SULTANATE OF OMAN

MINISTRY OF COMMERCE & INDUSTRY

MANUFACTURING FOR WELLBEING
INDUSTRIAL POLICY INSTRUMENTS

Achieving the Vision and Strategic Objectives of the Manufacturing Strategy 2040

MoCI-UNIDO Strategy Team

MINISTRY OF COMMERCE & INDUSTRY
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

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1. Executive Summary

Introduction

1. The Manufacturing 2040 Strategy "Manufacturing for Wellbeing" (M4WB) consists of three parts:
   - The diagnosis and vision provide the rationale behind the strategy and the objectives to be achieved in the long term. The Vision Statement reads: *'By 2040, the Sultanate of Oman will have a modern and technologically advanced manufacturing base, fully utilizing the creativity of the Omani population together with the most innovative production techniques and focused on improving the wellbeing of the peoples in the region and the world at large'.*
   - The Industrial Policy Instruments (IPI) identify and integrate the policies and measures to be applied and provides justification for their use. Its main purpose is to provide an understanding of how the full set of policies will reinforce each other.
   - The Action Plan (AP) focusses on the activities and operational actions that need to be undertaken. Its aim is to provide detailed guidelines for successful implementation. Hence, it performs the role of a roadmap or manual.

2. M4WB was prepared in two phases over a 30-month period. The first phase focussed on formulating the diagnosis and vision, while the second one concentrated on the development of IPI and AP. M4WB involved 35 reports covering more than 20 industries and 15 cross-cutting themes. The diagnosis and vision provide five strategic objectives and their corresponding Key Performance Indicators (KPIs), while the IPI and AP provide operational objectives and KPIs. Strategic and operational objectives and KPIs are aligned with each other. For tractability, the IPI and AP have been grouped into four programmes.

M4WB Vision, Trends, Drivers and Enablers

3. The IPI points out that over the last 20 years, the Omani economy diversified away from oil and into manufacturing, and within manufacturing, into petrochemicals and industrial commodities, although this has not fully offset the volatility of global oil and other commodity prices. While significantly contributing to employment, manufacturing has not been able to trickle down jobs to Omani nationals. Manufacturing exports may not have grown as rapidly as would have been possible, partially due to the 35-year peg of the exchange rate to the dollar.

4. In coming years, several *international trends* will shape future manufacturing development in the Sultanate of Oman:
   - Shift of markets away from the U.S. and Europe towards Asia and Africa based on population trends.
   - Growing demand for healthcare products due to the global ageing of the population.
   - Rising calls for healthier and sustainable environments.
   - Globalization, despite temporary setbacks.
   - Technological change and the Fourth Industrial Revolution (4IR).

5. Achieving the M4WB's vision will be *driven* by 30 priority industries grouped into three industry types and seven industrial clusters:
   - *Knowledge-driven industries* focus on the health and environmental clusters and on the production of goods such as pharmaceuticals, medical instruments, fragrances and solar panels. These clusters

will be the main drivers of manufacturing diversification, innovation and the establishment of high-tech industries in the Sultanate of Oman.

- *Capital-intensive* industries will increasingly adopt 4IR production and communications technologies and develop cutting-edge skills involving the electromechanical and transport equipment clusters. These industries will produce air-conditioning systems and electrical equipment, pumps and valves, wires and cables, metal structures, small boats, trawlers and trailers.
- *Natural resource-based* industries, such as petrochemicals, will continue to play a key role in generating foreign exchange and financial resources for investment in other activities. Natural resource-based industries will gradually expand to include the steel, glass and food clusters.

6. Enabling the drivers to perform their transformative role will be three key factors:
   - People. Providing *people* with a new set of skills.
   - Technology. Expanding *research and development* (R&D) capabilities and opening minds to novel ideas and advanced *4IR technologies*.
   - Governance. Upgrading government laws, procedures, incentives, institutions and regulations to deliver on industrial development outcomes based on *modern public management principles and practices*.

Industrial Policy for the Sultanate of Oman

7. The IPI contends that that there are several strengths on which the Sultanate of Oman can base the achievement of M4WB:
   - *Abundant natural resources* that can be used as the foundation for financing diversification into manufacturing activities and provide industry with the necessary foreign exchange. However, these sources will not always be available, making early diversification even more urgent.
   - The Sultanate of Oman's *unique location* in the Indian Ocean and Arabian Sea, right in the middle of trade routes to Asia and Africa, make it a natural gateway to trade with these two emerging regional economic powerhouses.
   - A *large, young, university-educated population*, which provides the foundations for an emerging entrepreneurial, middle- and professional class.

8. To guide the implementation of M4WB in coming years, the IPI document proposes a number of industrial development principles:
   - *Concentrating on a few activities in manufacturing can make the sector strong*. As a small economy, the Sultanate of Oman cannot compete in open markets dominated by large players but must concentrate on industry segments or market niches in which it can assume an influential role, achieve economies of scale and become a dominant world player.
   - *Acting strategically quickly and flexibly*, meaning reaping first mover advantages and rapidly shifting gear as the economic environment changes.
   - *Leaving no one behind*, i.e. supporting activities that can be successful, even though they do not lie at the forefront of global technological or market developments.

   These principles need not be applied rigidly and some balancing among them in both time and space will be necessary.

9. M4WB advances five objectives to be achieved by 2040:
   - To *diversify* the Sultanate of Oman's manufacturing sector into technology- and knowledge-driven activities.

- To develop unique products focussed on *improving people's health and welfare.*
- To expand Omani industry into *regional and new markets*.
- To upgrade the Sultanate of Oman's manufacturing sector to include *'state-of-the-art' technologies.*
- To create an *industrial innovation culture*.

10. The successful implementation of M4WB will be contingent on the application of a *robust set of industrial policy instruments*. These include a combination of laws, regulations and norms, as well as standards and certification. They comprise market-based interventions and incentives and the provision of public inputs. The range of policy instruments is completed by several coordination mechanisms and institutional reorganizations. The focus of the policy instruments is both horizontal, i.e. applicable to the manufacturing sector as a whole, and vertical or selective, i.e. applicable to individual industries or activities only. There is also significant emphasis on generating policy processes that include all stakeholders and that are as open and transparent as possible.

11. Industrial policy instruments and their operational actions have been organized into four distinct programmes:
    - *New Firm and Knowledge-driven Industrial Cluster Creation Programme (NEFKICP)*, which focusses on the development of new priority activities and high-tech industries through investment attraction.
    - *Entrepreneurship and Industrial Innovation Programme (EIIP)*, seeking to stimulate the emergence of new and innovative local firms as well as of the Omani innovation ecosystem.
    - *Programme for Industrial Upgrading and Modernization (PIUM)*, aiming to transform Omani manufacturing into a technologically advanced, internationally competitive and environmentally sustainable force. It focusses on all industries, with the exception of priority industries.
    - *Programme for Governance and Management of Industrial Development (PROGMID),* which cuts across the other three programmes, focussing on ensuring effective and efficient governance and management of the M4WB implementation process and, more generally, of the entire industrial development process.

12. M4WB vision's strategic objectives and KPIs as well as the four programmes' objectives are interrelated, i.e. implementing the activities and measures laid out in the AP will achieve the IPI's objectives and KPIs, which in turn results in the realization of the vision. Programmes have also been aligned with the strategic directions of the Vision 2040 and the UN's Sustainable Development Goals.

Programmes

New Firm and Knowledge-driven Industrial Cluster Creation Programme (NEFKICP)

13. Since investment attraction, in particular the attraction of Foreign Direct Investment (FDI), is the programme's key objective, it is proposed to use *targeting* as the main approach to bring FDI into the Sultanate of Oman. Targeting involves a careful selection of potential investors, approaching selected 'anchor firms' with a 'value proposition' that not only involves incentives but the building of a partnership with the potential investor, and negotiating and convincing the investor to develop the project. All necessary efforts to successfully attract an investor will be undertaken by a multi-institutional team and will include minister or top-level involvement as the need arises.

14. The *value proposition* exclusively for new investments in priority clusters will involve a combination of 'hard', e.g. financial, and 'soft', e.g. partnership, incentives:
    - A corporate income tax (CIT) holiday, tax rebates for investments in new plants and machinery and no import taxes or excise duties on imports of inputs or machinery, except where these are produced locally.
    - Skills development agreements with investors to prepare staff prior to the opening of factories, and a fiscal credit against import duties for firms located in free zones that sell in the domestic market, provided they exceed their Omanization targets.
    - Use of public procurement for large investment projects by introducing contracts that allow for framework agreements of up to 10 years and inserting green procurement clauses into tendering contracts to promote the recycling industry.
    - A temporary increase in tariffs up to the WTO bound limit for priority products imported from countries outside the GCC. This will be complemented by the use of sanitary and phytosanitary standards (SPS) in support of the early stages of development of the food and fragrance industries and by the use of technical specifications to facilitate the 'infant industry' period of capital-intensive and high-tech products such as pumps and valves, electric motors and transformers, solar panels and ships.
    - The establishment of the Equity Co-Investment Fund (ECF) to provide partial equity investment to complement equity investments made by foreign investors and the Manufacturing Development Fund (MFD) to attract domestic investors to enter into partnerships with foreign investors or to start their own businesses in priority industries. The MDF can also be used for seed funding to cluster holding companies. The introduction of a venture capital fund for smaller investments will complement these funds.

15. Investment attraction does not only target potential single investors but also *the full range of supplier firms and related businesses*. NEFKICP includes setting up government-industry groups that map clusters and collaborate in attracting missing parts. Cluster-specific capacity-building in close proximity to the workplace, SME upgrading by supporting business accelerators, the introduction of R&D centres, the financing of innovation, the establishment of business infrastructure, the reduction of red tape and the creation of attractive living conditions, are all initiatives included in this programme that will drive the generation of dynamic clusters.

16. NEFKICP includes a series of *selective policies*. In the health and fragrance clusters, policies aim to facilitate the attraction of skilled pharmacists, pharmaceutical workers and lab technicians, while providing technical assistance, particularly in the fragrance industry, to associations of raw materials producers (frankincense, rose, myrrh) to ensure stable and sustainable supply of high quality. In the solar equipment cluster, policies need to be linked to the production of energy and to the government's energy policies. Since PDO is a major user of PV technologies for secondary recovery policies, establishing a solar energy cluster entails tying PDO purchasing plans to the development of local manufacturing production. Ensuring a constant supply of waste material is crucial in the recycling cluster. Hence, policies need to focus on collection, producer responsibility and take back schemes.

Entrepreneurship and Industrial Innovation Programme (EIIP)

17. While there is considerable local experience in promoting start-ups, there has been limited success thereof in the manufacturing sector. EIIP therefore recommends the provision of *specialized technical advice* for potential entrepreneurs entering manufacturing, either by establishing a special

manufacturing division at Riyada and the National Business Centre or by creating an ad-hoc manufacturing incubator.

18. Manufacturing start-up support, and more generally SME support, *needs to be more differentiated*. Hence, a three-level support system is proposed: entry, intermediate and advanced. The entry level targets any potential entrepreneur and provides basic information, training, and advice on how to start a business. The intermediate level addresses potential Omani entrepreneurs, equivalent to those with a current Riyada card, who would be provided with more advanced services, including access to finance by the Oman Development Bank (ODB) or the Al Raffd Fund. The advanced level targets 'high-flier' Omani SMEs that have registered significant growth and innovative potential, and can rapidly graduate into a middle sized enterprise.

19. To complement start-up services for 'high-flier' firms in the advanced level service bracket, EIIP envisages the establishment of an *advanced mentoring system* drawing on the support of reputable entrepreneurs and larger companies. They will receive cutting-edge training in state-of-the-art technology, product development, management, marketing and exports, e-commerce and public tendering. An advanced tendering initiative (Tendering II), which qualified SMEs can apply to and be awarded a contract of up to 10 years, including contracts above OMR 3 million, will also be introduced.

20. Turning to innovation, on *the supply side*, EIIP proposes more '*makers' and innovation factory* initiatives linked to technological centres such as the Advanced Manufacturing Centre in Sohar, which can serve as showcases and training units for advanced manufacturing technologies. These initiatives are expected to be located in industrial estates or free zones or as close as possible to factories, as proximity encourages interaction. In the case of activities that are more 'science-based', EIIP suggests the creation of research centres, often connected to universities and techno parks.

21. On *the demand side*, a number of policies are envisaged to stimulate innovation:
    - The use of *public procurement* for innovation through tender specification and performance requirements to encourage the diffusion or creation of a new technology or product.
    - The introduction of *innovation vouchers*, consisting of small grants for SMEs to purchase services from universities, research centres or the Industrial Innovation Centre. The vouchers will be distributed among individual SMEs, but companies can pool several vouchers together to target a larger project. Vouchers can be used for inputs to R&D projects or to obtain advice on technology adoption, process improvement and product development.
    - The creation of *fiscal incentives to promote corporate R&D expenditure*. According to the proposal, firms that invest in R&D will be able to deduct up to 50 per cent of their expenditures on R&D from their gross income.
    - The establishment of a *grant system* to finance specific corporate innovation projects. The grants will be allocated to SMEs and large firms on a competitive basis.
    - Availability of *venture capital* (*VC) funds* for innovative projects.

Programme for Industrial Upgrading and Modernization (PIUM)

22. Developing the necessary skills to engage in advanced manufacturing requires an early start. Hence, PIUM suggests improvements in the orientation and quality of primary, secondary and tertiary education. A significant amount of the policy effort will focus on tertiary education and *Technical and Vocational Education and Training (TVET)*. PIUM proposes the preparation of a national TVET strategy

based on a solid assessment of the skills and occupational profile of the country, which will represent the foundation of a TVET curriculum. It recommends close collaboration between MoCI and the Occupational Standards Centre (OSC) to develop National Occupational Standards for manufacturing and the establishment of a manufacturing skills unit. Collaborations will extend beyond the public sector to include business membership organizations such as the Oman Chamber of Commerce and Industry (OCCI) and the Oman Manufacturing Association (OMA) to secure their involvement or to act as intermediaries for the private sector in designing and delivering training. Policies to bring TVET closer to the workplace include the introduction of training programmes for in-company trainers, designed by the Madayn Academy, which should focus exclusively on TVET. To ensure funding for TVET in the long term, a training levy of 0.3-0.5 per cent of firms' payroll (with the exception of SMEs) will be considered.

23. Industrial firms in the Sultanate of Oman are limited in terms of technological skills, awareness of the potential benefits of advanced technologies and a limited supply of public R&D and technological infrastructure. Access to advanced and 4IR technologies will require three types of interventions:
    - *Technology advisory services* that provide information and technical expertise in identifying, acquiring and using new technologies.
    - The development of industrial '*knowledge-transfer networks'*, which essentially focus on creating formal and informal communication channels and connections between actors.
    - The establishment of *research and technology organizations (RTOs)*. RTO services to firms include the provision of specialized technological information and engaging in contract research to deal with troubleshooting, problem solving and repairs or more advanced industrial challenges related to digitalization, automation and control, design for manufacturing and sustainable manufacturing. RTO services may also entail support for metrology, quality control and testing, including the calibration of instruments.

24. The Sultanate of Oman's manufacturing industry is operating below its potential. Not only are factories not at full production capacity but more importantly, many opportunities for expanding activity go unnoticed and remain unexploited. Turning these activities into 'engines of growth' for manufacturing and the economy as a whole requires working both on the supply and demand of manufacturing products:
    - On the *supply side*, PIUM involves *a local content or in-country value approach* that focusses on the largest manufacturing companies in the country. The scheme seeks to increase manufacturing firms' value added by 1-2 per cent annually or an amount equal to annual GDP growth by increasing the local purchases of goods and services. To sustain the supply of goods, the ICV scheme will be accompanied by a suppliers development programme (SDP). The SDP will run in parallel with the ICV scheme and will feed into it. Its ultimate aim will be to improve the supplier's performance so firms can become regular providers and expand to include other clients.
    - On *the demand side*, improving the tendering process by *simplifying the tendering contract award process, reducing the barriers to entry for SMEs and training SME*s in bidding procedures are some of the measures being considered under PIUM. Another instrument will be the *'Buy Omani' and 'Made in Oman' campaigns*. The 'Buy Omani' campaign involves designating days or weeks during the year for several years during which the Omani population will be strongly encouraged to buy local products. 'Made in Oman' campaigns focus on the promotion of the qualities of Omani products through fairs and exhibitions, normally abroad.

25. Manufacturing has not faced any energy constraints for several decades. Gas, however, is no longer as widely available as it used to be, and energy is beginning to reflect its actual opportunity and production costs. Two areas of intervention are proposed in PIUM:
    - As regards *gas allocation*, PIUM recommends the current gas allocation framework to be reviewed every two to three years with a view to ensuring that its priorities are aligned with private sector requirements and the development of M4WB. PIUM aims to progressively realign the balance in favour of M4WB's objectives, paving the path to increase the manufacturing sector's growth.
    - As regards the *efficient management of energy* interventions, PIUM proposes mandatory energy reporting for energy-intensive industries (such as petrochemicals, steel, cement, food processing, glass) and mandatory energy auditing for all industries. The initiative will also comprise an assessment of energy use by key industrial equipment (motors, pumps, air compressors, boilers) and the establishment of standards that are most relevant for Omani industries. The use of best available technology (BAT) in terms of energy efficiency will be included in environmental impact assessment (EIA) reports and will be subject to approval.

26. Upgrading and modernizing Omani industry requires reaping the economies of specialization. Vertically integrated production clusters with strong linkages between firms are a major source of productivity and competitiveness. PIUM includes several key policy mechanisms to benefit from the economies of specialization:
    - *Regional specialization* based on the history and potential of each economic area. In this context, while the petrochemical industry will largely be located along the coast, there is still potential from reaping some gains from specialization. Muscat will keep its broad-based industrial specialization, but Sohar could focus on metals and minerals, electromechanical and heavy industry. Salalah could focus on the health and environment clusters, given its historical relationship with frankincense. Duqm's proximity to the sea makes it available for natural resource-based clusters and assembly-focussed industries.
    - *Integration of industrial areas* under a Special Economic Zones authority or agency. To develop strong linkages and commercial ties between enterprises, PIUM proposes a physical—albeit not legal—integration of free zones, special economic zones, export promotion zones and industrial estates in each of the above-mentioned areas. Unified economic zones will also make it much easier to invest in common facilities and to provide firms with concentrated business services.

27. One of the weak points of Oman's industrial structure are its SMEs. If SMEs are to raise their standards and play a more active role in the Sultanate of Oman's industrial development, they will need to be provided with a range of services:
    - *In production, SMEs need training and support* in the areas of production planning and sales, process and technology assessments and the financing of investments. SMEs lack an in-depth understanding of standards and of the importance of quality assurance. They lag behind in the use of digital business tools such as e-commerce, electronic banking, digital administration and customer relationship management software.
    - *In local marketing, assistance must focus on support in finding premises* as well as creating exhibition centres and establishing itinerant shops. The establishment of a marketing board is also being considered.
    - *In exports, SMEs will require foreign exhibition centres and itinerant 'pop-up' exhibitions*. An 'easy export' scheme will be launched, with SMEs entering an agreement with the Oman Post Office to handle domestic and international parcel trade in accordance with specific size and weight

regulations. This will be accompanied by negotiations with credit card companies to arrange for online payments at low costs.

28. In terms of fiscal incentives, PIUM recommends the current 5-year income tax exemption for all manufacturing firms to continue in the future while proposing the elimination of customs duties exemptions for the manufacturing sector, with the exception of strategic industries. Some specific suggestions include:
    - A *tax credit for new investments* in advanced manufacturing equipment.
    - To expand the current *accelerated depreciation treatment* to include 4IR technologies.
    - The introduction of an *export duty drawback* (EDD).
    - Double *tax deduction of costs incurred* due to companies' losses due to their involvement in the SDP.

29. Financing interventions entail the *establishment of a division that addresses manufacturing financial demands in the Oman Development Bank*. This 'Industrial Finance' division will be endowed from a specially created Vision 2040 Industrial Development Fund. The division will provide manufacturing firms with loans of between OMR 2-5 million, loan syndication services for larger loans, credit guarantees, leasing of equipment, support for feasibility studies and trade finance. Some of these credits will be provided at a concessionary rate of 3 per cent, particularly those targeting priority industries. One related measure will be to *merge SME-related funds* to be able to create a stronger financial institution and within it, create a division specialized in manufacturing SME financing. Both the Industrial Finance Division and a merged National SME Fund will be engaged in long-term SME financing aimed at companies participating in tendering processes (Tendering II). Finally, one important energy-focussed financial initiative relates to the establishment of *energy service companies (ESCOs*). ESCOs provide a range of energy solutions such as the design and implementation of energy savings projects and in recent years, ESCOs have financed some of the energy solutions they provide. This has been possible by performing the service or the installation in advance and charging for the work carried out and the equipment on the basis of the energy savings their use results in.

Programme for Governance and Management of Industrial Development (PROGMID)

30. The Sultanate of Oman's 'industrial system' is governed by several laws dating back to 1974 and has subsequently been amended on several occasions. The last few years have, however, witnessed significant changes in the economic environment of the Sultanate, including major variations and a decline in the price of oil, and at present, the COVID-19 pandemic. These events have prompted changes in tax law and ways of responding to the price and allocation of gas and energy, which has resulted in a complete rethinking about the support the government provides to the manufacturing sector and to the private sector. *A new set of functions and institutions should be created* that reflect the new circumstances and contribute to the specialization and decentralization of industrial activities.

31. Another law that will require modification is the Sultanate of Oman's *tender law*, which dates from 2008. The regulations do not seem to have been practical, leading to several modifications in the law that have reduced the role of the tender board and increased that of individual entities. While such decentralization in decision making is welcome, it has not been possible to use tendering procedures as an instrument of industrial and local development, with the emphasis primarily being on the price. Making the law more development-oriented will require several modifications aimed at increasing the chances of local SMEs winning bids while tailoring bids to build up local productive capacity.

32. Implementing M4WB will entail the engagement of numerous stakeholders with different perspectives and an understanding of the tasks that lie ahead. Pulling them together towards the same direction so all components of the industrial system converge will require strong leadership from MoCI. This leadership will, in turn, have to be backed by a solid organizational structure that can provide the necessary people and knowledge, as well as by an effective coordination mechanism that operates smoothly. PROGMID therefore recommends *the creation of a National Manufacturing Committee (NMC)*. The NMC builds on manufacturing meetings initiated around the ISFU process but with a broader mandate of advice, consultation and coordination of all key manufacturing initiatives and specifically, to support the implementation of M4WB. NMC will act as a sounding board and a platform for M4WB and other MoCI initiatives, and as a place to meet and discuss crucial manufacturing challenges.

33. MoCI's internal organization will remain unchanged, with the Minister and Undersecretary at the helm, although a management and implementation change team could be established if deemed necessary. The *Directorate General of Industry (DGI) will take the technical and policy lead of M4WB* and will participate in its coordination. It will manage the relationship with MoCI's executive agencies and provide technical guidance when needed. DGI will be responsible for evaluating the plan's achievements as well as for designing any new policies, initiatives or projects necessary to achieve the goals of Programme 4 and Strategy 2040. MoCI's Directorate General of Planning and Research (DGPR) will continue to focus on strategy coordination together with the National Manufacturing Committee, the Supreme Council of Planning, and the Implementation Support and Follow-up Unit (ISFU), which will be carried out in collaboration with DGI's planning unit. They will primarily be responsible for monitoring the strategy's progress, again in collaboration with DGI's evaluation team.

34. Executive agencies will be brought under the *direction of MoCI to ensure proper coordination and alignment.* The alignment of existing executive agencies such as Madayn, the National Business Centre, the Industrial Innovation Centre, or new ones such as a proposed Special Economic Zones authority or agency will be achieved by making these agencies part of the MoCI-led system of industrial support. While remaining fully autonomous in their day to day operations, executive agencies' strategies, plans and budgets will be overseen and coordinated by MoCI. Executive agencies will also operate as two different types: those that directly supply a good or service (lead agencies) and those that facilitate the activities of other companies (gateways). The former would include institutions such as Madayn, the National Business Centre and the Innovation Centre, while Riyada and the Investment Centre would fall under the scope of the latter. Lead agencies can provide services on their own, but gateways can operate in a more decentralized way, that is, by outsourcing their tasks. PROGMID also suggests to streamline and hone the mandate of several agencies and to establish new agencies, such as the new Special Economic Zones authority or agency that will arise from the merger of different agencies.

35. PROGMID also suggests *modernizing DGI's structure*. The new *Industrial Policy Department* will consist of three sub-sectoral units (natural resources, capital-intensive and knowledge-driven), covering the entire manufacturing sector. They will function as 'sponsors' of their individual industries but with a focus on priority industries. They will be complemented by a Business Environment Unit focussing on cross-cutting issues. The traditional planning and research functions will be further expanded to include a Policy Review and Programme Evaluation Unit with the task of continuous assessment of the policy instruments being deployed for the implementation of M4WB. These functions will be supported by an Industrial Intelligence Unit responsible for monitoring global developments—

economic, geopolitical, environmental and technological—and ensuring that these are taken account of when new policies are developed (alternatively, these functions could also be allocated to DGPR). The Programme and Operations Department will continue to perform the traditional procedural tasks and international and local regional coordination, with the addition of a projects and a 'relations' unit, the former processing all new projects and the latter in charge of coordinating together with the executive agencies.

36. *Data will be the most important input in the follow-up and evaluation of M4WB*. PROGMID's work will first aim to improve the response rate of MoCI's industrial survey, cross check it, expand it and make it compatible with other databases to ascertain its accuracy and increase its data volume. It will also be necessary to create new databases. In collaboration with NCSI, PROGMID will seek to implement two SME surveys, a large one focussed on the population of manufacturing SMEs, with DGI concentrating on the related manufacturing aspects, and another more detailed survey involving a smaller number of manufacturing SMEs and generating information that is relevant for the supplier development programme. A manufacturing innovation survey will also be prepared to gauge the extent of research and development and innovative performance of firms in the Sultanate.

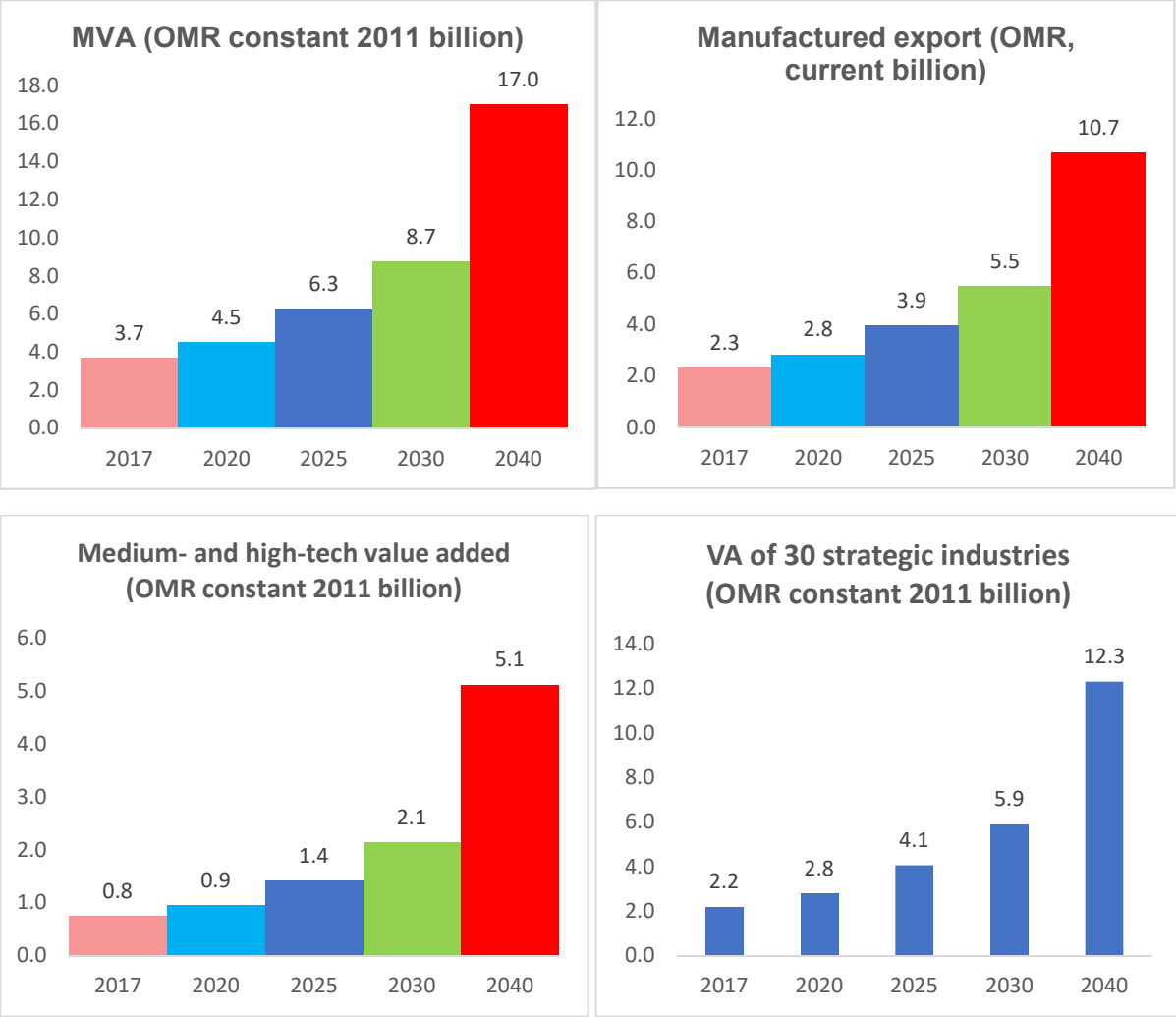
KPIs, Investment and Employment

37. Since the publication of the diagnosis in January 2019, *M4WB's KPIs have been revised and rebased from 2015 to 2017* (see Figures on the last page of the Executive Summary). Data for 2025 has also been added for alignment with the 5-year plan. As regards the underlying trends, there is no change in the overall expectations, although it is anticipated that manufacturing growth may take a slightly longer to take off due to recent economic developments and the COVID-19 pandemic. Manufacturing value added (MVA) in constant terms is targeted to grow nearly four-fold between 2020 and 2040, while MVA per capita is projected to rise 2.5 times due to rapid Omani population growth. Manufactured exports are expected to increase to OMR 10.7 billion by 2040. A near six-fold increase in the constant value added of medium- and high-tech industries is targeted. Strategic or priority industries are anticipated to expand 4.5 times over the next 20 years. *KPIs have also been identified for the strategy's four programmes*. As previously mentioned, these KPIs are directly connected to the strategy's objectives and KPIs, as they are necessary outcomes to reach the final goals. Due to the lack of data, information for some programmes' KPIs will be collected during the implementation phase.

38. This IPI also includes estimates for investments and employment for the period 2021-2040. The public and private sectors will have to invest around OMR 5 billion into manufacturing per year on average to achieve the KPIs specified in M4WB. The *accumulated investment over the period would amount to OMR 100 billion.* FDI is expected to increase its share of investment by 10 points to 34 per cent of total investment. In terms of M4WB's impact on employment, based on the KPIs and the manufacturing employment multiplier, *the Omani economy is expected to generate a total of 100,000 direct jobs within the manufacturing sector, and 242,000 new indirect jobs by 2040*. The largest number of jobs in priority industries will be generated in the electromechanical cluster, followed by the metals and minerals cluster.

Executive Summary Figures and Tables.

Executive Summary Figure 1. Vision KPIs.



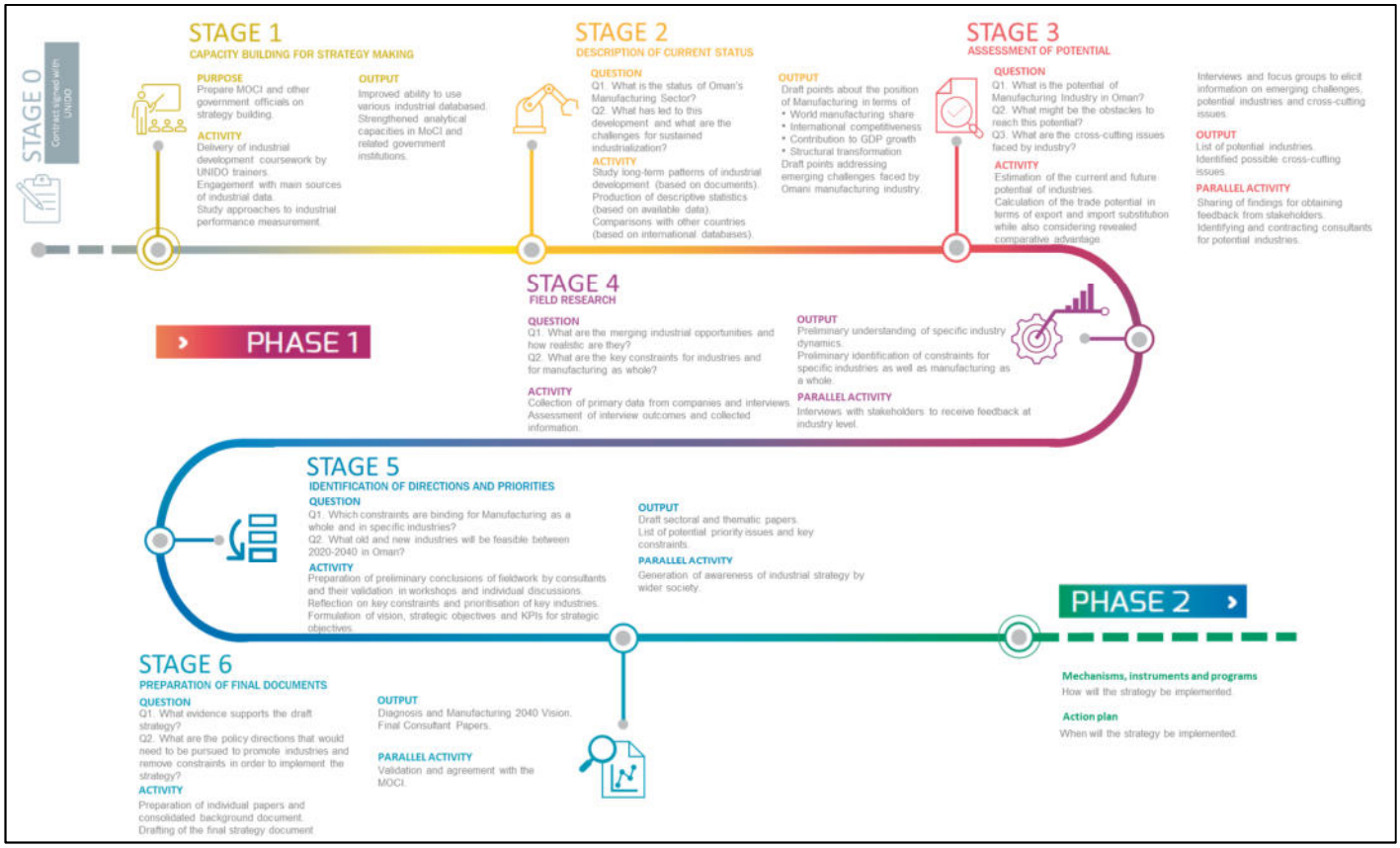
Executive Summary Table 1. Programme KPIs.

KPI		Indicator	Unit of Measurement	Period	Base year	2020	2021-2025	2026-2030	2031-2040
Programme 1									
New firm and knowledge- driven Industrial Cluster Creation (NEFKICP)									
	FDI in Manufacturing	Value of FDI	OMR Current mn	Yearly average	2017	357	484	652	1049	2184
Programme 2									
Entrepreneurship and Industrial Innovation (EIIP)									
	Global Innovation Index	Score	Points	Yearly average	2019	31.0	31.0	31.5	33.9	36.8
	Enterprises incubated introducing new products in the Omani market and still in business after 3, 4, 5 years	Number (not available at the moment)	Units	Yearly average	na	na	na	na	na	na
	Corporate R&D expenditure	Number (not available at the moment)	Units	Yearly average	na	na	na	na	na	na
Programme 3									
Industrial Upgrading and Modernization (PIUM)									
	Labour productivity in manufacturing	MVA/per worker	OMR Constant 2011 mn	Yearly average	2018	99579	107084	119573	143393	189086
	Industrial Competitive Index and CO2 adjusted CIP	Score	Points	Yearly average	2017	0.0363	0.0382	0.0432	0.0542	0.681
	Capital per worker	Gross Capital Formation per manufacturing worker (not available at the moment)	OMR Current mn	Yearly average	na	na	na	na	na	na
Programme 4									
Governance and Management of Industrial Development (PROGMID)									
	MoCI and related parties expenditure efficiency	Current MoCI expenditure/ Manufacturing value added	%	Yearly average	2019	0.29	0.27	1.28	0.69	0.30
	Statistical reports and surveys completed.	Number (not base year available at the moment)	Units	Yearly average	2019	1	1	3	5	7

2. Introduction

The strategy-making process for "Manufacturing for Well-Being" (M4WB) consisted of two phases. The first phase (Figure 1) involved conducting a detailed diagnosis of the Sultanate of Oman's manufacturing sector, investigating its long-term performance and the underlying determining factors, and conducting an international comparison with neighbouring and comparator countries. On this basis, a long-term manufacturing vision and strategic objectives were developed. The first phase focussed on the questions of what changes need to be introduced and why these changes are necessary. It comprised six stages, starting with capacity-building activities, during which the Ministry of Commerce and Industry Personnel (MoCI), together with government officials from other ministries and agencies, were trained in the development and use of analytical tools to study the manufacturing industry. The next three stages entailed the preparation of 19 sectoral and thematic reports and an overall assessment of manufacturing addressing the strengths, weaknesses, obstacles, opportunities and development potential of each sector or theme. The last two stages concentrated on identifying directions and priorities and preparing the final document. The main output of Phase 1 was the M4WB diagnosis and vision document, which was prepared following the guidelines and expected macroeconomic performance provided by Oman's 2040 Vision.

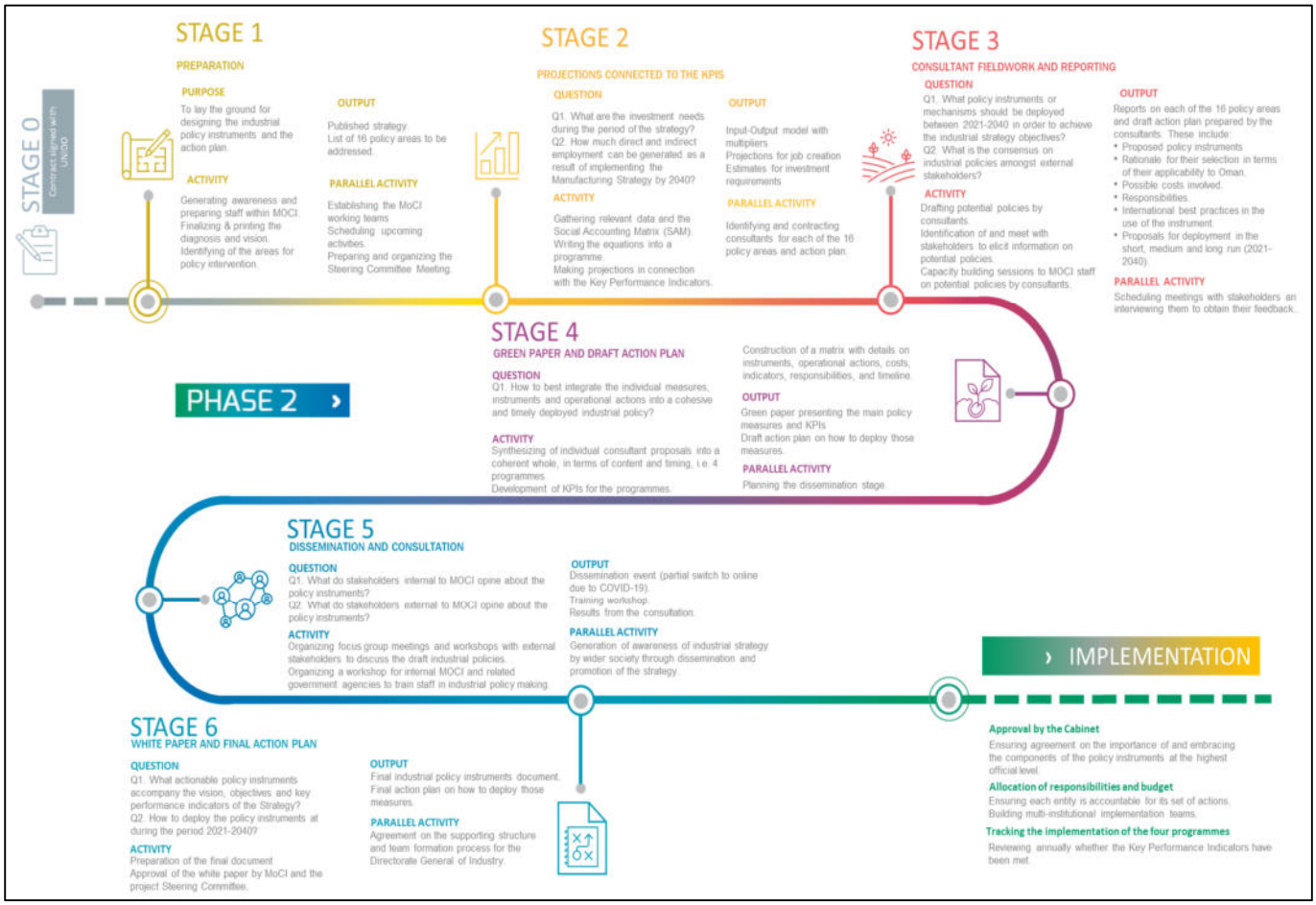
Figure 1: Phase 1 in the "Manufacturing for Well-Being" development process



The second phase involved the development of the policy instruments and the measures required to realize the ambitious and comprehensive M4WB agenda, developed in the previous phase. The questions addressed in Phase 2 were how to achieve the Manufacturing Vision 2040 and when to implement specific actions. It also consisted of six stages. The first stage entailed activity planning, the second centred on

estimating investment requirements and the employment effects of M4WB. This was followed by three stages of research, field work and consultation, and the dissemination of 16 thematic studies that led to detailed policy recommendations. The inputs for the action plan were also prepared during this stage. The Covid-19 pandemic forced the cancelation of the planned public workshop, but several online webinars reached all key stakeholders and elicited their feedback. The final stage involved the preparation of the final documents. The main outputs of Phase 2 were the M4WB industrial policy instruments document and the M4WB manufacturing action plan.[1]

Figure 2: Phase 2 in the "Manufacturing for Well-Being" development process



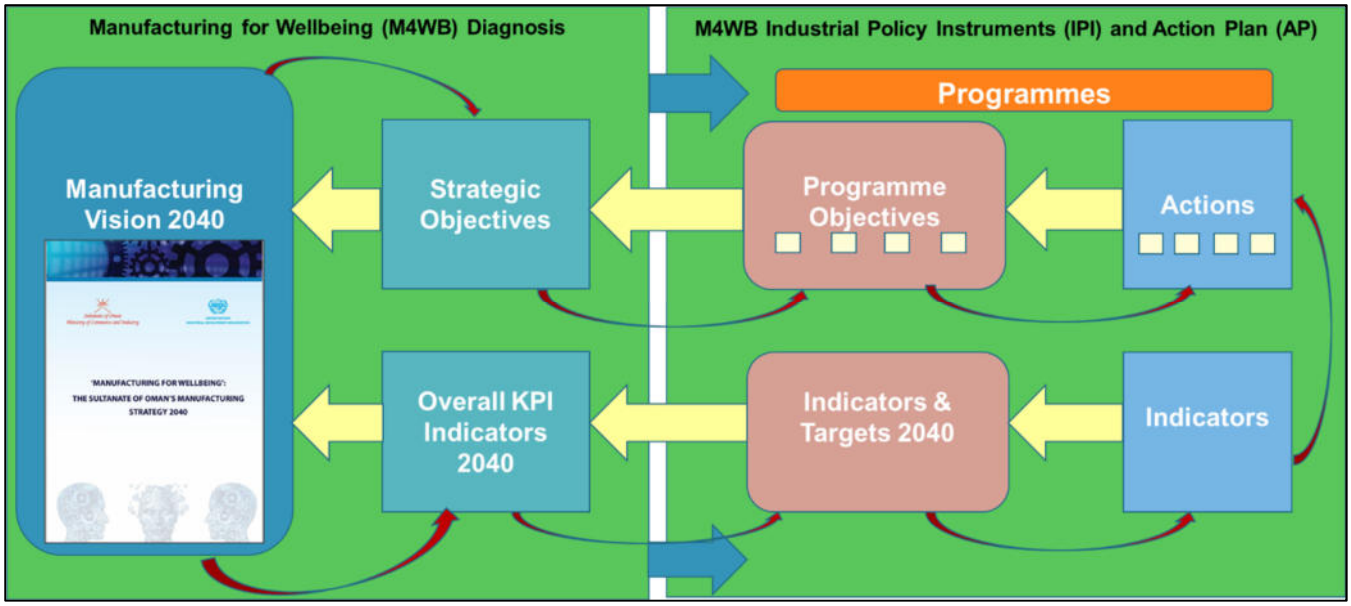
M4WB consists of three documents. The M4WB diagnosis and vision provides the rationale for the strategy, identifies key drivers or priority industries, and uncovers the main industrial development enablers. Thirty industries at ISIC four-digit level are prioritized, which are grouped into seven industrial clusters. The M4WB diagnosis also sets out the manufacturing vision, strategic objectives, overall Key Performance Indicators (KPIs) and policy guidelines for the Industrial Policy Instruments (IPI) and Action Plan (AP) documents. The M4WB IPI identifies and integrates the policies and measures to be applied and offers justification for their use. The main purpose of this document is to provide an understanding of how the full set of policies will reinforce each other. The M4WB AP focusses on the activities and actions that need to be carried out. Its aim is to provide detailed guidelines on the requirements for successful implementation. Hence, it performs the role of a roadmap or manual. Both policy instruments and actions

[1] While the Action Plan constitutes a separate document, some of its shared elements will be discussed here.

are grouped into four programmes for tractability purposes. Each programme has its own objectives, indicators and potential targets, although the actual targets will have to be defined at the implementation stage when data on some of the indicators become available. The IPI and AP are therefore complementary, with the latter merely extending the policy instruments, grouped into programmes, to the level of operational actions.

Figure 3 illustrates the interactions between the diagnosis and vision, industrial policy instruments and action plan. The arrows from the diagnosis to the IPI and AP represent the overall framing drawn from the diagnosis and vision for the proposed policies and actions. Proper execution of the operational actions leads to a sound use of policy instruments and hence, to the achievement of the four programmes' objectives. Achieving the programmes' objectives, in turn, paves the way for the successful realization of M4WB's strategic goals and thus the fulfilment of the Manufacturing Vision 2040. The indicators, targets and KPIs follow a similar sequence. The interaction between the three components of M4WB should not, however, be applied linearly. It must be built on continuous and timely feedback loops between actions, policies, programmes, strategic objectives and KPIs. The policy making and implementation process is about assessing whether objectives are being achieved, and if not, why this is the case. It is a learning and uninterrupted adjustment process driven by sustained monitoring and evaluation of the successes and failures encountered during the programme's implementation process.

Figure 3: The relationship between "Manufacturing for Well-Being" and the Industrial Policy Instruments and Action Plan



The following sections will further explore the right-hand box of Figure 3. After reviewing some key elements of the M4WB diagnosis and vision, a general overview of the Sultanate of Oman's industrial policy and planning is presented. Further details of the four programmes, which represent the core of the M4WB's design and implementation process, are provided. The final section addresses the programme's KPIs and their interlinkages with the diagnosis' investment estimates, other related KPIs as well as M4WB's expected impact on manufacturing employment.

3. M4WB Vision, Trends, Drivers and Enablers[2]

The M4WB diagnosis sets out the vision that *'By 2040, the Sultanate of Oman will have a modern and technologically advanced manufacturing base, fully utilizing the creativity of the Omani population together with the most innovative production techniques and focused on improving the wellbeing of the peoples in the region and the world at large'*. Reaching this ambitious goal entails significant challenges and will require transformative changes in the country's strategic direction, the use of policy mechanisms and instruments and in the approach to the management of industrial development.

3.1. Local manufacturing trends and structural challenges

The M4WB diagnosis reveals that the Omani economy, and specifically its manufacturing industry, entered a process of intense diversification at the turn of the millennium. A shift away from the extraction and sale of crude oil into the manufacturing of petrochemicals and industrial commodities evolved over the years, which has served the country well. Industries such as refined petroleum, chemicals, steel and aluminium gradually replaced textiles, wearing and apparel and others, thereby structurally transforming the country's productive capacities. With the emergence of these new industries, the manufacturing sector gradually evolved into the Omani economy's 'engine of growth', although the engine has stalled slightly in recent years. In fact, the new activities have not yet taken full hold in view of the volatility of international oil and other commodity prices. The manufacturing sector has remained the second smallest within the GCC region and has the lowest productivity, while its export potential has not been fully exploited compared with countries of a similar size and resource endowment. There is still some work ahead before Oman can start to depend predominantly on its own manufacturing capabilities.

The diagnosis also showed that the Sultanate of Oman faces additional structural challenges. While its economy generated around 1.2 million jobs between 2008 and 2017, they have not trickled down to Omani nationals. The lack of employment opportunities, particularly in the private sector, are felt across all ages and levels of education, and the situation could become more acute as new technologies are adopted locally.

The Omani economy has also seen a near 35-year peg of its exchange rate to the dollar, which might have been viable for an oil-based economy but may not be suitable for a more diversified one.

3.2. International trends shaping M4WB

International trends will also shape the development of manufacturing in the Sultanate of Oman. Population swings away from traditional U.S. and European towards Asian and African markets will change the geography of goods consumption in upcoming years. The aging of the population in many countries, including China and Japan, combined with the health uncertainties unleashed by the current COVID-19 pandemic, are already adding a significant premium on the manufacturing of health-related products and, more generally, on health infrastructure. There may be temporary setbacks to globalization as countries become more inward-looking and reconsider their present manufacturing priorities, also due to the COVID-19 pandemic. Nonetheless, the globalization trends that emerged much earlier, i.e. over 20-30 years ago, will continue to persist in the long run.

The convergence of cyber and physical production systems, the so-called *Fourth Industrial Revolution (4IR)*, will have pervasive effects on manufacturing processes. Production will become faster, more diverse and more automated. Integration between firms and their value chains as well as with their consumers

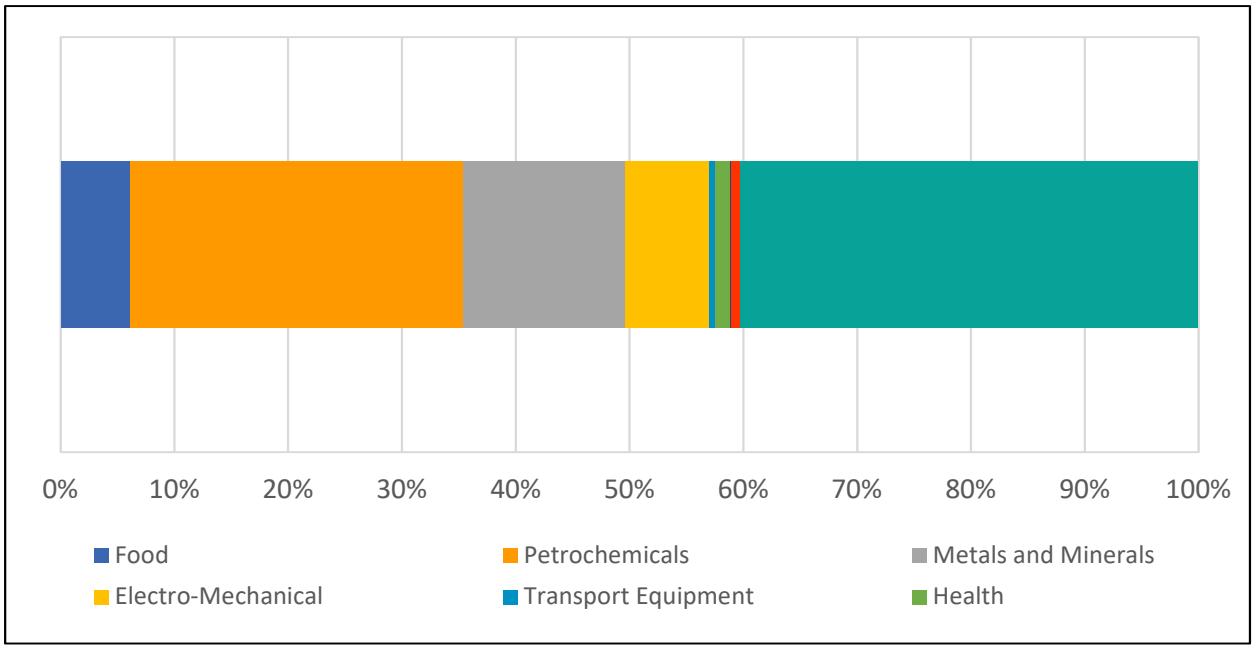
[2] For further details, please refer to the M4WB diagnosis document.

will grow. These developments will result in large productivity increases, and employment may drop unless countries innovate and generate new products and industries to compensate for losses in older ones.

3.3. Strategic drivers

The M4WB Strategy 2040 addresses these trends and challenges through the establishment of several strategic or priority *knowledge-driven industrial clusters focussed on health and environmental goods,* such as pharmaceuticals, medical instruments, fragrances and solar panels. These clusters will be the main drivers of manufacturing diversification, innovation and the establishment of high-tech industries in the Sultanate of Oman. They will be complemented by a flourishing *recycling industry*, which will further contribute to creating a healthy and sustainable environment for the Omani population.[3]

Figure 4: Composition of manufacturing (2017)



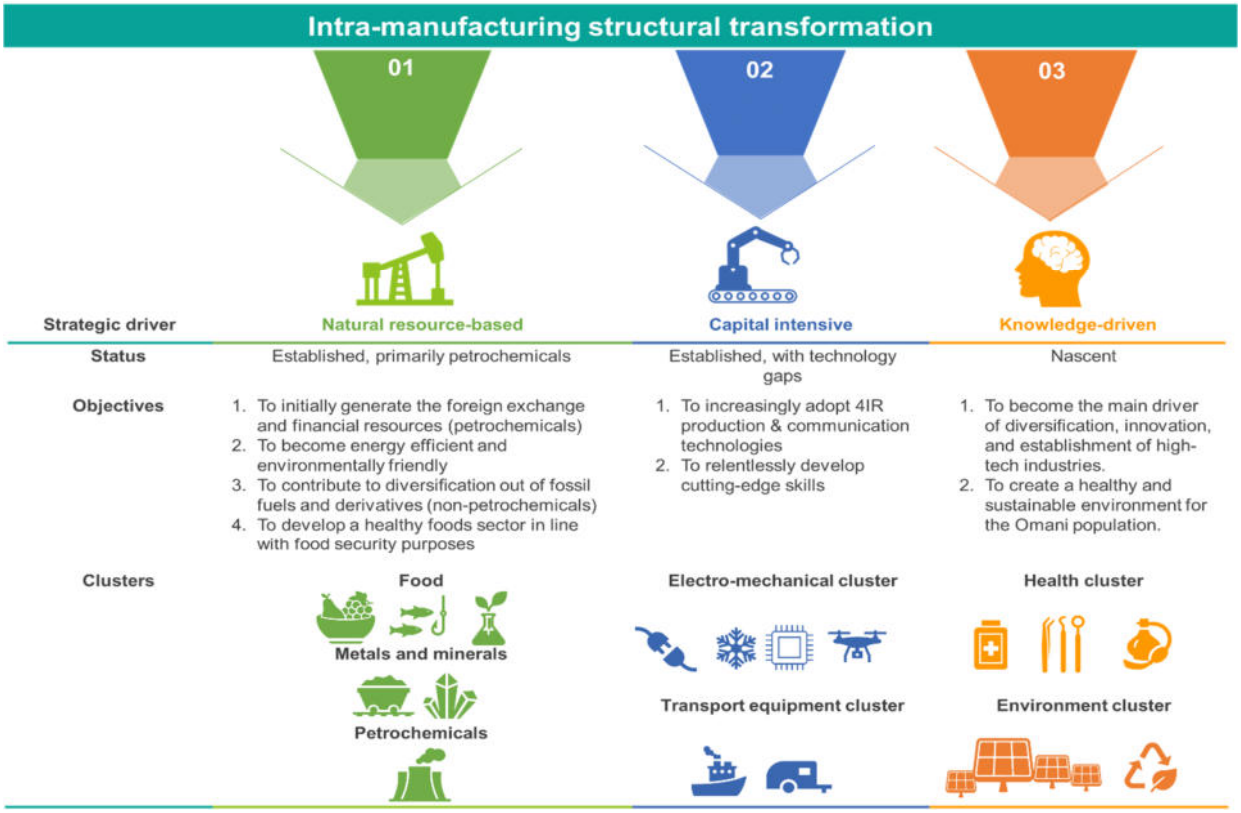
A rapidly expanding *capital-intensive industry* will reduce the technological gap with advanced countries to increasingly adopt 4IR production and communications technologies and develop cutting-edge skills. At a relatively lower technological level, M4WB envisages the establishment of mechanical engineering and transport equipment industries that manufacture products such as metal structures, small boats, trawlers and trailers. At a relatively more advanced technological level, the focus will shift to the manufacturing of electrical equipment, pumps and valves, and wires and cables in line with the modernization of production processes. Demand for air conditioning systems is high and rapidly rising, hence, there is potential for import substitution in this particular industry. The electromechanical and

[3] The knowledge driven industries comprise the following industries at ISIC Rev.4, 4-digit level: soap, detergents, cleaning and polishing preparations, perfumes and toilet preparations (emphasis perfumes and fragrances); pharmaceuticals, medicinal chemicals and botanical products; medical and surgical equipment and orthopedic appliances (health cluster); electronic valves and tubes and other electronic components (emphasis solar panels); recycling of metal waste and scrap; and recycling of non-metal waste and scrap (environmental cluster).

transport equipment clusters are expected to spearhead manufacturing's productivity growth and cost reductions over the next 20 years.[4]

Natural resource-based industries, such as petrochemicals, will continue to play a key role in generating foreign exchange and financial resources for investment in other activities. They will also become more energy efficient and environmentally friendly. In the long run, M4WB envisages a gradual reduction in the former dominant position of petrochemical industries within natural resource-based industries, with others, such as steel and glass, assuming a more prominent role. The establishment of a flat steel factory is expected to open countless opportunities in downstream industries. In the food industry, the focus will be on complementing food security objectives by positioning existing activities in the healthy food segment.[5]

Figure 5: M4WB's priority or strategic industries.



The Sultanate of Oman's manufacturing sector will witness a steady, yet substantial, structural transformation towards industries that depend on the technical, research and scientific ability of individuals and institutions rather than on natural resources. Industries that focus on improving the health

[4] The Sultanate of Oman's capital-intensive industries at ISIC Rev.4, 4-digit level are: structural metal products; electric motors; generators and transformers; electricity distribution & control apparatus; insulated wire and cable; other electrical equipment; pumps; compressors; taps and valves; other general purpose machinery (emphasis air conditioning systems) (electromechanical cluster); automobile bodies; trailers & semi-trailers; and building and repair of ships (transport equipment cluster).

[5] The natural resource-based industries at ISIC Rev.4, 4-digit level are: processing/preserving of meat; processing/preserving of fish, crustaceans and mollusks; vegetable/animal oils and fats; dairy products; grain mill products; bakery products (food cluster); refined petroleum products; basic chemicals; except fertilizers; plastic products (petrochemicals); glass and glass products; cement; lime and plaster; articles made of concrete; cement and plaster; basic iron and steel; and basic precious and non-ferrous metals (metals and minerals).

of individuals and of the environment will be at the forefront. M4WB further envisages the manufacturing sector's future to be full of opportunities for new ideas and attractive investments and to be engaged in expanding international trade relations. New markets should be explored not only in neighbouring GCC and MENA region countries, but also in Africa and Asia. Future jobs are expected to be exciting and inspiring, while workplaces are expected to be stable, innovative and respectful, providing ample prospects for an optimal balance between work and family life, as well as between work and leisure.

3.4. Strategic enablers

M4WB discusses the key enablers for achieving such an ambitious transformation: *people, technology and governance*. The Sultanate of Oman's impending industrial transformation will require people with both new and advanced sets of skills that will have to be developed in parallel to the establishment of new industries. Improvements have been made over the last few years, but additional steps seem necessary, nonetheless.

3.4.1. People

Providing *people* with a new set of skills requires upgrading the level of basic foreign language, mathematics and sciences in primary and secondary education. Beyond schooling, tertiary education must focus more on practical training and less on theory, while bringing students and the workplace closer together. There is a dearth of internships and apprenticeships providing students with opportunities to learn and apply the skills they have acquired. The quality of training provided at private universities and colleges seems to be mixed, hence extra standardization and certification efforts will be necessary. At the advanced academic and professional level, a large majority of graduates are women, who often opt to refrain from entering the labour market or from seeking public sector jobs. Attracting women to private sector jobs, and especially manufacturing, is thus also an integral part of the strategy.

The education system calls for more and improved technical and vocational training (TVET). Technical skills of operators and technicians, especially mechanical, electronic and instrumental skills, seem to be lacking. Enrolment in TVET is marginal and TVET education is perceived to be secondary to academic education. Progress must be made in updating the curricula and in adopting new methods of training. The supply of technical training courses must be increased while revaluing the role and social standing of manual labour in Omani society. Company involvement in skill formation must be highly encouraged for enterprises to provide guidance on what is required from potential employees, with permanent links being fostered between TVET and businesses.

3.4.2. Technology

Upcoming *technological change* requires an expansion of research and development (R&D) capabilities as well as an open mind to novel ideas and advanced 4IR technologies. Technology generation entails higher R&D expenditure by firms, coupled with more substantial efforts by universities to integrate digital manufacturing concepts and themes into their syllabus and research. M4WB anticipates incentives for R&D as well as a closer and strong relationship between universities and industry. This will allow graduates to acquire a deeper understanding of new technologies and hence significantly contribute to productive activity. For academics, familiarity with manufacturing issues will help them shift the focus of their research projects towards promoting industry and, occasionally, develop their own spin-offs.

Over the next 20 years, improving technological diffusion will involve establishing mechanisms to spread knowledge and 4IR demonstration examples from which industry can learn. This can be initiated by

establishing expert networks/ forums/ communities. For SMEs, which struggle with the high investment requirements for advanced technologies as well as the red tape challenges to import them, funding facilities will be introduced and import procedures eased. The digital infrastructure will be upgraded to ensure speedy human-machine interactions.

Technology deployment will be enabled by making labour and labour legislation not only more flexible to changes in the pace of technological development but also by involving workers in shaping the use and development of available technologies. Finding ways to integrate old and new technologies so they can mutually reinforce each other will be another key task of technology deployment in coming years. Finally, providing an industrial support system where information and specialized knowledge is widely available must be further developed in the future.

3.4.3. Governance

Turning to *governance*, M4WB proposes changes to government laws, procedures, incentives, institutions and regulations to deliver on development outcomes based on modern public management principles and practices. Four challenges emerge in relation to the Sultanate of Oman's system of governance: 1) policy coordination; 2) clear institutional mandates; 3) efficient ministries, and 4) effective rules and regulations.

Economic development in the Sultanate of Oman over the last 30 years has been accompanied by the need to provide more specialized government functions with a broader scope. The upshot has been the establishment of several government institutions and a rapid increase in the number of civil servants. A large and quickly growing government has not come without rising managerial complexity, increased risk of confusion, fragmentation of functions and the emergence of "gaps" in the coverage of critically interrelated services. M4WB addresses this situation by establishing mechanisms of policy coordination that will bring all relevant stakeholders together to achieve the synergies required to achieve the M4WB's objectives.

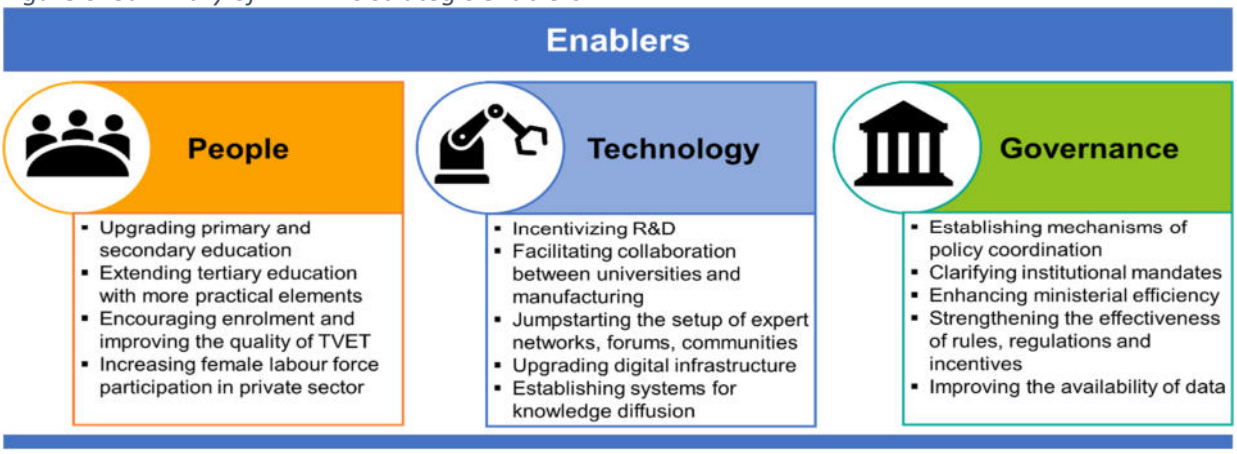
One related challenge is the plethora of institutions with similar mandates. Not only has the rapid growth of government led to weak inter-institutional coordination, it has also led to different institutions being assigned or taking over mandates that are not in their remit. Plans and programmes follow their own institutional rationale with limited or no connection with governments' objectives. Avoiding institutional duplication and the lack of coherence in institutional mandates will be addressed in the strategy by establishing clear and transparent mandates, responsibilities and functions.

The Ministry of Commerce and Industry (MoCI) has evolved into an important player, shaping the destiny of manufacturing development in the Sultanate of Oman. While it has spun off a few of its functions over the years, it still has jurisdiction over responsibilities and institutions for which there is no clear line of authority. In addition, several policy and regulatory functions that are crucial have yet to be fully dispensed due to the lack of an adequate mandate and staff. Transforming MoCI into a modern-day ministry that efficiently leads manufacturers in achieving the manufacturing strategy's objective will be a key task in coming years.

Public sector governance is essentially determined by the nature and quality of rules, regulations and incentives applied to influence economic relationships and to achieve the desired development outcomes. Three types of incentives are key for the Sultanate of Oman's industrial development: 1) incentives to *develop new industries* and spread them more strategically across the national territory; 2) incentives to *promote industrial creativity* and innovation, and 3) incentives to upgrade and *modernize existing industry*

and SMEs. Though significant progress has been achieved in recent years in the development of incentives and in attracting investors, the M4WB strategy asserts that drawing investors and transforming industry will require extensive updating to adapt to the current era. Monitoring, evaluation and learning from past incentives and best international practices is another area to explore during the strategy's forthcoming implementation phase.

Figure 6: Summary of M4WB's strategic enablers



4. Industrial Policy for the Sultanate of Oman

4.1. Strengths of the Omani economy

The M4WB diagnosis identifies the key *strengths* of the Sultanate of Oman's economy, which can play a significant role in the execution of the manufacturing strategy. The Sultanate of Oman has an abundance of natural resources, particularly hydrocarbons. These have made it possible to build an oil-based manufacturing sector that has generated technology and foreign exchange in the past and will continue to do so in coming years. The proceeds from these industries will continue to provide the necessary financial resources in the foreseeable future for other industries to flourish. At the same time, in the long term, dependence on oil and oil-based manufacturing may weaken as these industries will not be able to provide a sustainable basis for economic growth, given the world's steady shift away from hydrocarbon-based energy and products.

The Sultanate of Oman is privileged further based on its geographic location. Its position in the Indian Ocean gives the country access to the region's major markets and the possibility to act as a gateway to the largest and fastest growing present and future markets in the world, namely Asia and Africa. It also has good access to European markets and can play a pivotal role in China's Belt and Road Initiative (BRI). The Sultanate of Oman's location is accompanied by a relatively stable social and political situation and friendly relations with many countries, which has allowed it to sign several free trade agreements, including with the U.S.

A large, young, university-educated population is also one of the Sultanate of Oman's key strengths. There is an emerging middle and professional class of university graduates, although graduate unemployment remains relatively high. Around 24,000 students graduate every year, with roughly half graduating from public and the other half from private universities. The government supports higher education through the provision of grants and promotes the rapid growth of private universities. With a more practical approach to education and training, some of these youth could become a large pool of entrepreneurs, engineers and technical experts in support of manufacturing.

4.2. Guiding principles

The M4WB's diagnosis pinpoints several *principles* that will guide the development of the manufacturing sector over the next 20 years. The Sultanate of Oman is small and will remain so, regardless of how rapidly it grows. Building on a small economy starts with acceptance that in order to compete internationally, it is not possible to pursue a multiplicity of manufacturing activities, but to concentrate on a few specific activities within those manufacturing activities. The niche market principle implies targeting specific (foreign) market segments that are not targeted by large companies or countries. Smaller countries and firms thrive in international trade if they are able to respond rapidly, providing quality and unique characteristics in line with the requirements of demand. This, however, calls for a concentration and consolidation of forces at home and achieving economies of scale by increasing production in very narrowly defined areas. This applies as much to private firms as it does to institutional support from the government.

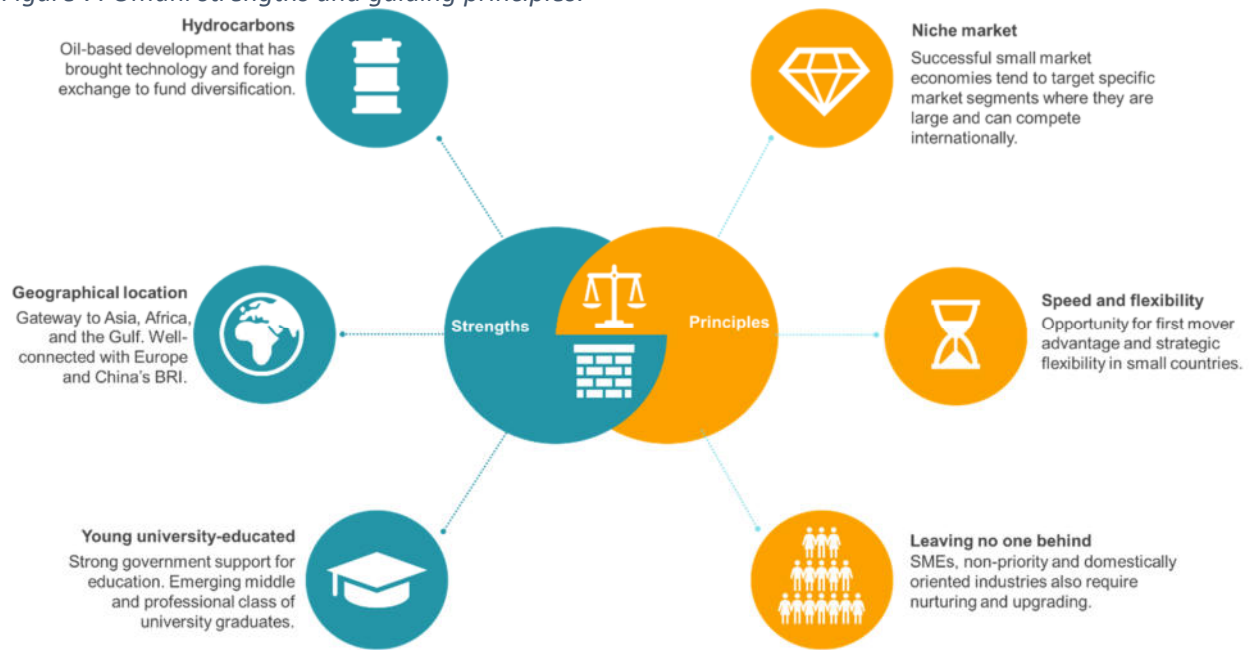
The principle of strategic speed and flexibility means that the Sultanate of Oman's industrial firms will be encouraged to gain an international competitive advantage by, inter alia, reaping first mover advantages both in the delivery to markets and in the adoption of new technologies. Only by taking quick action will Omani firms be able to challenge and gain advantages over more dominant firms and multinational corporations in neighbouring countries and further afield. Strategic flexibility will require Omani firms to

develop capabilities to identify and prepare for major variations in their external environment and to commit resources and adjust their responses to changing circumstances.

Leaving no one behind is the third principle of the M4WB strategy. While emphasis on diversification based on new activities and foreign markets is clearly necessary to break the dependence on oil, it does not mean that no attention has to be paid to non-priority and domestically-oriented industries. There are a number of non-priority and local market undertakings that can be as successful as any new enterprise, requiring relatively little support or simply a bit of nudging. Furthermore, many SMEs need to be nurtured and guided to initially become competitive domestically and eventually, internationally. Hence, although the emphasis of this strategy will be the creation of new activities, efforts will also be made to upgrade existing activities with more and better use of technology, improvements in organizational practices as well as by increasing productivity. This will help raise the overall standing and competitiveness of the Sultanate of Oman's manufacturing sector.

The above strategies are not to be applied rigidly. The Sultanate of Oman is a world leader in some petrochemical-related activities and produces at large scales. Local producers have reached volumes that allow them to reap economies of scale in other production processes. Some of the anticipated investments may require attaining global economies of scale to be competitive. Instead, the proposed strategies are to be used as guidelines to ensure the feasibility of upcoming investments.

Figure 7: Omani strengths and guiding principles.



Drawing on its vision, priorities and M4WB's strengths and principles, *five objectives* are to be achieved by 2040:

- *To diversify the Sultanate of Oman's manufacturing sector into technology- and knowledge-driven activities*
- *To develop unique products focussed on improving people's health and welfare*
- *To expand Omani industry into regional and new markets*
- *To upgrade the Sultanate of Oman's manufacturing sector to include 'state-of-the-art' technologies*
- *To create an industrial innovation culture.*

These objectives are comprehensive as the 20-year strategy leaves no stone unturned and provides for sufficient time to make radical transformations. The objectives are also ambitious in that they aim to radically transform the nature of the Omani industrial sector and placing it on a path towards becoming a world class industrial sector capable of competing with the most industrialized countries in the world. However, while significant transformations will take place in some areas, particularly in the development of new enterprises, industries and governance, there will be relatively minor disruptions and a considerable amount of continuity in already existing industries.

4.3. Industrial policy

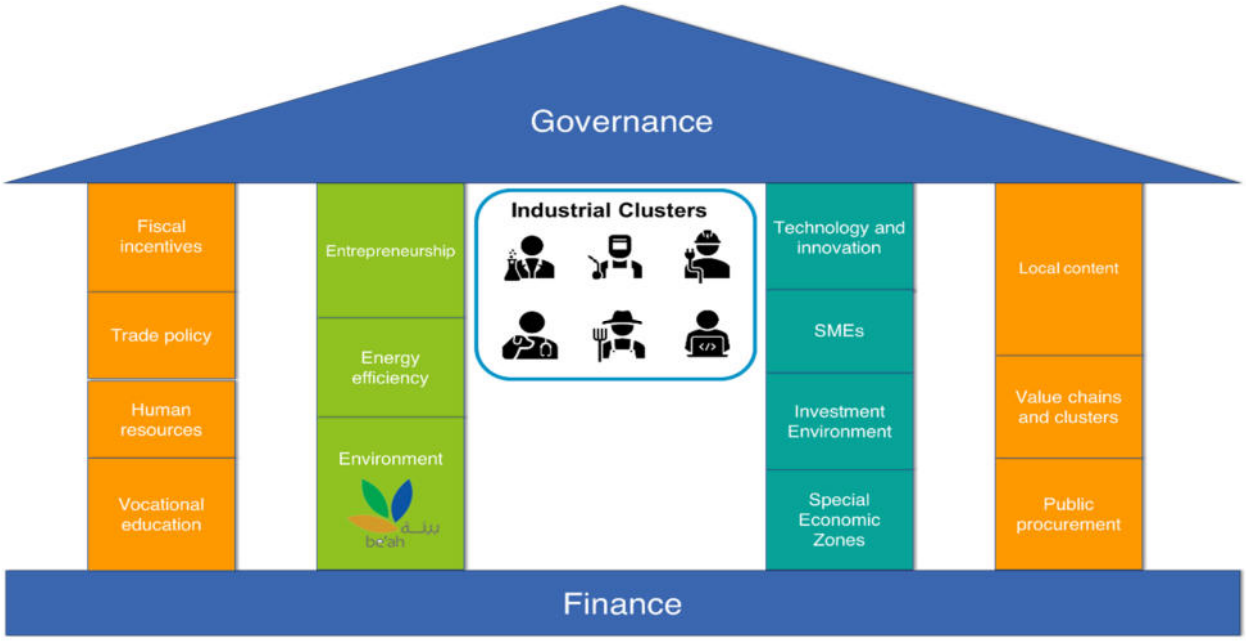
The successful implementation of M4WB will be contingent on the application of a robust set of industrial policies. Industrial policies are commonly referred to as interventions by governments aimed at altering the structure of manufacturing towards industries and activities that are expected to offer better growth and development prospects than in the absence of such interventions. While the M4WB's vision and its underlying diagnosis focusses on the key challenges faced by the Sultanate of Oman's manufacturing sector, the industrial policies developed in this document address how these challenges can be tackled and what needs to be done to steer manufacturing into the right direction. This document also sheds some light on the Sultanate of Oman's position within the range of an active government to a 'laissez fare' free market approach. It provides guidelines to frame the decision-making process about the specific actions that must be implemented to ensure that the strategy's targets are met in the long term.

The policy instruments to implement the measures proposed in M4WB include a combination of laws, regulations and norms, as well as standards and certifications. They furthermore include market-based interventions and public inputs.[6] The former are measures aimed at modifying the main performance parameters of firms and other agents in a market economy, that is, price, costs and profits. The latter are aimed at providing goods, services, resources and technology that firms do not produce themselves because they cannot directly appropriate their benefits. Common market-based policy tools proposed for the Sultanate of Oman include, among others, direct and indirect subsidies, protection from foreign competition, preferential access to capital, wage subsidies, training grants and subsidized land rental. Training institutes, technology extension programmes, incubator agencies, development banks and FDI attraction agencies are just some public inputs being considered for the manufacturing strategy. The range of policy instruments available to the manufacturing strategy is completed by several coordination mechanisms and institutional reorganizations. The focus of the policy instruments is both horizontal, available to the manufacturing sector as a whole, and vertical or selective, applicable only to individual industries or activities. There is also significant emphasis on generating policy processes that include all stakeholders and that are as open and transparent as possible.

The preparation of this document required several inputs. Sixteen functional or cross-cutting policy areas were investigated in detail as were seven industrial cluster-specific policies (health, environment, electromechanical, transport equipment, food, petrochemicals and metals and minerals). Figure 8 presents the thematic areas included. Each of these policy areas is broad in scope as they encompass different policy aspects and a diverse set of specific tools to be used. The same policies can be implemented in different ways to achieve different objectives.

[6] Weiss, J. (2015). Taxonomy of Industrial Policy, Research, Statistics, and Industrial Policy Branch Working Paper 8. United Nations Industrial Development Organization (UNIDO), Vienna.

Figure 8: Thematic areas covered in the IPI paper



Since there is a need to connect M4WB's vision and strategic objectives directly and smoothly with the policy areas and to make M4WB's implementation tractable, aspects of the policy areas presented in Figure 8 have been grouped into four programmes. The advantage of such a grouping is that the industrial policies and their specific instruments can be systematically organized around clear-cut strategy objectives (see Figure 9). It also allows to better sharpen the focus of individual programmes and their individual aims, which can then be linked to the strategic objectives.

The four programmes containing the industrial policy instruments designed to implement M4WB consist of:

- **The New Firm and Knowledge-driven Industrial Cluster Creation Programme (NEFKICP)** focusses on the development of new priority activities and high-tech industries. It invites new, mainly large firms, to invest in existing low-tech priority clusters such as food, mining and metals and shipbuilding as well as in the recycling industries. It actively seeks investors for the more technologically advanced clusters, such as the health cluster, which includes pharmaceuticals and medical instruments, and the environmental cluster, which includes solar energy equipment. Since developing these clusters requires new proprietary technology, foreign investors will be key players, although partnerships with local investors will also be forged. The main policy instruments will be investment attraction by offering an attractive package of incentives.

- **The Entrepreneurship and Industrial Innovation Programme (EIIP)** seeks to stimulate the emergence of new and innovative local firms. EIIP focusses on all individuals at the beginning of the enterprise cycle, providing potential entrepreneurs with all the necessary initial support to establish a new company. It delivers a range of incentives and grants to encourage firms that would otherwise not risk financing new products or production processes to invest in innovation and forge relationships with other relevant stakeholders. EIIP pursues the promotion of not only individuals and firms, but of the Omani innovation ecosystem on the whole, composed of universities, research centres, technology and innovation institutes and other key actors.

- **The Programme for Industrial Upgrading and Modernization (PIUM)** pursues to transform Omani manufacturing into a technologically advanced, internationally competitive and environmentally sustainable force. The programme aims to support all industrial firms but will pay special attention to SMEs. The objective is to help improve all aspects of enterprise activity, including, among others, skills, labour, technology, energy and financing. It also seeks to make local firms more export-oriented so they can generate additional foreign currency. PIUM envisages policy instruments to increase interactions between large and small firms. It includes tools to improve the production efficiency and quality of products of Omani SMEs so they can become active players in the achievement of the Manufacturing Strategy 2040's objectives. Overall, PIUM is a comprehensive approach, aiming to use whatever legal, organizational or managerial policy instrument the government has at its disposal to transform Omani manufacturing.

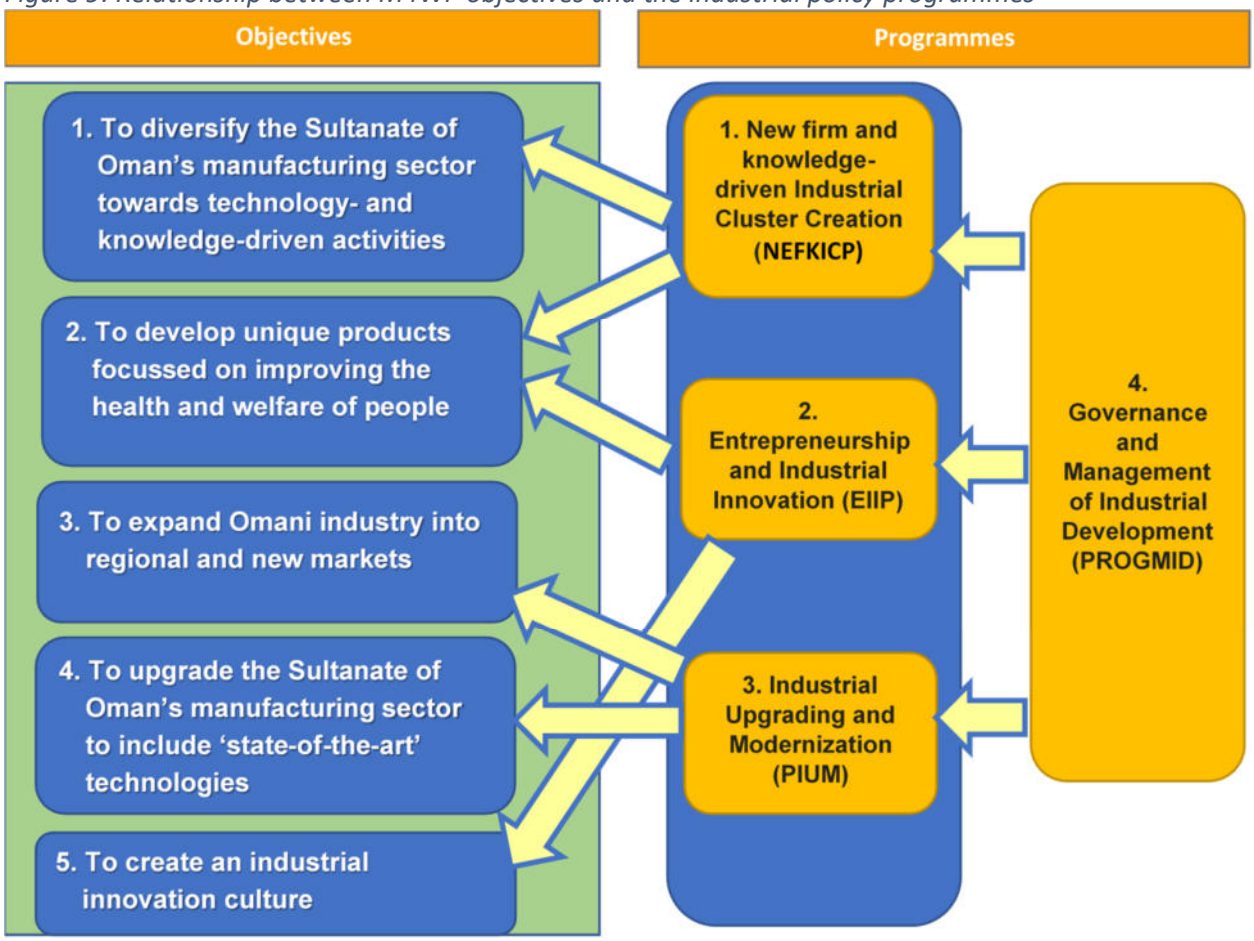
- **The Programme for Governance and Management of Industrial Development (PROGMID)** cuts across the other three programmes as it concentrates on ensuring effective and efficient governance and management of the M4WB implementation process and, more generally, of the entire industrial development process. PROGMID focusses on all levels of governance and management. At the legal level, proposals are made to modify several laws that impede the modern management of government services for manufacturing. Recommendations are made for institutional changes in the way MoCI interrelates with the private sector as well as the way cross-government initiatives are coordinated. Suggestions are also made to structure the relationship between MoCI and institutions under its jurisdiction and how to hone the mandates of industrial development support institutions. Ways of improving the structure and organization of MoCI to align it with M4WB are also provided.

The programmes have been developed following a renowned planning tool known as the "Logical Framework".[7] The Log-Frame, as it is commonly dubbed, is based on the notion that public initiatives logically follow a sequence of steps: inputs, activities, outputs, outcomes and impact. Initiatives may also involve multiple interrelated sequences that run in parallel. Multiple sequences are often connected to one another through a vertical cumulative process at increasingly higher levels, leading to the achievement of specific outcomes or objectives. The impact of these outcomes or objectives contributes to reaching a broader public initiative goal.

The Log-Frame is used eclectically, as programmes involving policy instruments and planned activities, or operational actions, are combined into a single effort. Completing the actions will lead to the achievement of the programmes objectives. The M4WB's strategic objectives will be achieved once the programmes have been completed. Figure 9 illustrates the relationship between the programmes and the M4WB's strategic objectives. .

[7] UNIDO (2018). Evaluation Manual. Independent Evaluation Division, Vienna. IFC, GIZ and DFID (2008). The Monitoring and Evaluation Handbook. Investment Climate Department, The World Bank Group, Washington, D.C. UNIDO and GIZ (2017). Introduction to the EQuIP Toolbox. United Nations Industrial Development Organization, Vienna and Deutsche Gesellschaft für Internationale Zusammenarbeit, Bonn.

Figure 9: Relationship between M4WP objectives and the industrial policy programmes



The programmes have their own objectives, aimed at guiding the efforts related to the policy instruments. These are connected to M4WB as outcomes that are necessary to reach the vision or as components of the strategy's objectives. The programme objectives are:

Programme 1. New Firm and Knowledge-driven Industrial Cluster Creation

- To attract FDI into strategic and high-tech industrial clusters

Programme 2. Entrepreneurship and Industrial Innovation

- To harness the entrepreneurial instincts of individuals
- To stimulate corporate innovativeness

Programme 3. Industrial Upgrading and Modernization

- To increase the productivity of manufacturing workers
- To make Omani manufacturing more internationally competitive
- To modernize technology and production processes in Oman

Programme 4. Governance and Management of Industrial Development

- To improve the way laws, regulations, processes and responsibilities are established, communicated and legitimized by society
- To strengthen the government's ability to implement the industrial strategy effectively and efficiently.

The four programmes are also connected to Oman's Vision 2040 and the Sustainable Development Goals (Figure 10). All programmes are connected to the strategic directions related to education, sustainable livelihoods, economic diversification and a dynamic labour market. They also have a significant overlap in terms of empowering the private sector and geographic diversification while they promote leading a healthy and fulfilled life. In terms of the SDGs, the programmes are directly related to Goals 8 and 9 on economic growth, employment, industrialization and employment.

Figure 10: Oman Vision 2040, Sustainable Development Goals and M4WB Programmes

Oman Vision 2040 - strategic direction	Manufacturing for Wellbeing				SDGs 2030	
	P1	P2	P3	P4	Direct	Indirect
Inclusive education, lifelong learning, and scientific research that lead to a knowledge-based society and competitive national talents	✓	✓	✓	✓		
Leading healthcare system with international standards	✓	✓				
Society that is proud of its identity and culture, and committed to its citizenship		✓	✓			
Decent and sustainable life for all	✓	✓	✓	✓		
Dynamic economic leadership with renewed capabilities operating within an integrated institutional framework				✓		
Diversified and sustainable economy that Is based on technology, knowledge and innovation, operates within integrated frameworks, ensures competitiveness, embraces industrial revolutions and achieves fiscal sustainability	✓	✓	✓	✓		
Dynamic labour market that attracts talents and keeps up with demographic, economic, knowledge and technological changes	✓	✓	✓	✓		
Empowered private sector driving a national economy that is competitive and aligned with the global economy	✓	✓	✓			
Comprehensive geographic development through decentralisation and the development of limited urban hubs; and the sustainable use of lands	✓		✓	✓		
Effective, balanced and resilient ecosystems to protect the environment and ensure sustainability of natural resources to support the national economy			✓			
Participatory legislative system; independent, competent and swift judicial system; and effective and transparent oversight				✓		
Flexible, innovative and future-shaping administrative bodies operating with good governance				✓		

The programmes also have their own KPIs to measure achievements made and to monitor the degree of completion of the programme's objectives. These KPIs are connected to the M4WB strategy's KPIs. PROGMID includes a series of actions aimed at collecting data for specific indicators, which will allow for the inclusion of additional KPIs during the implementation process. The KPIs for programmes are:

Programme 1. New Firm and Knowledge-driven Industrial Cluster Creation

- The value of FDI investment in manufacturing

Programme 2. Entrepreneurship and Industrial Innovation

- Global Innovation Index
- Enterprise incubators introducing new products in the Omani market and still in business after 3, 4, 5 years
- Corporate R&D expenditure

Programme 3. Industrial Upgrading and Modernization

- Labour productivity in manufacturing
- Industrial Competitive Index
- Capital per worker

Programme 4. Governance and Management of Industrial Development

- Manufacturing value added/MoCI DGI current expenditure
- Statistical reports and surveys completed.

Given the long-term nature of M4WB, only long-term targets are being set for the KPIs at the programme level. The conditions are likely to change unpredictably over the next 20 years and it therefore makes little sense to specify targets for such a long period of time (see the section on 'Industrial planning' in the Action Plan). The M4WB targets are desirable reference points rather than rigid goals that must be reached at all cost. Implementation of the strategy will entail learning from what works and what does not, and then adjust the annual targets accordingly.

5. Programmes

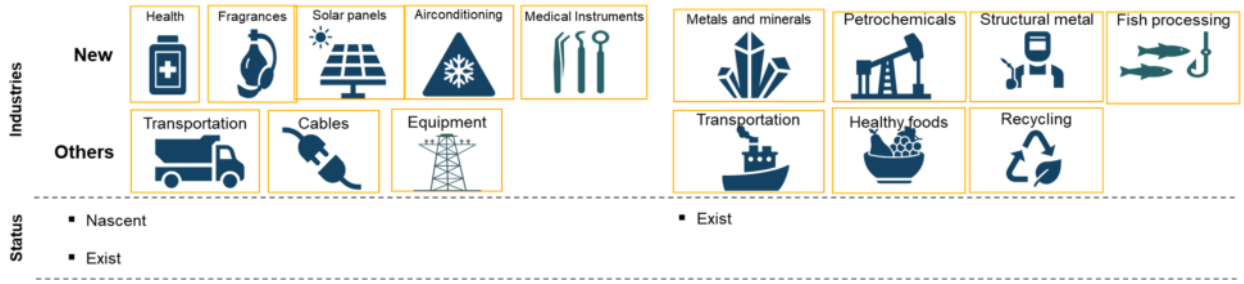
5.1. New Firm and Knowledge-driven Industrial Cluster Creation Programme (NEFKICP)

5.1.1. Key aspects

The programme aims to create new clusters of industrial activity in the Sultanate of Oman, focussing in particular on medium- and high-tech products such as pharmaceuticals, medical instruments, solar panels, pumps and valves, air conditioning equipment and fragrances as well as the development of healthy foodstuff and on the glass, flat steel, electrical equipment, cables, trailers and vehicle components, boats and recycling industries (Figure 11). As regards high-tech industries, the programme focusses primarily on attracting leading international companies to establish production facilities in the Sultanate of Oman, mainly—although not exclusively—for export. Hence, the main component will be foreign capital. It also aims to attract some of their suppliers, as most of these industries are non-existent or highly incipient and need to be built from scratch to a large extent. Bringing the relevant technology to the Sultanate of Oman will be key to their development, and hence the focus will be on foreign investors, who, for example, could enter into partnerships with local investors. Where a local industrial capacity already exists, partnerships will be more actively encouraged, although the final decision will always remain with the foreign investor.

In lower tech priority industries that already have some local capacity, the objective will also be to attract foreign investors, so that new production technologies can be introduced in the country. The emphasis will, however, be on firms that can integrate with local enterprises and raise the technological and productive capacities of existing industries. Interactions with local firms will be encouraged and support mechanisms will be put in place. Partnerships will also be actively promoted, and large local investors will be invited to take a leading role in supporting these activities. Addressing major bottlenecks to industrial development in these industries, particularly those related to international trade, will be a key component of government efforts.

Figure 11: Some examples of industry priorities



5.1.2. Attracting FDI

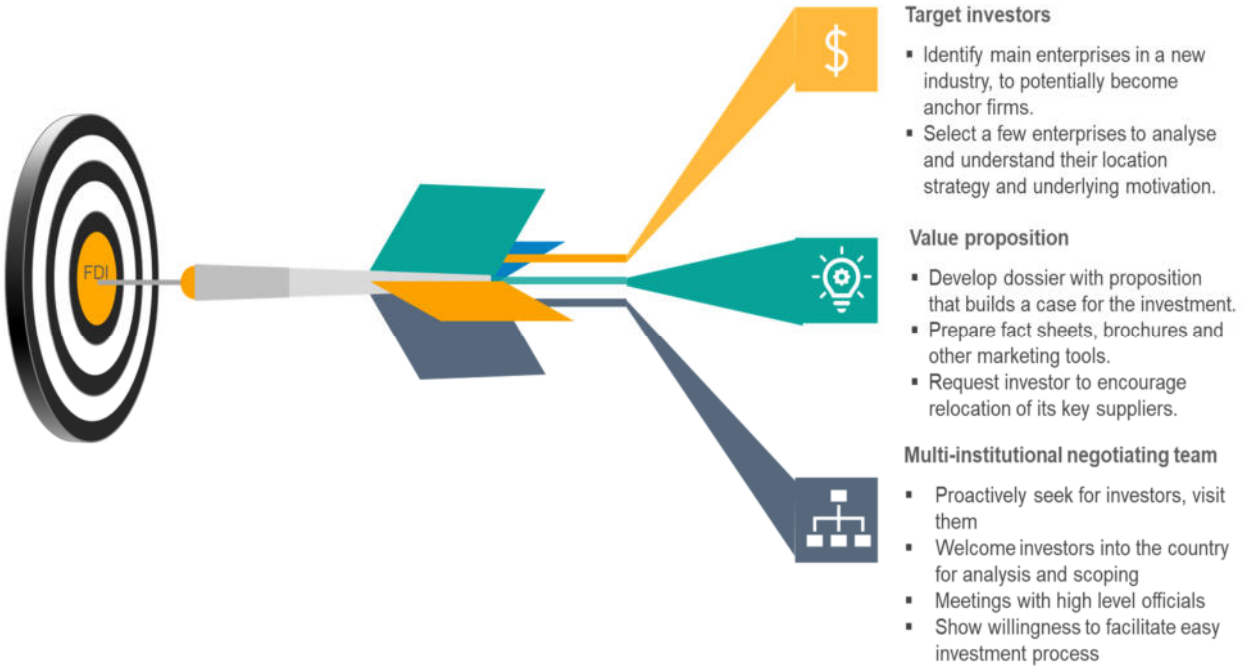
Targeting will be the main approach to attract FDI. It entails identification of the main enterprises in the industry to be developed and the selection of a few of them for a detailed analysis and understanding of their international location strategy and its underlying motivation. At this stage, a clear idea of potential products to be produced locally should be developed, with the elaboration of pre- or feasibility studies only becoming necessary if that is the practice in the industry. Most investors carry out feasibility studies and prefer to have a free hand in selecting what products to invest in. Selecting a few potential 'anchor' firms, that is, investors that are well established and can attract suppliers and eventually other complementary firms into the industry due to their influence in the international market. Local investors

that may be interested in co-investing as minority shareholders should also be considered, as joint ventures are often a foreign investor's preferred form of entry.

The preparatory work should also include the formulation of fact sheets, brochures and all the marketing tools required for this type of initiative. More importantly, a dossier with a 'value proposition', which not only includes possible incentives that could be granted but builds a full case for the investment, should be elaborated. This case should be built on a solid partnership between the investor, the government and the local investor, and should be based on transparent interactions and respect for the law and a stable, supportive and predictable environment provided for the investment. In this context, NEFKICP policies also involve a request for the investor to collaborate with the Omani government and to try to relocate some of its key suppliers, which will receive the same treatment as the anchor firm.

Once the preparatory work has been completed, a multi-institutional negotiating team should be built that will conduct visits to possible anchor firms and ascertain preliminary interest. Initial visits can be at working level but as interest increases, higher level officials should get involved, including relevant ministers. One aspect that all foreign investors appreciate about Oman is the high-level involvement and the Omani government's willingness to facilitate the investment process.

Figure 12: New approach to attracting investors



5.1.3. Providing incentives

The incentive package to attract foreign direct investment (FDI) will involve a combination of 'hard' and 'soft' elements. There is no single formula for attracting FDI as each foreign investor has its own history, rules of engagement and management. What exactly motivates each one of them is difficult to predict but in general, there is no one single factor that convinces an investor to invest, but a combination of factors. Thus, putting together the package should be done in a flexible manner and with discretion, yet with transparency. It should always include a range of incentives that are not perceived as favouring one investor over another, as this suggests lack of consistency and instils concerns among investors that rules and laws will not be respected if and when the need to call upon them arises. There is nothing that drives away an investor faster than lack of transparency in business dealings and disregard for the rule of law.

5.1.3.1. Appealing fiscal inducements

While there is some dispute as to how fruitful fiscal incentives can be in attracting foreign capital, most packages, if not all, contain income tax reductions. For new priority capital-intensive and knowledge-driven companies located in free zones (FZs), NEFKICP envisages a corporate income tax (CIT) holiday of 15 years. From year 13 onwards, investments in plants and equipment will qualify for tax rebates, which are available to all local manufacturing firms. The CIT advantage can be linked to a location in a specific region of the Sultanate. No other taxes will be levied on profits, repatriation of capital or payment of dividends during the initial 15 years. No personal income tax (PIT) will apply, and a pledge will be made to not set it above 5 per cent should PIT be introduced. New investors in new priority capital-intensive and knowledge-driven industries, who locate their factories in industrial estates and other designated industrial areas, will continue to have a CIT holiday of five years, which will be extendable every five years and up to 15 years, depending on value added or export performance. As is the case for firms in FZs, from year 13 onwards of the investment, any investments in plants and equipment will qualify for investment tax rebates that are available to all local manufacturing firms.

Investors in FZs in priority capital-intensive and knowledge-driven industries will be charged no import duty on inputs and equipment and will pay no customs or excise duties for goods brought into the free zone or for individuals entering and working in the FZs. Dedicated procedures and preferential custom fees will apply to customs processes. New investors in priority capital-intensive and knowledge-driven industries locating in industrial estates and other designated industrial areas will be exempt from import duties on inputs and equipment. No other industry will receive this benefit, and any import duties on inputs and equipment exemptions will not apply in non-priority industries.

5.1.3.2. Productive human resources

Investors look for wide availability of employees of all skill levels and at affordable wages. The Sultanate of Oman has many graduates and well-educated individuals who are able and willing to work in knowledge-driven industries in line with their training and goals. A solid university education is a necessary yet insufficient requisite to meet the demands of high-tech foreign investors. More detailed requirements regarding the specific needs and practices of the industry and the firms it aims to attract must be determined for which highly specialized training will be necessary. Such training can only be provided by, or in collaboration with companies that are expected to set foot in the country.

The technical skills required from technical staff will be even more specialized. In the medical instruments industry, for example, skills are acquired in post-secondary or college education and training in biomedical equipment technology or biomedical engineering. There is limited availability of such training at the local level, yet it is nonetheless required. Even after the training is completed, a period of on the job training is necessary to ensure that the trainees are adequately prepared to start working in the medical instruments industry. This is often not possible without intense collaboration with the enterprises in the industry.

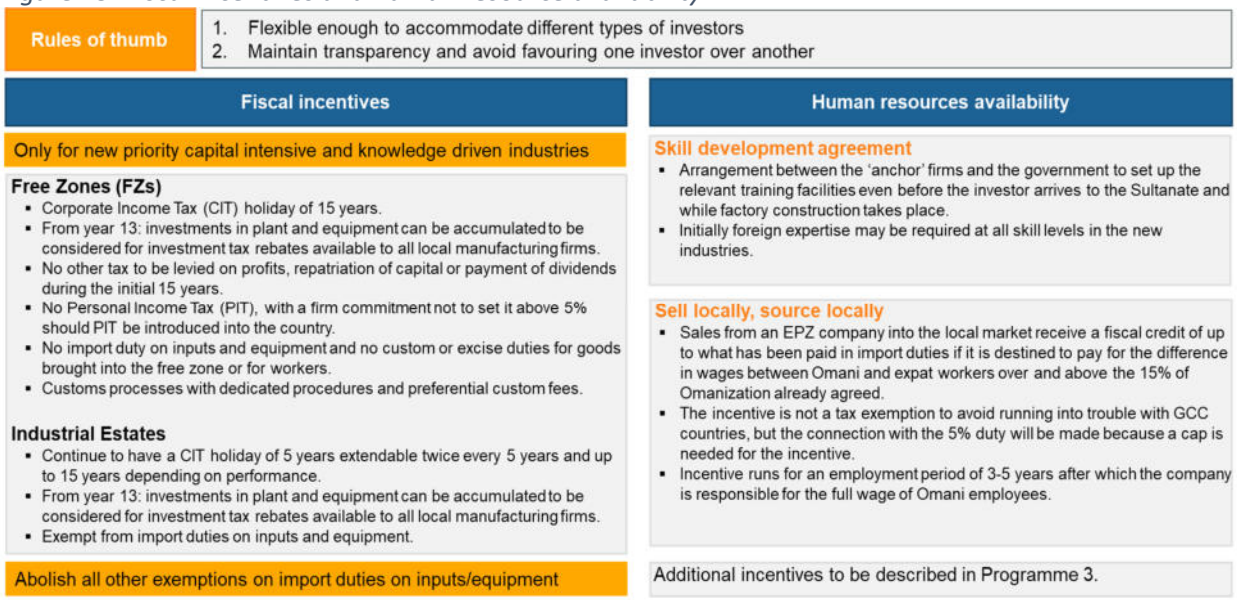
While foreign expertise may initially be required at all skill levels in the new industries, NEFKICP pioneers a concerted effort by the government and possible investors to identify the set of necessary skills for the new industries, and working with private and public institutions to deliver them in the shortest time possible. A skill development agreement between the possible ‘anchor’ firm and the government to set up the relevant training facilities even before the investor arrives in the Sultanate while factory construction is underway will be part of the initial investment agreement.

Foreign investors are used to freedom in hiring and firing, especially in FZs, but a 15 per cent initial rate under the Omanization policy in FZs in addition to a concerted effort by all relevant stakeholders to generate the necessary skills pool to develop the new industries is expected to progressively address the

availability constraints. As regards the wage differential between expats and locals, it should be noted that knowledge-driven or high-tech industries tend to pay higher wages than average manufacturing jobs, which should, in principle, make the jobs in these industries more attractive for Omani workers. NEFKICP, however, envisages some incentives under a 'sell locally, source locally' policy.

Investors in FZs are currently allowed to sell a share of their output in the domestic market, provided they pay the corresponding import duty, namely 5 per cent, and other related costs. Under a 'sell locally, source locally' policy approach, sales in the local market will be eligible for a fiscal credit of up to what has been paid in import duties if it is intended to cover for the difference in wages between Omani and expat workers over and above the 15 per cent already agreed under the Omanization policy. The incentive will not be considered a tax exemption to avoid running into trouble with GCC countries, but the link with the 5 per cent duty will be made because a cap is needed for the respective incentive. This incentive will run for an employment period of 3-5 years, after which the companies themselves will be responsible for the full wage of Omani employees. It is worth noting that the fiscal impact of this measure should remain minimal since, as mentioned above, all duty exemptions on imported inputs and machinery will eventually be eliminated. Another advantage of this approach is that it incentivizes firms to increase the amount of local staff as soon as they start producing if they intend to also sell locally. This measure could also be made compulsory by linking it to a specific percentage of sales in the local market but runs the risk of alienating the foreign investors. New investors in priority capital-intensive and knowledge-driven industries locating in industrial estates and other designated industrial areas will, however, be subject to other incentives described in Programme 3.

Figure 13: Fiscal incentives and human resource availability



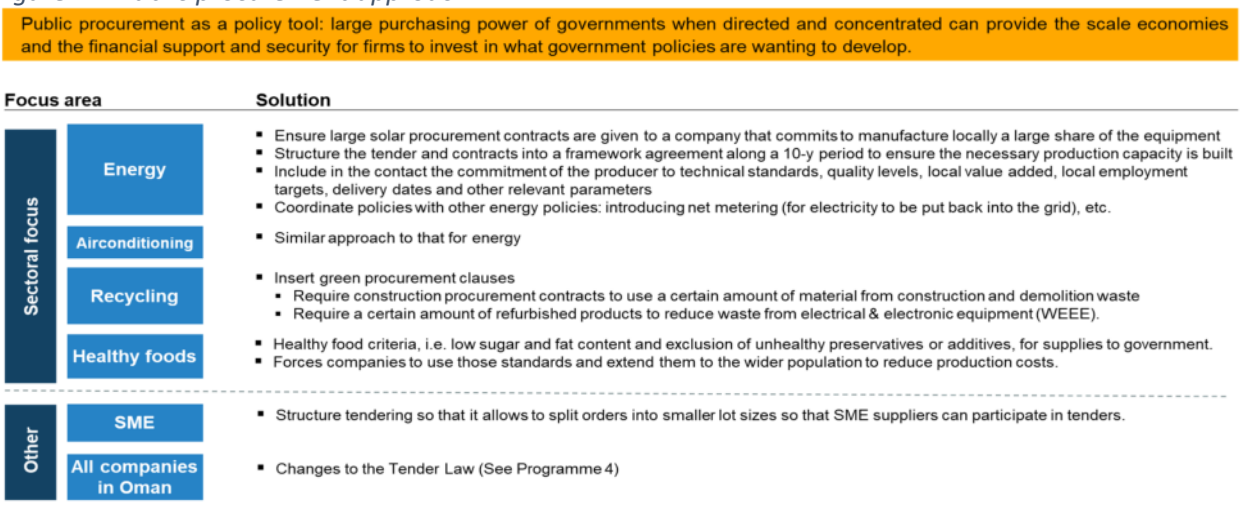
5.1.3.3. Strategic use of public procurement

Public procurement is a key policy tool to incentivize companies to develop products and services the government aims to endorse. The high purchasing power of governments can promote economies of scale; they can introduce policies providing for financial support and guarantees for firms that want to invest.

NEFKICP identifies several ways in which public procurement can promote new industries in the Sultanate of Oman. In the area of energy, the government currently has large solar energy procurement contracts and plans for future ones. For large projects such as this one, the approach is to ensure that the orders are given to a company that will commit to manufacturing a large share of the solar energy equipment locally. The tender and resulting procurement contracts will be structured in a framework agreement for a 10-year period to ensure that the necessary production capacity is built. Moreover, an agreement will be signed committing the manufacturer to comply with technical standards, quality standards, local value added, local employment targets, delivery dates and other relevant parameters. These tendering measures will need to be coordinated with energy policies such as introducing net metering so electricity can be fed back into the grid, thus increasing demand beyond the government's needs for solar energy. A similar approach is suggested for developing a local air conditioning industry, as the government has been an important buyer of such equipment over the last several years. Concentrating the purchasing power in a single framework contract that establishes the obligation to commence production locally would significantly contribute to manufacturing in the Sultanate of Oman. Changes in the tendering law may, however, be required, an aspect that will be explored in Programme 4.

Together with long-term, large project-oriented public procurement, this programme also envisages the use of public procurement for building industries such as recycling. Inserting green procurement clauses, which require construction procurement contracts to use a certain amount of material from construction and demolition waste or that require the use of a certain amount of refurbished material to be included to reduce waste from electrical and electronic equipment (WEEE). Likewise, public tenders can include healthy food criteria, i.e. food with a low sugar and fat content and the exclusion of unhealthy preservatives or additives, in all contracts that involve supplying food to the government. This would require companies to apply those standards and extend them to the wider population to reduce production costs. Tendering can also be structured in a way to allow the splitting of orders into smaller lot sizes so SME suppliers can participate in tenders as well and benefit from the public procurement process.

Figure 14: Public procurement approach



5.1.3.4. Clever use of trade mechanisms

Tariff and non-tariff barriers allow countries to stimulate local production by making imported products more expensive relative to local ones or simply limiting them or making them unavailable in the local market. Such measures protect local producers from foreign competition. The use of trade barriers has

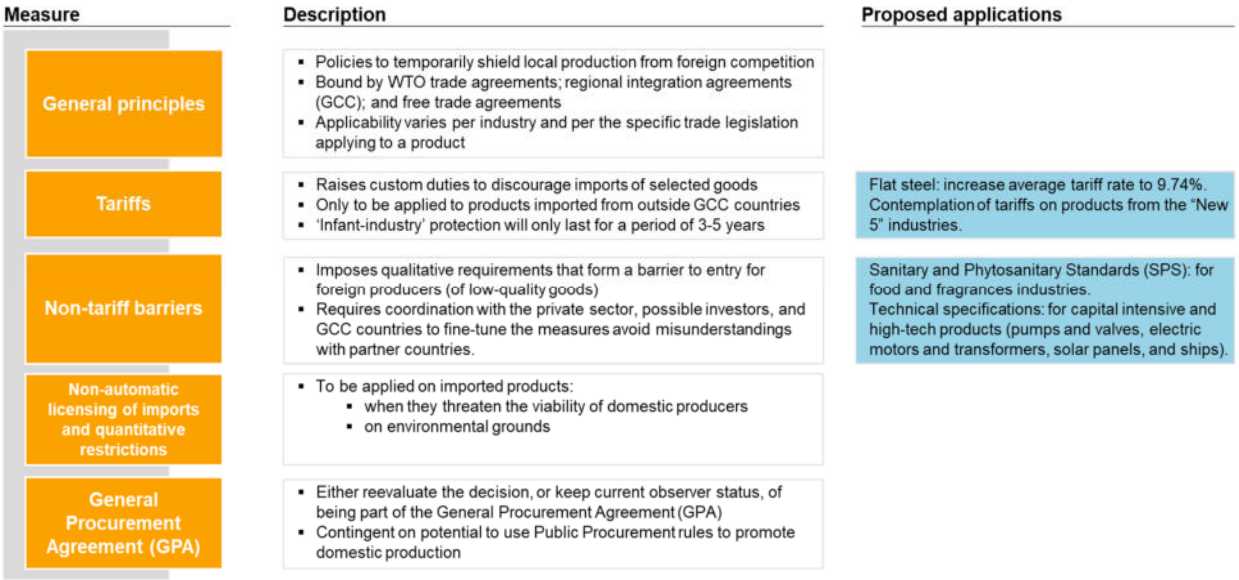
historically been a major driver of import-substitution in many countries, although up until recently, international trade agreements through the World Trade Organization (WTO) have limited their use. In addition, regional integration agreements or free trade agreements have further curtailed the possibility of using trade barriers as a stimulant of industrial development and in the case of the Sultanate of Oman, it is bound by its participation in the Gulf Cooperation Council (GCC).

Notwithstanding global, regional and international trade agreements, a resurgence of the use of trade barriers has been witnessed in recent years to protect domestic production, either unilaterally or by making use of measures permitted in accordance with WTO regulations. The use of trade barriers is not straightforward, however, as their applicability varies depending on industry and on the specific trade legislation applicable to a given product.

Tariffs can be used across the spectrum of imported products but being a member of the GCC means that such measures should only be applied to products that are imported from outside GCC countries. For example, several types of flat steel are mostly imported from outside the GCC. Tariffs on products from outside the GCC could be increased by an average rate of 9.74 per cent without contravening international trade regulations, as the Sultanate of Oman's tariff of 5 per cent for the majority of products is far below the bound tariff rate agreed in bilateral negotiations with WTO. NEFKICP plans to temporarily raise the tariff to the WTO's bound rate for some of the new products. While this would increase the price of imported goods subject to tariffs in the local market, it would allow any future investor time to build, ramp-up, de-bug and get the factory up and running. Selective 'infant industry' protection would only last for a period of 3-5 years after which the tariff is removed to allow entry of foreign competition. Saudi Arabia is already, unilaterally, introducing these types of measures.

Unlike many other countries, the Sultanate of Oman has not used non-tariff trade barriers to promote the development of certain industries. The use of sanitary and phytosanitary standards (SPS) are recommended to protect the 'infant industry' period in the food and fragrance industries. Technical specifications can be used to promote capital-intensive and high-tech products such as pumps and valves, electric motors and transformers, solar panels and ships. Introducing these measures will require close coordination with the private sector, possible investors and GCC countries to fine-tune the measures and avoid any misunderstandings with partner countries.

Figure 15: Trade mechanisms



Two additional measures are included in NEFKICP. First, it proposes the use of non-automatic licensing of imports and related quantitative restrictions when imported products threaten the viability of domestic producers or on environmental grounds. This provides further protection for new investors during a project's 'infant industry' period. Second, it plans to re-evaluate its decision or maintain its current observer status to be part of the General Procurement Agreement (GPA) to retain the option of using public procurement regulations to promote domestic production. While strictly speaking this is a public procurement measure, it is being negotiated in the context of the WTO and hence the question why it is considered under trade policy.

5.1.3.5. Plentiful financing options

The availability of finance is a key component in attracting FDI in Oman. While some foreign investors provide the capital themselves or raise funding in international markets, others prefer to locally leverage some of the capital they need. The recent USD 300 million cotton yarn project investment by the Indian company SV Pittie Sohar Textiles FZC LLC was funded at around 70 per cent by a loan from a syndicate of local and international financial institutions.[8] By raising external funds, investors reduce their financial risk when entering a new venture while often keeping full control over it.

To attract FDI, Programme 1 proposes the creation of an Equity Co-investment Fund (ECF) in OIF dedicated to investing in new industrial ventures in Oman. The Fund's business model envisages matching funds for equity, where the ECF will match the investment of private partner(s) up to 50 per cent. ECF will thus become a co-investor in the new venture and partner with foreign 'anchor' firms or local investors in new priority projects and high-tech industries.

The ECF draws on experiences of several sovereign development funds (SDFs) around the world. Unlike sovereign wealth funds (SWFs), which focus on returns on investments globally, SDFs are a major vehicle of diversification within their country of origin. Among the most noteworthy SDFs are the Ireland Strategic Investment Fund, Khazanah in Malaysia, Temasek in Singapore and Mubadala in Abu Dhabi. SDFs operate with a clear mandate to diversify the economy in which they are based and hence, include a broad range of investments. Although not all of them always operate under the matching funds principle, all of their investments are expected to be profitable, which is often guaranteed by the presence of a co-investor with expertise in the respective business. SDFs have proven extremely successful in diversifying their economies while increasing the fund's value over time.

Complementing the ECF, Programme 1 proposes the creation of the Manufacturing Development Fund (MDF). Unlike the ECF, this fund aims at stimulating large investments in priority manufacturing clusters by local investors. It aims, in particular, to encourage local firms to invest in next level suppliers or complementary businesses of 'anchor firms'. Like the MDF, it can be used to match equity funds, along the same lines as the ECF. The MDF can also participate in joint ventures between foreign and domestic capital, provided a local investor is involved.

Another funding mechanism to be considered are venture capitals (VCs). Government VCs are already available in the Sultanate of Oman through IDO, OTF and Ethmar. Smaller private VCs exist as well. What is needed now is to establish a VC fund that is fully committed to manufacturing in collaboration or

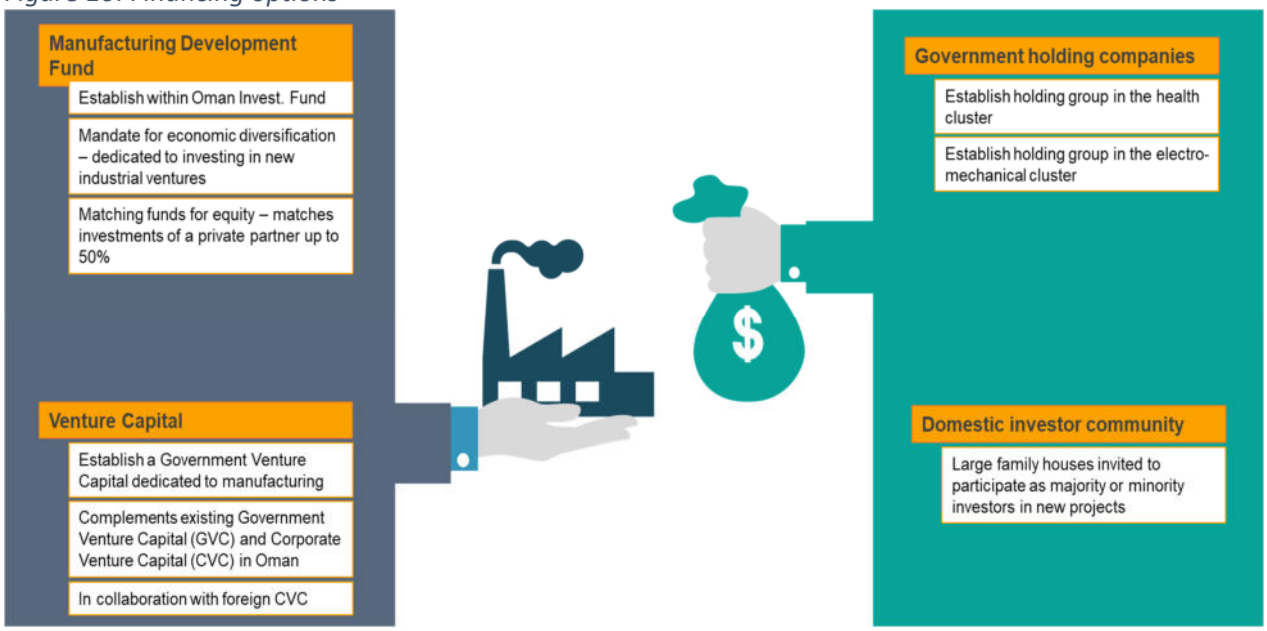
[8] http://svpoman.com/en/sv-pittie-sohar-textiles-generates-positive-cash-flows-in-record-time/

partnership with foreign VCs. Hence, Programme 1 envisages attracting foreign VCs specialized in manufacturing to establish facilities in Oman. This can be carried out in collaboration with SGRF and OIF.

One successful model of finance already implemented in the Sultanate of Oman is the establishment of government sectoral holding companies. The Oman Food Investment Holding Company, established in 2012, has successfully developed several food processing companies and is diversifying into supporting the industry through research and development. The Oman Tourism Development Company has been established, which is developing new projects on government-owned land, either on its own or in partnership with other investors. There are other success stories in aviation, waste management and, more recently, parts of the oil industry have begun consolidating around OQ, the government holding company. NEFKICP anticipates the establishment of holding companies in the health cluster and perhaps in parts of the electromechanical cluster.

While the government will play a key role in providing financial assistance to new emerging projects, it is the domestic private sector that Programme 1 envisages as a major contributor to the funding and management of key future investments. Large business families will be invited to participate as majority or minority investors in projects in their areas of specialization. There is a wealth of funds and experience in the hands of these groups that could easily be placed at the service of manufacturing diversification objectives. These business families could enter as majority partners in first tier supplier companies or in partnerships with foreign investors in 'anchor' firms.

Figure 16: Financing options



5.1.4. Building integrated clusters

While FDI attraction will be the key driver for the establishment of new firms and high-tech industries, it will also be necessary to build a range of activities and facilities around them that contribute to the emergence of vertical and horizontal relationships between firms. In addition to attracting first tier suppliers of 'anchor' firms and inviting local firms to engage in supplier opportunities, Programme 1 anticipates introducing a series of measures aimed at developing the industrial ecosystem that is crucial for sustained cluster development.

For an industrial ecosystem to be successful, it must be populated by all sizes and types of related firms. While anchor firms and some key suppliers can be attracted through a targeting and proactive approach to FDI, the method would be overstretched if applied to attracting all necessary firms. Hence, for other firms—which will most likely represent the majority—the role of policy should be to create the conditions for firms and stakeholders to meet, exchange information and eventually engage in trade; to provide cluster-specific capacity-building opportunities for individuals; to upgrade SMEs to the standards set by the anchor or leading firms in the cluster; and to provide the public goods that are needed, especially by high-tech industries.

Building a cluster coordination mechanism is a first step towards fostering sustained relationships. Simply setting up government-industry working groups, mapping the value chain of the industries to be developed in addition to ancillary ones and encouraging dialogue among stakeholders are some of the measures planned to generate coordination gains for policymakers. This is to be complemented by facilitating coordinated action between anchor firms and suppliers through vendor development programmes, the establishment of incubators and accelerators, and the upgrading of SMEs to improve the local supply of inputs.

Sector-specific capacity-building opportunities, often located in close proximity to the workplace, is another activity NEFKICP plans to support. Proximity to the workplace is important as employees will be encouraged to continuously progress throughout their careers along lifelong learning principles, which is crucial when working in high-tech industries, where knowledge is continually advancing and keeping up to date is not always easy. Proximity to the workplace is also important to ensure direct involvement of companies and local research and development centres in training activities to build an interactive learning environment.

The upgrade of SMEs in advanced clusters will be carried out using cluster-specific business accelerators. Accelerators differ from business incubators in that they are cohort-based (groups of firms focussed on similar issues), include mentorship, and often provide funding to start-ups or SMEs in need of upgrading. Corporate accelerators involve larger companies that provide seed funding and mentorship to businesses they are interested in developing on a highly competitive basis (see also corporate venture capital in Programme 3). The idea, therefore, is to create an accelerator initiative like the Oman Technology Fund (OTF), but for cluster-specific demands. The initiative will incorporate elements of the Phaze Ventures and the SparkLabs Energy Accelerator and draw on Start-up Chile models.

In terms of public goods, Programme 1 focusses on two key aspects. The first aspect is financial support for R&D (see Programme 3) and the establishment of R&D centres of excellence and an industrial innovation infrastructure, including demonstration facilities, innovation labs and technology centres, such as the Advanced Manufacturing Centre at Sohar University, which anyone interested in getting acquainted with advanced technology should have access to. These services could eventually be co-funded with the private sector as firms become aware of the value they provide to them as time goes by. Equipping the industrial innovation centre to provide such services is also part and parcel of these policies. Secondly, and no less important, is the provision of general infrastructure and amenities for the clusters. This ranges from industrial support infrastructure to housing and schooling for the families and children of those working in the cluster to various forms of entertainment and social interactions young professionals enjoy.

In addition to these measures, NEFKICP will continue to apply the ‘Invest Easy’ approach to reduce red tape and time wasted in permits, licensing, registration and other government procedures. It will also collaborate with telecom companies to increase internet connectivity and speed as well as to make the price of internet and telephony more internationally competitive.

Figure 17: Policies for building clusters

Step	1. Sustain relations with investors	2. Sector-specific capacity building	3. SME upgrading	4. Infrastructure	5. Governance
Policies	▪ Create government-industry working groups ▪ Map the value chain of the industries (incl ancillary) ▪ Facilitate coordinated actions between anchor firms and suppliers through vendor development programs and other aspects of Step 3.	▪ Continuously upgrade workforce along life-long learning principles (especially in high-tech industries) ▪ Proximity to workplace is also important to get direct involvement of companies and local R&D centers on training activities to build an interactive learning environment.	▪ Cluster specific business accelerators ▪ Incorporate elements of the Phaze Ventures and the SparkLabs Energy Accelerator and draw on Start-up Chile models.	▪ Financial support for R&D: R&D centers of excellence, and industrial innovation infrastructure (demonstration facilities, innovation labs and technology centres) ▪ Provision of general infrastructure and amenities for the clusters, including lifestyle	▪ Continue with 'Invest Easy' approach to reduce red-tape and time spent on obtaining permits, licenses, registration, and in other government procedures. ▪ Work with telecom to increase the connectivity and speed, and make prices internationally competitive.

4.1.5. Developing cluster-specific measures

Since the establishment of new industrial activities involves cluster-specific policies, Programme 1 also addresses what needs to be accomplished in some individual clusters. In the *health and fragrance* clusters, the aim is to facilitate the attraction of skilled pharmacists, pharmaceutical workers and lab technicians, while providing technical assistance, particularly in the fragrance industry, to associations of raw materials producers (frankincense, rose, myrrh) to ensure a stable, sustainable and quality supply. These are just some of the initiatives the government will have to implement. Due consideration will be given to the option of approving drugs produced by established companies that want to set up their base in the Sultanate of Oman, following approval in their countries of origin. Insofar as biosimilars are to be developed locally, support will be provided to the establishment of a bio-equivalences centre. Healthy foods shall be promoted by introducing levies on unhealthy ingredients and campaigning on behalf of a healthy lifestyle among the Omani population.

Raising a *solar equipment* industry from scratch will be inextricably linked to the production and energy policies of firms and of the government. PDO is a major user of PV technologies for secondary recovery and tying their plans in this area to the development of manufacturing is expected to help create local demand for solar equipment products. Equally, there are large investments being planned in PV by energy producers as the Sultanate of Oman shifts its energy mix towards renewable energy. Building partnerships with energy companies to deliver solar panels and solar energy components is another initiative anticipated under Programme 1.

In the recycling cluster, for example, policies should aim at stimulating the collection of a steady stream of waste material by certified collectors, including the co-collection of different waste streams and their treatment in multi-purpose plants. Regulation is necessary to complement incentives by penalizing the illegal dumping of waste, to ensure that the dismantling of certain types of waste, such as WEEE, takes place under proper technical, health and safety conditions, and to avoid exporting waste that could be

used locally as input. To further ensure an adequate supply of feedstock, the intended measures include introducing producer responsibility and take back schemes, which are particularly important for WEEE and end of life tyre (ELT) waste. Over time, every large industrial investment should be accompanied by a mandatory waste management plan that is widely circulated among businesses so that recycling entrepreneurs can plan ahead their investments.

Finally, there are several cluster-specific initiatives that will be introduced in other clusters. In *flat steel and air conditioning*, for example, standards will be used to promote the location of production locally. Local steel as well as local *cable producers* will be encouraged to broaden their product range through reinvestment tax credits. *Pump and valves* manufacturers will be encouraged to use more local steel and aluminium as well as local switches, wiring and other electrical equipment. Local content and public procurement initiatives will be pursued to stimulate the development of these industries.

Figure 18: Cluster-specific policies

Cluster	Selected measures
Health	▪ Organize a campaign for attracting skilled pharmacists/pharmaceutical industrialists. ▪ Build alliances with friendly and high-quality regulation countries, to approve drugs if conducted in a JV with a company from an allied country. ▪ Create a bio-equivalence center to test new biosimilars.
Fragrances	▪ Create technical assistance project for associations of raw materials producers (frankincense, rose, mhyrr) to ensure stable, sustainable and quality supply. ▪ Create public-private training institute for the fragrances industries - equivalent to the College of Banking.
Healthy foods	▪ Incentivize healthy food production through levies (on unhealthy ingredients); subsidies and financial incentives (on health foods). ▪ Promote a healthy lifestyle amongst Omani population through campaigns, consolidation of food control agencies, strengthening of food laws, and awards.
Steel	▪ Give incentives to change product mix (enter less cost-competitive category: flat steel), increase standards. ▪ Arrange for steel producers to enter into alliances and buy outs with mining companies to exercise control over the supply of raw materials (backward integration).

Cluster	Selected measures
Solar panels	▪ Catalyse, in the short term, solar panel manufacturing industry through manufacturing of secondary (low-tech) components for PV and CSP systems; and capital-intensive raw materials for PV (i.e. polysilicon). ▪ Ensure that manufacturing promotion forms a key part of any renewable-energy policy through procurement processes that promote local content. .
Airconditioning	▪ Adopt standards that prevent cheap A/C components from entering channels of distribution in Oman, in addition to eco-labelling norms. ▪ Strengthen consumer awareness campaigns for quality A/C equipment (Energy Efficiency Registration) and link it to Omani products
Cables	▪ Incentivize expansion into electrical cables and wires (HV cables, cables for renewable energy applications). ▪ Conduct 'technology audits' to assess whether and where there is potential for automation - potentially in collaboration with international partners.
Recycling	▪ Organizing the collection of a steady stream of waste material, having certified collectors, and promoting co-collection of different waste streams and their treatment in multi-purpose plants. . ▪ Introduce producer responsibility and take back schemes

5.2. Entrepreneurship and Industrial Innovation Programme (EIIP)

5.2.1. Key aspects

The programme aims to incite the entrepreneurial, creative and innovative spirit of individuals and companies in manufacturing through several internationally well-known initiatives and tailored incentives. Entrepreneurship is the first step in modern economic activity as it is at the enterprise level where the human, technical, financial and managerial resources merge to establish a business, and this has been the case for the last several hundred years. Hence, ensuring a continuous launch of new enterprises that can replace firms that exit the market while invigorating existing businesses is fundamental for the health of any economy. While not all new enterprises are necessarily small, most of them result from 'burning ideas' of individuals who want to test them in the market by converting them into small start-ups. Easing the process of conversion of those initial ideas into concrete businesses is one of the objectives of Programme 2.

New enterprises often start with products or services that are already available in the market, either locally or internationally. A small start-up may develop a completely new idea, but this is rare. In that case,

the start-up is also an innovator, as it is engaged in creating something entirely new, and this is one of the reasons why entrepreneurship and innovation are intricately linked. More often than not, however, new products and production processes emerge from the strenuous efforts of firms of all sizes to create a new product or production process, explore these in all of their dimensions, examine their functional capacities and test their technical properties, prototype them, resolve problems that emerge, manufacture the prototypes, and eventually launch them in the market. More sophisticated products frequently require close collaboration with scientists and complex processes of research, engineering and development. Innovation is a risky venture that has often been undertaken with external support. The role of EIIP will be to provide such support.

5.2.2. Establishing and breeding promising 'start-ups'

Government support for the establishment of a new enterprise is provided by several institutions, the most important being Riyada, the SME development agency. Since its creation in 2013, Riyada has developed a range of business SME support services, to which we will return when we discuss the next programme, including start-up support for future Omani firms. Start-up support is provided in collaboration with the National Business Centre, also a government agency. The Information Technology Authority (ITA), today part of the Ministry of Technology and Communications, assists the SAS for Entrepreneurship Centre, an incubator for IT firms. Although there are no precise figures on success rates, quite a number of new enterprises have been created. What seems to be needed now is a more granular approach to manufacturing start-ups.

The sectoral specialization of future firms needs to be taken into consideration. Start-up support seems to have generated new enterprises in the services sector, maintenance and repair as well as some notable examples in the IT sector but has not led to the creation of many manufacturing firms. This programme recommends the provision of specialized technical advice for potential entrepreneurs entering manufacturing, either by establishing a special division at Riyada and the National Business Centre or by creating an ad-hoc incubator. Furthermore, start-up support, and more generally SME support, needs to be more differentiated, focussing on the potential of different possible entrepreneurs and on ensuring an ecosystem that allows any type of entrepreneur to prosper. Hence, a three-level support system is proposed: entry, intermediate and advanced. The entry level targets any potential entrepreneur and provides basic information, training, and advice on how to start a business. The intermediate level addresses potential Omani entrepreneurs, equivalent to those with a current Riyada card, who would be provided with more advanced services, including access to funding by the Oman Development Bank (ODB) or the Al Raffd Fund. The advanced level targets 'high-flier' Omani firms that have experienced significant growth and have innovative potential and can rapidly graduate to medium-sized enterprises, which—in addition to intermediate support—will be mentored and linked to supplier development programmes (these more advanced start-ups will be covered by EIIP while all other SMEs will be part of Programme 3). Access to start-up support will be granted irrespective of whether the individual is employed or not, with civil servants being granted extended leave (3-4 years) to have sufficient time to develop a new business.

To complement start-up services for 'high-flier' firms in the advanced level service bracket, EIIP envisages the establishment of an advanced mentoring system drawing on the support of reputable entrepreneurs and larger companies. They will receive cutting-edge training on state-of-the-art technology, product development, management, marketing and exports, e-commerce and public tendering. An advanced tendering initiative (Tendering II) that qualified SMEs can apply to and be awarded a contract of up to 10-years, including contracts of above OMR 3 million, will also be introduced. Firms that meet the tendering

requirements but need to increase their capacity to deliver will also be financially supported to invest in equipment, plant expansion, training, and consultancy.

Figure 19: Policies for start-ups

Group	1. Entry	2. Intermediate	3. Advanced
Focus	Any potential entrepreneur	Omani potential entrepreneur (Riyada card holders)	Omani firms with great growth and innovative potential - irrespective of employment
Support	Basic training & information to start a business.	Advanced services incl. funding from ODB or Al Raff'd Fund	Mentoring and linkage to supplier development programmes

5.2.3. Learning to innovate

Government promotion of innovation is relatively new in the Sultanate of Oman, although considerable progress has been made. The Research Council (TRC) is spearheading efforts in this regard through a series of research and innovation efforts. Research programmes in water, non-communicable diseases, and renewable energy, the last two of which coincide with priorities in M4WB, were launched recently.

In terms of innovation, TRC has launched innovation awareness initiatives at schools and the Sultan Qaboos University and has introduced an open innovation competition scheme for individuals seeking to prototype products. The TRC also promotes the Innovation Park Muscat (IPM), with the aim of encouraging collaboration between academics and the private sector. The IPM includes Makers Oman facilities providing DIY workshops, prototyping lab, and fabrication studios, giving a home to innovators and entrepreneurs. Together with the Madayn Industrial Academy (MIA) , the industrial estates authority, TRC has established the Industrial Innovation Centre, aimed at helping Omanis explore and develop business opportunities and resolve the industrial problems SMEs face. The Ministry of Technology and Communications supports the Innovation Factory, an initiative to assist national digital fabrication technologies and IT services. Another important contributor to the innovation ecosystem in the Sultanate of Oman is EJAAD, a virtual collaborative platform where industry, academia and government can interact and engage in energy-related research and innovation activities. The Sultanate of Oman generally has a sophisticated set of institutions that support the innovation ecosystem, yet there is little private sector manufacturing R&D expenditure and limited innovation, which is what EIIP will focus its efforts on.

Several measures will need to be introduced to improve the performance of the innovation ecosystem. EIIP will promote the introduction of more 'makers' and innovation factory initiatives in connection with

technological centres that serve as showcases and training units for advanced manufacturing technologies. The Advanced Manufacturing Centre, which is part of Sohar University, has already taken steps in this direction. This, in fact, should be one of the core mandates of the Industrial Innovation Centre, working in collaboration with research institutes and universities. Furthermore, international experience suggests that when innovation is science-based and involves radical changes, proximity of productive units to universities and research centres—and often within science parks—is necessary. When innovation is engineering- or technology-based, however, proximity of research facilities to factories is much more effective, even more so if the facilities offer specialized services adjusted to the demands of firms located around them. Hence, EIIP will strive to establish specialized technology and innovation centres in the different industrial areas across the country.

On the demand side, public procurement will also be used to promote innovation. The approach in this case will be to use tender specification and performance requirements to encourage the diffusion or creation of a specific new technology or product. Tenders can also include an award criterion as well as the requirement for demonstrable innovative characteristics in the product or service to be delivered.

Innovative high-tech start-ups will be able to draw funding from a special VC unit located at the Oman Development Bank. VC investment will accompany these start-ups for a period of 5-7 years, after which they will exit and let the start-ups run on their own. This should be sufficient time for SMEs to consolidate their business and become financially sustainable. The VC can work together with other VCs in the country and abroad and draw from their expertise, including the secondment of staff.

Perhaps one of the key policy challenges the Sultanate of Oman will face in coming years is increasing the demand for innovation among firms. For small firms, EIIP envisages the establishment of a mechanism of innovation vouchers. This mechanism will essentially consist of small grants for SMEs to purchase services from universities, research centres or the Industrial Innovation Centre. The vouchers will be distributed among individual SMEs, but companies can pool several vouchers together to target a larger project. Vouchers can be used for R&D projects or for technology adoption, process improvement and product development. More importantly, however, vouchers leave the decision of what to invest in in the hands of the SMEs themselves, although the service providers will have to be certified by Riyada or another relevant government agency. The voucher system will also have the advantage of helping to identify which areas and what types of providers SMEs required. Ensuring widespread use of the voucher scheme will be accompanied by awareness workshops and marketing events organized by potential providers and bolstered by a rapid voucher government payment system. Initially, the voucher scheme will only focus on the most advanced SMEs.

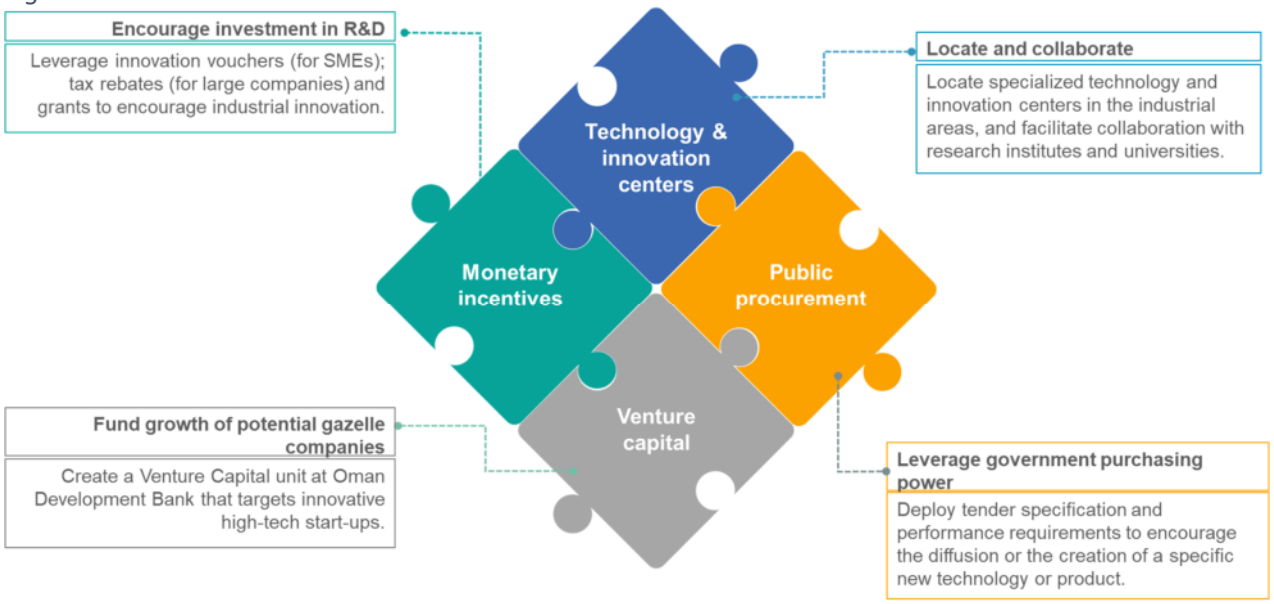
While stimulating SMEs to become innovative may have a significant bearing on creating an innovative culture and might induce SMEs to develop some interesting new products, it will be the innovativeness of large firms that will drive the creativity of the Sultanate of Oman’s economy in the coming 20 years. The bulk of the creative, technical and productive capacities of a country are accumulated in large firms, and galvanizing these will be a key focus of this programme.

One of the most widely used fiscal incentives to promote corporate R&D expenditure is the application of a tax advantage for R&D expenditures. The risk of innovation is thus shared between the government and the firm. EIIP proposes a 50 per cent deduction of firms’ expenditures on R&D from their gross income. In practice, this means that the innovation risk is equally shared between the government and the firm investing in R&D. The deduction will only be applicable to expenditures for activities that are demonstrably related to the creation of new products or new processes. The deduction will initially only

be applicable in knowledge-driven and capital-intensive industries but could later be made more widely available for all industries.

Tax advantages are a powerful instrument to promote innovation, but ultimately leave the decision about what to innovate to the enterprises. At the same time, there are priority technologies or areas that would be desirable developing from the perspective of the economy as a whole. To address these demands, this programme introduces a grant scheme to complement the range of fiscal incentives for innovation. The scheme's competitive process will target both SMEs and large firms and can be implemented annually. Grants are expected to finance any innovation-related expenditure, including proof of concept, prototyping, testing, machinery, and technical assistance. They will focus on M4WB priority areas. The grants will amount to OMR 30,000 for SMEs and up to OMR 600,000 for large firms, with 50 grants for SMEs and 6 grants for large enterprises to be awarded every year. The scheme will be administered in collaboration with the Industrial Innovation Centre, EJAAD and TRC.

Figure 20: Innovation Policies.



5.3. Programme for Industrial Upgrading and Modernization (PIUM)

5.3.1. Key aspects

This programme focusses on the general position and performance of the Sultanate of Oman's manufacturing industry and aims to raise it to world class level. This will require systemic efforts across all levels of manufacturing. It includes improving the availability of Omani labour both in terms of quantity and quality to reduce dependence on expat workers. Efficiency in production and labour productivity will also have to be increased, which will in turn help reduce costs and make manufacturing firms more competitive at local and international. Omani industry must increase its domestic market share and radically expand its exports in selected markets abroad. Efficient use of raw materials, inputs and energy will also need to be enhanced, in line with global demands for environmental sustainability. The enhancement of workers' skills and the use of advanced technologies, which today are associated with the "Fourth Industrial Revolution" (4IR), drive increases in productivity. How to expand workers' skills,

improve the use of inputs and energy, and transform the stock of machinery into state-of-the-art technologies are policy aspects that are addressed in Programme 3.

Capital, labour and resources do not, however, suffice for manufacturing to thrive. These factors must be combined in the right proportions to optimize their use and manage them, shifting market conditions and challenges notwithstanding. Firms lie at the core of economic activity, and ensuring their robust development is as crucial as the availability of the right level of skills or technology. Thus, PIUM advances policies to strengthen Omani firms, especially SMEs and supplier firms, with the aim of integrating them into regional or global value chains so they can develop into healthy medium- and large-sized firms, and become world leaders in their field. Ensuring the competitiveness of Omani firms will also require policies that help companies cluster together to achieve economies of specialization, while at the same time opening new business opportunities for them.

5.3.2. Acquiring skills

Acquiring the necessary skills for a modern, technologically advanced, world class industry must begin early in the development of individuals. The duration of schooling needs to be increased so pupils spend more time learning, but this must be accompanied by a shift in teaching methods from rote approaches to the adoption of learner-centred and participatory teaching/learning methods. Policy proposals also include the establishment of vocational secondary schools associated with new upcoming industries based on curricula developed by educationalists and representatives of the respective industries. At college and university level, science, technology, engineering, and mathematics (STEM) education needs to become more practical by adapting the curriculum and bringing it closer to the industry's needs while a scheme of internships and apprenticeships will accompany changes in the curriculum. Collaboration with education authorities will be pursued, an objective that will be addressed in the next programme.

Turning to TVET, the anticipated changes ahead are significant. A long-term TVET strategy that is linked to projected industrial developments and based on an in-depth skills assessment, particularly skills required for the 4IR, will be drafted. The strategy should include lifelong learning and represent the foundation of the curriculum for TVET activities in the future.

At the TVET institutional level, PIUM will promote a number of strengthening and cooperation initiatives. In terms of strengthening and honing its mandate, one initial objective will be capacity-building at MoCI for TVET and determining the skills requirement of different industries so MoCI can provide guidance across industries. The Madayn Industrial Academy (MIA) established in 2019, which aims to provide Omani workers with the necessary technical skills to improve performance and to increase their employability, may need to concentrate on technical and professional training and leave services that are already widely available to the private sector. It should assume the role of the sole government agency in charge of facilitating TVET across the country and build the required capabilities and equipment to do so. MIA could also share facilities with the Industrial Innovation Centre to save on equipment and provide joint services as needed. The government will also promote the establishment of TVET research capacities at SQU to provide a scientific basis for curriculum development and delivery methods.

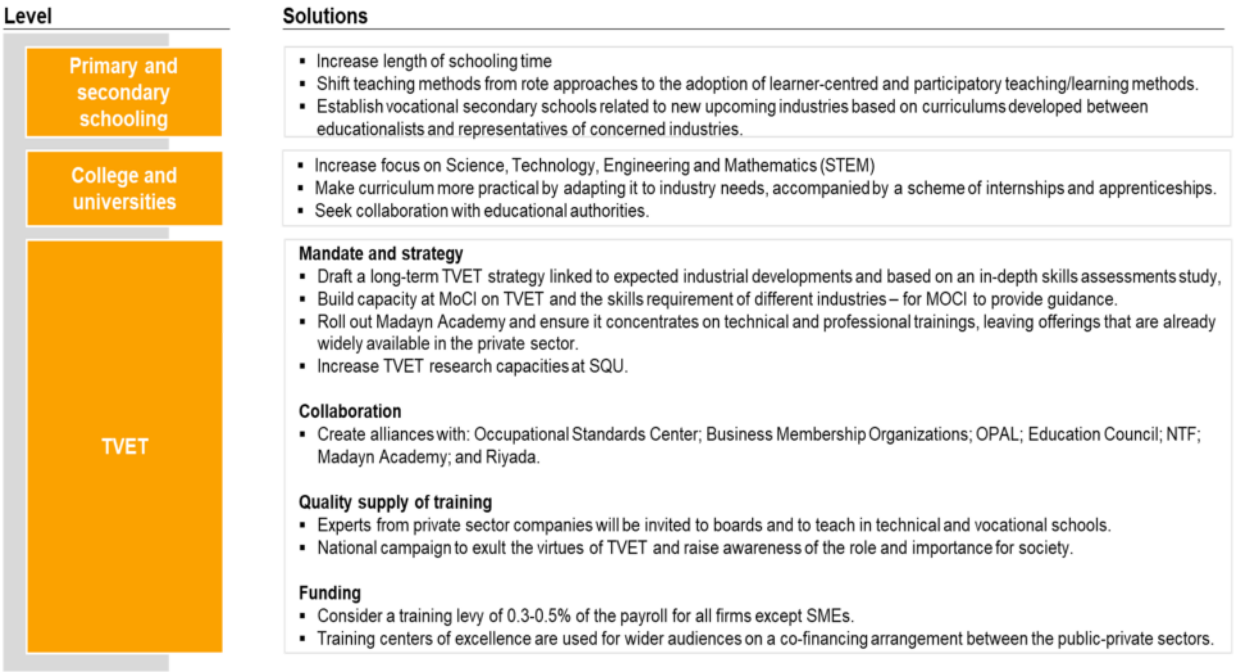
Collaboration between MoCI and the Occupational Standards Centre (OCS) will be fostered to develop National Occupational Standards for manufacturing and the establishment of a manufacturing skills unit. MoCI will cooperate with business membership organizations such as the Oman Chamber of Commerce and Industry (OCCI) and the Oman Manufacturing Association (OMA) to secure their involvement or to act as intermediaries of the private sector in designing and delivering training. Such collaborations can be modelled on the experience of the Oman Society for Petroleum Services (OPAL), which has been quite

successful in training people to work in the oil industry. MoCI will seek membership of the Education Council to ensure that the industrial sector's skills requirements are adequately and systematically considered in education curricula and in TVET policy making and to align the education standards in both the public and the private sector. MoCI also aims to sign a cooperation agreement with the National Training Fund (NTF) to raise awareness of the importance of TVET, to increase the standing of TVET among the Omani labour force and to launch training programmes in priority areas. Other forms of cooperation to be promoted include a partnership between MIA and Riyada to provide technical training to SMEs.

Policies to bring TVET closer to the workplace include the introduction of training programmes for in-company trainers, designed by MIA. Working with private sector firms and education authorities, workplace opportunities will be created for TVET trainers in firms. To further integrate work and training, experts from private sector firms will be invited to join company boards and to teach in technical and vocational schools. Closer involvement of companies in TVET activities should facilitate the process of introducing internships and apprenticeship schemes. A national campaign to highlight the merits of TVET and raise awareness of its role and importance for society will accompany efforts to bring together the workplace and TVET.

To ensure financing for TVET, a training levy of between 0.3 per cent and 0.5 per cent of firms' payroll (with the exception of SMEs) will be considered. Training centres of excellence, whether in-house or external, will be identified and open for wider audiences based on a co-financing arrangement between the public and the private sectors. Foreign investors will actively be encouraged to participate in this scheme and to contribute to the training of their staff, particularly in relation to new investment projects. Funding requirements will include the financing of technology and equipment needed to prepare students or existing workers for the specific tasks they will be performing in the investment project.

Figure 21: Human resources and TVET interventions



5.3.3. Accessing advanced technology

During the diagnostic stage of M4WB, it was established that most Omani industrial firms face three key challenges in accessing new and 4IR technologies:

- Lack of technological skills to select and adopt the most relevant advanced technologies for their businesses;
- Low awareness of the potential benefits that advanced technologies will generate for their companies;
- Limited availability of public R&D and technological infrastructure so firms can access modern technologies, obtain technical advice and consultancy services, and connect with other firms.

To address these challenges, PIUM plans to launch 'large-scale technology and deployment' advisory services. These services will provide technical expertise to assist firms in identifying, selecting, and adopting new technologies and to help them improve their performance in related areas. The services provided to enhance technology diffusion include disseminating general information, matching technological demands with vendors and suppliers, technology assessment and technology demonstration. Demonstrations involve making robots and 3D printers available for companies to experiment with, similar to the Makers Movement previously mentioned. Services offered to improve business performance will include the use of IT for production, quality improvements including certification and standards, lean production and energy management. The Industrial Innovation Centre will play a key role in the provision of these services.

It is often not possible to incorporate all knowledge about a given technology in a single advisory service and some knowledge is so specialized that only very few possess it. Furthermore, the true significance and benefits, particularly of new technologies, may only be known to an even smaller set of firms or individuals. Interactions and knowledge-sharing between different actors will be facilitated through the creation of 'knowledge-transfer networks'.

Industrial 'knowledge-transfer networks' interventions are essentially about generating communication between actors. Communication can be formal or informal, and the specific channel used depends on the specific characteristics of the actors involved. The channels generally involve working groups, think tanks, courses, workshops, seminars, events, conferences, informal gatherings, newsletters and a website. Successful networking builds on pre-existing connections and relationships, involves central coordination, requires diverse participation and perspectives, is based on trust, and satisfies a distinct interest or curiosity. The participants are usually individuals from firms, research institutions, universities, funding agencies and governments. EJAAD could perform the role of coordinator in the area of energy and offer its platform for general communication for an emerging network in the field.

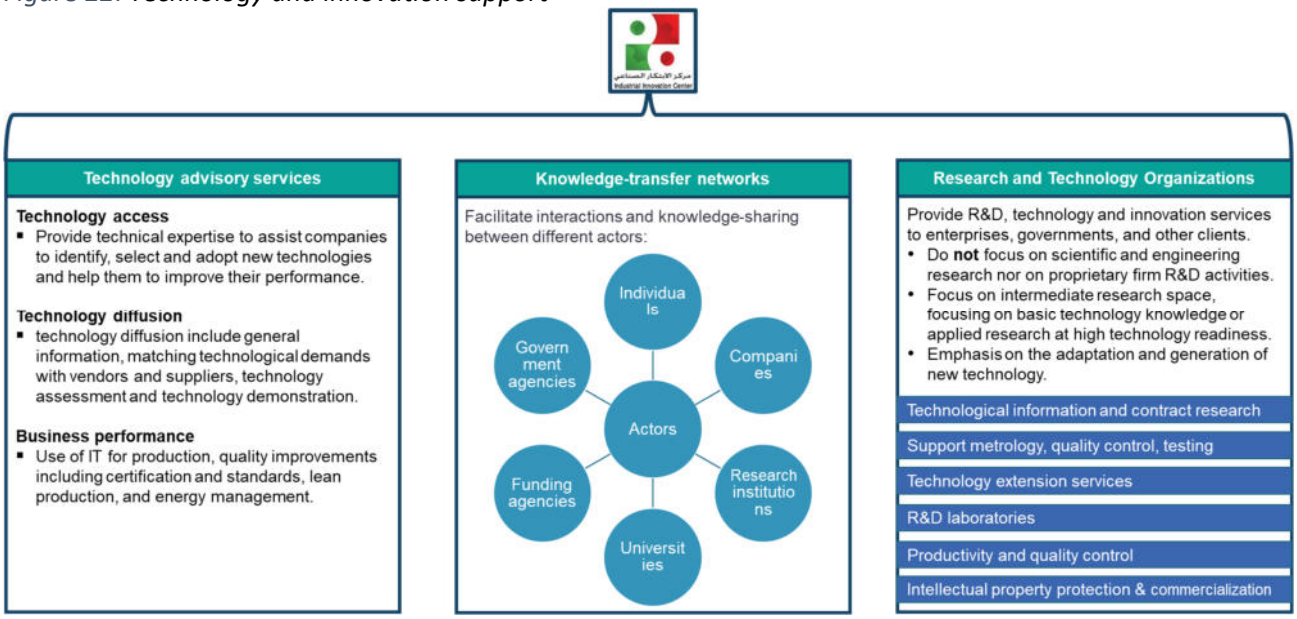
One key initiative for improving access to advanced technology will be the establishment of "Next Generation Industrial Centres" as a core activity of the Industrial Innovation Centre. These will be primarily dedicated to providing research and development, technology and innovation services to enterprises, governments, and other clients. These research and technology organizations (RTO), as they are commonly referred to, will differ from universities, academic research centres and firms in that they pursue neither scientific and engineering research nor firms' proprietary R&D activities. They occupy the intermediate research space, focussing on basic technology knowledge or applied research with a high-technology readiness.

The services to be provided by RTOs are more advanced than 'large-scale technology and deployment' advisory services in that they do not focus on the deployment and diffusion of technology but emphasize

the adaptation and generation of new technology. RTO services to firms include providing technological information and engaging in contract research for troubleshooting, problem solving and repairs or more advanced industrial challenges related to digitalization, automation and control, design for manufacturing and sustainable manufacturing. RTO services may also entail support for metrology, quality control and testing, including the calibration of instruments. They may further include technology extension services, such as providing assistance in resolving technological problems or in the use of cleaner production techniques. They can act as research and development laboratories, assisting in the design of new products and processes, providing testing laboratories and the possibility of using specialized equipment, supporting the development of proof of concepts, prototypes, pre-production runs and sometimes even small batch manufacturing. Finally, RTO services can act as productivity and quality control centres and provide support in intellectual property protection and commercialization.

Deployment, diffusion, networking, and knowledge generation services can be merged and provided by a single institution. This is the role the Industrial Innovation Centre ought to assume. Combining services in one institution would reduce administrative and overhead costs and would allow the establishment of both specialized and generic organizations in the Sultanate. Providing concentrated services, initially in the main industrial locations of Salalah, Duqm, Muscat and Sohar in accordance with their sectoral specializations, will go a long way in achieving the objectives of this programme and of M4WB as a whole.

Figure 22: Technology and innovation support



5.3.4. Bulging supply and demand

The Sultanate of Oman's manufacturing industry is operating far below its potential. Not only are factories not at full production capacity but, more importantly, many opportunities for expanding activity go unnoticed and remain unexploited. Firms can develop by substituting simple products, components, parts or services that were previously being imported, and once they are fully developed, can become thriving domestic and exporting companies. Turning these activities into the 'engines of growth' of manufacturing and the economy requires some 'fuel' to sustain them in the long run. On the supply side, the 'fuel' includes the creation of a solid base of suppliers which eventually will not only deliver more, better and cheaper goods to their main buyers, but will become key players in local and global value chains. On the

demand side, 'fuelling' these activities will require the use of the power of concentrated public purchases as well as the government's domestic and international convening authority.

5.3.4.1. Supply: Introducing local content and supplier development programmes

PIUM will include a local content or in-country value approach that focusses on the country's largest manufacturing companies, the PDOs of manufacturing. The scheme will aim to increase manufacturing firms' value added by 1-2 per cent annually or an amount equal to annual GDP growth by increasing local purchases and services. These local purchases must have an Omani certificate of origin.

The starting point will be the selection and agreement with three 'ICV Manufacturing Champions' to engage in a pilot that will last between 2-3 years. The scheme will initially be extended to at least 30 large manufacturing firms during the first 10 years of operation. The initial three companies will be from different industries and will be required to reach the abovementioned increase in value added. The expected increase in value added will derive from their purchases of raw materials, input, machinery as well as from services acquired. A value addition target will be set during negotiations. A gap analysis will be carried out by the ICV Champions in collaboration with MoCI to learn about the differences between products being offered by local companies, especially SMEs, and the purchasers' requirements in terms of price, design, volume, quantity and sales service. Companies that can close this gap will be approached or included in a supplier development programme. Goods and services to eventually be provided will have to be of Omani origin but do not necessarily have to have been produced by an Omani company. Once the pilot has been completed, the scheme will be rolled over to seven new 'ICV Champions' in one of the industries in which it was most successful during the pilot stage and expanded to another industry 2-3 years later and so on, until the target number of firms has been reached. To encourage companies to engage in the scheme, the gap analysis as well as any loss incurred due to the scheme can be double tax deductible for up to three years (see section 5.3.8.).

To sustain the supply of goods, the ICV scheme will be accompanied by a supplier development programme (SDP). The SDP will run in parallel with the ICV scheme and feed into it. Its ultimate aim will be to improve suppliers' performance. The SDP's starting point will be a survey of 300-500 manufacturing suppliers to SMEs to ascertain their capacity to supply firms that have higher demands. The survey will target suppliers of existing companies and advanced SMEs as well as those involved in supplier development programme trainings, as suggested by Riyada. These SMEs will make up the pool from which suppliers will be selected for the SDP.

Working with the ICV Champions and based on their gap analysis, 24 supplier firms per champion will be selected to enter the SDP. The SDP will aim to build face to face communication between the supplier and purchaser and across suppliers to share knowledge and build trust. Today face to face communication is complemented by digital communication and data interchange. The SDP will also include knowledge-sharing and training aimed at improving the business and technical alignment between the supplier and the buying firm. Trainings must include sessions on integrated supply chain management and on the incorporation of Enterprise Resource Planning (ERP) software. Trainings can be periodic or ad-hoc and will focus on understanding the buyer's processes and what suppliers can do to contribute to their improvement. Finally, the SDP will include technical assistance aimed at enhancing product quality or functionality, developing new products, increasing the efficiency of production processes, reducing delivery times and transportation costs, and more generally improving all aspects of supplier performance. At the end of the scheme, suppliers that have successfully completed the process will obtain a certificate and can continue supplying or conclude a supply contract with an ICV Champion company.

The scheme will be arranged by MoCI in collaboration with ICV Champions and will be implemented by specialized consultants hired by MoCI, working together with the purchasing departments of buying firms. Following completion of the SDP, the expected outcomes include lower prices, higher quality, reduced delivery times and increased value addition according to the objectives of ICV scheme.

A related initiative will be a local content scheme for large commercial firms aimed at increasing the sales of local products. It will be based on assigning up to 10 per cent of shelf space to the sale of Omani products. The scheme could be tested for a period of 3 years in agreement with key retailers and can be supported by an SDP specifically created for this purpose.

5.3.4.2. Demand: Exploiting public procurement and initiating 'Buy Omani' campaigns

Improving the tendering process to encourage local firms to participate in it is a key demand-side intervention included in Programme 3. Public procurement can account for as much as 6 per cent of GDP in the Sultanate of Oman. If properly directed, it can become a formidable agent of manufacturing development. Yet public procurement is only guided by lower cost considerations, it is fragmented across government institutions, and rarely used to promote manufacturing activity.

Shifting the tendering process in a development direction requires simplifying the process of awarding contracts. The use of a single procurement document based on self-declarations, streamlining the bidding documentation and information requirements, the use of more digital technology and the introduction of framework contracts that set the terms and conditions for contracts with suppliers for the term of agreement will be necessary.

A well-performing public procurement mechanism will also be established to level the playing field for SMEs. A special SME tendering programme (Tendering I) will be introduced, granting contracts averaging between OMR 30,000 and OMR 300,000, and annual contracts below OMR 3 million per enterprise. The registration process will be simplified for SMEs while tenders under OMR 250,000 will be specifically reserved for them. To motivate SMEs to participate in tenders, a waiver or reduction of registration costs, together with an exemption of bidding and documentation fees, will be introduced. SMEs will no longer face the requirement of providing a security equivalent to 1 per cent of the total value of the tender's bid, subject to a certain cap on the contract value (contracts of less than OMR 250,000). To ensure repeated SME bidding, the payments documentation will be simplified, advances provided, and on-time payments secured.

The growing involvement of SMEs in tendering will be further underpinned by Riyada-supported technical assistance and training in areas such as management, financial management, understanding the public procurement process, and accessing contract opportunities. Also, tender authorities will accept bank guarantees in support of SME bids while banks will take a winning bid contract as a guarantee for providing working capital or investment loans.

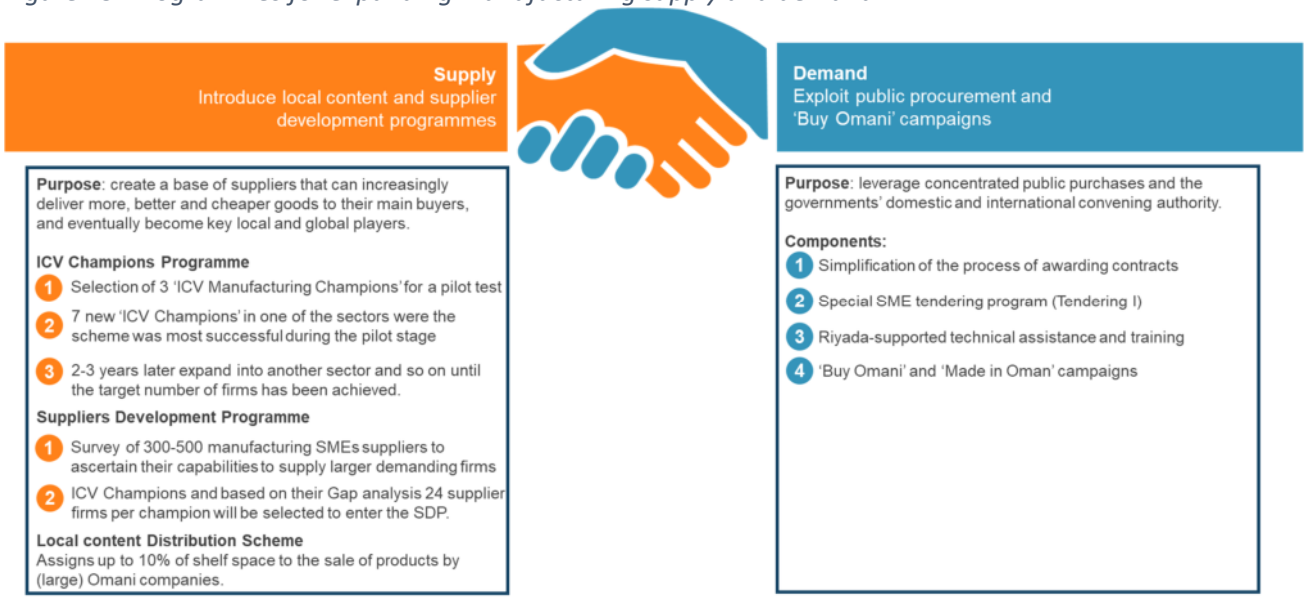
Another demand instrument to be implemented in coming years to support local production will be the 'Buy Omani' and 'Made in Oman' campaigns. These campaigns can be launched together with the commercial local content schemes mentioned above. The 'Buy Omani' campaign involves designating days or weeks during the year for a period of several years during which the Omani population is strongly encouraged to buy local products. This can apply both to the B2C as well as the B2B markets.

The 'Buy Omani' campaign will be broadly backed by the government and supported by a national marketing campaign and the creation of a logo that connects the Omani population with the event. The campaign will highlight the quality and packaging of local products and will aim to increase consumer recognition of local brands and create loyalty to Omani goods. The campaign will be carefully prepared by

convening key retailers and commercial shops, larger manufacturers and SME representatives to coordinate the days of the campaign and ensure adequate supply of Omani goods. To identify trends in Omani consumer preferences, data on purchases will be collected across shops to be analysed for the preparation of the next 'Buy Omani' day or week.

The 'Made in Oman' campaigns are essentially fairs and exhibitions of Omani products abroad as they currently take place, but their number will increase. This will make it necessary to raise the number of commercial attachés at Omani embassies around the world, especially in Asia and Africa, where new markets are emerging. 'Made in Oman' campaigns should be set around the same time as the 'Buy Omani' campaigns to maximize the marketing impact, and work towards finding a planned date that recurs annually.

Figure 23: Programmes for expanding manufacturing supply and demand



5.3.5. Allocating gas fairly and efficient management of energy

An effective framework for gas allocation enables those companies that depend most on gas to access it at fair prices. The Sultanate of Oman currently does not have an open domestic market for gas. Instead, it has adopted a process, criteria, and control mechanisms for gas allocation to companies. There are currently six criteria with distinct weights being used for the allocation, namely 1) the company's projections for job creation (30 per cent); 2) value addition (20 per cent); 3) investment (15 per cent); 4) strategic country alignment (15 per cent); 5) utilization of local raw materials (10 per cent); and 6) upstream/downstream potential (10 per cent). Penalties are imposed when the actual outcomes significantly deviate from the projections. The troika that oversees the evaluation procedures consists of MOG, MOCI and the respective economic zone authority (Madayn, Asyad, Duqm). The Financial Affairs and Energy Resources Council ("FAERC") endorses their decisions.

M4WB entails that this gas allocation framework will be reviewed every 2-3 years with a view to ensuring that its priorities are in line with private sector requirements and national objectives. The manufacturing vision aims to achieve a progressive realignment of the weights in favour of M4WB's objectives, paving the path towards increasing the manufacturing sector's growth. Direct engagement with, and a potential surveying of companies will be a key component of this review process.

Fossil fuel energy has been plentiful in the Sultanate of Oman, yet in the past its pricing has not always followed the same trends of other countries, where far less energy of any origin is available. Energy consumption, therefore, both residential and industrial, has grown very rapidly, resulting in rising energy subsidies and increasing CO_2 emissions. An additional complication the Authority for Electricity Regulation (AER) has faced is that higher consumption of electricity, particularly during peak hours, forces the government to make large investments in infrastructure to cope with the peak load. To address these challenges, the Council of Ministers approved the Cost Reflective Tariff (CRT) in 2016, which aimed to establish an electricity tariff structure that makes the customer bear the cost of electricity generation, transmission, and distribution without a government subsidy.

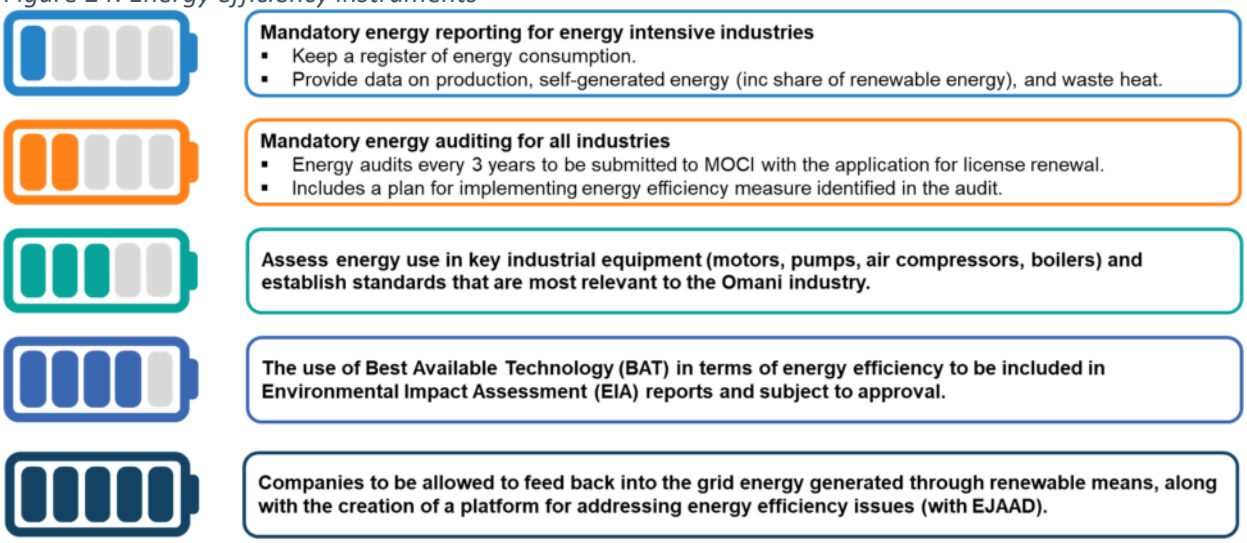
The upshot has been an increase in energy costs for manufacturing, which in many cases has been quite impressive as a large share of manufacturing in the Sultanate of Oman are process, energy-intensive industries. Some companies have suffered significant financial losses and are fighting for survival, and are therefore continuously advocating for AER to find a solution.

Because research shows that even under world market prices for energy, firms develop practices that result in inefficient energy use, PIUM is including an energy efficiency intervention. Energy efficiency refers to a reduction in the amount of energy used per unit of output. By reducing energy consumption, firms can save costs and reduce their greenhouse gas emissions. Furthermore, several energy efficiency interventions may not only reduce costs but could also be quite profitable, thus partially or fully compensating for previous losses.

The intervention involves establishing mandatory energy reporting for energy-intensive industries (such as petrochemicals, steel, cement, food processing, glass) and mandatory energy auditing for all industries. The former entails keeping a register of energy consumption and providing data on production, self-generated energy including the share of renewable energy, and if relevant, waste heat. Reporting can be conducted annually. The latter requires energy audits to be submitted to MoCI every 3 years, with the application for a renewal of the industrial license. It should also include a plan for implementing energy efficiency measures identified in the audit.

The initiative will encompass an assessment of energy use of key industrial equipment (motors, pumps, air compressors, boilers) and the establishment of standards that are most relevant for the Omani industry. Equipment that is beyond certain energy efficiency thresholds will be phased out over time. The use of best available technology (BAT) in terms of energy efficiency will be included in environmental impact assessment (EIA) reports and will be subject to approval. Companies will be allowed to feed energy generated by renewable means back into the grid, and a platform to address energy efficiency issues will be established in collaboration with EJAAD.

Figure 24: Energy efficiency instruments



5.3.6. Developing specialization and clustering advantages

In any economy, specialization is necessary because it helps produce more goods, reduce costs and increase productivity. Specialization makes all of this possible because workers develop advanced skills in the specific activities they are performing and lose little time switching between activities. It also allows for machines to take over some of the workers' repetitive tasks and the growing automation of factories. The increasing division of labour that takes place within a factory as companies specialize also occurs within an industry as different plants begin specializing in different parts and components of a product or in different areas of a production process. As specialization advances, companies begin capturing different stages of the value chain and trading between them. While these processes of specialization, division of labour, new plant openings, increases in output and productivity do not require all plants to be located in the same area, transport and other costs can be reduced significantly and lead to high specialization gains when they are. Hence, the Sultanate of Oman should pursue clusters of vertically interrelated and ancillary firms to develop a strong, efficient, and internationally competitive manufacturing base.

Programme 3 therefore includes several mechanisms to develop integrated, competitive, and environmentally sustainable industrial clusters. Any clustering approach begins by rationalizing and specializing the distribution of industries across the Omani territory. Because of its history and population concentration, industrial activities in Muscat include a wide variety of plants in many different industries, but this does not need to be the case outside Muscat, where industry is at an early stage of development. Thus, basic regional specialization of industry is being proposed, where petrochemicals due to proximity to markets and to natural resources will remain in all major cities and locations along the coast, namely Sohar, Muscat, Duqm and Salalah. However, for other industries, regional specialization in the health, fragrance and solar industries will be developed in Salalah, and heavy industry, electromechanical and other mechanical engineering industry will be concentrated in Sohar.

Salalah is witnessing the emergence of a health and a solar components cluster; the best way to highlight this would be to assemble all cluster-related activities there. In addition, frankincense is heavily connected with Dhofar and locating the health cluster in Salalah would help the geographic diversification of economic activity within Oman. Sohar is the second largest industrial city in Oman and already has an industrial trajectory built on steel, steel bars, aluminium, metal components, glass and recycling. A moulds

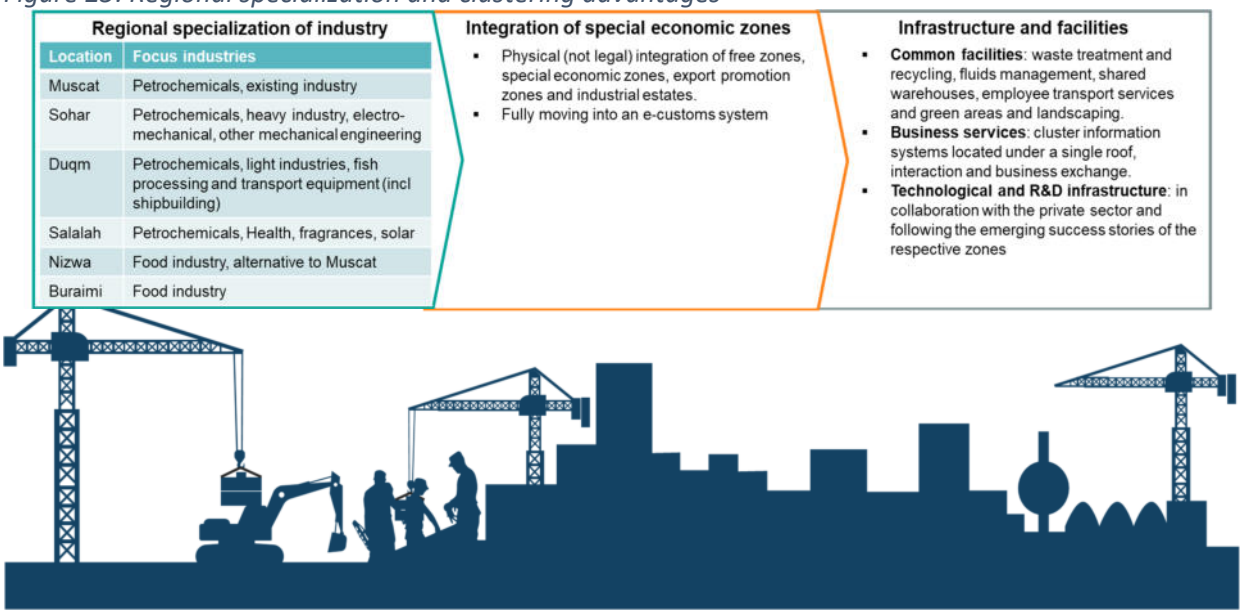
and dies technology centre is also being built locally, hence it makes sense to focus industrial activity around these products in Sohar. Duqm's proximity to the sea and natural resources makes it ideal for fish processing and natural resource processing. Its relative isolation from the rest of the country facilitates typical free zone activities, such as light industries and transport equipment components manufacturing and final assembly, mainly for export. Duqm has a large dry dock, which allows for ship repair and possibly shipbuilding. Al Buraimi and Nizwa have already acquired some expertise in the food industry, while Nizwa and Samail could also be an alternative location for Muscat, given their proximity. Sur, also close to the sea, can develop fish processing and strengthen its focus on mineral-related products, such as cement and construction products. Al Mazunah in the far south could be a relief industrial area to Salalah, which may soon be facing expansion limits due to the nature of its terrain.

To develop strong linkages and commercial ties between enterprises, the M4WB strategy proposes a physical—albeit not legal—integration of free zones, special economic zones, export promotion zones and industrial estates in each of the above-mentioned areas. Currently, the management of economic zones is fragmented which is an obstacle to cluster development. It is possible today for firms that are located in close proximity to maintain different legal statuses through electronic and accounting means. Fully moving into an e-customs system is one of the measures that will be at the top of the policy implementation agenda as a first step in this direction.

Unified economic zones will make it much easier to invest in common facilities and provide firms with concentrated business services. Common facilities that will be developed include waste treatment and recycling facilities, fluids management, shared warehouses, employee transport services and green areas and landscaping. Cluster information systems will be established in each location for firms to stay informed about what types of business services are available in their respective area and interact with each other. All business services can be located under a single roof, saving on building and overhead costs, but more importantly, centralizing the provision of services, something that will save users time and money. It will also facilitate interaction and business exchange. These unified services can represent the foundation of eventual clustering projects linking firms together.

Specialization in production and the concentration of business inputs will be complemented in the medium run with the establishment of a technological and R&D infrastructure that will ensure sustained long-term activity by local and foreign firms. Working in collaboration with the private sector and following the emerging success stories of the respective zones, building dedicated research and technological centres focussed on firms' strengths and aimed at supporting their international leadership are additional initiatives to be implemented in coming years.

Figure 25: Regional specialization and clustering advantages



5.3.7. Building robust SMEs

SMEs will play a key role in the development of manufacturing in the Sultanate of Oman. According to the World Bank, they represent 90 per cent of businesses worldwide and account for more than 50 per cent of global employment. In emerging markets, they contribute 40 per cent to the national income and account for 70 per cent of formal jobs.

As mentioned in the previous programme, the approach to support SMEs will be differentiated, stratifying companies according to their potential and performance. Research suggests that there are two types of SMEs, characterized by survival and opportunity. The former are firms with limited technological, managerial, financial, and human capabilities and depend on fewer customers and suppliers to operate. Survival SMEs do not grow very rapidly and have difficulties overcoming crises, resulting in a continuous entry and exit from the market, but they are so numerous that a stable level of activity is maintained and, above all, a very large level of employment is generated. The latter are highly dynamic, often innovative firms. They are highly competitive, very flexible, technology savvy and usually closely integrated in networks or partnerships with other firms. While much fewer in number than survival SMEs, they account for a large share of job growth generated by SMEs. Nonetheless, to avoid excessive detail, this section focusses on policy instruments that are applicable to both types of SMEs, albeit at different speeds.

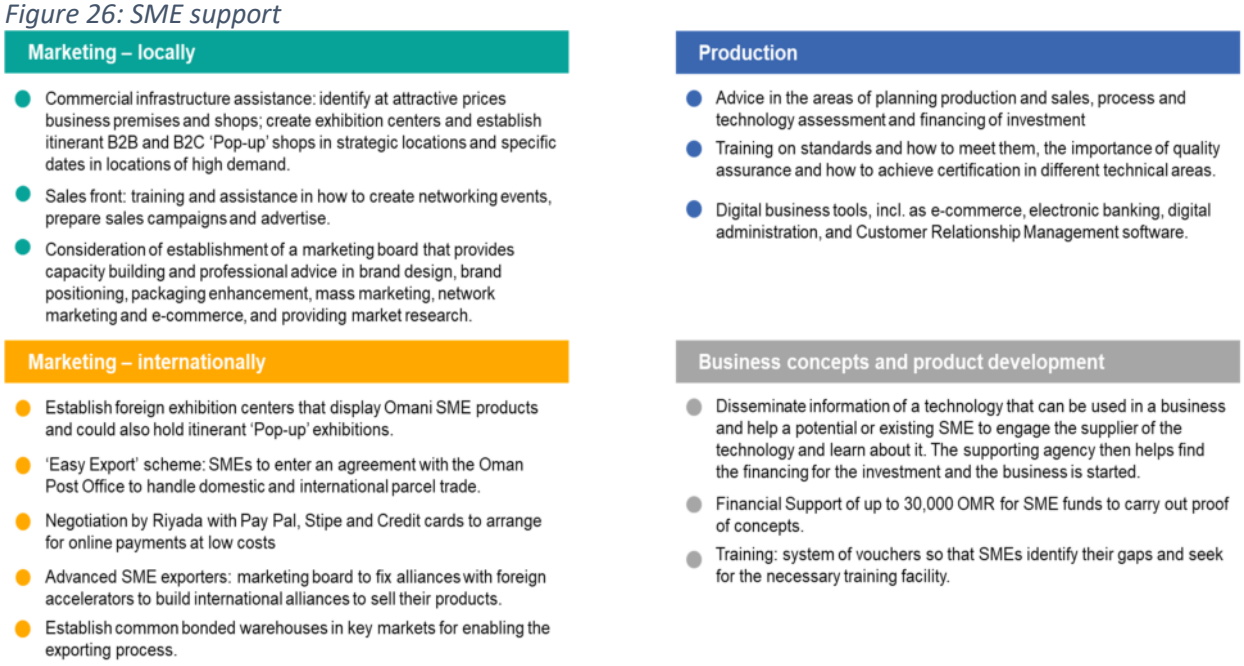
Manufacturing SMEs in the Sultanate of Oman require a wide range of services if they are to raise their standards. In production, improvements in the areas of planning production and sales, process and technology assessments and the financing of investment will be necessary. Omani manufacturing SMEs also lack in-depth understanding of standards and how to meet them, the significance of quality assurance and how to achieve certification in different technical areas when required. They particularly lag behind in the use of digital business tools such as e-commerce, electronic banking, digital administration, and customer relationship management software. A key initiative will be to collaborate with Riyada to train firms in the use of these technical tools. This proposal will be complemented by the establishment of an SME online portal, where companies can exchange information, partner, sell and buy products and arrange finances.

Beyond production, another area that requires expansion in the future is the marketing of SME products, both locally and internationally. Efforts will be necessary on several fronts. As regards commercial infrastructure, assistance will concentrate on identifying business premises and shops as well as creating exhibition centres and establishing itinerant B2B and B2C 'pop-up' shops in strategic locations and specific dates in high demand locations. On the sales front, SMEs require training and assistance in how to create networking events, prepare sales campaigns and advertise. The establishment of a marketing board is also being considered. It would provide capacity-building and professional advice in brand design, brand positioning, packaging enhancement, mass marketing, network marketing and e-commerce. It would also engage in market research for Omani SME products.

The export of SMEs' products will require consistent efforts. Promoting SME products abroad will entail establishing foreign exhibition centres, which must regularly display Omani goods and can also organize itinerant 'pop-up' exhibitions. An 'easy export' scheme will be launched, with SMEs entering into an agreement with the Oman Post Office to handle domestic and international parcel in accordance with specific size and weight regulations. This will be accompanied by negotiations between Riyada and PayPal, Stipe and credit card companies to arrange for online payments at low costs. This should help increase SME online sales. For more advanced SME exporters, the marketing board could establish partnerships with foreign accelerators to build international alliances to sell their products. To ease the exporting process, common bonded warehouses can be established in key markets.

Other areas of support for SMEs will include business concepts and product development. As regards business concepts, a relatively new approach is to disseminate information about technologies that can be used in a business and help a potential or existing SME to engage the supplier of the technology and to learn about it. The supporting agency can then help find the necessary financing for the investment and business' establishment. This is a commonly used instrument to initiate the production of biscuit and bottling machines. Financial support of up to OMR 30,000 can be provided to SMEs to carry out proof of concepts. As regards training, a system of vouchers can also be introduced for SMEs to identify their gaps and seek out the necessary training facility.

Figure 26: SME support



5.3.8. Offering a wide variety of fiscal incentives

The Sultanate of Oman's tax regime underwent significant reform in February 2017. The corporate tax rate increased from 12 per cent to 15 per cent, while the majority of SMEs would pay a rate of 3 per cent. Other notable tax reforms that followed included the extension of withholding tax to 10 per cent of royalties, management fees, service expenses, dividends on shares, interest payments, use of computer software, and some aspects of research and development. All income tax exemptions were eliminated except for manufacturing, but the possibility of being granted an income tax exemption for new investments was reduced from up to 10 down to 5 years. Customs duties exemptions for certain inputs and imports of equipment remain.

The manufacturing strategy is based on the continuation of the 5-year income tax exemption for all manufacturing firms, but as mentioned in Programme 1, M4WB proposes eliminating customs duties exemptions for the manufacturing sector, with the exception of strategic industries. Instead, the fiscal incentives proposed in this strategy are meant to be 'smart' as they relate to the objectives being pursued and are aimed at changing the behaviour of the firms involved. The range of fiscal incentives is extensive, hence there is some room for options among them in line with fiscal sustainability directives.

A key objective of PIUM is to upgrade firms' technological capacity by bringing them closer to 4IR. The upgrading of firms' technological abilities requires significant investment in expensive equipment and machinery, which firms are reluctant to invest or wait as long as possible before they do so. Some never replace their equipment and simply run it until it runs 'dry'. This programme introduces a tax credit of 20 per cent for investments in machinery and equipment to encourage firms to continuously invest and reinvest. Under this incentive, 20 per cent of the amount invested can be deducted from the tax bill. The incentive can be carried over to future years for firms in priority and high-tech industries that have been granted a corporate income tax exemption.

One related incentive to be considered is extending the current accelerated depreciation treatment for certain investments by expanding the list to include 4IR technologies. Currently, the list of capital goods subject to the accelerated depreciation of 33.33 per cent annually includes: tractors, cranes and other heavy machinery and equipment, computer software installations, furniture and fixtures, vehicles, computer software and intellectual property rights.

Since it was not possible to estimate this incentive's fiscal costs due to a lack of data, an alternative form of this incentive would be to make the investment expenditure double tax deductible. Hence, whether it is a tax credit, or a tax deduction will be determined during the implementation stage, once the fiscal cost figures are available and it is possible to determine the fiscal impact of each one of the measures.

The promotion of exports is another key objective of M4WB. To increase the level of exports, PIUM will implement an export duty drawback (EDD) for all manufacturing industries. EDDs allow companies to receive a refund for the import duties they paid for inputs used to produce exported goods. This is accepted under WTO regulations. WTO also allows for "substitution drawbacks", where the company can claim the taxes paid for equivalent domestic inputs used to produce exported goods. Strictly speaking, the EDD is not an incentive but compensation for taxes paid, yet it does encourage some firms to expand their exports. The rate is calculated based on the share of raw materials included in the goods being exported and changes over time. In the Sultanate of Oman, it is not expected to be higher than the current 5 per cent customs duty being paid for imported raw materials.

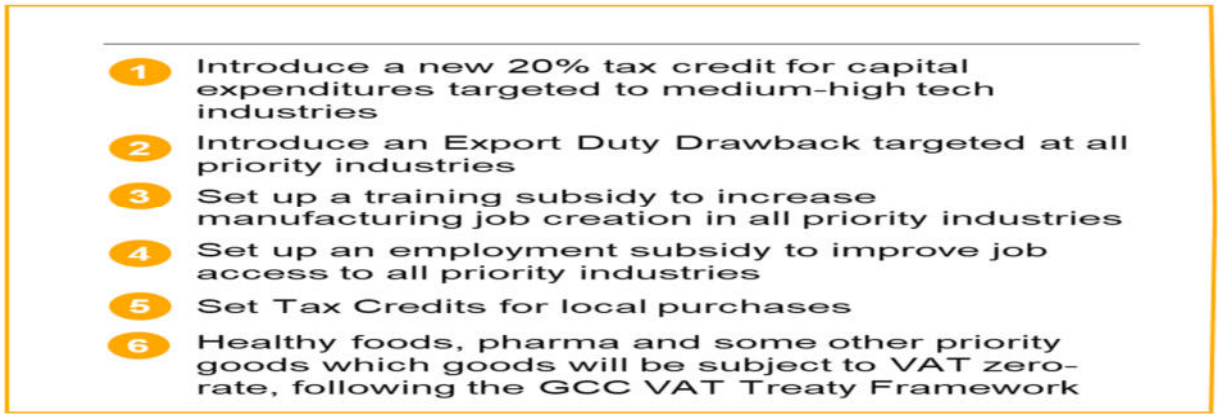
Attracting skilled Omani employees will be necessary to increase productivity and upgrade industry. Hence, the strategy includes incentives aimed at increasing training and employment. In terms of training,

NTF will be requested to fund skills-specific manufacturing training courses for the duration of the course. NTF shall channel the subsidy to cover the training centre's training costs and provide a stipend to trainees in the amount of OMR 250. This incentive essentially applies to the existing Training for Employment programme for manufacturing.

In terms of employment, the objective is to target unemployed Omanis between the ages of 18-30 years and industries that are below the required Omanization rates. The incentive could be linked to firms achieving the required Omanization rate within a given period and could be granted together with the training subsidy. This means that the training and employment incentive would in practice focus on the same demographic group. The incentive consists of a time bound subsidy (maximum 3 years) of 40 per cent of the salary (approximately the difference in salary between an expat and an Omani), which companies would receive in the form of a "tax credit" to reduce corporate income tax liabilities.

Other fiscal incentives include a double deduction of costs incurred due to companies' involvement in the SDP. This would cover both the costs of undertaking the supplier gap analysis as well as any costs that might arise due to higher prices or faulty inputs from suppliers entering an SDP. In the case of VAT taxes, PIUM is considering zero VAT rates for pharmaceuticals, healthy foods, and possibly other priority products.

Figure 27: Fiscal incentives



5.3.9. Leveraging finance

The financing of manufacturing projects requires specialized expertise. Manufacturing projects are neither large infrastructure projects requiring vast amounts of finance, complex financial arrangements and guarantees involving the government, international banks, development financial institutions and finance specialists, and exceedingly long repayment periods. Nor are they commercial transactions involving certain final goods, basic inputs or commodities that essentially require some temporary credit supported by personal or corporate guarantees and that will be repaid soon after the merchandise is used or sold, usually within a year. While manufacturing involves some exceptionally large projects, for example in the petrochemical or aerospace industries, which require loans for working capital or for small investments, manufacturing projects are located somewhere in the middle between huge infrastructure projects and small project or working capital finance. Furthermore, since the transformation of inputs through the application of machinery represents the essence of manufacturing, the key consideration in the manufacturing lending decision is understanding the nature of the equipment, machinery, production process and technologies that are being put together and whether this combination will be successful. It

is this combination of project size, technology and maturity periods of 7-10 years that make manufacturing lending distinct, and thus requires specialized lending institutions.

Even though the Sultanate of Oman should have financial institutions that are ready and flexible enough to provide loans at the levels and rates required by industry, the country lacks manufacturing-focussed lending institutions, and even more so for the long-term development of manufacturing. Hence, PIUM aims to establish a division in the Oman Development Bank to address Oman's manufacturing financial demands. This 'Industrial Finance' division will be established with a Vision 2040 Industrial Development Fund of OMR 100 million to be paid over 3 years and doubled over 10 years. This division will provide manufacturing firms with loans of between OMR 2-5 million, loan syndication services for larger loans, credit guarantees, leasing of equipment, support for feasibility studies and trade finance. Some of these credits will be provided at the concessionary rate of 3 per cent, particularly those related to priority industries. It will also provide venture capital and will co-lead with corporate venture capital funding aimed at funding supplier development projects and/or other projects that larger corporations deem necessary.

One related measure will be to merge SME-related funds to create a stronger financial institution and within that, establish a division specialized in manufacturing SME financing. There are currently two major sources of SME financing, the ODB and the Al Raffd Fund, as well as many other public, private, and mixed funds (SME Development Fund, Oman Technology Fund, Sharakah, Bank Muscat al-wathbah, Nomou Programme, National Finance Company). A larger SME fund would reduce overheads and other costs and would further promote specialization by forming industry or types of firm groups or units. A larger SME fund could also—depending on its legal status—leverage more funding domestically and borrow internationally. The risks of a larger institution are loss of flexibility and bureaucratization, although this may to a large extent depend on the management that is put in place. For manufacturing, given the importance of focussed finance even at SME level, a consolidated SME fund, or at least a specialized fund, would be the best option for channelling resources into the sector.

One of the major obligations of both the Industrial Finance Division and a merged National SME Fund will be funding companies engaged in long-term tendering (Tendering II). This will be included in the tendering contract for companies selected to develop specific products or innovations. The funding will be a concessionary rate and will be contingent on companies undertaking all tendering contract obligations, including working with appointed support, training and marketing organizations.

One important energy-focussed financial initiative relates to the establishment of energy service companies (ESCOs). ESCOs provide a range of energy solutions such as the design and implementation of energy savings projects, power plants and equipment retrofitting, improvements in energy infrastructure and power generation and energy supply. In recent years, ESCOs have financed some of the energy solutions they provide by performing the service or installation in advance and charging for the work and equipment on the basis of the energy savings their use results in. Payback can range anywhere from between a few years up to 20 years, and if the investment does not produce a return, it will be ESCO's loss.

There is great potential for ESCOs in the Sultanate of Oman and it is certainly a way to support companies facing rising electricity and energy costs. Working with electricity authorities and PDO, which have shown some interest in supporting this initiative, the programme will strive to establish an ESCO that will cover the manufacturing sector. Creating an ESCO for manufacturing will be accompanied by energy efficiency awareness programmes and support for companies to conduct energy audits.

The M4WB strategy involves the creation of several financial mechanisms and institutions, in particular venture capital funds. However, to build on the shared experiences acquired from Omani industry, PIUM will initiate the creation of the Private Equity and Venture Capital Organization (PEVCA) as a way to bring these organizations together, and to use its network to attract new and foreign venture capital firms with manufacturing experience.

Figure 28: Financing possibilities

5.4. Programme for Governance and Management of Industrial Development (PROGMID)

5.4.1. Key aspects

The Programme for Governance and Management of Industrial Development (PROGMID) aims to facilitate the implementation of the other three programmes. The comprehensive nature of the changes required to achieve the M4WB' objectives will lead to wide-ranging modifications in how the Sultanate of Oman's industrial system is led, governed, organized and managed. The programmes' implementation is one of the most challenging tasks ahead for MoCI and the government organizations which are currently or will become members of its jurisdiction in the future. MoCI and its member organizations will need to operate as an efficient facilitating system for the growth and development of manufacturing companies so they can perform their role as drivers of industrial development and that the Sultanate can achieve the M4WB's objectives. MoCI will also have to reach out to other ministries, agencies, the Oman Centre for Governance and Sustainability, business associations and international partners to ensure that they contribute to the smooth functioning of the 'industrial system's' governance. Only by continuously exploring new areas of activity, continuously innovating policy design and implementation, acting promptly when required, regular upgrading and modernizing, learning from past mistakes, and above all, decisively leading the process of transformation, will it be possible for MoCI to achieve the intended goals and hence, the need to enhance the 'industrial system's' governance and management.

5.4.2. Upgrading the legal system

The Sultanate of Oman's 'industrial system' is governed by several laws dating back to 1974, and it has been modified on several occasions. Two legal strands regulate the industrial system. On the one hand are the laws underlying MoCI and the Directorate General of Industry (DGI). These include the 1974 law creating MoCI and DGI, with reforms being undertaken in subsequent years to take account of changes in

MoCI's functions, including the creation of a Directorate General for Small and Medium Enterprise Development in 2007. The overall functions of MoCI were revised in 2005. On the other hand are laws on the regulation and promotion of industry. These laws focus on the industrial system's governance, addressing aspects such as definitions, guidance for establishments, regulations on licensing and exemptions. The first law on promotion and regulation was passed in 1979, subsequently followed by laws in 1989, 1998 and in 2008 with the introduction of a unified Industrial Organization Law (Regulation) of the Countries of the Cooperation Council for the Arab States of the Gulf.

Updating these laws to reflect current developments while creating new regulations that are forward looking and facilitate the achievement of M4WB is included as part of Programme 1. The last few years have witnessed significant changes in the Sultanate's economic environment, including major variations and a decline in the price of oil, and at present the COVID-19 pandemic. These events have prompted changes in tax laws and ways of responding to the price and allocation of gas and energy, which has resulted in a complete rethinking about the support the government provides to the manufacturing sector and within it, to the private sector. It is thus appropriate to create a new set of functions and institutions that reflect the new circumstances and contribute to the specialization and decentralization of industrial activities. Looking into the future, the new legal framework will reflect a shift of MoCI's and DGI's emphasis away from a mere allocator of licenses, registrar of companies, standards setter and 'last resort' problem solver to a strategic and active promotor of industrial diversification through the use of incentives, policies, regulations and knowledge.

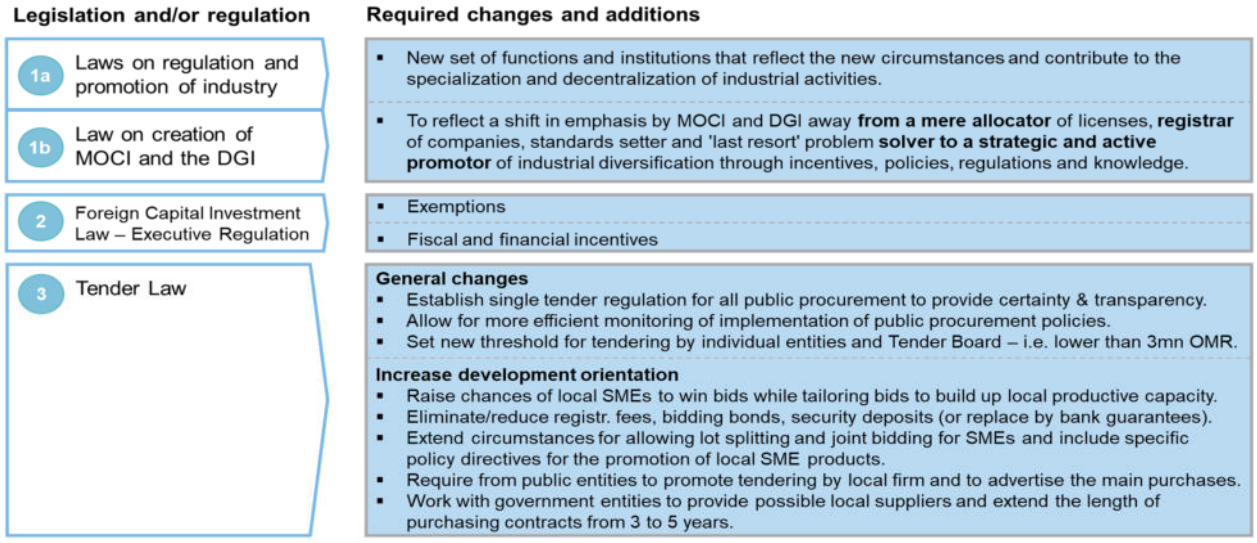
Another law that will require modification is the tender law, which dates from 2008. In the past, tendering procedures applied to all government institutions, including ministries, public organizations with independent legal status, government companies and other government entities. There were few exceptions, such as PDO and the military. The list of exceptions was expanded with the new law. Another major change was the possibility of using five different means to procure works and services. While the main instrument continues to be public tendering, entities can choose alternative procedures. Tenders under OMR 1 million can be carried out directly by the entity in charge, but any tenders above that amount are to be submitted to the tendering board.

In practice, the regulations do not seem to have been practical and the threshold of OMR 1 million was increased to OMR 3 million, significantly reducing the number of tenders dealt with directly by the tender board and fragmenting the tendering process. This change resulted from the long tendering times. It is unclear whether the rules are applied equally across entities. Tendering procedures were previously not used as an instrument of industrial and local development, emphasis was primarily put on the 'cheapest bid'. Changes will be made to the law's overall design and will be more local development oriented. Modifications to the general law will aim at establishing a single tender regulation for all government procurement to provide more legal certainty and transparency and to allow for more efficient monitoring of the implementation of public procurement policies. Amendments will also be introduced setting a new threshold between individual entities and the tender board based on the previous experience of devolving power to individual entities.

Making the law more development-oriented will be achieved through several modifications aimed at raising the chances of local SMEs to win bids while tailoring bids to build up local productive capacity. The elimination or reduction of tendering registration fees, bidding bonds and security deposits (or replacing them with bank guarantees) will help SMEs participate more actively in bidding contests. Extending the circumstances for allowing lot splitting and joint bidding will be another way to help SMEs. Including specific policy directives in the law for the promotion of local SME products will be a further means to promote the building of local SME capacity. Measures to promote tendering by any local firm will include

the requirement by public entities to regularly identify and advertise their main goods and services purchases, work with other government entities to provide possible local suppliers for them and extend the duration of purchasing contracts from 3-5 or even 10 years so local companies can replace imports with local products.

Figure 29: Legal changes and modifications



5.4.3. Providing leadership and improved structures and coordination mechanisms

The implementation of M4WB entails engaging numerous stakeholders with different views and understanding the tasks ahead. Pulling them together in the same direction so that all components of the industrial system converge requires strong leadership from MoCI. This leadership will, in turn, be backed by a solid organizational structure that can provide the necessary people and knowledge, as well as by an effective coordination mechanism that uses those people and knowledge and combines them into synchronized processes so they can function well together.

By creating an effective industrial system, the starting point of Programme 4 will be the creation of a National Manufacturing Committee (NMC) (see Figures 30 and 31). The NMC will build on manufacturing meetings initiated around the Tanfeedh process but with a broader mandate of advice, consultation and coordination of all key manufacturing initiatives and specifically, to support the implementation of M4WB. NMC will act as a sounding board for M4WB and other MoCI initiatives and as a place to meet and address crucial manufacturing challenges. These include, among others, TVET, the establishment of a productivity council, energy efficiency, promotion of innovation, industrial policies and issues pertaining to individual industries.

Participation in NMC includes MoCI, led by the minister, other relevant ministries and government institutions at the level of ministers or CEOs, high-level representatives of the 30 largest manufacturing companies (local and foreign) covering a wide spectrum of industries, representatives of sectoral and SME associations, CEOs of the OCCI and OMA, and other relevant manufacturing stakeholders. In total, it will count around 50 members, although additional members can be recruited if the need arises, and NMC will be open to guests to contribute their expertise. OCCI and/or OMA can act as the Secretariat of NMC to demonstrate private sector involvement.

Figure 30: Government-wide coordination mechanisms

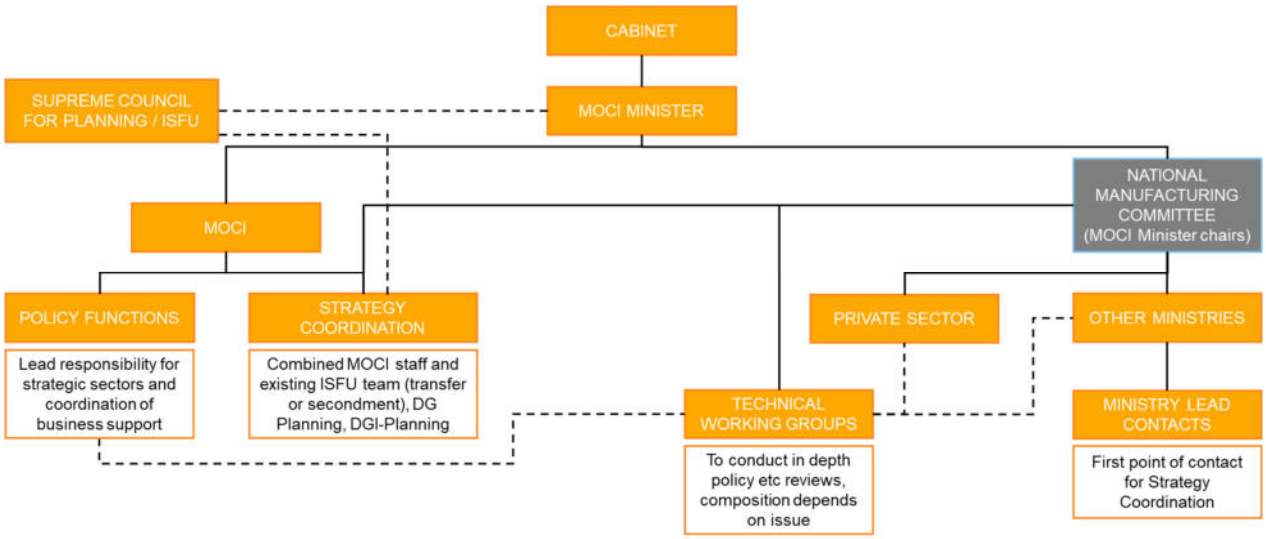
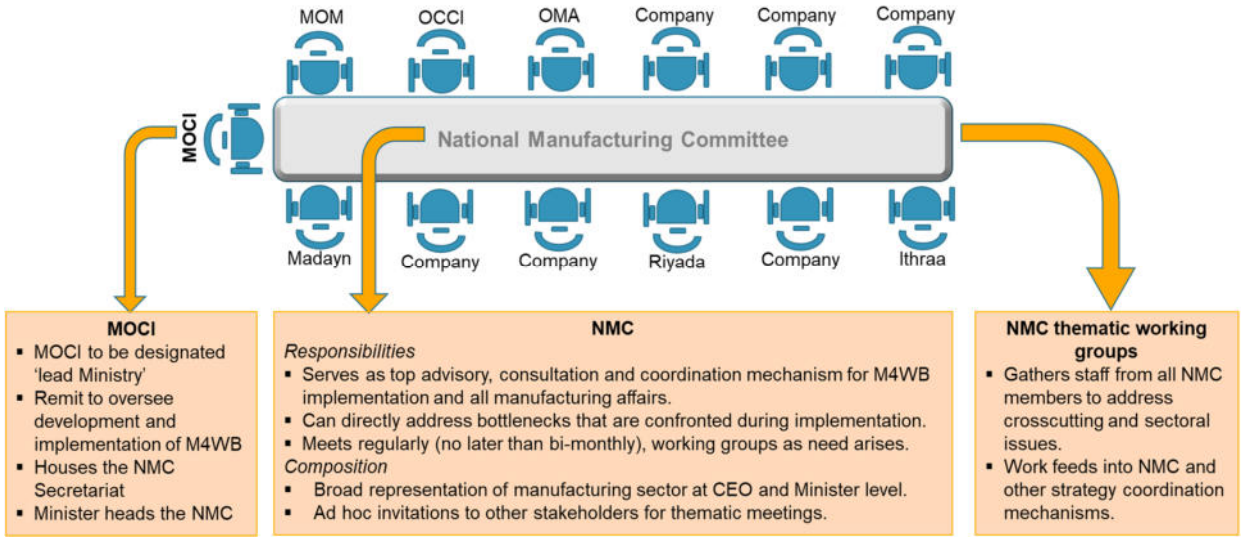


Figure 31: The National Manufacturing Committee



The NMC will meet regularly in plenary meetings, but its activities will primarily take place through working groups. These working groups will be supported by a technical team consisting of MoCI staff which can, however, call on private and public sector support when needed. NMC will also be supported by a strategy coordination unit at MoCI connected to national planning efforts. Overall coordination will be carried out by appointing strategy focal points in all government institutions involved in M4WB. These will be officials tasked with dedicating some of their time to liaise with MoCI and support strategy implementation as well as other manufacturing-related issues.

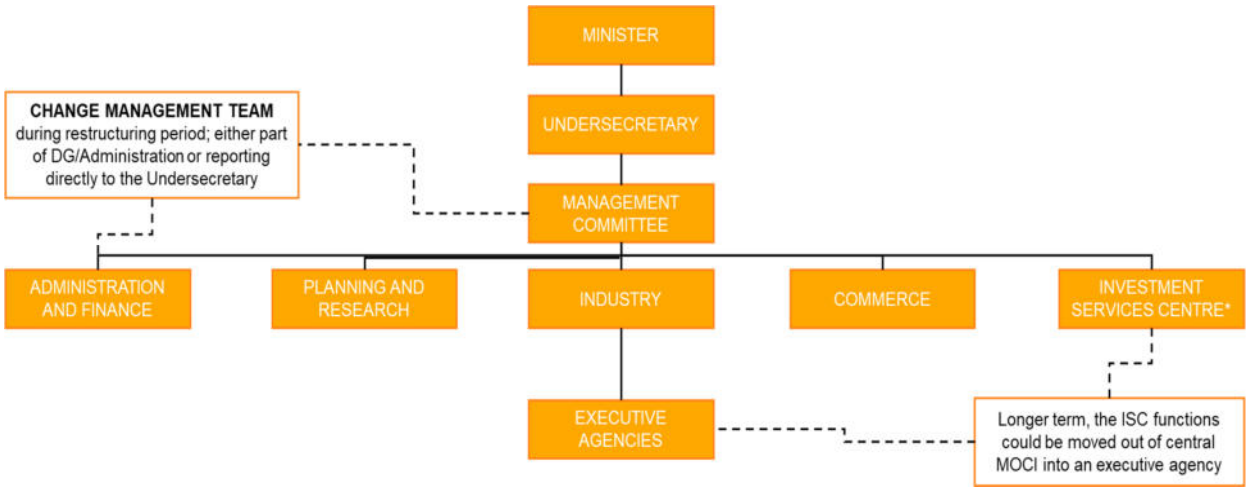
Regarding MoCI's structure, two changes are planned: internal changes and some related to executive agencies. Internal changes will follow both the strategy's requirements as well as the proposed changes in the relationship with executive agencies.

The proposed new internal structure of MoCI is presented in Figures 32 and 33. The functions of the level of minister and undersecretary remain unchanged, although some modifications could take place at the level of the ministry's management committee, which involves the assembly of all director generals in the ministry. The responsibilities for the day-to-day Manufacturing 2040 Strategy currently rest with MoCI's undersecretary. This could continue in the future or alternatively, the responsibilities could be passed on to the management committee or to a committee specifically created for this task. Should the latter be the case, this M4WB management committee would involve all directorates or ministerial units involved in the strategy: industry, planning, administration and finance, investment centre and commerce (contingent on the degree of involvement). It must be noted that even if the responsibilities of day-to-day management of M4WB rest with the undersecretary, it may still be necessary to obtain the support of a management committee.

Administration and finance are included in the strategy's management committee, as has been proposed for executive agencies—while keeping their operational independence—to directly report to MoCI and, hence, negotiate their strategies, plans and budgets with MoCI prior to MoCI taking them to the Supreme Council of Planning or the Ministry of Finance. This will require the involvement of MoCI's Administration and Finance Directorate, at least as far as the budget is concerned. Since the recruitment of new talented and experienced personnel and consultants for MoCI may be a critical task for the implementation of M4WB, good human resource services may also be necessary, particularly at the early stages of implementation.

The Directorate General of Industry (DGI) will take M4WB's technical and policy lead and will participate in its coordination. It will manage the relationship with MoCI's executive agencies and provide technical guidance when needed. DGI will be responsible for evaluating the plan's progress as well as for designing any policy, initiative or project required to achieve the goals of Programme 4 and Strategy 2040.

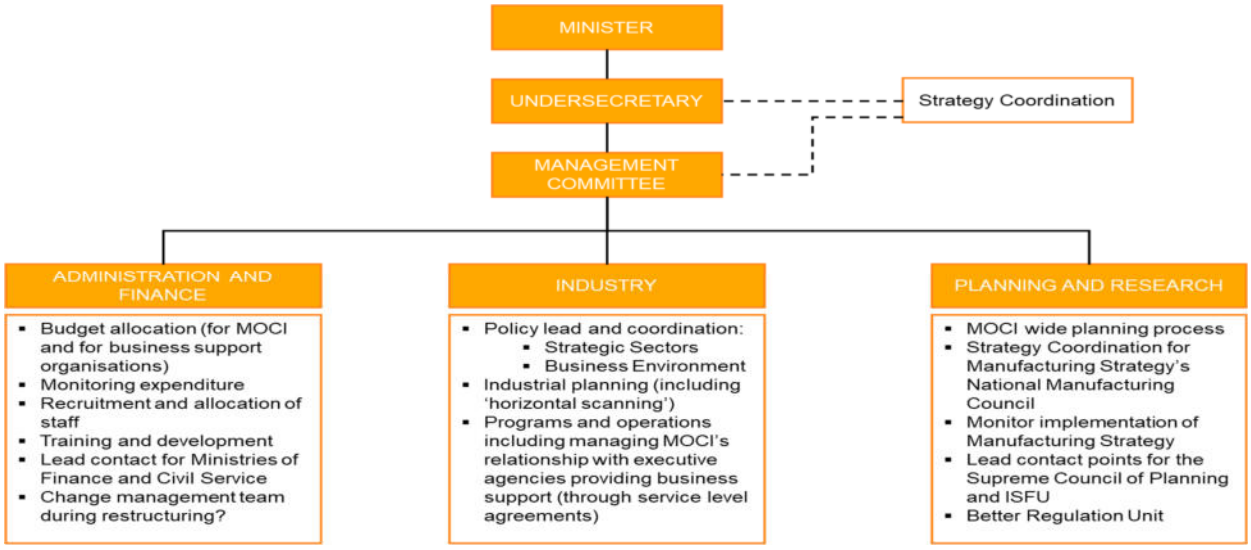
Figure 32: Proposed new MOCI (Industry) reporting structure



MoCI's Directorate General of Planning and Research will continue to focus on strategy coordination together with the National Manufacturing Committee, the Supreme Council of Planning, and the Implementation Support and Follow-up Unit (ISFU), which will be carried out in collaboration with DGI's planning unit. They will primarily be responsible for monitoring the strategy's progress in collaboration with the DGI's evaluation team. One of DGPR's functions will be to ensure that the quality of regulations and the process followed to prepare them is based on the best international standards for which the creation of a 'better regulations unit' is also included in the restructuring process.

PROGMID also anticipates that during the initial 1-2 year period of implementation of M4WB, some significant changes will be made in the ministry's structure, particularly, although not exclusively, in DGI. This will require a change in management team that works at the level of undersecretary or a management team to support the restructuring process.

Figure 33: MoCI's directorates functions within the proposed new structure



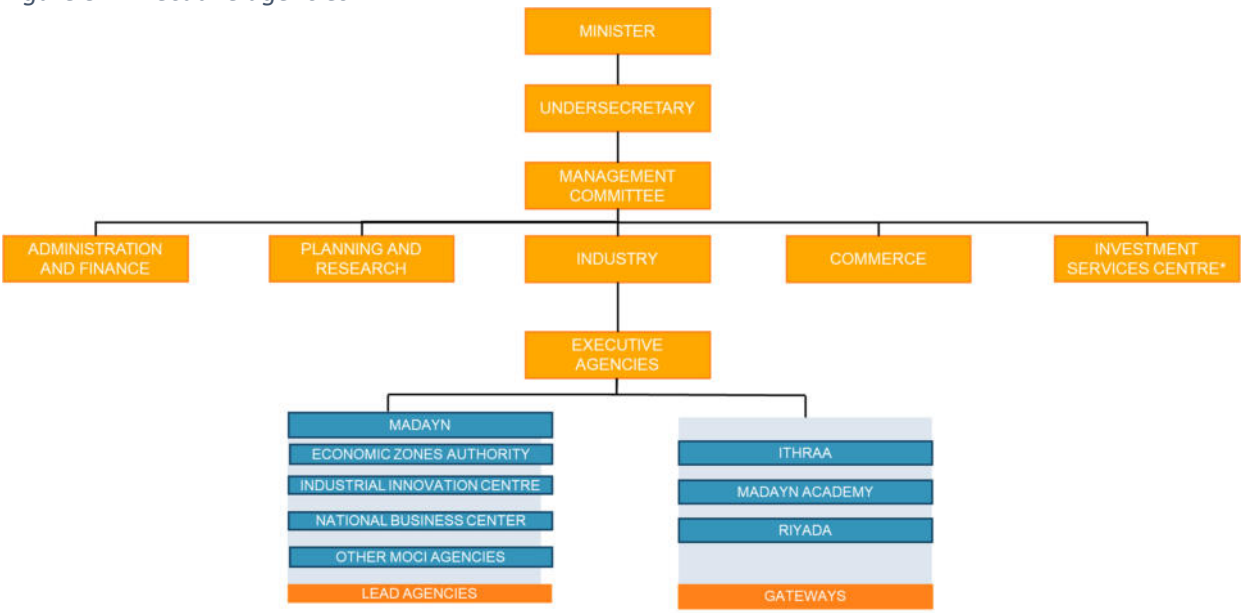
5.4.4. Aligning executive agencies to the strategy

Turning to modifications in the structure to bring executive agencies under the direction of MoCI, three aspects will be addressed as part of this programme: 1) alignment, 2) executive agency types, and 3) individual agency mandates.

The existing executive agencies such as Madayn, the National Business Centre, the Industrial Innovation Centre or new agencies such as a proposed Economic Zones Authority will be aligned by making these agencies part of the MoCI-led system of industrial support, which could be enshrined in the corresponding laws of promotion and regulation of industry or through administrative mechanisms. While completely autonomous in their day to day operations, executive agencies' strategies, plans and budgets will be approved by MoCI, and their boards could be expanded to include more private sector presence. Financing requests from executive agencies to the Supreme Planning Council and the Ministry of Finance will be handled by MoCI on their behalf. In other words, MoCI will operate as a 'holding company' of executive agencies, with the main purpose of aligning their strategy and plans to achieve the objectives of M4WB. Beyond this, executive agencies will be in full control of their operational activities.

Two different types of executive agencies will be established: those that directly supply a good or service (lead agencies) and those that facilitate the activities of other companies (gateways). The former will include institutions such as Madayn, the National Business Centre and the Innovation Centre, while Riyada, the Investment Centre and perhaps Ithraa would fall under the scope of the latter. This distinction is introduced because in the case of the former, the underlying knowledge for the service is highly specialized and limited to a relatively narrow activity, while in the case of the latter, a broad range of activities need to be provided, each based on specialized knowledge. Lead agencies can provide the services themselves, but gateways focus on directing firms' services towards the right track.

Figure 34: Executive agencies



The reasons why gateway-type organizations are necessary is that combining too many roles may not be the best way to use an organization's resources. Attempting to assist companies with a wide range of potential needs may result in those resources being spread very thinly, and may consequently have limited impact. Moreover, an organization may lack the necessary skills to provide certain services. Government business services have grown in number and complexity and require a wide range of skills and staff to deliver them effectively. Some skills are necessary to discern what clients need and where to advise them to go. Finally, packing too many different services into the same institution is likely to add complexity to the process of delivery rather than to reduce it.

Turning to individual executive agency mandates, PROGMID aims to streamline and hone the mandate of several agencies and the establishment of new agencies. The first initiative will be to refine executive agencies' initial mandates, thus avoiding 'mission creep'. Madayn, for example, could concentrate on land leasing, industrial estate development, provision of infrastructure (water, energy, roads, telecommunications) and other directly related services (perhaps in connection with a newly established Special Economic Zone Authority, which will be discussed below). The Industrial Innovation Centre will focus more on supporting innovation and less on start-ups, which falls under the remit of many other agencies. The Madayn Academy and the National Business Centre could concentrate on TVET, incubation and open services exclusively provided for manufacturing firms. This could be stand-alone agencies servicing anyone requiring such services.

One important contribution to the rationalization of business support and development services in the Sultanate of Oman will be the creation of the Special Economic Zones authority, building on the previous Free Zones Committee and physically and administratively integrating all industrial estates, free zones, special economic zones and other similar economic areas under the same agency. Since the main activity of these zones is industry and business development, it makes sense for the authority to fall under the guidance of MoCI. While further discussion and stakeholder involvement may be necessary, concentrating on the formerly fragmented management will allow for a more cohesive and consistent approach to industrial land development and is a big step towards the specialization of different geographical areas in specific clusters. Bringing together all the agencies currently involved in managing industrial land will save the Sultanate huge administrative and financial costs and will provide a more rational and long-term

perspective for investments. This is crucial given the present economic restrictions. It will also allow to homogenize the range of incentives being provided while at the same time differentiating them according to M4WB priorities.

Merging all of the agencies involved in the management of the different zones will not only entail an administrative but also a physical integration of the industrial land they control. Since many of these industrial areas are contiguous to each other, any physical barriers between them would be removed. The elimination of physical barriers does not, however, mean that the legal status of each firm, belonging either to an industrial estate or an export processing zone, for example, would cease to exist. As in Singapore or Taiwan, Province of China, an electronic tagging system will be introduced where firms are identified by an electronic code and their activities taxed accordingly.

The advantages firms can attain by sharing the same space can be massive, especially if connectivity is nurtured. It facilitates direct interaction between firms, increasing information exchange and the possibility of sourcing inputs and services from one another. It will lead to agglomeration economies, which saves costs due to firms' proximity. It can also result in specialization and clustering as suppliers and their suppliers establish facilities to source their principals. It furthermore contributes to knowledge sharing, which is crucial for innovation.

The elimination of physical barriers in industrial areas will also allow for the government to geographically concentrate its SMEs, incubation, funding, research and development, technology and innovation services, possibly even in one single building in each location, resulting in major cost savings. The management of each individual area could rest in the hands of the newly created authority while the construction of facilities could continue to lie in the hands of Madayn, with a fee being charged to the new authority, although it may make sense for Madayn to be entrusted with both the management and construction of the zones as its only mandate.

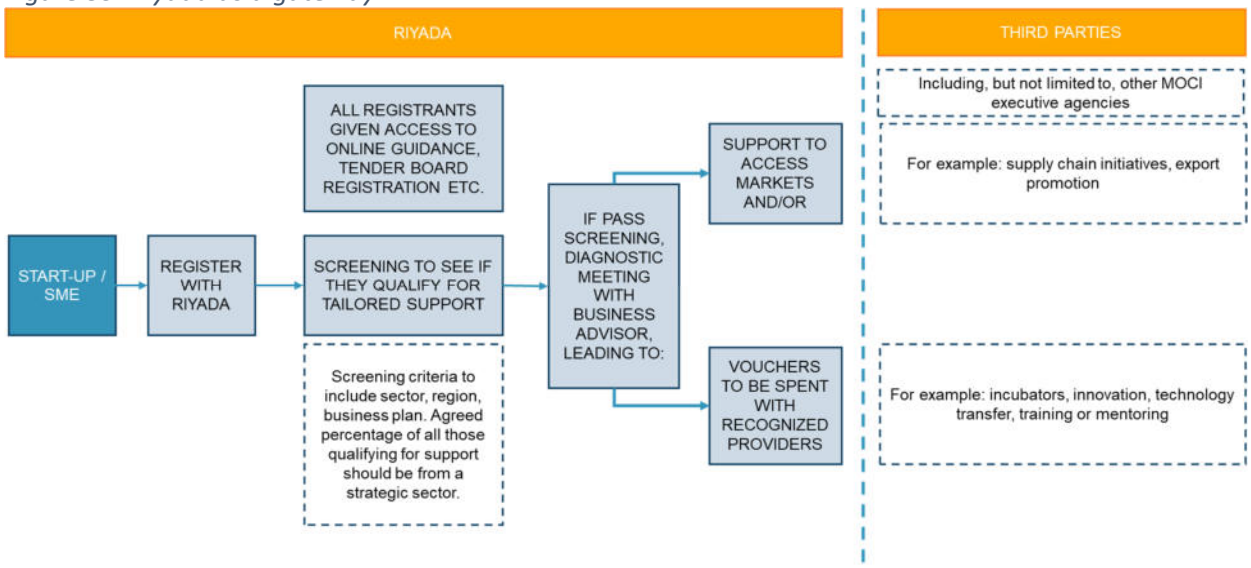
Another agency that will require some modification and whose mandate must be honed is Riyada. Riyada performs several different functions. It registers SMEs, provides some incubation and business support services, offers access to other forms of support such as financing from the Al Raffd fund, and helps SMEs obtain access to markets (for example, tender board registration and providing large companies with bespoke lists of potential suppliers and sub-contractors). 40,000 clients use Riyada's services but only 12,000 are 'registered entrepreneurs' who have priority access to services (and sole access to some services, e.g. land). All of these functions are valuable, but it is not clear that they can all be effectively carried out by a single body.

Riyada could be more effective with a narrower remit focussed on being a 'gateway' for entrepreneurs and SMEs to various forms of business support, and by enhancing the way it provides advice and assistance to provide more tailored services to selected clients. Riyada does not currently differentiate nor prioritize between industries when deciding which start-ups and SMEs should receive access to its services. As previously mentioned, it is essential for Riyada to provide a more differentiated manufacturing-focussed approach. It would be much more feasible if the agency refrained from providing services directly, except for some 'entry level' advice, assistance and training available to all companies, for example, online guidance on starting a business, briefing on regulatory changes and registration with the tender board. It should instead focus primarily on assisting selected clients to access the support they need (see Figure 35).

Riyada should adopt a two-stage assessment process when companies register with them. The first should be an initial screening to assess whether they are eligible for further support. Criteria will need to be

developed for such a screening process. The second phase would commence with a meeting with Riyada to diagnose the company's needs and provide advice on what type of support would be most beneficial. The company would then receive assistance to access that support, including financial assistance such as grants or vouchers that could be redeemed either from the executive agencies providing business support, such as the National Business Centre or other approved service providers.

Figure 35: Riyada as a gateway



5.4.5. Shaping the Directorate General of Industry (DGI)

Delivering the objectives of M4WB requires an organization that is suited to deal with a diverse and wide-ranging policy and with implementation challenges over the next 20 years, and a body of knowledgeable and committed technical staff prepared to lead public and private sector peers. Insofar as is the majority of responsibility for implementation falls on the Directorate General of Industry (DGI), both a new organization and an expansion of staff will be included in this programme. The organizational modernization of DGI will be complemented by related changes in other MoCI departments, which will be included as well.

The current organization of DGI reflects the main functions carried out by the Directorate in the past: registration, licensing, exemption approval and rehabilitation. While it will continue to carry out these functions in the future, PROGMID will introduce new functions related to policy making and evaluation, regulation, incentive design, service provision, cluster development and data collection. DGI will require radical restructuring to be able to deliver these new functions.

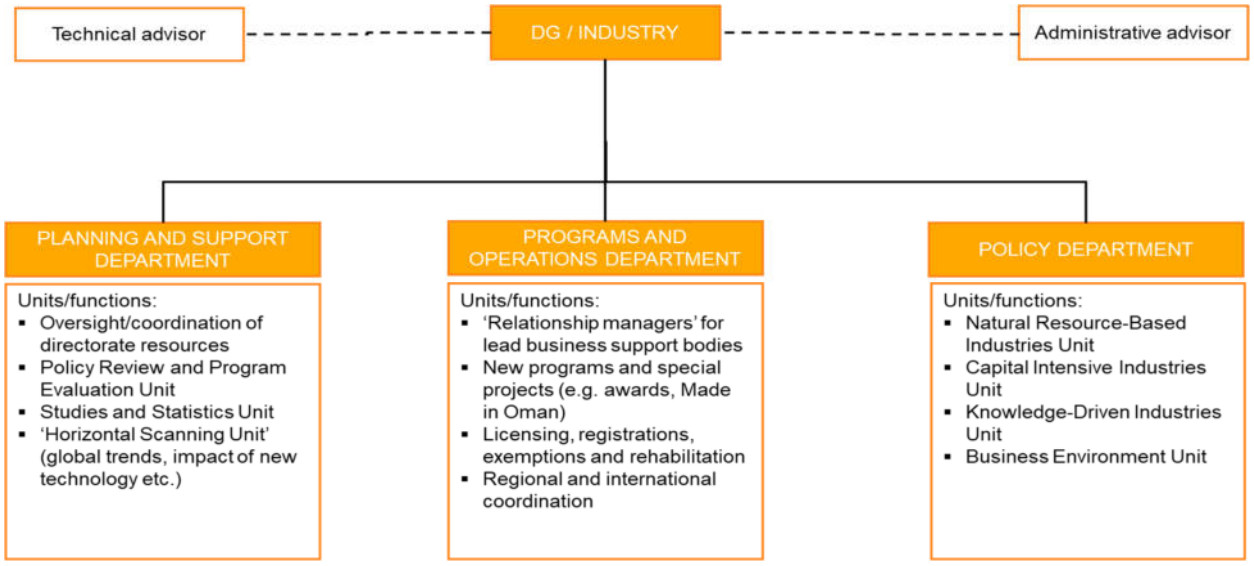
Figure 36 illustrates the new structure proposed for DGI. The traditional planning and research functions will be further expanded to include a Policy Review and Programme Evaluation Unit that will continuously assess the policy instruments being deployed for M4WB to inform decisions about whether they should be continued, and to share learning that is useful when designing new policies and programmes. It is important to keep this Unit functionally separate from the policy and programmes departments in the interests of objectivity. In addition, an Industrial Intelligence or Horizontal Scanning Unit will be created and tasked with monitoring global developments—economic, geopolitical, environmental, and technological—and ensuring that these are taken into consideration when developing new policies. The

unit will also be the focal contact point, with the Supreme Council of Planning (SCP) and the Implementation Support and Follow-up Unit (ISFU) supporting the NMC.

The Programme and Operations Department will continue to perform traditional procedural tasks and international and local regional coordination. As industrial activities become more decentralized in different regions across the country—and consequently become larger—local regional coordination is expected to grow in importance. The Department will include a Project and Programme Unit that will focus on existing projects, e.g. the Sultan Qaboos Industrial Award, and on new ones related to ICV, supplier development, energy efficiency or any other project that may be necessary during the strategy's execution. The unit will be operational in nature rather than being involved in the design of projects but will provide inputs from an implementation perspective. The Department will include a group of 'relationship managers' who will be responsible for operational oversight of each designated executive agency. The role of the unit will include negotiating and managing service level agreements with each organization, setting and monitoring priorities, targets and KPIs.

The Industrial Policy Unit will have three sub-sectoral units (natural resources, capital-intensive and knowledge-driven) covering the entire manufacturing sector. They will function as 'sponsors' of their industries but with a focus on strategic industries. The main functions will include maintaining close relationships with industries to understand their needs and the drivers of and obstacles to growth; contributing to the development of cross-cutting policies, sub-sector initiatives, and business support programmes to ensure sub-sectors are promoted; supporting and participating in NMC technical working groups as needed; and, raising concerns with other ministries and other parts of MOCI on behalf of the industries. The Business Environment Unit will be the centre of excellence within MOCI on cross-cutting issues for which other MoCI or other ministries will have primary responsibility. This includes areas such as technology and innovation, skills and TVET, SMEs, clusters and value chains, energy and environment, investment, finance and taxation. The unit will also support and participate in the NMC's technical working groups as needed.

Figure 36: Proposed new structure for DGI



Units and their sections within DGI will not operate in isolation. They will collaborate with each other and take on joint tasks. A key mechanism to promote collaboration will be the establishment of multi-unit teams, bringing together the specialise expertise of units and sections and sharing their knowledge to

increase the effectiveness of DGI's activities. M4WB implementation will be by and large run by these teams that will also be expanded to include staff from other ministries and public entities and private sector experts.

Complementing these changes, PROGMID will introduce several adaptations in other directorates, the most important of which will relate to the Directorate of Research and Planning (DRP). The first adaptation will be to include a 'Better Regulation Unit' which, following OECD recommendations for sound governance, will focus on monitoring progress and producing overall impact assessments of the policies being implemented, consulting on all new regulations and major policy changes, and allowing for transitional periods of at least six months after new regulations are introduced. DRP will also engage in the preparation of plans and budgets and liaise with the Ministry of Finance to secure the necessary resources for M4WB and will act as a main coordinator of the activities emerging from the NMC with the SCP and the ISFU.

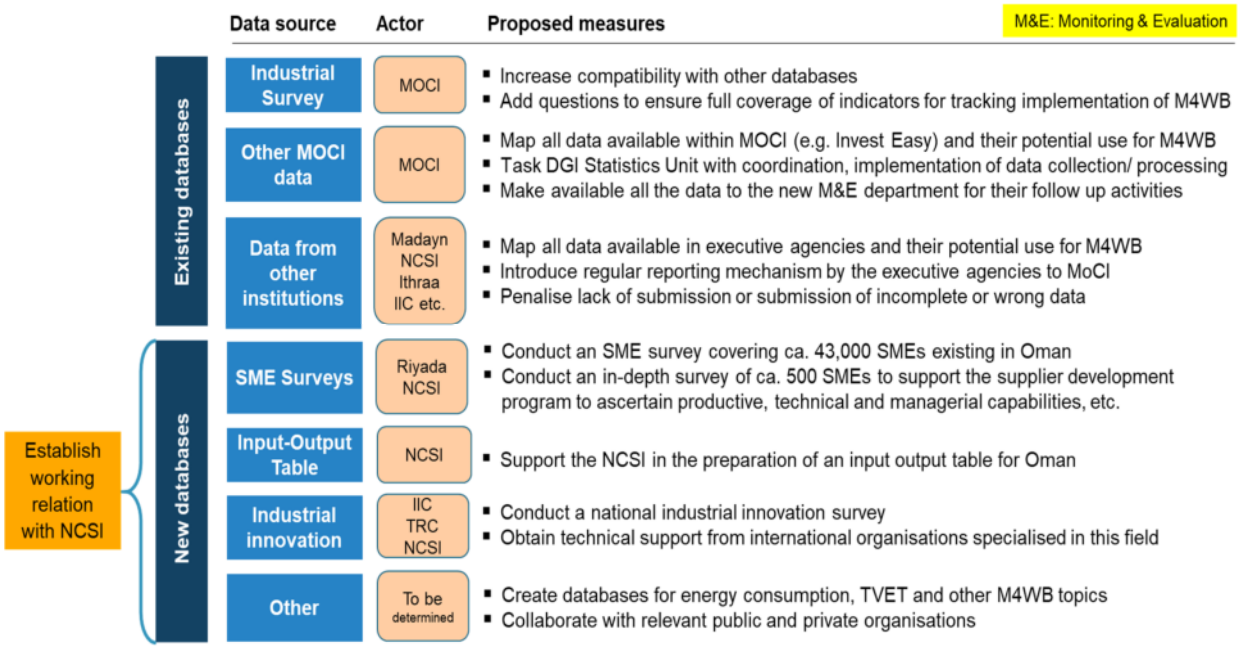
5.4.6. Expanding the data and information base

Data will be the most important input in the follow-up and evaluation of M4WB. Despite huge progress made in the collection, compilation and dissemination of data by the National Centre for Statistics and Information (NCSI), the type of granular data required to monitor, evaluate and learn from the Manufacturing Vision 2040 is not available. Data for some programme KPIs will have to be collected during the execution of M4WB and hence, the base year for the performance targets to be determined once implementation has started.

Based on existing databases and sources of information, PROGMID will begin by improving the response rate of MoCI's industrial survey, cross check it and make it compatible with other databases to determine its accuracy and expand its data volume. Efforts will be made to improve the response rate for all issues relevant to M4WB and if necessary, new questions will be added. A special effort will be undertaken to collect data for indicators on a monthly, quarterly, semester or annual basis, depending on the indicator, to create new indicators and baselines, and/or provide new baselines for already existing indicators used in the manufacturing sector. A data mapping exercise will be carried out in MoCI, executive agencies and relevant government organizations based on the available data and their potential use for the strategy. In addition, regular reporting mechanisms will be introduced, and data made available for monitoring and evaluation activities.

It will also be necessary to create new databases. In collaboration with NCSI, PROGMID will seek to implement two SME surveys, a large one focussed on the population of SMEs, with DGI concentrating on manufacturing aspects, and another more detailed survey looking into a smaller number of manufacturing SMEs and generating information relevant for the supplier development programme. A manufacturing innovation survey will also be prepared to gauge the extent of research and development and innovative performance of firms in the Sultanate. Other databases will be created in the areas of energy efficiency, local content, technological potential and TVET. In the case of the latter, contacts will be established with the SCP to connect to its survey on the future of skills. Collaborations will also be sought with NCSI to support and utilize the work being performed on input-output tables.

Figure 37: Data requirements



6. KPIs, Investment and Employment

The M4WB strategy prioritizes three sets of metrics that determine and reflect the manufacturing sector's strength and impact. First, the strategy's successful implementation will be tracked annually based on a set of key performance indicators (KPIs). The extent to which the Omani government and the private sector channel sufficient economic resources into manufacturing is pivotal for achieving the KPIs. Investment thus represents the second metric. Finally, M4WB has implications for job creation for Omani nationals. As manufacturing investment and value-added increase, companies will rely more heavily on human resources. Non-manufacturing companies will also contribute to job creation as a consequence of the strategy's implementation. Logistics companies, for example, will have to hire more staff to transport a greater number of manufacturing goods produced domestically.

6.1. Key Performance Indicators (KPIs)

Since the publication of the diagnosis in January 2019, M4WB's KPIs were revised and rebased several times from 2015 to 2017 (see Figure 38).[9] The revisions reflect the availability of data for more recent years, data on recycling and transport equipment industries previously unavailable, and a new 5 per cent growth rate target set for the economy as a whole by the Supreme Council of Planning.

As regards the underlying trends, there is no change in the overall expectations, although manufacturing growth may take a little longer to take off due to recent economic developments and the COVID-19 pandemic. Manufacturing value added (MVA) in constant terms is targeted to grow nearly four-fold between 2020 and 2040, while MVA per capita is projected to rise 2.5 times due to rapid Omani population growth (see Figure 38). Over the full period of the 10th Plan, 2021-2025, MVA is projected to grow by around 40 per cent. Manufactured exports are expected to increase to OMR 10.7 billion by 2040.

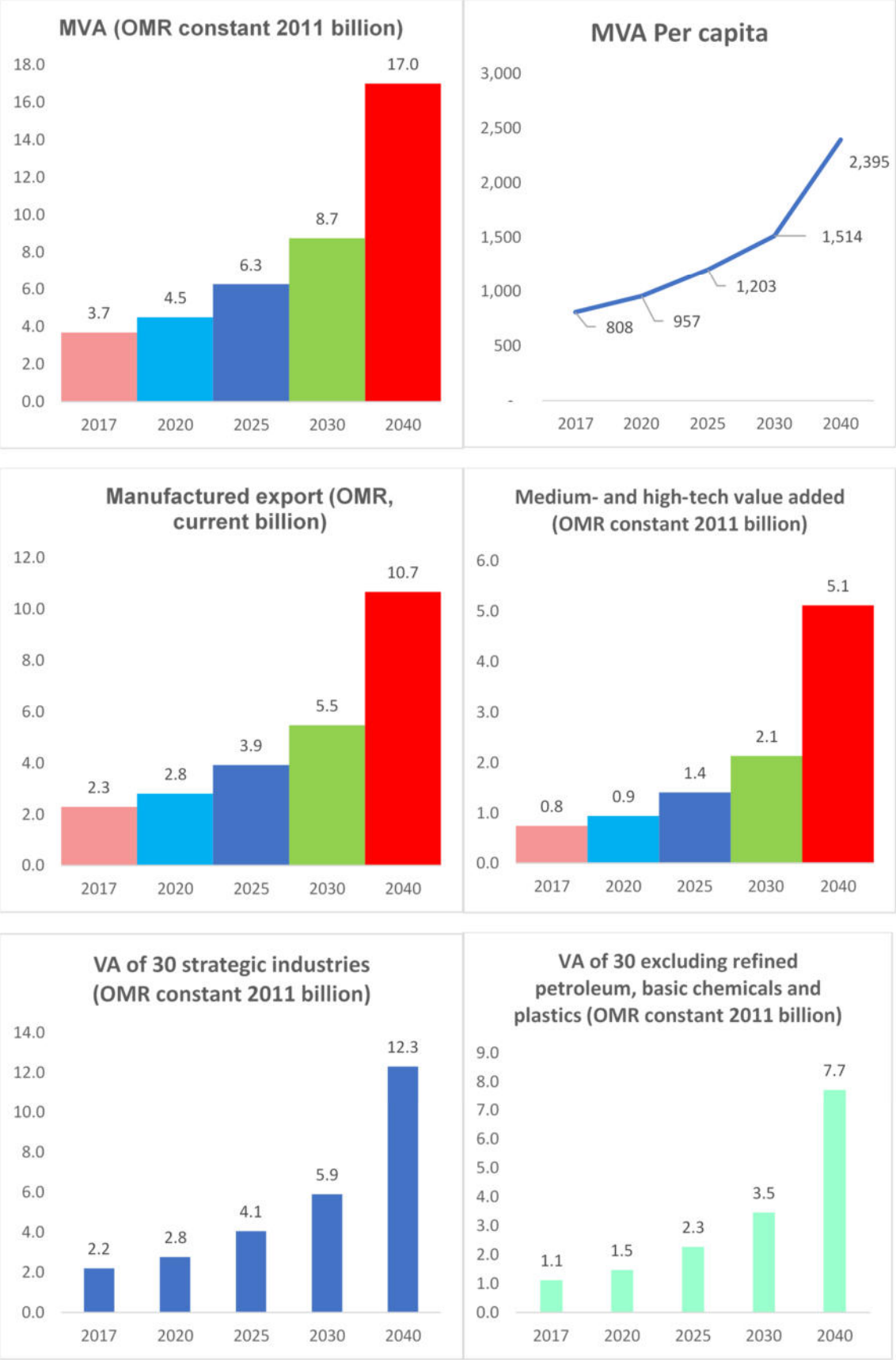
A near six-fold increase in the constant value added of medium- and high-tech industries is targeted. Within medium- and high-tech industries, priority industries are expected to grow very rapidly, much faster than any other industry, while non-priority medium- and high-tech industries are expected to expand just above the 5 per cent growth rate of the economy. The health and recycling clusters are expected to grow fastest, but both industries will be starting from an exceptionally low base, while the electromechanical cluster is also expected to show a strong performance.

Strategic or priority industries are anticipated to expand 4.5 times over the next 20 years, driven in addition to the high-tech industry clusters mentioned above by a strong showing of the metals and minerals and the food clusters. The petrochemical cluster, while expected to expand slightly less than the other priority industries and the average for manufacturing, will remain the most significant industry in 2040, accounting for at least 37 per cent of the manufacturing sector.

Excluding petrochemicals (refined petroleum, basic chemicals, and plastics), other priority industries are targeted to grow more than five-fold by 2040. Medium- and high-tech industries, such as pharmaceuticals, medical instruments, solar energy equipment, transport equipment, air conditioning equipment and pumps and compressors will account for this performance.

[9] The description and methodology for the KPIs was already documented in the M4WB diagnosis.

Figure 38: M4WB: Overview of Key Performance Indicators (KPIs)



KPIs have also been identified for the M4WB strategy's four programmes. As mentioned earlier in the report, these KPIs are directly connected to the strategy's objectives and KPIs, as they are outcomes that are necessary to reach the final goals. The preference in terms of choice of KPI has been to identify those that are unambiguously related to achieving the programmes' objectives and through these, the strategy's objectives and KPIs. This has not always been possible, however, due to lack of data, hence alternative indicators or a combination of complementary indicators have been used while trying to keep the number to a minimum to reduce complexity. Thus, one of the key reasons for the data collection initiative proposed in PROGMID is to develop the KPIs.

Programme's 1 focus on the development of new firms and industries is the attraction of foreign direct investment (FDI) as the new products and industries to be developed will require advanced foreign technology. The value of the FDI attracted to manufacturing is the best indicator to capture the extent of entry of new firms. When more granular data is available, a breakdown of FDI into different industries will provide an even better picture whether the programme's objectives have been achieved.

Table 1 shows that FDI is expected to increase nearly five-fold over the next 20 years. It is expected to rise, especially during the second decade of M4WB, when the average annual inflow is anticipated to more than double relative to the previous period and when industrial cluster development should be peaking.

Table 1: Programme KPIs

KPI		Indicator	Unit of Measurement	Period	Base year	2020	2021-2025	2026-2030	2031-2040
Programme 1									
New firm and knowledge- driven Industrial Cluster Creation (NEFKICP)									
	FDI in Manufacturing	Value of FDI	OMR Current mn	Yearly average	2017	357	484	652	1049	2184
Programme 2									
Entrepreneurship and Industrial Innovation (EIIP)									
	Global Innovation Index	Score	Points	Yearly average	2019	31.0	31.0	31.5	33.9	36.8
	Enterprises incubated introducing new products in the Omani market and still in business after 3, 4, 5 years	Number (not available at the moment)	Units	Yearly average	na	na	na	na	na	na
	Corporate R&D expenditure	Number (not available at the moment)	Units	Yearly average	na	na	na	na	na	na
Programme 3									
Industrial Upgrading and Modernization (PIUM)									
	Labour productivity in manufacturing	MVA/per worker	OMR Constant 2011 mn	Yearly average	2018	99579	107084	119573	143393	189086
	Industrial Competitive Index and CO2 adjusted CIP	Score	Points	Yearly average	2017	0.0363	0.0382	0.0432	0.0542	0.681
	Capital per worker	Gross Capital Formation per manufacturing worker (not available at the moment)	OMR Current mn	Yearly average	na	na	na	na	na	na
Programme 4									
Governance and Management of Industrial Development (PROGMID)									
	MoCI and related parties expenditure efficiency	Current MoCI expenditure/ Manufacturing value added	%	Yearly average	2019	0.29	0.27	1.28	0.69	0.30
	Statistical reports and surveys completed.	Number (not base year available at the moment)	Units	Yearly average	2019	1	1	3	5	7

Indicators for start-ups and innovation (Programme 2) are among the most difficult data to obtain in the Sultanate of Oman. There is no centralized data of the number of start-ups and their survival rates and when such data exist, it is not made available. Data on corporate R&D is not well reported to MoCI, either. The best available indicator is WIPO's innovation index, which while does not capture innovation in manufacturing, it describes several aspects associated with innovation. Rather than focussing on the ranking, M4WB will use the index itself as a target, since it is considered a better guide for action. The index is expected to increase by more than 10 per cent in the following years, which would require significant changes in the enablers of innovative activity as well as outputs.

The industrial upgrading and modernization programme has three indicators, two of which will be used immediately, as data are readily available. Labour productivity reflects many dimensions of economic activity and is widely used as an indicator of performance. Rising labour productivity suggests increases in the efficiency of production processes and is related to skill upgrading. Productivity is expected to double in real terms by 2040. Another indicator is UNIDO's Industrial Competitiveness Index. The index is a straightforward, 8-variable construct with different weights, using only different indicators of manufacturing performance (such as exports, market share and MVA growth). It is one of the few global indices of manufacturing competitiveness and hence useful for addressing the programme's objectives. The near double increase in the CIP Index by 2040 would imply major gains in value addition, exports and global market share.

The indicator for Programme 4 reflects the degree of efficiency in government expenditure by dividing expenditure incurred by MoCI and its executive agencies based on MVA generated – the lower the ratio, the higher the efficiency. After an initial increase in the indicator due to a large investment by MoCI in new activities, the ratio will begin to decrease until reaching historical levels by 2040.

6.2. Investment

Figure 39 presents the investment required to sustain the growth of MVA in coming years.[10] On average, the public and private sectors will have to invest around OMR 5 billion into manufacturing per year to achieve the KPIs specified in M4WB.[11] The accumulated investment over the period amounts to 100 billion OMR). Over the 20-year period of the manufacturing vision, investors will have to increase their investments in Oman five-fold. Among the priority industries, petrochemicals will continue to be the most attractive one, particularly for foreign capital, but the metals and minerals and the electromechanical clusters will also begin to compete for the new investments. Significant outlays into the health cluster will only begin to seriously take off after 2025.

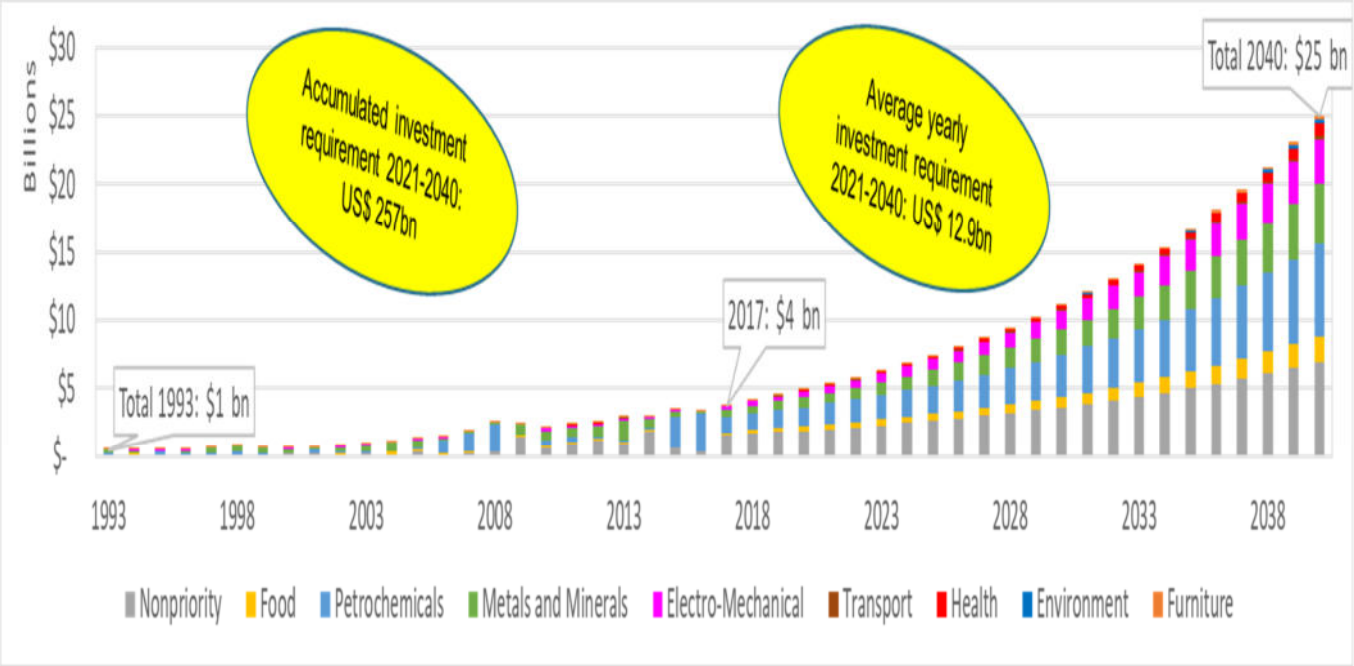
New investments will be crucial for achieving M4WB's objectives and KPIs. Ongoing investments that in 2021 will be part of this effort and are reported in ISFU's dashboard will comprise projects in the petrochemicals, metals, food, pharmaceutical and transport equipment industries. In the petrochemicals industry, by far the largest project, is Duqm's refinery. With the capacity to refine 230,000 bpd of crude oil into diesel, jet fuel, naphtha and LPG, with an investment of USD 6 billion, the project is expected to be launched in late 2021 or at the beginning of 2022. In the metals industry, the largest project whose investment schedule coincides with the timeframe of M4WB is the alloy wheels manufacturing facility in Sohar. At an investment cost of USD 100 million, the project at its peak expects to export OMR 20 million of hi-tech alloy wheels to international markets annually, including to the U.S. and India. In the food industry, projects with investments that will carry over into 2021, include a poultry farm by Arabian Food Production, a tuna and sardines processing and canning factory by Dhofar Seafood, a fully integrated red meat project by Al Bashayer, and an integrated soybean/canola crushing and oil extraction plant by Oman

[10] The investment requirements were projected based on the historical share of gross fixed capital formation ("GFCF") in MVA. While this provides a sense of the magnitude of investment necessary to achieve the KPIs for each cluster, they serve as a preliminary estimate and can be updated once better quality data and modelling become available. A selection of 5-10 sample companies for each cluster was made and used to gauge which type of investors have historically contributed to each cluster. In the case of industries that are non-existent and require more technology and knowledge currently unavailable in Oman, future projections show that a greater requirement for FDI and government investment is needed. For existing industries that require less innovation, direct domestic investment (DDI) is expected to become the most important driver.

[11] The investment figure in current terms was obtained by extrapolating the Omani Gross Fixed Capital Formation deflator.

Oilseeds. In the pharmaceutical industry, Philex Pharmaceuticals is developing a USD 365 million project in Salalah consisting of three production lines. The first line is to produce 250 million tonnes of tablets and capsules per year, the second line's target is 100 million tonnes per year of ODF (oral doses film), and a third line focussing on biotechnology and vaccines in collaboration with a partner from the Republic of Korea. In the transport equipment industry, Karwa Motors is establishing a bus assembly plant in Duqm, with a capacity of 600 units per year at an investment of USD 90 million.

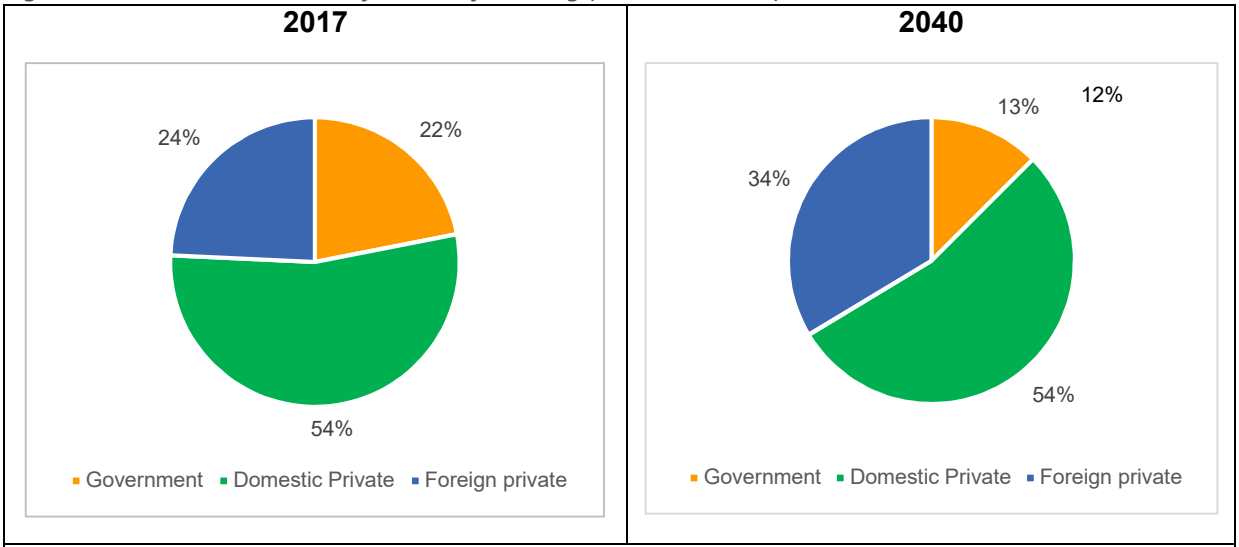
*Figure 39: Historical and projected manufacturing investment (current USD)**



* Exchange rate: OMR 1 = USD 2.6.

In addition to appraising the sectoral composition of investments, rough estimations were made on the source of investments that will be required in the future (Figure 40). By 2040, FDI is expected to increase its share of manufacturing investment by 10 per cent, the same amount that the government is anticipated to reduce it by. This is consistent with the declared intention in the government's Vision 2040 of promoting private sector activity. Domestic investors, which accounted for around 54 per cent of total manufacturing investment—the largest share according to source of investor—will remain unchanged in 2040.

Figure 40: Investment sources for manufacturing (2017 and 2040)



Data sources: Muscat Securities Market; ISFU (annual reports 2017, 2018); OFIC Strategy document (2017); News (Oman Observer, Times of Oman)

6.3. Employment

Production in any economic sector involves linkages with other activities. The production unit either needs to source raw materials from suppliers (backward linkages) or, when its output enters the market, other companies need to get involved to bridge the distance to consumers (forward linkages). In addition, there are other linkages when workers involved in production spend their wages shopping or on entertainment.

To generate employment in manufacturing, rather than focusing on employment per se, it is better to concentrate on growth. This is because it is the intensity of the linkages established in manufacturing—or to put it in a slightly different way, the way the linkages multiply—where the bulk of 'manufacturing' employment is generated.

Table 2 shows the multipliers of Oman's economy.[12] These are Type 1 multipliers, which translates a known or assumed direct effect into estimated total impact, including both direct and indirect effects. The effects of jobs resulting from a production unit's direct and indirect employees spending money in the domestic economy are not included. The three key multipliers included are:

- Output: the dollar increases in the output of an economy when final demand for goods produced by an industry increases by USD 1.
- Earnings: how many extra dollars of labour earnings (direct and indirect) in the economy are generated for each USD 1 directly generated in an industry.
- Employment generation: for a given dollar increase in an industry's final demand, how many additional people in the economy are employed per additional person employed in that industry.

[12] Before discussing this any further, a word of caution is warranted. The Sultanate of Oman does not have an input-output table, but this is necessary for estimating multipliers. The input-output coefficients in Table 2 are calculated based on the Oman input-output matrix obtained via GTAP, which in turn is based on the 2005 technical coefficients of Kuwait. For further details, see https://www.gtap.agecon.purdue.edu/databases/IO/table_display.asp?IO_ID=435.

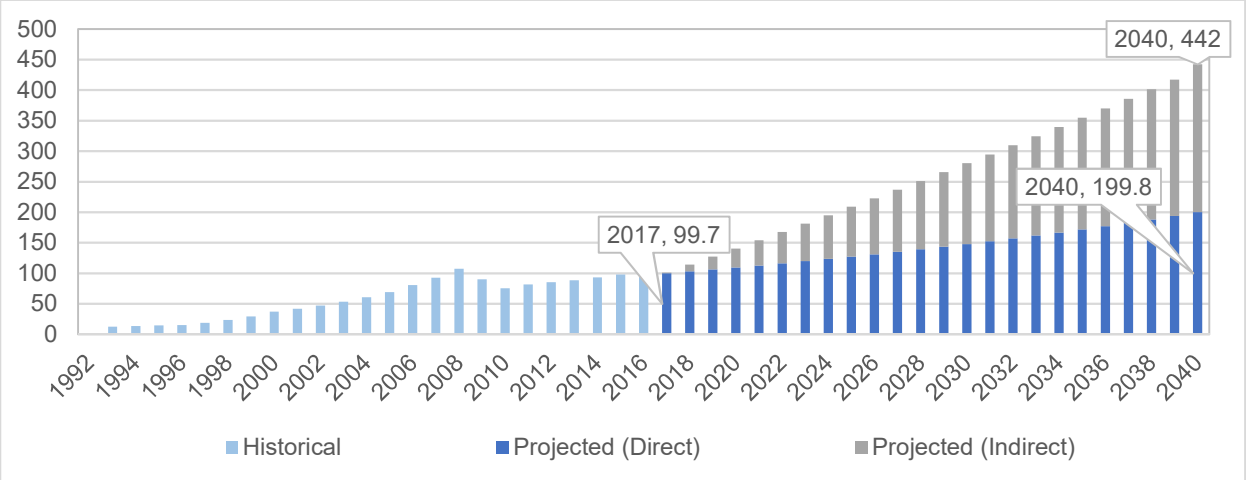
Table 2: Multipliers for Oman

Type I	Agriculture	Industry/Non-Manufacturing	Industry/ Manufacturing	Services
Output multiplier	1.62	1.73	1.91	1.56
Earnings multiplier	1.50	1.81	2.38	1.46
Employment multiplier	1.29	2.06	3.42	1.43

When comparing the Omani manufacturing sector with other sectors, it has the highest multiplier for all three variables. The manufacturing sector's growth thus has the strongest impact on the economy overall. An additional dollar of value added in manufacturing generates an additional USD 2.38 in household earnings. An additional employee in the manufacturing sector implies 3.42 additional staff directly and indirectly employed throughout the economy.

In 2017, manufacturing directly employed nearly 100,000 people. Figure 41 illustrates that based on M4WB's KPIs and the manufacturing employment multiplier, the Omani economy is expected to generate by 2040 a total of 100,000 direct jobs within the manufacturing sector, and 242,000 new jobs in the rest of the economy (i.e. indirect jobs).[13] The largest number of jobs among priority industries will be generated in the electromechanical cluster, followed by the metals and minerals cluster.

Figure 41: Employment generated due to manufacturing (1993-2040) (in thousands of employees)



[13] Data sources:

- KPIs: United Nations Statistics Division, National Accounts; Oman National Centre for Statistics and Information; United Nations Industrial Development Organization (INDSTAT).
- Investment: United Nations Statistics Division; Oman National Centre for Statistics and Information; United Nations Industrial Development Organization (INDSTAT); Muscat Securities Market; ISFU (annual reports 2017, 2018); OFIC Strategy document (2017); News (Oman Observer, Times of Oman).
- Employment: International Labour Organization (ILOSTAT); MOCI Industrial Statistical Survey; GTAP Social Accounting Matrix for Oman (2005); United Nations Industrial Development Organization (INDSTAT).