



SSIWSC 2024

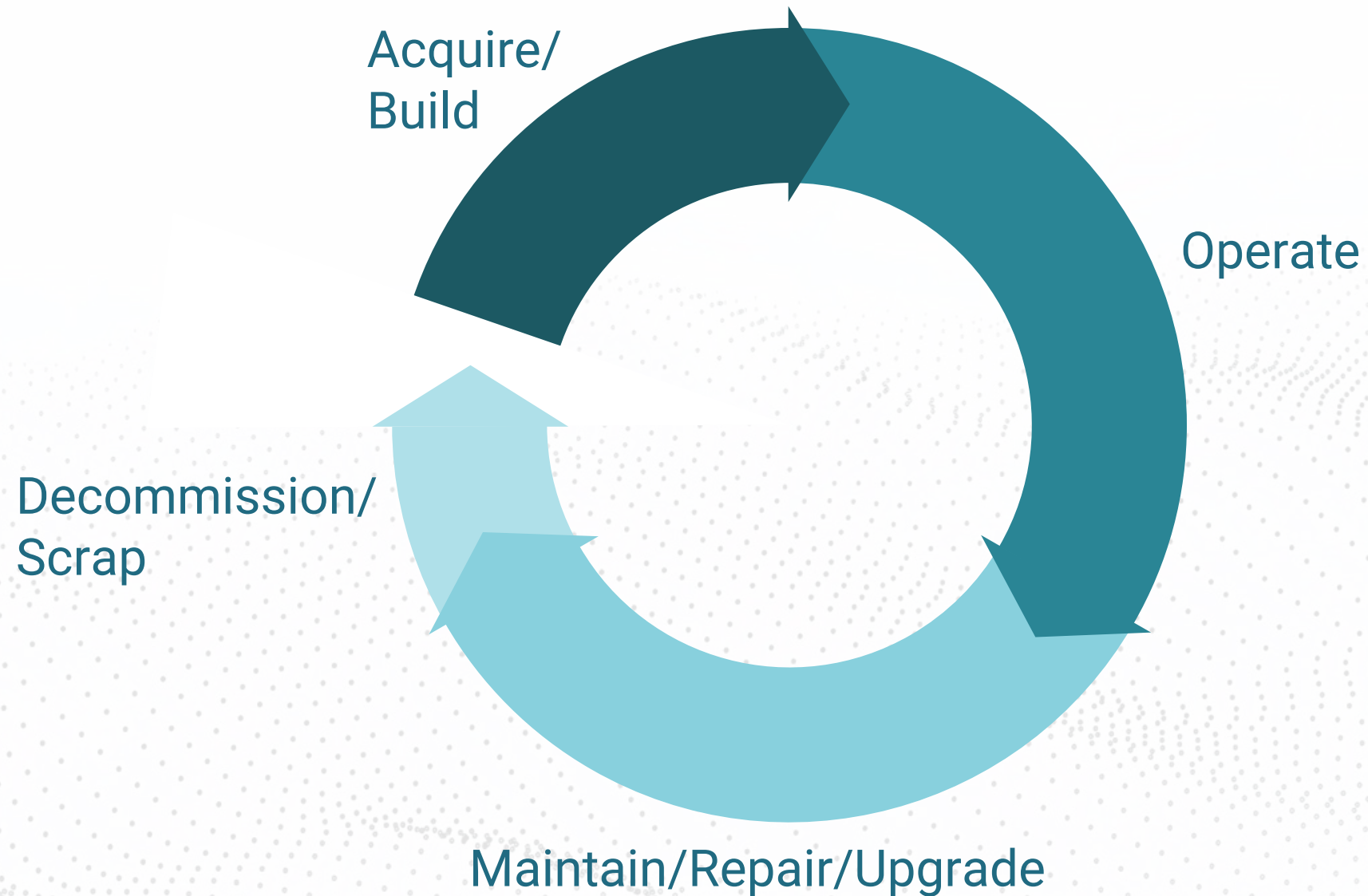
Design. Build. Maintain. Connect.

Digital Ship for Fleet Sustainment with SSI Solutions

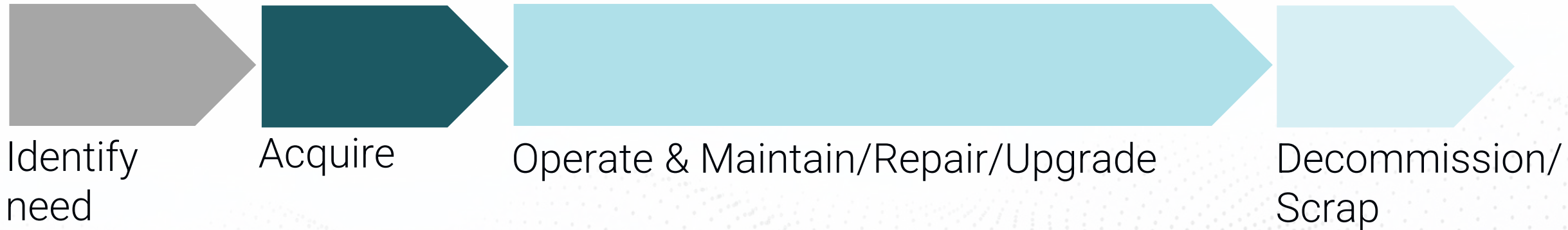
David Males, Director of Business Development, SSI



Fleet Sustainment



Challenges in Fleet Sustainment



Newly designed vessels / Naval vessels



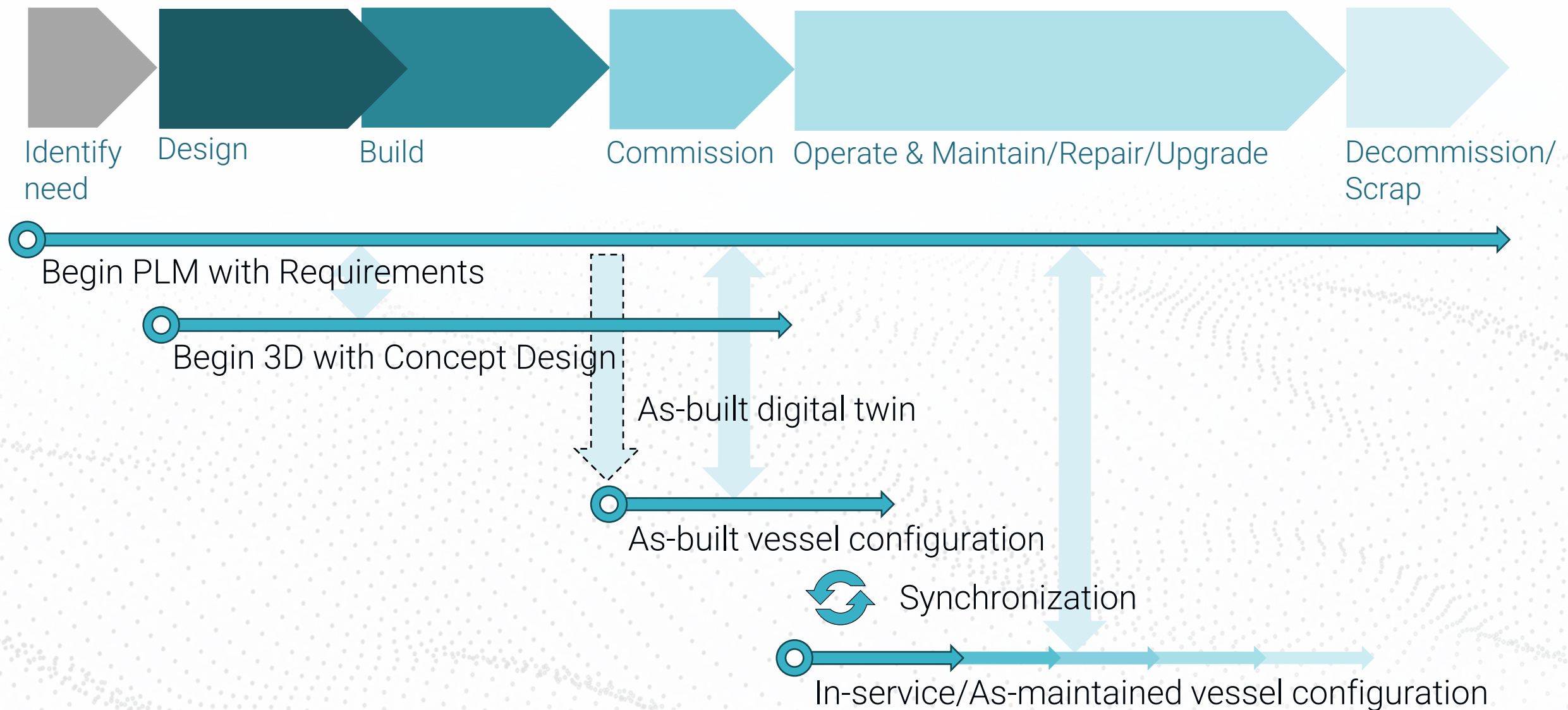
- Leading shipbuilders and vessel designers have started building digital twins of the vessels they design and build.
- Newly designed vessels are often being delivered digitally enabled, particularly for naval vessels.

Acquired vessels / In-service vessels

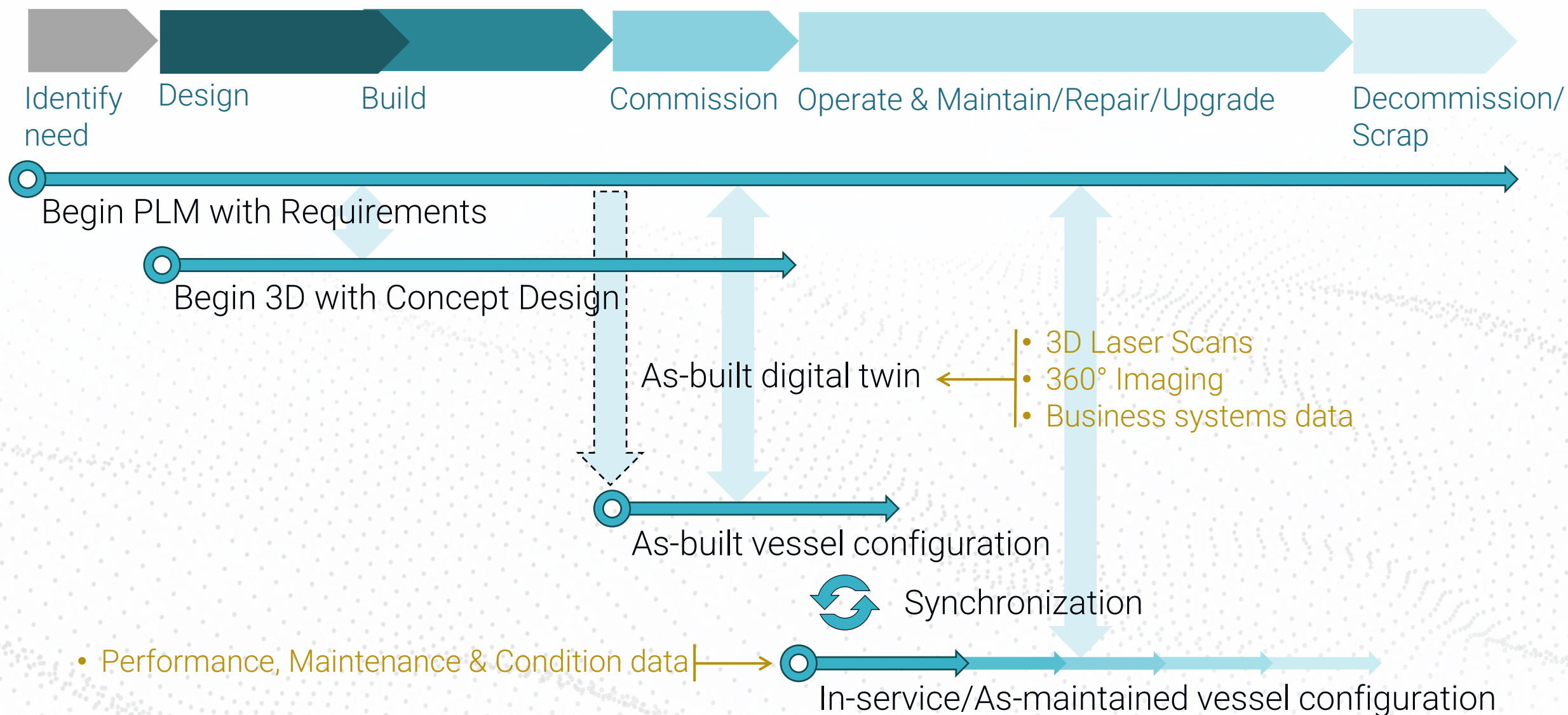


- It is not easy for ship or fleet owners to get or build a digital twin of their vessels already in service.
- It is difficult to build digital twins for many ships in service for which 3D models are not available, and even drawings and documentation/data may not be available.

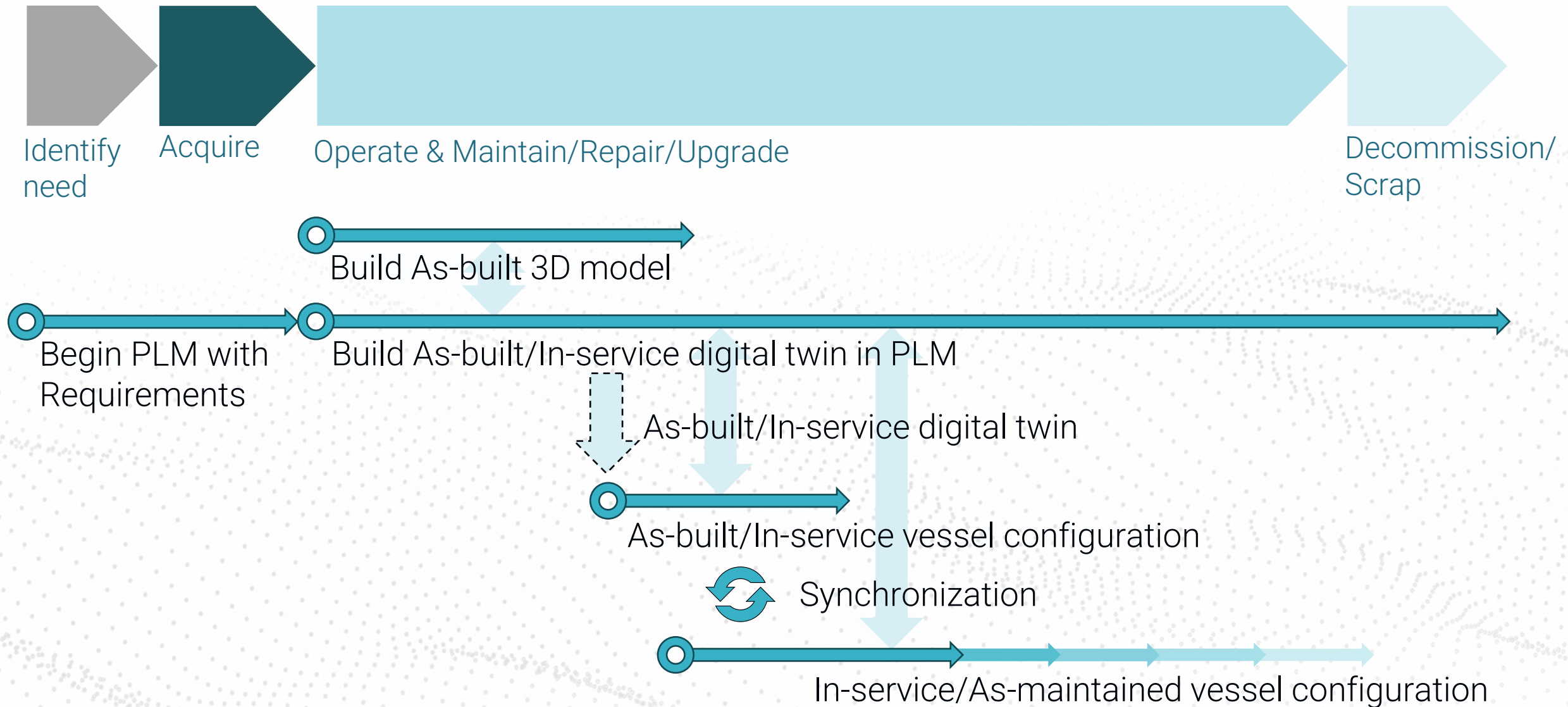
Newly designed vessels / Naval vessels



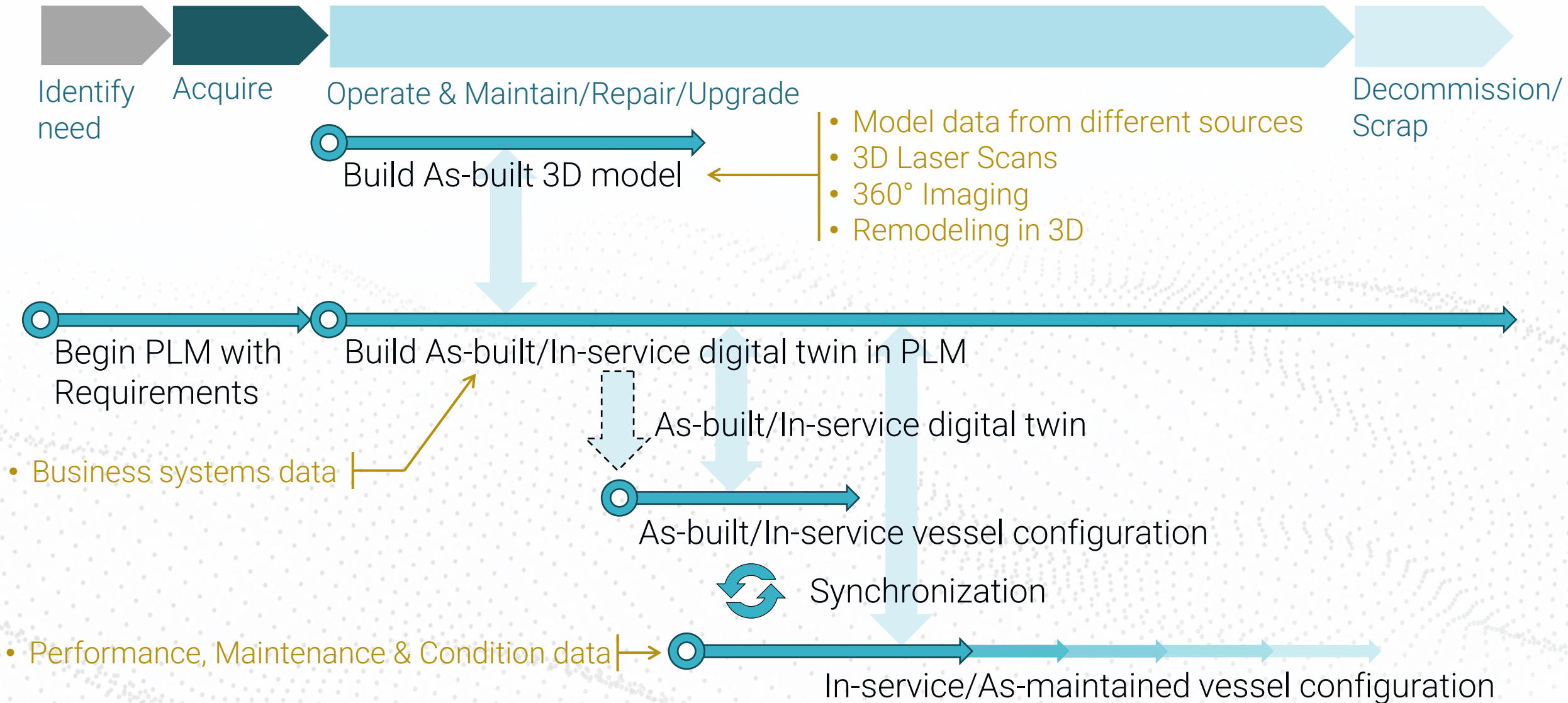
Newly designed vessels / Naval vessels



Acquired vessels / In-service vessels



Acquired vessels / In-service vessels



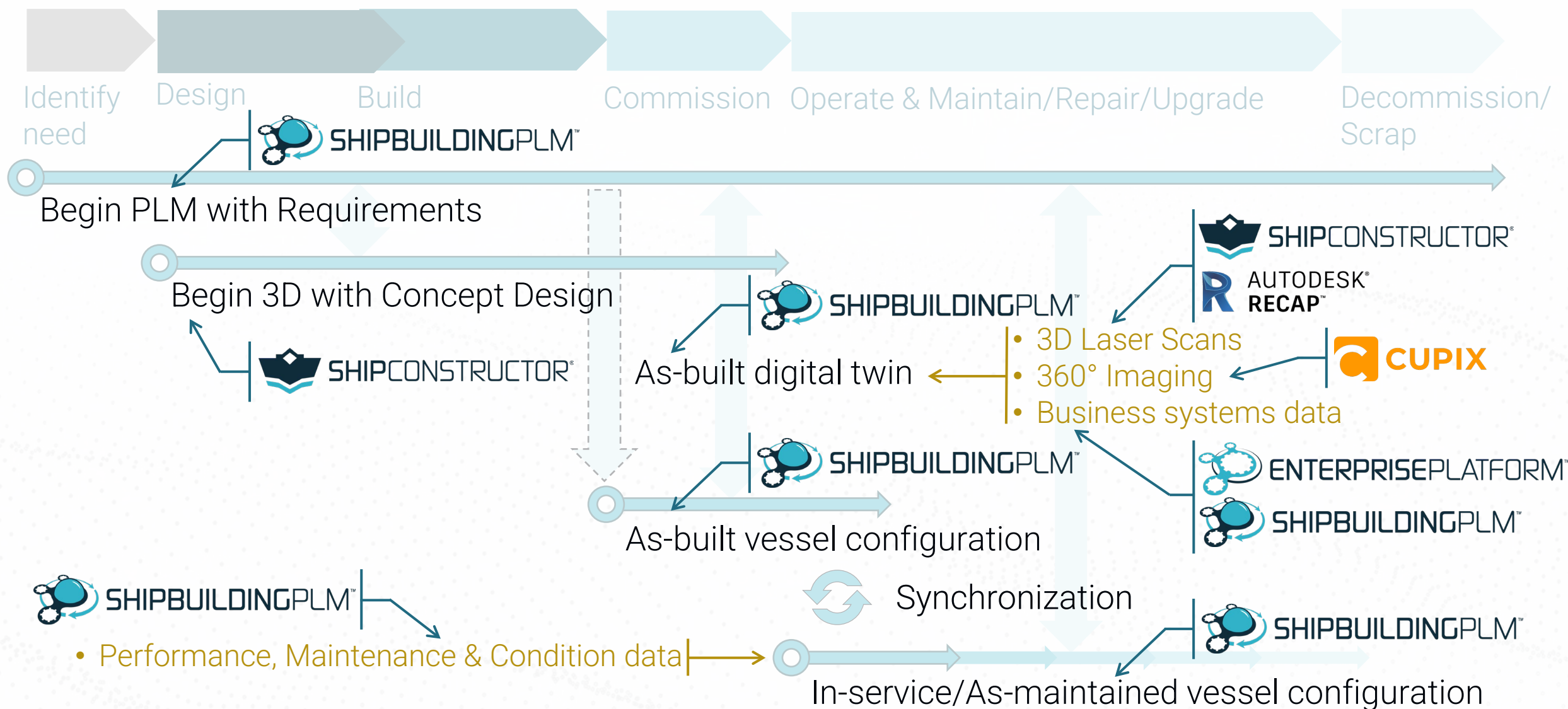
What comprises Ship Sustainment Activities?

- In-Service Operations
- Maintenance
 - Ship
 - Shore
- Modernization & Repair
- Decommissioning

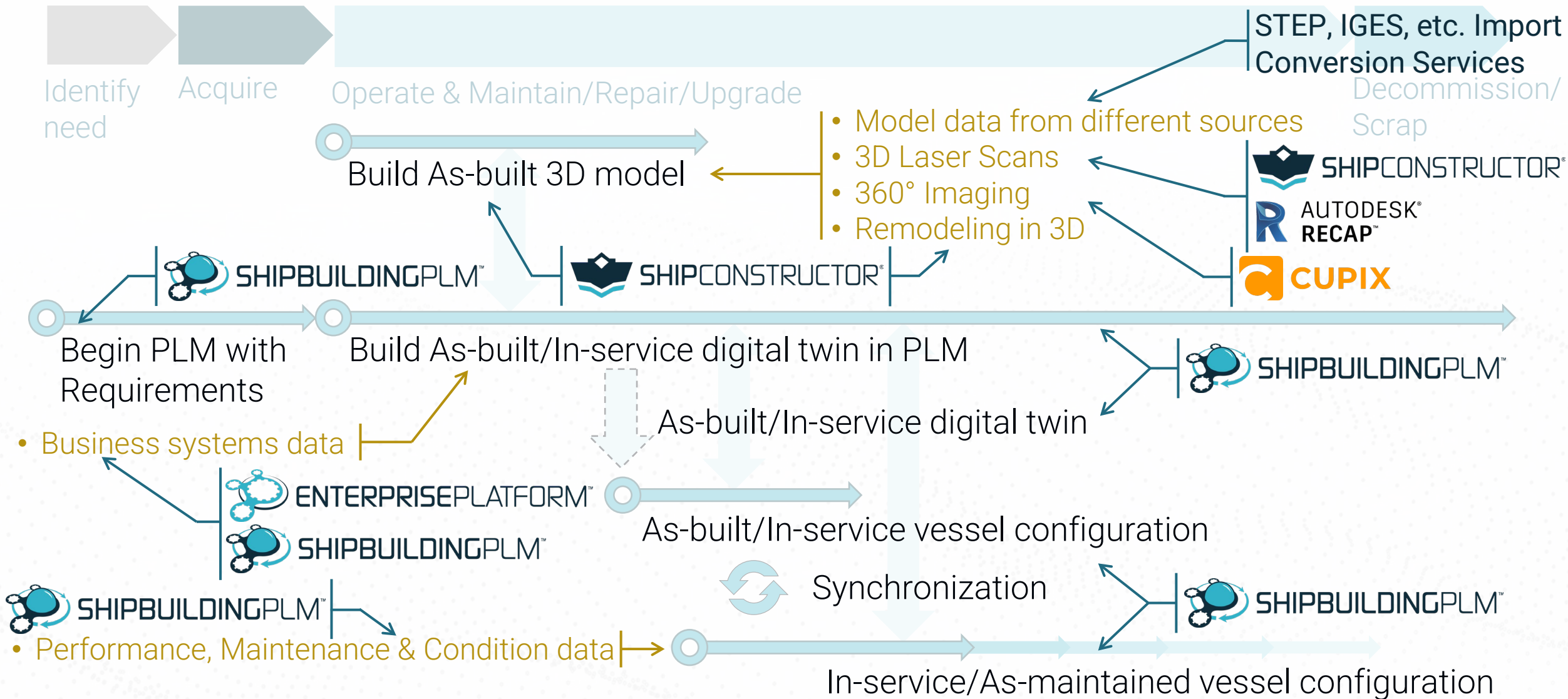
How can Digital Twins help?

Ship Sustainment Activities	Use of Digital Twins				
In-Service Operations <ul style="list-style-type: none"> – Ship – Shore 	Ship Provisioning (?) Availability Planning (?)	Operator Training	Immersive 3D Visualization	Collaboration & Feedback	Decision Support
Maintenance	Digital Shipchecks Maintenance scoping Parts and inventory procurement Execution Work Documents (?)				
Modernization & Repair	Design (for ship repair/refit) Execution Work Documents				
Decommissioning	Execution Work Documents (?)				

Newly designed & Naval vessels - SSI Solutions



Acquired & In-service vessels - SSI Solutions



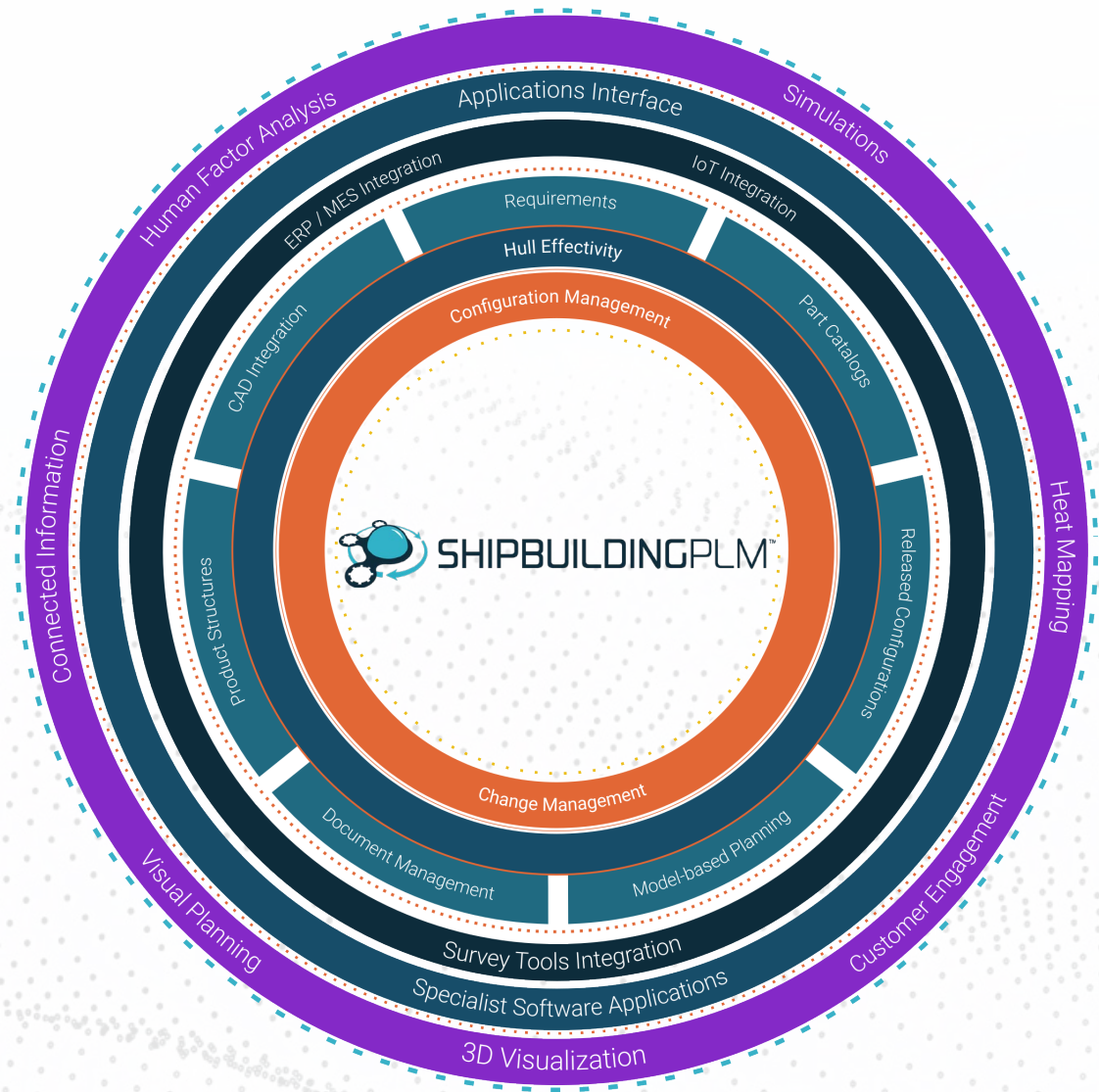
Digital Twin for Decision Support - Industry Example



WORK IN PROGRESS

3D Visualisation	Use of Digital Twins
Visual Planning	Ship Provisioning (?)
Connected Information	Digital Shipchecks
Modernization & Repair	Design (for ship repair/refit)
Decommissioning	Execution Work Documents (?)
Modernization & Repair	Design (for ship repair/refit)
Modernization & Repair	Design (for ship repair/refit)

Example



Benefits

- With Digital Twins, information required for fleet sustainment is available in a structured, scalable architecture.
- More effectively maintain, sustain and enhance fleets.
- Higher first-time quality, less rework from changes, and greater schedule attainment.
- Shorter out of service duration
- Lower fleet sustainment cost
- For shipyards/repair yards: New revenue stream

Challenges

- Shipbuilding is a traditional industry where the level of digitalization is still low.
- The technological sophistication of shipyards varies widely.
- Need to combine diverse sources of data for the digital twin to keep synchronized with the real-world changes.
- Uncertainty arising due to human factors such as delay in updating maintenance systems, following processes, etc.

Past Webinars

Bringing Together a Digital Twin

- Existing vessels vs. new builds
- Capturing operations data
- Bringing together the information in a PLM

<https://www.ssi-corporate.com/content/webinar-bringing-together-a-digital-twin/>

Managing the Digital Twin Across the Lifecycle

- Managing a class and each ship
- Connecting information platforms
- Working with the organizations involved in maintenance

<https://www.ssi-corporate.com/content/webinar-managing-digital-twin-across-lifecycle/>



Questions?

Thank you!