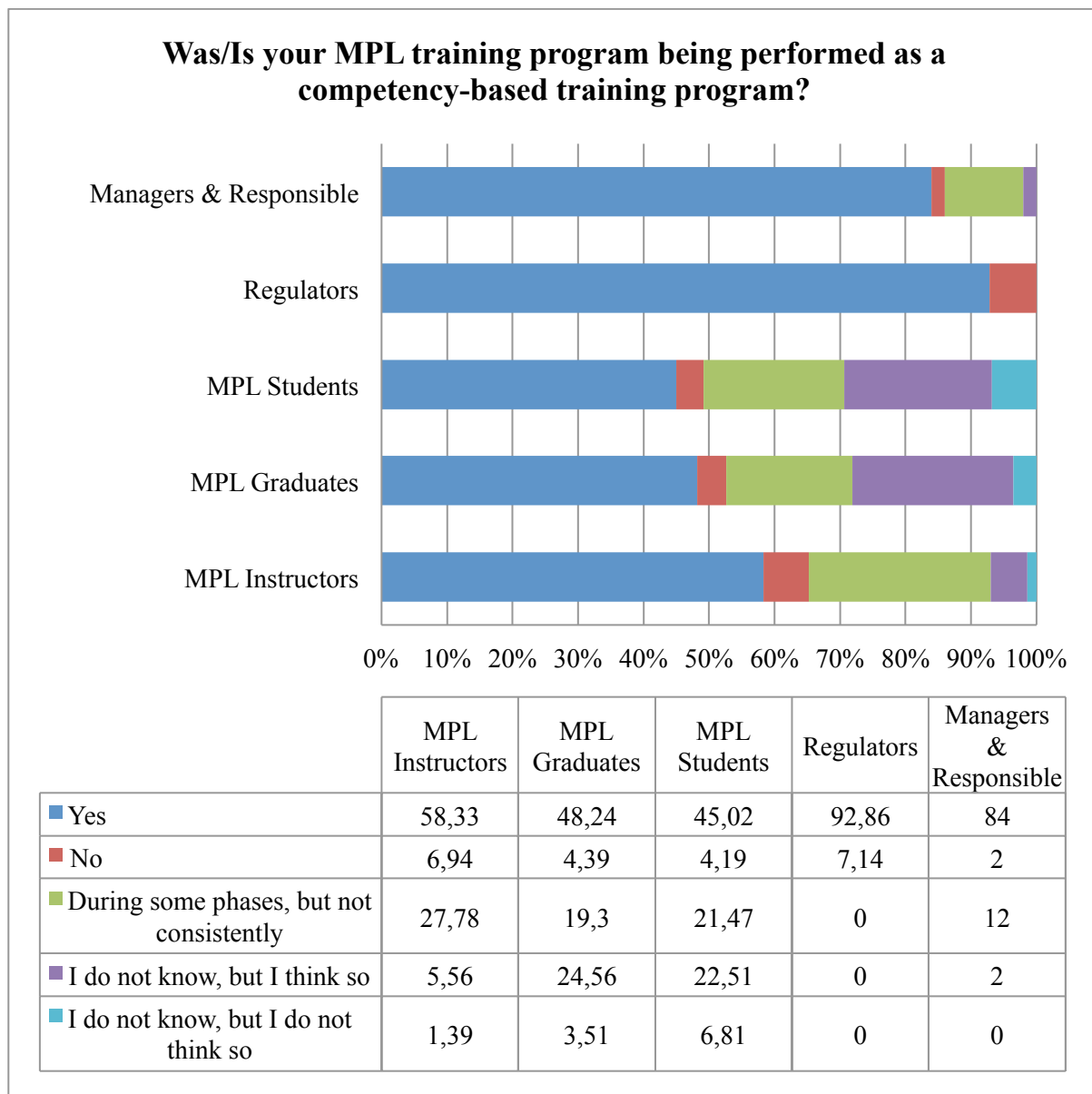


Fig 3.4.2 – Survey results from all of the target groups who were asked if their MPL training programs was being or had been performed as a competency-based training program.

In hindsight the Line Captains and Line Training Captains should have been included in this question as they are involved in the delivery of the MPL training and could have provided additional perspectives.

The results point to a lack of information and communication about MPL. If the regulators and managers are honest in their responses about their respective MPL training program being competency-based, it is clearly not a shared view as others involved in these programs are often of another opinion. The response options included the possibilities of selecting that a partial or on-going implementation of CBT could be completed or in progress, or that prescriptive regulation still in force prevents it from being completed. Still a vast majority of regulators and managers selected “Yes”. This may mean that it is less likely that any investments will be made to improve or change the training toward being completely competency-based. Such decisions can be prompted by regulators and managers, but if they

think that this is already achieved nothing more will happen. This shows the necessity of more information, better industry understanding on all levels and better discussions in regards to CBT.

Additional results related to the delivery of CBT could also be found with the questions related to the MPL pilot performance in the different competency areas. The target groups were asked in which of the following competency areas MPL training had prepared the performance of cadet pilots well and/or less well (for a better understanding on what they are supposed to entail and which behavioural indicators are related to which Core Competency please see Appendix 6).

AOP – Application of Procedures

COM – Communication

SAW – Situation Awareness

LTW – Leadership & Teamwork

PSD – Problem Solving & Decision Making

FPM – Flight Path Control Manual

FPA – Flight Path Control Automatic

WLW – Workload Management

KNO – Application of Aeronautical Knowledge & Understanding

This question on actual performance was presented as a multiple choice question where the respondents could mark the competencies considered as a challenge for MPL pilots or those where the MPL pilots were performing well. The MPL graduates were asked to reflect on their own performance after graduation and the MPL students to reflect on their current levels of performance independent of how far they had progressed into the training curriculum. Again an overview of the results is presented on the next page.

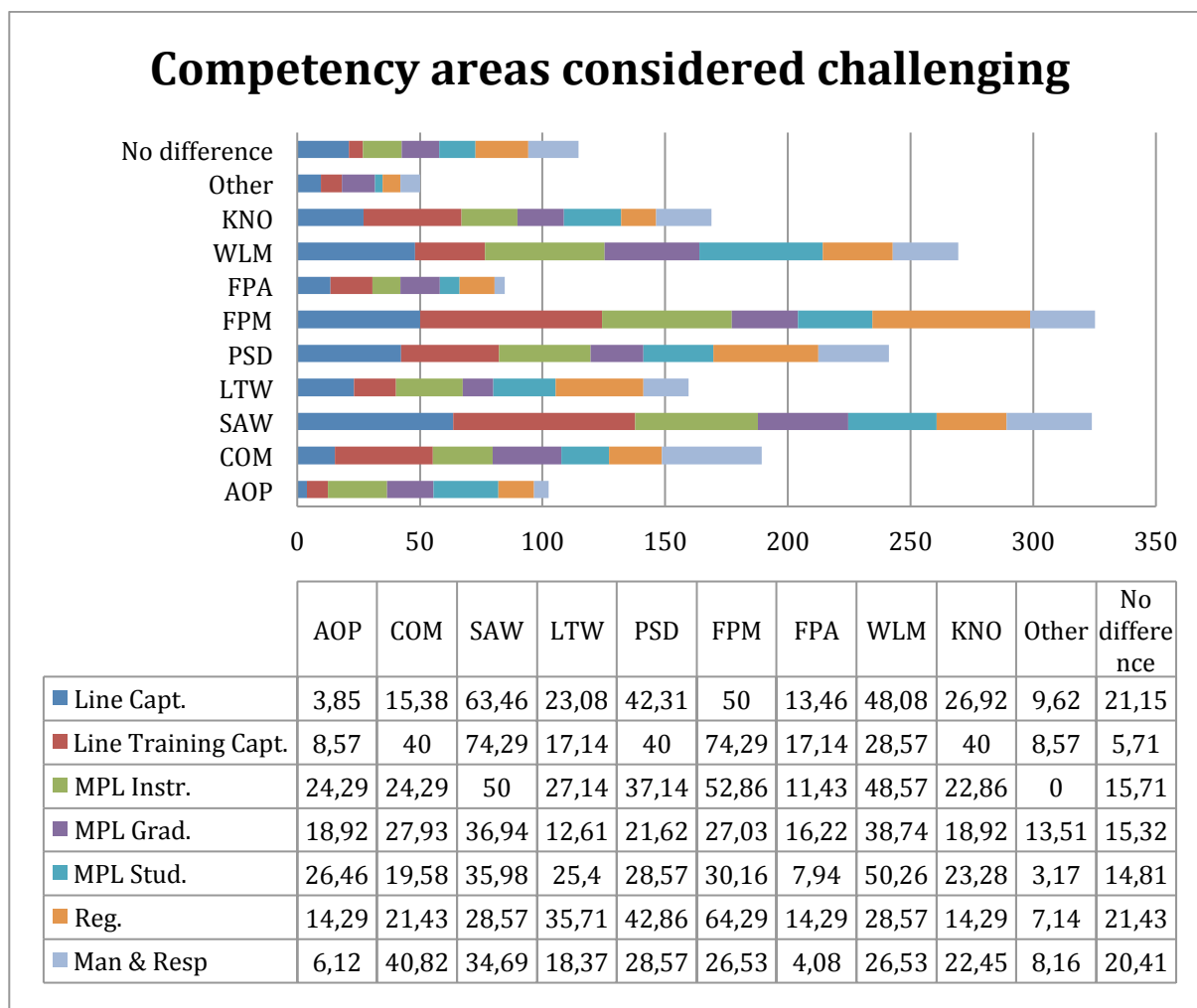


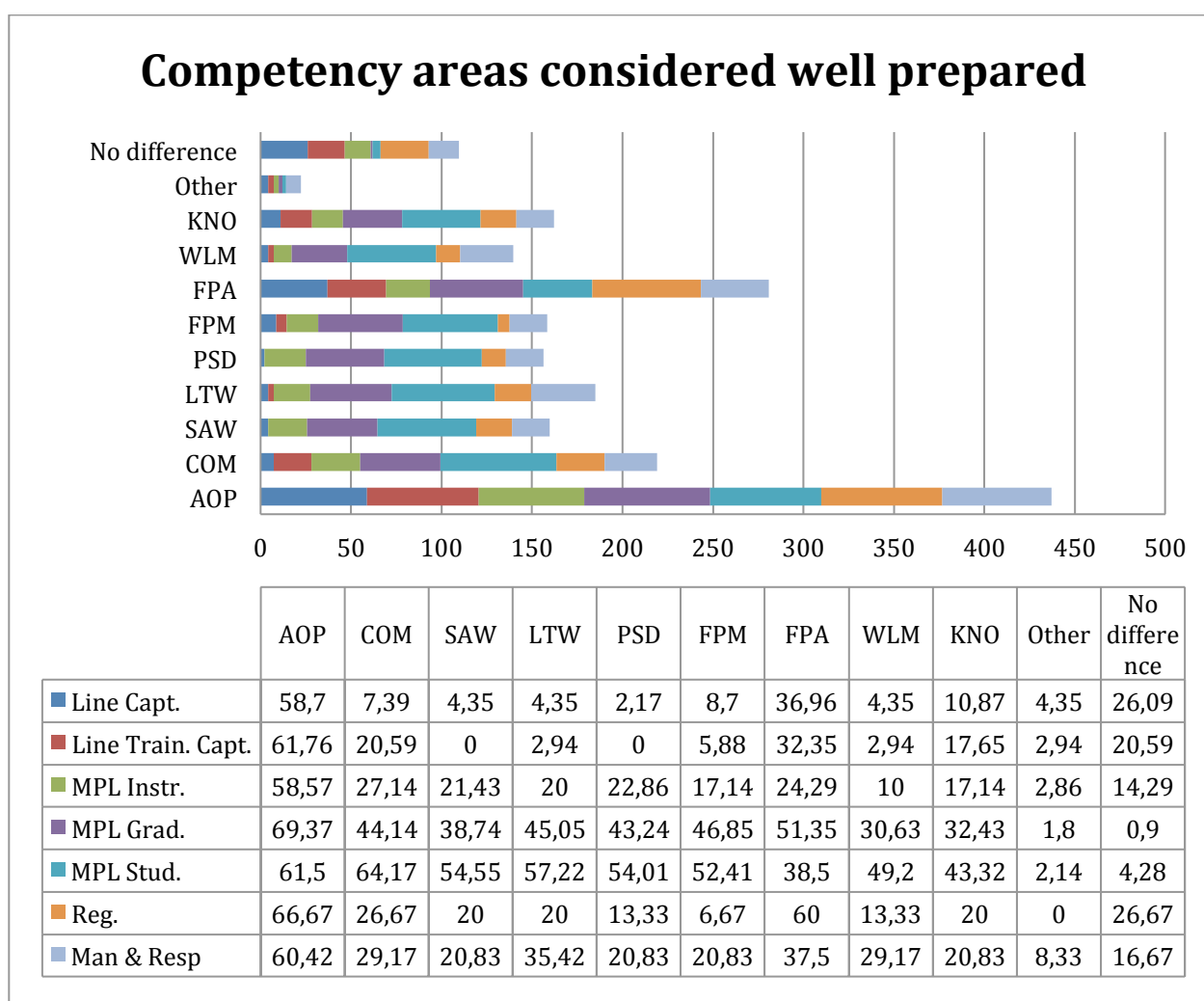
Fig 3.4.3 – Survey results from all of the target groups on which competency areas were considered challenging.

Overall manual flying skills (FPM), situational awareness (SAW) and workload management (WLM) were considered as the greatest challenges, but the more interesting results to discuss reveal themselves when the target groups' results are compared against each other.

First of all it was seen as a surprise that only 15% of the Line Captains considered communication (COM) to be a challenge since this particular competency has been a topic repeatedly addressed at industry conferences. To the managers and responsible, this is the most challenging area to MPL pilots – much in line with what has been states in many presentations given at these conferences. To the Line Training Captains communication is as challenging as problem solving and decision-making (PSD) and applying aeronautical knowledge and understanding (KNO). But their view is that situation awareness (SAW) and manual flying skills (FPM) are the most challenging areas.

The MPL students, who have not yet graduated, finds workload management (WLM) and situation awareness (SAW) as the most challenging competencies. This is supported by MPL graduates, who shared that these competencies are challenging both during and after the initial training. Also the MPL Instructors share this view. This adds weight to the data that the instructors work very close to the MPL students.

In general MPL Instructors see challenges during the initial training with the same competencies that the line and training captains see as challenges do later in the line flying. This is interesting, as it suggests that the difficulties in these areas are not fully addressed when the students transfer to the line flying environment and it raises the question if these competencies could be better addressed during the initial training or if more competent performance in these areas comes with greater exposure and more experience. Comparisons could go on but it seems as if there is no coherent perception of the performance of MPL pilots, even when they themselves are asked. On the other side, the areas considered to be well prepared also raise some thoughts.



In the previous report it was reported that MPL programs have been seen as delivering pilots proficient in knowledge and execution of standard operating procedures (SOP) as well as flying the aircraft using the automated systems. With MPL students being the only exception, the other six target groups in this report ranked application of procedures (AOP) as the competency that MPL cadet pilots are best prepared in. The second ranked competency was flight management skills using automation (FPA), this by every target group except the MPL

Instructors (although it was fairly equal to the second ranked area of communication) and the MPL students.

It would seem as those involved in MPL training agrees on that MPL cadet pilots are performing well prepared in these competencies. The MPL was meant to address challenges of SOPs these results can be seen as demonstrating success. However, it may also be seen unbalanced compared to other competencies. Some respondents commented that when flying with MPL pilots SOP and CRM-related competencies were equal to more experienced pilots but in unexpected and unusual situations the performance was more equal to that of a junior pilot.

This feedback may be taken as evidence to the MPL training providers that they should review their training syllabuses to not only focus on SOPs and develop the training content to better address and strengthen the competencies identified as weaker areas. Some respondents have commented that MPL pilots have difficulties to act and respond in situations where the correct action in the interest of safety would be to deviate from an SOP, even more so in situations where there are no SOPs. It seems only logical that with limited previous experience, the MPL pilots are more familiar with SOPs since these have been at the core of their training since an early stage.

When comparing the numbers between the target groups it seems as if expectations change during training. MPL students rate their performance higher than MPL graduates on all areas except AOP and FPA, although the graduates have completed the entire training and should thereby have managed to become more proficient also on the other areas. This suggests that there are other aspects affecting the self-evaluation, which is also considered as an important skill in CBT. It also can be seen as an indication that expectations on demonstrated competencies change over time in the training program and perhaps the training does not fully meet these expectations. Again it is interesting that communication (COM) is ranked third, given the industry discussion on the challenges with communication, but it is fairly equal to the other remaining competency areas.

It is difficult to conclude that CBT has been properly implemented and successful if the individuals who both deliver (instructors) and those who receive it (MPL students and graduates) are unaware of the concept and its practical application. Even when the respondents agreed to have understood CBT, it became questionable what exactly they agreed upon when the comments were reviewed – but there were also indications of progress.

A fundamental aspect of the MPL-concept is a high degree of managerial freedom in how to set up the MPL training program. It allows for flexibility in the setup to address specific operational needs. What is of more importance is that the required skills and competencies have been achieved by the cadets at the end of the training, not the time or number of training sessions it takes to achieve them. However, this also makes it more challenging to know when and how to check accomplishment of training goals along the way. All parties involved in the training need to have properly understood exactly what the competencies are about and how they should be assessed and evaluated. Regardless of which other conclusions are made from

the survey data, it is clear that the view on CBT and the core competencies is not coherent in many organisations and more work, much more work, remains to be done.

3.5 – The MPL license restriction

The next topic of discussion has also been frequently returning in the MPL survey, namely the MPL license restriction. It has become clear that effects on career opportunities are of greater interest to many than immediate training quality when different pilot licenses and the related training are being compared.

To clarify, the MPL license restriction is based on an EASA regulation that binds the MPL student to a specific airline until he or she successfully has completed the line training phase with an approved line check. It should be noted that EASA regulations have also been implemented in many other countries and affects a number of MPL programs in Asia and the Middle East. In other words, even after having graduated from the initial MPL training and with a valid type rating the MPL pilots are dependent on that the associated airline provide them with line training and therefore also some sort of employment.

There have been some misunderstandings and rumours about the MPL pilots being forced to fly for a specific airline for a certain number of hours or years and it should also be clarified that such arrangements are not covered in the basic regulation for the MPL. In other words, they may be unique agreements between certain airlines and MPL pilots that are agreed upon before any training begins, but they are in such cases local arrangements.

As long as the airline does provide the initial operating experience, there are no issues with the restriction. Following a successful line check and with no other local arrangements, the MPL pilot is free to apply for a job to any airline that accepts the MPL license in their application process. The issues have been found to arise when the contrary happens and the airline, regardless of the reason behind why, chooses not to offer any initial operating experience. In those cases the MPL pilots are still unable to apply for work elsewhere even when holding an approved license with a valid type rating. This has been argued by many, both in the general debate and here in the MPL survey, to create unfair market powers and an unbalanced advantage of the airlines. Theoretically they can hold pools of trained pilots only waiting for a job and thereby also creating advantageous positions for contract negotiations as these pilots are bound to the airline with limited options and often with debts from the completed training.

At the European Aviation Training Symposium held in Warsaw in November 2015 the topic was raised again. On a Head of Training meeting arranged on the evening before the conference was officially launched there were questions on this from the attendees. Thomas Leoff and Peter Moxham, involved in work with EASA related to MPL, provided some thoughts on the restriction and suggested that EASA was willing to listen and work together in order to update the regulation. However, until a solution was available the MPL students should also realise that the MPL comes with a higher risk. At the time there were no legally

defined process on how to deal with the restriction and the only solutions available were local in nature and not considered very effective since the regulation remained unaffected.

Following the conference the Acting Manager Aircrew and Medical Regulations Section at EASA, Daan Dousi, sent a request to the authors to take part of some of the MPL survey findings and data to act as contribution to the development on this discussion within EASA. As a response, the authors put together a working paper based on the questions and data specifically related to the license restriction, which can be found in Appendix 7. The working paper is composed in a similar way as the survey results section in this report and for that reason these questions were left out of the previously provided results.

In December 2015, Dousi replied with a short note saying the EASA member states had voted in favour of the MPL license restriction to be removed and that the removal should be in effect in April 2016. On the 6th of April 2016, with effect of immediately, EASA released a regulation amendment containing a number of changes but where the following in regards to the MPL could be found;

“Regulation (EU) No 1178/2011 stipulates that the training course for multi-pilot licences (‘MPL’) shall only be delivered by an approved training organisation that is part of an air transport operator. In addition, that Regulation stipulates that, unless the holder of an MPL has completed the conversion course of the same operator, he cannot exercise the privileges of the MPL. There are cases where, due to the fault of the operator, some MPL holders cannot complete that operator's conversion course and are consequently not able to work neither for that operator nor for another operator. The restriction on exercising MPL privileges elsewhere puts those MPL holders at a disadvantage without it being justified by safety reasons. Pilots who change operator are required to complete the new operator's conversion course despite the fact that they have taken a conversion course on the previous operator. Moreover, any operator's conversion course must take full account of the level of experience of the pilots joining that operator. It is therefore necessary to remove that restriction. MPL requirements are thus also aligned with the ICAO standards.” (EASA, 2016)

The fact that the restriction will be removed should be considered positive in regards to the opportunity for further development of the MPL and this should be welcome news. The licence restriction has been viewed by many as a heavy drawback to the MPL license. Once removed and when career opportunities now become more equal between different training forms, the focus can hopefully turn towards actual training content and quality.

4. Conclusions and Recommendations

4.1 – The arguments for and against the MPL

Before presenting the conclusions of this report, recommendations on how the MPL development should be allowed to continue will be made. Initially a summary on the current arguments in the industry for and against the MPL is presented, followed by the proposed recommendations in relation to these arguments. The recommendations are not intended to argue for or against the MPL in comparison to other training methods, but some statements of comparison will be included when considered relevant to the arguments. Arguments of neutral character are also provided, which may be supporting and opposing in regards to MPL depending on the outcome of potential future industry actions in relation to the arguments.

Arguments in support of the MPL

- No current opposing arguments have been found to the original intentions behind the MPL. There was industry consensus on that commercial pilot training needed to evolve and adapt as traditional training methodologies became increasingly outdated and was found to have reached its limits. In order to further reduce the rate of aviation accidents and to better equip pilots with the proper skills to handle unusual, and unforeseen events, something had to change. Such rare events are considered as major threats to the safety of modern aviation industry and the MPL is designed to meet these threats. Although some views expressed concern that MPL could be intended to provide a shortcut to the pilot profession, as a response to an impending lack of pilot supply, these voices have faded as more and better information on the MPL and its origin has become more widely available. Also, while there are examples of organisations who consciously or unconsciously appear to mis-implement or misuse the MPL-concept, this does not detract from its intentions remain and potential to deliver better trained pilots.
- A fundamental aspect of the MPL-concept is a high degree of managerial freedom in how to set up the MPL training program. This is a supporting argument that better allows a training provider to set up a training program where the syllabus mirrors both the professional requirements and the more specific operational demands. The ideal way to set up a MPL training program is to use this managerial freedom in the form of a collaboration between a training provider, an airline and a regulator. Although the often mentioned core competencies should be globally harmonised, the training content and syllabus that allows for the desired levels of competency to be achieved can be tailored in each unique MPL program set-up without compromising the aim of harmonisation in pilot training standards.
- If competency-based training (CBT) is fully understood and utilised it should bring a strong benefit to pilot training when compared to other training methods. As mentioned and from a scientific point of view, the CBT principle is likely the most

efficient pilot training methodology available due to the technologically sophisticated nature of the pilot profession. Although CBT is supposed to be a foundation and backbone for the MPL, the competency-based principle and the performance-based design of training is of much greater importance than which combination of letters that eventually ends up being printed on a pilot license.

Arguments against the MPL

- The intention of the MPL is that it should be continuously developed in an iterative process of improvement. Such continuous change is however rarely welcomed and fully embraced. Also such continuous change is often linked to continuous costs of change. This can be seen in a number of the current MPL training program, where the early changes from previous traditional curriculums consisted mainly of replacing of aircraft time with simulator time. Beyond this there seem to have been mostly limited investment to enhance the training outcome. Only a few training providers appears to have implemented a proper CBT evaluation and assessment system and when changes are it is more often with the aim to secure savings rather than to improve training. This may lead a need for more detailed and restrictive regulation, which in itself would be a threat to the MPL as it would limit the flexibility and potential of the program. Finding ATOs who are willing to invest in development and improve their training when existing training practices are considered “good enough” is rare. Thus the MPL may never realise and prove the potential its proponents have promoted.
- In hindsight, the MPL would probably have benefitted from more preparation and thorough industry discussion before its implementation (in line with the approach for introducing ETOPS, as suggested in the previous report). It is easy to understand that proponents of the MPL wanted to move forward with implementation to make use of the potential benefits of the MPL. However, the challenges and problems that have appeared during the last ten years, especially the confusion around the competency framework and competency-based training, has affected the perceptions of the MPL. Also, not having the core competencies involved from the start, the lack of sufficient information and industry involvement have also contributed to this. A delayed implementation, based on more research and a greater industry consent, could probably have benefitted the MPL and shifted focus from its shortcomings to its positive potential. As the damage is already done it is impossible to know when, or if, the concept will be strong and successful enough in order to lead to an overall harmonised improvement of pilot training.

Balanced arguments

- Since the launch of the early MPL programs and up until more recent editions there has been continuous feedback from the host airlines in regards to their satisfaction of the performance of the MPL pilots. On most occasions the MPL pilots have been reported as outperforming other new pilots, probably due to the early exposure to company SOP and the airline environment. However, the survey data revealed that this feedback is not coherent, especially Line Captains were overall negative about the performance of MPL pilots. It is not easy to separate prejudice perceptions, and performance on this issue. What is clear from the survey is that there have not been anywhere near sufficient information about MPL to those involved in operations in the aviation industry. This is likely to have been a contributing factor to the resistance experienced in some parts of the world, and perhaps in turn also to why the number of states who have chosen to adopt MPL regulations appears to have halted. The industry has a choice that will affect how the MPL will continue to develop – either to accept that the MPL in its current form is a good enough training option to be acceptable and then work together to make it even better, or to conclude that is not what it set out to be and take it back to the drawing board.
- There is a third option, and that is to continue the current and static state with discussions based on opinions and different parts of the industry working against each other instead of with each other. This will most likely lead to nothing else than a detrimental effect on a possible harmonisation of global training standards. The MPL initiative included an ambition to better harmonise pilot training practice globally, and the opportunity to do so is hopefully not lost, but as the competency-based principle continue to become more of a local solution there is a problem. The survey data showed that there are many MPL programs that are not competency-based. In fact, there appear to be MPL programs where instructors and cadets have not even heard of this concept. Incorporation of Instructional Systems Design and Learning Management Systems are parts of the competency-based concept to allow flexibility in the training approach. If these tools are not implemented in MPL training it will be more challenging to achieve the benefits of MPL. To simply replace time in actual aircraft with time in simulators will not provide better training. The survey data shows some of the MPL programs may have misused (or even abused) the MPL concept. This then has a negative effect on perceptions of MPL programs that fully embrace and implement the intentions of the concept.
- The MPL concept have provided an option for pilot training that focuses more on industry concerns in regards to issues related to TEM, CRM and MCC. The focus on competencies instead of hours, if carried out as intended, should lead to a proficient graduate pilot well prepared to meet the challenges in modern aviation. However, there appear to at times be an unbalanced application of the competencies, leading to greater proficiency in application of SOPs and automation while mainly situation awareness and workload management are less developed. The latter need to be better

addressed within initial pilot training, but they are competencies which are strongly linked to experience. Either way, the industry has one important question to answer and that is what is expected of a newly graduated pilot. Few workplaces have such limited tolerances for inexperience, but in the end you have to be “new at the job” sometime. Regardless of training methodology, regulation stipulates the minimum requirements for a pilot to be considered ready for commercial aviation entry, most often translated to 240 hours plus a type rating. This is still in force in a competency-based program such as MPL. It does not mean that the pilot ready for commercial aviation is as proficient as is potentially possible, and most pilots would admit that they can always improve. Aviation has its primary focus on safety, however it is more realistic to say that every aspect in aviation is a calculated risk. It can always become safer, but at what cost? At this point in time, about ten years after the MPL implementation and with around 1300 MPL pilots having graduated, there are still no known accidents caused by the MPL training. This suggests that so far the calculated risk has been a reasonable one, but as there seems to be a variation in quality of MPL programs it is more important than ever to work together to ensure the calculated risk stays reasonable and that the MPL continue to deliver new pilots aligned to industry standards and expectations.

4.2 – Recommendations based on the MPL survey data

The MPL survey data has provided some clear and some conflicting results and the bullet points that follow is an excerpt of more important results that calls for a change combined with recommendations on how such change can be implemented.

- The first recommendation is that both airlines involved in MPL training and the industry make more and better information about the MPL easily available. The survey data showed that structured preparation for the MPL, especially for the Line Captains was lacking, as only one of four responded to have received it. The corresponding number for Line Training Captains was one out of two. More importantly, information in general about the MPL appeared to have been poor with the most common source being word of mouth. Through the work with both this and the previous report it has become clear that published information about the MPL is hard to find and the airlines involved in MPL training should not underestimate the effect of poorly informed trainers and line pilots. Line Captains will be better prepared to be good mentors for MPL pilots if they have solid understanding of the training concept and its current strengths and weaknesses (which may be different for different MPL programs). This would also ensure that Line Captains know what performance to expect from their newly graduated First Officers.

As the analysis continued of the different target group results there appeared to be a connection between the amount of information and preparation and the perception of both the MPL pilots and the MPL concept as a whole. There was a repeated critique of aspects of regulation, most of all to the MPL license restriction, but this has little to do

with the outcome of the training and the quality itself. Many MPL graduates stated that finding useful information about the MPL was difficult, but finding negative rumours was easy. It is positive that there is new and better guidance material available today, however, the recommendation from the previous report to launch some sort of joint MPL portal that is openly available for continuously updated information remains valid.

- The MPL Instructor requirements that often have been criticised as unnecessary and limiting were seen as positive and necessary by over 70% of the MPL Instructors and by an additional close to 10% as even too low. Despite objections raised, often from management positions, that MPL Instructor requirements are too high and unnecessary the recommendation based on the industry data is the exact opposite; they should not be removed or even reduced. This is even in spite of that they are reputed to create problems with finding instructors. Downgrading standards cannot be a response to an increasing demand, regardless of the context of unwanted financial consequences. With an end goal of greater harmonisation of pilot training the recommendation is instead to create guidance material for a more standardised and comprehensive MPL Instructor training course that could improve the understanding of the concept and the training outcome while increasing efficiencies of delivering the training.
- The target group of captains brought several aspects forward that have not previously been well known or discussed. Their written comments showed signs of quality differences between different MPL programs. Although captains, especially Line Captains seemed less informed about the intentions and expectations on MPL training, their feedback should be considered and further explored by regulators and individual training providers. Whether or not the information the captains have received is accurate, their concerns risk having an impact on their attitude towards pilots with an MPL background. As some of their comments suggest that the MPL concept is seriously degrading training standards there is a need to investigate the basis of these comments.
- Few captains would recommend the MPL to future airline pilots who are considering joining the industry. With MPL Instructors and graduates the relation was more fifty-fifty and with regulators and managers a majority of around 80-90% would make such a recommendation. Those who would not recommend the MPL mentioned limiting career opportunities, such as the MPL license restriction, as reasons but there were not many statements relating to training quality. However, one aspect that most target groups agreed on was the need for more manual flying practice and as well as increased exposure to real flight experience during the initial training. More consideration and effort should be aimed at finding an appropriate balance between aircraft and simulator time, while adapting the training syllabus in regards to calibration and balance in the competency performance. The data showed that MPL pilots in general being strong performers in SOPs and automation, but also needing to improve performance in situation awareness, workload management and manual

flying skills. The concept of competency-based training is in great need of an improved understanding, and whether the necessary improvements in MPL training should arise from more time spent in actual aircraft or time spent in different ways compared to today in flight simulators is an urgent question for research initiatives to respond to.

- Competency-based training is supposed to form the foundation that differentiates the MPL from the more traditional pilot training. There are many recommendations that could be made about CBT based on the conflicting data in the survey, but given the finding that there is lacking coherence in the understanding of CBT the usefulness of detailed recommendations is questionable. To keep it simple the recommendation is simply that the basic process is followed - collect the feedback from the individuals involved at the core of the training, use the iterative process of instructional systems design to get a continuous development of the training syllabus, focus on harmonising the expectations of everyone involved (students, ATO, airline and regulator) and implement a learning management system together with a functional competency-based evaluation and assessment tool. These are steps that are indispensable pre-requisites for success with MPL. The more recent published guidance material included a “MPL checklist”, available in Appendix 8, and it is a recommendation to both new and existing MPL training providers to review and use this checklist in their MPL training program development.
- Around half of the MPL Instructors, graduates and students responded that they believe they could help and improve their respective MPL training program but that they had never been offered any opportunity to do so. This should be considered an easily available and free source of information to any MPL training provider. As mentioned so many times, the MPL is an iterative process and making use of the experiences and feedback from those involved in the MPL training could contribute improvements. This is the simplest recommendation to be made here.
- The discussion on the MPL has at times focused on the regulators, who are thought to trail behind and in some cases causing inertia to the development. It is true that there are different regulatory aspects that have affected the development, such as the MPL license restriction and prescriptive regulations which remained from previous approaches to training. The regulators themselves have expressed many opinions on the license restriction and this has been a central topic that now is being changed. As has been mentioned throughout the report there are clear indications of that MPL programs are different not only in training content but also in training quality. Again, regulatory aspects become increasingly difficult to develop and change as they should be loose in order to allow flexibility to those who “can handle it” but at the same time strict towards those who may misuse or even abuse this flexibility. It would be an illusion to assume that financial resources and cost could be completely excluded from the equation and thus the balance between training quality and efficiency needs attention much more explicit attention from regulators, industry organisations and

airlines. As aviation is a business, long-term success for the MPL means that it must prove to be a training concept where quality and performance improves without also resulting in increased expenditure. More research on the financial aspects of aviation training, which always is at risk of taking away focus from aspects of quality, should also be performed.

- The initial selection of candidates for any form of pilot training has been argued as being one of the most important aspects for a successful training outcome. In the case of MPL this selection should at the very minimum be performed in close cooperation between the ATO and the associated airline. This should go far beyond simple supervisory oversight by the airline and where possible including the regulator can be beneficial. The survey data revealed that more than half (54%) of the graduates and around 45% of the students had been selected by only one of the training partners, i.e. either by the ATO or the airline. Furthermore, 6% of the MPL graduates and as many as around 12% of the current MPL students did not know or did not go through any selection process. This is an area of concern and one where improvements are needed.

The concern about selection is linked to the absence of “natural selection” in MPL training. Any selection processes and procedures need to be continuously evaluated, not only to ensure that suitable candidates are selected but also to respond to changing conditions and expectations affecting the pilot profession and the aviation industry. This is even more important for the MPL as its more direct route towards the pilot profession provides fewer opportunities to note indications that the training of an MPL student should be discontinued. When pressures of student investments in terms of time and money are combined with a regulation that leaves the MPL student with almost nothing to accredited for when being discontinued, it comes as no surprise that the student and ATO may be reluctant to put an unexpected early end to the training even when that is the right decision to make.

As the data from the MPL graduates was basically a look back in time, the data from the current MPL students provided a view that better represented the current situation. There were only few written comments from the current students in regards to this that could provide additional insight, unfortunately it seems to be a finding that there has been little or no development in how MPL training partners work together with the selection of their students, i.e. their future pilots. As no one disputes the importance of selection it is clear that more focus on this is needed by all stakeholder to ensure that selection processes improve.

4.3 – Conclusions - Finding a way forward

Ten years ago the implementation of the MPL was launched with a clear ambition to move pilot training forward and support those aspiring for the pilot profession to reach a high level of proficiency, from day one as well as through their entire career. The MPL also came with an intention to harmonise global pilot training standards and with the aim of that a large part of the industry would be able to find agreement on a single set of pilot competences and the required training to reach them. As it stands, a lot of work remains for the goal of harmonisation to be reached and there are still conflicting results on whether the effects of an improvement in pilot training has yet been achieved by the MPL introduction or not. A contributing reason for this has been found to be that the *“MPL was not “sold” well to the industry.”*

The MPL survey data provided an opportunity to explore how the MPL have been received and experienced by the many men and women who have been, or still are, engaged in MPL training. The industry-wide data that has been collected includes perspectives from instructors who deliver MPL training and students and graduates who receive it, from line and training captains who have been exposed to MPL cadet pilots or trained them as well as managers and regulators involved in decisions about MPL. Overall, there is clearly still scepticism and concerns about MPL among these, but also a strong belief and support for the MPL concept.

Described in less detail, the data has surfaced both familiar and previously unknown feedback. One example of an expected finding is the strong performance in procedures and automatic flight of MPL pilots, while situational awareness and workload management seem to be more challenging for them. Manual flying skills have also been highlighted as a shortcoming on several occasions. If the weaker areas should be addressed with an increase of time spent in small aircraft, as suggested by many captains and MPL graduates, or a change in how that time and training is performed in the simulators, is a question that the industry should explore further. Being exposed to previously unknown situations with elements of risk and stress are great learning experiences through life where perhaps time in solo flight spent as pilot-in-command will have better chances to improve decision making and overall self-confidence and judgment. A problematic aspect is however that it is not possible to schedule training sessions or design curriculums with dangerous or unexpected elements that in a worst-case scenario could end with a serious incident or accident. Therefore, the balance between confidence-building time spent in small aircraft during uneventful flights, or at least events with planned levels of risk, compared to the effects of spending time in flight simulators is what should be analysed and compared. The same goes for the most effective way to train manual flying skills; research is needed to decide if the best outcome comes from flying manually in a small aircraft or by removing automation more or less completely for flight training in simulators. The industry cannot continue with oblivious beliefs while the never-ending discussion continues and valuable time that could be spent on improvement is lost.

Some other previously known findings are related to the challenges with competency-based training and the critique towards the MPL license restriction and its impact on the careers of MPL pilots. A broad majority of respondents, from all target groups, expressed frustration and resignation on the effects of the license restriction – from both an industry and individual perspective. As this report was finalised, the news arrived that this license restriction has been removed within EASA regulated states. The effects of this change will provide an interesting opportunity for the development of the MPL. Perhaps now, with more equal career opportunities compared to other pilot training options, focus can be turned more towards improving the training itself. Although more than 83% of the MPL graduates held the view that their training had prepared them well for the airline pilot profession, there is still potential to improve current MPL training programs.

In regards to competency-based training, the number of MPL programs being completely competency-based, and thus completed in regards to the organisational transition, was around 90% as per the views of managers and regulators. The view of MPL instructors, students and graduates is that this is true for around 50% of the programs. What the reality is remains a question as there appeared to be great uncertainty about what CBT is supposed to entail, and if around half of the programs would be an accurate number this would still be a disappointment ten years after the introduction, as CBT is central in the training paradigm of the MPL.

The feedback from the operational parts of MPL training, i.e. from Line Captains and the MPL graduates, provided yet another perspective. Line Captains was the most sceptical target group towards the MPL throughout the study, similarly to how regulators and managers were the most supportive. Among many groups, especially the Line Captains, there were individuals who seemed to have been left outside of the loop in regards to information about the MPL. They had been offered limited information not only about the MPL concept, but also about what to expect from MPL pilots. More importantly they had limited opportunities to share their concerns in any structured manner within their organisations. This seems to have led to perceptions about the MPL based on some knowledge and facts but also mixed together with misconceptions, rumours and prejudices. Some Line and Training Captains also shared experiences where MPL pilot performance was found to be inadequate and had raised safety concerns. To piece together a coherent picture from this is a complex and possibly impossible task and the reasonable conclusion to make is that the collected feedback calls for further exploration.

In a broader and more long-term perspective MPL training may soon become more a question of “MPL fidelity”. In other words, how much will MPL training be allowed to deviate from the original intentions before regulators have to step in and adjust or remove the core of the concept – the flexible framework and the essence in CBT. So far, the flexibility has been found to be greatly utilised as there appear to be only a few MPL programs with identical program design (as can be seen in appendix 1). There are however also indications on that limited change of real importance has been made from the original concept and as noted CBT remain as a significant challenge. It becomes a complex situation if training providers have

chosen to accept part of the MPL training concept, e.g. to increase the use of FSTDs and initiate SOP-training at an earlier stage, but at the same time disregard and neglect to use a process based on instructional systems design and the competency-based training and assessment philosophy. Instead of using an approach where it is asked how the local context has to change in order to successfully implement the MPL, it seems as if the approach has been in what ways the MPL has to change in order to fit into the local context. The local context could be the will of stakeholders, financial motives, resistance and opposition, fear of the unknown, misconceptions to name some and adaption or implementation of selected parts perhaps has made the MPL locally feasible but more distant from its original purpose. When fidelity in regards to the original intentions is jeopardised in preference to feasibility or sustainability, the program could very well become sustainable but with great risk of also being ineffective. As was commented by one respondent; *“Some regulators chose to bolt-on the new provisions into the same structures that were supporting traditional programmes. The end result is that many programmes are tweaked versions of airline cadet programmes.”* This is however not only a regulatory problem - it is an industry problem.

This survey initiative was taken as a response to the industry call for more data on the MPL – it was an attempt to capture the MPL experience. With over 18 months of work and with the great help and support of the industry the initiative has been successful. There are many more interesting aspects of the data in this report than what can be summarised easily, e.g. on the industry’s feedback on how the MPL should improve. There are also more findings that call for more research than has been mentioned above. One of these is the difficulty of benchmarking the performance of MPL pilot against pilots from other training backgrounds with similar amount of experience and exposure. As it stands now it is a challenge to identify good, bad or expected performance of an MPL pilot compared to other pilots at a specific stage of the respective careers.

However, the ambition was also to find data that could bring an end to a politicised discussion and turn it into a structured discussion based on facts. From what has been found, there is real possibility to do so, but it all depends on the industry reaction to the findings in this report and how the data will be received and used. There is data to support both those who criticise the MPL and those who salute it. However, a misuse of the data, or falling for the temptation to take selected data out of a greater context in the interest of personal gain, could instead reignite an industry working even harder against each other rather than together towards harmonised improvement. There are probably also further aspects to consider and possibly more findings available in the data than what has been provided in this report. However, as an overall conclusion the MPL does offer one way forward to develop and improve pilot training but the challenge of implementing and evaluate it is still on-going.

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6. Appendices

Appendix 1 - Global MPL Course Tracker

	CAE / AIR ASIA	CAPA / STERLING	SAT / SWISS	LFT / LH / GWI / CLH	CAE-OAA / FLYBE	FTE / FLYBE	STAA / TIGER AIRWAYS	TFC / AIR BERLIN
ENTRY REQUIREMENTS (incomplete)	Operator/CAE joint selection		Swiss/SAT joint selection	DLH/LH joint selection	EPST & operator Selection		EPST Operator or STAA selection and ICAO English	Air Berlin/TFC joint selection
Phase 1:								
Devices	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C
hrs	11.5	30	90	28.5	5	17	88	60
included as solo	15	20	30	20	12	24	16	15
included UPRT								
type	TYPE III Lvl 5	FNPT I	FNPT II	FNPT II	FNPT I	FNPT I	FNPT I	FNPT II
Phase location	APT KBR	Roskilde Denmark	FSI USA/Grenchel	LFT Phoenix USA	Oxford UK	Jerez Spain	Ballarat, Australia	TFC Kaurer Fit School
Phase 2:								
hrs	43.5	60	45	100	90	60	120	70
type	TYPE I Lvl 5	FNPT IIMCC	FNPT IIMCC	FNPT IIMCC	FNPT IIMCC	FNPT IIMCC	FSTD IV+++	FNPT IIMCC
Phase location	APT KBR	Roskilde Denmark	SAT Zurich	LFT Bremen	Oxford UK	Jerez Spain	STAA Singapore	TFC Kaurer Fit School
Phase 3:								
hrs	36 hrs CRJ/200 FFS	20	45	20	20	60	30	20
type	100 hrs A320 FFS	737 NG FFS	EM 145 FFS	B737/A320 FFS	B737 FFS	B737 NG Level B	A320	B737/A320 FFS
Phase location	AACE KL	SAS TRITO CPH	SAT Zurich	LFT Frankfurt	OAA Gatwick UK	Farnborough UK	STAA Singapore	TFC Kaurer Fit School
Phase 4:								
hrs	48	48	52	64	40	48	40	36
type	FFS A320	737 NG FFS	A320 FFS	B737/A320/EMB FFS	Dash 8 FFS	Dash 8 FFS	A320 FFS	B737/A320 FFS
Phase location	AACE KL	SAS TRITO CPH	SAT Zurich	LFT Frankfurt	FLYBe FTC Exeter UK	FLYBe FTC Exeter UK	STAA Singapore	TFC Kaurer Fit School
BASE TRAINING (BT)								
Take off & Landings	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C
type	A320	min 12	12+	min 12	min 12	min 12	12 (min 6)	min 12
		B737 NG	A320	B737/A320/EMB195	Dash 8	Dash 8	A320	B737/A320
IOE								
sectors	Avi Airline Protocols	40 sectors	50 sectors	40 - 60 sectors	IAW Airline's Manual	IAW Airline's Manual	30-70 sectors	60 sectors
Hrs (if applicable)								120 hrs
AILS & SUMMARIES:								
ID SCHOOL	1057		1000	898	759	878	800	850
IE LENGTH	14	24	21	23	16	14	18	24
ITUDENTS		19	210	1485	12	12	36	201
IRADUATES	34	19	143	580	6	6	15	146
A/C HRS	75	90	100	99	85	88	86	85
FSTD HRS	239	158	187	212.5	155	185	220	186
HRS OF PRACTICAL TRAINING	314	248	287	311.5	240	273	306	271

	ENTRY REQUIREMENTS (incomplete)	TFC / Condor	L.U.S.A. CITY AIRLINE, SKYWAYS & Norwegian Airshuttle, SAS, Primera Air	ALTEON / CEA & XIAMEN Airlines	CAFUC / Air China, China Eastern Airlines, China Southern Airlines, Spring, Junyao Airlines	ALPHA AVIATION / Clark Aviation	ALPHA AVIATION / Sharjah / Air Arabia	Different ATOs / THAI Airways (TG)	
		DLR selection		Joint selection	CAFUC selection	Assessment defined by Operator			Operator selection
		FSTD	A/C	FSTD	A/C	FSTD	A/C	FSTD	A/C
Phase 1:	Devices								
	hrs	60	70	58	67	30	80	70	10
	included as solo		15	23	10		10	23	12
	included UPRT								2
	type	FNPT II	SE	SE	FTD Lvl 5	SE	FNPT I	SE	C172
	Phase location	TFC Kaurer Flt School,		Ljungbyhed Sweden	Brisbane Australia	CAFUC Guanghan	Clark airbase Philippines	Greece and Portugal	C152/C172/D V200DA40
Phase 2:	hrs	70	15	74	29	45	45	15	15
	type	FNPT IIMCC	Piper TE Glas	FNPT IIMCC	SE/ME	737 FTD	SE	FNPT IIMCC	CJ1
	Phase location	TFC Kaurer Flt School,		Ljungbyhed Sweden		Brisbane Australia	CAFUC Guanghan	Clark Airbase Philippines	Sharjah UAE
Phase 3:		20		48		88		48	77
	type	B757/A320 FFS		EMB450/F50/ B737 FFS		B737 NG FFS	A320 FFS	A320 FBS	A320 IPT / A320 FFS
	Phase location	TFC Kaurer Flt School,		Airline FTC	Brisbane Australia	CAFUC Guanghan	Clark airbase Philippines	Sharjah UAE	Airline TRTO
Phase 4:	hrs	36		48		92		48	60
	type	B757/A320 FFS		EMB450/F50/ B737 FFS		B737 NG FFS	A 320 FFS	A320 FFS	A330 FFS
	Phase location	TFC Kaurer Flt School,		Airline FTC	Brisbane Australia	CAFUC Guanghan	Sharjah UAE	Airline TRTO	
BASE TRAINING (BT)		FSTD	A/C	FSTD	A/C	FSTD	A/C	FSTD	A/C
	Take off & Landings	min 12		min 12		min 12		12	9
	type	B757 /A320		EMB450 /F50 FFS/B737		B737 NG	A320	A320	A330
IOE	sectors	60 sectors		100 sectors		N/A		to be conducted by	120 sectors
	Hrs (if applicable)	120 hrs							
DETAILS & SUMMARIES:									
GROUND SCHOOL	hrs	850		2270				900	935
COURSE LENGTH	months	24		36		24		21	18
NO OF STUDENTS		15		35		6		171	170
NO OF GRADUATES				24		6		23	45
TOTAL A/C HRS			85		87		112	95	70
TOTAL FSTD HRS		186		170		292		230	197
TOTAL HRS OF PRACTICAL TRAINING		271		257		404		325	267
								289	301

	CAE-OAA / EasyJet	CAE-OAA / Dragon Air	AeronautX / Fly Niki	CTC / Monarch	Flight Path / Ethiopian Airlines	CTC / EasyJet	CAE / Tiger Air									
ENTRY REQUIREMENTS (incomplete)	Operator selection		Operator selection		Operator selection											
	EPST & operator Selection	FSTD	A/C	FSTD	A/C	FSTD	A/C									
Phase 1:	Devices	hrs	3	87	19	80/5	55	60	77	24	40	26	77	19	82/5	
		included as solo		12					12				12			
		included UPRT														
Phase 2:	type	FNPT I	C182	C172 FNPT II	C172/8KCAB	C172/PA44 FNPT II	C172/PA44 FNPT II	C172/PA44 FNPT II	C172 FNPT II	C172 FNPT II	C172 FNPT II	5	C172 FNPT II	C172/8KCAB		
	Phase location	Oxford UK	Moorabbin, Australia			LOWL, Austria	Hamilton, NZ	Addis Ababa, Ethiopia	DA40	DA40	Hamilton NZ & UK		Melbourne Australia			
	hrs	90	80	80	80	Generic JET	83	100	67.5	83	80					
Phase 3:	type	FNPT IIMCC							DA40, DA42	FBS A320	FBS A320		CRJ/FNPT II			
	Phase location	Oxford UK	Moorabbin, Australia			LOWL, Austria	UK	Addis Ababa, Ethiopia		UK	UK		Melbourne Australia			
	hrs	22	24	16	16	A320/E190 FFS	FFS A320	B737NG		FFS A320	FFS A320		FFS A320			
Phase 4:	type	A320 FFS	A320/A330 FFS Level IV	A320/E190 FFS		Rome, Italy	CTC Sim Trig Center, UK	Addis Ababa, Ethiopia		CTC Sim Trig Center, UK	CAE Sim Center		CAE Sim Center			
	Phase location	OAA Gatwick or Airline	CAA Oxford HKG	44 (+44 IPT)	36	1.5	40	20		40	44 (+24 IPT)					
	hrs	44	44 (+44 IPT)	36	1.5	36	40	20		40	44 (+24 IPT)					
BASE TRAINING (BT)	type	A320 FFS	A320/A330 FFS Level IV	A320/E190 FFS		Rome, Italy	CTC Sim Trig Center, UK	Addis Ababa, Ethiopia		CTC Sim Trig Center, UK	CAE Sim Center		CAE Sim Center			
	Phase location	OAA Gatwick or Airline	CX/K/A/FTC Hong Kong	Rome, Italy		Rome, Italy	CTC Sim Trig Center, UK	Addis Ababa, Ethiopia		CTC Sim Trig Center, UK	CAE Sim Center		CAE Sim Center			
	hrs	44	44 (+44 IPT)	36	1.5	36	40	20		40	44 (+24 IPT)					
IOE	sectors	60 sectors	Min 66 sectors (to AIR)	60			to be determined	to be determined		to be determined	to be determined		to be determined			
	hrs (if applicable)															
DETAILS & SUMMARIES:																
GROUND SCHOOL	hrs	750		750		925		1050		833		1050		750		
COURSE LENGTH	months	14		15		14		18		14		12		18		
NO OF STUDENTS		62		28		24		12		144		36		11		
NO OF GRADUATES		32		12		6				62						
TOTAL A/C HRS			87	101		61.5		77		93.5		82		106		
TOTAL FSTD HRS		161		167(+44)		187		187		200		188		167 (+24)		
TOTAL HRS OF PRACTICAL TRAINING		248		244 (+44)		248.5		268		295.58 (incl. BT)		272		249 (+24)		

	ENTRY REQUIREMENTS (incomplete)	CTC / Qatar Airways	QAC / Qatar Airways	STAA / Qatar Airways	LFT / ANA	CAE / JAL	CTC / Virgin Atlantic	EFC / Etihad
	Devices	joint selection	joint selection	QR & STAA selection and ICAD English Lev.6	ANA selection		joint selection	Operator Selection Process
Phase 1:	hrs	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C	FSTD A/C
	included as solo	24 77	43 84	30 86	28.5 87	14 49	24 77	32 72
	included UPRT	12		16	15	18	18	0 10
	type	CT12 FNPT II	FNPT I	SE	2.3	DA 40	DA FNPT II	DA42 FNPT II
Phase 2:	Phase location	Hamilton M2 & UK	A 28/34	Ballarat, Australia	LFT Phoenix, USA	CAEOAA Phoenix USA	Phoenix US, UK	AL AIN, ABU DHABI, UAE
	hrs	83	104	120	15	14/78	72	44
	type	FBS A320	FSTD IV+++	FSTD IV+++	CJT+	type II / M5	FBS A320	EMB100 FNPT
	Phase location	UK	Qatar	STAA Singapore	LFT Bremen	CAEOAA Phoenix USA	CTC Sim Trig Center, UK	AL AIN, ABU DHABI, UAE
Phase 3:	type	40	32	30	64	29	32	68/72
	Phase location	FFS A320	FFS A320	FFS A320	FFS B777	FFS B737NG	FFS A320	FFS A320
	hrs	CTC Sim Trig Center, UK	tdb	STAA Singapore	Tokyo	JAL Trig Cr Japan	CTC Sim Trig Center, UK	ETHAD, ABU DHABI, UAE
	type	40	40	40	76.3	57.5	56	40
Phase 4:	Phase location	FFS A320	A 320 FFS	A 320 FFS	FFS B777	FFS B737NG	FFS A320	FFS A320
	hrs	CTC Sim Trig Center, UK	tdb	STAA Singapore	Tokyo	JAL Trig Cr Japan	UK	ETHAD, ABU DHABI, UAE
	type	40	40	40	76.3	57.5	56	40
	Phase location	FFS A320	A 320 FFS	A 320 FFS	FFS B777	FFS B737NG	FFS A320	FFS A320
BASE TRAINING (BT)	Take off & Landings	min 12	min 12	min 12	min 12	min 12	min 12	Min 12
	type	A320	A320	A320	B777	B737NG	A320	A320
	sectors	to be determined	to be determined	to be determined	to be determined	IAW JAL protocols	to be determined	44 Sectors
	hrs (if applicable)							
DETAILS & SUMMARIES:								
GROUND SCHOOL	hrs	1050	1024	952	806	1000+	1050	1340
COURSE LENGTH	months	18	22	18		22	18	20
NO OF STUDENTS		36	35	36	29	112	6	96
NO OF GRADUATES								
TOTAL A/C HRS		77	84	86	102 + BT	113	77	74
TOTAL FSTD HRS		187	219	220	288.8	192	184	68/98
TOTAL HRS OF PRACTICAL TRAINING		268	303	306	391	305	261	266 (+68)

Appendix 2 – The MPL Program of Scandinavian Airlines

The MPL program of Scandinavian Airlines

Summary of interview with Olav Guldbrandsen, Director Crew Recruitment at SAS

With the largest exception of Lufthansa in Germany, the MPL has mainly found its support with the low cost carriers around the world. At least this was the case since the introduction until two or three years ago. However, there also appear to have been a recent change as other types of airlines now has taken steps to get involved in MPL programs. It was for example not long since airlines in the Middle East such as Etihad and Qatar launched MPL programs and with the commitment from Japan Airlines and SAS we now also see a movement with legacy carriers.

Scandinavian Airlines has a long history of aviation that dates back to the 1940s with the company's golden age being roughly around 1960-1990. Following the mid 1990s and with the European deregulation within the aviation sector, SAS has been struggling to keep market shares, especially in competition against the still growing low cost carriers that has led to a number of necessary down cuts within the company. In recent times, SAS appears to have recovered and for the first time in almost two decades they have recently started recruitment of new pilots again. Also in 2014, SAS chose to be engaged in the MPL training with the Lund University School of Aviation (LUSA).

In terms of pilot supply, SAS has a previous historical relation to the LUSA, but in a different form. LUSAs predecessor was founded in 1984 as a vocational sub school to the already established military counterpart with collaborative agreements with a number of civilian airlines and where SAS was one of them. It was first in 1998 and following a decision to dismantle this sub school that it instead became a part of the Lund University with financial support from the government. By then SAS had already significantly reduced the recruitment of new pilots when trying to deal with the fierce competition and financial challenges.

As the recruitment processes are picking up pace again, SAS also started to scan the market for possible options of pilot supply. SAS is not the only airline that is in the need of sourcing new pilots, something that is well noted according to Guldbrandsen although they so far have managed to find enough qualitative applicants. SAS are also taking full advantage of all the available options and have already accepted applicants ranging between ready-entry pilots with thousands of hours of experience to cadets coming straight from a flight academy with a CPL/ME/IR and minimum flight experience without any type rating.

The SAS and LUSA MPL program was more or less based upon the syllabus of an existing MPL program that LUSA has run and developed together with Norwegian since 2010. Today the core, basic and intermediate phase including theoretical knowledge instruction is to the majority performed on site at the universities facilities in Ljungbyhed, Sweden. In terms of equipment the Cirrus SR20 and a fixed base type-specific 737 simulator is used. Other lower level devices are also available for the students to train different task-specific procedures on their spare time.

With the commitment also to an MPL program, Guldbrandsen means that SAS has the complete possibility to evaluate which path that will be considered as the more effective one when it comes to initial airline pilot training. This aspect, together with good experiences of the training quality at LUSA, is the incentive behind SAS MPL commitment. No pilot with an MPL license has yet transitioned to the airline and for that reason it also too early to tell any noticed strengths or weaknesses related to the concept in the context of SAS. Regardless of training background of the recruited pilots, Guldbrandsen is a strong proponent of and believer in that the selection of pilots plays a key role in the success of training and career performance. He also advocates additional focus on personal development in training, for example in regards to leadership, decision making and sense of responsibility to really provide the pilot with important tools and to early set a foundation for future commanders. During the recruitment, such personal attributes and skills are rated higher in the hiring process than the number of collected flying hours, although these are also taken into account.

On the surface, Guldbrandsen says that is hard to tell the immediate difference in terms of training outcome between a more traditional training path and the MPL and like to think that there are good and less good aspects of all concepts. That having been said, maybe the MPL has a potential to improve even more as it is still new and the regulatory framework is more susceptible to adapt to changes from what is understood.

SAS has a projected need of around 1200 pilots until 2030 just to keep a steady state without taking any possible growth into account. The outcome of these early training experiences will likely also affect which path SAS will chose to further commit to in a near distant future.

Appendix 3 – The MPL Program of Dragonair

The MPL program of Dragonair

Summary of interview with Captain Andy Jepps, Manager Flying Training at Dragonair

When Dragonair approached the idea of starting an MPL training program they already had experience of running a cadet program at the end of the 1990s and also again after 2005. Because the numbers of cadets recruited for Dragonair was relatively low at the time when an MPL program was considered, the start of developing an MPL program did not require a large organisational decision. Rather, it could be developed as an idea following a conference on MPL in 2006, where the local regulator addressed MPL in a keynote speech.

It did however take until 2009 before the idea was developed to an initiative which was formally brought up with the regulator. To gather information Dragonair visited Oxford Aviation in the UK to look at the MPL program delivered with FlyBe as the host airline. Since regulations in Hong Kong are based on previous UK CAA regulations there were at the time no regulatory provisions for a MPL training program. However, an application for a trial MPL course was submitted to the regulator and approval for this course was granted.

The first MPL course was started in September 2011 as a “trial course” and was run on a “phased approval”, i.e. the course was approved by the regulator as per the different phases with which it progressed. The plan for the course was to deliver technical knowledge in ground school training in Hong Kong, flight training in Melbourne and after that the cadets would return for the intermediate phase of training. The study discipline demonstrated by the cadets on the program led to high pass marks already in the beginning of the course, where the focus was on technical knowledge.

About eight months into the first course a second course was started, a decision based on the positive results of the first and with the intention of creating a feedback loop for changes based on experiences from the first course. Also, at the time there was recruitment needs at Dragonair, which in combination with the positive experiences facilitated the decision to start a second course.

At this time a King Air became available for multi-engine training for the first course. Since a license on a multi-engine aircraft was required to base train, the technical knowledge and the core phases were adapted so that the cadets could be awarded a PPL after completing these. In the following training the King Air was used, leading up to base training. In strict terms this moved the program away from being an MPL program, but this was the pragmatic approach needed to mediate between the training needs and regulatory needs at the time.

The experience from previous cadets was that the change from a small training aircraft to an A320 can be a challenge, especially in regards to energy management. Bringing the King Air into the MPL program was also seen as a possible way to make the transition to the A320 easier for the MPL cadets. The King Air did however not provide improved energy management and without this intended training value another solution to meet regulations was

developed in cooperation with the regulator. This included issuing a “restricted MPL” after type rating, to allow for the fact that base training had to take place outside of Hong Kong and thus a license was needed for this.

In response to these changes the core phase was reinforced with increased focus on instrument flying and handling, while the intermediate phase was reinforced with additional training with focus on energy management. The experience of Dragonair is that this is mostly an issue in the last 200 feet of the approach and landing, so the focus can be quite specific when it comes to improving energy management. These changes made the program more MPL specific and delivered the desired improvements in performance. As of currently, radio communications remains the main challenge for MPL cadets versus previous traditional cadet training at Dragonair.

Dragonair is continuing to enhance their MPL program in cooperation with Flight Training Adelaide. The pragmatic approach that was needed in the beginning has turned into a process of continuous feedback and improvement of the program. While the first course was to large extent a copy of the FlyBe MPL program at Oxford Aviation at the time, already this program was adapted to fit the needs of Dragonair. After this there has been a great amount of work going into continued course development, which highlights the long-term commitment needed to make an MPL training program successful for an airline.

One of the main challenges with implementing MPL was getting the concept of Competency Based Training across to everyone involved, from regulator to individual trainer. The focus of training can easily slip back to numbers rather than on the competency aimed for or demonstrated by trainees. Another challenge has been the amount of work needed on course development. In regards to this and many other aspects the cooperation with the regulator was constructive throughout the planning of the MPL program and this facilitated implementation.

One easily underestimated aspect of running a new training program turned out to be administrative routines. These have now been developed for the MPL program but in the beginning the lack of administrative routines made the cooperation with the regulator more complicated and time-consuming than what would have been needed if such routines would have been in place. The advice from Dragonair to others considering implementation of a MPL program, is to think through also administration before implementation to get this right from the beginning.

Dragonair currently have 20 pilots from their MPL program flying in line operations. Their transition from the MPL program to line flying has been unproblematic and so has their transition from MPL to ATPL. The overall observation today is that after ATPL there is no identifiable or observable difference between pilots coming from the MPL program or from a traditional cadet program. The pilots with an MPL background are as much Dragonair pilots as any other pilots from any other training background.

For further development of the MPL program Dragonair is considering increased emphasis on core flying skills, with more time spent on handling early in the program and more time for circuit flying as some of the options. The experience Dragonair has from its MPL program is

that MPL is neither a less expensive nor a faster way to train pilots for the airline. Most of the challenges of taking a candidate via the cadet route to become an airline First Officer are the same or similar compared to a traditional cadet training program, however the MPL program demands a higher quality of instructors. In summary, Dragonair plans to continue with the MPL program and develop it further and will also continue with their pragmatic approach to make the program as effective as possible.

Appendix 4 – The MPL Program of Etihad Airways

The MPL Program of Etihad Airways

Summary of interview with Tim Schoenauer, Manager MPL Training at Etihad Airways

The decision to start MPL training at Etihad Airways was taken in 2013. The Etihad cadet program was a traditional Ab initio ATPL program at the time but, based on information from other MPL programs; Etihad Airways concluded that the MPL could offer a more effective and efficient way to train its cadets. Etihad Flight College was formed in May 2014, and a team with MPL experience was recruited to develop the program.

The development of the program started with a clean sheet and was seen as an opportunity to build a training program that was tailored to meet the needs of the airline and the character of its cadets. The program was also aligned to the mandates of the airline, as the national carrier of the United Arab Emirates, to assist in developing the national workforce by equipping them with the skills needed to fulfil their potential in a sustainable economy. It was also seen as a particularly useful way of supporting development of resources within general aviation in the UAE, which does not produce enough candidates for airline training programs.

The foundation provided for MPL, in the form of Competency Based Training, allows different ways to develop a training program that aims to bring a cadet to the right-hand seat of a large passenger aircraft. Etihad Airways was well aware of the different MPL programs developed by other airlines, such as those of Lufthansa and JAL. However, Etihad Airways was not aiming to replicate any other MPL program, but rather to develop one that explicitly provides the way to the right-hand seat of an Etihad A320 aircraft.

To provide the best possible foundation for a future career in aviation, the program was designed as an integrated four-year Bachelor course aimed for national cadets. This would allow the cadets to build a solid foundation of knowledge, develop their English language skills, and study technique - enabling them to mature as individuals before they enter into the practical pilot training. This program is frontloaded to provide a foundation for the cadets, not only as pilots but as future leaders for the growing aviation industry of the country.

Additionally, Etihad Flight College uses building-block training modules prior to the cadets reaching the flying phase of the program. Two modules in particular have been seen as saving time and resources. One is an ATC module, which includes an interactive training setup with different terminals that allows basic to advanced training of communication with ATC without the distraction of operating an aircraft at the same time. The second module is a basic flying course which focuses on training the basic attitude scan and understanding of pitch and power settings by using a high fidelity training device. These modules have turned out to be important in preparing the cadets for their later training, and in setting them up for success.

One of the unique features of the MPL program at the Etihad Flight College is that multi-crew flying is introduced already in the Core phase. This is based on the fact that the cadets will

operate in a multi-crew environment as they enter their careers as pilots in the airline – which enables them to benefit from an early start in gaining experience of operating in this environment which reinforces their skills in applying procedures, communicating effectively and making good use of CRM. All training modules in the MPL program are as far as possible adapted to Airbus philosophy, standard operating procedures and operational conditions. One example of this is that the FCOM for the single-engine aircraft used in the training, the Diamond DA 42, is adapted to Airbus procedures. The callouts used are the same where possible and manoeuvres are the same or similar where possible. This makes the transition to the A320 aircraft less of the big step it so often is for any type of cadet.

Currently, Etihad Airways has 29 cadets in the practical pilot training phases of their training program, i.e. the Core and Basic phases. There are 67 in theoretical stages of training - and a total of 127 cadets in the overall program, including the early stages of the Bachelor program that is integrated with the MPL program. This pioneering program is still young, with the cadets ahead in the program currently being in the Core phase. Based on the proficiency expectation grading, as recommended for a competency-based training program, the results so far have been very positive and have exceeded expectations. The first cadets of the program will be coming up to the Intermediate phase in November of this year, and it is expected that they will reach the Line Flying under Supervision stage in February 2016.

The Intermediate phase is where the cadets will be brought to the level of competency for licensing in Etihad Airways' MPL program. By end of this phase the cadets will have achieved a pass of a session similar to the Licence Proficiency Check, carried out by a Type Rating Examiner. Their competency as pilots will then be reinforced in the Advanced phase. Due to the solid foundation built up in the MPL program, especially the experience gained from training in the Airbus Integrated Procedure Trainers and Full Flight Simulators, the cadets are planned to require only half the number of sectors in line training compared with the ATPL cadets, down from 88 sectors for ATPL cadets to 44 for MPL cadets – with the actual number of course depending on individual proficiency.

One of the specifics of the program is that there is ample time allocated for training in Full Flight Simulators. Even for an experienced pilot, training time in simulators is often too restrictive and, because of this, additional time has been added to the program. Another specific aspect is that CBT is used less, and more time is allocated for training and classroom sessions guided by instructors. It is however highly emphasised by Etihad that the quality of the cadets is the deciding factor for training outcome, regardless of time and resources used in the training.

When it comes to implementing MPL, and specifically competency-based training, Etihad Flight College has taken up some of the recent results from the developments in the industry. Grading is based on the concept of Proficiency Expectation Rating (PER), which defines expected levels of performance and uses the grading steps of low, medium and high. This is thus a grading against performance goals that have been adapted to the process of developing competency, rather than against the type of absolute performance criteria often used for line

pilots. After the Intermediate phase the cadets will be seen as pilots and graded as per the same system as other pilots in the airline.

So far the results of the cadets in all phases, up to where they are now, have exceeded expectations. Although this may be seen as reasonable, given the frontloading of training and development in the program, it is also a validation that this frontloading has had the intended effect – to set the cadets up for success in the program and for their future career as pilots in Etihad Airways, and as leaders in the aviation industry of the United Arab Emirates.

Appendix 5 – The MPL Program of Lufthansa

The MPL Program of Lufthansa

Summary of interview with Jürgen Kamps, Head of Training at Lufthansa Flight Training

Lufthansa has a long history of pilot training and are by many considered a pioneer in ab-initio pilot training. The decision to start MPL training at Lufthansa was a developing process that in one way started already in 1987 as there were early thoughts and opinions on that pilot training were already out dated and needed to change. Progress began with a project named “Futura” where one major consideration was the technological developments of flight simulation that so far were not allowed to be used for ab-initio training due to existing regulation.

However, it was almost 20 years later that the next step could be taken when the MPL was included in PANS-TRG by ICAO in 2006. Work on the Lufthansa MPL started already in 2005 with a kick-off meeting in July. A working group was put together as a joint collaboration between Lufthansa, Lufthansa Flight Training and Swiss Flight Training to explore and suggest how a new ab-initio pilot training program and its related curriculum could be designed. The work of this group ended in 2006 with a report that was presented to an internal review board in January 2007.

Following an initial approval to continue, a second working group then started to explore training equipment acquisition. Up to this point, LFT had used Piper Cheyenne which were another reason behind the initiative to review training as the aircraft as well were considered aged and called for replacements regardless of if the training itself would change or not. Combined, these processes were considered as an opportunity to simultaneously update both the training and the related tools when striving towards a more targeted and efficient training process. A lot of time was invested in finding what type of aircraft should be acquired, with experts invited to Bremen and a lot of test flights performed to make sure the aircraft met with existing expectations. The final decision became the Cessna Citation CJ1+.

During the development of the MPL program Lufthansa aimed to apply an ETOPS approach. With the long history of pilot training, there were already existing training phases and content with a bridge course to a type rating that in one way acted as a footprint towards the MPL. The question was simply how initial training could be improved by downloading content from the airline environment to an earlier stage in initial training without losing valuable outcomes. One example was to circumnavigate single pilot operations by for instance including standard operating procedures at an earlier stage. How to adopt the syllabus and target the training when not all of the performed training could be accredited for was one of the major challenges.

The first MPL course started in Feb 2008 although German authorities implemented the MPL regulations in Feb 2009. However, the switch could be made in advance without having the regulation in place following an agreement with the authority. In other words, the 2008 MPL

course started with one year of theoretical training on the traditional track and then switched to the practical training in 2009 on the MPL track. Since the theoretical requirements were identical there was no experienced impact on the training.

The initial idea was to train 2-300 students per year for four different AOCs. For Lufthansa themselves they needed about 1000 students. It was of great importance to keep or improve the existing standard of quality, and the benchmark was already set in previous training practice. Complex high performance aircraft and the use of full flight simulators were the new tools that should allow for an equal or higher quality. A conclusion of judging success would later be to ask the instructors in phase 3 & 4 of the experience, and in turn of the line flying experiences.

With the start up of the MPL there were several concerns within the airline group. Line Training Captains at the beginning was at first sceptical by saying *“it’s new, different and just aims to reduce costs”*. LFT needed to convince their colleagues that they should see what the results were before making any judgment and eventually the returning feedback instead became *“I did not notice who was the MPL cadet”*, meaning that the average cadet quality was higher than expected and could in some aspects be compared to another newly hired ab-initio pilot with variable but nevertheless existing previous experience.

The biggest challenge was to source enough instructors for the Basic phase. LFT had for a long time used instructors with experience from the military aviation sector, and at the time more instructors were needed at LFT there were also rising opportunities for these pilots elsewhere and it was more difficult to transfer the instructor license from the military to the civil environment. These challenges led to a backlog in training where students had to wait between phases due to the lack of instructors. LFT had a clear ambition of not allowing the challenge to have an impact on the training quality and was very clear about their recipe for success. Successful MPL training was stated to consist of three parts; the initial selection of students, qualified and proficient training and instructors as well as ATQP or EBT elements acting together with a quality insurance system. In simple words training tailored to its targeted area of operation and the required skills relevant to those operations.

On the discussion about any training impact of this situation with a back log there are multiple perspectives. LFT thinks that the students are really professional and focused when in training and that it is understandable that it becomes a frustration for the individual student if and when being affected by an interruption in training. However, once the training was able to recommence, the experience has shown that not much extra training is needed to bring the students back on track. LFT also keeps an open mind and tries to provide information whenever there is any to provide and of course aims to reduce any waiting periods to as short as possible.

For some time now LFT students have been even more affected by the EASA license restriction since Lufthansa does not hire any pilots at the moment. With this restriction, the

students have not been legally able to apply for work elsewhere and are seemingly bound to the future development of Lufthansa unless the restrictive legislation change.

In this perspective, it could be seen as counterproductive to continue training as the students anyway has to make their living from a different source until any change occurs. The reasons behind continuing the training was a combination of honouring a commitment to every individual student who also has invested money in a choice of career in combination with an organisational need to likely recruit pilots once the situation within the airline has been solved. On top of this, there are great expectations on that the license restrictions need and will be removed as it is viewed as a discrimination to the MPL concept. At the time of the interview there were around 800 Lufthansa students not knowing when the opportunity to get a job will occur.

Apart from these organisational challenges and from the perspective as the Head of Training, Kamps is pleased that the MPL training itself really has delivered on expectations. LFT sees more advantages in this type of training as you can focus on actual training needs and not on training requirements and the goal for the syllabus should be to be adapted to the way students are learning. This creates an opportunity to also increase the demand on gaining reasonable proficiency when preparing for the role as a professional airline pilot.

Training feedback has also revealed that the biggest challenges in terms of performance are related to situational awareness and workload management and these are constantly addressed in the practical training. Kamps believes that it is both possible and successful to reach an expected and targeted level with the initial training and that master proficiency then comes with experience. A skilled flight instructor or mentor can very much speed up the process both during and after training. Both students and instructors can also be benchmarked across the training periods with the use of a standardised grading and assessment system and with digital tools it can also quickly reveal if there is a need to also update the syllabus.

Within the Lufthansa group the MPL is now accepted and the training philosophy similar and they are starting to see other airlines, like Brussels and Austrian, to accept their students.

The only change to the training curriculum and tools that has been made since the LH MPL birth is to reduce the number of hours in a FNPT simulator from 120 to 100 and to reduce the number of hours in training aircraft in Bremen from 15 to 12 (the majority of the actual flying is otherwise performed at a facility in Phoenix in the US). The training has also been strengthened with two days of briefing and three days/three sessions of 1h10m with practical exposure and more dedication to upset prevention and recovery training (UPRT).

Furthermore, Kamps does not think that the training content will see much or any change even if the license restriction is removed. The restriction is simply a factor that makes the MPL license end up in a situation where it should not be. On the question if LH could hire MPL pilots from other training origins, the answer is simple. As there are different training needs in local regions, the only theoretical need would be to get some information about the structure of that program in order to properly design a bridge course to the operations of LH.

This to make sure the necessary parts that maybe not have been included in the previous training is provided with an example being perhaps different philosophies in how to use the checklists.

Finally, Kamps and LFT encourage a wider share of information on the MPL and say that *“If we can continue and get more feedback from other operators we can use their experience to develop our own and other MPL programs as well”* It would also be of interest to hear more about how others view the MPL and how information then could be exchanged. *“No one can be sure that he is doing the right thing. We are trainers, not politicians.”*

Appendix 6 – The Pilot Core CompetencyCompetencies

Core Competency		Performance Indicator
Application of Procedures (APK)	<ul style="list-style-type: none"> Follows SOP's unless a higher degree of safety dictates otherwise Identifies and applies all operating instructions in a timely manner Correctly uses aircraft systems, controls and instruments Safely manages the aircraft to achieve best value for the operation, including fuel, the environment, passenger comfort and punctuality Identifies the source of operating instructions 	
Communication (COM)	<ul style="list-style-type: none"> Knows what, how, where, when, how much and with whom he or she needs to communicate Ensures the recipient is ready and able to receive the information Conveys messages and information clearly, accurately, timely and adequately Confirms that the recipient correctly understands important information Listens actively, patiently and demonstrates understanding when receiving information Asks relevant and effective questions, and offers suggestions Uses appropriate body language, eye contact and tone, and correctly interprets non-verbal communication of others Is receptive to other people's views and is willing to compromise 	
Flight Path Management Automation (FPA)	<ul style="list-style-type: none"> Controls the aircraft using automation with accuracy and smoothness as appropriate to the situation Detects deviations from the desired aircraft trajectory and takes appropriate action Contains the aircraft within the normal flight envelope Manages the flight path to achieve optimum operational performance Maintains the desired flight path during flight using automation whilst managing other tasks and distractions Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload Effectively monitors automation, including engagement and automatic mode transitions 	
Flight Path Management - Manual Control (FPM)	<ul style="list-style-type: none"> Controls the aircraft manually with accuracy and smoothness as appropriate to the situation Detects deviations from the desired aircraft trajectory and takes appropriate action Contains the aircraft within the normal flight envelope Controls the aircraft safely using only the relationship between aircraft attitude, speed and thrust Manages the flight path to achieve optimum operational performance Maintains the desired flight path during manual flight whilst managing other tasks and distractions Selects appropriate level and mode of flight guidance systems in a timely manner considering phase of flight and workload Effectively monitors flight guidance systems including engagement and automatic mode transitions 	
Knowledge (KNO)	<ul style="list-style-type: none"> Demonstrates practical and applicable knowledge of limitations and systems and their interaction Demonstrates required knowledge of published operating instructions Demonstrates knowledge of the physical environment, the air traffic environment including routings, weather, airports and the operational infrastructure. Demonstrates appropriate knowledge of applicable legislation Knows where to source required information Demonstrates a positive interest in acquiring knowledge Is able to apply knowledge effectively 	

Core Competency	Performance Indicator
Leadership & Teamwork (LTW)	<ul style="list-style-type: none"> • Understands and agrees with the crew's roles and objectives • Is approachable, enthusiastic, motivating and considerate of others • Uses initiative, gives direction and takes responsibility when required • Anticipates other crew members' needs and carries out instructions when directed • Is open and honest about thoughts, concerns and intentions • Gives and receives both criticism and praises well, and admits mistakes • Confidently says and does what is important for safety • Demonstrates empathy, respect and tolerance for other people • Involves others in planning and allocates activities fairly and appropriately to abilities
Problem Solving & decision-making (PSD)	<ul style="list-style-type: none"> • Identifies and verifies why things have gone wrong and does not jump to conclusions or make uninformed assumptions • Seeks accurate and adequate information from appropriate sources • Perseveres in working through a problem without reducing safety • Uses appropriate, agreed and timely decision-making processes • Applies essential and desirable criteria and prioritizes • Considers as many options as practicable • Makes decisions when needed, reviews and changes them if required • Considers risks but does not take unnecessary risks • Improvises appropriately when faced with unforeseen circumstances to achieve the safest outcome
Situation Awareness (SAW)	<ul style="list-style-type: none"> • Is aware of the state of the aircraft and its systems • Is aware of where the aircraft is and its environment • Keeps track of time and fuel • Is aware of the condition of people involved in the operation including passengers • Develops "what if" scenarios and plans for contingencies • Identifies threats to the safety of the aircraft and people, and takes appropriate action
Workload Management (WLM)	<ul style="list-style-type: none"> • Is calm, relaxed, careful and not impulsive • Plans, Prepares, prioritizes and schedules tasks effectively • Manages time efficiently when carrying out tasks • Offers and accepts assistance, delegates when necessary and asks for help early • Reviews, monitors and cross-checks actions conscientiously • Ensures tasks are completed • Manages interruptions, distractions, variations and failures effectively



Appendix 7 – Working paper provided to EASA on the MPL license restriction

The Multi-crew Pilot License EASA Restriction Implications

*- A working paper on the MPL license restriction
based on the formal results of a
global online MPL survey*

Rickard Wikander and Dr. Nicklas Dahlström



The Multi-crew Pilot License EASA Restriction Implications

- A working paper on the MPL license restriction based on the formal results of a global online MPL survey

Content integrity

In collection of the following information a SSL encrypted secure line between end users and question server was used to assure user integrity and anonymity. Every question also allowed for written comments to be provided and such comments including integrity sensitive content has been de-identified before being included in the information provided in this paper. Besides de-identification, no changes are made and the information provided in the form of data is gathered directly from survey results. The provided concluding recommendations are based on the data content and can be openly reviewed by any reader.

*Ljungbyhed, Sweden
November 2015*

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1.1 - Background

The MPL has been a highly discussed topic in the aviation training industry ever since its birth in 2006 and a study performed on the MPL 2013-2014 by MPL graduate Rickard Wikander and Dr. Nicklas Dahlström revealed both several strengths as well as areas calling for improvement.

With the focus of this paper, it is relevant to say that the MPL development in many aspects was found to be caught up in a political discussion more regarding who was right and who was wrong rather than turning that energy towards cooperation and improvement. Many arguments have so far been based on opinions rather than knowledge.

It was also found that the level of regulatory knowledge, understanding and consequential regulatory development was trailing behind industry best practice causing inertia to the system. In this context, the operator binding restriction with the MPL license is a common discussion.

1.2 - MPL data and methodology

Since long there has been an industry request on MPL data that could clearly outline the industry experiences of the MPL. Between June and August 2015 and as a response to this request, a collection of both quantitative and qualitative data on the MPL was gathered using a global online survey created by Rickard Wikander and Dr. Nicklas Dahlström with the support from the Lund University School of Aviation. The overarching aim of this survey and a subsequent second report was to hopefully put an end to the political discussion and instead allowing the industry to focus on improvement with the provision of objective data.

Once the method had been selected, industry stakeholders were approached from every regulator, airline and ATO that was, or previously had been, involved in MPL training. Through these stakeholders the survey was also forwarded within their respective organisation to allow for as many respondents as could possibly be reached.

Besides three initial questions aiming to collect demographic information, no additional question was mandatory to respond to. For this reason the number of respondents to each question may vary.

1.3 - Survey target groups and questions

The survey was aimed towards seven identified target groups, each with a different approach to the MPL experience;

8. **Line Captains** – *Individuals flying with MPL graduates in line flying operations, after the completion of their initial operation experience (IOE) and completed line check.*
9. **Line Training Captains** – *Individuals flying with MPL graduates during their initial operating experience (IOE), line checks and captain upgrade programs.*
10. **MPL Ground or Flight Instructors, Synthetic Flight Instructors (SFIs), Type Rating Instructors (TRIs)** – *Individuals involved with MPL training during the initial training before the initial operating experience (IOE).*
11. **MPL Graduates** - *Individuals holding, or who previously held, an MPL license following graduation from an MPL training program.*
12. **MPL Students** – *Individuals currently involved in an MPL training program who not yet had graduated.*
13. **Regulators** – *Individuals engaged in MPL training development, approval, oversight and continuous improvement from a regulatory organisation and perspective.*
14. **ATO/Airline Managers and Responsible** – *Individuals engaged in MPL training development, approval, oversight and continuous improvement at managerial levels of responsibility and influence with an MPL training organisation or airline.*

Each target group had a specific set of questions where some were unique to that target group and some were provided to every target group. What follow will be the results and analysis of those questions and comments specifically designed for and made on the MPL license restriction and what implications this appears to have had on the individuals affected.

With MPL graduates and MPL students there were specific question related to the MPL license restriction. With the other five target groups the opinions and experiences about the restriction could be found with the comments related to other questions. The data results will be provided in the order related to how the target groups are presented above. Finally, a discussion and some concluding words of recommendations for regulatory development will be made.

2.1 - Line Captains

2.1.1. Q: Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?

Answer Choices	Responses	
A modular route via PPL, CPL and IR	23.53%	12
An ab-initio integrated frozen ATPL	58.82%	30
An MPL training program	7.84%	4
Other	9.80%	5
Total		51

This question was created with the ambition to see what position the community of Line Captains had towards the different training options of becoming a professional airline pilot. Line Captains and Line Training Captains would also prove to be the most challenging target groups to reach. From what can be seen above the Line Captains would generally recommend different training routes with only just under 8% recommending the MPL. One reason behind their hesitancy towards the concept is related to the license restriction, and this can be found with the written comments to this question.

Written comments

- *MPL is tied to one operator which is a big disadvantage for the student pilot.*
- *With the MPL license at our company the future pilots are stuck with this airline and currently waiting years and years without standing a chance to make use of their license, which is totally unfair, costs them a lot of money and since their near future remains constantly unclear they have little motivation and possibility to start anything else. Their training being stretched over many years surely has a negative effect on their overall competency too.*
- *MPL has license bonded with the airline which put the candidates in unfair positions.*
- *It has proven over the last years that employers use it to put pressure on MPL-students and even more on pilot's associations / unions. Building up piles of unemployed MPL-pilots and not giving them a job has become a method to put pressure on them. With an ATPL, applicants could look for other jobs outside the original company.*

- *The MPL-Operator fixation prevents students from finishing their education each time the operator does not need any young pilots.*
- *It's very bad that MPL-Students are stuck with the airline where they made the training. If the airline does not offer them jobs - then what?*
- *The Operator binding after training is finished is not up to date ...*

2. 2 - Line Training Captains

2.2.1 Q: Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?

Answer Choices	Responses	
A modular route via PPL, CPL and IR	22.86%	8
An ab-initio integrated frozen ATPL	54.29%	19
An MPL training program	20.00%	7
Other	2.86%	1
Total		35

It was also found that there were connections between how you had received information about the MPL and the opinion towards the training concept. Also with Line Training Captains there were comments made on the restriction as a reason for why not to recommend it;

Written comments

- *One BIG downside of MPL is the operator limitation in the license. We currently have about 900 MPL Students in training (or already finished), who won't get a job with the operator in the license and are not able to apply anywhere else (due to the operator limitation). This set-up is totally unacceptable - for the individual, but also for our industry. Well trained pilots, who cannot do what they were trained for had only produced costs and brought no benefit for our industry.*
- *The problem is of economical nature. The MPL student is bound to an airline. If this airline doesn't need any pilot by the end of the students training, the students faces a challenging problem.*

2.3 - MPL Ground- or Flight Instructors, SFIs, TRIs

2.3.1 Q: Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?

Answer Choices	Responses	
A modular route via PPL, CPL and IR	9.86%	7
An ab-initio integrated frozen ATPL	35.21%	25
An MPL training program	53.52%	38
Other	1.41%	1
Total		71

The fact that more than half of the Target Group would recommend the MPL supports the finding that there is a connection between how stakeholders were prepared for their role in an MPL program and their opinion towards the concept. At least in programs that follow EASA regulations these groups had to pass a so called MPL Instructor Training course which should contain all aspects of the training.

Written comments

- The main problem with MPL is the fact you are locked to one potential employer. If that employer is unable or chooses not to hire you there are very limited options available.*
- I believe that the frozen ATPL will still offer a more sound career choice for most pilots as it provides a backup in case their employment situation changes (i.e. they will be able to go work for a smaller airline/charter service in case things go wrong with their airline contract initially). In the long term if their initial employment goes well then the MPL is clearly the better choice, however there is greater risk in this.*
- The quality of MPL training is good. The only trouble our students have is that they are not free to choose an employer in case of no demand at the educating operator.*
- The Problem on MPL: you must stay with One operator*
- Had already students who were not taken by the airline after the initial training and with choosing the MPL way they didn't have any license and had to get an expensive additional training in order to get finally a pilot license.*

2.4 - MPL Graduates

2.4.1 Q: When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	24.35%	28
I was at first indifferent, but now I am negative.	13.91%	16
I was at first positive and remain positive.	36.52%	42
I was at first positive but now I am negative.	13.91%	16
I was at first negative and remain negative.	0.87%	1
I was at first negative but now I am positive.	2.61%	3
I have no opinion on the MPL.	3.48%	4
Other (please specify in comments).	4.35%	5
Total		115

It is not uncommon that we tend to recommend the experiences that we ourselves have gone through. Despite that, more than one in four students are negative towards the MPL concept and again the license restriction is playing a key role.

Written comments

- The program itself is not bad if the training is continuously provided. This is unfortunately these days not everywhere given as my own experiences showed as well as the situation of flight students in later courses of my own airline and in another company where either only the base training was provided or no type rating at all. Therefore students are extradited to their airline without any alternative.*
- Never thought that my fear of getting stuck after graduation without any licenses to find work worldwide would materialize.*
- I am too dependent on my operator because of the operator binding*
- The only negative thing about the MPL was, that the license had to stick to only one operator and if the license couldn't be finished at one operator the student has nothing but a PPL (like this it was with my company).*

- *First indifferent then both positive and negative. Positive because I liked the fact that from the very beginning you are always in the "copilot role". Negative because MPL is connected to a specific airline. If the airline doesn't employ you, your chances at other airlines are bad.... They all want an ATPL.*
- *My own opinion for the certificate and training itself is positive. But my experience after graduation has of course been that the MPL-certificate has been a brake pad in a couple of situations, unfortunately.*
- *As a student, MPL was first a good idea. Nowadays, as many are missing the LIFUS and so cannot get a license, the problem evolves that the operator can control them indefinitely.*
- *My ATO when recruiting did a good job at selling their MPL courses. After a complete graduation, no possibilities of transferring to the airline after the training and the operator commitment, the outlook is VERY negative.*

Answer Choices	Responses	
No, but I am not aware of any existing license restrictions	22.12%	25
No, even if I am aware of any existing license restrictions	30.97%	35
Yes, please explain in what way	46.90%	53
Total		113

2.4.2. Q: Did any restrictions related to the MPL license affect your career plans?

Written comments

- *You can't switch airline with an MPL, until you have unfrozen your ATPL.*
- *All airlines do not accept the MPL licence.*
- *Not accepted by all airlines, no possibility to join general aviation (single hand). It is difficult to find a job.*
- *Currently job hunting... many airlines don't know the MPL license and refuse to give us a chance. After completing the line training we don't have many flight hours, but small business carriers refuse to work with us due to the MPL.*
- *Application not accepted by many airlines. Unrestricted ATPL as well as more flight*

hours required.

- *After international job search I am still waiting for an offer from partner airline. Unwilling to become an underpaid steward I am now starting to work in aircraft sales and unsure about my future passion to become an airline pilot. I had probably felt differently if I'd been hired directly without a constant shower of negative news, if at all, about the uncertain future.*
- *The training airline did not offer me a job due to economic downturn. Applying for other jobs, the MPL seemed airlines to believe I was not prepared for the job as despite having some jet experience and a type rating, I did not get invited for an airline interview for more than half a year.*
- *Most Authorities and Airlines do not accept applications with an MPL license. It is not known as a Pilot-License.*
- *Since I have no CPL and just a frozen ATPL, I can't hire for jobs in the non-airline business.*
- *A lot of Airlines don't know this licence.*
- *It takes away the chance of young pilots to go fly somewhere else. And if they had to pay for it, they are in debts. Nowhere else, you are stuck like this, within a certain company. This needs to change.*
- *My partner airline does not hire pilots at the moment and because of the operator binding i can't look for other options.*
- *The fact that my partner airline is written on my license is not something I prefer. Although I am aware the MPL is becoming more and more recognised and I am not necessarily restricted to my partner airline forever, this certainly feels like a negative when compared to a traditional ATPL.*
- *Need to finish the license with the partner airline until type rating plus line training. Without the line training the MPL is worthless and I cannot work for another airline although they would continue the training.*
- *I was forced to take this one operator and he can pay me a minimum salary. Today my original company can even force the new pilots to go to a different company for a salary as a co-pilot which is less than a flight attendant. Because they have a contract that they have to work for the airline group but there is no entry salary in this other contract so they can force them to whatever they want. Those binding contracts should be forbidden.*
- *No, not for me personally. But for many people i know it a huge problem not to be able to fly somewhere else! Biggest issue for me against MPL.*
- *Being bound to one sole operator and being exposed to his good will.*

- *If I had not got a job within my company in 2011, there would not have been many options, the license was stick to the operator in the beginning.*
- *The airline did not hire pilots, so I had to wait for two years and could not fly for another airline. That was frustrating and my flying skills were dropping down.*
- *I was bound to an operator who did not need me for a certain time and I was unable to fly for another airline until I completed my line training.*
- *There is only one operator in my country with MPL approval, therefore the licence becomes useless once outside my airline.*
- *It took a long time for the governing authority to recognize the first batch of MPL pilots in my company/country. They were close to 3000 hours before regulations came into effect and unfroze their ATPLs. Essentially tied to the company for the first few years even after their bond had expired.*
- *After attaining the required 1500 hours to unfreeze the ATPL, it will remain as a restricted licence under Civil Aviation Authority of my country.*
- *The career future of MPL is still unclear. Whether we are getting a full ATPL or so call ATPL(m), the difference in between, how it is going to affect us from applying to other companies that has no MPL program. Also changing fleets.*
- *Not a widely accepted licence in airlines worldwide, for now.*
- *The airline is in full control of when they plan to unfreeze the ATPL which leave you no choice but to stay with that airline till they've unfrozen it. It limits career options during that phase and one cannot plan ahead.*
- *As I have to be with my sponsor airline till my ATPL, I was not able to move on when the opportunity came leaving me at the mercy of my airline.*
- *Not yet, but it is expected that it will delay my future career plans. Due to MPL restrictions, an ATPL is felt by me to be needed in order to be able to enter a vast majority of worldwide airlines.*
- *Line Training was not included in MPL so there was no chance to get a License without initial operator.*
- *1. Was in contact with a company flying freight. Unfortunately they operated the single engine turboprop both single pilot and multi pilot. Also here it was hard to really get an answer if a MPL-pilot can operate commercially in an aircraft registered for single pilot operations if it's operated in multi crew. The whole thing ended with them hiring a CPL/ME/IR pilot. 2. Was applying for a job in the Middle East. For conversion reasons of the license MPL was not legit. This was a couple of years ago. Also seen a text at the bottom in job ads from that region saying "Applicants with MPL-license will not be considered due to license conversion". 3. The small amount of PIC hours has been a problem. I'm currently time building, but as an unemployed graduate you do not have the money to quickly gain the hours needed. It's of course hard to get the hours paid since you are not allowed to fly single pilot commercially.*

Also hard to become flight instructor etc. with a MPL-license.

- As my host airline went bankrupt, I was stuck with a TR with limited usability in Europe. No reasonable way to convert to single pilot operations to gain hours. I understand that this isn't the point of MPL, but you put all the eggs in one basket with the current set up.*
- Operator binding paired with operator not hiring.*
- Main operator did not hire their own students, some of them had to accept poorly paid jobs at other companies. Most trainees chose another career (university...), even if just as a temporary measure.*

2.4.3 Q: Is there any other information you would like to provide or comment you would like to make?

Answer Choices	Responses	
No	88.39%	99
Yes! (Please provide information and/or comments in the box below.)	11.61%	13
Total	112	

Written comments

- I really liked the system of the MPL program and generally still think very positive about it. But the strong problems to find a job, if your training airline cannot hire you, are very frustrating. I felt very well prepared for the position as an airline pilot, but I am losing more and more knowledge and skills as time goes by. This is very disappointing because it first I thought the cooperation with an airline in the MPL program gives you more security than an average ATPL.*
- Training was largely affected by the lacking demand of the airline. Therefore the training was first delayed, then paused for 9 months before the type rating and line training and finally a job provided only after further 8 months.*
- A maximum time needs to be established by law for the airlines so that they can't keep you in the hold pool before flying the IOE.*
- ICAO is absolutely nuts to just have thrown the MPL onto the market without thinking about the consequences, such as bankruptcy of the training airline during the course.*

2.5 - MPL Students

It is clear that the license restriction is one of the main reasons for any negative attitude of MPL students towards the training concept.

2.5.1 Q: When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	18.81%	38
I was at first indifferent, but now I am negative.	19.31%	39
I was at first positive and remain positive.	30.69%	62
I was at first positive but now I am negative.	15.35%	31
I was at first negative and remain negative.	5.45%	11
I was at first negative but now I am positive.	5.94%	12
I have no opinion on the MPL.	1.49%	3
Other (please specify in comments).	2.97%	6
Total		202

Written comments

- I was initially negative as I thought of the risks with undertaking an MPL compared to a CPL.*
- I was positive and I am still positive. But it depends on the airline. The MPL makes the student very dependent on the airline. Thus, I think the airlines should be involved even more in the training and should make more commitments to the students.*
- I am now negative because the airline for which I will be graduating does not have any needs for new pilots and therefore I will be confronted with me finishing with less flying hours than an ATPL graduate.*
- The duration of the training rests with the airline, which in turn may lead to unexpected delays.*
- Due to the operator binding, we cannot finish our MPL because at the moment we do not get any line training.*
- It seemed like a faster way to the flight deck, compared to the traditional CPL route. My course also guaranteed a job with an airline on completion of my course.*
- Due to the Operator-Limitation the MPL makes it impossible for us flight students to search for jobs if the partnering airline doesn't give us a line-training.*

- *The MPL appears to have a bad reputation from other pilot trainees and some instructors. I do not know how it is seen in other parts of the industry but most of the bad reputation is due to lack of understanding of the MPL scheme as a whole.*
- *I was initially worried that I wouldn't get a broad experience because I thought the course was very tailored. However, I have grown to like the MPL as it focuses on what is important and current e.g. flying using glass-cockpit, GPS as well as allowing practise of more traditional ways of navigation e.g NDB. While I still think the course is very tailored, I see this as a very positive element of the MPL. Due to the 'broad-but-tailored' training, I am confident I will arrive at the right-hand-seat with the necessary skills of a modern-day multi-crew airline pilot. Having to do everything single pilot during this course i.e. aviate, navigate, communicate, brief, complete checklists is useful as it builds mental capacity and confidence. Overall, I am very pleased with the MPL.*
- *I was first confused about this training, but after I know about the training, privilege and limits of this license, its connection with airline transport operation and how can I get ATPL, I am positive.*
- *The strong bond to the educating operator is a career-blocking instrument. Only the operator profits.*
- *My company misused MPL regulations to cover up own lack of instructors and line training opportunities. Having no licence after graduating from the academy drives me back to university. Lost a few years...*
- *As a student waiting on a type and line training MPL is a bad choice because we can't fly for other airlines like you could do with an ATPL*
- *Our Training has been suspended after Completion of Phase 2 by the partnering Airline due to a hiring stop. With the MPL I remain bound to an airline that does not want to hire me, and instead wants to keep me and my fellow students until they have established their new low-cost airline. Had I finished a "normal" ATPL, I would now be free to apply with other airlines.*
- *MPL might be a good idea in theory, however is difficult to establish in real life. If the operator your "license" is based on, is not hiring, you are completely stuck and likely wasted several years of your life. I'm now in training at my company for nearly 5 years as they completely screwed up the planning of the training. Most of us still even do not have a Type Rating and have no chance for a job at all.*
- *The MPL concept creates a dependency on the partnering airline and allows too much flexibility in duration and organization of the training.*
- *A formation adjusted for a special airline was promised, but as my airline is not hiring any new pilots, I'm stuck in the middle of the formation and can't change to any other airline.*
- *The options of applying for a job are limited to MPL-licensed airlines.*

- *Operator binding is negative and the reduction of flying hours compared to ATPL is negative. Also the fact that you do not hold any other licences like CPL etc. which were part of the ATPL in the MPL training make you completely addicted to the training company.*
- *Due to the airline restriction, I can't go to another airline. So right now, I'm waiting for 3 years.*
- *From the beginning it sounded to me like a money saving programme. And now we are stuck after the skill test and are not allowed to go to any different airline.*
- *When I signed up for the MPL program we were promised a good follow up work contract. Now things have changed and it's not even clear if I will ever graduate at all. My current contract doesn't involve the type rating and without it I will never be able to graduate or even work for another company. This bondage of the license to the company opens doors for "modern slavery".*
- *My "employer" does not want to complete my training (complete type rating is missing) due to labour strikes and negotiations. Therefore I've been waiting for 2 years now. I don't have a commercial license and can't apply for other companies.*
- *I thought it would help getting a closer connection to the airline I will later fly for. But as my company does not hire I am now stuck with them and waiting for a line training without the possibility to apply for a job with other airlines.*
- *I have had almost the same Training Syllabus as for the classic ATPL. Some Training Hours and a few Check lights more and I could have a CPL IR right now but as long as I am waiting on a Type rating I have basically nothing...*
- *As a general idea, putting students into airline-oriented training is fine. An airline is able to "form" its students according to their SOPs and (if existing) its safety culture. I am a MPL student myself and appreciate the general concept which is taught at our training facilities. A giant downside however can be seen in the student's dependency upon the airline's hiring policy. We, for example, are unable to apply for some financially quite attractive positions in Asia and the Middle-East due to our company's restriction in our MPL licence, which is to be cancelled once we finish Line Training.*
- *First, I only worried about the reduced number of training hours. This was no factor until now in the training. But now I am completely dependent on the airline where I completed the training. At the moment there are no jobs and thus I am obliged to wait without other alternatives.*
- *The fact that you are stuck with one single airline and that you don't get a license until you're on the line is a huge problem. My airline doesn't offer jobs at the moment and we have no chance to apply anywhere else.*
- *Operator binding is a problem*

- *I am Operator bound to a Company that does not feel responsible to complete my Training to an independent license.*

2.5.2 Q: Did any restrictions related to the MPL license affect your choice of pilot training program?

Answer Choices	Responses	
No, but I am not aware of any existing license restrictions	29.79%	56
No, even if I am aware of any existing license restrictions	53.19%	100
Yes, please explain in what way	17.02%	32
Total		188

Written comments

- *Yes, choosing MPL meant that it was airline specific for me and that if I didn't make it halfway I would only have a PPL. However I still decided upon MPL rather than CPL.*
- *Still chose a flight school with MPL but would prefer an ATPL training.*
- *This program was the only one with a guaranty to have a certain amount of line flying experience including the type rating. The chance to work for the partner airline affected it as well.*
- *Operator fixation*
- *I was concerned because the licence is both type and company restricted until I have 1500 hours of flying.*
- *That I cannot apply for another airline without my line-training. So the airline has my life in their hands if they do not give me a job. And they do not give me a job. Only MPL if the job is guaranteed!*
- *We are bound to our operator which he uses to keep us from applying anywhere else. I was not aware of this when I applied. It would have changed my consideration which program to take if I had known beforehand.*
- *Long waiting time after type rating but before line training and job uncertainty due to bad economic situation of partner airline. With ATPL we would be free to apply to another airline.*
- *My licence will be restricted to a specific airline, which means I am bound to stay with the company for a 5 year minimum term. Although I can convert to an ATPL after*

1500 hrs.

- *Operator restriction is unacceptable.*
- *I was naive enough to think that by limiting my license to my airline they would have interest in employing me.*
- *If I failed, I would only have private license, and I can't make a living by flying.*
- *The program is not flexible enough, different phase cannot exchange.*
- *Yes. Discovering unemployment right now as no jobs are open for application within my airline group.*
- *I was not clearly aware what the restrictions are, but now that I'm nearly finished, I would have definitely gone for the ATPL.*
- *Before training, I was not aware of the following burdens: - IR not transferable to Single Pilot Ops - privileges of a CPL may only be exercised under specific conditions (70h PIC, etc.) - Even if you would like to get a CPL, national regulations do not allow student pilots to be in two training programs at the same time (CPL and MPL).*
- *Our airline can put our program on hold and I can't do anything against it.*
- *If it would be possible to change to an airline that hires pilots now, it would be a good solution to solve the problem of operator restriction.*
- *Depending on the cooperating airline partner. I do have no choice to do my job at any other airline company, which is a huge restriction and keeps me away of having a life without worries and waiting time.*
- *The restrictions did not affect my choice, since I expected to get a job at our partnering airline. Unfortunately this did not happen yet and now I'm not allowed to work for any other airline in the meantime.*
- *I'm still unemployed because I did MPL training, which forces me to work for a certain company.*
- *At the time I chose the program I wasn't aware of the restrictions. Now I would choose an ATPL program, because my Operator is unwilling to employ us. So we don't get the IOE and thus we can't work as Pilots.*
- *As I applied for the pilot training program I was aware of the restrictions. At that time nobody thought about the risks due to the operator binding. Everybody thought that after 2.5 years of training one would be a pilot. Due to mismanagement and changed business strategies the company trained too many pilots and stretched the training. As there is no limit how long the training can be stretched there are about 1000 pilots on hold in that specific company for almost 5 years. There is no chance of planning your own life as you are struggling to get money till the training continues.*

- *My company has no jobs for us. They let us do the MPL in pieces, so we already are in the training for 5 years, with big breaks in between the flying phases. And now, as they don't offer us any jobs, we are not even able to go to other airlines because of our license. This is really frustrating :(They are already trying to persuade the union in some cases that we can continue the line training with partner airlines, that have almost the same procedures*
- *Almost finished with training but due to political decisions of my company there are no jobs and therefore no line-training. Due to this, I am stuck and cannot even apply for a job with other Airlines.*
- *The operator binding makes us slaves to the airline's management. I am at a company where they basically can do with us whatever they want. If we want to switch to CPL we lose our MPL progress. We also cannot go to other airlines and if they do not offer us any jobs we have to wait forever or basically take any job they offer us, no matter how shitty the payment/working conditions will be.*
- *Stuck with one single airline - if airline is not hiring, no chance to apply elsewhere - very tight syllabus - no license after 2 year of training until airline offers line training*
- *Line training with same operator therefore complete dependency in operator.*
- *They force you to Train the MPL - being bound to the Company you end up being unable to work for several years!!!!*
- *Now I know the training was the biggest mistake of my life ...*

2.5.3 Q: Is there any other information you would like to provide or comment you would like to make?

Answer Choices	Responses	
No	75.94%	142
Yes! (Please provide information and/or comments in the box below.)	24.06%	45
Total		187

Written comments

- *Initially I was not aware of the restrictions the MPL poses. However now I'm in the situation where I have finished everything including a Type Rating and Skill Test, but due to the fact that I don't get line training, I am stuck with an operator restriction. This leaves my unable to do anything but to wait until someone decides I get line training.*
- *I think the most crucial negative aspect of the MPL is the fact that you do not get to collect as many flying hours as an ATPL graduate. In addition to that many airlines all over the world still do not accept the MPL, which makes finding a job in aviation and especially in airline business really hard.*
- *I think life without an airline sponsored MPL program is very hard, if the partner airline does not need pilots because of its financial situation. The student pilot can not apply to another airline, if the supervision is not completed. There must be a minimum of flight hours (e.g. 1000 hours) included in the MPL Program to have the chance to get a job. If the student pilot is grounded for 2-3 years, the hard work and skills gained are lost and the safety/ competency of the pilot are not as good as 2-3 years after completion of the education. In addition to that the bank loan of the student pilot is always in his mind and decreases the lifestyle and safety.*
- *If you compare yourself and your classmates to those from a free/normal ATPL course, you know why there are 1500 pilots without job in my country. There are too many people, who just don't have the personality and leadership/ style team thinking and professionalism for flying. In some parts I think it's bad that you don't do an CPL. Because sometimes the training is more like: oh you haven't done that yet? Never flown and circling approach or engine failure during?.... Anyway you don't have any skill test on that you are going to MCC and type rating, so you don't know how to do it.*
- *Airlines should, in my opinion, only provide MPL training programs when there really is a need for pilots in the company. Right now, I can expect several months/years of waiting for the airline to hire me after I've finished flight training.*

- *The main problem of being trained in the MPL program is having no "free" license after the base training. I didn't even get any license after my base training. My company denies us the Line Training. No Line Training means no License which means NO Job! In my opinion the MPL is really bad because of that huge problem.*
- *The operator binding is frustrating. Waiting so long in between the different phases does not improve your flying skills - not talking about organising a private and work life under these conditions.*
- *So far I had really long breaks within the training program (1 year after initial flight training, 1.5 years after intermediate phase, unknown time after base training). This is really bad because one has to start all over again with learning and getting back to a good knowledge before each phase. And a lot of things are forgotten and lost in the waiting periods in between.*
- *Due to missing time restriction, I am in MPL + LIFUS training 3+ years now. Shouldn't there be some kind of regulation?*
- *The MPL seems to me, and my course-mates, to be a faster pace (so far) than the ATPL route and more challenging - there is very little time to consolidate new skills compared to the ATPL however, I was not made aware of this before enrolling.*
- *Operator restriction is unacceptable. There should be more flight training in real aircraft to improve manual flying skills.*
- *The MPL with Operator Limitation is very bad since it takes away the decision where to work from the flight student and gives it to the MPL airline*
- *Some of the restrictions on the license make me feel slightly uneasy due to the dynamic nature of airline work.*
- *I had no choice other than to accept the new program by the ATO. I trusted the traditional ATO...*
- *The operator binding unbalances the relationship between the student and the partnering airline even more in favour of the airline. Further the National CAA seems to have only poor knowledge regarding MPL regulations. Transparency the underlying rules e.g. expiration date of ATPL exam is bad.*
- *The duration of the MPL programme of the Airline currently offering this is ridiculously long and promised as a 30 months programme. The reality however looks different and as follows: 1 year of theory, 1 month break, 4 months Core Phase, 1-1,5 years of waiting time with NO flying practice/theoretical refresher, 4 months of Basic Phase, 1-1,5 Years of waiting time for the beginning of phases from intermediate to Base Training with - again - NO flying practice/theoretical refresher. Keeping knowledge updated and again and again having to get into the materia of flying again is very frustrating and difficult, however we all feel properly prepared at the end of each phase. There should be a time limit, as to when the Airline has to complete the program of no longer than 36 months. Also Airlines should be forced to provide an IOE in this program regardless of their current political conflicts with unions etc.*

Otherwise the MPL can be used as a perfect instrument for modern slavery meaning not give flight students their IOE, so they cannot leave to other airlines during their waiting time. Our current operator does not want to give us our IOE, so they can supply their demand of pilots for their upcoming low cost airline that we have not even applied for. As far as I know you have already made contact with colleagues, I really hope your study will help to force Airlines take better care of their MPL-students or at least our airline which I think you know very well. Please give the feedback to the flight school/airline, our current situation in the MPL programme is unacceptable and an absolute trap. Thank you very much!

- *The airline that I train for did implement the MPL. And then designs everything that comes with it. Backwards and not always stringent. It is a nice training but there will be another long waiting period before we will be offered jobs. That is a quality issue.*
- *For us as students of an airline with a MPL program it feels like being a slave of the airline. We aren't allowed to fly anywhere else because of the operator binding and we are waiting for years to get a job or a type and line training. With an ATPL license you get your license at the end of the program and you can apply for any job you like without any operator binding.*
- *Should an airline decide not to hire their students, they should have to at least finish their training. Otherwise the students will be stuck with the costs of the training program and will remain 100% subjected to the arbitrariness of the airline management. For young students such as myself, it is a situation where I cannot even apply for jobs in the industry, simply because my training was never finished. So my only choice right now is to wait until my airline decides to continue the training.*
- *MPL operator binding is a good intention. But it fails completely when the airline you initially applied to does not have ANY ambitions to offer you a working contract.*
- *The operator Fixation is a big Problem for us MPL flight students, so we are committed to wait for the airline to employ us (no will to solve situation).*
- *To be honest, in my opinion the MPL is only for the airlines a good license and not for the students because the student is chained to the partnering airline. So it is a barrier in his professional freedom and for this reason it should be disestablished as soon as possible.*
- *The idea behind the MPL wasn't that bad. But unfortunately it's similar to other nice ideas which simply don't work out in reality. As long as airlines are not forced to train the student pilots within a reasonable period up to graduation, the MPL training is a hidden trap and a heavy burden for students. Airlines are exploiting young motivated people and the whole idea behind the MPL concept. Young pilots are retained from the regular job market just because airlines only care about themselves. There is no responsibility for the airline - all disadvantages compared to the ATPL are to be sustained by the students. The MPL like it is nowadays, is a huge failure.*
- *The training is taking longer than expected. I'm in the program for 4,5 years now, currently getting my type rating on A320 without line training, so still waiting to finish my base training.*

- *There should be an obligation for the operator to provide the IOE, because in the actual situation we are committed to an employer who doesn't want to hire us.*
- *The MPL training should be discontinued and the old ATPL training should be restarted as the MPL training makes you completely dependent on the training company/airline.*
- *MPL should contain the possibilities of easily changing the partner airline and ATO if this is necessary due to shortage of jobs at the respecting airline.*
- *MPL concept (at least in some parts of Europe) puts the student in an unhealthy state of dependency to the operator!*
- *This is really important for me: When i signed up for the MPL program we were promised a good follow up work contract. Now things have changed and it's not even clear if I will ever graduate at all. My current contract doesn't involve the Type rating and without it I will never be able to graduate or even work for another company. This bondage of the license to the company opens doors for "modern slavery". There should be only contracts with which you'll have the opportunity to work for a different company by the end of training. We should be trained without gaps, anything else is not safe!*
- *I lose a lot of flying skills and theoretical knowledge due to my long waiting time which is definitely caused by the MPL license and my commitment to my employer who does not want to finish my training.*
- *The program was designed to last 23 months, as of today I have been in training for almost 4 years (due to long waiting periods during the training program). Due to the existing license restrictions I have no choice but to wait and stick with the current MPL program.*
- *Airlines should definitely avoid using MPL!!!!!!!!!!!!*
- *Training took effectively 5 years*
- *I'm in the MPL Training and the operator restriction is causing a lot of trouble. My company has currently no jobs for us and because auf the MPL we are not allowed to fly anywhere else. So at the moment I have no real license and I need to wait until they offer me a job.*
- *The IOE is obsolete! It would help a lot if this problem would not exist.*

2.6 - Regulators

Normally there is one appointed individual with each national CAA with the main responsibility in regards to MPL regulatory matters, and finding these people was a challenge. As this paper was created, there were 27 MPL program throughout 19 different states and for that reason having on average 15 individual responses per question in the target group aimed towards regulators was considered a strong foundation.

Not many comments related to the MPL restriction can be found in this target group. In hindsight, maybe a direct question related to the license restriction should have been provided also to them but unfortunately it was not.

As this paper is aimed toward regulators in EASA member states, it is likely appropriate to first provide the general opinion towards the MPL where only 2 out of 16 have selected a negative choice

2.6.1 Q: When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	18.75%	3
I was at first indifferent, but now I am negative.	0.00%	0
I was at first positive and remain positive.	56.25%	9
I was at first positive but now I am negative.	12.50%	2
I was at first negative and remain negative.	0.00%	0
I was at first negative but now I am positive.	6.25%	1
I have no opinion on the MPL.	6.25%	1
Other (please specify in comments).	0.00%	0
Total		16

Written comments

- Most of the authorities around the world have screwed-up in the development and implementation of the regulatory framework to support the MPL. They chose to bolt-on the new provisions into the same structures that were supporting traditional programmes. The end result is that many programmes are tweaked versions of airline cadet programmes.*

2.6.2 Q: Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?

Answer Choices	Responses	
A modular route via PPL, CPL and IR	0.00%	0
An ab-initio integrated frozen ATPL	60.00%	9
An MPL training program	40.00%	6
Other	0.00%	0
Total		15

Written comments

- *At the same time the authorities must see what can be done with the credit MPL students who don't get a job in an airline will have, so that the applicant can fly with SE aircraft.*
- *ONLY IF the authorities get their act together and properly implement a CBT regulatory framework and a more responsible certification process.*
- *Industry in my country has not accepted the MPL so the frozen ATPL is the best alternative.*
- *This is from the cost point of view (ATPL).*

2.6.3 Q: Is there any other information you would like to provide or comment you would like to make?

Answer Choices	Responses	
No	73.33%	11
Yes! (Please provide information and/or comments in the box below.)	26.67%	4
Total		15

- *I am concerned about the knowledge of MPL of the CAA's outside EASA. It was very hard for the MPL pilots to be accepted when seeking job*

2.7 - ATO/Airline managers and responsible

This was the opportunity to get insight from the high levels of management and MPL course designers, and again a lot of information about strengths and areas calling for improvement are provided. To keep a fair comparison the initial and current opinions are at first provided together with the reason of getting involved with the MPL and what training is recommended to someone aiming for the pilot profession today.

2.7.1 Q: When you first heard of the MPL, what was your initial opinion on it and how has it developed with time?

Answer Choices	Responses	
I was at first indifferent, but now I am positive.	9.80%	5
I was at first indifferent, but now I am negative.	1.96%	1
I was at first positive and remain positive.	70.59%	36
I was at first positive but now I am negative.	1.96%	1
I was at first negative and remain negative.	1.96%	1
I was at first negative but now I am positive.	5.88%	3
I have no opinion on the MPL.	0.00%	0
Other (please specify in comments).	7.84%	4
Total		51

Written comments

- CBT training regardless MPL or not was the singular factor that I found and still find attractive. To improve training I think you need to break away from time and task based training. MPL make you take step in that direction.*
- With the significant workload required in developing an MPL course with the Regulator and ATO, a positive attitude is a must for success!*
- Coming from AQP airlines, I am very positive about MPL*
- The idea and concept of the MPL is great, however I do have second thoughts of the way the MPL has become a quick fix to the industry.*
- I am general positive towards MPL, however ICAO regulations remain far behind current needs. Especially restrictions with regard to IOE are a major burden of MPL, especially when the originally planned operator cannot support line flying in due time. While MPL is also evidence based driven, the minimum number of landings during base training are often much too high with the associated costs.*

- *My first thought was that "this is the way modern aviation training intended for airline pilots should be conducted".*
- *With military background in competent based training, the MPL came as no surprise. I would have thought the transition to MPL was overdue.*
- *Following the flawed "more is better" argument, I did initially think that there was a downside for having such little time at the controls of an aircraft. After getting educated on the philosophy of MPL, it clearly has the ability to provide better trained pilots to our airline cockpits.*
- *MPL is the best airlines training solution to improve the quality of the new generation pilots to operate the flight safely and efficiently.*
- *I believe that the MPL initiative is a far more appropriate training platform for the Airline Industry's needs in today's industry. It also allows AOC's to tailor their training program from the first day of training without overly prescriptive regulations, and allows for the implementation of relevant and company specific training needs based on operating data and training performance data (amongst other things). Overall, I believe this is the way training needs to be heading, especially for airlines implementing an EBT training basis.*
- *MPL has been needed in the airline industry since the 1980s and could not arrive soon enough*

2.7.2 Q: Why did you choose to launch MPL within your ATO/Airline? (Select any number of alternatives)

Answer Choices	Responses	
Due to training quality.	78.00%	39
Due to training time.	22.00%	11
Due to training costs.	6.00%	3
Other (please specify in comments).	30.00%	15
Total Respondents: 50		

Written comments

- *My organization perceived a business opportunity to deliver a high-quality training program and provide the airline industry with a pilot applicant whose training and mind-set was oriented to airline operational requirements from the beginning of his/her training.*
- *Training safety.*

- *As a LCC we were not attracting enough local pilots. This was seen as a way of getting well trained local pilots into our cockpits.*
- *To investigate whether there was a better way of doing things.*
- *Quality was a big factor, but as an ATO, any cadet programme where an airline is involved early on in the selection process and makes a conditional job offer will be attractive. It is so rare for an airline to be involved before ab initio training and in the case of our company, they funded about 1/3 of the costs. It is extremely rare for an airline to invest in ab initio training, so their interest in conducting an MPL was an opportunity not to miss. Furthermore, it sits well with our ethos of innovation.*
- *Engaging in MPL program with other operator.*
- *Technically, MPL has not yet been adopted by our NAA, but we have integrated a number of the virtues*
- *To satisfy the huge demand on new pilots still fulfilling the high quality standards.*
- *Integrated CPL/IR with same competency level is much more expensive.*
- *Airline we provided with classically trained frozen ATPL-graduates, approached us to start MPL*
- *Time and cost were never a factor in pursuing the MPL route. It so happened that MPL could take shorter time but cost is not necessary the case.*
- *The training quality is the most important factors and the bi-product is time saving.*
- *Due to training quality and being able to have another source to recruit from.*
- *The program allows for a far more robust training program to be developed that is specific to the airline and considers relevant and up-to-date safety, training and performance data.*
- *Defined requirements.*

2.7.3 Q: Knowing what you know about the different types of initial airline pilot training, which one would you recommend to someone who is hoping to become a future airline pilot today?

Answer Choices	Responses	
A modular route via PPL, CPL and IR	4.00%	2
An ab-initio integrated frozen ATPL	10.00%	5
An MPL training program	80.00%	40
Other	6.00%	3
Total		50

Written comments

- *If done correctly it better prepares for the job.*
- *MPL program is more airline oriented.*
- *It depends on if they are going to fly in the USA or not. The US does not recognize MPL training yet so that is not an option. Other countries I would recommend MPL if cadets can get sponsored by an airline.*
- *Quality of training does not necessary relate to the type of the scheme but relates to ATO.*
- *This depends on the airline. The legacy carriers have two advantages over the LCCs, time and resources. A legacy carrier would typically have a pilot for at least 10 years before command. In this time the candidate will experience most facets of the operation and observe many scenarios. They will also fly with captains who have been with the company for decades and are steeped in the company culture. The resources help in that almost all of the training will be done "in house" by active or recently active company pilots. SOPs will be second nature, manuals will be developed by the same teams and the "company indoctrination" starts on day one. The candidate will also be more likely to stay with the legacy company for an entire career which means they will feed back into the system making it better over time. At the LCCs the training is out sourced. Irrespective of how many briefings, memos and observation flights we organize, the candidate is being trained by someone who may never have flown a jet let alone flown for our company. There will always be a "tainting of the product" because of this lack of cultural experience. Then you add to this the fact that our captains originate from a multitude of nationalities, experience & discipline levels and training backgrounds and that our organisational turnover is higher than a legacy*

airline. The MPL is not as well equipped to deal with this environment as a pilot who joins a company with more experience.

- *The MPL concept today produces a specifically-trained multi-crew pilot and will only evolve into an even better path over the coming years.*
- *But the MPL programme should have a robust "parachute" / failure protection process in place to mitigate against performance issues.*
- *Having graduated 36 MPL cadets and currently training 25 more with many more in the pipe-line, and having trained or being responsible for training well over 100 Ab-initio pilots and a similar number of Airline pilots graduating from Ab-initio conventional courses, the difference in quality of the MPL cadet at the point of entry into the airline is very apparent. The fact that they are already in an airline (if successful) makes them highly motivated to "prove to their Airline" that they are good pilots. Airline supervision of the training at various Phases will also help to heighten this motivation*
- *MPL has shown to be less acknowledged worldwide, and many MPL students has been left in the dark when the associated airline makes a cut back or goes bankrupt :(*
- *The negative sides of MPL, especially the restrictions to be tied to only one operator, do not balance the advantages. I would recommend ab-initio ATPL training with competency based training contents.*
- *For a Pilot with a non-general aviation interest, airline only - MPL is the way. If they have interest in different facets of aviation, Instruction or flying different equipment, ATPL is the general license to provide that need. MPL is not for everyone. Who will teach the MPL Students without FI's? Aviation is too big for just the airlines.*
- *I would like to train the person to be an airline pilot from day one. It does not make sense to take a convoluted route if the option for a direct and better training methodology route is an option.*
- *It's the most modern, efficient and effective form of training. It gives a good level of understanding of the individuals' performance and allows for an early detection of problems/issues that may require reinforcing.*
- *The only license designed for airline ops.*

On the two following questions, every relevant comment were provided to allow EASA to gain a deeper insight into what the MPL experiences has revealed in terms of strengths and weaknesses from the perspective of managerial industry levels. This will include comments made on the MPL concept in general, but also here there are clear traces of the license restriction impact.

2.7.4 Q: In your opinion, what are the weaknesses of the MPL concept?

Answer Choices	Responses
I can not think of any weaknesses.	15.69% 8
I think that there are the following weaknesses...(Please provide information and/or comments in the box below.)	84.31% 43
Total	51

Written comments

- *In EASA it overregulated or not clear in the following areas: 1. the license restriction until successful completion of the IOE Phase with the initial partnering airline leads to unnecessary delays for the MPL graduate to find a job in case the initial partnering airline stops hiring during or at the end of the course 2. Requiring a minimum of 12 T/O and LDGs in BT is not competency based. ICAO allows for a reduction to 6 if the competency is assured 3. Procedure for inner EASA cross border not clear.*
- *CBT take time to perform. It must be a process over time. The focus has to be transformed from the instructors' point of view to a student point of view. The progress you might take with a student always has its starting point in the individual student.*
- *Basic phase should be done on type specific and not generic.*
- *Limited options for graduates - very airline specific. Should that option not work out, the cadets have few other options to pursue. Less real world flying also limits ATC communication abilities and general situational awareness.*
- *The only weakness is that airlines need to face up to the fact that if they expect to meet their future flight crew staffing needs, they are going to have to pay for the majority of the costs of training carefully selected pilot candidates. Being an airline pilot may be a wonderful job but it is a terrible career given the uncertainties associated with the industry.*
- *ATC communication, exposure to real weather, manage with real life traffic management and threat foreseeing, portability of licence (benefit for sponsoring airline though),*

- *The Aviation Authorities are denying approvals for cross border MPL courses, with an ATO sitting in a country and the operator sitting in another one. If the authorities do not change their approach MPL can get compromised.*
- *Lack of confidence building, lack of realism, no jeopardy too relax environment, communication skills lag due to simulator environment restrictions.*
- *There is insufficient time allocated in the MPL program for personal development. A young pilot grows quicker when they have to make decisions (even small ones) by themselves, for themselves. An example: A friend wanted to build hours while undergoing an integrated course. He decided to take his parents on a trip lasting 10 days around South Africa. He had to do everything, including hotel bookings, refuelling and flight plans. Now, while this is not airline specific, he learnt a lot about the integration of the system we call aviation. He also had to make some tough calls when the weather turned sour (he did not have an instrument rating at the time of this flight.) When speaking to MPL candidates, while they carried out some cross country flying, this was all done in a protected and somewhat contrived environment. When the course is outsourced there is a disconnect between the ATO and the airline. No briefing will truly bridge this. One of the aspects of the MPL is training in a multi crew environment. In a true two pilot operation you need a proper gradient. In our experience the fact that both candidates are on the same level detracts from this aspect somewhat. When confronted by a "real" captain some candidates are reluctant to speak up. (This is no different, generally, from our low time integrated candidates. But no definitive step forward in assertiveness has been made.).*
- *Knowing the books and procedures does not make you a pilot, a lot of work need to be done WRT to SA, CRM, leadership and problem solving. Not enough manual flying.*
- *License restriction in EASA - Base training not competency based.*
- *MPL requires tight coordination between ATO, airline and regulator.*
- *Exposure to ATC environments.*
- *ATC Comms practice 2) Phase 2 training must be in a similar type of aircraft.*
- *During training using FNPT II should be exchanged for the type of airline aircraft. eg. A320/B737/ Embraer etc.*
- *Great if the trainee is successful but can be costly if it goes wrong with the only deliverable from failure during the applied phases being 14 ATPL exams.*
- *Sound data collection and analysis Base Training Theoretical training consistent with MPL design and not traditional TK methods Good ISD design with strong ATO QMS.*
- *Lack of / reduced time on 'Live' RT Comms is a big drawback. Asking SFIs in the Sim to keep RT accurate is a difficult but necessary task. Introduction of background RT in the Sim is long overdue.*
- *MPL has shown to be less acknowledged worldwide, and many MPL students has*

been left in the dark when the associated airline makes a cut back or goes bankrupt :(

- *Number of base training landings (min 12) is too high, IOE with only one operator,*
- *Airline business of today is very fluctuating and unstable. During the time it takes for a student to pass through training there might be airlines going bankrupt or in other ways changing. This puts MPL-students in a vulnerable situation and has the potential of rendering the student with a useless training/license. There are also in my opinion threats to the quality of training as the airline business is too cost driven. Risks of exploitation: Airlines using MPL-students as cheap and temporary Pay-to-fly resources without any intention to hire.*
- *My concern is that MPL, if applied as a shortcut, will fail in some instances; therefore, creating a negative opinion and perhaps threatening the future.*
- *Cost of the course and lack of commitment from regulators.*
- *There is little regulation on MPL so ATO can fall in the trap of providing a faster and cheaper course with the lack of vision in the end result. Specifics should be followed regarding the type of training device either more type D for better. Manual flight skills are essential and need to be a training point that has become weak in the last decades in aviation. Not because we use less automation but because statistics prove that it is a working area for safety improvement. Specifics should also be followed regarding the reinforcement of manual flight skills and SPIC flying.*
- *In my opinion the system is too inflexible in licensing issues and therefore sometimes too restrictive for the airlines.*
- *Lack of support from the regulator, business or environmental inhibitions. A successful MPL program needs pillars to support - Financial, Open-minded Authority, Integrated Airline, Qualified Professional ATO Staff and continuous improvement.*
- *EASA: Operator restricted license all: late issue of the license - Student is ready for IOE but has to wait for the authority.*
- *Lack of flexibility for smaller operators. Student is tied to one operator and one type and might face long training and waiting periods. This degrades performance and competencies of the trainee/graduate.*
- *We are not confident about their behaviours under pressure in flight due to lack of real flight training time.*
- *Actually I have only a comment: Not enough emphasis and investment to train MPL Instructors. I am hoping that aviation institutions of higher learning could take on this role to train MPL Instructors to an "industry standard" for Phases 1-4.*
- *If the students fail the Line Training they don't get any Pilot License Students with ATPL frozen should get some credits (TK i.e.).*
- *Not enough time in actual aircraft.*

- *Performance indication may be needed more precise and specific. 2. Balance of student aircraft handling skills (manual flying) 3. Selection process shall be clear enough and more precise. 4. Training course, hours, time for MPL around the world should be similar, needs more studying from IATA and ICAO 5. Phase 3, FSTD shall be more specific 6. "Norm" for assessment requires more explanation*
- *The MPL program during the 4 phases is concentrated on Abnormal procedures; it is better to introduce some sessions in normal procedures in the phase 4 of the program.*
- *Regulators should require airlines to develop and implement thorough screening processes to help ensure that those hired have the aptitude to maintain the highest levels of safety, professionalism, and performance. • Regulator, airlines, and training providers should, in consultation with official pilot representatives of pilot representative associations, develop training curriculums that focus on proficiency and academics rather than hour-based licensing minimums.*
- *Same weakness any low timer would have. Lack of experience etc. That is potentially compensated by a more appropriate training which aims to prepare the student for a multi pilot modern airliner environment in a better way than the old ab-initio fATPL schemes or the modular schemes.*
- *For now, I think the major setback is exposure to real time ATC environment during the training phases. TK needs to be overhauled and the need to introduce relevant subjects to the modern environment. The difficulty in finding Instructors for the conduct of Phase 2 training.*
- *The general lack of regulatory and industry understanding of what MPL is and is not. 2) Prescriptive regulations that inhibit the design process (e.g. arbitrary setting of 240 hours of flight time, or the requirement for a minimum number of solo hours etc).*
- *Regulatory understanding of MPL and lack of updated TK requirements at ICAO level, and better UPRT simulation. Outstanding technical requirement to properly simulate ATC communications in FSTDs, (a continued threat factor in flight operations) and distractor to simulator trainers and examiners.*
- *Legal restrictions on licence, add. Instructor qualification for MPL, increased base training, increased complexity in licence control.*

2.7.5 Q: In your opinion, what are the strengths of the MPL concept?

Answer Choices	Responses	
I can not think of any strenghts.	7.84%	4
I think that there are the following strengths... (Please provide information and/or comments in the box below.)	92.16%	47
Total	51	

Written comments

- *Students are in many ways more prepared for the role as co-pilot in commercial operations.*
- *1 better preparation to successfully handle the challenges of modern Jet Transport operation by developing the necessary competencies on top of the tasks to handle the unforeseen; 2. Better preparation for the job by starting conducting the training in the future airline multi-crew environment earlier during the course (from phase 2 onwards).*
- *As an ATO you may create a much greater ownership in the program. Your tight cooperative work with an AOC will give you and your students a great value in the process creating the FO for the future.*
- *More orientated to airline operation, trainee gets more simulator experience on commercial jet.*
- *Prepares cadets for the FO role, eliminates unnecessary and irrelevant training, thereby reducing costs and training times.*
- *A graduate of a quality MPL program has all of the knowledge, skills, and attitudinal competencies required of an airline pilot and should be able to demonstrate superior performance during IOE and subsequent line flying in comparison to traditionally trained pilots.*
- *Safe ab-initio training setup, usage of advanced FSTD (subject to ATO's device selection), MCC exposure, structured non-tech skill provisions, focusing to core competencies, duration of program, above all revisions of outdated training concepts*
- *Quality, Airline related, Multi Crew in a very early Stage*
- *It delivers a tailored product for each airline, with the aim to meet the needs of each particular airline.*
- *Crew coordination, CRM, airplane knowledge and understanding.*

- *URPT. Integrated course, unbroken by periods "when the money runs out." Company SOPs and airline culture can be introduced early. If done in house, the company "indoctrination" starts on day one by people who know, understand and who are passionate about the company.*
- *Manual flying skills - automation - much longer training on type if the MPL course is designed well.*
- *Early crew training; integrated airline procedures/discipline; potential to maximize learning in FSTD; tight coordination between ATO, airline, regulator - this is also a challenge/weakness if the parties can't come onside.*
- *Thinking the Airline way from an early stage of training.*
- *Familiar with Heavy aircraft handling. 2) Familiar with aircraft type environment.*
- *Airline procedures Get to know the aircraft type rather than waste time on solo flight which is not going to happen in airline operation.*
- *Competency based, learner centred training Focussed on the end game Airline involvement TEM Early development of appropriate attitudes.*
- *Pilot training designed for specific purpose and concentrated to that end state; much like many military pilot training programs.*
- *The amazingly high level of Manual Flying skills (better than a large percentage of Senior F/O's and even Captains! 2. Very conversant with the specific Airline procedures.*
- *Airline involvement and putting their skin in the game early is always good. The job security aspect is also very good. The fact that the cadet is trained for a specific airline, using their SOPs and ethos from the beginning is a strength. Finally, the coherence of the syllabus and the competency based nature are the best strength of all.*
- *Much more focus on Leadership/Teamwork/TEM/CRM and decision making makes the MPL strong, but this can be (should be) a part of any professional pilot training programme.*
- *Competency based grading. TEMa.*
- *Airline oriented training.*
- *Students are trained for and ready for the job when finished training. Strong emphasize on important non-technical skills. If applied correctly, competency based training should in theory reduce the likelihood of substandard performance go unnoticed and an overall improved standard should be achieved. Students can't start training without an airline willing to receive them.*

- *Relevance, ADM development, TEM, SA, applicability to the career of a professional pilot, mandatory UPRT, and pilot selection*
- *Competency is managed and tracked at all phases this removes the weak & poor performing students at an early stage saving time and costs.*
- *It is focused on the end result of a safe and efficient qualified pilot.*
- *Overall good preparation for the future workplace.*
- *Efficient - laser focused on the end goal. Practical - Students are more engaged when they know the goal and have expectations established Modern - multi-crew introduction early on in training better equips Pilots for the modern multi-crew coordinated cockpit of managed aircraft Safe - if solo flight is reconsidered out of MPL and SPIC is accepted, the end result is the same, a confident pilot but a much more safe training environment.*
- *Strictly airline oriented training no waste, lean concept.*
- *Extensive MCC training.*
- *Early adoption of airline SOP's, strong identification with future employer.*
- *Competency-based training and integrated training.*
- *Strong competency-based program.*
- *The Syllabus is an ab-initio from day 1 to the skill test and landings.*
- *There are several but I feel the following are most important: 1. a large portion of manual handling training on the big jets albeit in the FBS or FSS 2. Early introduction to MCC 3. Phase 2 training provides the commercial jet training consolidation which a type rating can never offer even if the student underwent a pre-type MCC course.*
- *Close follow up.*
- *Pilots much better prepared for the Airline requirements Tailored Pilots Faster training time Pilots get their first Job.*
- *Greater utilization of simulator technology which allows trainees to obtain highly relevant training - better preparing them for their future job.*
- *Specific, situational base training.*
- *Good CRM being trained to airline standard.*
- *Pilots Quality to serve the aircraft in the present and the future 2. More knowledge 3.*

Cost benefit concept compare between time and investment in training 4. Direct to airline Pilots only. 5. Reduce the AOC training cost 6. Good training cooperation between ATO and AOC.

- *A measured and structured program. Weakness and deficiencies are captured at a very early stage. Leadership and teamwork qualities are reinforced and identified at a very early stage. The understanding and application of automation in the modern day jet including decision making skills introduced gradually within the different phases.*
- *According to IATA (2011), airline pilots require 3 basic competencies: • Technical • Procedural • Interpersonal All have to be equally developed, with interpersonal competency increasingly becoming more important in modern aircraft. Whereas pilots from the early days were concerned about aviating, navigating, and communicating – a mantra that has held well over the years – modern pilots are faced with additional critical tasks, for example systems management. In addition, on modern multi-crew flight decks, non-technical (cognitive and social) skills have been deemed essential for improving the safety and effectiveness of flight operations.*
- *Training is purposeful and gives students a good preparation for working in a modern airliner.*
- *It prepares the students far better for entry into their first airline job and gives them a more focused and well refined set of core competencies and a more appropriate and fine tuned skills set. 2) It allows the airline to truly tailor the training program to meet the needs of the airline.*
- *Total airline focus from the start Minimum negative training on light aircraft Immersion in multi-crew in FSTDs TEM embedded Competency based Reduction in latent pathogens from irrelevant learning at the start of flying training UPRT as a requirement (still to be properly addressed)*

3 - Discussion

It is important to point out that ICAO Annex 1 and PANS TRG have no MPL license restriction in force and that this restriction is related to the EASA MPL regulations. As this paper was created, the following can be read in the EASA Part FCL Appendix 5, §2:

*“Approval for an MPL integrated course shall only be given to an ATO that is part of a commercial air transport operator certificated in accordance with Part-ORO and the applicable air operations requirements or having a specific arrangement with such an operator. **The license shall be restricted to that specific operator until completion of the airline operator’s conversion course**“*

In review of both qualitative and quantitative data on the MPL presented in this paper and in specific relation to the EASA MPL license restriction, more than one perspective can be applied. The original purpose for the license restriction may have been to protect the MPL concept from being exploited or misused if the training would have been initiated by other parties than the airlines. This may have been related to consensus in that the MPL is and should be an airline driven endeavour.

From another perspective it is clear that not every MPL experience has been troubled by the issue of the EASA MPL restriction. In fact there are no issues as long as the initial operator continues to train and hire the MPL cadets that have been recruited for the training. However, when there are issues and the initial operator for any reason decides not to provide an IOE-period for the MPL cadet – the problem becomes very clear. Based on industry experience, such reasons have so far been related to both economical and organisational challenges, and given the very nature of the aviation industry it should not be seen as a surprise that such occurrences appear and will continue to appear.

It is beyond any doubt that the EASA MPL license restriction has had a significant negative impact on the perception of the MPL at all levels in the industry, especially the MPL students and MPL graduates who have suffered from the consequences of this, as the MPL survey data shows. This restriction has created impediments to the implementation of the MPL, as everyone from states and operators to the pilot cadets are showing hesitancy towards the MPL because the restriction substantially limits their flexibility. It has created a situation where a fully trained pilot with an approved type rating on a specific aircraft type is unable to use his or her qualifications to work for a different employer – even when that employer is in need of recruiting pilots.

The MPL need to be competitive when compared with the existing alternatives of becoming a professional airline pilot today. It was industry consensus that lead to the discussion on alternative training paths and eventually to the MPL. In parallel, the industry is moving towards the concepts of competency-based training and evidence-based training, and these are the concepts that the MPL draws its very training foundation from. If these training concepts

are seen as providing better prepared pilots to the industry the question then remains why there are no equal license restrictions on the traditional CPL/ME/IR.

A question that has been raised is that of the potential misuse of the MPL concept if the restriction is removed. However, the risk of misuse is unlikely since the existing requirement of a host airline to start the program remain unchanged even if the restriction is removed.

It is the involvement of an operator during course design and conduct of training that makes the MPL training targeted towards a defined end goal while using the elements of competency-based training to also tailor that same training to the individual cadet needs. As the data and experience have shown there are other aspects of the MPL that calls for improvement but none of them are related to the license restriction.

During the work with this paper some operators have been asked how they view the possibility to hire MPL pilots coming from a different MPL training program than the one they are currently recruiting from. The answers have been that this would not be a great challenge. What would be needed for this is a detailed description of the other MPL program so that the operator could tailor a suitable conversion course.

4 – Concluding recommendations

When combining the MPL data and industry views in the form of written comments and interview responses – it is clear that the MPL license restriction within EASA has had a harmful impact on the perception and development of the MPL. At the 2015 European Aviation Training Symposium held in Warsaw 3-4 November there were even industry voices heard during the presentations saying that if the license restriction is not removed soon, this will be the beginning of the end of the MPL (O’Shea, 2015; Sproul, 2015).

Based on the collected data presented in this paper and the arguments based on this data as per above, the recommendation for EASA is to remove the MPL license restriction.

Appendix 8 – MPL Checklist



Attachment 2–Checklist for MPL Courses

Operators/ATOs can use this checklist to assess the success-critical areas of an MPL program.

Key program elements		Answers
ISD process	Done in house or consulted external expertise	
English language proficiency	How is it assured / assessed	
QMS / SMS	developed / approved	
All other course documentation (OM / TM)	developed / approved	
PAT	Who is responsible	
	Which institution performs the PAT	
	IATA PAT Manual in use	
Instructors, especially for Basic Phase	Licenses and ratings, availability	
	Experience in multi-crew environment, standardization	
Grading System	Core Competencies used for grading (for example ICAO Doc 9995 – EBT or existing Core Competencies from operator)	
	Grade sheets for MPL training course harmonized with grade sheets from Base Training and IOE	
	Grade sheets harmonized for all Phases of MPL training course (Core flying skills to Advanced Phase)	
MPL Learning Management System	Computerized database in place to continuously: <ul style="list-style-type: none"> Record student performance in all MPL phases and IOE Report training outcome Facilitate learning Validate the <i>NORM</i> Validate behavioral indicators Evaluate and improve course quality 	