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Workshop No. 7

Emerging Technologies and Defense Industrialization in the GCC: Navigating the Localization–Outsourcing Dilemma in the AI Era

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2. **Abstract**

The defense and security landscape in the GCC region is going through profound transformation led by two main factors. The first factor is the emerging technologies including artificial intelligence (AI), cyber capabilities, autonomous systems, advanced missile defense and space applications. These technologies are redefining the national military capabilities and the operational environment in which GCC militaries must function.

The second factor is the GCC countries' strategic ambitions to reduce dependency on external suppliers and strengthen national sovereignty in security affairs. Saudi Arabia's Vision 2030 and the UAE's Operation 300bn industrial strategy, alongside similar initiatives in other GCC states are prioritizing the localization of defense production, fostering domestic innovation, and establishment of joint ventures and defense R&D. Based on this background, the workshop entitled " Emerging Technologies and National Defense Industrialization in the GCC States: Navigating the Localization–Outsourcing Dilemma in the AI Era," acts as a platform to examine how GCC countries are integrating emerging technologies while simultaneously building national defense

industries. It also analyzes the implications of these developments on their national military doctrines and defense diplomacy.

This workshop will convene experts from academia, defense industry, government, and international partners to discuss intersections between defense industrialization and military modernization and what horizons it creates. It will also explore the following key questions: What are the existing national strategies and institutional frameworks in GCC? How are emerging technologies being mainstreamed in GCC military capabilities? What are the new dimensions needed to be accommodated into the GCC state military doctrines? What are the best practices, lessons learned from global experiences, including state-led cyber deterrence, digital sovereignty, and the role of cyber security in shaping strategic autonomy? The discussion will also take into consideration how Gulf and MENA states navigate US-China technological competition, the influence of Eurasian cyber strategies (e.g., Russia, Turkey), and cross-regional threats.

3. **Context**

In 2023, the Gulf security environment entered a new era. The wars in Ukraine, Libya, Sudan, Syria, and Yemen have demonstrated the decisive impact of mercenaries, drones, cruise and ballistic missiles, and precision fires, forcing militaries worldwide to rethink doctrine. For the GCC states, the lesson is clear: resilience, dispersion, counter-UAS, electronic warfare, and layered air and missile defense are no longer optional.
Recent events in the Middle East have reinforced this urgency. Iran's unprecedented April 2024 drone–missile barrage on Israel, and the multinational defense it triggered, underscored the value of integrated, multi-layer systems and allied coordination. Meanwhile, Houthi attacks on Red Sea shipping lanes have turned maritime tracking, counter-drone, and missile defense into pressing priorities for Gulf economies dependent on secure trade. Across the region, conflicts from Libya to Sudan and Syria have normalized economic, numerous UAVs and precision munitions, reshaping operational concepts and exposing vulnerabilities at sea, in the air, and on the ground, including potential sea lanes of communication blockades by buoyant and limpet mines. It is within this volatile landscape that the workshop takes shape. Focusing especially on Saudi Arabia and the UAE, the workshop brings together scholars, industry leaders, policymakers, and international experts to analyze how emerging technologies, especially AI, cyber deterrence and attribution as well as space, sub-orbital ISR, and advanced missile defense are transforming both doctrine and defense industries in the Gulf.

At the heart of the conversation lies the localization–outsourcing dilemma. GCC governments are pursuing ambitious defense industrialization agendas, from Saudi Arabia's 50% localization target to the UAE's EDGE conglomerate, aiming to reduce dependence on foreign suppliers and enhance sovereignty. Yet global supply chains,

intellectual property barriers, and the pace of technological innovation mean that selective outsourcing, partnerships, and co-development remain indispensable.

The workshop asks critical questions: What frameworks and strategies currently guide defense industrialization in the GCC? How are AI and autonomy being mainstreamed into command, control, and combat? What doctrinal shifts are needed to counter drone and missile saturation, electronic warfare, and maritime threats? And what global best practices—from cyber deterrence to digital sovereignty—offer useful lessons for Gulf states?

By situating GCC defense industrialization within global technological and geopolitical transformations, the workshop will chart pragmatic pathways for localizing smartly, outsourcing strategically, and building resilient, AI-enabled forces capable of navigating a contested and fast-shifting security order. Recent developments in conflict zones, and the growing competition in space and hypersonics underscore that defense modernization is no longer incremental but exponential. GCC states today are forced not only to anticipate threats but leapfrog them with new technological solutions as well as adopt flexible doctrine that includes civil-military integration. The workshop's findings will catalyze decision-making at the intersection of doctrine, technology, and industrial strategy. Its outcome may influence not only national policies but secure and shorter supply chains, and the balance of deterrence in a strategically volatile Gulf.

4. **Workshop Focus/Objectives**

The digital age has fundamentally transformed the landscape of diplomacy and security. Nowhere is this more evident than in the MENA region. The intersection of rapid technological adoption, geopolitical competition, and evolving security threats have positioned these regions as pivotal arenas for national defence industrialisation in light of cyberwarfare and the need for augmented missile defence technology in a quick shifting landscape.

As sovereignty and strategic autonomy are increasingly shaped by digital tools, understanding the impact of AI is not just timely, but essential. The Gulf, MENA, and Eurasian regions serve as global crossroads—linking East and West and the Global South, making them a natural convergence point for both cyber challenges and opportunities. The workshop focuses on how the emerging technologies on the global level are shaping GCC states' national defense industrialization policies, with specific focus on Saudi Arabia and UAE. Within this context, the objectives of the workshop are threefold.

First, it analyzes the impact of emerging technologies on the global defense industry and how it is echoed in the GCC states and identifies related opportunities and gaps. Also, it analyzes the national defense industrialization efforts with a specific focus on KSA and the UAE, attempting to map out progress of key initiatives and related challenges. Second, the workshop will explore how the ongoing technological advancements of the GCC defense sector are redefining their military doctrines, including the adoption of unmanned systems, integrated missile defense, and cyber warfare capabilities. It also discusses the dynamic balance between maintaining conventional force structures and transitioning toward technology-centric doctrines and the necessity imposed by multi domain operations doctrine. The impact of emerging technologies on GCC states' defense diplomacy is to be highlighted by examining how it can strengthen interoperability among GCC states, both bilaterally and through the GCC's Peninsula Shield Force. Third, the workshop aims at proposing recommendations and pathways for GCC states on how to better align national defense industrialization strategies with emerging technological imperatives. Issues of ethical concerns, regulations, and governance are to be discussed.

5. **Paper Focus/Topics**

In light of the workshop abstract, focus, and objectives, the paper proposals submitted to this workshop are to discuss the following topics:

- GCC defense industrial ambitions in global arms markets
- Artificial Intelligence in GCC defense: opportunities, risks, and doctrinal implications.
- AI in the context of cyber warfare and cyber diplomacy
- New military technologies imperatives in multi domain operations
- The return of wargaming as a forecasting and modelling tool in the age of AI for PME and operational analysis
- Lessons learned in cyber warfare that are relevant to the Gulf
- Smart cities, dual-use technologies, and defense applications in the GCC
- The role of autonomous systems and drones in reshaping Gulf military strategies
- Cyber defense and critical infrastructure protection in the GCC
- Space technologies and their integration into national security strategies
- Localization of defense production in KSA and UAE
- Public-private partnerships in GCC defense industries: lessons learned and best practices
- The influence of U.S., European, Chinese, and Russian partnerships on GCC military doctrine
- Technology transfer and offset agreements: challenges and opportunities in GCC procurement
- Workforce development and STEM education as enablers of defense industrialization
-The role of SMEs and start-ups in building indigenous defense innovation ecosystems
- Doctrinal transformation in the GCC

- The Peninsula Shield Force and the future of collective defense in the Gulf
- Strategic competition in the Gulf: how emerging tech reshapes regional power balances
- Ethical and legal challenges of AI and autonomous weapons in the GCC context
- Resilience in defense supply chains: lessons from global crises (COVID-19, Ukraine war)
- Regional defense innovation hubs: can the GCC emerge as a global leader?

6. Publication Plans

The plan is to have a joint publication as a special issue of one of the prestigious peer-reviewed academic journals that can be republished as an edited book. The volume is to position itself as a reference to academics, policy makers, and practitioners. For the remaining papers, we would help participants publish them individually in a peer reviewed journal or as a GRC paper.

The tentative outline of the to-be-published manuscript is as follows (subject to change depending on the publisher's policy, and quality of papers submitted to the workshop):
- GCC and the global defense industry
- GCC defense industrial ambitions in global arms markets
- Resilience in defense supply chains: lessons from global crises (COVID-19, Ukraine war)
- Regional defense innovation hubs: Can the GCC emerge as a global leader?
- Localization of defense production in KSA and UAE
-Technological advancements of the GCC defense sector
- Artificial Intelligence in GCC defense: opportunities, risks, and doctrinal implications
- Wargaming LLM driven in PME
- Smart cities, dual-use technologies, and defense applications in the GCC
- The role of autonomous systems and drones in reshaping Gulf military strategies
- Doctrinal transformation in the GCC
- Cyber defense and critical infrastructure protection in the GCC
- Space technologies and their integration into national security strategies. New GCC defense diplomacy?
- The influence of U.S., European, Chinese, and Russian partnerships on GCC military doctrine
- Technology transfer and offset agreements: challenges and opportunities in GCC procurement
- The Peninsula Shield Force and the future of collective defense in the Gulf
- Strategic competition in the Gulf: How emerging tech reshapes regional power balances

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8. Workshop Directors

Dr. Eman Ragab is a political science scholar with over 20 years of experience in research and teaching in international relations and national security across the Middle East and North Africa. She has taught undergraduate and postgraduate courses in prominent institutions, including Cairo University, the American University in Cairo, Nayef Arab University for Security Sciences, and the Egyptian Military Academy for

Higher Education and Strategy. Dr. Ragab has contributed extensively to peer-reviewed publications, supervised numerous theses, and participated in international research collaborations. She also brings experience in policy advisory and leadership roles, enriching her academic perspective.

Dr. Alessandro Arduino, with over two decades of experience in China, has honed his expertise in government policy research, crisis mitigation, private military companies, and cyber deterrence. His extensive field research has spanned across Central Asia, the Middle East, and the Horn of Africa regions, establishing a proven track record. Alessandro is an affiliate lecturer at the Lau China Institute, King's College London, a visiting professor at the Geneva Graduate Institute, and a member of the Advisory Group of the International Code of Conduct Associations for private security companies and the International Institute of Humanitarian Law.