

INTERNATIONAL ASTRONAUTICAL FEDERATION

On the Scarcity of Workforce in Aerospace Industries

Roadmap to better attract tomorrow's talents

An IAF Industry Relations Committee White paper

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Abstract

Worldwide, the aerospace industry faces unprecedented challenges as it continues to grow at an accelerated pace. A shared and rising difficulty industry continues to grapple with is recruiting and retaining talent across the aerospace sector's workforce.
This paper is issued by the International Astronautical Federation (IAF) Industry Relations Committee (IRC) and is intended to:

- briefly review the current status quo,
- analyze the possible causes of the aerospace industry workforce shortage,
- review what measures are currently being implemented to mitigate further expansion of this problem and
- offer recommendations for industry on how best to support talent recruitment and retention in the future as we build a sustainable international aerospace ecosystem.

1. Analysis of the problem

A common factor between both the large and small European and American aerospace industries is the increasing difficulty in recruiting talent.

While this topic is not new, it has been exacerbated by the COVID crisis and is now being treated as a global issue in the sector.

The aerospace industry is still considered a professionally attractive workplace because:

- It deals with leading-edge technologies application.
- It pushes quality standards to the highest levels.
- It inspires and stimulates its workforce by pushing the frontiers of knowledge.

Nevertheless, a combination of factors is now severely affecting these appealing qualities. The IRC has identified the following main causes:

- A demographic problem in western countries –several countries have a negative growth rate resulting in an overall smaller workforce potential and more limited pool of potential employees.
- Within the above limitation, a lower attention to STEM subjects is causing a lack of technical skillsets in students leading to insufficient capabilities to meet the needs of the technical world.
- The remuneration models of aerospace companies are not in line with the those offered by companies competing in the same labor market.
- Aerospace is a very attractive sector for students and young professionals, but the volume of legacy and relevant political implications, especially in Europe, easily disappoint and frustrate them.

The gap between university qualifications and job market needs is still significant. Many graduates aren't immediately ready for employment, requiring extensive training. The COVID crisis has created, especially in the US, unexpected difficulties in recruiting eligible workers, causing a slow recovery. This, together with other latent factors, has reshuffled the priorities of people in the workforce towards giving a larger value in work/private life balance, certainly a positive value overall. These shifts require a re-thinking of the job dynamic.

- Despite few companies' mergers and acquisitions, there are many more companies than before, causing larger competition into a basin that does not proportionally grow.
- The contingent economic situation (e.g. hyperinflation) has fostered claims for salary increases that have not always been adopted. This is resulting in employees' dissatisfaction, which translates into an increased attrition rate.
- Despite the increased use of professional digital means, promotion of job vacancies – especially for Small Medium Enterprises – is still a major barrier.
- The intrinsic dynamics of the aerospace market in Europe tend to generate a concentration of talent in the richest countries making economic development in emerging countries more difficult. This contributes to the gap among different areas.
- Competition for talent among aerospace companies is open and global, despite restrictions imposed by export control regulations, etc. However, the aerospace sector is often confronted with unexpected contests with other adjacent, more remunerative sectors (e.g. digital transformation, cyber security) that can benefit from the analytic, problem solving education of technical professionals found in the aerospace sector.

Four main areas of attention are identified in this multi-variable equation. Recommendations are formulated in Section 3 for these four categories.

There is a demographic problem: fewer births in western countries mean fewer potential students in STEM disciplines and less technical people to step into the job market. The aerospace sector, especially in defense applications, is known to be quite restrictive in terms of hiring when it comes to nationality of the candidate.

There is an educational problem: the gap between University and the "future working environment" is an extensively debated topic. While some efforts are made in order to bring the University environment closer to industry (e.g. via internships), disconnects are still visible with respect to proficiency in some disciplines (e.g. risk analysis, financial fundamentals, use of selected tools). Companies invest resources in training their new personnel, especially new professionals, and this effort requires time and money before bringing the resources to a sufficient level of productivity. Additionally, one must account for the very strict qualification regime of some personnel, often imposed by customers' procurement policies that imposes a long qualification period before becoming operational.

A new balance needs to be sought where, for example, Universities need to anticipate the potential for new applications of technology in early maturation stages. It is up to industry to transform these technologies into solutions the market needs.

There is a societal change ongoing: COVID has accelerated a trend that was already visible before in the digital transformation of enterprises. Not everybody needs to be in the office every day for eight or more hours to do his or her job. Especially if one has to commute one or two hours a day to get to his/her workplace. Digital transformation needs to include the well-being of the individuals that have the ability and access to modern tools available today to accomplish their tasks. A flexible working environment safeguards productivity and employees' retention.

In addition, the migration of qualified technical people towards countries where larger opportunities exist has increased in the last few years in Europe. This has been facilitated by easier mobility schemes and a more global working environment. While "mobility" is an essential element to move the market and create more opportunities both for the employer and the employees, the consequence of that is that those areas that are "less attractive" are suffering more. This does not depend only on the companies themselves, but also and especially on the boundary conditions in which the company has to operate.

There is a financial problem: the surge of inflation has rapidly impacted consumer salaries. In every sector, claims for salary increases have multiplied. Employee attrition rate has increased where these requests were not properly addressed. This has also caused a migration towards sectors that were more "responsive" to this need.

2. What is being done

Measures have been implemented in different locations based on the nature of the criticality identified by a specific sector of the industry. These measures can be summarized as follows:

- Wherever support measures were successfully implemented to combat the surge of inflation, margins were created to realize salary adaptation measures. These were both in the form of one-off payments (e.g. premiums) or indexed salary increases. In this way, mitigation actions to compensate the surge of the cost of life of the employees were implemented.
- Much attention was applied to the improvement of the work/private life balance, especially for those employees that are forced to commute often. Here, lessons learned from COVID-19 were implemented fostering the use of remote work, where applicable. New regulations determining the maximum acceptable on-site/remote working time percentages were agreed upon in some countries. Compensation for additional private consumables utilization (e.g. energy, coffee) was also instantiated in some other cases.
- Upskilling employees to cover critical, specialized vacancies was often implemented where allowed. This helped companies be less exposed to an idle period (e.g. due to the difficulty to recruit the right personnel) and reduced unforeseen slowdowns caused by new hires. As a collateral advantage, a more versatile and multidisciplinary workforce, able to cover different roles in different moments, was created. The downside of this is the additional training costs and the time to make the upskilled employee operational.
- Personnel training has often been on the critical path to full operability for aerospace companies. The current contingent situation has further shed light on the need for more efficient and tailored internal training to rapidly ramp up employees to the desired level of proficiency.
- Identifying other market sectors whose current market contingency was causing qualified personnel layoffs was also utilized. This was particularly the case in high-tech companies that released a portion of their workforce in the last year after a personnel surge in the pandemic and companies that are facing economic difficulties.

3. Recommendations

It is evident that technology sectors are experiencing strong changes due to social and political events. This impact requires a change of employment models. This shift was already in motion but has been clearly accelerated by COVID-19.

It is urgent to intervene in the root causes while rethinking the employment models. Based on a recent Ernst and Young survey [2], the creation of a more versatile working environment where one could express their talent both in a commercial and/or government project needs to be rewarded: rigid demand and requirements at Government level (e.g. security clearances, labor rates) are repelling employees. This is an aspect that needs to be considered not only in the ongoing industry transformation plans, but also on the (Government) customer side where a better balance between agility, reduced bureaucracy, and more digital working environment must be found.
Adaptation of the education models worldwide is necessary in order to attract more talent in those areas where higher level of taskforce if required.

Salary attractiveness was identified as one of the main causes of attrition: a difficult balance needs to be found in order to mitigate the loss of purchasing power, limit industrial cost increases, and spread the salary increases across similar technology sectors. The ability to fish into other market sectors may be a palliative limited in time and space and cannot be sustainable in the long term. This goes in parallel with the need to develop solid career paths for early-career talents: the attractiveness of these professions has to be complemented by a set of credible career opportunities.

It is also important to convey to clients that prices must allow industry to pay those salaries needed to be competitive in the labor market.

Enhanced flexibility in work location (where appropriate for the function) needs to be fostered. This may also enable hiring employees from a broader geographic footprint without requiring relocation. Hiring only citizens with nationality of the country in which the company operates is a consolidated practice in several industries. Often this is also requested by customer procurement constraints and/or export control regulations. Even though it may sound utopic today, the above-mentioned transformation shall take into account an easier mobility of talents, same as what was instantiated for the free mobility of European citizens some years ago.

Today's workforce in the space sector is also more flexible in moving from one industry to another. As such, many people enter the space workforce at different stages of their careers from the energy, automotive, telecommunications, or technology sectors. These professionals bring new ideas and energy to their transitioned working environment, but they may lack fundamental knowledge and context necessary for successful space enterprises. Training and professional development programs need to address these evolving needs to upskill the changing space workforce, at entry levels but also for mid-career professionals and beyond. These training and development activities also need to fit into the more flexible nature of the global enterprise, supporting a combination of distributed, virtual, asynchronous, and in-person models to accommodate the wide-ranging needs of the industry.

Recruitment with diversity in mind is a priority for industry. Often the aerospace industry recruits talents from the same pools and locations. These pools have predominately been universities and communities that do not reflect the total talent the aerospace industry could be recruiting from. Diversity of gender, race, and backgrounds prove to build more successful and innovative organizations and programs

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