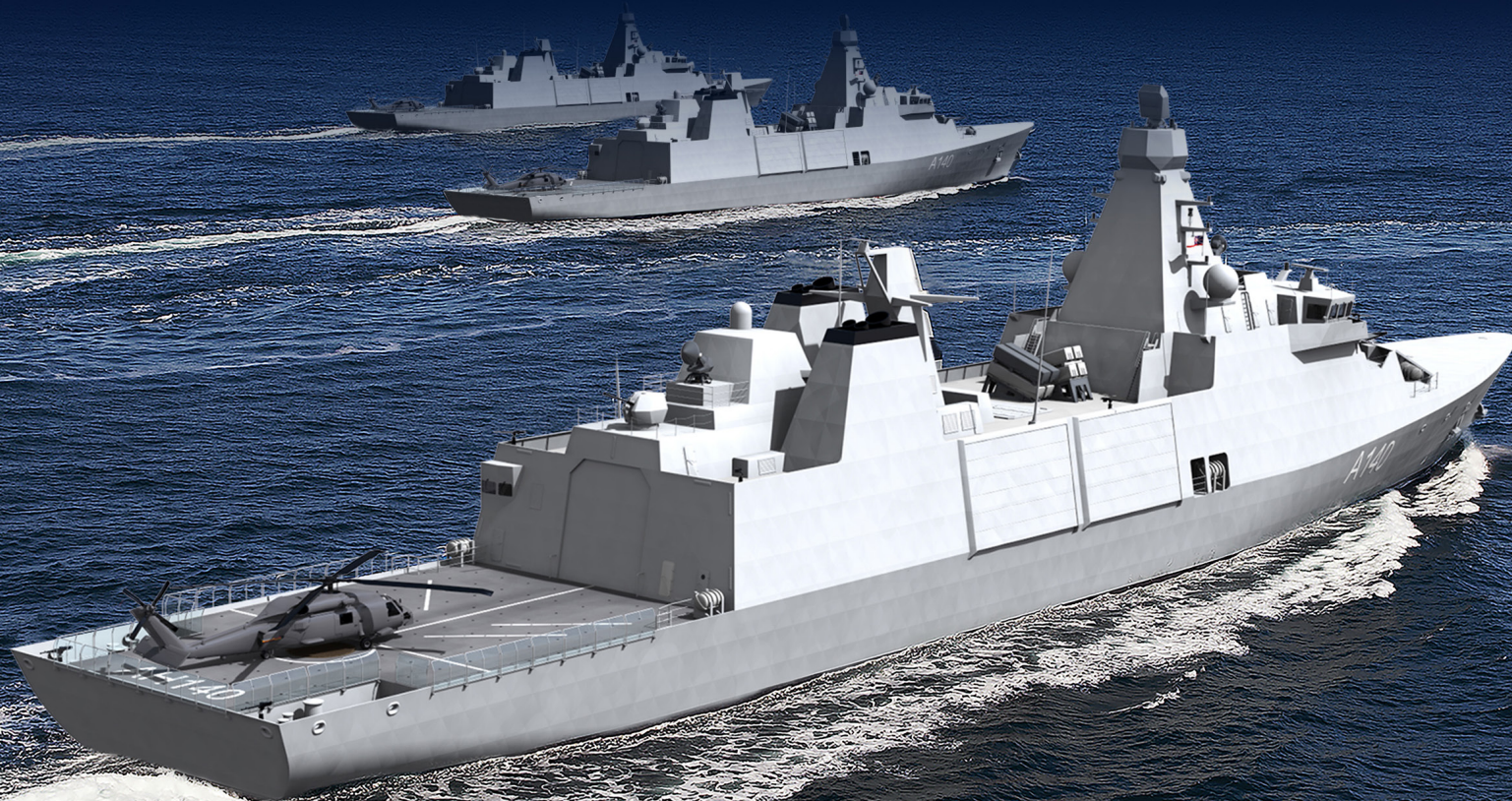
An aerial photograph of a large shipyard facility. Several grey naval ships are docked at piers. In the background, there are industrial buildings, cranes, and a town with green hills under a clear sky.

Arrowyard™

Sovereign ship build and support



Marine | Nuclear | Land | Aviation

arrowhead140.com

Arrowyard™ sovereign ship build and support

Develop your sovereign shipbuilding and support capability through Arrowyard™, a comprehensive and bespoke programme of technology transfer and focused support options. Forged from Babcock's rich engineering know-how and ship build experience, Arrowyard™ helps you to construct the Arrowhead 140 in your facilities by optimising your own shipyard capability.

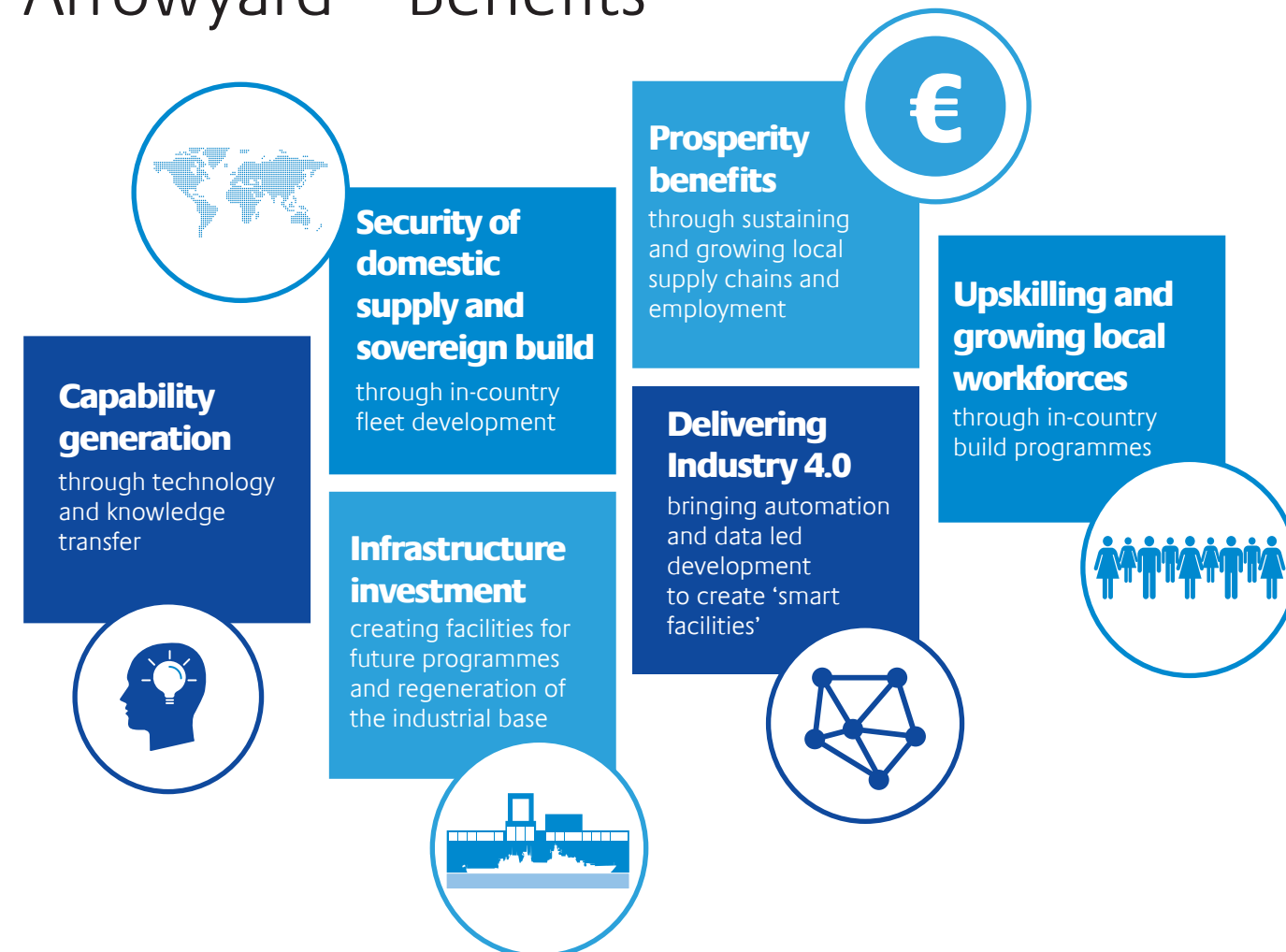
Our value-adding packages span the whole product lifecycle including; readying and modernising your infrastructure, design licensing, initiating your shipbuilding strategy & delivery, workforce training & upskilling and post-delivery support.

Depending on the transformation required and budget available you can customise a scalable design and build solution based on your requirements which will ultimately deliver; technically proficient naval build infrastructure, an industry 4.0 ready workforce, world-class frigates and an enduring support capability.

Arrowyard™ offers a highly capable, cost effective and tailored approach that drives quality and performance and will bring you a competitive edge in international shipbuilding.

Together, we can realise your future naval vision and deliver the capability that will see Arrowhead 140 frigates built in your shipyards, by your workforce and contributing directly to the social and economic value, well-being and prosperity of your shipbuilding community and country as a whole.

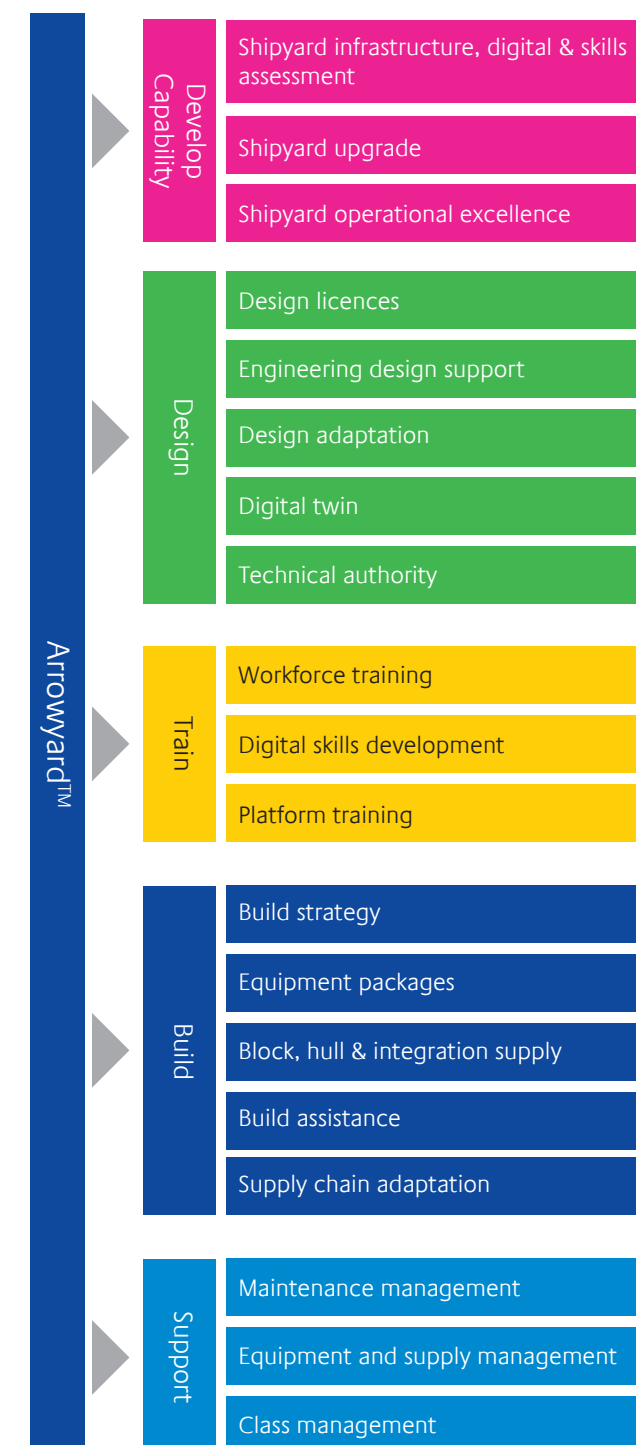
Arrowyard™ Benefits



Suite of Capability

Arrowyard™ provides a suite of capability options that you, as an Arrowhead 140 customer, can use to optimise your in-country shipbuilding capabilities and industrial capabilities.

We can share Babcock's experience in preparing and investing in our site, skills, systems and processes such that we can support your business with a suite of capabilities:



Develop

Babcock provides shipbuilding capability modernisation support to global customers through optimising infrastructure, skills, facilities, systems and processes from build through to through-life support.

We do this through assessing and modernising your operations:

- › Dry docks & dock gates
- › Ship Launch/recovery systems
- › Quays/piers
- › Production/workshop areas
- › Shipyards facilities/plant
- › Warehousing
- › Offices & training
- › Security
- › Design

Design

We can provide General Transfer of Knowledge & Technology (TOKAT) for the design and construction of the frigate in your facilities, from a simple design licence to engineering design support. The use of Arrowhead Digital Twin is a key enabler.

Train

Babcock brings together a comprehensive suite of training including workforce, digital skills development and platform training.

Build

Arrowhead 140 is designed for modular build, optimising the buildability of ships from design and assuring the effective transfer of a UK design to your shipyards for efficient manufacture and assembly. Babcock has extensive ship build knowledge and can provide a range of support including; build strategy, material packages, block hull and integration supply and building assistance.

Support

Babcock offers a range of knowledge transfer options equipping you to provide your customers with a comprehensive range of through life asset management services, bringing together the key capabilities needed to keep assets capable & available whilst providing significant cost savings.

Developing Sovereign Capability

Arrowyard™ can be a catalyst to deliver technology led facilities. We can support customers on the digitising of infrastructure and systems to bring advancements and efficiencies into the manufacturing, build and assembly process of highly complex warships. In addition, building locally with a local workforce and supply chain is a key driver for many prospective customers.

For every shipyard worker six jobs are created locally. A sovereign shipbuilding industry supports the build of the country's Naval capacity as well as the local industry and businesses. The investment in new work places leads to investments in technology, infrastructure, knowledge transfer and training.

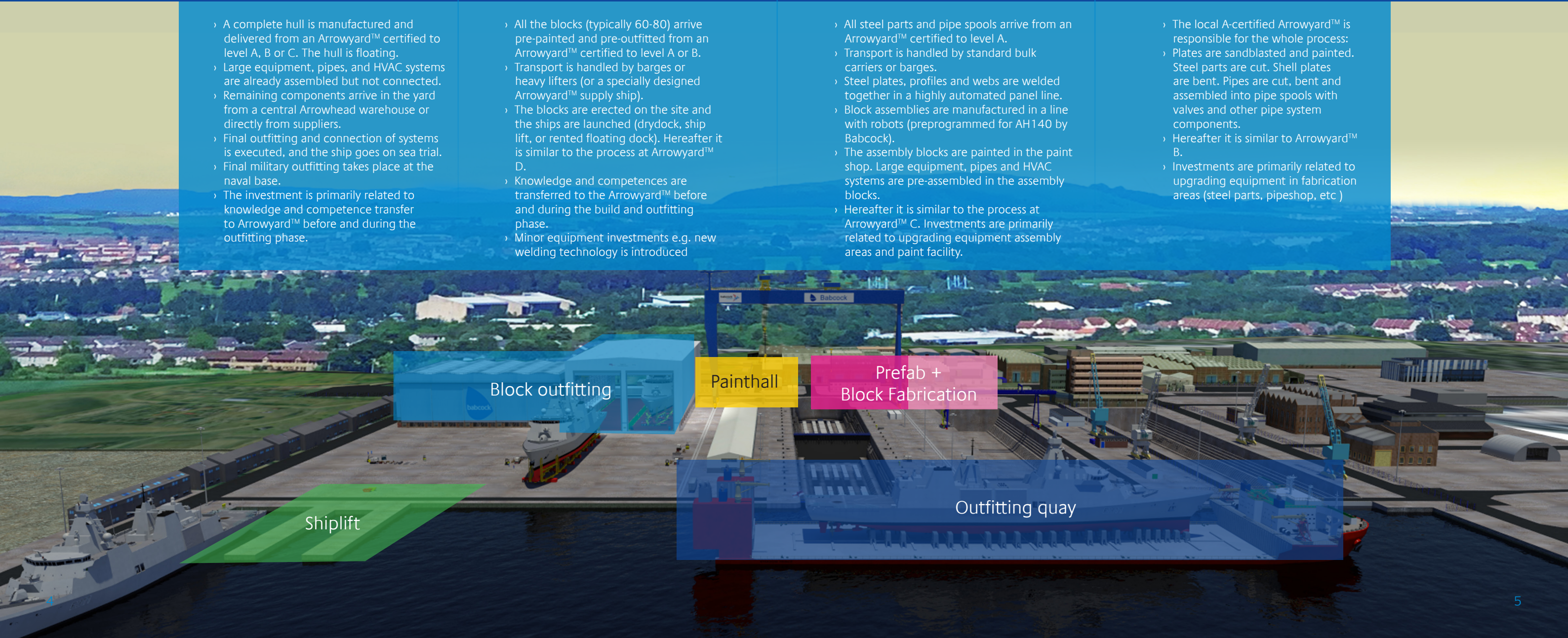
Arrowyard™	D MRO* /Final Outfitting yard	C Integration yard	B Semi vertically integrated shipyard	A Fully vertically integrated shipyard
Outfitting Quay				
Shiplift / barge				
Block Outfitting & Ship Assembly				
Paint Hall				
Block Fabrication				
Prefab				
Local Component Sourcing	Minor	Minor	Major	Major

- › A complete hull is manufactured and delivered from an Arrowyard™ certified to level A, B or C. The hull is floating.
- › Large equipment, pipes, and HVAC systems are already assembled but not connected.
- › Remaining components arrive in the yard from a central Arrowhead warehouse or directly from suppliers.
- › Final outfitting and connection of systems is executed, and the ship goes on sea trial.
- › Final military outfitting takes place at the naval base.
- › The investment is primarily related to knowledge and competence transfer to Arrowyard™ before and during the outfitting phase.

- › All the blocks (typically 60-80) arrive pre-painted and pre-outfitted from an Arrowyard™ certified to level A or B.
- › Transport is handled by barges or heavy lifters (or a specially designed Arrowyard™ supply ship).
- › The blocks are erected on the site and the ships are launched (drydock, ship lift, or rented floating dock). Hereafter it is similar to the process at Arrowyard™ D.
- › Knowledge and competences are transferred to the Arrowyard™ before and during the build and outfitting phase.
- › Minor equipment investments e.g. new welding technology is introduced

- › All steel parts and pipe spools arrive from an Arrowyard™ certified to level A.
- › Transport is handled by standard bulk carriers or barges.
- › Steel plates, profiles and webs are welded together in a highly automated panel line.
- › Block assemblies are manufactured in a line with robots (preprogrammed for AH140 by Babcock).
- › The assembly blocks are painted in the paint shop. Large equipment, pipes and HVAC systems are pre-assembled in the assembly blocks.
- › Hereafter it is similar to the process at Arrowyard™ C. Investments are primarily related to upgrading equipment assembly areas and paint facility.

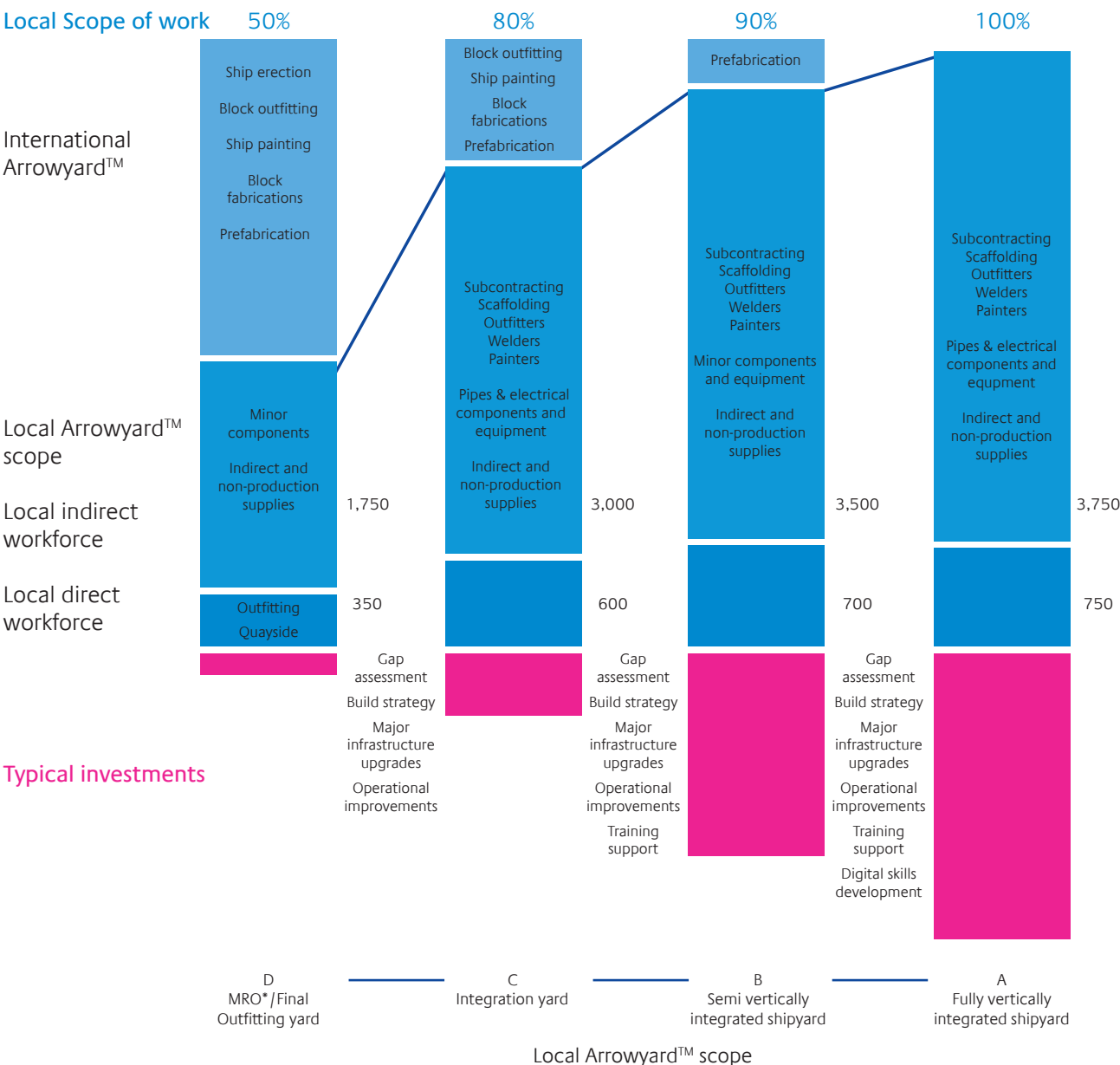
- › The local A-certified Arrowyard™ is responsible for the whole process:
- › Plates are sandblasted and painted. Steel parts are cut. Shell plates are bent. Pipes are cut, bent and assembled into pipe spools with valves and other pipe system components.
- › Hereafter it is similar to Arrowyard™ B.
- › Investments are primarily related to upgrading equipment in fabrication areas (steel parts, pipeshop, etc)



Scalability

Customising your facility based on your existing infrastructure, programme and budget

The goal of Arrowyard™ is to maximise the level of industrial benefit utilising your local facilities and supply chains. Arrowyard™ can be scaled to achieve a desired level of local industrial content or tailored to maximise the level of industrial benefit for a fixed investment budget. Babcock will help you evaluate your existing shipbuilding capability and develop a plan with you to re-generate your infrastructure and processes. Our Arrowyard™ approach will help you identify gaps in capability and provide a programme to bridge these gaps with targeted investment and expert support.



For illustration

Babcock International

Babcock is an international aerospace, defence and security company, with a leading naval business, providing value add services across a range of countries, including the UK, France, Canada, Australia and South Africa. We help customers in the UK and around the world to improve the capability, reliability and availability of their most critical assets.

The company has provided in-service support to the Royal Navy for more than 20 years and has world class expertise in providing the highest levels of ship availability, reliability and affordability.



We're proud to support

To view our Arrowyard™ video scan the QR code below



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