MIDDLE EAST

INDUSTRIAL MANUFACTURING LOCALIZATION: A STRATEGIC IMPERATIVE

ALVAREZ & MARSAL

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1. Industrial Localization: More than a Manufacturing Matter

Industrial localization is not just about building factories; it is about strategically developing capabilities, supplier chains, and innovation capacity, to achieve a global competitiveness standard. From automotive to aerospace, historical localization efforts often spanned multiple decades.

Stage 01 – Initial Setup

- Regulations to protect local industries (e.g. import restrictions)
- Implementation of final assembly line, MRO and aftersales activities

Stage 2 - Industrial Buildup

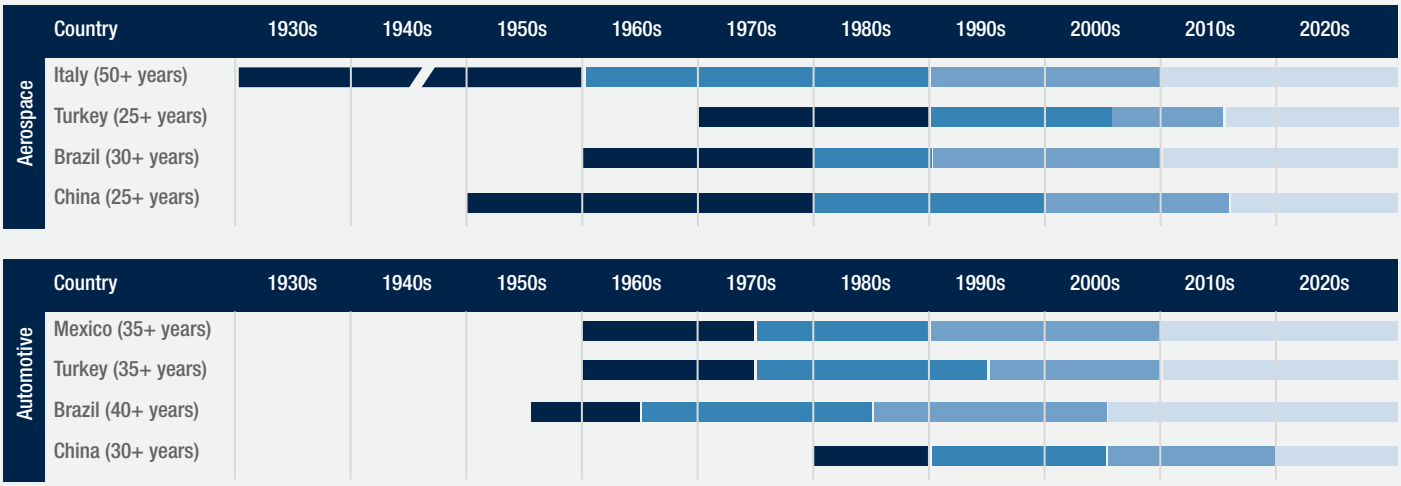
- Set government incentives to support local content
- Know-how transfer via partnerships, launch of first local programs
- Local supply chain development

Stage 3 - Ecosystem Maturity

- Start to build a Country ecosystem for R&D including universities
- Self sustained product and process development initial capabilities
- Rise of domestic OEMs

Stage 4 - Global Integration

- Government support international development with G-2-G initiatives
- Develop of new product platforms
- R&D center progress alone



However, while past experiences highlight the lengthy timelines traditionally involved, today it is now possible to accelerate localization significantly by applying the right approaches and leveraging the lessons learned from at least 80 years of global experience. Correctly designed government policies, strong focus on deep technology transfers, and ecosystem orchestration can dramatically shorten the path to building a competitive, self-sustaining industrial base. In this whitepaper, we take a deeper dive into how Middle East countries can leverage global best practices and innovation to accelerate localization lead time and reach their medium terms goals.

1 **Central Intelligence Agency.** (2012). Italian defense industries: Striving to compete

2 **Yesiltas, M. S.** (2023, November 6). *A brief history of 100 years of the Turkish defense industry.* Politics Today.

3 **Editor Latam.** (2023, July 8). *A brief history of the aerospace industry in Brazil.* Latam FDI.

4 **Kapur, V.** (2016). *Development of Aerospace Industry in China and Brazil.* Air Power Journal.

5 Tetakawi. (2023, July 6). *The Mexican automotive industry's long history.*

6 **Paker, F. A.** (2021). *The Republic Period of the Turkish Automotive Industry and Product Design. Art and Design Review.*

7 **Editor Latam.** (2023, March 29). *The Brazilian automotive industry: Its history and evolution.* Latam FDI.

8 **Yuan, J.-Z.**, & Brasó Broggi, C. (2025). The metamorphosis of China's automotive industry (1953–2001): Inward internationalisation, technological transfers and the making of a post-socialist market. *Business History.*

How the Middle East can Accelerate the Localization Timeline

While traditional industrial localization processes historically required decades, Middle East countries are well positioned and capable of achieving faster results by continuing to focus on the right enablers, such as:

- Global Knowledge Availability
- Access to Capital
- Strategic Policy Frameworks
- Strong Focus on High-Value Sectors
- Willingness to Leverage International Players
- Advanced Infrastructure
- Digital Transformation Readiness

In summary, if countries like Saudi Arabia leverage these advantages while continuing to focus on deep technology transfer, supply chain development, and innovation ecosystems, they have the potential to achieve a significatively shorter lead time.

The Four-Step Model of Localization

Step 1: Initial Setup

Key activities:

- **Policy Design:** To protect and support the growth of emerging industries, Middle East governments can help lay the groundwork by introducing clear industrial policies and targeted incentives—such as tariffs, tax breaks, and local content mandates. The goal is to create a competitive, innovation-driven environment where local players can develop the capabilities needed to rival established global competitors.
- **Target Setting:** Setting clear localization targets aligned with future industry trends optimizes investments and efforts. For instance, prioritizing EV technologies helps avoid investment in less future-proof combustion subsystems, and focusing on drones can sidestep the need for complex helicopter systems.

Expected Outcomes:

- Assembly facilities in the Country
- MRO centers

Step 2: Industrial Buildup

Key activities:

- Encouraging the development of local Know-How on key areas / systems /subsystems/ materials
  - **Technology Transfer (JVs, offset agreements):** By leveraging joint ventures, offset and licensing agreements to access foreign technology can accelerate local capability development. It is important to highlight the need to focus not only on quantitative metrics, but also on the qualitative side. Not only is the know-how important, but it's also essential to ensure that offset agreements are properly structured and continuously monitored, as not all of them will deliver the expected returns otherwise.
  - **Supply Chain Development:** Building and localizing a network of qualified suppliers to support end-to-end production can reduce import dependency and enhance industrial resilience. In many cases the knowledge belongs to small players rather than OEMs: for example, many car manufacturers may face challenges in designing suspension systems effectively, and in some cases they are not able to forecast its cost as well. Those capabilities often belong to design companies or suppliers. It means sometimes it is important to focus on arranging agreements/JV with these types of companies and not only with OEMs.
  - **Deep Know-How Absorption:** Evolving from basic assembly to mastering complex design, integration, and manufacturing processes will enable sustained innovation and long-term competitiveness. Installing an assembly line is a fundamental but initial step: the ability to modify the manufacturing process according to local production landscape or to handle local product customization is essential. As well as this, it is important to develop the ability to manage product changes, starting from the simplest ones such as introducing alternative components or introducing small quality changes or cost reduction.

Expected Outcomes:

- Local supply chains begin to serve OEMs more effectively and support aftersales operations.
- Establishment of local product and process design offices with design capabilities owned by local engineers.
- Local teams that are capable of independently modifying products and processes without constant HQ involvement.
- Early signs of local innovation initiatives and R&D contributions.
- Critical Success Indicator: Genuine technology transfer, not just operational assembly activities.

Risks to Avoid:

- Superficial offsets (e.g., indirect offset without having any real returns in know-how on core technologies)
- Agreements that are only "manufacturing centric" without knowledge transfer obligations related to engineering capabilities.

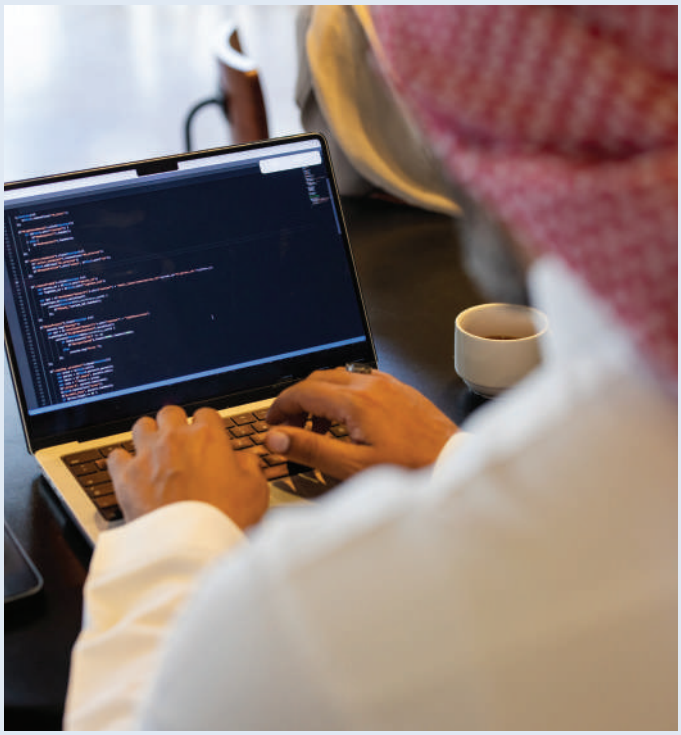
Step 3: Ecosystem Maturity

Key activities:

- **Human Capital Development:** Invest heavily in education, vocational training, and advanced engineering programs tailored to industry needs. This helps build focus on cultivating skills in product design, systems engineering, process optimization, and quality assurance. Government-industry partnerships should establish specialized training centers and incentivize continuous workforce upskilling.
- **Innovation Ecosystem Formation:** Develop a robust network of R&D centers, innovation hubs, and academic collaborations that would aid product stimulation and process innovation. Fostering strong ties between universities, OEMs, and Tier-1 suppliers can ensure a constant flow of research, prototypes, and tech startups that feed the industrial base with new ideas and technologies.

Expected Outcomes:

- Development and testing of new products and services within the country.
- Ability to design and build new production and assembly lines from scratch using local capabilities.
- Ability to certify new products to international standards independently, strengthening global competitiveness.



Step 4: Global Integration

Key activities:

- **Regulatory Alignment and Market Integration:** As local industries mature, aligning with international standards and trade frameworks becomes essential. Countries have been progressively reducing protectionist barriers to ensure their products meet global quality, safety, and environmental standards. This enables industries to access export markets and drive growth. For instance, when Turkey entered the EU Customs Union in 1996, adopting European standards significantly boosted its automotive exports[9].
- **Consolidation Process to Build Global Champions:** Middle East governments can play an important role by sponsoring consolidation initiatives that help local players achieve the size and capabilities needed to compete globally. This strategy is especially vital in markets without a large domestic base. Cross-border partnerships and mergers, such as the Eurofighter Typhoon Program (Spain and Germany with Airbus Defence and Space, UK with BAE Systems and Italy with Leonardo)[10] or the formation of Airbus, that involved French, German UK and Spanish companies during the 1970s, show how combining resources and know-how across countries can produce global industry leaders.

Expected Outcomes:

- Ability to design, develop, and produce new product ranges and platforms ready for global competition.
- Creation of global players embedded within the supply chains of the localized industries.

9 World Trade Organization. (2016, February 9). Trade Policy Review: Turkey

10 Association for Project Management. (n.d.). *The Eurofighter Typhoon.*

2. Case Studies: Lessons from Aerospace and Automotive

Turkey's Aerospace Journey:

Turkey has developed over recent years thanks to a continuous focus on knowledge transfer on product capabilities, creating an industry able to compete as a leader in some sub sectors like unmanned vehicles.

The main guidelines Turkey has followed to achieve this goal are highlighted below:

- Effective offsets initiatives
  - Minimum level of localization at 50%, which sometimes reaches levels above 70% (e.g. Locked Martin had a 70% offset value in F-16 local manufacturing program with TAI)[11]
  - Mandatory technology transfer (e.g. Airbus transferred full design set and manufacturing technologies to TAI and Turkish Subcontractors)[12]
  - Obligations to involve local companies in global supply chains of suppliers involved in Aerospace & Defense national contracts (e.g. Alp Aviation involved at global level by Sikorsky)[13]
  - Clear R&D targets in offset (e.g. Tai and AgustaWestland on T129 Atak where local contents reach 50-55% on designing and testing of subsystems, software and local weapons integration[14]
  - Mandatory training for engineering resources (e.g. Boeing built a training program for Turkish engineers)[15]
- Creation of national champions like TAI, ASELSAN, Roketsan
- Evolution from licensing to indigenous Unmanned Aircraft Vehicles (UAVs) leveraging on internal know how and innovation capabilities acquired in previous programs

Period	Key Characteristics	Example UAVs
Early-mid 2000s	Import/leasing of foreign UAVs	IAI Heron[16]
Late 2000s	Early indigenous development efforts	TAI Gözcü[17], Vestel Karayel[18]
Mid-2010s	Breakthrough indigenous UAVs (some foreign components)	Bayraktar TB2[19], TAI Anka[20]
Late 2010s–2020s	Fully indigenous and advanced UAVs	Akıncı[21], Aksungur[22], Kızılelma[23]

11 Zuvin, S., & Hepagir, B. (n.d.). *Where is Turkey in the "Offset"? Current legal environment and the recent legislation change.*

12 Tourexpi. *Airbus partnering with Turkish firms for nearly 40 years.*

13 Global Business Reports. (2016). *Turkey Aerospace & Defense 2016*

14 **Defence Turkey.** (2019, February 22).

15 **Boeing.** (2020). *Boeing in Turkey.*

16 Israeli Manufacturers' Turkish UAV Contract - Defense Industry Daily

17 IDEF: TAI details new Tiha UAV variant. (2007, May 29). FlightGlobal

18 Vestel Karayel Successfully Completed "Payload" Test Flight - Defence Turkey Magazine

19 **Baykar.** (2023, December 20). *Türkiye's first indigenous UCAV Bayraktar TB2 exceeds 1 million flight hours.*

20 **Defence Turkey.** (2010, November). *TAI's UAV "ANKA" rolled out.*

21 **Mevlutoglu, A.** (2021, September 30). *Akinci and Turkey as a drone power.* Politics Today.

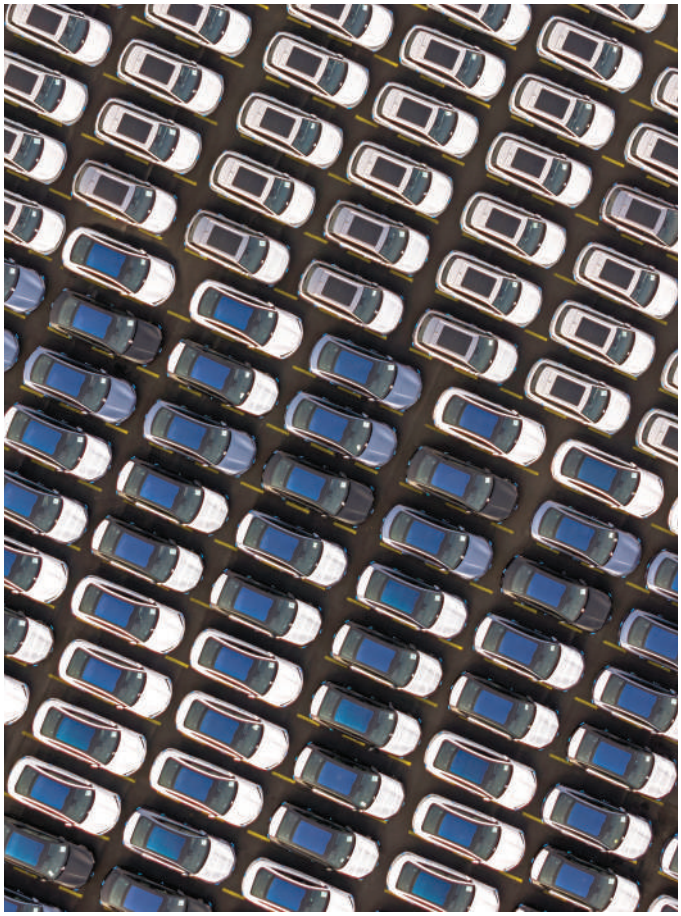
22 **Bekdil, B. E.** (2019, May 13). *Turkish company reveals plans to develop a supersonic drone.* Defense News.

23 Baykar's Bayraktar KIZILELMA: Turkey's 1st-Ever Unmanned Fighter Jet

Automotive Localization (China):

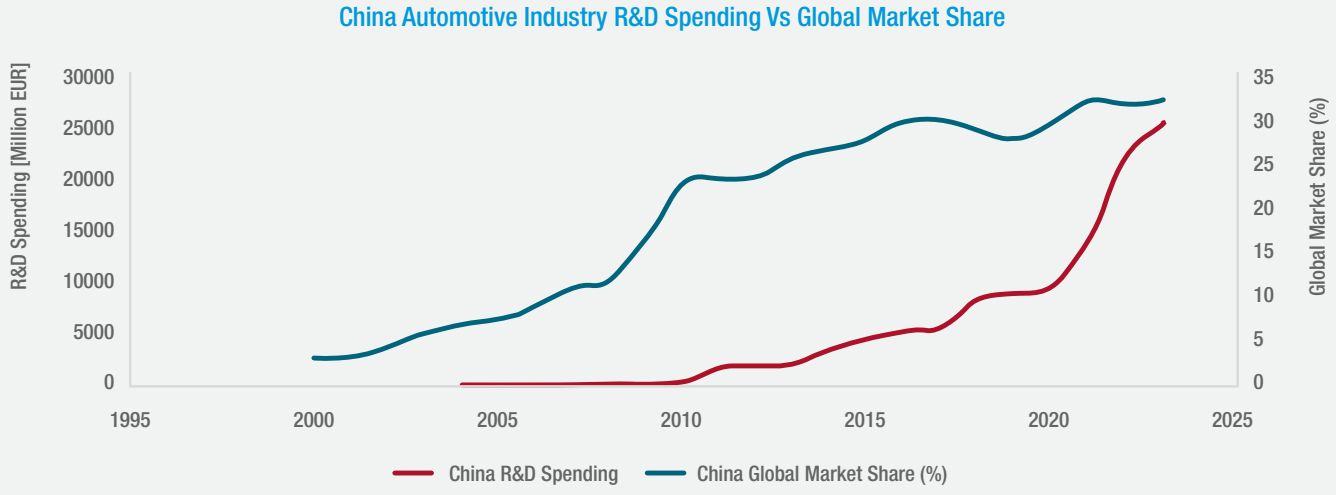
- China have demonstrated controlled liberalization and New Energy Vehicles (NEV) leadership thanks to localization initiatives:
  - JVs obligations with local companies
  - Subsidies policies to develop new technologies locally
  - Support to build national champions
  - Infrastructure expansion to allow new technologies deployment

These policies allow local players to become, in some cases, one of the world leaders like BYD in EV vehicles and CATL, backed by state support, reaching the role of world's largest EV battery producer with 37.9% global market share.[24]



Key graphic: Evolution of China's automotive industry's R&D spending Vs Global market share

Growth drivers up to 2010	Growth drivers 2010 and onwards
▪ JV with international players as a way to force knowledge transfer ▪ Leverage of internal market size ▪ Local player with big rooms of improvements	▪ Technology switch to EV ▪ Local players lead the growth with their internal capabilities ▪ Growth coming from international market share improvement



24 Global EV battery market share in 2024: CATL 37.9%, BYD 17.2% - CnEVPost

3. Building Product and Process Development Capabilities: The Key Success Factor

Top-performing countries in localization initiatives should emphasize product and process innovation capabilities, not just local assembly:

- New product design and adaptation
- Local manufacturing engineering excellence
- Certification autonomy
- Innovation across OEMs and suppliers

Innovation functions differently, with different main players coming into play depending on the product: Integration level (full product) and systems/subsystems/component levels requires different skills and methodology to guarantee successful innovation: Effectively localizing an industry to enable local players to compete globally requires innovation across multiple areas—and these capabilities are not all at the OEM level. There is the need to involve different types of actors within the value chains of the industries, and that involvement must be achieved by orchestrating initiatives at different levels in the value chain.

At the system / subsystem level, innovation skills are of course a success factor.

Category	Type of Company	Area of Contribution
OEMs	Final manufacturers of vehicles and aircraft	System integration, vehicle architecture, complexity management
Engineering Services	Engineering consulting companies	System engineering, development and testing (with a particularf focus on virtual testing), MBSE (Model-based System Engineering) modeling
Software Vendors	CAD/CAE/PLM platform providers	Tools for digital twin, simulation modeling, software-product integration
Tier-1 Component Suppliers	Suppliers of complex systems	Subsystem integration (electric powertrain, avionics, sensor fusion)
Tier-2 Advanced Component Suppliers	Suppliers specialized in next-generation components	Innovative materials, advanced electronics, lightweight structures
Additive Manufacturing Specialists	Suppliers of AM and 3D printing solutions	Production of lightweight and optimized critical components
Automation & Robotics Providers	Suppliers of robotic production systems	Automated production, smart factories, assembly automation
Testing & Certification Experts	Testing and validation laboratories	Regulatory validation, safety and quality certification
Cybersecurity & Data Management	Providers of secure and advanced data management solutions	Embedded systems protection, advanced data management and fusion

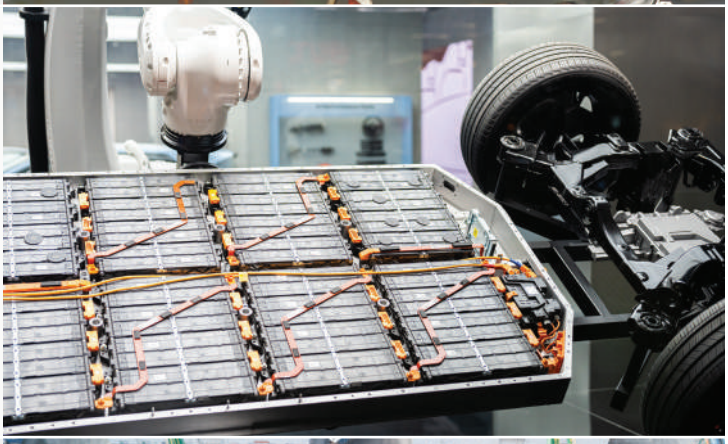
Accelerators:

- **Technical Assistance Agreements:** Foreign firms sharing know-how, processes, and training with local companies without giving full IP, can enable faster capability building.
- **Reverse Engineering:** Locals studying and replicating imported products to quickly develop technical skills without formal knowledge transfer.
- **Co-Development Projects:** Local and foreign firms can jointly design and build products, letting locals learn directly through collaboration.
- **Targeted M&A:** Local firms acquiring foreign companies with key technologies or talent to rapidly enhance capabilities and accelerate development.

4. Case Studies in the Middle East

4.1 How KSA Is Successfully Advancing Its Industrial Localizations

The efforts and the focus of key stakeholders in KSA has helped deliver significant results. Below are some non-exhaustive examples:

Focus Area	KSA Progress	
Aerospace	▪ SAMI producing F-15 parts and avionics locally.[25] ▪ Boeing, Lockheed Martin, and Airbus signed localization and offset agreements (50% local contents and it is actually at about a 20% level, starting from a 4% in 2018)[26]. ▪ Alsalam Aerospace expanded heavy MRO for military aircraft inside KSA.[27]	
Automotive	▪ Lucid's KAEC factory opened.[28] ▪ Ceer to design and manufacture EVs domestically.[29] ▪ SNAM assembling commercial vehicles locally.[30]	
Shipbuilding	▪ King Salman Maritime Complex to localize over 50%[31] of shipbuilding and rig manufacturing activities. ▪ Zamil Offshore producing military and support vessels in KSA.[32] ▪ JV with Hyundai targeting ship engine and block manufacturing in KSA.[33]	

25 **Arab News.** (2025, March 2). *SAMI was Platinum Sponsor of the First Aerospace Connect Forum.*

26 **U.S.-Saudi Arabian Business Council.** (2019, October). *Defense Webinar 2019.*

27 **Saudi Press Agency.** (2024, July 17). *SAMI extends its MRO capabilities through being an authorized Airbus helicopters service center.*

28 **Saudi Press Agency.** (2023, September 27). *Lucid Group opens Saudi Arabia's first-ever car manufacturing facility in KAEC.*

29 **Public Investment Fund.** (2022, November 3). *HRH Crown Prince launches Ceer, the first Saudi electric vehicle brand.*

30 **Argaam.** (2022, January 29). *SNAM plans to move from car assembly to manufacturing.*

31 **Argaam.** (2025, April 28). *Eastern Province offers SAR 330B in investments: Al Falih.*

32 **General Authority for Military Industries (GAMI).** (2021). *Saudi Military Industries Highlights: H1 2021.*

33 **Saudi Aramco.** (2017, July 5). *Saudi Aramco, Dussur, and Hyundai Heavy Industries sign MOU for engine manufacturing and supply collaboration in Saudi Arabia.*

Goals:

- Economic Diversification
- High-Value Job Creation
- Global Investment Attraction
- Industrial Sovereignty
- Fostering self-sustaining companies
- Building innovation hubs
- Deepening local supply chains
- Encouraging university-industry collaboration

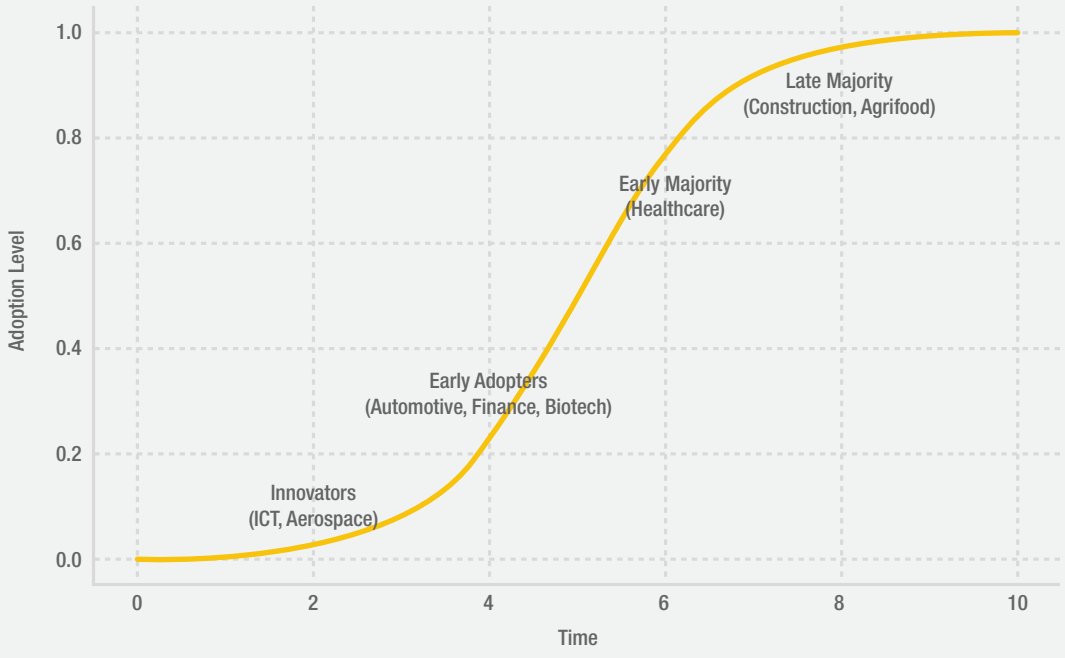
Target Sectors: Aerospace, Automotive, Shipbuilding, ICT, AI, Fintech

Given the current landscape of industrial localization, the focus is shifting to Step 3 of the localization journey, which is the development of unique local know-how capabilities that will support the internal innovation process in localized industries:

KSA can also leverage strong existing capabilities in ICT and AI to create competitive R&D industrial ecosystems.

ICT capabilities are usually a precursor of innovation readiness and adoption in other industries:

Key graphic: S-Curve of Innovation Adoption Across Industries



4.2 How Oman Is Setting an Industrial Localization Strategy in Line With the Country Characteristics

Oman has different intrinsic characteristics, mainly related to a limited internal market due to a total population, including expats, of about 5.3 million people.

Oman Vison 2040 aims to transform Oman into a diversified, sustainable, and competitive economy supported by a knowledge-based society. It seeks to reduce dependence on oil revenues by promoting economic diversification, strengthening human capital, enhancing quality of life, and ensuring sustainable development for future generations.

According to Oman Vision 2040, government entities like ITHCA, owned by the Oman Investment Authorithy, are focusing their investment on high value added "Industrial localization" initiatives: investment in drone technologies, industry 4.0 devices and semiconductor design & build capabilities.

In many cases the aim of the investment hasn't been to localize manufacturing plants, but to develop high end design capabilities in-country: ITHCA have asked the portfolio companies to build design centers in Oman[34].

Through partnerships with local universities and other Government Entities and ministries, specific learning and development programs have been built and applied.

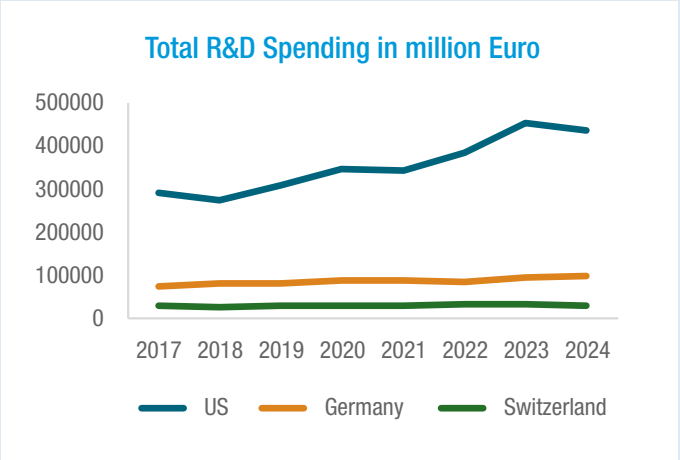
As a result, after around two years some of the design centers in Oman are now up and running.

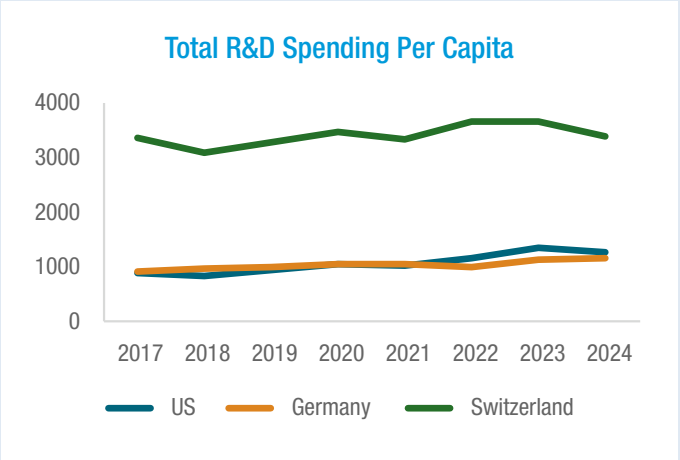
5. Conclusion: How to Maximize Localization ROI in the Middle East

Middle East countries can achieve successful localization and achieve their goals by continuing to focus on localization, developing knowledge and the ability to innovate.

A simple, although only directional KPI, is the total R&D and the pro capita R&D spending in a country.

Key graphic: Total and per capita R&D Spending Between US, Germany, and Switzerland





34 Source: ITHCA

35 **Joint Research Centre (JRC).** (n.d.). *Data – Economics of Industrial Research and Innovation. European Commission.*

Countries such as Switzerland, despite having relatively small domestic markets, continue to make significant investments in R&D. Those efforts have enabled the country to become one of the global leaders in several industrial sectors:

- Information and Communication Technologies (ICT)
- Mobility and Transport
- Advanced Materials and Nanotechnologies
- Advanced Manufacturing and Robotics
- Life Sciences and Biotechnology
- Energy and Environmental Technologies

Therefore, whilst building factories is a mandatory step, developing R&D capabilities is equally essential to achieving sustainable localization:

- Controlled, knowledge-driven partnerships will help:
  - Ensure real technology transfer.
  - Build local teams in R&D and engineering.
  - Drive next-generation platform co-development.
  - Share or localize intellectual property.
- Operational Levers: Fast-tracking knowledge transfer and supplier capability building.
- Strategic Role of Multinationals: From market access to capability partnership.

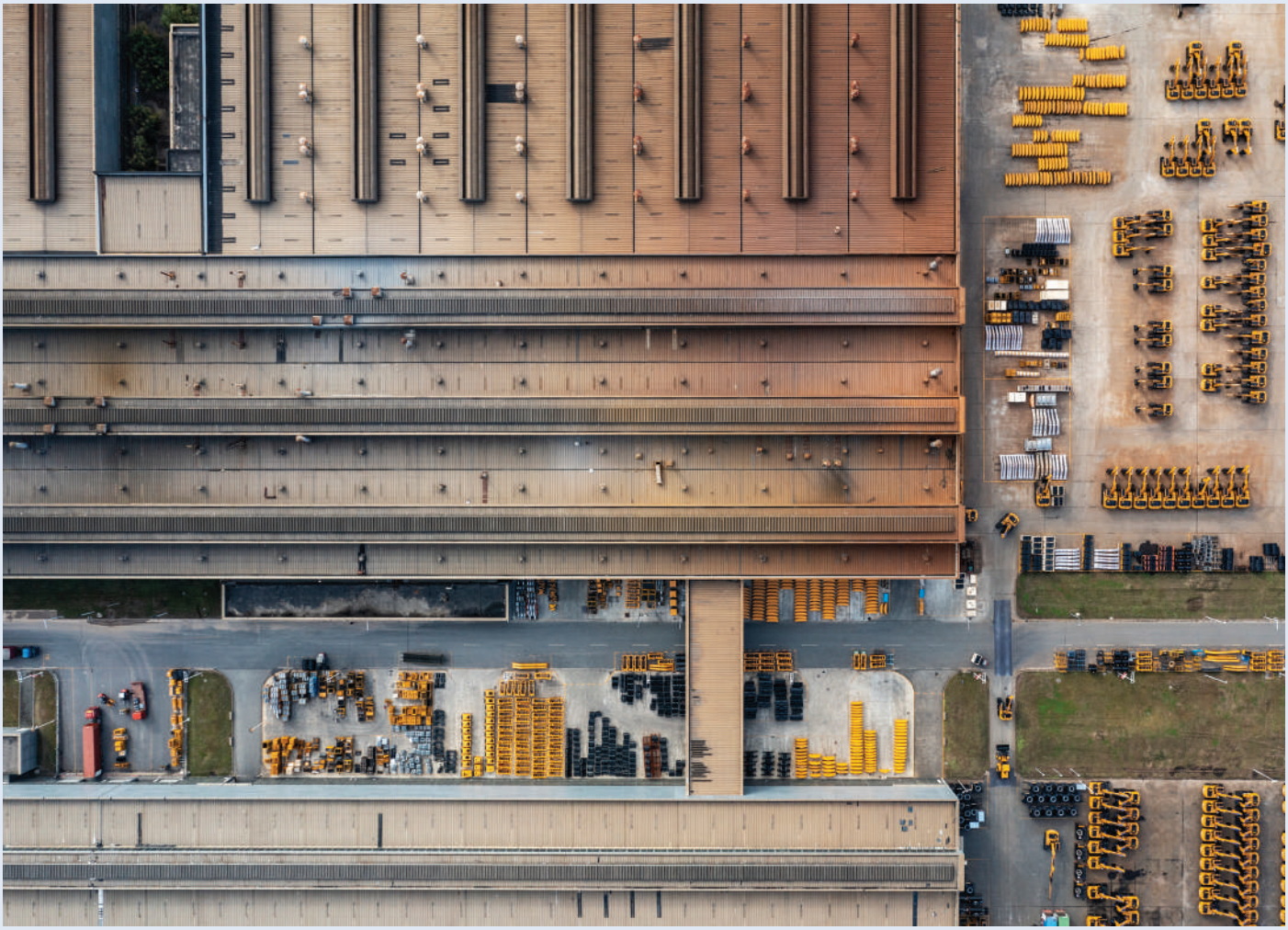
The current macro-economic situation can be a source of uncertainty for the global industrial manufacturing industry. This is due to several reasons:

- The potential squeeze of resources to invest in the GCC region due to the Oil Price drop
- The risks of a tough trading war at a global level, with the decline in competitiveness of entire regions in industries where they historically built long term success

However, the same macro-economic factors represent an opportunity to pursue:

- Optimization of ROI from the already deployed investments in terms of market competitiveness and financial sustainability.
- Recruiting of super skilled resources and SMEs with top class know-how and the ability to generate new know-how that is currently being highly underutilized and in financial distress.
- Targeting companies using the approach of “cherry picking,” an acquisition process often used by international players that is completed with a structured and quick know-how transfer program in the destination country. The need to be fast is important to not lose the skills in place or their ability to generate new know how.

Middle East countries like KSA have already made strong progress in laying the foundations for industrial localization. To unlock their full potential and deliver lasting impact, the focus must now remain on building deep capabilities that sustain localization in the long run.

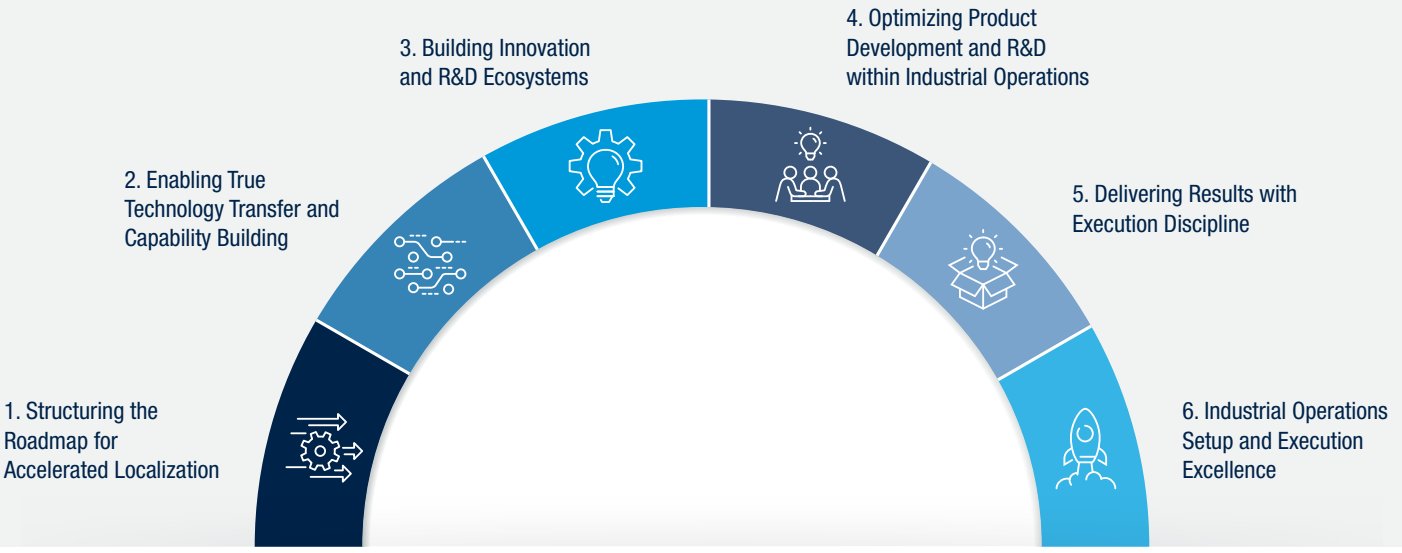


6. How A&M Can Help Drive Industrial Manufacturing Excellence

Achieving industrial localization in the Middle East requires more than capital investment and infrastructure. It demands strategic guidance, knowledge transfer, and a structured pathway from aftersales/MRO and assembly to innovation leadership.

A&M supports governments, national champions, and investors across this journey by bringing practical expertise, proven frameworks, and deep transformation capabilities to deliver real value for shareholders and stakeholders.

We provide an integrated approach which is delivered via six core market offerings:



With a track record of delivering high-impact industrial transformations, we are uniquely positioned to help Middle East countries move from foundational localization efforts to building globally competitive industrial champions.

Interested in how A&M can support your industrial transformation journey?

Reach out to our experts to learn more about our tailored solutions.

GET IN TOUCH WITH OUR SUBJECT MATTER EXPERTS

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