



Joint Air & Space Power Conference

20
23




**Enhancing Deterrence and Defence
Through Joint Air Power**

Credible, Capable, and Available

CONFERENCE **PROCEEDINGS**



**Joint Air Power
Competence Centre**

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A blue ink signature of Thorsten Poschwatta, consisting of two distinct, stylized scribbles.

Thorsten Poschwatta

Lieutenant General, GE AF
Executive Director, JAPCC



This book presents the proceedings of The Joint Air Power Competence Centre's annual conference, which took place at the Messe Essen in Germany from 10–12 October 2023.

The 2023 conference theme:

**'Enhancing Deterrence and Defence Through Joint Air Power:
Credible, Capable and Available'**

In this edition of the conference proceedings, we have taken a different approach by organizing the results thematically, rather than providing a chronological account of the panel discussions. Our aim is to make it easier for readers to identify the key takeaways from the conference.

We would like to express our gratitude to those who participated in the discussions and contributed to the conference. For those who were unable to attend, we hope that this wrap-up will provide you with informative and thought-provoking insights.

If you have any feedback on these proceedings or the conference as a whole, we would greatly appreciate it. Your input will help us enhance the value of future events.

Please send your feedback to: conference@japcc.org

Thank you for your interest, and we hope you enjoy reading this publication.

The Joint Air Power Competence Centre

Enhancing Deterrence and Defence Through Joint Air Power: Credible, Capable and Available



JAPCC Conference 2023 Opening Address by the JAPCC Director General James B. Hecker, Commander, US Air Forces in Europe; Commander, Air Forces Africa; Commander, Allied Air Command.

Introduction

The Joint Air Power Competence Centre (JAPCC) Conference, which took place in Essen, Germany, from 10–12 October 2023, focused on the important task of Enhancing Deterrence and Defence within NATO. The conference aimed to explore how Joint Air Power can be utilized as a decisive tool and primary enabler to achieve Alliance objectives. These proceedings aim to capture the key messages conveyed during the two-day event, rather than providing a chronological record of the topics discussed.

The 2023 Conference brought together over 300 attendees, including experts from the German Defence Committee, NATO, the EU, the Partnership for Peace, and Academia, and received tremendous support from our 11 industry sponsors. It provided a platform to broaden perspectives on the development, sustainability, and utilization of Joint Air Power as the most effective and efficient means to deter global competitors. These competitors pose direct and indirect threats to the security, peace, and stability of not only the Euro-Atlantic region but also the world at large, as we are witnessing today.

To fully grasp the complexity of the topics discussed, please refer to the materials published in the [2023 Conference Read Ahead](#).¹ Furthermore, it is important to note that the ideas presented in these proceedings are synthesized and should not be attributed to specific individuals, in accordance with the Chatham House Rule that governs intellectual freedom of thought and speech associated with the JAPCC Conference.

Joint Air Power – Changing Paradigm

In the past 20 months, particularly after Russia's illegal annexation of Crimea in 2014, NATO has undergone significant changes. These changes culminated in the NATO Leaders agreement from the 2023 Vilnius Summit, which focused on

modernizing the Alliance for a new era of collective defence. NATO has identified the NATO Force Model (NFM) as the primary means to deliver a diverse range of capabilities that are interdependent and span multiple domains. While today's focus is on deterrence and defence processes, the next era will be characterized by the implementation of the NATO Warfighting Capstone Concept (NWCC).

The topics prioritized in these proceedings will have a substantial impact on the development of Joint Air Power across the Alliance. The characteristics of Air Power, such as ubiquity, readiness, firepower, and reach, have successfully contributed to enhancing posture and providing the necessary deterrent effect in response to recent international events that have disrupted world peace. However, the changing security environment demands more. To maintain credibility, capability, and availability, there is a strong need for change, not only in the military field, but also in the societal model. Furthermore, we must accurately perceive today's real and interconnected threats, and strike the delicate balance between the robust forces necessary for credible deterrence and defence without threatening potential adversaries. Industry's approach must therefore align with the warfighters' needs.

Our strategic competitors are rapidly evolving, and this should serve as a wake-up call for industry to increase production, reduce delivery time, and offer competitive prices. It presents the perfect opportunity to shift from efficiency to effectiveness in our acquisition strategy, which is crucial for collective defence. Furthermore, it is essential to establish links between various military and non-military activities across all domains and environments to achieve desired effects. As always, from the depths of the sea to the exosphere, Joint Air Power stands at the centre, facilitating the connection between diverse environments. It represents a shifting paradigm, considering the noteworthy progress made thus far, from traditional take-offs and landings to groundbreaking advancements in infrastructure, cross-servicing, resilient basing, and agile combat employment concepts. This evolving paradigm has also highlighted the importance of

meticulous planning, joint targeting, and information sharing as crucial elements in achieving defence objectives.

By conducting a thorough analysis of the war in Ukraine, valuable lessons have emerged that can serve as a foundation for defining new strategies, not only within the military realm but also in societal and economic spheres. The key takeaway for our community of interest is that Air Power played a pivotal role in this conflict, with Russia failing to attain the coveted air superiority while the Ukrainians fought tenaciously to deny it, displaying proactive and agile tactics. Consequently, we assert that Air Supremacy will not be easily attainable in future conflicts, and we must be prepared to face challenges, fight fiercely, and occasionally take calculated risks to achieve a level of Air Superiority that can lead us to success.

Time is of the essence, necessitating swift reactions and the transformation of Joint Air Power into a comprehensive construct by integrating innovative technologies across all domains. This includes enhancing the impact of Space and Cyber effects within the planning cycle and anticipating the multifaceted implications for diverse services. While commanding and controlling diverse platforms may be a topic of discussion within the context of Multi-Domain Operations (MDO) concepts, it is imperative that the Command and Control (C2) structure for Air Force Power remains resilient, agile, and distributed, enabling effective Mission Command.

THEME 1: NATO Joint Air and Space Power to Enhance Deterrence and Defence

From its inception, the conference exuded a contagious energy and enthusiasm, captivating keynote speakers, panellists, and the audience alike. This vibrant atmosphere set the stage for thought provoking discussions, contentious viewpoints, and potential solutions that are crucial for us to embrace in order to uphold, advance, and sustain the benefits derived from joint Air Power.

Deterrence and defence, as fundamental responsibilities of NATO, must not only be integrated at the military level but also permeate societal and political realms. This comprehensive approach represents the simplest and most effective means of safeguarding a nation's peace and prosperity.

While deterrence, from a purely military standpoint, can be defined as the harmonious fusion of capability and willingness, it becomes evident that additional elements are necessary when examining recent conflicts more closely. To broaden our perspective, we can introduce key ingredients that fortify the efficacy of deterrence activities. One potential solution lies in incorporating TIME as a crucial element that lends significance to this endeavour.

Each nation should adhere to the doctrinal concepts behind deterrence and defence from a purely scholarly perspective and incorporate them into the overall construct by presenting practical attitudes and activities. This will ensure that the final objective of the alliance can be achieved. The design of the Future Air Force must consider elements that allow the force to be sustainable and agile. This can be achieved by increasing the number of assets, changing the personnel mindset, and improving training to prioritize interoperability and connectivity.

Increasing capability can be a challenging process, especially when it comes to acquiring expensive new capabilities like 5th-generation aircraft. Costs may diminish the appetite for purchasing such assets. Therefore, it is crucial to consider interoperability as a potential solution for integrating old and new equipment to enhance a country's pool of capability.

Deterrence can be achieved through a sustained procurement program that combines various capabilities, increases the number of systems in use, adds mobility and command, and establishes a streamlined chain of command. However, it is also essential to add credibility to this equation. Participation in multiple operations and diverse exercises at all levels will strengthen the cohesion of the alliance and act as a multiplying factor.

Within NATO, large-scale multinational exercises have proven to be a unique opportunity to showcase the potential offered by interoperability between different nations and services. These exercises help preserve NATO's integrity, its population, and its territory. AIR DEFENDER 23, the largest deployment exercise of air forces in NATO's history, emerged as a significant promoter of interoperability, cohesion, and solidarity. It has laid the foundation for the future pattern of NATO exercises in the air domain, demonstrating our ability to support and employ the readiness of Joint Air Power in the long term.

By prioritizing information sharing as a fundamental pillar for planning and execution, and by effectively harnessing our collective resources, knowledge, and capabilities, we can significantly bolster our chances of survival in the face of modern threats. This approach empowers us to thoroughly analyse our surroundings and adapt our doctrines, concepts, and plans accordingly.

Political Mind-shift

Another critical issue that frequently arose in the discussions governed by the Chatham House Rule was the pressing need for a change in thinking at the political level. Russia's illegal war in Ukraine and Hamas's attack against Israel have forever altered our peaceful lives and indelibly transformed our perspectives, at least for the foreseeable future. It is imperative for governments to grasp the simple truth that we bear a sacred duty to defend our realms. Moreover, as an integral part of the alliance, we must also safeguard the entire NATO territory. Therefore, it is crucial to acknowledge that embracing a comprehensive 360-degree approach is the new norm, demanding preparedness.

In a world grappling with economic and social challenges, migration, climate change, and food insecurity, it becomes increasingly difficult for governments to achieve balanced budgets that can serve as a cure-all for these issues. However, it is crucial to comprehend the geo-strategic concept that threatens our democratic

values to allocate the necessary funds for the military, even if this decision may not be popular. Security must be carefully planned, and changes in priorities should be made swiftly as time is of the essence.

We are currently witnessing a surge in global terror and threats against democracy and liberty. This presents us with a unique opportunity to reinvest in defence as the ultimate guarantee for a peaceful environment and the most effective deterrent against potential conflicts. The geographical distance from these conflicts and historical realities can shape the resource allocation process differently for each country. Therefore, it is imperative to convince the public of the fundamental need to invest in defence by highlighting the real consequences that war can bring to a specific nation.

Rather than spreading panic, we must embrace realism and allow it to guide our decisions. At the political level, we should seize this moment to change priorities that can yield long-term benefits and ultimately create the desired deterrent effect. By doing so, we can foster a sense of unity and understanding, ensuring that the necessary investments in defence are made.

Societal Change of War Perception

However, the effort should not solely rely on the political level; a fundamental shift in society's perception and approach to war is necessary to gain a better understanding of reality and to improve resiliency. It is widely recognized that the primary target of strategic warfare is the enemy's morale and will to fight, and this extends beyond the military realm. The ongoing conflict in Ukraine is not limited to military confrontation; it is a societal battle that can only be won if the entire population embraces it as a way of life.

Instead of debating the allocation of a specific percentage of a country's GDP and how to utilize that funding, the discussion among democratic nations should shift towards

developing collective defence. The focus should be on reaching a consensus regarding the importance of collective defence and how it can be effectively implemented.

THEME 2: Enhancing Readiness, Availability, and Resilience of Joint Air and Space Power

Before February 2022, the military environment within NATO was heavily focused on planning for the future, investing considerable time and resources into transforming its system to meet upcoming challenges. However, a harsh reality suddenly emerged, shattering their assumptions. Certain NATO members discovered that the threats against Euro-Atlantic democracy had not disappeared as previously believed after the Cold War. While projects such as developing Future Combat Aircraft Systems and integrating Artificial Intelligence aimed to deliver long-term effects over the next two decades, there was now an urgent need for projects that could address immediate challenges within the next 2–4 years. This need for immediate action is intrinsically tied to the concept of deterrence, which relies on having both qualitative and quantitative equipment availability, preparedness, and the ability to survive in a contested environment.

A Multi-level Approach: Strategic, Operational, Tactical

An intriguing approach was unveiled at the conference, which linked the aforementioned terms proposed for discussion to themes and topics related to military activity. In this regard, resilience can be observed at the strategic level through a combination of actions and domains that often work together symbiotically. For instance, Joint Air Power's ability to successfully carry out missions and achieve desired outcomes despite challenges across multiple domains relies on synchronization between the political level, which establishes the foundation for financial allocation, and the military, which utilizes the funds to invest in infrastructure or create redundancy within the C2 architecture.

Moving on to the operational level, the concept of readiness becomes a subject of debate and must be understood as the capability to plan, execute, and evaluate operations in accordance with the commander's vision and intent. This requires a significant logistical effort that will be thoroughly analysed at a later stage. In a world where a shortage of specialized workers is often a reality, military systems must find solutions to mitigate this issue. We must think innovatively, not only in developing equipment that requires fewer personnel, and enhances interoperability and interchangeability, but also by reconsidering cross-border processes between Allies in the event of a military emergency. By doing so, we can achieve readiness, which is the fruitful outcome of all these efforts.

At the tactical level, it is crucial to emphasize the importance of availability as a guarantee of delivering desired outcomes anywhere and at any time. The NATO air reaction following the invasion of Ukraine demonstrated that we can swiftly establish deterrence by deploying capabilities that are available 24/7, thanks to the collective effort, rapid response, and solidarity among alliance members.

Quality versus Quantity in C2 and Planning

Living in a society with diverse needs and limited budgets, it can be challenging to strike a balance between quality and quantity. In this regard, it is crucial for each country to conduct a thorough analysis to determine if their defence needs can be met with the available funds. However, it is important to recognize that deterrence is far preferable to engaging in a costly war. Therefore, it is imperative for countries to explore ways to modernize their equipment, whether through purchasing novel resources or upgrading existing ones, with a focus on interoperability.

Presently, Ukraine serves as a prime example of the clash between quality and quantity. On one side, we witness the utilization of modern Western equipment and technology, representing the epitome of quality. On the other side, we see low

morale and ill-equipped units attempting to overwhelm the battlefield through sheer numbers. This ongoing struggle between quality and quantity teaches us a valuable lesson: there will never be enough of either. Consequently, it is crucial to invest in new, efficient technologies and recruit fresh personnel, but the acme of capability is irrelevant without sufficient quantity, as demonstrated in Ukraine; *mass* will endure as a principle of war.

Another aspect pertinent to Joint Air Power is the consideration of supported and supporting commander elements within the quality versus quantity paradigm. At times, joint planners must compensate for a lack of quantity by enhancing the quality of capabilities integrated into the OODA loop. For instance, incorporating special forces or other component commands' capabilities can supplement the reduced number and availability of 5th-generation aircraft. Thus, the overall effort to create desired effects must be maintained.

The fruitful implementation of modern capabilities relies heavily on a robust and reliable C2 system. This system is specifically tailored to enhance the deterrent effect, ensuring its effectiveness. While NATO member countries possess different versions of C2 systems, some of which are outdated and considered legacy systems, there is a collective commitment to prioritize interoperability and integration. Despite this diversity, Joint Air Power remains a credible, capable, and readily deployable force, capable of defending NATO from 360-degrees when required.

Education – Key to Success

In addition to making smart investments in defence, education and training play a crucial role in enhancing the readiness and availability of military forces. Achieving effective cooperation within a multinational environment requires the harmonization of educational processes across different countries. NATO military academies offer a wide range of courses for international students,

which bring immense benefits in terms of knowledge sharing, best practices, and fostering a collective understanding of warfare strategies. One outstanding example that supports these ideas is the Tactical Leadership Programme (TLP),² which aims to elevate the effectiveness of Air Power by conducting exercises that range from mission planning and briefing execution to more complex tasks like flying large tactical composite air operations and developing conceptual and doctrinal initiatives.

To underscore the significance of education, a notable event took place on 11 October 2023. Several countries came together to establish the NATO Flight Training Europe project.³ This initiative aims to provide expertise and deliver innovative pilot training at various levels across Europe, serving as a testament to their commitment and solidarity.

THEME 3: Developing Joint Air and Space Power Capabilities for Collective Defence

Over the past decade, there have been significant changes in the geopolitical environment that pose a serious threat to NATO's technological superiority. While NATO has maintained its position as the world's most successful military alliance, some countries are narrowing the gap in scientific advantages that NATO has long enjoyed. Russia, for instance, is investing in areas that can exploit NATO's vulnerabilities, such as developing long-range missiles capable of reaching all European countries. Additionally, they are continuously building an Anti-Access Area Denial network. On the other hand, the People's Republic of China is consistently increasing its defence expenditure and allocating substantial funds to areas like Artificial Intelligence (AI), biotechnology, robotics, and the space industry, with the aim of becoming a global power.

Given these challenges, it is imperative for NATO to expedite the processes associated with research, development, and procurement of cutting-edge technologies.

Simultaneously, NATO must leverage its existing technological advancements to enhance its conventional military capabilities. This approach will enable NATO to maintain its status as the world's leading military alliance and effectively counter the evolving threats in the geopolitical landscape.

Space Domain – Today and Tomorrow

Addressing the multitude of air and space threats is an integral part of the concept of collective defence, and it is essential to have a common platform for sharing information and knowledge. We are increasingly relying on space to gain critical situational awareness for effective decision-making. Therefore, NATO is taking significant steps to establish space as not just a facilitator of air power, but also as a catalyst for achieving desired outcomes.

The development of satellite infrastructure must prioritize interoperability and integration. This means that national or multinational programs should work together to ensure resilience and redundancy in satellite constellations. Additionally, the private sector must play a crucial role in establishing a robust space situational awareness. The military should leverage and integrate commercial assets, even though this association may expose commercial partners to non-physical, electromagnetic, or cyber threats. Striking a balance between commercial and military satellites will require a layered approach, leading to the formulation of integration and protection policies that provide assurance to our partners.

The constant focus on developing the space domain has prompted multinational exercises with tailored training objectives. These exercises aim to develop new Tactics, Techniques, and Procedures (TTP), strengthen international partnerships, enhance overall understanding and collaboration, and promote responsible behaviour in space. Reestablishing such norms of behaviour is particularly important as the increasing number of debris poses a threat to the future preservation of this domain.

Joint and air space power are not just two separate terms; they are combined capabilities that can significantly enhance Integrated Air and Missile Defence and serve as a leverage to achieve strong deterrence. Space is, and must be understood, as a critical enabler for terrestrial war underscoring the importance of this domain. The traditional concept of supported versus supporting commanders might soon need to be altered. However, the formal process of command and support relationships will persist, and we must discover new ways to foster cooperation between different headquarters and domains in real-time, enabling the commander to seamlessly integrate all forces and make decisions simultaneously.

We are rapidly approaching a time when conflicts will extend to the exosphere, and it is even possible that the next war could begin and end in outer space before the first bullet is fired on Earth. Therefore, it is imperative that we anticipate the challenges ahead and plan accordingly. The weight of effort could swiftly shift from one component to another, and we must be prepared to adapt.

Multi-Domain Operations – Solution and Challenge

In addition to viewing space holistically, it is imperative that we delve into the realm of MDO. This concept has the potential to shape NATO's future strategy, by enabling the seamless coordination of military and non-military activities across all environments and domains.⁴ In our rapidly evolving operational landscape, NATO must expedite the integration of Space and Cyber as domains capable of delivering tangible results. While numerous studies have examined MDO, it is crucial to emphasize the significance of enhancing situational awareness, streamlining decision-making processes, and addressing the command-and-control challenges inherent to the evolving Cross-Domain Command Concept. By addressing pressing questions surrounding digital transformation, the next generation of computers, outdated CIS networks, and the future of the Air Operations Centre, we can truly unlock the value of MDO.

The conflict between Ukraine and Russia has shed light on the significance of integrating space assets and drones, provided by civilian companies and the military. These assets have brought about an interesting realization – the era of concealment on the battlefield is no longer viable. The latest technologies have made the battlefield transparent, necessitating a different approach and strategic planning. The current stalemate in Ukraine, partly caused by the inability of each party to effectively project air power, can only be overcome by embracing modern and interconnected technologies that aim to create synergy. In addition, artificial intelligence must be fully integrated into future MDO frameworks. This is not just a problem for the future; it is a pressing concern. Ukraine has already employed AI which will soon become prevalent in the digital transformation of decision-making processes and which promises distinct battlefield advantage.

In conclusion, it is imperative for both the public and private sectors to collaborate in the research and development of innovative technologies. By identifying the gaps in critical focus areas, we can effectively leverage the advancements made by the private sector, harness them for the alliance, and reimagine future operations. Projects such as the Future Combat Air System (FCAS)⁵ play a crucial role in ensuring the transformation of Joint Air Power beyond 2040. This is achieved by fostering a constant commitment to collaborative engagements, enhancing the C2 continuum through delegation of control, bolstering combat mass, and leveraging AI as a tool programmed by humans to assist in the kill chain pattern.

THEME 4: Improving Sustainability of NATO Joint Air and Space Power

‘The amateurs discuss tactics; the professionals discuss logistics.’

Napoleon Bonaparte

Debating the significance of logistics as a primary driver of success and a catalyst for enhancing capabilities is unnecessary. Throughout history, we have witnessed

the decisive role logistics plays in determining the outcome of wars. The current conflict in Ukraine vividly showcases the stark contrast between a force that demonstrated exceptional skill in executing swift manoeuvres, deploying troops efficiently, integrating diverse equipment seamlessly, and sustaining their operations, while the aggressor struggles to equip, deploy, and support their military machinery. The logistics aspect of Russia's operational failures came as no surprise to astute thinkers, underscoring the criticality of a modern, well-organized, and optimized logistical chain. However, within the NATO community, these observations have sparked a renewed discussion on how we can further assist Ukraine while enhancing our support for effective collective defence.

Sustainability through Joint Air Power Lens

From a military standpoint, sustainability refers to the ability to maintain or support operations over time. This concept can be strengthened through various actions, such as effective movement planning and execution, timely delivery of fuel, ammunition, and spare parts, among others.

Following February 2022, NATO responded swiftly by activating the high-readiness elements of the NRF for the first time in history. These elements were placed on standby while the air posture along the Eastern flank was bolstered through additional missions and an increased number of quick-reaction alert aircraft. However, this was merely the visible part of the effort. Behind the scenes, a tremendous logistical undertaking was underway, involving the deployment of air enablers, force multipliers (such as tankers and airborne surveillance assets), and a significant number of personnel dedicated to aircraft maintenance.

In light of these circumstances, the call for interoperability as a tool to support the overall sustainment process of a force has never been more relevant.

Established partnerships and associations, such as the European Air Group and European Air Transport Command, are designed to enhance capability through interoperability. These collaborations focus on standardization, education, and training in areas such as doctrine, technology, procedures, and human factors.^{6,7}

As explicitly stated, the NFM will significantly increase the total number of available and ready forces for planners. This monumental change will present challenges for nations, requiring them to invest in military infrastructure, recruit personnel, improve military mobility, procure new capabilities, and preposition equipment and associated stocks. Concepts like Agile Combat Employment and Resilient Basing are integral to the transformation necessary to accommodate the NFM structure. Moving forward, it is crucial to work alongside industrial partners who can provide key solutions to meet our expectations.

Competition or Cooperation?

In the realm of the military, a pertinent question arises: 'How we can fight together?' Similarly, industry ponders: 'For how long we can fight together?' These queries bring forth the concept of sustainability, particularly in relation to time. This notion is encapsulated within the comprehensive definition of MDO, which encompasses the speed of relevance. To truly embrace the MDO approach, it becomes evident that we must harness the latest technologies available today and tomorrow. This necessitates not only a focus on quality, but also a consideration of mass availability.

To enable industry to fulfil its role within this framework and to enhance and maintain production, it is incumbent upon us, as primary customers, to establish specific requirements that prioritize interoperability for both current and future generations of equipment. Our focus should be on essential aspects that foster synergistic effects, such as tactical links and digital infrastructure. It is unwise to delay action and seek perfection, as suitable solutions may already exist in the

market. Ukraine serves as a recent example, having successfully implemented diverse equipment from various sources into their existing architecture. TIME is a finite resource, and it is crucial that we recognize the value of initiating procurements rather than endlessly studying different equipment options. We must be bold and assertive.

Even though it is an intricate and difficult process, achieving sustainability ultimately lies in the hands of national decision-makers. Two of the many possible approaches are summarized below: consortiums, and common standards.

We witnessed successful collaboration for developing and procuring the same type of airframe with the A330 MRTT. It has proved to be a successful story by enhancing interoperability and offering a cost-effective solution for several nations. Such consortium projects can pool limited resources while streamlining requirements, improving overall efficiency while allowing the industry to allocate valuable resources for innovation, research, and development.

Another aspect considered noteworthy is the possibility of looking at interoperability from the angle of developing equipment, spare parts, and ammunition that could be interchangeable, thus streamlining the logistical support and better sustaining modern and innovative concepts like Agile Combat Employment, which ultimately increase our capability of deterrence.

Nevertheless, the Euro-Atlantic industrial landscape is diverse, often presenting customers with various options. However, the competitive approach has pros and cons. Having multiple choices available could be beneficial by allowing better integration of new equipment tailored to a specific national defence system, and provides redundancy and diversity. Conversely, inside an alliance, it could pose challenges in building interoperability as evidenced by incompatible versions of artillery ammunition in Ukraine. On the other hand, using the same platform raises drawbacks such as long delivery times or lack of essential spare parts with positive like a common, alliance-wide maintenance system.

In light of the new geopolitical landscape and our limited time, shifting towards cooperation is crucial. These steps will bring us closer to our goal of expanding our capabilities and creating a deterrent effect on our adversaries. They will foster greater collaboration among nations, leading to a more cohesive and efficient defence industry. Moreover, it will enable us to respond effectively to emerging challenges and threats in an increasingly complex global environment.

Conclusion

In summarizing the topics discussed earlier, we confidently assert and support fundamental truths regarding certain crucial aspects necessary for the advancement of Joint Air Power as a top-tier deterrent in our ever-changing geopolitical landscape. These include a **shift in mindset across societal, political, and military domains**, the incorporation and **seamless integration of cutting-edge technologies into warfare**, and **enhanced collaboration within and between the industrial and military** sectors.

The world we live in is constantly evolving, and what was once thought to be impossible decades ago has now become a new and imminent reality. For instance, there is now a heightened possibility that Russia's extensive missile arsenal could potentially reach the entirety of European territory. Furthermore, from an economic standpoint, the escalating costs of energy are directly linked to the harsh reality of the illegal and unprovoked war in Ukraine.

As a society, it is our sacred duty to safeguard a secure and prosperous future for the generations to come. This can only be achieved by altering our perception of warfare and taking concrete actions to fortify our defence systems. It is imperative that all parties involved engage in a collaborative and intricate endeavour to accomplish this goal.

At the political level, there must be a bold assessment of the benefits of bolstering our overall defence system. Although there may be political risk when

compared to more popular social programs, national sovereignty is a prerequisite for all discretionary issues. The allocation of funds should prioritize investments in new capabilities, but at scale that provides sufficient mass and depth. Additionally, a shift in mindset is crucial within the military sphere, as it serves as the appropriate means for delivering deterrence. This entails not only transforming the perspective of leadership, empowering them to embrace uncertainty and think outside the box with the aid of technology, but also instilling a sense of purpose and understanding among fighters at the lower level. Education also plays a pivotal role in this transformation, as tailored training scenarios enable individuals to attain a higher cognitive level necessary for integrating new technologies into warfare.

Analysing the present and envisioning the future, it is impossible to imagine the military landscape without the space and cyber domains. These domains have already proven to be crucial enablers and will undoubtedly play a significant role in future warfare. Technology has become an integral part of our lives, and its importance in the military field cannot be overstated. However, as we embrace the potential of MDO and AI, it is essential to recognize that humans must still maintain control and value traditional skills such as map navigation. For in our technological era, our morality demands human primacy, and we must remain prepared for contingencies where we must rely on our inherent human skill, regardless of technological assistance.

When developing new capabilities, it is essential to integrate them effectively into our operational concepts. This requires adapting the C2 construct both doctrinally and structurally. The process must be executed swiftly and without losing momentum. Sometimes, it is more beneficial to experiment and learn through practical application rather than excessive theoretical study. Overstudying can render the development of capabilities obsolete and irrelevant in the face of a rapidly changing reality.

Therefore, fostering better communication between the military as the customer and the industry as the provider is key. Collaboration and understanding between

these two entities will ensure that the military's needs are met effectively. By working together, we can navigate the challenges of the future and stay ahead of the ever-evolving technological landscape.

Competition among industrial partners needs to be reconsidered in light of the urgent need for new equipment, ammunition, and spare parts. This re-evaluation should be approached constructively, fostering collaboration and leveraging diverse corporate knowledge to expedite delivery and enhance the quality of final products. By working together in the 'defence sector', we can overcome the scarcity of skilled human resources and mitigate the negative impact of developing similar products, thereby increasing overall efficiency.

However, for industry to meet these objectives, better communication is required among the military systems within the alliance. This improved communication will facilitate collective decision-making regarding what to develop, procure, and integrate. It is now more evident than ever that by sharing common values and interests, we can effectively tackle future challenges.

Endnotes

1. Joint Air & Space Power Conference 2023 Read Ahead – Joint Air Power Competence Centre ([japcc.org](#)).
2. Tactical Leadership Programme – Albacete – Spain ([t1p-info.org](#)).
3. NATO – News: NATO strengthens joint air power cooperation, 12 October 2023.
4. Multi-Domain Operations in NATO – Explained – NATO's ACT, 5 October 2023.
5. Future Combat Air System (FCAS) ([airbus.com](#)).
6. European Air Transport Command ([eatc-mil.com](#)).
7. European Air Group – Improving Capability through Interoperability ([euroairgroup.org](#)).

Notes



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Challenges and Opportunities for Air and Space Power in an Evolving Security Environment



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www.japcc.org/conference

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