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Centre for the
Fourth Industrial
Revolution

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FORUM

Modernizing Small & Medium-Sized Enterprises in Saudi Arabia

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Foreword



Basma AlBuhairan
Managing Director, Centre
for the Fourth Industrial
Revolution, Kingdom of Saudi
Arabia, in affiliation with the
World Economic Forum



Albadr Adil Foudeh
Deputy Minister for Industrial
Development, Ministry
of Industry and Mineral
Resources of Saudi Arabia

The COVID-19 pandemic has prompted industries worldwide to adapt swiftly to changing conditions, which has had significant impacts on business operations and fundamentals. In addition, increasingly uncertain global economic and geopolitical conditions have exacerbated and intensified the need for industries to be agile and resilient. Technology plays a key role in transforming industries and enabling them to create more value and be more efficient and nimbler.

This publication highlights some of the significant efforts currently taking place in Saudi Arabia to support the digital transformation of industry, with a particular focus on manufacturing. The manufacturing industry is an important engine for the Saudi economy, fuelling productivity, economic growth and innovation. As such, the Kingdom's National Industry Strategy (NIS) was developed with the aim of building a regional industrial hub and creating a diversified economy.

At the centre of this strategy is the application of advanced digital technologies to transform the industry. Saudi Arabia's Vision 2030,¹ which aims to create a more diverse and resilient economy, includes multiple initiatives related to advanced manufacturing and digitalization spanning the industrial spectrum, from training and global forums to research and development and financing schemes.

Launched in 2017, the National Industrial Development and Logistics Program (NIDLP)² focuses on four key sectors: energy, mining, industry and logistics. With the help of Fourth Industrial Revolution technologies, the programme aims to maximize the value of these sectors and transform Saudi Arabia into an industrial powerhouse and a global logistics hub, while bolstering local capabilities.

The five National Industrial Strategy (NIS)³ initiatives to support the adoption of digital technology in the advanced manufacturing industry are:

- 1 Centralizing the responsibility of promoting the Fourth Industrial Revolution to improve the coordination of activities and research;
- 2 Developing Fourth Industrial Revolution and advanced manufacturing knowledge sharing and collaboration platforms to attract global experts, develop local skills and build dedicated professional networks;
- 3 Organizing events to encourage manufacturers to adopt Industry 4.0 technologies and modern manufacturing using blockchain, 5G, the internet of things (IoT), machine learning, artificial intelligence (AI) and autonomous systems;
- 4 Organizing global forums to showcase Saudi Arabia's capabilities and attract Fourth Industrial Revolution innovators and investors; and
- 5 Defining tailored financing programmes and incentives, such as tax exemptions, for early technology adopters to ensure ease of access and investment support for Fourth Industrial Revolution technologies for small and medium-sized enterprises (SMEs).

This report sheds light on the efforts exerted in the Saudi manufacturing system and informs decision-makers on how to use the unrealized potential of Fourth Industrial Revolution technologies. We hope this publication will contribute to the body of knowledge on this effort.

Executive summary

Digital technology is fundamentally altering the way industries operate. Fourth Industrial Revolution technologies are ushering in an era of unprecedented connectivity, automation and artificial intelligence (AI) where technological advancements blur the lines between the physical and virtual worlds. It offers an opportunity for businesses to be more efficient, productive and resilient.

Yet, smaller enterprises face multiple challenges in adopting and benefiting from the digital revolution. These include resource, technical know-how and technological readiness constraints. Given their importance in the fabric of economies, the resilience and productivity of small and medium-sized enterprises (SMEs) have both direct and indirect impacts on larger enterprises and the economy at large. It is therefore crucial to ensure they are not left behind.

By embracing and nurturing a set of key enablers, industrial SMEs can be empowered to overcome the hurdles and reap the benefits of digital technology. To this end, targeted support from governments and the private sector can help overcome challenges. Creating a skilled workforce, increasing access to finance, developing Fourth Industrial Revolution awareness, upgrading infrastructure and strengthening supply chains through investment, technology and capability are just a few of the important areas requiring greater attention.

The three case studies from Saudi Arabia show that by focusing on all these issues, stakeholders throughout the Kingdom can use the development of various programmes to encourage digital technology adoption as the country presses ahead to achieve its Vision 2030 goals.



Introduction

The Fourth Industrial Revolution is transforming businesses worldwide, with industrial small and medium-sized enterprises at the centre of change.

In recent years, the Kingdom of Saudi Arabia has embarked on an ambitious digital transformation journey, recognizing the significant role it plays in driving economic growth and enhancing competitiveness on a global scale. As part of this endeavour, Saudi Arabia has made notable efforts to support the digital transformation of small and medium-sized enterprises (SMEs), acknowledging their vital contributions to the national economy.

This paper sheds light on three compelling case studies from the Kingdom, showcasing the initiatives and strategies that have facilitated the digital transformation of SMEs.

Case Study 1

The **Knowledge-based Advanced Manufacturing Innovation Network (KAMIN)** programme, administered by King Abdulaziz City for Science and Technology (KACST), aims to raise the knowledge and capabilities of SMEs through a training, design support and consultation package. It also provides support for the manufacturing of prototypes and technical consultations for product development. The programme seeks to address the gap that SMEs experience in access to knowledge, technical know-how and technology, and internal research and development (R&D) capabilities by providing a package of technical services and raising awareness.

Case Study 2

The **National Productivity Program (NPP)** aims to support industrial companies to achieve the highest efficiencies by providing free consultancy to evaluate the maturity level, build Industry 4.0 roadmaps that lead to upgrading operational excellence practices and introduce Industry 4.0 technologies for 100 factories to become lighthouses for others and encourage them to apply Fourth Industrial Revolution technologies and approaches.

Case Study 3

The **Future Factories Program (FFP)** was launched to support the digital transformation of over 4,000 factories through a combination of funding and incentive packages, enhanced digital infrastructure, and human capital development.

The Fourth Industrial Revolution has sparked a seismic shift in various sectors of the economy. It holds the potential to contribute significantly to the development of SMEs, which represent around 90% of businesses and more than 50% of employment worldwide, according to the World Bank.⁴ Today, artificial intelligence (AI), machine learning and internet of things (IoT) technologies are driving the adoption of Fourth Industrial Revolution technologies in industrial practices and creating a scenario in which goods can be produced with greater accuracy, efficiency and quality – all with minimal human intervention.

These case studies highlight the transformative power of digital technologies in enhancing productivity, competitiveness and innovation among SMEs. As Saudi Arabia continues its digitalization journey, it is crucial to analyse and learn from these successful case studies as they provide valuable insights and lessons that can be applied beyond Saudi Arabia, to other countries seeking to support the digital transformation of SMEs.

Both the public and private sectors play a crucial role in overcoming these challenges. A combination of industrial policies targeted at addressing the specific challenges, investment in infrastructure, and technical support, among others, have the potential to bridge the technology gap in SMEs and spur wider adoption.



Case studies



CASE STUDY

Knowledge-based Advanced Manufacturing Innovation Network (KAMIN)

City	Riyadh
Region	MENA
Country	Saudi Arabia
Project partner	King Abdulaziz City for Science & Technology (KACST)

KAMIN aims to raise the knowledge and capabilities of small and medium-sized enterprises (SMEs) through a training, design support and consultation package. It also provides support for the manufacturing of prototypes and technical consultations for product development. The programme seeks to address the gap that SMEs experience in knowledge access, technical know-how and technology, and limited internal research and development (R&D) capabilities by providing a package of technical services and raising awareness.

Overview

SMEs are facing critical challenges in maximizing benefits from available technology and knowledge that can help raise their productivity, efficiency and competitiveness. A lack of expertise and technical know-how and inadequate incentives and conducive environments for the sharing and transfer of knowledge in industry risk seeing SMEs left behind in the age of digital technology.

The KAMIN programme, administered by King Abdulaziz City for Science and Technology (KACST),⁵ aims to raise the knowledge and capabilities of SMEs through a training, design support and consultation package. It also provides support for the manufacturing of prototypes and technical consultations for product development.

Knowledge and technical know-how are critical resources for SME competitiveness as larger firms have an advantage in terms of resources – both financial and human capital – to develop knowledge and continue to innovate. Through policies and targeted support, governments can play a significant role in supporting SMEs in developing their capabilities and creating a conducive environment for knowledge-sharing within the industry and the provision of training at scale.

The programme seeks to address the gap that SMEs experience in access to knowledge, technical know-how and technology, and limited internal research and development (R&D) capabilities. KAMIN intends to create a collaborative network for knowledge-sharing by fostering relationships, both social and business, between individual actors in the industry. At the same time, larger firms and service providers can use the platform to promote their solutions to potential users. The programme provides tools such as software for

free to participants and informs them of the various activities, information on new technologies, and opportunities available to them as resources.

The objectives of the programme are achieved through the provision of a package of technical services for SMEs, including:

- Product development
- Digital manufacturing
- Programmes to raise company efficiency
- Technical training
- Consulting

Through this support, the programme helps SMEs manufacture their prototypes in a competitive and cost-effective way. Companies can finalize the study phase and prototyping through the KAMIN programme the programme has developed a framework and legal infrastructure to ensure and preserve trade information and copyrights.

To raise awareness of the various technologies and their applications, KACST organized visits to their advanced manufacturing technologies centre where it showcases Fourth Industrial Revolution technologies such as design, subtractive and additive manufacturing, industrial internet of things, and cloud computing. The programme also focuses on capacity building by providing training free of charge for SME employees. In addition, consultation services are also provided to help SMEs plan for and maximize the use of technology to enhance their operations.



Key decisions and tactics



1 Provide capability improvement support at no cost to SMEs

The Saudi Government has fully financed this initiative, without any cost to the SMEs. Founded in 2018, the programme plays the role of an enabler for Industry 4.0 technologies. A defined scope was created with milestones and key performance indicators (KPIs) with tangible deliverables (services, prototypes, consultations, training sessions, etc.) to track the progress and outcomes of the initiative.

2 Support the complete product development life cycle

The product development service aims to provide solutions to the challenges encountered by industry in the Kingdom. It aims to improve the performance of the industrial sector through research and development and to strengthen the research field. KACST offers the manufacturing of one prototype for each company free of charge. KACST also provides programme participants with free access to advanced technical consultation services. The technical services include access to expertise in fields including energy, advanced materials, electronics, and information and communications technology.

3 Provide specialized technical training services

KACST provides technical and engineering training programmes to support the technology ecosystem in Saudi Arabia. Participants can access various types of training, including the management and implementation of technologies such as the industrial internet of things, predictive maintenance and cloud computing, through digital classes, augmented and virtual reality scenarios, boot camps and simulators. KACST and an appointed engineer administer the content and provide the training. To participate in this programme, SMEs are selected based on predetermined criteria, including technology maturity, prioritization of industry sector, and impact of the SME in the value chain.

4 Foster network collaboration

The programme provides participating SMEs with access to the SME network and other support partners. This fosters knowledge exchange, the joint development of business ideas and other business and technical collaborations.



Best practices

The training emphasizes the rapid prototyping (RP) process. Through the use of enabling digital technologies, this process can demonstrate to the SMEs how technology can help optimize productivity, workforce management, supply chains and logistics. Globalization and strident competition are forcing manufacturers to develop innovative solutions immediately and shining a light on the need to cooperate with other business entities and scientific units.



What did the public sector offer?

- Funding
- Incentives such as tax exemptions
- Train the trainer sessions for the programme in cooperation with global partners
- Infrastructure, such as the premises for training sessions
- Promoting the programme through various events



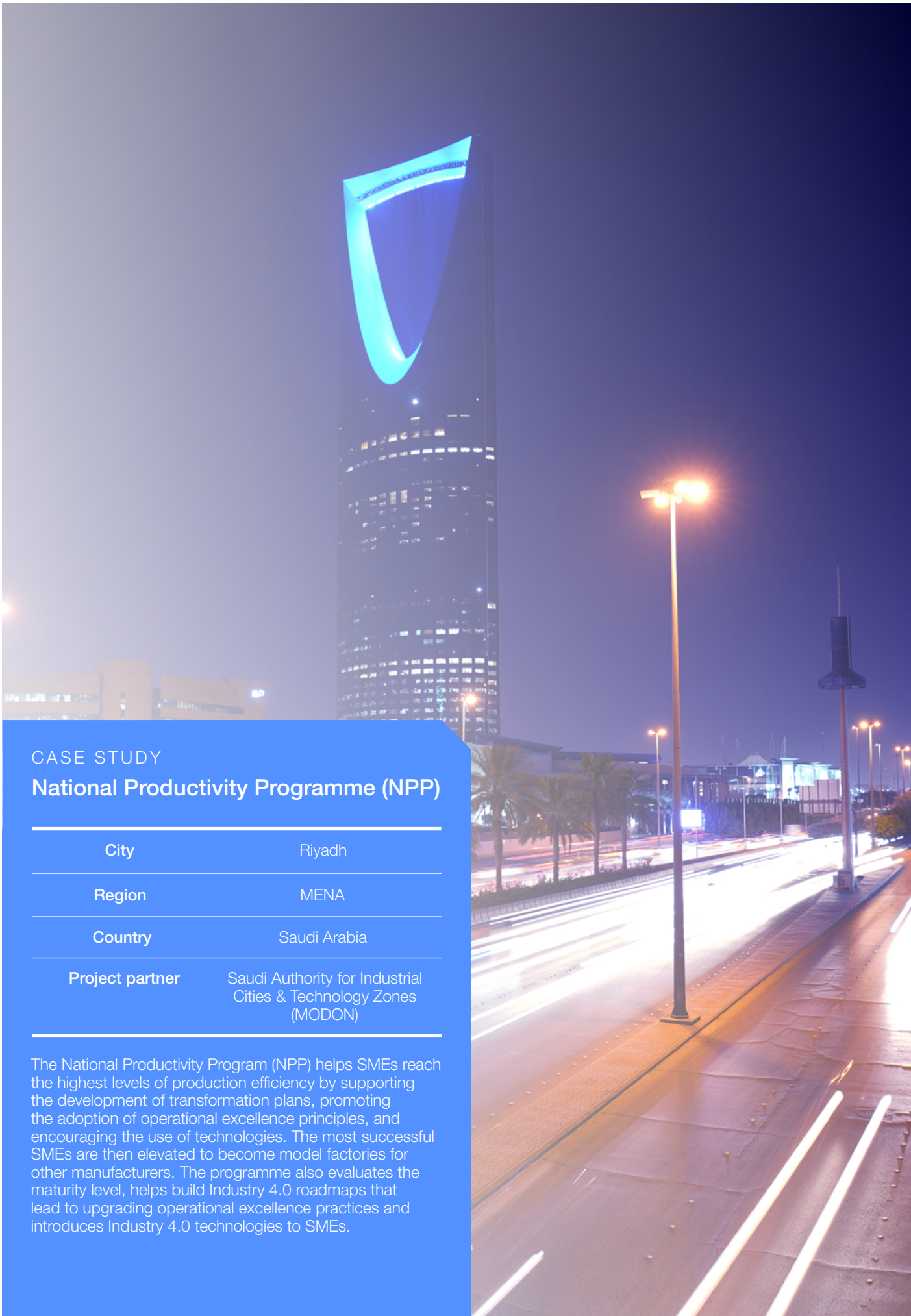
What did the private sector offer?

The private sector is incentivized to take part in the programme as it gives them an opportunity to network and advocate for their solutions. They support infrastructure, facilitate the acquisition of systems and provide on-demand consultation services for performance improvement. This is a great opportunity for the service provider to demonstrate their solution and capabilities. It also provides business and investment opportunities for the partners.



Impact

Over the last 5 years, KAMIN has delivered 400 services to 120 SMEs, including product development services, digital manufacturing solutions, productivity-raising services, and technical training services. This has led to the manufacturing of 1,400 prototypes. The programme trained 800 participants from 120 SMEs and provided more than 300 software licenses, cloud computing services and tools in the industrial and engineering field.



CASE STUDY

National Productivity Programme (NPP)

City	Riyadh
Region	MENA
Country	Saudi Arabia
Project partner	Saudi Authority for Industrial Cities & Technology Zones (MODON)

The National Productivity Program (NPP) helps SMEs reach the highest levels of production efficiency by supporting the development of transformation plans, promoting the adoption of operational excellence principles, and encouraging the use of technologies. The most successful SMEs are then elevated to become model factories for other manufacturers. The programme also evaluates the maturity level, helps build Industry 4.0 roadmaps that lead to upgrading operational excellence practices and introduces Industry 4.0 technologies to SMEs.

Overview

SMEs in Saudi Arabia operate in a highly competitive environment and are often constrained by limited financial resources. As labour and energy costs increase, SMEs need to find ways to maintain efficiency while ensuring high-quality and on-time delivery.

The Saudi Authority for Industrial Cities and Technology Zones (MODON)⁷ launched the National Productivity Program (NPP) to help SMEs reach the highest levels of production efficiency by supporting the development of transformation plans, promoting the adoption of operational excellence principles, and encouraging the use of technologies. The more successful SMEs are then elevated to become model factories for other manufacturers. The programme also evaluates maturity levels, helps build Industry 4.0 roadmaps aimed at upgrading operational excellence practices and introduces Industry 4.0 technologies to SMEs.

The programme was launched in 2019 and aims to support 100 SMEs by providing Industry 4.0 implementation plans in a triple transformation approach integrating business, technology and organization perspectives.

- The **business perspective** approaches digital transformation holistically with a clear vision and roadmap and seeks opportunities to drive value from existing assets.
- The **technology perspective** builds a focused ecosystem of technology applications and partners.
- The **organizational perspective** focuses on building culture change and addressing the capability gap.

The NPP follows a three-phase approach:

1. Awareness and preparedness – Conducting webinars and boot camps on operational excellence and the latest digital technology with SME employees and building understanding of the manufacturing process

2. Diagnostic – Conducting digital maturity assessments, developing the initial hypothesis for key challenges or value drivers, analysing factory operational data, understanding the factory information technology (IT) and operational technology (OT) architecture, mapping the business process and assessing the current skill matrix
3. Design – Conducting an idea generation workshop with the SME to identify and prioritize digital initiatives for business, technology and organization levers, then building the business case with the proposed IT/OT architecture

The NPP was initially designed to assist 100 SMEs in their digital transformation efforts but its success prompted an extension to include 300 SMEs. It has trained more than 550 leaders from 100 SMEs in cooperation with global technological partners.

Delivering the NPP is a collective effort involving the participation of multiple stakeholders, including the Saudi Industrial Development Fund (SIDF) and King Abdulaziz City for Science and Technology (KACST). As an essential initial step in the programme, baseline assessments are performed for selected SMEs using the Smart Industrial Readiness Index (SIRI)⁸ to determine the technological maturity level of SMEs on 16 main dimensions. Developed by the Singapore Economic Development Board in partnership with a network of technology companies, consultancy firms, and industry and academic experts, SIRI comprises a series of frameworks and tools to help manufacturers start, scale and sustain their manufacturing transformation journeys.

SMEs are also evaluated and provided with the necessary financing through grants and soft loans that cover up to 75% of project costs. To date, this combined effort includes delivering training to more than 550 employees from 100 SMEs, SIRI assessments of over 80 SMEs, and the deployment of a prototype Fourth Industrial Revolution use cases involving 11 industrial sectors, including food and beverage, paper and carton manufacturing, and chemicals.



Key decisions and tactics



1 Standardize the digital maturity assessment

To have a standardized measurement and benchmark, the programme started by conducting a digital maturity assessment for each participating SME using the Smart Industrial Readiness Index (SIRI) to determine the technological maturity level of participants on 16 main dimensions. The programme uses certified assessors to conduct the baseline maturity, creating a pipeline to train 100 additional assessors to ensure continued resources for future assessments. Standardizing the maturity assessment gives a perspective of where Saudi SMEs stand compared to best-in-class countries, and prioritizes and aligns the initiatives of government entities to support the Industry 4.0 transformation of the SMEs.

2 Maximize the use of existing resources

One of the main differentiators of this programme is that it focuses on maximizing the use of the factory's existing resources, including leadership, facilities and production lines. The NPP started by developing a digital transformation strategy addressing current gaps. This was followed by implementing an up-skilling programme for the factory leaders and employees. Finally, there was a careful selection of the required digital technologies needed to maximize efficiency while focusing on implementing these technologies with minimal interruption while upgrading existing facilities and production lines.

3 Integrating government agency support

The programme provides integrated one-stop-shop support from all government agencies, including strategy development, funding and technical consultation. This integration has resulted in accelerating the realization of government incentive programmes and accelerating the adoption by the participating SMEs. The NPP is run in partnership between MODON, SIDF and KACST. MODON identifies targeted SMEs using criteria approved by the three stakeholders and assesses and creates development plans for the SMEs. SIDF is responsible for conducting feasibility studies and for funding. KACST provides advanced technical support for the transformation technologies.

4 Transformation roadmap

The builds the transformation blueprint, beginning with the preparation phase, where the SMEs go through an Industry 4.0 training boot camp and collect the required operational and financial data. In the diagnostic phase, the SIRI assessment is conducted and both digital and lean improvement levers for each core business area are defined. Lastly, a clear transformation roadmap is built and recommendations on how to realize identified potential initiatives are made.



Best practices

- An open-ended call for solutions that encourages bold, innovative thinking and prioritizes public benefits
- A request for a proposal that enables multiple companies to work together as part of a consortium
- Contract provisions allowing new business models to be introduced over time to ensure technology remains best in class and a focus on data access over ownership



What did the public sector offer?

- Services to ensure that adequate policies and incentives are in place to create a favourable risk profile for initial investments in Industry 4.0
- Consultancy services to develop the digital transformation strategy for SMEs
- Training for leadership resources and funding for the digital transformation journey through government-subsidized grants and loans



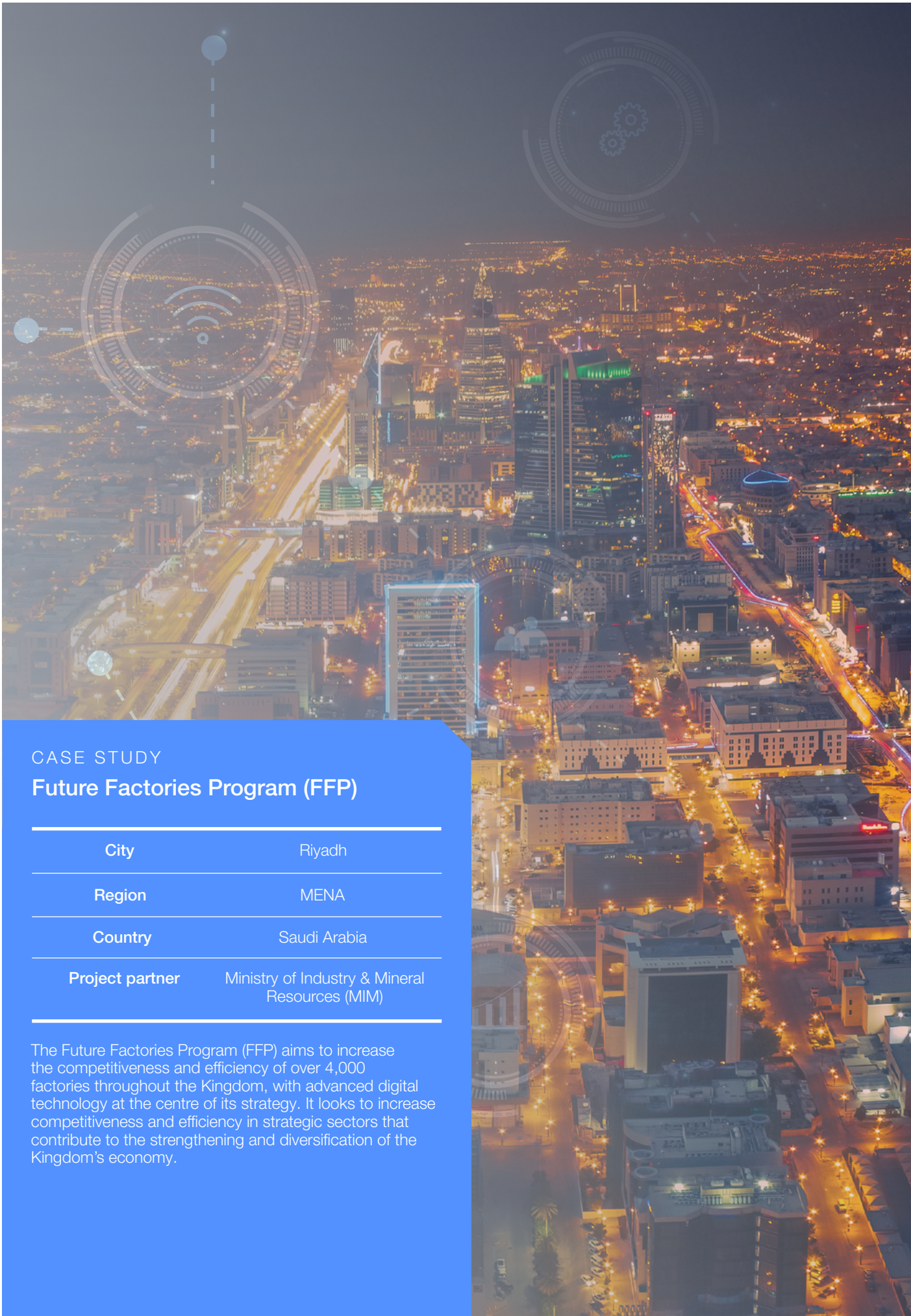
What did the private sector offer?

- Industrial internet of things kits for implementation in 100 SMEs as a proof of concept offered by technology solution providers
- Deployment, operation and maintenance of physical devices and digital services at no upfront cost for the SMEs, including tablets to perform time studies and automate production, and planning solutions
- Industry expertise to develop and deploy best-in-class technologies for the 100 SMEs that joined the NPP



Impact

- Achieving up to 50% productivity efficacy improvement on selected model factories
- Achieving up to a 40% reduction of machine downtime on selected model factories
- Up to 65% in earnings before interest, taxes, and amortization (EBITA) impact with a return on investment of two years for selected model factories
- Training of more than 550 leaders at more than 100 SMEs



CASE STUDY

Future Factories Program (FFP)

City	Riyadh
Region	MENA
Country	Saudi Arabia
Project partner	Ministry of Industry & Mineral Resources (MIM)

The Future Factories Program (FFP) aims to increase the competitiveness and efficiency of over 4,000 factories throughout the Kingdom, with advanced digital technology at the centre of its strategy. It looks to increase competitiveness and efficiency in strategic sectors that contribute to the strengthening and diversification of the Kingdom's economy.

Overview

The Future Factories Program (FFP) is an initiative of Saudi Arabia's Ministry of Industry and Mineral Resources (MIM) to improve the competitiveness of the Kingdom's industries. Via the initiative, the ministry aims to transform 4,000 factories to be more efficient and productive through the adoption of digital technology.

The FFP was launched to transform 4,000 factories through the adoption of internet of things and Fourth Industrial Revolution technologies while leveraging existing efforts in the Kingdom to leapfrog Fourth Industrial Revolution adoption. The FFP will ensure that new facilities are created in line with the latest international standards and will transform existing SMEs to adopt advanced technologies and cutting-edge operational practices through:

- The funding of transformation projects
- Raising awareness
- Knowledge sharing
- Enhancing digital infrastructure
- Technical tools to enhance the development of human capabilities, policies and regulations.

The overarching vision of the FFP is to strengthen the capabilities of local industries and bring Saudi Arabia's industrial sector onto the global stage. To realize this vision, the programme centres on three main objectives:

1. Build an advanced industrial ecosystem that fosters Fourth Industrial Revolution technology adoption

2. Raise the productivity and competitiveness of Saudi SMEs
3. Create high-quality job opportunities in the manufacturing sector.

The FFP sets out to reach these objectives through 8 main elements. The first two elements focus on establishing the FFP, starting with:

1. Ensuring strategic alignment with the different national strategies and national programmes
2. Designing the operating model and governance to manage the programme as a control tower.

The remaining elements focus on operating the programme:

3. Designing and managing programme incentives, policies and regulations
4. Building the technology system through vendor engagement, building digital infrastructure, setting up digital platforms, and providing digital tools and applications
5. Conducting awareness campaigns and promoting success stories
6. Knowledge management and sharing best practices with stakeholders
7. Human capital development
8. Achieving the financial sustainability of the programme in the medium to long term.



Key decisions and tactics



1 Digital savvy by design

The programme promotes the building of technological infrastructure in new factories. This avoids expensive modifications to the factory later. The government provides a number of incentives to all factories, such as tax exemptions, project financing, competitive industrial land leasing, and export support. The Kingdom is introducing a policy to associate the incentive levels for each factory with their digital maturity.

2 Audited evaluation

The programme then conducted an audit to capture the actual technological needs of the SMEs. The evaluations consisted of visits to the SMEs to verify the reported gaps and assessment outcomes, identify priorities to improve digital maturity and provide support in enrolling in different incentive programmes. The process identifies specific factory needs, including the demand for different technologies and services, infrastructure, human capital development, and awareness. This helped the ministry better understand the gaps, prioritize programme efforts, and improve the allocation of incentives.

3 Incentives and financing

Incentives offered to SMEs to jumpstart their digital transformation journey include:

- Financial incentives to implement the transformation roadmaps
- Financing for capital-intensive digital transformation projects
- Financial support to accelerate the implementation of basic digital solutions
- Support to help SMEs pilot emerging technologies.



Best practices

The FFP employed a multi-pronged strategy relating to skills development, access to finance, Fourth Industrial Revolution awareness, upgrading infrastructure and strengthening supply chains through investment, technology and capability building.



What did the public sector offer?

- Funding digital capability centres for manufacturers, SMEs and academic institutes
- Collaboration with technology providers and the identification of technology use cases for SMEs
- Funding a SIRI training programme to train 100 local assessors
- Offering international certification training programmes in operational excellence, automation and Industry 4.0 to factory employees



What did the private sector offer?

- Launched programmes to support the transformation of SMEs in their supply chains
- Shared standards and best practices with the SMEs
- Pilots and proofs of value for SMEs conducted by technology providers



Impact

- Reduced operational costs by 21%
- Enhanced supply chain responsiveness by 13%
- Up to 60% improvement in product quality
- Registered 96 technology companies to support factory transformation
- Conducted training for 55 individuals to become certified SIRI assessors
- Established 2 capability centres to support the factory transformation journey

Contributors

Lead authors

Abdulrhman Alaskar

National Productivity Program Manager, Saudi Authority for Industrial Cities and Technology Zones (MODON)

Majed Algwaiz

General Director, Advanced Manufacturing and Innovation, Saudi Ministry of Industry and Mineral Resources (MIM)

Ibrahim AlShunaifi

Advanced Manufacturing Technologies Institute, King Abdulaziz City for Science & Technology (KACST), Industrial Internet of Things (IIoT) Project Lead, Centre for the Fourth Industrial Revolution, Saudi Arabia

World Economic Forum

Mishary Althani

Fellowship Programme, San Francisco

Mohammed Eidan

Fellowship Programme, San Francisco

Arthur D. Little (ADL)

Adham B. Sleiman

Senior Partner

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Mohamed Al Abdullah

Process Manufacturing Manager, Riyadh Steel Factory

Abdulaziz Alanazi

Technology R&D & Innovation Enablement Manager, Saudi Telecom Company (stc)

Khaled Aldharrab

Vice-President, Technology Strategy & Architecture, Saudi Telecom Company (stc)

Haithem Alfaraj

Group Chief Technology Officer, Saudi Telecom Company (stc)

Ali Alhalal

Business Development Manager, Alrouf Factory

Ahmed Alhamran

Director, Technology Alliances & Partnerships, Saudi Telecom Company (stc)

Salah AlHussain

Sales & Marketing Head, Group 5 Factory

Zeeshan Ali

Production Manager, Alkhorayef Co.

Faisal AlJouaib

General Manager, Plastic Factory

Bandar Alkhalan

Director, Advanced Manufacturing Technologies Institute, King Abdulaziz City for Science & Technology (KACST)

Bader Alkhalifa

Regional Director, Yokogawa Co.

Masfer Almaki

Co-Founder, Allamaa Factory

Saleh Almalki

Sales Office, Egic Factory

Suliman Almazroua

Chief Executive Officer, National Industrial Development and Logistics Program (NIDLDP)

Talal Aloraier

Projects Analyst, KSA Advanced Manufacturing Hub, Saudi Industrial Development Fund (SIDF)

Saeed Alshihri

Vice-President, Energy and Industry Sector, King Abdulaziz City for Science & Technology (KACST)

Meteb Altaf

Director, Disability Research Institute, King Abdulaziz City for Science & Technology (KACST)

Saud AlTalib

Team Leader, Supply Chain Development,
Monsha'at

Saad Alqahtani

Advanced Manufacturing Technologies Institute,
King Abdulaziz City for Science & Technology
(KACST)

Sami Alzomaia

General Manager, Business Architecture, Saudi
Telecom Company (stc)

Hani Asia

Operations Manager, Alkuhaimi Factory

Mohammad Binhassan

Executive Director, National Industrial Development
and Logistics Program (NIDL)

Halvard Eggen

Chief Digital Officer, CNTXT

Hamdan Al-Farraj

General Manager, Saudi Telecom Company (stc)

Amer Hage Chahine

Senior Principal, Arthur D. Little (ADL)

Mohammad Humayed

Director, National Industrial Development and
Logistics Program (NIDL)

Jeff Merritt

Head of Urban Transformation, Member of the
Executive Committee, World Economic Forum

Abdullah Al-Muaitir

Senior Projects Analyst, KSA Advanced
Manufacturing Hub, Saudi Industrial Development
Fund (SIDF)

Rawad Nasr

Senior Consultant, Arthur D. Little (ADL)

Aldo Russo

Centre for the Fourth Industrial Revolution, Brazil

Saiful Salihudin

Curator, Urban Transformation,
World Economic Forum

Hassan Sharrouf

Plant Manager, Arriyadh Roaster

Abdulaziz Al-Zaid

Executive Committee Member and Adviser
to the Chief Executive Officer, KSA Advanced
Manufacturing Hub, Saudi Industrial Development
Fund (SIDF)

Endnotes

1. Kingdom of Saudi Arabia, Vision 2030, 2016, https://www.vision2030.gov.sa/media/rc0b5oy1/saudi_vision203.pdf.
2. NIDL is the umbrella for all initiatives under Vision 2030. Governance, funding and supervision are done by NIDL. Read more about the National Industrial Development and Logistics Program (NIDL) at https://www.vision2030.gov.sa/media/qysdyqxl/nidl_eng.pdf.
3. Kingdom of Saudi Arabia, National Industrial Strategy (NIS), https://strategicgears.com/images/report/Saudi_Arabias_National_Strategy_for_Industry_EN_PDF.pdf.
4. World Bank, Small and Medium Enterprises (SMEs) Finance, [https://www.worldbank.org/en/topic/smefinance#:~:text=SMEs%20account%20for%20the%20majority.\(GDP\)%20in%20emerging%20economies](https://www.worldbank.org/en/topic/smefinance#:~:text=SMEs%20account%20for%20the%20majority.(GDP)%20in%20emerging%20economies).
5. King Abdulaziz City for Science and Technology (KACST), <https://kacst.gov.sa/>.
6. Learn more about key performance indicators (KPIs) at <https://www.kpi.org/kpi-basics/>.
7. Saudi Authority for Industrial Cities and Technology Zones (MODON), <https://modon.gov.sa/en/Pages/default.aspx>.
8. Smart Industrial Readiness Index (SIRI), <https://siri.incit.org/about>.
9. Ministry of Industry and Mineral Resources (MIM), <https://mim.gov.sa/mim/index-ltr.html>.



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World Economic Forum
91–93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel.: +41 (0) 22 869 1212
Fax: +41 (0) 22 786 2744
contact@weforum.org
www.weforum.org