



Evolution of aeronautical MCO (maintenance in operational condition) by 2030

Venture Associates

Direction générale des relations internationales et de la stratégie (DGRIS)

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Engagement opérationnel

The requested analysis is intended for the Directorate of Air Force Human Resources (DAFHR). It includes a reflection on the evolution of the MCO's professions over the next 30 years, and proposes orientations with regard to Human Resources and recruitment policy. The logic followed is therefore that of the defence aeronautics employer who wishes to reflect upstream on the adaptation of skills and processes in the field of maintenance to technological developments up to 2030.

Based on a prospective vision of the use of new technologies, the work carried out made it possible to identify and describe its impact on the Ministry's human resources in the context, scope and functions of the military aeronautical MCO.

This field, like many others, is preparing to integrate the impact of the increase in skills required for the digital transformation of the Ministry of the Armed Forces, as set out in the Transformation Plan presented on 19 April. The challenge is to master new "breakthrough" technologies (additive manufacturing, digital twins, AI, réalité augmentée, Big Data, digitalization, etc.). The challenge is to master new "breakthrough" technologies (additive manufacturing, digital twins, augmented AI, Big Data, digitalisation of the value chain, robotics & cobotics, etc.), without having to abandon skills in the technologies currently in use, which are sometimes much older than those used by the civilian world.

This global approach will profoundly modify many processes, starting with the professions and the training for these professions. It also brings new vulnerabilities. Nevertheless, the almost unanimous acknowledgement of the significant gains expected in terms of innovation and productivity reinforced by the "Public Action 2022" initiative will make this transformation inevitable.

Human resources are at the heart of the concerns of the Chief of Defence Staff (CEMA). During his hearing before the Defence Committee on 21 February 2018, General François Lecointre, considered that "it will be necessary to ensure that the accompanying

measures to guarantee the retention of skills and the management of flows are sufficient and adapted to the needs of the company.es" because "having available, competent and willing young people to be trained to serve their country is an unavoidable imperative for our armies. »

For the French Air Force, as for most organisations involved in digital transformation, the panel of skills and processes in the field of aeronautical OCM will be born. For the French Air Force, as for most organisations involved in digital transformation, the range of skills and processes in the field of aeronautical MCO will necessarily have to be adapted in order to cope with technological developments up to 2030, while maintaining the ability to maintain very old technologies. It is the whole sector of human resources dedicated to aeronautical OCM, but not only, that needs to be overhauled.

The achievement of the objectives set by the armed forces' operational contract will depend on the link between technologies and skills. The possible changes in the interactions between the civilian and military worlds, the "war for talent", and the managerial stakes must be looked at carefully, because of their consequences, particularly in terms of the attractiveness of the military function, staff loyalty and, ultimately, the "employer brand" of the Armed Forces.

Generally speaking, the use of these breakthrough technologies, combined with the desire to build partnerships with civil society players (industries, SMEs and start-ups) within the framework of "Cercle Défense Connect"¹, will also impose more "agile" project modes.

On the basis of all the functions of the aeronautical MCO, the study examines the avenues of work likely to facilitate their optimisation, while taking into account the specificities inherent to the military action environment. Several issues are at stake:- Ensuring the necessary availability for the accomplishment of missions, which are severely hampered, for example, by ageing fleets, obsolete technologies or the use of procedures today. Controlling costs, impacted by the obsolescence of certain skills but also by the scarcity of new skills adapted to new technologies.

As mentioned above, it is indeed skills that are the focus of the study, and this line of approach becomes the basic building block for the analysis of professions. Armed forces are faced with the following problem: maintaining the skills needed to support fleets in service, particularly in operations, while developing those that will accommodate the new tools and technologies that will arise, again while maintaining a capacity to provide service for operations.

The major problem is that in a tangible phase of accelerating technological innovation and very strong competition from the private sector, civil aeronautics or the information and communication technology industry, the logic of maintaining skills and transmitting knowledge and know-how within the armed forces is being undermined: the direct risk that emerges is a disintegration of skills that begins earlier and earlier.

¹ The Cercle Défense Connect is a circle for reflection, sharing of best practices and feedback on experience that brings together partners from the French ecosystem and senior ministry officials.

The increase in skills relating to cybersecurity, the legal aspects of digital issues and the ability to train or self-train are also key factors in this development. At the same time, the acceleration of operational commissioning at the end of the development process puts the system for increasing the skills of the armed forces under very strong pressure, thus imposing a focus on training and education. Finally, the need for specific management of certain rare skills has become particularly acute, both in the armed forces and in the civil

service in general. This is particularly the case for MCO engineering professions, which are currently undergoing major changes.

The use of outsourced services poses another problem: it will be a question of finding the right formula between "outsourced" and "in-house" services in a logic that favours both operational objectives and competitiveness criteria. It should be noted that, in general, the tendency of the civil service is to repatriate in-house. The industry's ability to maintain equipment over time is also subject to constraints, and may lead it to reduce the duration of its services. This capacity is then reduced, sometimes voluntarily.

The new HR policy is therefore a challenge for the armed forces. It is a matter of maintaining and developing skills in a context of persistent constraints on the workforce, redesigning training engineering in a more individualized framework, and developing career paths in line with the expectations of current generations, while reasoning according to a flow dynamic and ensuring strong attractiveness. This will be achieved through a unique and very specific retraining policy of the Ministry of the Armed Forces.

The study focused on the evolution of skills in the MCO, passing through the civilian evolution of skills in the MCO of complex objects, then the military benchmarks, and ending with the analysis of the impact of technologies on skills.

Changes in HR strategies are proposed, in the areas of recruitment (attractiveness of the "military" employer brand, "talent war"), loyalty, training, the challenges of internalisation/outsourcing, the changing role of the manager, and finally process transformation.

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| Author (s) : | Direction générale des relations internationales et de la stratégie (DGRIS) |
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