Principal Consultant, Duane Kritzinger, and Director, Bob Simmons, recently attended the IMARC event in Melbourne Australia, which also featured Bob Simmons as a speaker. The following conference summary captures the key points made by each of the presenters over the two days.

We recommend this summary be viewed in conjunction with the original presentations. The presentations are available to download at www.defence.gov.au/DASP/IMARC/. Click on Presentations to access them.
Day 1 Session 1

“Why a Conference on International Military Regulation”

by Air Vice Marshall Cath Roberts

AVM Roberts provided 4 reasons to evolve:

1. Globalisation: Our economies are linked and our platforms (e.g. C-17) operated globally
2. Interoperability: It is hindered if we work or design or certify to different standards
3. Coalition: Many platforms from multiple nations operating from same base, but we cannot share our spares or merge our maintenance capabilities
4. Efficiency: A common approach to safety assurance reduces acquisition and sustainment costs, and increases interoperability, flexibility and responsiveness.

The reason DASA is hosting this conference is that a common goal can only be achieved via a team effort of international players contributing the benefits obtainable from the diversity of input. Simply put, she stressed the need to recognise the benefits of the EMARs and the need for all stakeholders to work together.

Day 1 Session 2

“Overview of the EMAR/DASR Airworthiness Structure and Terminology”

Wing Commander Jason Dean

WGCMDR Dean started off by explaining that effective harmonisation requires us all to use the same terminology, abbreviation and acronyms. He then went on to explain the origin of the EMARs tracing it back to EASA and ICAO, highlighting the fact that the current EMARs have not adopted:

- Airworthiness regulation of non-complex aircraft (mainly impacts the Continuing Airworthiness regime)
- Aviation safety framework.

He then went on to explain that to implement it domestically you need to adopt the EMARs and roll it out within your own Aviation Safety Framework. And that organisation approvals were the only option. So, for DASA, the DASRs are made up of:

- A ‘Basic Regulation’ type umbrella instrument, to tie the different elements together
- The EMARs for Initial and Continued Airworthiness
- A DASA Aviation Safety Framework, which is based on the EASA Framework (except for the fact that SMS is not integrated, but a separate rule to be evoked upon each approved organisation). The Basic Regulation in the former allows each MAA to control their own sovereignty and operational imperatives.

Day 1 Session 3

“The significance of a Common Regulatory Framework for Military Aviation Safety: Are we ready to exploit the benefits?”

by Colonel Lou Hermens

Total aviation safety is defined in the 19 Annexes to the Chicago Convention (ICAO). MAWA is responsible for the development of a military airworthiness framework only. Each MAA needs to define their own effective and integrated system, which takes due cognisance of operational necessity (i.e. “missions first, safety always”). He stated that safety requirements support mission delivery.

Col Hermes went on to explore:

- the benefits of a common/standardised approach and the challenging pursuit of centralised governance to enforce standardisation and optimise the use of airworthiness SME across multiple MAAs
- the current shortcomings which means we are not yet able to exploit all benefits available. These included:
  - The fact that total safety is not in scope of the MAWA Forum
  - Not enough focus on implementation
  - Governance is fragmented and not centralised.

Col Hermens made recommendations for a way forward, which included improving governance via 3 steps:

- Step 1: Endorse a JMAAO, sponsored by each pMS
- Step 2: Extend framework in include Flight ops, ATS, etc and then evolve EMJAAO to come an EMSA
Step 3: The establish an EMA Agency (similar to EASA)

Step 4: The evolve to become and EMA Authority.

The presentation concluded by asking: "So, what is stopping us? Concerns about sovereignty and military flexibility? Weigh this against the risks if we do not!" For instance, consider the global support solution needed for the F35 programme.

Day 1 Session 4

“Managing Airworthiness in a Complex International Program”

by Gregg Costabile

Economies of scale are the primary affordability driver. Challenges for the F35 programme include:

- 3 variants with:
  - two different US certification processes (USAF and Navy)
  - multiple foreign military certification processes, and even the EU partners each differ amongst each other
  - ITAR restricts the release of information, further complicating the above
  - Competing priorities for test/certification priorities, with many repeat requests for same/similar evidence. Benefits would be achieved if there was an increased focus on a ‘common baseline’
  - They employ a team of 550 people to deliver airworthiness certification, who will be retained to deliver continued airworthiness support following certification.

Day 1 Session 5

“Difficulties faced by Airbus Defence and Space during the KC30 Tanker Programme”

by Juan Sebastian Montero

The KC30 currently comprises 4 different configurations for 4 different customers. This most significant challenge is the absence of a single agreed Tanker regulation, resulting in an 8 year period leading to the platform’s birth. Mr Montero highlighted the benefits of the EMARs, but pointed out that these can only be accomplished via 3 steps:

- A common regulatory framework
- Mutual recognition
- A leading MAA for each programme.

Day 1 Session 6

“Evaluation of the Department of National Defence/Canadian Armed Forces (DND/CAF) Airworthiness Programme”

by Andre Pelchat

Identified a need to formalise training to a recognised standard. The CAF are very interested in the ADF’s pure adoption of the EMARs and intend to:

- remain conversant with the intent of the EMARs
- separate “assurance” from “ensurance”
- develop performance indicators within a manual and the skills to be able to assess airworthiness programmes.

The CAF has mapped their Technical Airworthiness Manual to EMARs for comparison purposes.

Day 1 Session 7

“NATO Airworthiness Policy: Toward the NATO Total Aviation System Approach”

by Richard (Reeshard) Duriez

NATO is in need of a robust Airworthiness policy, but do not want to duplicate the EDA/MAWA initiatives. The current NATO approach is that aero assets provide by NATO needs to meet airworthiness standards of recognised authorities. NATO will therefore assess the competence of relevant MAAs, using the NRP (NATO Recognition Process) and whilst a framework representing the EMARs would simplify the process, NATO currently uses a generic framework for assessment. It is planned to use 3 man teams for assessments and Richard requested support from members to meet this requirement.
Day 1 Session 8
“Benefits of Mutual Recognition in support of the Typhoon Programme”
by Commodore David Childs
In 2013 a MINOR change took 18 months to approve! A task force was launched to improve and optimise the system, which resulted in:
- a mutual recognition between partnering MAAs (thus reducing duplication)
- granting of industry privileges (e.g., self-classify changes and self-approve MINOR changes).
Commodore Childs concluded that EMARs are not the ultimate solution, but are definitely a significant step in the right direction.

Day 1 Session 9
“Overview and Challenges of the JMOD airworthiness Certification”
by Dr Yoshibyuki Kobayashi
The Japanese MoD are re-organising their certification & airworthiness processes and are considering adoption of an approach which is more internationally recognisable.

Day 1 Session 10
“ITA MAA Journey”
by Brig Gen Giorgi Orsini
The Italian MAA tend to align with EASA concepts, so have adopted the EMAR framework with minimal exceptions. However, the supporting AMCs might be more national.

Day 1 Session 11
“Airworthiness in State Aviation France: 10 years of experience, lessons learned and feedback”
by Col Stephane Coperet
France adopted the EASA model in 2006 long before the EMARs were promulgated. The presentation is self-explanatory and contains some interesting lessons learned. The French approach is built on 5 pillars:
- Duties (of stakeholders)
- Conditions
- Registration
- Continuing Airworthiness
- RPAS
It was notable that the French started their EMAR Technical Implementation with the Airworthiness Review, from EMAR M, of their aircraft, in order to establish baseline airworthiness standards.

Day 1 Session 12
“Harmonised International Military Airworthiness Regulation- an engine maker’s view”
by James McLeod
Focussed on the benefits of harmonisation, but highlighted that the devil is in the details, e.g.:
- differences in EMAR adoptions (i.e. adaptation) means more work
- differences in design codes (e.g. CS-E vs Def Stan 00-970Ch1 I) makes matters infinitely more complicated.
James closed with an emphasis on legal liability concerns if we elect not to follow industry best practice.
Day 1 Session 13
“Into the future, The Airbus Group Asia Pacific journey so far”
by Malcolm Benfer
Malcolm emphasised that we have a chance to make things better, but only if we change. This includes:

- cultural change (i.e. new processes require new behaviours)
- performance based contracting
- understanding accountabilities
- contracts referencing old regulations
- how we manage Airworthiness Certificates
- an effective SMS
- competent (not only trained) regulatory staff and contracting agencies.

Day 1 Session 14
“Summary of Day 1 Proceedings”
by Dr Sonya Jenkinson
Working together will lead to improvements in efficiency, interoperability and will reduce lead times and cost. Accordingly, DASA has adopted fully the EMARs and has shown it can be done quickly and efficiently.

Day 2 Session 1
“Implementation of EMARs in the German Armed Forces”
by Major General Dr Anskar Rieks
The German aviation system has been set up to match the civil system closely (see slide 9), but consists of three pillars to address airworthiness and operations (see slides 16 and 17). The benefits of the new regulatory system have political, economic and operational benefits (see slides 22, 23 & 25). Individual MAAs can indeed cherry pick which EMARS to adopt or adapt, but any deviations need to be with care. If done professionally the return on investment will be in our lifetime.

In a century of budget constraints and increased complexity a widely (preferably internationally) recognised regulatory framework is not an option but a necessity.

Dr Rieks mentioned the importance of the EDA pMS working together and the EUMAAC as a good forum for the Authorities to share and move forward together.

Day 2 Session 2
“International Collaboration in Certification Programs”
by Luis Davila Ponce de Leon Lopez
INTA was founded in 1942! Originally used the FAR21 approach to certification, which helped when they adapted to JAR21 and then EASA Part 21 and now EMAR21. Key decisions for intentional programs include:

- Common definitions, procedures and certification teams
- Mutual recognition (of both qualification and certification).

Obstacles for efficient collaboration include:

- EDA has no authority (remain in each MAA, who are not using mutual recognition to exploit full benefits)
- EMAD-R is guidance only, and implementation differs (and can be political). We need to strive for multilateral (not just bilateral) recognition
- Definition of TC Holder and TCH responsibilities (e.g. in-service events, ADs and continued airworthiness)
- Not having one team (or nation) leading the certification effort.

Day 2 Session 3
“Improving military Airworthiness trough Engagement and Collaboration”
by Dr Stephen Cook, of Northrop Grumman
Northrop set up its office of airworthiness to be independent of program budgets and schedule. Key role is to strategically engage with external stakeholders (e.g. regulators and policy makers) and internal stakeholders.
Early engagement (face-to-face) is needed to tailor the certification criteria (based on risk to account for role, sophistication and user requirements) to meet current and future airworthiness challenges and to promote an airworthiness culture.

Day 2 Session 4
“**The EMAR Journey for the NZDF**”
by Group Captain Peter Griffin, Chief Engineer and TAA for the NZDF

The NZDF is at the start of their journey to EMAR adoption. They (currently) do not have an independent MAA, with airworthiness responsibilities integrated into the different functions (i.e. a “distributed authority”). They have always aligned their regulatory systems with those of respected others (e.g. the ADF) as a bespoke regulatory system is expensive to maintain and enforce. The NZAF intend to adopt (and not adapt) the EMARs to obtain all the benefits available.

A key principal in the NZDF is to ensure ‘Intellectual Separation’ or independence to ensure robust oversight within the system.

Day 2 Session 5
“**A Niche Organisation’s Perspective**”
by Gareth Dyer, of GVH Aerospace

Recognition of EASA approvals opens of a world of opportunities for the military industry. This includes type certificated platforms as well as a variety of STCs, minor modifications, a repairs (major and minor) which available for re-use with minimal (or at least a significantly reduced) certification effort and at a reduced risk.

Day 2 Session 6
“**A Military Air Operator’s View**”
by Air Commodore Geoff Harland

Aviation safety is a subset of an organisation’s Health & Safety obligations, which is a major obligation placed on Australian military leaders. Safety policy and objectives thus need to address both and implement it in a nation’s regulatory framework. The new DASR regulatory framework has the benefit of facilitating the management of risks so that informed risk management decisions can be made.

Day 2 Session 7
“**Information sharing through the joint working group and the future of TNI-AU regulations**”
by Group Captain Jason Murray and Lt Col Ahmad Junaidi Saleh, of the Indonesian Air Force

Indonesia is looking into adopting the EMAR approach and also to form a single, independent MAA and is currently engaged in information sharing through a joint working group with the ADF.

Day 2 Session 8
“**Australian Adoption of EMARs and Benefits**”
by Group Captain Joseph Medved

Australia transitioned to the EMARs over a 9 month period, but this was preceded by a thorough investigation and was based on a robust organisation, with proven processes and a pro-active safety culture. This strong foundation meant that the DASR are just the next step in evolution (it was not a revolution).

In his presentation, Joe presented why they evolved and how. It is worth noting that:

- The investigation included consultation with ICAO who recommended the EASA framework above that of the FAA (the latter having evolved around the US Legal framework, whilst the EASA model is more contemporary and written for international adoption
- Successful transition was helped by a smart user interface, driven by a relational database, allowing any interested party to download data to their PC or smart phone. See www.defence.gov.au/dasp/DASR-regulations - click on the book icon.
- DASA is tracking EASA Regulations and developments as this is known to be leading EMAR development
- DASA is using a relatable database to manage its regulatory development and communicate changes to other stakeholders.
**Day 2 Session 9**

*“Boeing embrace ADF Aviation Safety Changes”*

*by Mr Stephen Hudson*

Highlighted the fact that DASR now reduces the effort needed for a company to extend its capability. No longer does a new aircraft type or a new facility need a separate approval. Boeing defence Australia hold a number of DASR approvals with multiple platforms and are now seeing the benefits of a more consistent framework within which to engage their customers.

**Day 2 Session 10**

*“Organisational Benefits offered by Regulatory Alignment”*

*by Mr Andrew Chapman*

BAE Systems is implementing the DASRs on the back of an Integrated Safety Management System. This will drive the cultural changes needed for success.

**Day 2 Session 11**

*“Collaboration in Airworthiness, The United States National Airworthiness Council (NAC)”*

*by Mr Dave Cripps*

Introduced the NAC who were behind the generation of documents such as:

- MIL-HDBK-516C
- DoD Airworthiness Policy (which included the foreign MAA assessment/recognition process)

Dave made two points of particular interest:

- In the airworthiness domain we lack a Professional Society for Airworthiness Personnel
- Cost of certification is high and is likely to increase. We need to find ways to work smarter.

**Day 2 Session 12**

*“Implementing a new regulatory system and national cultural impacts that need to be considered”*

*by Mr Bob Simmons*

We need to recognise that the origin of the EMARs is based on a well-proven system (i.e. the EASA framework). The EASA system works and if we are to adopt it, we may have to do more than evolve. We will have to transform to obtain all the benefits and opportunities available.

We also need to realise that the EASA system is based on an expectation of continuous improvement, so you should be getting more out of it if you are implementing it correctly. But this means you must build your organisation (in your Expositions) for success so that compliance is a result and not the objective.

**Day 2 Session 13**

*“Translating Airworthiness Frameworks; the complexity of recognition”*

*by Flt Lt Leon Purton*

Leon presented an entertaining and insightful view on the topic. He highlighted that the EMAD-R questionnaire is a great “translator” to map different frameworks to each other. He also highlighted that frameworks which closely align to the EMARs will naturally map more easily, thus benefitting the mutual recognition process immensely.

**Day 2 Session 14**

*“Summary of Conference Proceedings”*

*by Air Commodore James Hood*

Air Commodore Hood summarised the proceedings of this highly successful (and oversubscribed event) for the 630 delegates. The ADF and its supporting industry have shown what can be done to adopt a new framework and how effectively it can be accomplished. He threw down the gauntlet to other nations to get on-board with what is increasingly seen as the most advanced and proven regulatory system. Global best practice. Only then can we all work together to gain the benefits of an optimised and harmonised regulatory framework.
About Baines Simmons

We are specialists in aviation regulations, compliance and safety management and partner with the world’s leading civil and defence aviation organisations to improve safety performance.

As trusted advisors to businesses, armed forces, governments and regulators across all sectors of aviation, we help to advance best practice, shape safety thinking and drive continuous improvement to safety performance through our consulting, training and outsourced services.

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Duane Kritzinger is an experienced Certification and Safety Engineering specialist. His distinguishing safety expertise lies in the ability to differentiate and integrate the Safety Assessments in the design phase with the Safety Management activities in the operational phase. His certification skills cover both the military and civil aviation domains, where he not only provides expertise in the certification of products/parts/appliance, but also assists with EASA/EMAR Part 21 Design Organisation Approvals (which includes the establishment of organisation processes and structures to move beyond minimum compliance towards organisational performance).

Since the publication of EMAR 21, Duane has been assisting both the military regulators (in their adoption of EMAR 21) and the regulated community (in demonstration of compliance in the most efficient manner with due consideration of other approvals held).