REVIEW OF PROGRESS IN THE MILITARY AVIATION AUTHORITY (MAA)

REPORT BY THE 2014 MAA EXTERNAL AUDIT PANEL (MEAP 14)

SUMMARY

During 10-21 November 2014 an external audit team examined the Military Aviation Authority (MAA) looking at its effectiveness as a regulator. A prior external audit in 2012 had sought to determine progress made on implementation of seventy-six specific recommendations made by Mr Justice Haddon-Cave in The Nimrod Review. That audit identified that most of the recommendations were implemented but that some areas were still to be delivered and that there were a number of risks to their delivery. MEAP 14 was asked to review implementation of the few remaining recommendations and the risk areas. MEAP 14 was also charged with assessing the effectiveness of the MAA as a regulatory body for air safety. MEAP 14 found that the MAA is an effective air safety regulatory body, fit for purpose in its current role, with the opportunity to improve further as it continues to develop. We are satisfied that the remaining Nimrod Review recommendations have been implemented as intended, and that the risks identified by MEAP 12 have been addressed, although some of them may always persist. The report provides additional comment and recommendations on how to continue to address these and other areas.

1.0 KEY FINDINGS

1.1 MEAP14 finds that the MAA is an effective air safety regulatory body and fit for purpose for its current role.

1.2 There is evidence of strong, effective and respected leadership in the MAA, provided within a suitable organisational and command structure and undertaken with appropriate levels of operating independence and powers that are essential to their regulatory role and responsibilities.

1.3 The MAA staff work cooperatively as a team and demonstrate professionalism and commitment, at all levels of the organisation, to create and encourage a positive air safety and just culture, behaviours and outcomes in the regulated community. The MAA staff are clearly focussed on a common air safety goal and delivering success for the MAA and the air domain.

1.4 The organisation's regulatory philosophy, style and culture is risk facing, free of inter-service bias, evidence based, predominantly proactive and increasingly collaborative with its regulated community.

1.5 There are however, significant pressures bearing down on the MAA, mostly in the area of human resources in terms of staff recruitment and retention risks and the availability of Suitably Qualified and Experienced Personnel (SQEP), and in some other areas, there are less than refined and comprehensive operating processes. Future challenges lie ahead for the MAA as the new Defence Safety Authority (DSA) is established. There is a possibility of the MAA's regulatory role, remit and culture being re-defined, with a potential threat to its current identity and successful regulatory outcomes and levels of effectiveness and performance.

1.6 MEAP 12 set an excellent baseline from which the MAA could chart their progress made against the recommendations set out in the original Haddon-Cave report and to develop their operations further. MEAP 14 found clear evidence that the MAA has fully embraced those recommendations and completed most of them since MEAP 12.

1.7 MEAP 14 foresee the value of undertaking an external audit within 5 years of this audit, so as to establish further progress made by the MAA and to assess its continued effectiveness within a larger DSA organisation.

2.0 CONTEXT

2.1 The audit supports the MAA's Charter[1], which states that: *"The Military Aviation Authority shall be subject to periodic audit by a competent external agency to ensure compliance with this Charter"* and the MEAP 14 was established to comply with the Charter and to conduct an external review of the progress made since the last external audit (MEAP 12).

2.2 The terms of reference (ToR), included as Annex A to this report, provided by the Director General (DG) MAA charged MEAP 14 to examine and report on three key areas:

a. The MAA's effectiveness as a Regulator based upon its six Assurance Principles (risk-based assurance, minimal regulatory burden, independence, a proportionate sanctions regime, optimization and feedback).

b. The progress of the MAA in taking forward those areas that were considered to be residual work-in-progress by MEAP 12.

c. Provide an update on what the MEAP 12 considered to be areas of residual risk.

2.2 Additionally, the ToR requested MEAP 14 assess the appropriateness of a modified version of the Key Success Factors of the UK Regulators Code[2] as the standard against which the MAA's performance is measured and make recommendations as to whether this is an appropriate standard to be used for future Audits.

2.3 Membership of the multi-disciplinary international team of the MEAP 14 was drawn from key institutional bodies where independent and relevant regulatory expertise exists. The MEAP 14 was supported by a dedicated Military Advisor and an MEAP Project Office with staff provided by the Ministry of Defence. The MEAP 14 Members are as follows:

a. Mr Harry Daly – Programme Head, Policy Programmes Team, Civil Aviation Authority (CAA) – Chairman of MEAP 14.

b. Dr John Rowe - Head of Operations for Health and Safety Executive (HSE) in Yorkshire and the Humber, HSE.

c. Mr Dave Cripps – Deputy Director, US Army Aviation and Missile Research Development & Engineering Centre Aviation Engineering Directorate (AMRDEC - AED).

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[1] Charter for the United Kingdom Military Aviation Authority signed 31 Aug 10.
[2] Regulators' Code - BRDO/14/705 Published Apr 2014. Department for Business Innovation and Skills, Better Regulation Delivery office.

d. Ms Sarah Smith – Deputy Chief Executive, Better Regulation Delivery Office (BRDO), Department for Business Innovation and Skills.

e. Capitaine de Frégate (Commander) Nicolas Bergamotto, Direction de la Sécurité Aéronautique d'État (DSAÉ) – French Military.

f. Wing Commander Jon Hough – Military Advisor, Royal Air Force (RAF).

3.0 APPROACH

3.1 MEAP 14 used the six Assurance Principles found in MAA01 to assess the MAA's performance as a regulator. Additionally, MEAP 14 utilised a version of the UK Regulators' Code specifically modified by the MAA for use within the Defence context.

3.2 The UK Regulators' Code was issued by HM Government in April 2014, under the provisions of the Legislative and Regulatory Reform Act 2006. It provides a flexible, principles based framework for regulatory delivery that supports and enables regulators to design their service and enforcement policies in a manner that best suits the needs of businesses and other regulated entities.

3.3 The MAA is not obliged by statute to follow the provisions of the Code, but recognise its value as a framework for effective regulatory delivery.

3.4 The six assurance principles of MAA01 and the UK Regulators' Code's six key success factors guide and inform regulators on how best to regulate; however, neither accounts for whether the regulated function itself is accomplished. In other words, the assurance principles and the key success factors do not discuss ***what*** is regulated, but rather addresses ***how*** the regulatory functions are performed. Consequently, this report will provide conclusions and evidence of the degree to which the regulatory aims of the MAA are achieved in addition to how they are being achieved.

3.5 MEAP 14 took a broad view of the MAA across all of its activities; its internal interactions, its interactions with other regulatory bodies and its relationships with the regulated community. The audit team had full access to MAA documents and its staff. The team also had access to the full range of regulations, instructions, operating procedures and plans. However, the audit devoted the bulk of its time to face-to-face interviews in order to understand the culture of the organisation and its people and how this played out in its relationships and interactions with the various regulated communities.

3.6 The audit team interviewed and received presentations from the Director General, his two Directors and the three Heads of Department with responsibility for the three Groups within the MAA. Staff from across the organisation were questioned on issues relating to their areas of expertise – this included the regulatory articles, the strategic and operational planning functions, training, auditing, air safety culture, certification, Design Approved Organization Scheme (DAOS), Maintenance Approved Organization Scheme (MAOS) and Contractor Flight Approved Organization Scheme (CFAOS), Air Safety Information Management System (ASIMS), etc. The MAA staff were very professional and knowledgeable about their areas of activity and how their efforts contributed to the overall MAA mission. The MEAP 14 also took evidence from representatives of the regulated community, including Defence Equipment & Support (DE&S) project leads, Operating Duty Holders (ODHs) and Delivery Duty Holders (DDHs) at operating

bases and their staff. The audit team was also able to interview private businesses regulated by the MAA through the DAOS, MAOS and CFAOS schemes. All of these organisations were keen to participate in the audit process and share their views. A full listing of the individuals and organisations interviewed is contained in Annex B to this report.

3.7 A member of the audit team observed a planned oversight audit by the MAA of a Continuing Airworthiness Management Organization (CAMO). Observations regarding this audit are presented in Annex C to this report. Additionally, a visit was made to the Military Air Accident Investigation Branch (MilAAIB) to explore relationships between that body and the MAA and the Ministry of Defence (MoD) which confirmed the continuing validity of those relationships.

3.8 The MEAP 14 had a full, open and honest interaction with all MAA staff interviewed and the same positive characteristic was evident in interviews with representative parts of its regulated community and industry. From this, MEAP 14 is able to identify some important areas, where performance enhancements can be made and the effectiveness of the MAA enabled to take another step forward. The enhancements proposed are addressed in detailed recommendations in this report, but centre mainly around MAA processes relating to strategic planning, the optimum use of safety data and the development of a suitable outcome evaluation and review process to determine if the desired outcome was actually achieved as a result of a regulatory intervention made by the MAA.

4.0 OBSERVED PERFORMANCE OF THE MAA AGAINST THEIR ASSURANCE PRINCIPLES

As part of its basic operating framework the MAA adopted Hampton principles to underpin the organisation and its means of regulating air safety. MEAP 14 assessed the MAA against these six Assurance Principles. Additionally MEAP 14 was fully apprised of the recent recognition of the UK MAA by the French military airworthiness authority as a responsible and competent continuing airworthiness and aircraft maintenance regulator. Further, MEAP 14 was fully apprised of the recent UK MAA recognition by the United States Department of Defense National Airworthiness Council as a responsible and competent airworthiness and air safety regulator. This combined with the evidence collected supports the conclusion that the MAA is effectively executing its responsibilities as described below.

4.1 ***Risk-based assurance*** – MEAP 14 witnessed ample evidence indicating the pervasive presence of risk assessment and subsequent use of that assessment in the application of MAA resources in pursuit of its responsibilities. The MAA has established and continues to mature an Air Safety Dashboard (ASD) system that presents a *rich picture* of the total risk of each regulated organisation. The MAA utilises the ASD assessments to prioritise its efforts in its MAA Output Plan. A typical use of the ASD assessment of a given organisation is the scheduling of recurrent audits more or less frequently based on its risk assessment.

a. The risk assessment of any particular regulated entity is adjusted by MAA desk officers based on objective measures but makes provisions for subjective adjustment when the situation dictates (e.g. when multiple modestly low objective measures that individually may not indicate overall risk but when aggregated potentially indicate a trend). MEAP 14 concluded that MAA desk officers take this responsibility very seriously and are acutely aware of the implications of the assessments they post. Use of a risk assessment

methodology that remains predominantly objective in nature will be key to maintaining acceptance within the regulated community.

b. The use of the ASD within the MAA is well established and becoming routine, however its availability and use within the regulated community is only just beginning despite a strong appetite for access. Each Duty Holder interviewed expressed desire for a completely transparent ASD with unrestricted access to all ASD assessments and supporting information for all regulated organisations to permit learning and improvement across the regulated community.

c. There remains concern within the regulated community that the initial publication of Regulatory Articles (RAs) largely rewrote previous regulations into the new RA format without first ensuring that only those regulations which serve to mitigate risk to life were retained. There was also a recurring concern within the regulated community that audits are broad reaching and not necessarily focused on the areas where greatest risk to life may be present.

d. Though by and large the MAA has internalised a risk-based approach to regulation of air safety, opportunity for continued improvement remains and constant vigilance will be required to ensure that all regulating activity is focused on specific risk mitigation.

4.2 ***Minimal regulatory burden*** – When initially established, the MAA took a firm hand in somewhat autocratically emplacing policy, procedures and RAs without input from the regulated community, who perceived the regulatory burden to be excessive. The MAA has now significantly modified its approach, engaging the regulated community early on and continually through the RA development and implementation process in an attempt to both focus on areas of greatest risk to life and to reduce, where appropriate, the overall regulatory burden on the regulated community.

a. MAA procedures require the MAA to develop an assessment of the impact of any proposed RA on the regulated community, and the regulated community are given opportunity to comment on proposed RAs. However, a specific method for assessing impact is not prescribed, resulting in a variety of approaches that do not have universal acceptance.

b. One particular aspect of how regulatory compliance provides a burden difficult to support within the regulated community as well as the MAA itself is associated with Suitably Qualified and Experienced Personnel (SQEP). Establishment of specific SQEP requirements for key positions within the regulated community places challenges on the regulated entities and the MAA as well as on the MoD's personnel management system. SQEP is foundational for the overall integrity of the air safety culture, and remains a challenge to the Defence air domain and to some extent to industry as well.

c. The overall regulatory burden within the regulated community may be disproportionate in smaller organisations, as the compliance effort consumes a much larger percentage of total organisational resources than in a larger entity.

d. The MAA has keen recognition of the burden that regulatory compliance generates on the regulated community and has made great strides in establishing procedures for limiting and potentially reducing that burden. Opportunity remains for continued progress in this area.

4.3 ***Independence*** – The MAA has undergone a cultural shift from a somewhat "distant" regulator focused on regulatory compliance alone when it was first established to now a more engaged regulator focused on enabling success within the regulated community. Gone are the days of merely determining compliance, transitioning to a growing culture of early and continued engagement and support until compliance is achieved. This trend is positively received within the regulated community and has generated a strengthened sense of shared ownership of positive outcome, enhancing the air safety culture within the Defence air domain. This organisational "personality" of engaged and supportive regulator which holds regulated entities accountable for compliance but supports their achieving compliance should be maintained and strengthened.

4.4 ***A proportionate sanctions regime*** – MEAP 14 was presented ample evidence of the presence of a sanctions regime that provides proportional response to indicators of nonconformity within the regulated community.

a. Engagement with subjects of audits prior to the conduct of the on-site audit defines the scope of the audit and sets the expectations of both the MAA and the organisation being audited. The use of Corrective Action Requirements (CARs) as the primary means of communicating non-conforming findings to the audited entity is well understood and affords the opportunity for establishment of a supportable scheme for achieving compliance. When an organisation either fails to establish its corrective action plan or fails to meet its plan, cautionary letters elevate the level of attention to more senior leaders within the MAA and the regulated organisation, and has thus far been sufficient to stimulate compliance.

b. The use of revocation of organisational approvals has heretofore not been required, so it remains to be seen about the effectiveness of that provision as an approach to achieving compliance. Competing issues regarding contractual obligations and operational concerns may pose a challenge to whether these sanctions can actually be imposed. Fortunately, lesser sanctions have thus far been sufficient to achieve regulatory compliance.

4.5 ***Optimisation*** – The MAA is actively engaged with the DE&S and Duty Holders to seek continual improvement of the overall Defence air safety programme.

a. As discussed in paragraphs 4.1 through 4.3 above, cultural shifts within the MAA itself have changed following the initial somewhat autocratic establishment of the MAA. The net result is a more positive engagement with the regulated community, achieving better compliance and an enhanced air safety culture in the Defence air domain.

b. The UK MAA has been a driving force in the advancement of significantly increased cooperation with the civil aviation regulators and with other foreign national military airworthiness authorities. MAA leadership within the European Defence Agency's Military

Airworthiness Authorities' Forum in the development of a common set of airworthiness requirements as well as developing processes for recognising foreign military airworthiness authorities in much the same fashion as the MAA recognises civil approvals and certifications issued by the UK CAA. There remains opportunity for significant savings in aircraft acquisition and certification costs and timelines by development of specific procedures that leverage the recognition of foreign military airworthiness authorities.

4.6 ***Feedback*** – MEAP 14 observed several specific provisions established by the MAA for encouraging and internalising feedback from the regulated community.

a. The MAA utilises a system of Notice of Proposed Amendment (NPA) and Notice of Authorized Amendment (NAA) to provide engagement with the regulated community to gain input. That process is viewed as very successful within the MAA itself, but the regulated community is still gaining confidence that its voice is being heard and heeded.

b. The MAA Operators' Council (MOC) is a senior level stakeholder forum for the discussion of the MAA's activities, its findings and any current issues. The MOC is widely recognised as a fruitful and effective forum, and opportunity exists for greater engagement through similar forums at lower organisational levels.

5.0 OBSERVED PERFORMANCE OF THE MAA AGAINST THE KEY SUCCESS FACTORS

When initially established the MAA sought to drive the change in safety culture so that its engagement with the regulated community was initially quite autocratic. This was intentional and appropriate at the time, as the MAA was charged with a daunting responsibility to establish itself, restructure existing regulation into a new more appropriate format and organisation, and make a profoundly positive change in air safety culture. MEAP 14 found that as the organisation has matured and as the air safety culture has improved, the MAA's approach to engagement with and support of the regulated community has changed to a much more consultative approach. MEAP 14 has the following observations.

5.1 *'Regulators should carry out their activities in a way that supports those they regulate to comply, grow and develop capability'.*

a. The Senior Leadership Team of the MAA is clearly focused on delivering a regulatory regime that is risk facing and operationally focused, and they are acutely aware of front-line needs.

b. The MAA does not currently have a systematic approach to measuring the impact of its regulatory activities and how these activities contribute to achieving its stated outcomes.

c. The MAA has implemented an approach to regulation that emphasises consistency sometimes at the expense of risk-based tailoring to suit the performance of a particular regulated body, which may impose a disproportionate burden on different members of the regulated community. An example of this is the detail and rigor necessary for expositions supporting organisational approval of a small organisation or company lacking infrastructure to prepare the lengthy exposition.

d. Early versions of the RAs were written without engagement with the regulated community. The vast majority of the initial RAs were previously existing regulation rewritten into the new format and regulation hierarchy. The current trend emphasises engagement with the regulated community, which is having a positive impact and effect. With additional familiarity of the process of proposing and implementing new RAs and modifications to existing RAs both within the MAA as well as within the regulated community, a greater sense of ownership and willingness to comply will likely result.

e. At present some regulated organisations feel burdened by the volume of regulations and feel impotent to do anything other than reluctantly comply to the best of their ability. While it is acknowledged that most RAs are previous regulations rewritten into current RA format, the realization that compliance is being enforced by the MAA presents challenge to some organisations that perceive themselves to be understaffed for full compliance. For some companies, compliance comes at a considerable cost in terms of manhours of labour to prepare evidence of compliance or expositions, the cost for which may not be recoverable under existing development or procurement contracts.

f. Despite the perceived regulatory burden, there are members of the regulated community who enjoy greater resources than others and are therefore able to accommodate and then recognise the positive value of having undergone compliance.

g. "Do it right now, versus do it right!" provides a good synopsis of transition of MAA from its inception to its current approach. On stand-up, a profound sense of urgency to establish the MAA and its initial body of regulations persisted. The current leadership focus is to refine the regulations to be more effective and efficient. Some aspects of current RAs carry forward prior regulation that may not be directly linked to reduction of risk to life. Additional effort will be required to continue to examine current regulation to eliminate those aspects that do not directly contribute to accomplishing the vision of assuring air safety (i.e. risk to life).

h. The regulated community's confidence in the MAA's ability to regulate and assist continues to grow.

i. The MAA has a profound appreciation for the concept and practice of SQEP, which may sometimes be challenged by the routine turnover of military and civil service personnel alike. However, staff turnover has a positive effect too, in that new and current operational experience is drawn into the MAA to keep it fresh, progressive and relevant, and those staff moving on take the MAA air safety philosophy and knowledge of RAs back into Operational Units to underpin their understanding, collaboration and compliance. The MAA should closely monitor trends in personnel turnover to ensure both SQEPness and consistency of support to the regulated community.

j. The MAA has committed a comprehensive approach to training and development of its staff, which has positive and productive outcomes. This activity should continue and be enhanced in the area of core regulatory skill sets.

k. Some frustration exists within the regulated community regarding the lack of continuity of desk officers working specific issues. This may introduce a learning curve, which can compromise MAA's agility and reactivity to approaches from the regulated community.

l. The MAA staff clearly understands its regulatory responsibilities and the principles of good regulation. The MAA training regime for its staff underpins this awareness strongly and should continue to inform personal objectives set in annual reports.

m. Observation of the Apache CAMO audit revealed the MAA had a keen intent on successful outcome of the audit and was strongly assistive of the applicant's compliance efforts. Expectations were established early on, and recommendations for improvement were provided throughout the process. A full description of the observed CAMO audit is presented at Annex C to this report.

5.2 'Regulators should provide simple and straightforward ways to engage with those they regulate and hear their views'.

a. There was strong evidence of a growing culture of dialogue and engagement with the regulated community that has been led from the top of the MAA. This is recognised and supported by the regulated community, particularly by the Operating Duty Holder (ODH), the Delivery Duty Holder (DDH) and the Duty Holder-Facing organisations.

b. There was evidence of growing effective engagement with DE&S project teams – this is most valued by all parties when the engagement happens at the early stage of a project, enabling a more strategic, proactive and timely approach to managing regulation and risks.

c. The formalised approach to 2-Star level staff through the pre-audit briefing and out briefing is highly valued by all parties and further demonstrated the MAA's commitment to engagement.

d. The 'Air System Safety Working Groups' were well regarded by MAA staff and all external stakeholders as an efficient and effective way of engaging on important issues.

e. The MAA hosts various forums to hear the voice of the regulated community. The MAA Conference, on the subject of Mid-Air Collision, was a good example of broad stakeholder engagement with interest and participation strong.

f. Small businesses regulated by the MAA felt less able to engage and influence the MAA. Some perceive a multi-layered and unequal approach to engagement, but the MEAP14 found no evidence to confirm this in reality. Rather, MEAP 14 observed a consistent approach to engagement regardless of the size of the business.

g. The NPA/NAA process is designed to promote engagement with the regulated community in the regulatory development process. While this approach offers opportunity for the regulated community to share in the formulation of RAs, some within the regulated

community perceive that once the NPA is published, they may only be able to make small adjustments to the proposed language. Earlier involvement in the initial drafting of proposed language may be beneficial in gaining acceptance from the regulated community and improve the product and outcome.

h. Some regulated organisations perceive that the measure of impact of implementation on the regulated community is not fully understood and that a consistent model for assessing impact may not be utilised. Perhaps a more comprehensive form of cost-benefit analysis should be developed and should precede approval of any proposed regulatory change to anticipate and recognise the total impact of implementation.

i. The MAA utilises CARs, amongst other potential sanctions, to advise the regulated community of non-compliance, relying on the regulated body to propose a plan for remedying the non-compliance. The MEAP 14 consider this to be an effective approach and tool.

j. While an avenue exists for the regulated community to propose alternative acceptable means of compliance (AAMC) to a particular RA, there appears to be no formal mechanism for reconsideration after disapproval of the request for AAMC should the applying organisation feel their request was not fully understood. This situation has, however, not been identified as overly problematic by the regulated community.

5.3 *'Regulators should base their regulatory activities on risk'.*

a. The MAA has committed significant resource to planning and analysis of data and other intelligence on risks.

b. The MAA is utilising a systematic approach to understanding and mitigating risk through adoption of the 'bow-tie' methodology, which is a current and appropriate approach used by many safety regulatory bodies. The MAA is encouraged to retain this approach and process.

c. The MAA maintains and is deploying a maturing Air Safety Dashboard (ASD) system to present and understand a "rich picture" of risk of the regulated community.

d. The ASD informs the MAA Output Plan to assist in prioritisation of MAA effort to apply available resource to the highest priority (i.e. risk) activities. There is clear evidence that from the ASD appropriate interventions are being conducted based on overall risk.

e. The MAA's selected framework is well-understood by the regulated community, and absence of pushback indicates tacit satisfaction.

f. Despite having a rubric for risk-based prioritisation, the MAA does not blindly adhere to it. Rather it appears to be adjusted for efficiencies as well as for reasoned and reasonable judgment.

5.4 'Regulators should share information about compliance and risk'.

a. The reporting system is well understood by Duty Holders. All Stakeholders in the MAA and regulated community have broadly aligned views on how the user experience could be enhanced.

b. The MAA should consider how it might better share its ASD with individual regulated entities. The regulated community has this appetite and is anxious for access to the ASD. Several senior leaders within the regulated community expressed interest in their and other organisations' data be accessible by all to enable better transparency and understanding of challenges and solutions facing other organisations.

c. There is evidence that continued improvement can be made in terms of better use of existing data. As an example, it was reported by many organisations in the regulated community as well as by the MAA itself that as much as 30% of audit effort may be repetitive of other audits conducted by other elements of the MAA (e.g. review of the same overarching supporting documents within the organisation for different purposes). This is even further exacerbated when ODH staffs conduct their own audits of DDH organisations in preparation for upcoming MAA audits. A shared access database of what specific aspects and documents for each regulated organisation were previously audited, with the audit findings and any resultant CARs and their remedial actions, would go a long way to resolving this situation.

d. MEAP 14 was presented information about data analysis in support of developing a rich picture of each regulated organisation's risk. However, it appeared that there may not be a systematic process for the analysis of data on a recurring basis. Rather, it appeared to be somewhat ad hoc and event driven to better understand only certain discrete events. Even in those instances it appears that a "one off" analytical approach was used for each case. There was no information presented to indicate use of a common set of analytical tools. The MAA should examine the extent to which it utilises a common set of analytical processes and tools, able to be tailored to specific instances, in order to facilitate not only investigation of unique instances but also to analyse trends that may develop.

e. The two immediately preceding points combine to a predisposition for solicitation of new data when confronted with an emerging situation rather than an ability to peruse extant data and apply existing analytical tools whose results are already understood and accepted within appropriate bounds.

f. The MAA appears to be moving positively toward closer harmonisation between the military and civil regulators (nationally and internationally), though this is still a developing effort. While there has been considerable progress made in assessing and recognising other foreign military authorities, an understanding of how to make best use of these recognition efforts to achieving real savings in time and money is still a work in progress. This movement is to be encouraged in the MAA.

5.5 *'Regulators should ensure clear information, guidance and advice are available to help those they regulate meet their responsibilities to comply'.*

a. The MAA web-site is a rich resource and source of information and guidance. Continued use and expansion of this resource is strongly recommended.

b. While on its inception, the MAA placed limitations on providing advice or recommendations to the regulated community (in order to maintain independence), there is now a growing appetite for this kind of assistance from the MAA within the regulated community to achieve the mutual goal of compliance, including increased assistance with how to succeed. There is opportunity for continued growth in this area.

c. The MAA provides a rich assortment of training that affords relevant information directly to the regulated community, which almost unanimously applauds the training provided.

d. Published RAs, available on the internet, clearly differentiate between the rationale, regulation, acceptable means of compliance and guidance material, though in some instances the linkage of the rationale to reducing a particular element of risk to life is not clearly articulated.

e. While the NPA/NAA process and various forums provide opportunity to "hear the voice of the customer", there was no clear evidence observed about the degree to which customer feedback was accepted for integration into proposed RAs resulting in regulation better meeting customer needs and limitations.

f. The regulated community appears to be comfortable in approaching and seeking the views of the regulator without fear of repercussion.

g. Inclusion of the CAA subject matter experts in audits greatly enhances the regulated community's confidence in the MAA's advice, decision making and its effectiveness.

h. The regulated community recognises and appreciates the consistency of responses from the MAA, though sometimes at the cost of timeliness and reactivity.

i. There is an opportunity for better coordination with other regulators in order to achieve a reduced burden on the regulated community. An example of this is when CAA and MAA regulate the same activity of a member of the regulated community, such as a company that produces civil and military aircraft, systems or subsystems utilising a common set of internal processes and procedures.

5.6 *'Regulators should ensure that their approach to their regulatory activities is transparent'.*

a. MAA01 provides a clear definition of what the regulated community should expect from the MAA.

b. All current regulatory material and publications are prominently posted on the MAA's public facing web site. (Note: there is a slight concern expressed by the regulated community of the transition of the current MAA website to the ".gov" website and format).

c. It is apparent that the close supervision of MAA officers, as well as recurring employee performance ratings, ensures that MAA personnel act in accordance with the vision and principles of the MAA.

d. There was no direct evidence of key performance measures or metrics for how the MAA is meeting the objective of enhanced air safety. Practically everyone interviewed expressed a "feeling" that the air safety culture was more prevalent and that air safety within the Defence air domain had been significantly enhanced since the establishment of the MAA, however none could provide tangible evidence to support their strong held opinions. As enhanced air safety is the ultimate aim of the MAA, development of appropriate metrics to demonstrate status is strongly recommended.

6.0 MEAP 12 OBSERVATIONS – RESIDUAL WORK IN PROGRESS

Each of the six Haddon-Cave recommendations determined by MEAP 12 to be residual work in progress two years ago were examined by MEAP 14 and assessed to be implemented as intended. Their full implementation reflects strong commitment on the part of the MAA, essentially completing the establishment of an organisation fit for regulation of Defence air safety. Some aspects of these, like some aspects of the seventy recommendations determined by MEAP 12 to be already implemented, will necessarily continue to mature as noted below.

6.1 *Rollout below Duty Holder level of the appropriate training in airworthiness management and regulatory skills*: From the evidence presented and discussions with the regulated community, whilst this work will remain ongoing, MEAP 14 is satisfied that this action is complete. However, some operational personnel expressed concern that air safety culture and just culture (as well as duty holder concept and risk management) needs further emphasis in ab-initio and in recurrent career training for all military personnel, not just for the classes taught by the MAA.

6.2 *Further embedding the new arrangements for error reporting and analysis*: MEAP 14 noted the major advances made in embedding ASIMS throughout the regulated community and acknowledges that whilst continued improvement will be ongoing, this action is satisfied. MEAP 14 was informed that access to ASIMS by industry was patchy, which somewhat impedes complete and timely reporting. Continuing effort should be made to ensure unhindered access to the reporting system, and MEAP 14 recommends that the MAA should consider hosting ASIMS on the World Wide Web or even developing a smart phone app for submission of reports.

6.3 Reinforcing the *single safety case and risk management system across the air safety domain*: MEAP14 is satisfied that this work is complete.

6.4 *Creating coherent flight safety management across the three Services*: MEAP 14 is satisfied that this work is complete.

6.5 *Clarifying project team responsibilities and interfaces with others who have air safety responsibilities:* MEAP 14 is satisfied that this work is complete.

6.6 *Continuing to address aircraft ageing and legacy aircraft matters through the new Continuing Airworthiness Management Organization (CAMO) arrangements:* MEAP 14 is satisfied that this work is complete.

7.0 MEAP 12 RISKS IDENTIFIED – PRESENT STATUS

Each of the five risks to full implementation of the Haddon-Cave recommendations identified by MEAP 12 were examined by MEAP 14 to determine if the risk persisted or had been successfully mitigated. There was clear evidence that the MAA had sought to address each of the identified risks, but the nature of some of the risks is such that they will likely remain somewhat indefinitely. Additionally, the upcoming establishment of the DSA has introduced potential that some of the previously identified risks will remain.

7.1 *Department stops short of full implementation of Haddon-Cave recommendations.* MEAP 12 noted a risk associated with staffing levels at 70% of cadre. MEAP 14 do not consider that total resource levels continue to be a risk. While the staffing level has improved somewhat, there was evidence that staffing continues in the main to be as was initially sourced at the establishment of the MAA despite some areas within the MAA having increased workload over that which was anticipated. However, MEAP 14 do recommend that the MAA continually review whether resources are properly aligned with tasks representing the greatest risk to life rather than relying on legacy personnel manning levels, as it may become necessary to reallocate the SQEP resources within the MAA The transition to Defence Safety Authority (DSA) may provide such an opportunity.

7.2 *The MAA does not make best use of available data:* MEAP 14 notes the advances made since MEAP 12, but this is still a residual risk as described more fully in paragraphs 5.4.c and 5..4.d. The nature of regulation of air safety sometimes results in trying to assess instances not previously understood and for which clear cut data requirements and analytical tools are not known prior to the occurrence.

7.3 *The regulated community falls back into old habits unless the regulatory pressure for behavioural change persists*: This continues to be a risk. The transition to DSA is viewed by both the regulator and regulated community as a threat due to the potential for dilution of regulatory pressure focused on air safety culture.

7.4 *The cultural changes recommended by Haddon-Cave do not materialise*: Evidence presented suggests that many in the regulator and regulated community consider that air safety culture has improved. These views are based on subjective measures and a residual risk persists because the MAA cannot objectively demonstrate their effectiveness in this area.

7.5 *The MAA does not address or measure the right things to gauge wider improvements in Air Safety:* MEAP 14 acknowledges that the ASD is a powerful tool to draw together the regulator's view of the regulated community and in turn assist with risk based assurance. However, the MAA should not be driven only by what can be assessed and represented via the ASD and should always have a sense check to ensure that activity is aligned with the greatest risk to life.

8.0 KEY RECOMMENDATIONS

Whilst MEAP 14 found the MAA to be fit for purpose and effectively regulating Defence air safety, several key recommendations were identified that will enhance the performance and effectiveness of the MAA in what it does and how it does it.

8.1 Recommendation 1: Enhance MAA Focus and Processes on Strategic Planning.

There was clear evidence of a strong business process approach to planning – there was a comprehensive operational plan in place. In terms of strategic planning, there is evidence that this work is being prioritised and the links between the organisation's strategy and the operational plan are being developed. It will be important that this is embedded into the MAA process and that it drives the activities of the organisation.

a. There is a need for a clearer articulation to the regulated community of the outcomes the MAA is working to deliver in terms of air safety – What would success look like? – What metrics would enable the MAA to know it is making progress towards these outcomes?

b. Outcomes are, by their nature, broad and encompassing, they can clearly express the type of change that politicians and stakeholders want to see. Outcomes focus on the things that matter, not processes, and measuring outcomes enables organisations to demonstrate the difference that they make.

c. It is important that the MAA's senior leadership team understand and articulates the risks to achieving its outcomes. There was evidence that horizon scanning for emerging risks is taking place. This will need to continue to be prioritised and resourced.

d. The planning process should be more responsive than at present and there should be a clear link to the strategic risks, aligning resources to these with a clear line of sight to outcomes in staff objectives.

e. The planning process should move to increase its focus on outcomes not process – enabling staff and stakeholders to see the big picture.

8.2 Recommendation 2: Enhance MAA Regulatory Style and Approach.

As with any organisation moving through periods of varying emphasis and change, the approach undertaken to achieve desired outcomes and the style of engagement with external organisations necessarily needs to adapt. This is particularly true of an air safety regulator with a very diverse regulated community.

a. The audit found that the MAA had been in an 'activist' phase – reforming the RAs, establishing relevant approval schemes and establishing an audit assessment process. These have largely been developed using the evidence base generated by the Haddon–Cave report and MEAP 12.

b. As the organisation develops and its approach to regulation becomes more sophisticated it will need to develop and embed a mechanism to enhance the evidence base underpinning its proposed regulatory decisions. This is likely to involve enhanced analysis of the data the MAA hold and further refinement of the ASD. The MAA should continue to

explore alternatives to regulation and consider approaches that enable regulated entities to 'earn recognition' for the measures they adopt in managing their approach to compliance.

c. The MAA should consider developing its own consistent approach to Regulatory Impact Assessment to better inform its decision-making. This would enhance its understanding of how decisions will contribute to the achievement of stated outcomes and the costs and benefits of the options available. Whilst it is acknowledged that Annex A to MAA03 affords the regulated community the opportunity to comment on what the MAA has opined to be the possible impact of a proposed amendment, there was no discussion of how such impact is weighed against the assumed benefit of the proposed amendment.

8.3 Recommendation 3: Enhance Processes for the Evaluation of Regulatory Actions.

Measurement of progress toward an objective inherently depends on well defined metrics that are relevant as well as measurable. Improved air safety can be an elusive objective to measure in terms that justify the resources consumed in its pursuit.

a. The audit found that the MAA had a well-developed approach to business processes and could point to a significant amount of outputs from its various activities.

b. As a next step the MAA should develop an approach to evaluate the impact of its activities and regulatory interventions to better understand how they are driving towards their stated outcomes of improving air safety.

c. In this complex operating environment it is important to design an evaluation framework that can chart progress over the medium to long term.

8.4 Recommendation 4: Enhance the Process for MAA Certification activity.

Certification activity within the MAA has focussed mainly on conventional means of certification, with the regulator exercising final review and approval of presented expositions and corroborating data. Understanding the methods and means by which other competent airworthiness design approval organisations certify aircraft, systems and sub-systems presents opportunities for considerable savings of time and money.

a. The audit concluded that the certification of aircraft and systems to appropriate standards was being well executed to an appropriate duty of care through the combined efforts of the MAA and the DE&S TAAs. This conclusion is further bolstered by the recent formal recognition of the MAA by French and US DoD airworthiness authorities.

b. Greater harmonization with civil certification requirements is ongoing and progressing at an appropriate pace.

c. Integration of European Military Airworthiness Requirements (EMARs) into the regulatory environment is progressing at an aggressive though appropriate pace and will facilitate greater harmonization of development and qualification programs as well as in-service sustainment within Europe.

d. Mutual recognition with foreign MAAs has begun and promises great opportunity for significant savings in time and cost of procurement and certification of aircraft and systems sourced from countries whose MAAs have been recognised. While the leadership within the MAA and DE&S clearly understand the opportunities at hand, uncertainty within the ranks of both the MAA and DE&S of how best to implement plans to capitalise on the mutual recognition threaten to stymie near-term substantive savings and further continue to place demands on already scarce SQEP resources.

e. Current focus of realising benefit of foreign military authority recognition is aimed at development of a long-term model that will apply to all future cases. This is a very complex situation, given that apart from universal adherence to a common set of design airworthiness criteria, standards and methods of compliance (for example the European Military Airworthiness Requirements), a single "Rosetta Stone" of translation between sets of requirements will perpetually remain elusive. Given the variety and complexity of cases, it is recommended that consideration be given to case-by-case approaches to enable learning through experience with a long term objective of a generalised approach that permits tailoring.

f. To enable scarce SQEP resources to be focussed on the most important issues, Certification effort should be prioritised on the 'UK military delta' between UK military requirements and civil or foreign MAA certification and on issues that will have the most significant impact on air safety and risk to life rather than regulatory requirements for which non-compliance does not pose risk to life.

g. The MAA should examine the possibility of delegation of design approval to DAOS approved organisations. It is presently unclear to some DAOS approved organisations the value of achieving approved design organisation status when the proof of design substantiation is still a requirement under DE&S contracts.

h. The regulated community values the consistency of decisions and positions emanating from the MAA, though at times at the cost of slower responsiveness and speed of decision-making. Consideration should be given to delegating decision-making on lower risk exemptions, waivers and derogations.

8.5 Recommendation 5: Review Policy and Processes for Human Resources.

The MAA should consider appropriate recruitment and retention policies while balancing the need for relevant current experience with SQEP needs coupled with the regulated communities' need for consistency.

8.6 Recommendation 6: Improve Processes in the Use and Management of Data.

Collection, storage and availability of data and analytical tools should enable specific analytical purposes that support deliberate decision making. Efficiency is enhanced following the adage "Collect once and use many times".

a. The audit found that the MAA had access to a rich source of data from ASIMS and from completed Service Inquiries. There was evidence of a comprehensive approach to 1st tier analysis of this data.

b. Further consideration should be given to how the MAA could make better use of this data, by applying further analysis to enhance its approach to strategic and operational planning and to ensure these are based on an understanding of risk.

c. There may also be benefit in reviewing how the MAA shares data internally.

d. Consideration should be given to exploring how data could be shared with the regulated community from the ASD to improve transparency.

8.7 Recommendation 7 : Undertake a Future External Audit of the MAA.

MEAP 14 foresee the value of undertaking an external audit within 5 years of this audit, so as to establish further progress made by the MAA and to assess its continued effectiveness within a larger DSA organisation.

9.0 ACKNOWLEDGEMENTS

The MAA Director General and all of his staff provided excellent and invaluable support and contributions to the MEAP 14. The logistical planning and arrangements for access to personnel, documents and Operational Units were extremely useful, flawless and highly effective. The members of the MEAP 14 wish to thank all staff who gave their time to be involved in this External Audit of the MAA in 2014. MEAP 14 makes special commendation to Wing Commander Jon Hough, [redacted] and Ms Jessica Tinkler for their full commitment and dedicated and effective planning and contributions.

Harry Daly

Programme Head
Policy Programmes Team
Civil Aviation Authority
29 January 2015

ANNEX A

EXTERNAL AUDIT OF THE UK MILITARY AVIATION AUTHORITY – TERMS OF REFERENCE

1. Mr Justice Haddon-Cave's Nimrod Review recommended that an independent auditor be appointed to report to the Secretary of State for Defence (and the 2nd Permanent Under-Secretary) on progress in implementing his recommendations for a new airworthiness regime. The MAA External Audit Panel (MEAP) conducted an audit from 23 Apr to 4 May 2012 and examined and reported on: the implementation of The Nimrod Review recommendations for which the MAA was responsible; the effect being created in the UK DAE by implementation of those recommendations; and any potential remaining areas of risk. The MEAP reported that the MAA had rapidly and purposefully started to recalibrate the military air safety regime, that the key duty holder concept was well understood and that the building blocks to address and eliminate the frailties in the system for military air safety were being progressively established. It also identified 6 areas that were still considered to be important work in progress, and 5 second order effects that were considered as areas of residual risk; it recommended that these areas were re-examined within 2 years to review progress.

2. The MAA Charter[3] states that: *"The Military Aviation Authority shall be subject to periodic audit by a competent external agency to ensure compliance with this Charter"* and MEAP 14 has been established to comply with the Charter and conduct an external review of the progress made since the last external audit.

3. Membership of the MEAP is drawn from the UK Health & Safety Executive (HSE), the UK Civil Aviation Authority (CAA) and the United States Army Aviation Authority. The senior CAA member will chair the Panel and lead the Audit. The MEAP Members are as follows:

a. Mr Harry Daly - Programme Head, CAA Safety and Airspace Regulation Group (SARG) Policy & Programmes Team – Chairman.

b. Dr John Rowe - Head of Operations for HSE in Yorkshire and the Humber.

c. Mr Dave Cripps - US Army Aviation and Missile Research Development and Engineering Center Aviation Engineering Directorate (AMRDEC - AED).

d. Ms Sarah Smith – Director, Better Regulation Delivery Office.

e. Wg Cdr Jon Hough RAF – Air Advisor.

f. Capitaine de Frégate (Commander) Nicolas Bergamotto, Direction de la Sécurité Aéronautique d'État (DSAÉ) – French Navy.

[3] Charter for the United Kingdom Military Aviation Authority signed 31 Aug 10.

4. The Audit will examine and report on 3 areas:

a. The MAA's effectiveness as a Regulator based upon its 6 Assurance Principles (risk-based assurance, minimal regulatory burden, independence, a proportionate sanctions regime, optimization and feedback).

b. The progress of the MAA in taking forward those areas that were considered to be work-in-progress by MEAP 12.

c. Provide an update on what the MEAP 12 considered to be areas of residual risk.

5. The Audit will be asked to use a modified version of the Regulators' Code[4] as the standard against which the MAA's performance is measured and make recommendations as to whether this is an appropriate standard to be used for future Audits.

6. The MAA External Audit will take place between 10 – 21 Nov 14 and will: examine primary evidence relating to the effectiveness of the MAA as a Regulator as well as evidence to demonstrate the MAA's progress in addressing Paras 4b and c; include interviews with key stakeholders including, but not necessarily limited to, the MAA staff, Aviation Duty Holders and their staffs.

7. The MEAP will report their findings and make recommendations by 9 Jan 15 to the Secretary of State for Defence, through the Permanent Under-Secretary, and the Director General MAA.

8. Director General MAA will assist with logistic support for the MEAP and all appropriate Travel & Subsistence costs will be charged to MAA UIN D0455A.

DG MAA

[4] Regulators' Code - BRDO/14/705 Published Apr 2014. Department for Business Innovation and Skills, Better Regulation Delivery office.

ANNEX B – INTERVIEWEES

Context	Interviewee(s)
MAA Executives	AM R F Garwood CB CBE DFC MA RAF (Director General MAA), AVM P A Atherton OBE RAF (Director Operations), AVM M A CLARK MBA BSc(Eng) CEng FRAeS FIET RAF (Director Technical), Cdre P A Chivers OBE RN (Head of Oversight and Approvals Group) Cdre M J Toy BEng(Hons) CEng FRAeS MAPM RN (Head of Regulation and Certification Group) Mr J G Allan (Head of Analysis and Plans Group)
MAA Staff	Capt [redacted], Col [redacted], Gp Capt [redacted], Gp Capt [redacted], Gp Capt [redacted], Gp Capt [redacted], Mr [redacted], Cdr [redacted], Cdr [redacted], Cdr [redacted], Cdr [redacted], Cdr [redacted], Wg Cdr [redacted], Wg Cdr [redacted], Wg Cdr [redacted], Wg Cdr [redacted], Wg Cdr [redacted], Wg Cdr [redacted], Wg Cdr [redacted], Mr [redacted], Mr [redacted], Mr [redacted], Lt Cdr [redacted], Lt Cdr [redacted], Sqn Ldr [redacted], Sqn Ldr [redacted], Mr [redacted]
Defence Equipment and Support	AM S J Bollom CB BSc CEng FRAeS MIMechE RAF (Chief of Materiel (Air)), Mr A D Baguley (Director Helicopters), Mr [redacted] (Head DE&S Airworthiness Team) [redacted] (Unmanned Air Systems Project Team Type Airworthiness Authority) [redacted] (A400M Project Team Deputy Head and Type Airworthiness Authority
Operating Duty Holder Level	Maj Gen R F P Felton CBE (Commander Joint Helicopter Command) AVM S K P Reynolds (Air Officer Commanding 2 Group RAF) Col [redacted] (JHC Chief Aircraft Engineer) Col [redacted] (JHC Senior Operator) Gp [redacted] (2 Gp Senior Operator) Gp [redacted] (2Gp Chief Air Engineer)

Delivery Duty Holder Level	RAF Brize Norton: Group Captain [redacted] RAF (Station Commander and Delivery Duty Holder) Wg Cdr [redacted] (Senior Operator) Wg Cdr [redacted] (Chief Air Engineer) Cross section of frontline operational and engineering staff Wattisham Station: Cross section of Army Apache CAMO staff met during audit oversight visit
Industry	Hawker Hunter Aviation: Mr Mat Potulski - Managing Director and Accountable Manager (Military Flying) AgustaWestland: Mr [redacted] - Chief Engineer Military Aircraft Mr [redacted] OBE - Accountable Manager (Military Flying) Mr [redacted] - Chief Test Pilot Mr [redacted] - Head of Operations Mr [redacted] - Head of Product Support Engineering Mr [redacted] - Head of Airworthiness Mr [redacted] - Quality Manager (Audit and Investigations) Marshall Aerospace and Defence Group: Mr [redacted] - Director of Engineering Mr [redacted] - Chief Test Pilot (CTP) Mr [redacted] - Deputy Chief Test Pilot (DCTP) Mr [redacted] - Head Of Quality Mr [redacted] - Chief Airworthiness Engineer Wg Cdr [redacted] - C-130 PT Mr [redacted] - Cambridge Airport Manager Mr [redacted] - Airport Safety Manager

ANNEX C

MEAP14 EXAMINATION OF THE MAA CAMO AUDIT AT WATTISHAM FLYING STATION

C.1 The effectiveness of the MAA as a regulator can be measured, in part, by gaining an understanding of its audit process and the response of the regulated community to any regulatory intervention. To examine this, MEAP 14 (Dr John Rowe) joined an MAA Audit on 17 November 2014 in order to observe the first day of an audit of the Apache CAMO at Wattisham Flying Station. A preparatory briefing was provided to MEAP14 at Abbey Wood on 13 November 2014.

C.2 The purpose of the MAA CAMO Audit was to gauge Regulatory Article (RA) 4900 series compliance and to determine whether the Apache CAMO should be granted MAA approval.

C.3 The on-site audit followed detailed communications ongoing between the MAA and the CAMO over a period of months. MEAP14 was told by the Apache CAMO that their documented safety exposition is in evolution and has been improved significantly as a result of feedback given from the MAA.

C.4 MEAP14 understands that the MAA on-site audit adopts the following procedures:

a. Initial assessment of the CAMO exposition.

b. Feedback to CAMO about gaps and areas for improvement.

c. Resubmission of exposition.

d. Communications with CAMO to design the on-site audit: who and what to see, when and where and which documents should be considered.

e. An internal cross-check, across the MAA, for issues which also enables MAA staff to be aware that the audit is happening.

C.5 MEAP14 observed the following stages during the on-site audit:

a. Initial briefing of key staff by MAA audit team leader.

b. Interviews with key staff to test the exposition on how the CAMO proposed to comply.

c. End of day debrief.

C.6 MEAP was informed that there is normally a hot wash up at the end of the audit process and in due course a report would be prepared providing written evidence of the audit findings, setting out any appropriate Corrective Action Reports (CARs), timeframes and any approval decision.

C.7 MEAP14 made the following observations during the MAA on-site audit:

a. Preparations for the audit were thorough and clear, drawing on information from the Air Safety Dashboard (ASD) while also maintaining a necessary focus on the CAMO exposition.

b. The objective for the audit was clear: determine whether the CAMO exposition was fit for purpose and whether arrangements on the ground were in place so that the CAMO would function as described.

c. The purpose of the audit was clearly articulated in written and verbal communication from the MAA audit team and consequently understood by staff at Wattisham.

d. There was a close alignment of the aims of both MAA and CAMO in working towards approval. This was positively commented upon by staff at Wattisham who felt that the input from MAA had been welcomed and constructive.

e. At the same time, MEAP14 observed a proportionate testing of the exposition by the MAA. The MAA team were acting as a 'critical friend'.

f. MEAP14 consider that the audit was an effective method of testing CAMO compliance with RA4900.

g. The CAMO had applied significant effort to their exposition and the on-site audit. However in the opinion of MEAP14 this was proportionate to the risk to life and the need for approval as directed by the RA4900 series.

ANNEX D

ANALYSIS OF MODIFIED KEY SUCCESS FACTORS AS MODEL FOR FUTURE AUDITS

The MEAP 14 was also asked to assess the appropriateness of a modified version of the Key Success Factors of the UK Regulators Code as a standard for future audits.

D.1. The revisions incorporated specific military requirements and operational capability enhancements in place of obligations for economic growth factors. Though this clearly demonstrates the prominence of military capability in Defence acquisitions, an effect of the MAA revisions was to remove cost as a relevant influencing factor from the objectives in the framework. Such an approach fails to recognise that within Defence, the cost of capability delivery is always a relevant factor, even when safety is a potentially competing element. That said, MEAP 14 recognises that the UK Regulators Code does not fully accommodate the uniqueness of regulation of safety functions in the delivery of Defence capability.

D.2. The modified Key Success Factors do not specifically measure the degree to which the MAA accomplishes the aim of enhancing air safety within the Defence air domain. Rather, it examines the way that the MAA interfaces with the regulated community. In other words, it doesn't assess ***what*** is being regulated, but rather ***how*** the regulation is being undertaken. This is somewhat akin to the Assurance Principles, which similarly address the character of the regulatory programme. A net result of this is that MEAP 14 relied heavily on other recent audit-like assessments of the MAA by two foreign military airworthiness authorities as evidence that the outcome of MAA effort in terms of design approval and organizational approval are accomplished with appropriate rigor and substantiation.

D.3. There is a degree of commonality between the modified Key Success Factors and the Assurance Principles. Both address minimization of regulatory burden, open engagement and communication with the regulated community, and a risk-based approach that measures and/or assesses risk and then focuses regulatory effort on areas of greatest risk. The Assurance Principles include the notion of independence and a regime of proportional sanctions that are not addressed in the modified Key Success Factors.

D.4. A strategic level audit of an organisation such as the MAA should incorporate means to assess ***what*** is being accomplished as well as ***how*** it is being achieved. For that reason, there is benefit in retaining both the Assurance Principles and the modified Key Success Factors as tools for future MAA audits. In addition, consideration should be given to use of a model or process that affords the auditors to assess the degree to which air safety has been achieved. Such a method may be a simplified version of the European Military Authorities Documentation–Recognition (EMAD-R) process developed by the European Defence Agency for assessment and recognition of foreign military airworthiness authorities and widely adopted by other multinational organizations including the Air and Space Interoperability Council (ASIC) and the North Atlantic Treaty Organisation (NATO).