How can the marine manufacturing industry release the binding skills constraints facing the sector?

Industry and skills research report

The better the question. The better the answer.
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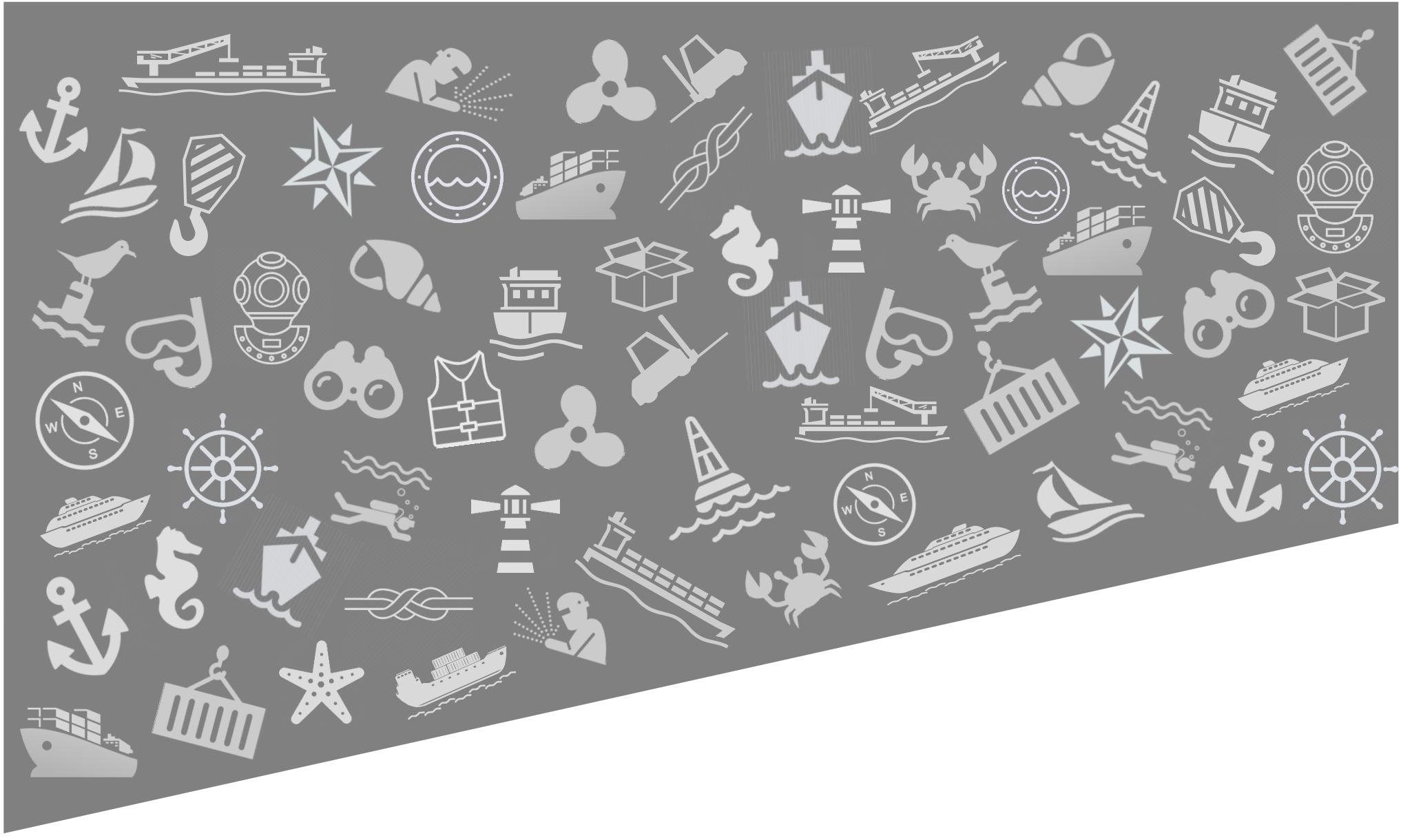
SAIMI
SOUTH AFRICAN INTERNATIONAL MARITIME INSTITUTE

EY
Building a better working world

Background and approach



Background
Brief

In order to close the skills gaps in the Maritime sector, SAMSA and SAIMI require:

1. **Industry partners** – SAMSA is looking to partner with industry to assist in closing skills gaps across Maritime sub-sectors by providing opportunities for learners as well as input and support to skills development initiatives.
2. **Industry Buy–in** – Leaders in industry needs to buy–in to the process, commit to implementable plans in order to make it sustainable.
3. **Stakeholders** – SAMSA and SAIMI require stakeholders that share the same goals and are committed and want to take leadership roles in the process.

EY developed the following process to support SAIMI in developing sustainable industry partnerships in skills development

Step 1

a. Identify one maritime sub–sector to pilot the Industry-Education skills partnership (IESP).

Step 2

a. Conduct secondary research and targeted interviews with key stakeholders to gain a deeper understanding into the sub- sector.

Step 3

a. Distil overall sub- sector industry economic and employment trends.
b. Identify critical skills challenges, opportunities in the sub- sector.
c. Identify current/ existing initiatives and how these could be leveraged to address the critical skills constraints.
d. Develop options for MMF employer led skills strategy

Step 4

a. Host an employer roundtable discussion with key employers in the industry to validate the research findings, and test options for addressing the binding skills constraints.

Step 5

a. Develop business case on preferred MMF employer led skills modality for the MMF sector.
b. Host 2nd employer roundtable to review and employer led skills modality.

Close out presentations and way forward including opportunities to apply model to other regions/ sectors.

EY

Background
Our approach to the research

Did not

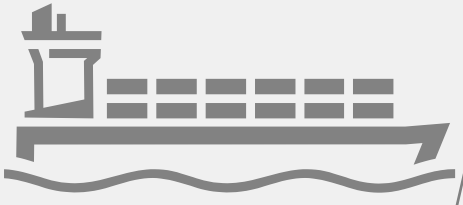
- Go out and do large amounts of new primary research
- Survey employers
- Re-invent the wheel
- Limit ourselves to existing solutions

Did

Conducted secondary research and targeted interviews with key employers/ stakeholders to understand key business and skills challenges, current initiatives and test ideas to increase employer participation in addressing their skills challenges and constraints

Drafted MMF research report which distilled industry economic and employment trends; critical skills challenges, opportunities and strengths facing the industry; current initiatives and how these could be leveraged to address the critical skills constraints; and formulated options to raise employer participation in addressing their skills challenges and closing skills gaps.

Hosted 1st employer and stakeholder roundtable discussion on research findings, and to test options for addressing the binding skills constraints in the MMF sector.



Developed business case on preferred MMF employer led skills modality for the MMF sector. Hosted 2nd Round table to present and engage employers and stakeholders on preferred employer led skills modality for the MMF sector

EY

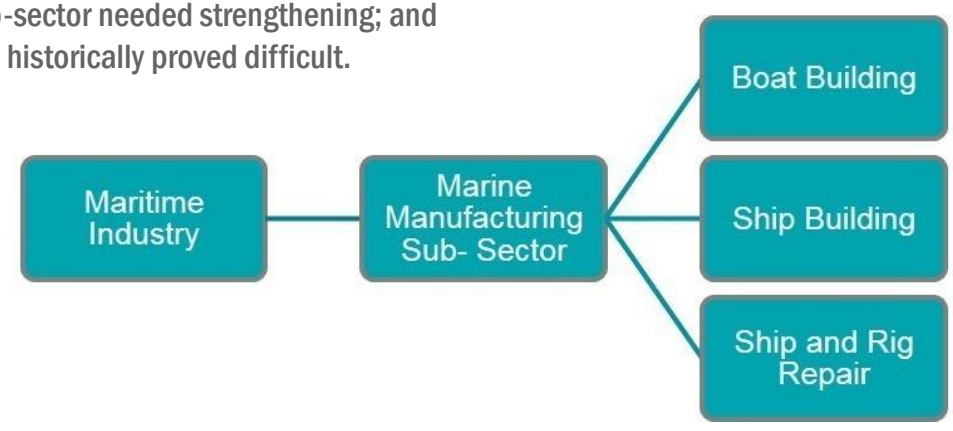
Background
Ocean economy sector identification

The first step was to identify a sub- sector within the Maritime Industry facing significant skills challenges and where employer participation in skills development needed strengthening, and to conduct research and co-create with stakeholders an employer-led skills modality for addressing skills gaps. The process identified alternative employer-led skills partnership modalities that could be applied in other regions/ sectors requiring stronger employer involvement in skills development.

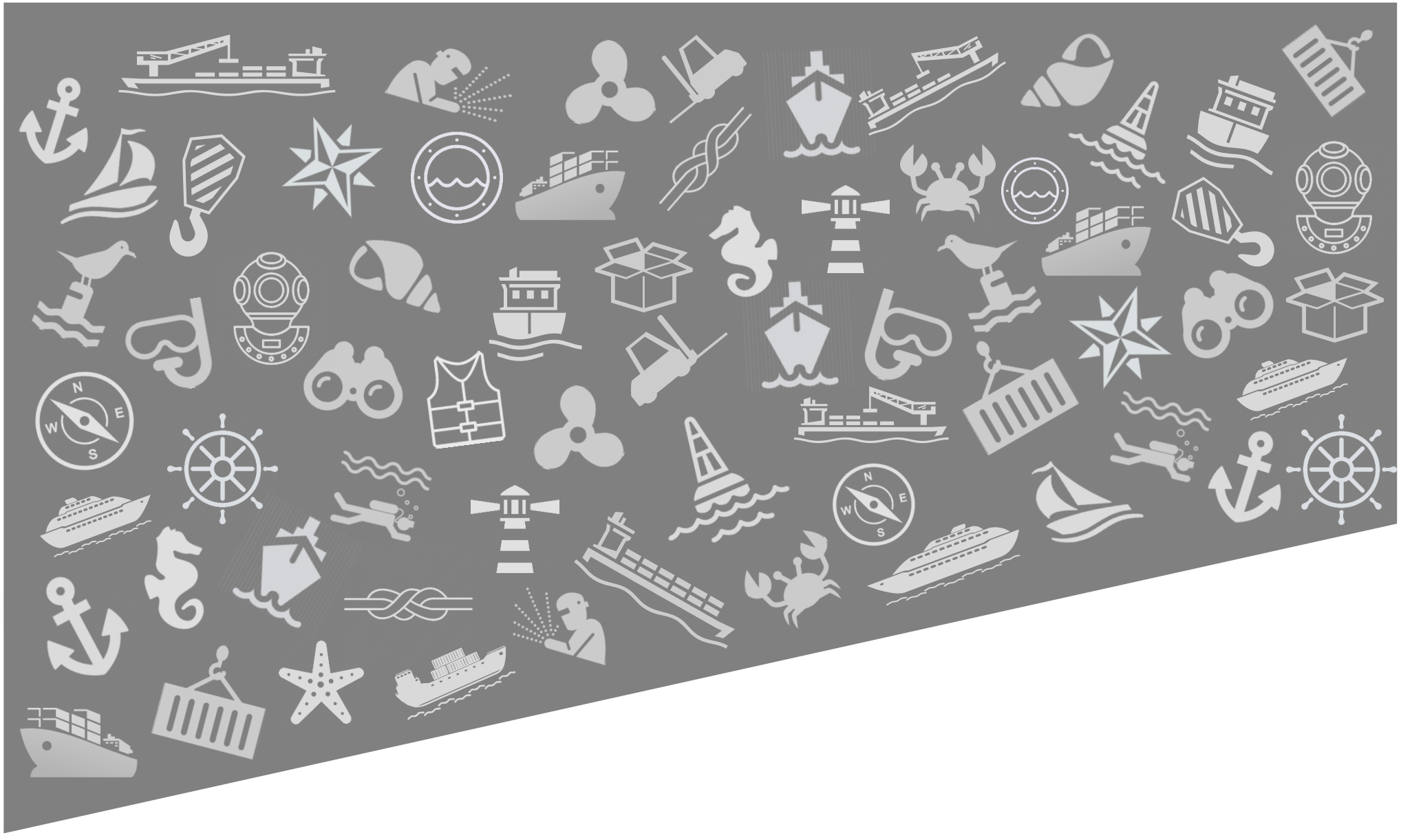
The criteria used to select the Maritime sub- sector included a sub-sector:

Where employer participation in skills development needed strengthening;
Where there were significant skills development challenges and gaps;
Where SAIMI and SAMSA could achieve quick wins in developing skills;
Where education and training delivery capacity and capabilities for the sub-sector needed strengthening; and
Where accessing and mobilising employers around skills development had historically proved difficult.

This process identified the Marine Manufacturing sub- sector, with particular focus on vessel repair and building, based on the need to address certain key skills gaps, particularly the development of a strong technical skills base and pipeline, which is needed to raise the competitiveness and growth of the sector, and realise the significant potential employment and forex earnings spin-offs.

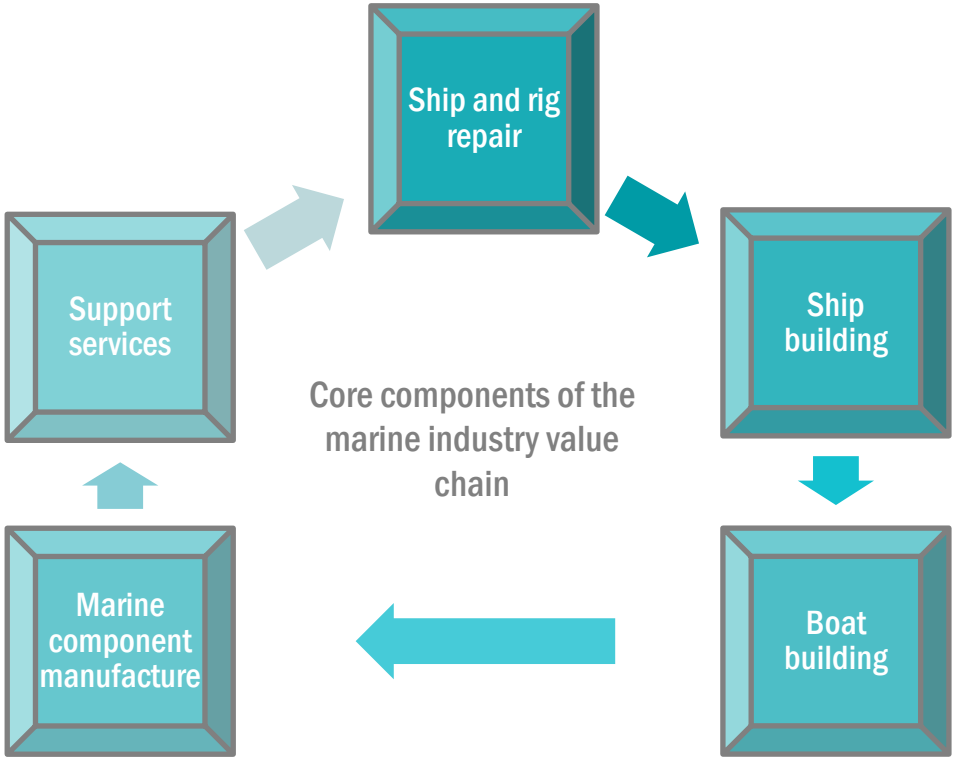


Overview of the Marine Manufacturing sector

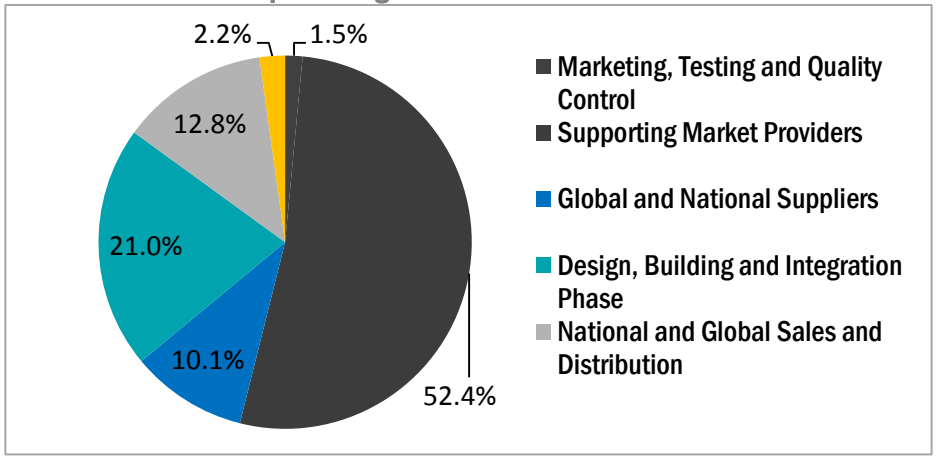


Core components of the sector

Marine Manufacturing (MMF) is defined as the manufacture and repair of marine components, equipment and vessels. Operation Phakisa states that SA should use its location and expertise to increase its share of the global MMF market in shipbuilding and repair, rig repair and refurbishment and boat building.



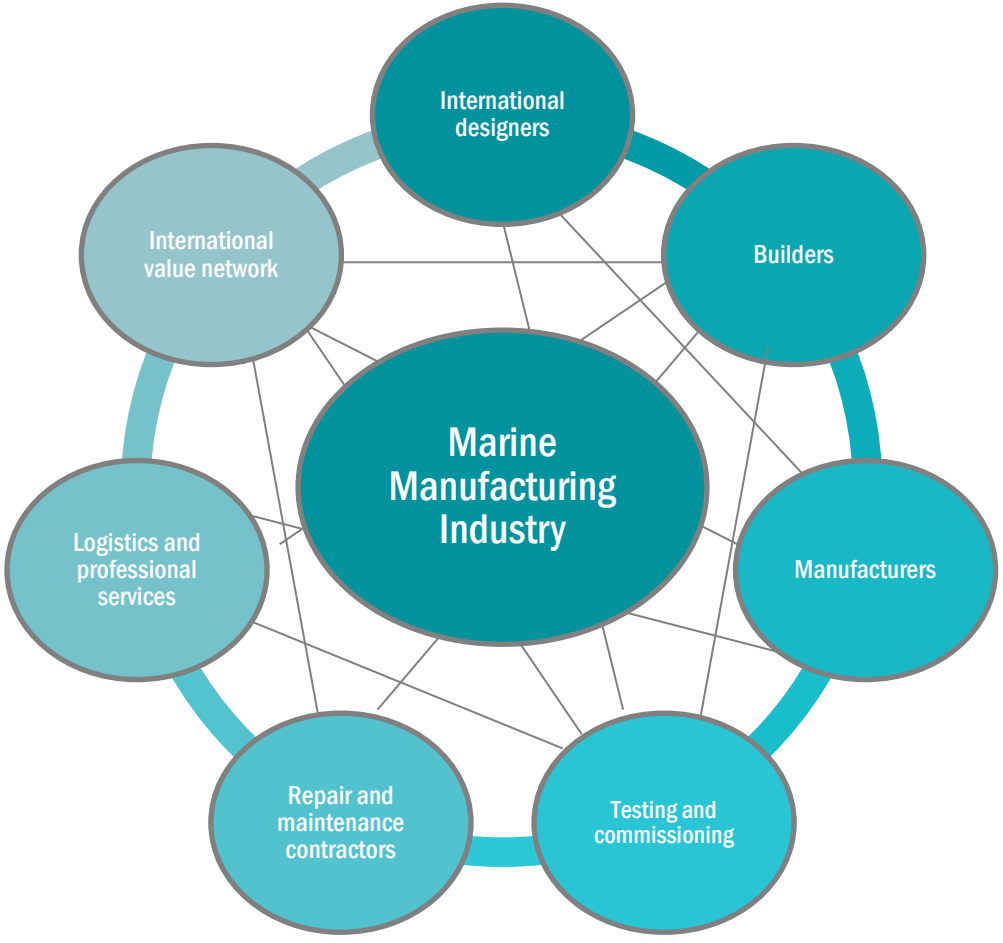
Core components of the marine industry value chain expressed as a percentage of overall value chain



- The NACE related to Marine Manufacturing:
- Manufacture of other rubber products
- Manufacture of other fabricated metal products n.e.c.
- Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
- Manufacture of lifting and handling equipment
- Building of ships and floating structures
- Building of pleasure and sporting boats

The MMF industry value chain

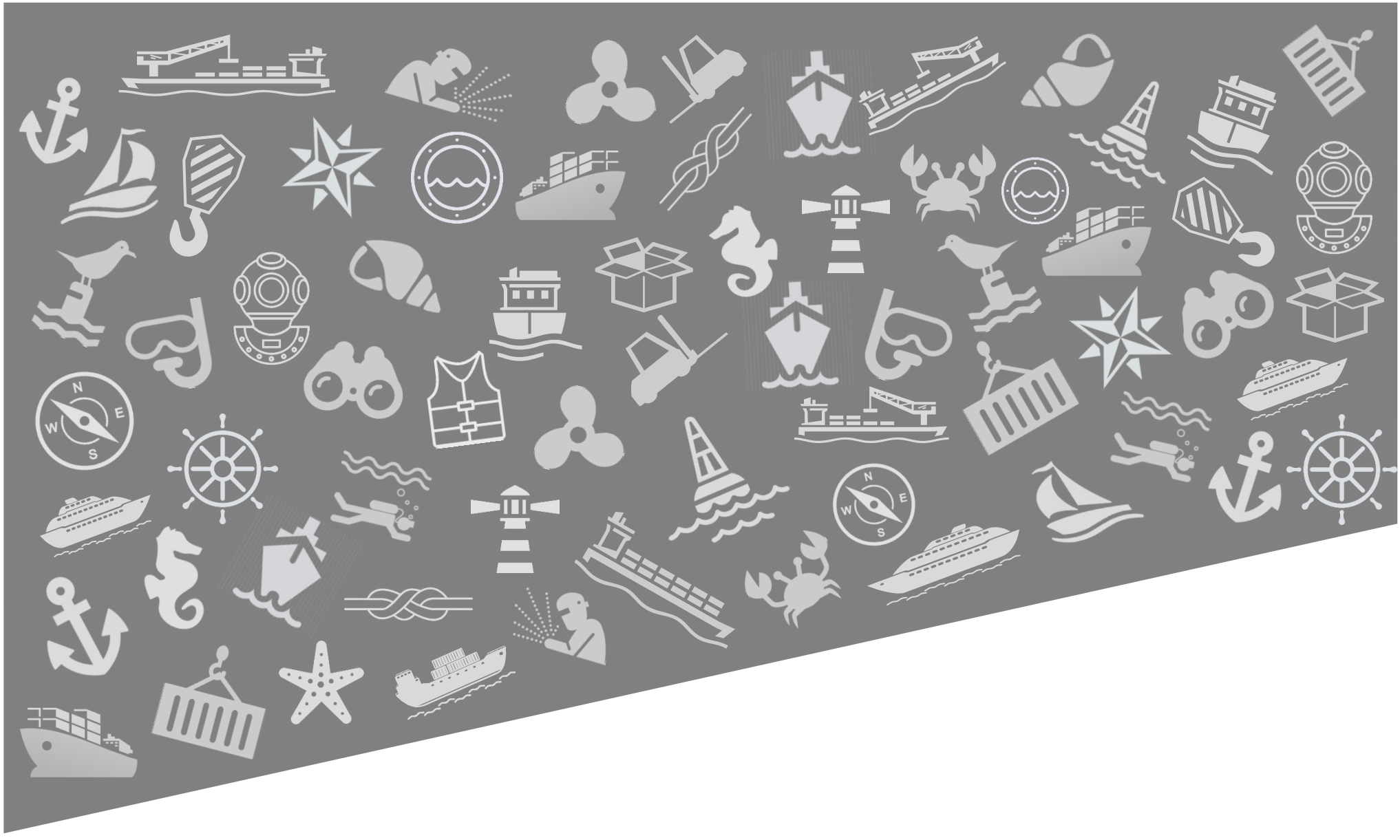
The MMF industry is a complex web rather than one directional value chain with numerous interdependencies:



- Focused as it is on the marine vessels, the main drivers of the MMF industry value chain are the **design, building and integration phase** of the process.
- Core services relate to boating and to a smaller degree, shipping.
- Key service providers to the industry include engineering and manufacture of components or finished products, as well as activities related to the routine inspection and maintenance of all marine vessels.

Service provider	Services performed
Transnet National Ports Authority	Marine Engineering
Ship Chandlers	Supply of Marine Engineering Components and Parts
Bunker Suppliers	Marine Engines and Equipment Servicing
Marine Surveyors	Boat and Engine Repair, Forecasts and Costings
Marine Services	Marine Servicing Materials
Specialist Services	Air Conditioning, Refrigeration, Acoustics and Insulation, Anti-Corrosion Treatment (Rustproofing) and Cleaning
Underwater Services	Fire fighting equipment and Supplies, welding and other specialised repair work

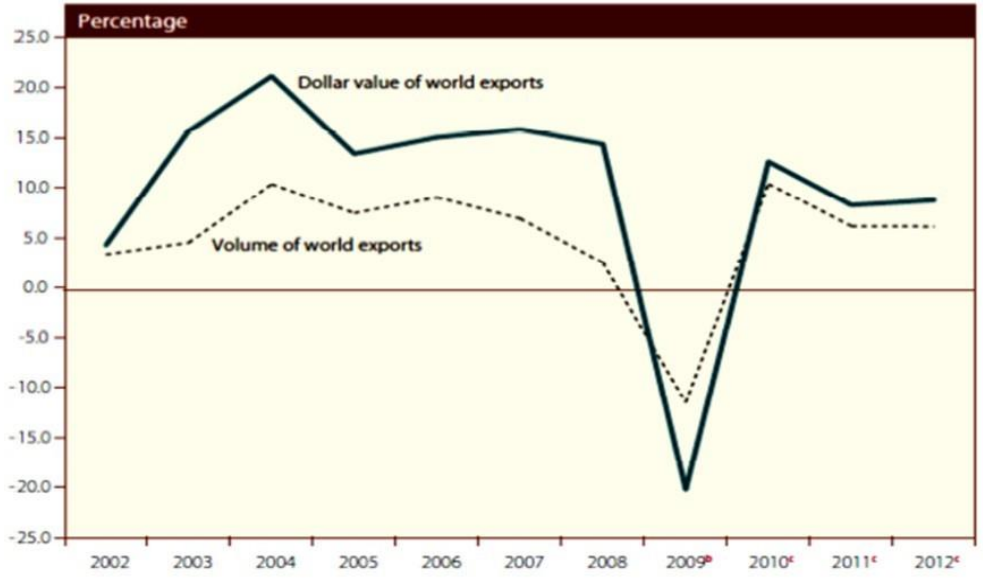
Industry trends



Global economic and MMF industry trends

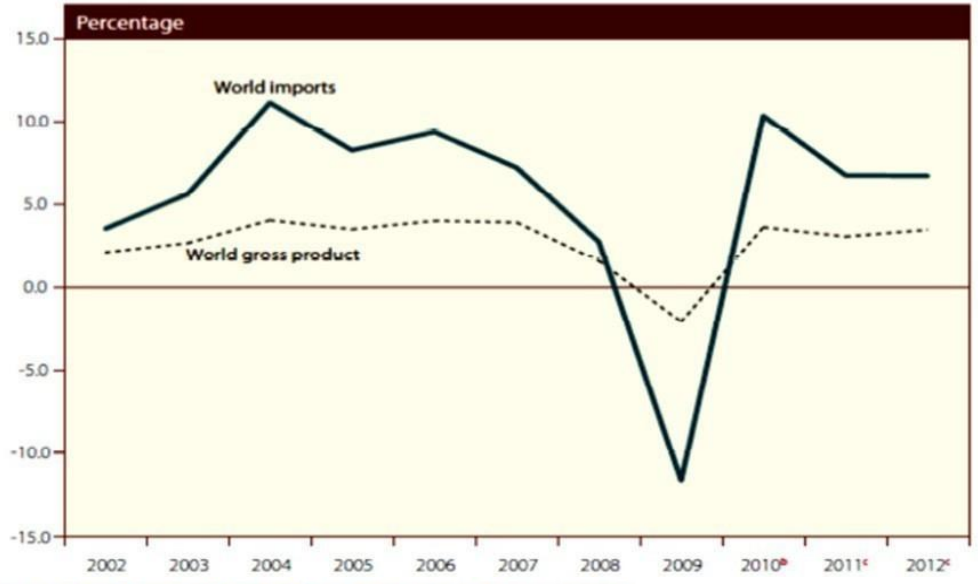
- *Global economic growth remains stubbornly low.* From 2011 to 2014 global growth averaged 2.5%, recovered somewhat in 2015, to 3%, but the 2016 outlook has been revised downwards to 2.4%, on the back of continued sluggish growth in advanced economies, stubbornly low commodity prices, weak global trade, diminishing capital flows, and continued sluggish growth in China.
- *World merchandise trade tracks global growth, remaining sluggish.* Growth in world trade volumes increased 5% in 2011, dropping to 2% in 2012 and 2013, and increasing marginally to 2.8% in 2014 and 2015, with a similar outlook for 2016. Global seaborne shipments increased by 3.4% in 2013 and 2014, while additions to volumes exceeded 300 million tons taking the total to 9.84 billion tons.

Global Trade Trends (2002 - 2012)



Source: United Nations 2011, World Economic Situation and Prospects 2011.

Global Trade Trends (2002 - 2012)

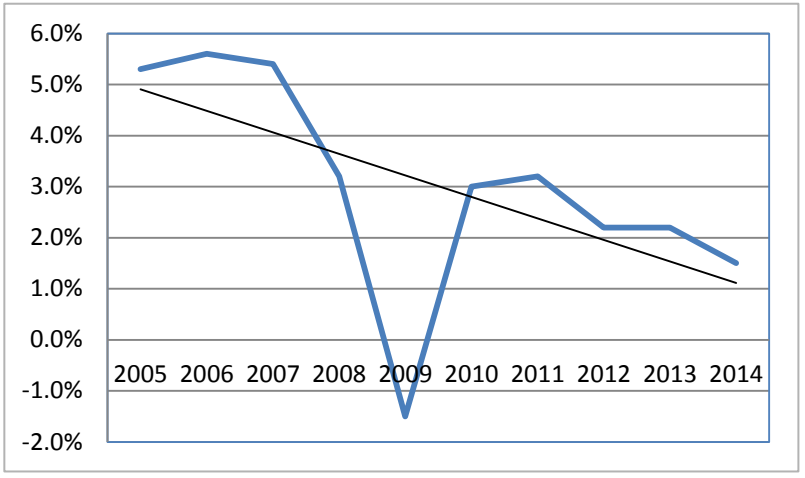


Source: United Nations 2011, World Economic Situation and Prospects 2011.

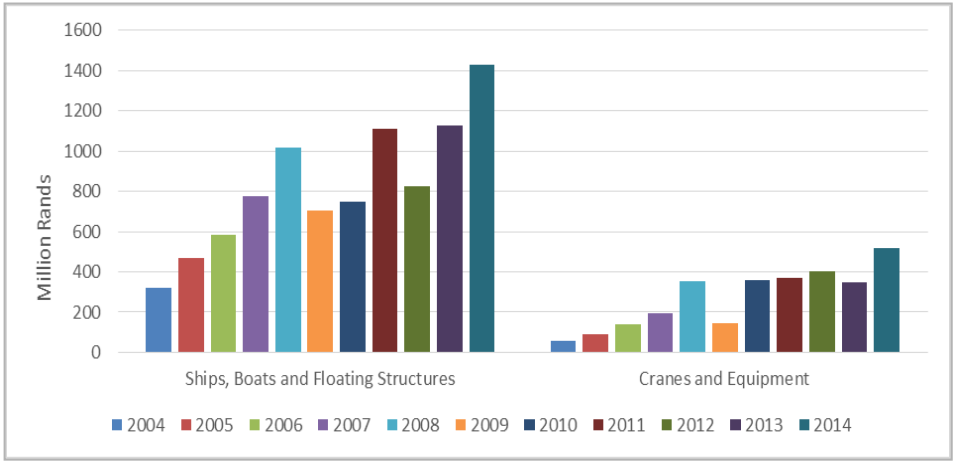
Global economic and MMF industry trends cont'd

- **SA Gross Domestic Profit (GDP) growth, a precipitous decline over the past decade.** From record highs of over 5% in the mid 2000's to the sharp, global recession induced decline, followed by a brief recovery in 2010/ 11, and then continued decline from 2012. First quarter 2016 GDP growth was -1.2%, with forecast growth for the year below 1%.
- **A surprisingly strong MMF export performance.** Exports of ships, boats & floating structures grew at an average annual rate of 16.2% between 2004 and 2014. The recent growth may be explained by continued offshore demand for leisure boats by high-end consumers and a competitive Rand exchange rate.
- **Unsurprisingly, MMF imports decreased at an average annual rate of 10.5% between 2004 and 2014.** Imports of cranes and equipment, on the other hand, was relatively stable, averaging 14.1% per annum.

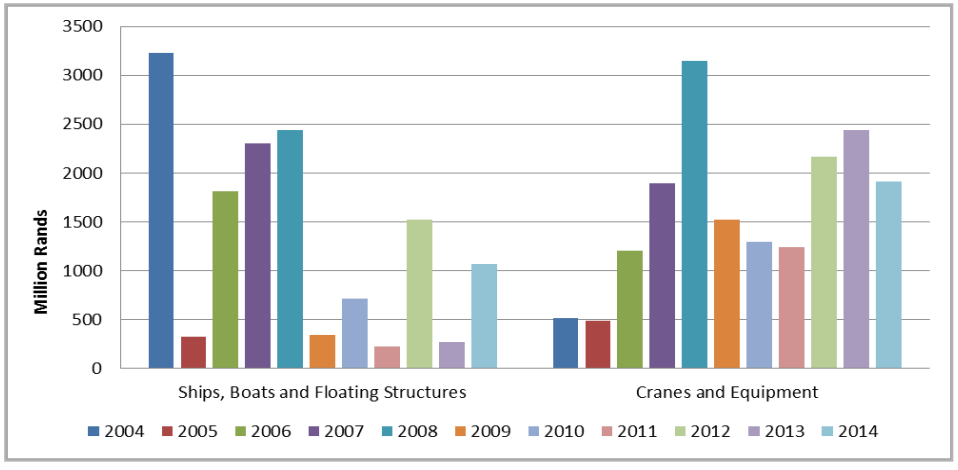
South Africa GDP (2004- 2014) at Constant 2011 Prices)



MMF Export Trends (2004-2014)



MMF Import Trends (2004-2014)



Overview of the MMF industry

- The total vessel construction and supporting industries was estimated to employ 27,750 people and generated turnover of some R9.1 billion, in 2012.
- Vessel traffic on the African coastline is largely comprised of commercial traffic (cargo ships) who don't stop at the ports unless the vessels are in need of repairs.
- Other marine traffic includes super yachts however the volumes are insignificant.
- The industry is dominated by small businesses and contractors.

Opportunities

- A DTI study (2014) identified factors hindering expansion of the vessel repair and building industries, and led to prioritisation by DTI of the following:
  - Designation of working vessels for local procurement;
  - Establishment of a centrally funded and centralised demand-led skills programme, and
  - In 2014/15 explored the feasibility of establishing ship/ boat building and repair cluster.

MM employment and turnover (2011-2012)

MM employment and turnover (2011/12)	Employment	Turnover (R billion)
Vessel repair and refurbishment	4 000	4
Boat building	4 500	1.2
Ship building	4 250	1.8
Components manufacturers	15 000	2.1
Total	**27 750**	**9.1**

Overview of the MMF industry

Constraints

- Low domestic and global economic growth and trade, accompanied by record low oil and gas (O&G) prices, will continue to reduce demand for vessel repair and ship and boat building.
- The absence of a coherent government incentive strategy for the vessel construction and repair sector, and red tape in accessing government support.
- Warranties, liabilities and vessel repair standards largely stipulate that repairs to vessels may only be conducted by accredited repairers, using specific components, most of which are sourced internationally. This impacts negatively on the broader MMF industry.
- Attraction of talent into the industry, an inadequately educated and trained workforce and a lack of career progression opportunities.

Demand

- The SA ship repair industry has a "captured" public sector ship repair market for DoD (SAN), DAFF, Transnet (TNPA), DEA, SAPS, DAC. Other than that it depends on the market for dry work on commercial ships calling at port, rather than scheduled maintenance, since SA employers struggle to compete with lower cost industries in China, South Korea, Indonesia, Singapore, the Middle East, Baltics, Russia, Turkey and Balkans, though the industries' pricing is generally below that of many developed economy competitors.

- Repair work focuses on hull cleaning, marine engine repair, large vessel dry dock electronic system repairs and offshore oil and gas vessel/rig repair, including sophisticated wet work on offshore vessel/rigs.

Overview of vessel repair industry

Opportunities

- SA has only captured about 1% of the global repair and refurbishment market, worth upwards of US$18 billion, the dominant players being Singapore, China, South Korea, Germany, Japan and the Netherlands.
- Potential for the industry to grow is dependent on an increasing number of ships calling at ports. There are a number of core strengths that need to be exploited for the industry to grow: a relatively “high traffic” location, lower costs than in developed markets, and a relatively sophisticated level of service.
- Continued albeit slower growth of the O&G industry, along the east and west coasts.
- The vessel repair industry is labour intensive, once the infrastructure is in place, with the potential to create substantial employment, and generates demand for a wide array of components and services resulting in strong linkages with the manufacturing and services sectors. The industry is also an important earner of foreign exchange.

Overview of vessel repair industry cont'd

Constraints and threats

- In SA, unlike many municipal or regional government owned ports around the world, Transnet's commercial focus is perceived to have constrained the industry due to relatively high port entry costs (port charges and dues and docking fees), fees for dry-dock use, and a lack of maintenance of the ship and rig repair infrastructure in ports. As discussed above, under the section on demand, the industry's pricing relative to other developing port nations, also contributes to its lack of international competitiveness.
- Inadequate port infrastructure leads to increased docking times, lack of cranage, poor access to vessels. Vessel repairs facilities are becoming too small for increasingly larger vessels. Space for ship repair activities may be lost due to expansion of cargo operations. Increasingly strict enforcement of vessel standards by charterers and regulators, and through Port State Control.
- Intensified competition from low cost ship repairers in the Far East.
- Overcapacity of ship repair facilities and highly competitive pricing.
- Mergers and acquisitions by established ship repairer's intent on capturing niche markets.

- The industry size is very small- approximately 400-500 employees with high barriers to entry influenced by order variability, long lead times to land deals and associated production time.
- Keeping the workforce fully productive at all times is a challenge which could be addressed through collaborative partnerships, however appetite for collaboration at an industry level is limited.
- Shipyards are struggling to find the required skills.
- Repair costs are sustained by the oil price and this drives the repair business.
- The phasing out of single-hull tankers by 2015.

Global value of the vessel repair market (2010)

Global value of the vessel repair market (2010)	US$ Billions
Ships	11 - 14
Oil, gas vessels/ rigs	1.5 - 3.0
Boats	0.8 - 1.2
Total	**13.3 - 18.2**

Overview of ship building industry

Demand

- The industry is mainly driven by demand for transportation of raw materials and commodities.
- SA's ship building industry has shrunk since subsidies were withdrawn in the early 1990's, the remaining active shipyards rely on domestic contracts from government, the local fishing industry, Transnet and non-commercial vessels.

Constraints

- In all previous studies undertaken in support of local shipbuilding, subsidies were invariably found to be indispensable, but better applied in other industries.
- Government is looking at strengthening its local content requirements and developing an integrated public procurement strategy to support the industry, however there is some reluctance on the part of ship builders sector to take up public sector contracts due to the perceived risks of the public sector procurement and payments processes.
- Lack of finance to bridge long construction lead times and significant component and infrastructure costs.

Opportunities

- Replacement of SA's ageing fishing fleet.
- If the above concerns are addressed, and given the available infrastructure, technical capabilities to build small ships as well as savings in foreign exchange that could be achieved when building for the local market, and the jobs that would be created, there may be a case for re-looking at government subsidies to grow the sector.

Overview of boat building industry

Demand

- The boat building industry is largely driven by the leisure and recreational market (yachts, utility and power boats), with less than 20% of production aimed at the commercial market.
- The largest production segment is in cruise multihull production for the competitive export market where SA companies are seen as global leaders and about 40% of the boatbuilding workforce is employed. However, SA producers were estimated to contribute only 0.24% of the global export market in 2011. Other segments include working boats, rowing boats, canoes, pleasure and sports craft; and niche segments in the commercial and public sector markets: fire-fighting and crew transport boats for the oil and gas sector, and power catamarans.

Employers

- The industry is concentrated in the Western Cape where there are approximately 68 companies, estimated to be around 70% of firms in the industry, followed by KZN (18%) and the Eastern Cape and other provinces (12%).
- The boat building industry in Kwazulu-Natal largely focusses on the production of powerboats and industry in the Western Cape centres around large catamarans.

Opportunities

- SA enjoys a reputation for high quality craftsmanship and customisation, as well as relatively low labour costs and therefore completive labour-intensive processes, e.g. in hull construction.

Overview of boat building industry cont'd

Constraints and threats

- Lack of support for industry research and development to maintain competiveness in a high tech, rapidly changing export market.
- Durban port activity tends to crowd out marine leisure and therefore boat building activities.

Outlook

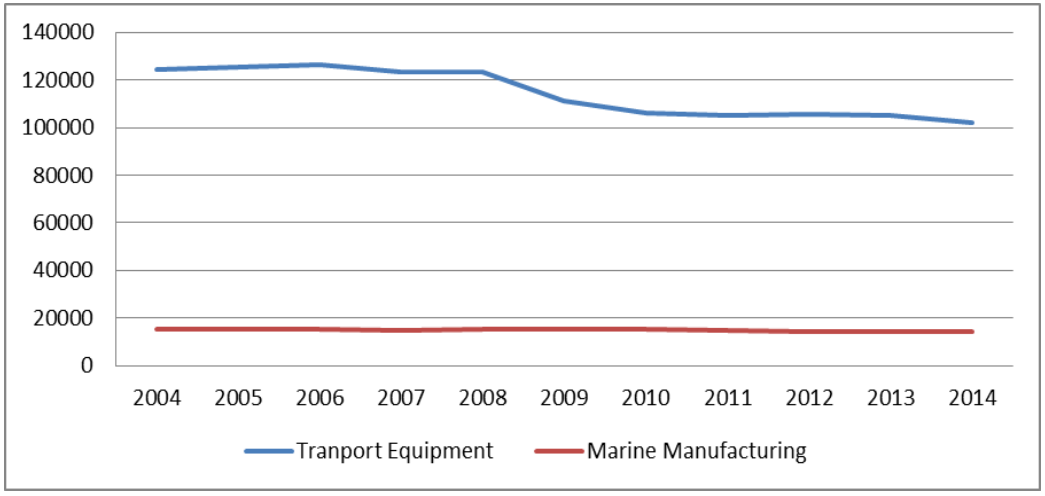
- The industry, dependent as it is on leisure purchases, was hard hit by the global recession. While the industry has remained weak and many boat builders continue to operate below capacity, the outlook was that the industry would recover towards 2020 on the back of the drop in the oil price, increasing demand for working boats across Africa and waterborne rescue craft for flood relief. This however must be weighed against downward revisions of global and SA growth.

- High-end boat builders in the leisure market are expected to fare better over the next five years, because these customers are less susceptible to aggregate economic activity.

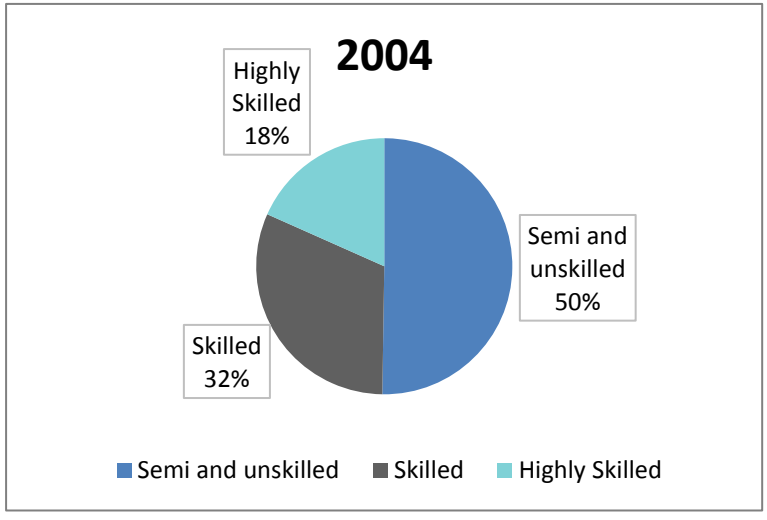
SA MMF industry employment trends

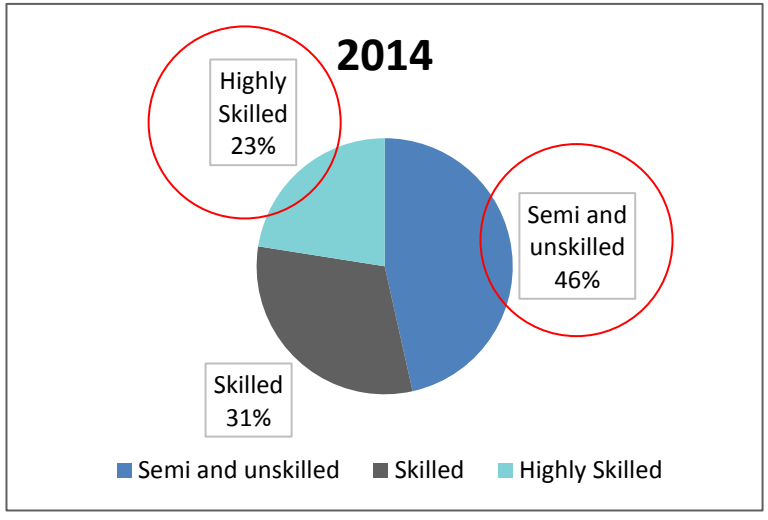
- Manufacturing employment fell at an average annual rate of 1.7% per annum over the period 2009 to 2014, resulting in its share of total employment falling from 14% in 2008 to 12% in 2012.
- MMF employment (mainly marine equipment) fell by 6% between 2004 and 2014, losing about 900 jobs, while the wider transport equipment sector experienced a fall in employment of 19%, some 23,500 jobs, over the period.
- Examining the change in the occupational distribution of the MMF workforce from 2004 to 2014, the overall decline of 1.7%, was primarily experienced at the semi- and unskilled worker levels, while there was a net increase in the high skilled workforce.

Employment in MMF relative to that of Transport Equipment (2004-2014)



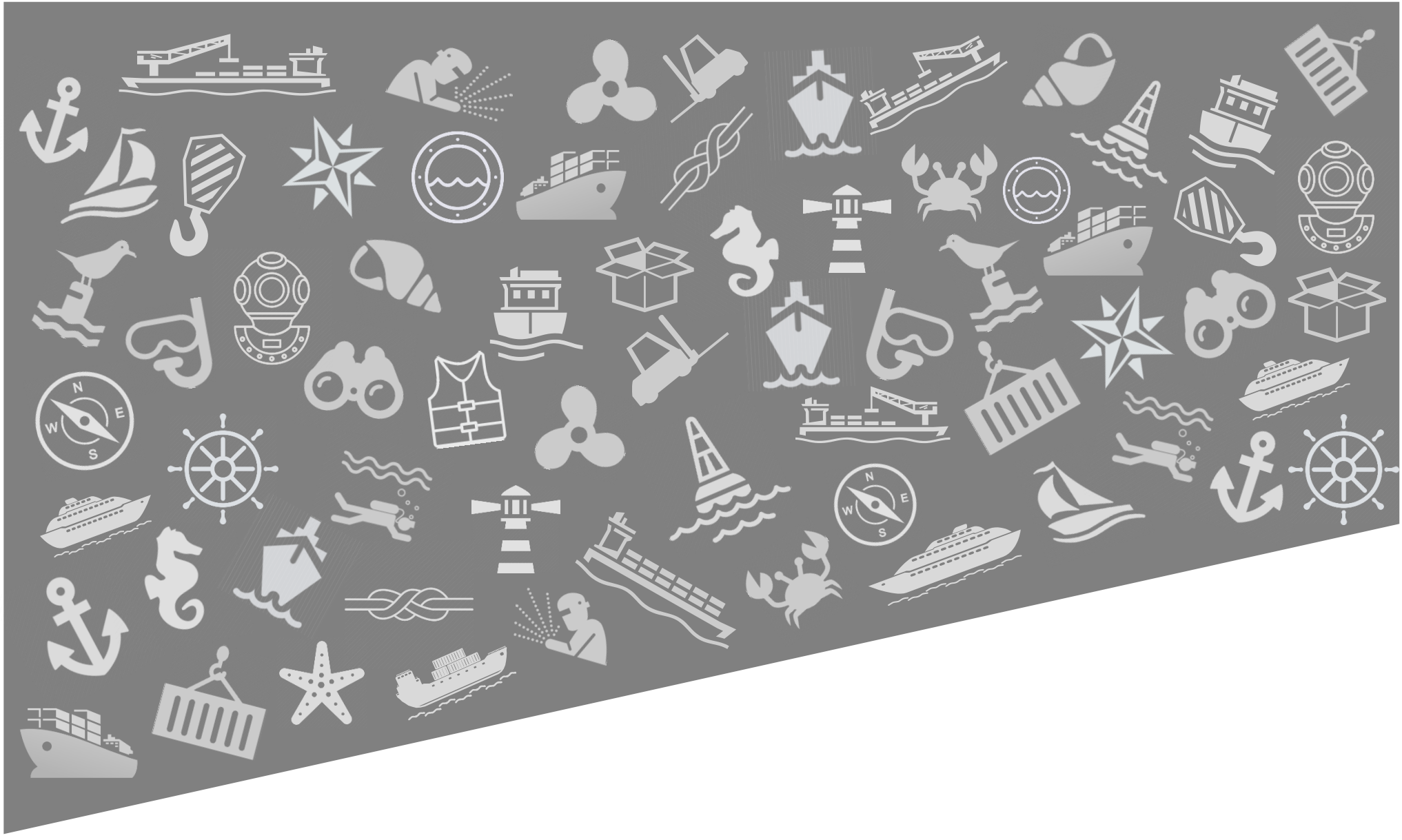
Other transport sector employment distribution 2004- 2014





Other Transport Sector Employment Distribution 2004

MMF skills profile



MMF skills profile

MMF sector core activities and associated skills

MMF segments	Core activities	Key skills
Boatbuilding	► Design and engineering ► Architecture and Graphic Design (Prototyping) ► R&D tooling and mould making and steel casting ► Metal working and construction ► Boat fitting ► Finishing and painting ► Commissioning ► Laminating ► Working with composites	► Naval and yacht designers and architects (design technicians and engineers) ► Marine engineers: (electrical/ mechanical/ electronic/ chemical) ► Composite moulders ► Artisans (see below) ► Project managers
Equipment installers and sub-contractors	► Electrical and electronic installation ► Carpentry and joinery ► Plumbing ► Air-conditioning ► Refrigeration ► Upholstering	► Electrical and electronic technicians and artisans ► Marine plumbers ► “Wet” trade artisans
Materials producers and suppliers	► Aluminium ► Steel ► Resin ► Glass ► Carbon/ fibre ► Composites ► Polymers ► Wood ► Textiles	

MMF segments	Core activities	Key skills
Equipment, component manufacturers/ suppliers	► Industrial and marine molding ► Component waterproofing - rust and corrosion coatings ► Metal fittings ► Doors ► Hatches ► Electrical and electronic equipment ► Engines and motors ► Mast and sail makers	► Advanced composites and pattern making ► Product, component, production/ industrial engineers ► Cluster and navigational instrument designers ► Production supervisors ► Artisans
Marketing and distribution services	► Brokering ► Marketing ► Surveying ► Launching and mooring ► Transport and customs clearing and delivery ► Insurance ► Inspection and certification ► Boat retailing and distribution	► Ship surveyors ► Boat brokers and marketing agents ► Compliance testing and commissioning
Repair and maintenance	► Repair and maintenance ► Refit and refurbishment	“Wet” trade artisans

MMF sector core activities and associated skills

MMF segments	Core activities	Key skills
Ship and rig repair	► Steel and fiberglass fabrication ► Piping work ► Mechanical repairs ► Machining ► Blasting and coating ► Electrical repairs ► Hydraulics ► Ship inspections ► Underwater repair services ► Project management ► Fabrication ► Electrical work ► Machining and mechanical work ► Marine blasting and painting and pipe work ► Additional specialised disciplines	► Naval architects ► Engineers: Marine electric/electronic ► Ship surveyors ► Composite technicians ► Non-Destructive Testing (NDT) Technicians with maritime ► Artisans ► Project managers

MMF segments	Core activities	Key skills
Marine and commercial services- Business management and administra-tion	► Research and development ► Product development ► Channelling ► Finance ► Insurance ► HR ► Sales and marketing ► Distribution ► Operations ► Marine legal ► Marine environmental ► Risk management	► Managers ► Professional staff ► Administrative staff ► Occupational trainers ► Marine safety officers
Marine and commercial services- Logistics management	► Assembly/kitting ► Supply chain solutions	► Managers ► Professional staff ► Administrative staff
Marine and commercial services- Vessel delivery co-ordination	► Sailing ► Pilotage ► Vessel tracking services ► Navigation ► Dock master	► Sailing and navigation ► Marine pilots ► Electronic skills ► Riggers

MMF skills profile

MMF sector core activities and associated skills- Artisans

MMF segments	Specialised	Standard
Ship and boat building	► Shipwright ► Ship building apprenticeship ► Boat building apprenticeships ► Marine Draughtsman ► Marine Painters ► Hydraulic/ Pneumatic Specialist ► Marine Plumber ► Mechatronics ► Marine Joinery ► Composite artisans/ technicians (fiberglass/ laminators/ plastics, polymers, etc) ► Millwrights	► Boilermakers ► Sheet Metal Workers ► Mechanical Fitters ► Diesel Fitters ► Turners/ Machinist ► Toolmakers ► Carpenter ► CNC Machinists ► Moulders (Foundry) ► Radio Radar Mechanic ► Electroplaters ► Pipe Fitters

MMF segments	Specialised	Standard
Ship, boat and rig repair/ maintenance	► Commercial diver with underwater specialization (incorporates coded underwater marine welder and underwater sealing and waterproofing) ► Corrosion Protection ► Marine Plumber ► Marine Painters ► Hydraulic/ Pneumatic Specialist ► Refrigeration Mechanic ► Carpenter ► Radio Radar Mechanic ► Non- Destructive Technicians (NDTs) with specific maritime experience	► Boilermakers ► Sheet Metal Workers ► Mechanical Fitters ► Diesel Fitters ► Turners/ Machinist ► Toolmakers ► Carpenter ► CNC Machinists ► Moulders (Foundry) ► Radio Radar Mechanic ► Electroplaters ► Pipe Fitters

Focus should be recruiting artisans with standard trades required in the MM sector, and then developing the marine specialisation. This requires more creative strategies for attracting 1) qualified artisans into the marine sector, and tagging and supporting apprentices with aspirations to work in the MM sector and supporting their enrolment in a trade, recruiting on completion of their apprenticeship, employing them and building the marine specialisation. For example encouraging divers to enrol in apprenticeship training.

However, there is a need to recruit apprentices into a small number of specialised.

There is more complex problem-solving and diagnostic work in the repair (versus the build) industry, requiring greater specialisation.

Sector skills framework

1. Recruit artisans with standard trade and “train’ specialisation

2. Recruit experienced artisans from industries with related specialisations - auto/aero/wind/furniture/pool - and customise to MM and employer specifications

3. Recruit learners into specialised boat/ ship building and vessel repair apprenticeships

4. Codify leading skills development practices across build/ repair value chain to structure quality on the job (OJT) for employees, new experienced hires and apprentice OJT. Use supplier development to support this training and drive innovation across the industry.

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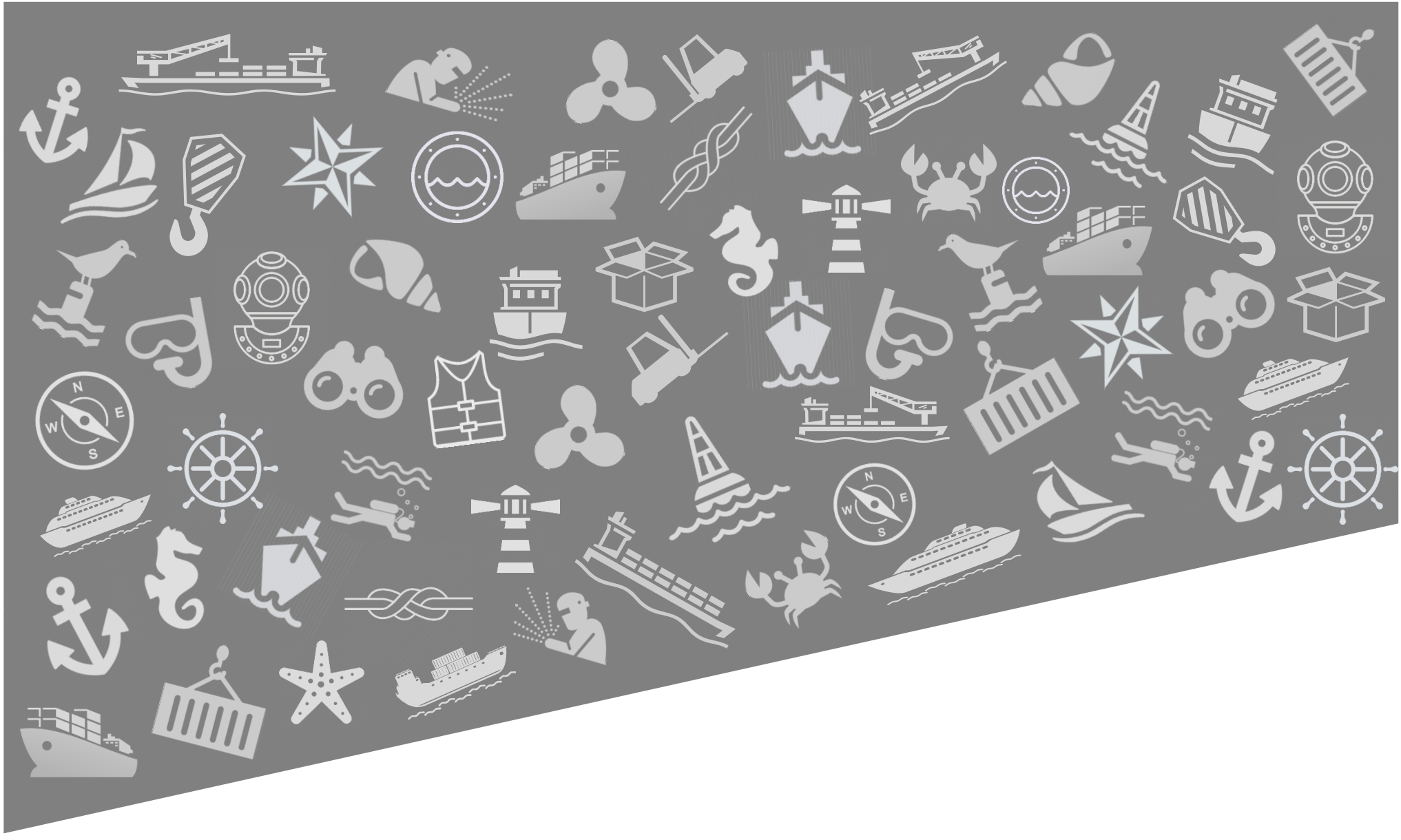
Skills constraints facing the sector



Summary

- The ship and boat building, rig and ship repair sectors face a shortage of artisans and technicians, with specialist marine skills
- A large number of employers in the sector report doing no training - recent research found that 74% of employers in the boat building industry did no training - while also reporting significant business impacts due to poorly qualified workers/ skills shortages: rework and poor quality products; qualified staff, managers have to spend time on rework; slow down in the production process and projects not completed on time; forced to turn away work; and increased production costs. Employers generally look to hire employees that already have the skills and can be immediately be productive and efficient.
- On the other hand, boat building exporters that have to comply with international standards, tend to understand the benefits and have embedded structured training into their production processes – particularly those using structured production processes (lean, six sigma, etc) that integrate process efficiency, training, learning and innovation.
- Employers require skills and knowledge of specific types of manufacturing, materials and products, and of the different stages of the production process from design, to plan, to manufacture, to fitting, to commissioning. They require training that develops the specialist skills required across the production process, with a strong preference for developing these skills in-house.
- Their main challenge is the shortage of qualified artisans and technicians with the necessary specialist marine skills allowing quick customisation of skills to the unique technology, processes and practices embedded in particular work environments through on-the-job training. Many employers in the sector see the lack of these skills as materially affecting their productivity and expansion.
- The focus on artisan training for the sector should be off base trades, branching into areas of specialist marine skills.

Summary

- Training in base apprentice qualifications and marine specialisations, is long, onerous and expensive. Currently it takes an average of 8 years to be recognised as a boat builder.
- Concerns were expressed regarding a lack of dedicated MM qualifications, though a boat building apprenticeship and a ship building apprenticeship have been developed and will be available in 2017.
- Employers need more guidance on structuring career paths and growth for their employers, and are hampered by the lack of RPL mechanisms for semi-skilled staff to have skills acquired in the workplace assessed and certified, which would contribute to increased retention of skills within the industry.
- Transferability of specialist marine technical skills across key sectors – automotive, furniture, swimming pool and film production - raises opportunities for strategic sourcing, but similarly challenges with retention and wage demands and associated costs.
- Those employers looking to train apprentices have struggled to source TVET College graduates with the right educational foundations, trade theory and institutional/ workshop application.

The MMF sector faces a range of skills constraints cont'd

- Both the boat building and vessel repair sub-sectors are dominated by small businesses and contractors, which raises a host of barriers to training and skills development.
- **There are a range of constraints to training that are specific to contractors and small firms:**
  - As markets, technology and competition have changed, the training needs of many small employers have increased beyond that which they can develop internally, but they lack the capability to effectively structure in-house training.
  - Small employers often lack the "know-how" and capacity to determine their skills needs, identify external training providers to deliver on these needs, and structure quality in-house training, assessments and integration of skills acquired back into work processes.
  - Traditional training providers have struggled to meet the training needs of small employers due to both demand and supply-side failures: a lack of specialist marine trainers and lecturers, and retention of good trainers given international demand for these skills and better pay; and a lack of specialist providers, courses and materials.; a lack of incentive for training providers to understand small business' skills needs, update and keep their training delivery current, and a lack of opportunities for lecturers/ trainers to get exposure to small business work environments so they are able to design and deliver relevant programme content.
  - The cost of training is often prohibitive for these employers.

The MMF sector faces a range of skills constraints cont'd

- **There are a range of constraints to training that are specific to contractors and small firms (cont'd):**
  - Smaller and more specialised firms are unable to offer the variety of work experiences required to cover full spectrum of trades skills; critically, because of uneven production cycles based books of work, small employers struggle to provide training through their production down cycles.
  - Most employers in the MM sector fall outside of the skills development legislative requirements and therefore do not know how to access support. Those who have tried to access support have been frustrated by the red tape. Understanding how to access grants from SETAs is a real challenge for small businesses without dedicated training or HR resources.
  - There is no alternative funding for small employers who do not pay the levy has not been made available, and where small employers are able to access grants the process is overly complex and costly and the benefits generally too small to justify the effort.
  - Smaller employers experience cash flow problems where they have to pay for training upfront and only receive training grants on completion of training.

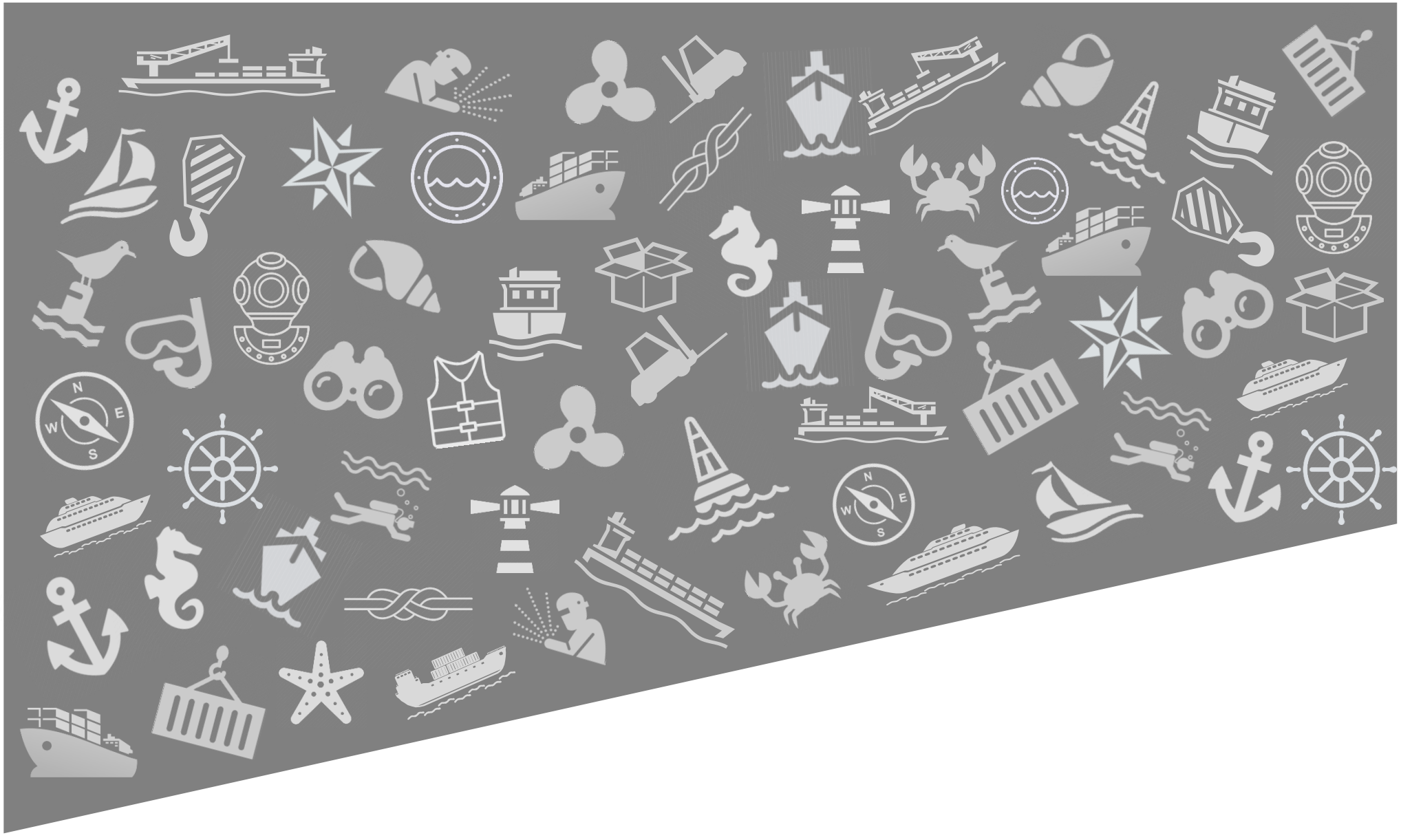
- Increased sub-contracting which means firms don't invest in training of these personnel.
- Poaching of employees before employers fully recover the costs of investment in their training.
- The industry look to hire employees that already have the skills and can be immediately be productive and efficient.
- Stakeholders do support small businesses to access training, but this will only be sustainable if there is a way to get the employer to be more involved in skills development.

The MMF sector faces a range of skills constraints cont'd

Other skills shortages and challenges

- A shortage of management skills, particularly middle managers with marine experience and project managers.
- Lack of dedicated naval architecture and design programmes, which limits skills development and investment by the industry and FDI in more advanced products and technology.
- A range of constraints to training that are specific to contractors and small firms – see below.
- The salary expectations of individuals applying for jobs are often too high.

Options to address the skills challenges and constraints



Initiatives to leverage to address skills challenges and constraints

- New boat building and ship building apprenticeship qualifications will be available in 2017.
- A new recognition of prior learning (RPL) assessment process is currently being implemented.
- A simpler "learning place regulation" - specifically allows for intermediaries to manage training on behalf of small host employers.
- The WC DEDAT is collaborating with all SETA's responsible for artisan development in the Western Cape to increase the artisan pipeline in the Province.
- A cross section of SETA's are working on the upgrade of the Artisan Development Framework.
- There is a relatively strong provider network to support artisan (and specialist) MM training in the Western Cape:
  - TVET Colleges and UOT in Cape Town: deliver quality apprenticeship and technician training; and curriculum and course design
  - SAOGA (SA Oil and Gas Academy)
  - The "Shut Down Network Forum" was established as an Employment and Skills Development Lead Employer (ESDLE) with the following responsibilities
  - TNPA is establishing training centres across the country- in the actual ports themselves
  - New qualifications being developed
  - Dockmaster being published by Transnet
  - Ship/boat building- False Bay

Initiatives to leverage to address skills challenges and constraints cont'd

- Other initiatives:
  - Collaboration between University of Stellenbosch, overseas university, and the Nelson Mandela Bay Composite Centre (itself a partnership between CSIR, the Composite Training Academy & SAIMI).
  - SAOGA has strong links with Northlink and West Coast TVET colleges, and MIASA also has strong link with False Bay College and Whisper Boats, as well as links with provincial and national bodies such as those concerned with the promotion of their sub-sectors, as well as with SETAs.

Strategic focus area 1

Strategic focus area (SFA) 1:

Attract/ targeted strategic sourcing of experienced artisans from other sectors.

Key activities to deliver on SFA 1:

- Build a strong industry Employee Value Proposition (EVP);
- Define and publicise career ladders; and
- Develop competitive remuneration strategies.

Options to address the binding skills constraints

Strategic focus area 2

SFA 2:

Engage/incentivise large employers in related industries within operating areas to "*train for the market*" (e.g. in O&G and fishing industries and other industries that currently train apprentices).

Key activities to deliver on SFA2 to put MM on the map as a key destination for these surplus skills:

- Identify base qualifications required by MMF employers;
- Systematically engage large employers across city-regions to offer learning in priority skills;
- Work with network of public and private training providers to assure the quality of TVET/ HE graduates required by the sector;
- Assist employers with each step in the training supply chain:
  - Compliance with all regulatory requirements and access funding from multiple sources;
  - Recruitment, selection and contracting of learners;
  - Placement and monitoring of quality of institutional learning process and outcomes;
  - Placement, monitoring and support with work-based learning component;
  - Summative assessments and certification;
  - Placement of qualified learners with host employer or SMEs/ contractors in MMF sector; and
  - Ongoing counselling and support to learners to ensure retention and successful completion.
- Negotiate compelling incentives with cross section of funders;
- Assure the "fit", educational and theoretical foundations of selected TVET/ HE graduates; and
- Reduce the effort of legislative compliance and accessing incentives

Strategic focus area 3

Strategic focus area 3:

Develop the business case and practical support to incentivise, enable and overcome key constraints to small employers providing *structured workplace experience/ work integrated learning,* to learners: apprentices/ technicians/ engineers in training.

Key activities to deliver on SFA 3:

- As discussed in SFA 2;
- Engage employers to understand changing skills needs and communicate these to providers of training to the sector;
- Establish external coach/ mentor panel to ease burden on in-house skilled workers and managers acting as coaches;
- Negotiate compelling incentives with cross section of funders;
- Reduce the hassle of legislative compliance and accessing incentives, particular to SMEs/ contractors; and
- Engage providers to offer flexible learning that addresses the constraints small businesses face with “time off work” for training. E.g. mobile units, night classes.

Strategic focus area 4

SFA 4:

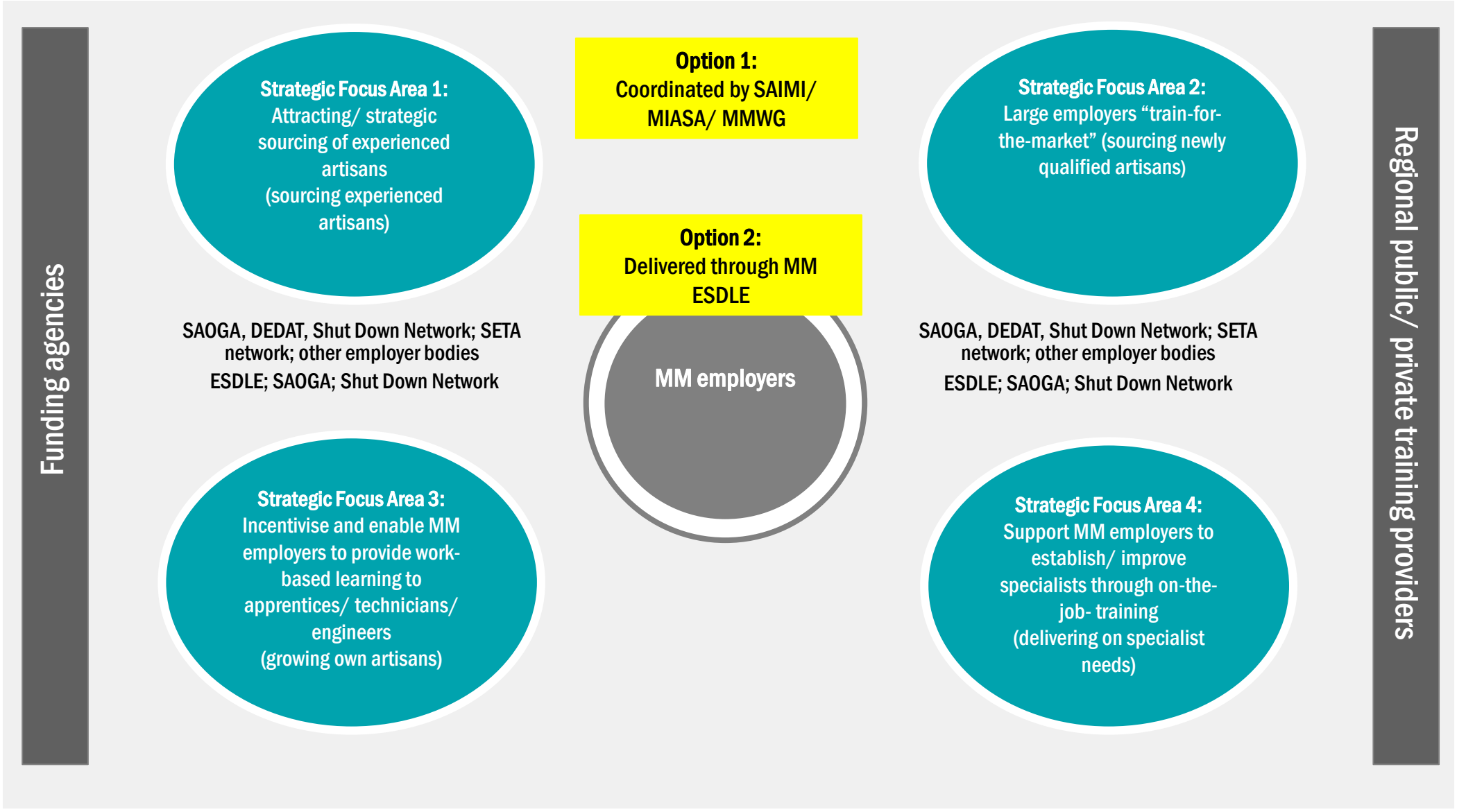
Support employers to structure and improve specialist on the job (OTJ) based on the established practice of others in the sector (specialist modules, assessment, structured learning, etc.).

Key activities to deliver on SFA 4:

- As discussed for SFA 2 and 3;
- Codify leading training practices and assist employers to implement;
- Design specialist modules based on leading practices and establish simulated workshop environments for specialist skills;
- Train lecturers to deliver specialist theory and workshop simulations;
- Organise best practice forums to share, learn and begin to identify opportunities for collaboration in training and practices;
- Facilitate access of employees to RPL to recognise skills gained through work – a new assessment process is replacing the “section 28” system; and
- Facilitate career development and retention: e.g. junior artisan, artisan, lead artisan, specialist technical skills, project management, design and engineering.

Options to address skills challenges and constraints

Overview of the options to address binding skills constraints



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