



SHIPYARD OPERATIONAL PREDICTABILITY

To improve flow,
cut costs and
boost results



Our mission:

“ *Accelerate ship production in high-cost countries* ”



TECHNOLOGY

Floor2plan



KNOWLEDGE

Shipyards best practices



CUSTOMIZATION

Software engineering

About us



We are partners with over **30 shipyards** ensuring continuous improvement.



Over **30.000 people** are using our technology everyday



> 15% reduction in both duration + shipyard hours

Floorganise | Software for Shipyard Operations

- Floorganise USA INC
- Floorganise Spain R&D SLU
- Floorganise Europe BV
- Floorganise Australia



Some of our clients:

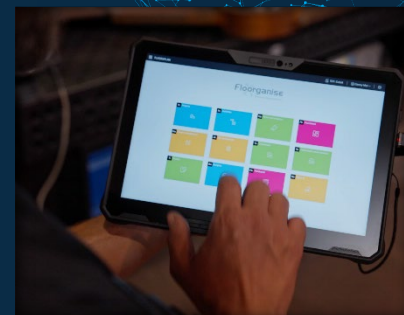


“Floor2Plan is production control on steroids. It enables us with **enhanced shop floor control whilst managing our project schedules**, budgets and production constraints.”

William Leeuwestein
Production Coordinator
Royal IHC



Video: <https://youtu.be/y8vIQSguQKE>



Shipyards operational challenges





Navy's ships spend less time at sea amid persistent maintenance delays, report says

Attack sub Pasadena returns to fleet after schedule delays

Delivery Schedule for Bath Iron Works Destroyers Under Navy Review, Further Delays Likely

Study: Norfolk Naval Shipyard In Poor Condition, Repairs To Take Two Decades

They cannot launch a mega-ship because they forgot the dock: they face losses of 480 million euros

Technical issue delays Royal Navy destroyer due to deploy amid Russia tension

Attracting Quality Workforce Biggest Issue Facing Shipyard, Experts Tell Congress

U.S. Naval Institute: At Ingalls, plenty of space for shipbuilding but ramping up workforce will be the challenge



Incomplete work packages



No planning updates



Lack of communication



Operational silos



Ripple effects cause delay



Changes not communicated



Many manual interfaces



Excessive bureaucracy within production



Unclear production norms



Engineering data is late



No actuals available



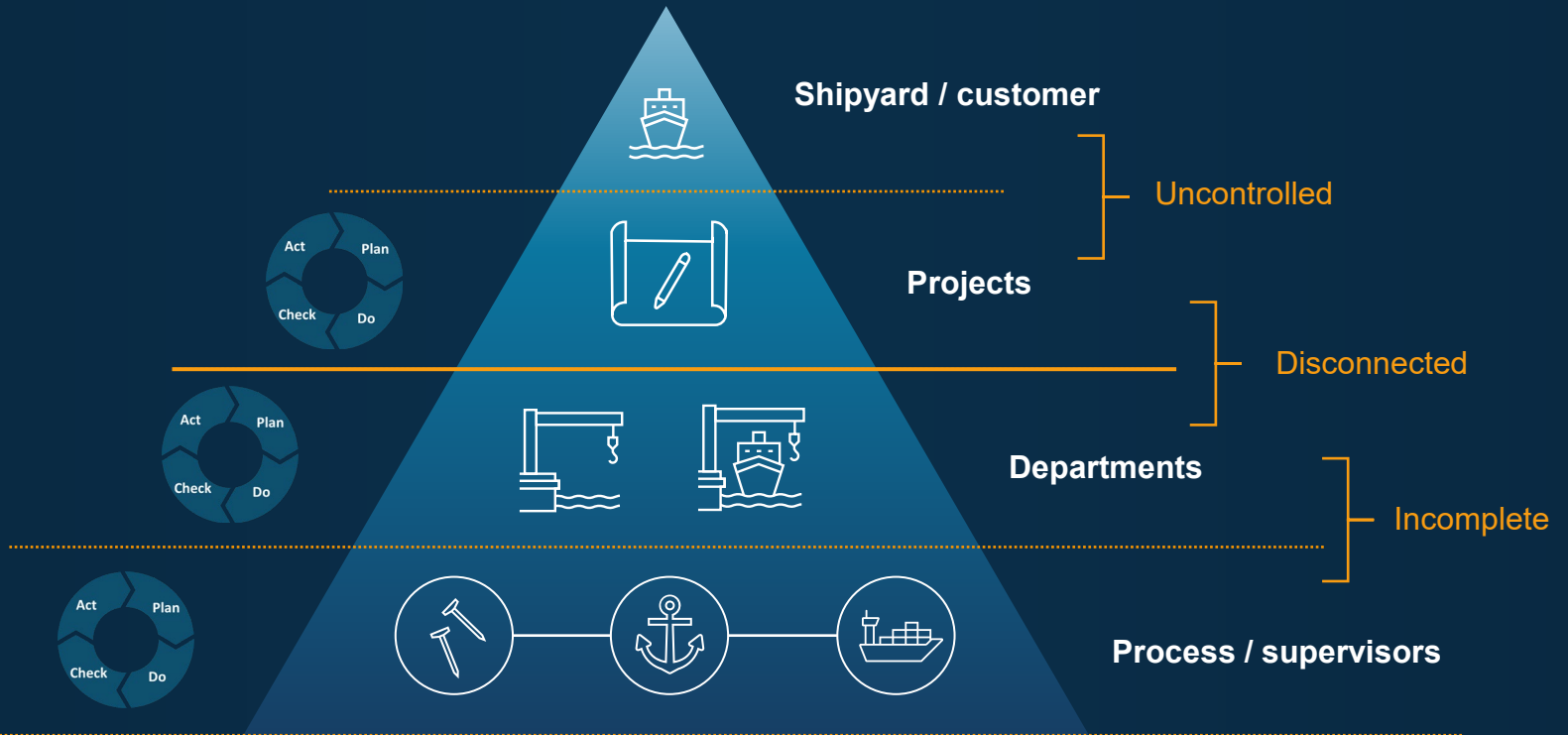
Lack of detail planning

PREDICTABILITY

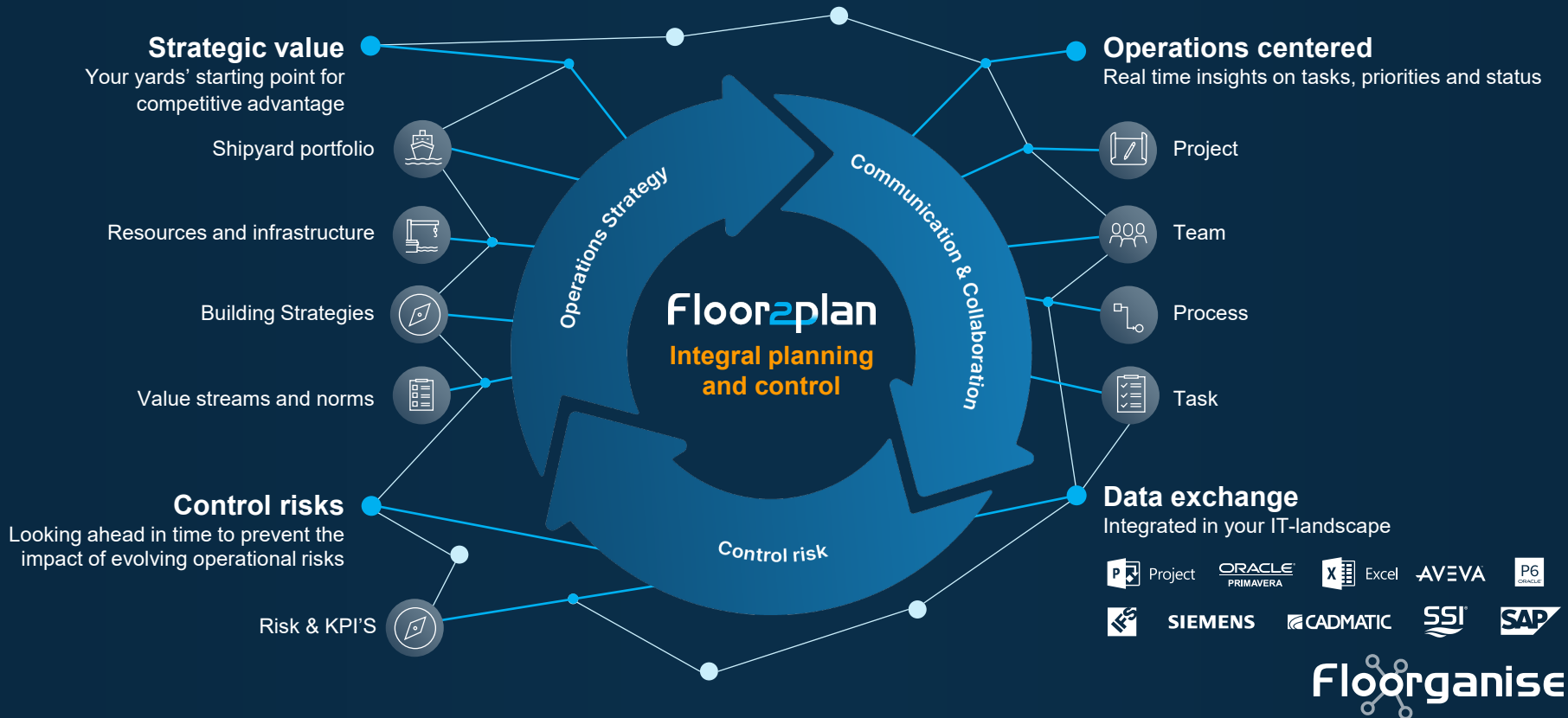
Digital process innovation within shipyards



Major shipyard challenges caused by disconnected levels of planning



A shipyard center for operational communication, collaboration and control



A shipyard center for operational communication, collaboration and control

Project- or program management

Daily actuals on progress, changes, risks and performance for:

- From project – to process level or specific (change) workflow
- Perspectives per area, block, system, change or space
- Perspectives per department, team, process or supplier

From engineering to planning

Use bills of material to drive automated detail planning

- Supports rolling wave method for planning
- Communicate ECN's directly to minimize impact
- Visualize progress status per part in 3D model
- Use metadata in PLM (hrs per ton, welding length) to automate budget/scheduling per resource type
- Integrate production needs with PLM / MRP / ERP

Production managers, supervisors, trade leads and charge hands

Retrieve a multi project overview of all your tasks and priorities

- Signal task readiness per work package to apply last planner methods
- Look ahead in time for resource utilization per team per week
- See the impact of ECN's and asses planning scenarios to fix schedules
- Submit hours, progress, risks, changes and issues
- Distribute digital work packages and technical direction docs

Project planners, work preparation, production planners or PMO

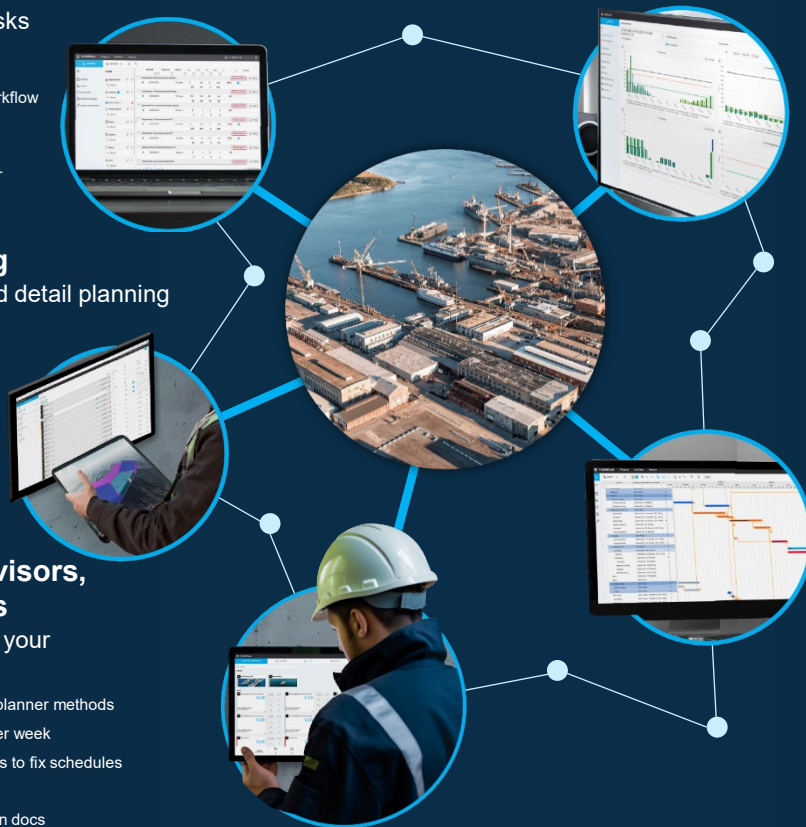
Add granularity to your existing planning tools

- Add more detail, dependencies and relations to your build sequence
- Combine product- and work breakdown structure in your plan
- See the impact of ECN's and apply scenario planning to fix schedules
- Signal relevant changes, issues and risks to mitigate them ASAP
- Apply yard resource loads from running actuals per trade or department

Real-time productivity and performance assessment

Keep track of daily actuals on progress, performance and changes

- Yard level resource planning based on actuals and personal schedules
- Instant earned value reporting such as SPI/CPI or S-curves per block
- Department or process KPI's instantly available
- Manage recovery, changes and risks



Floor2Plan module

Specific capabilities for specific roles and functions

Floor2plan



Hours & Progress

Hours on jobs, hrs on site
holidays, qualifications,
material consumption



Shop floor control

Digital work packs, change-,
management + workflows +
progressing + floor space



Miscellaneous

Floorspace, Power BI, QA/QC,
issues, tickets, rework,
earned value



Production planning & scheduling

Make-ready and last planner methods
/ supply chain integration



Project & Cost controls

Integral planning / scheduling budgeting
including materials, hours, resources,
services and costs.





...Floor2Plan reduces errors, but we also have much **deeper insights into costs and workloads**, which empowers us to make better decisions and proactively manage resources.

Michel Boeckx
Chief Technology Officer
Hanwha Philly Shipyard



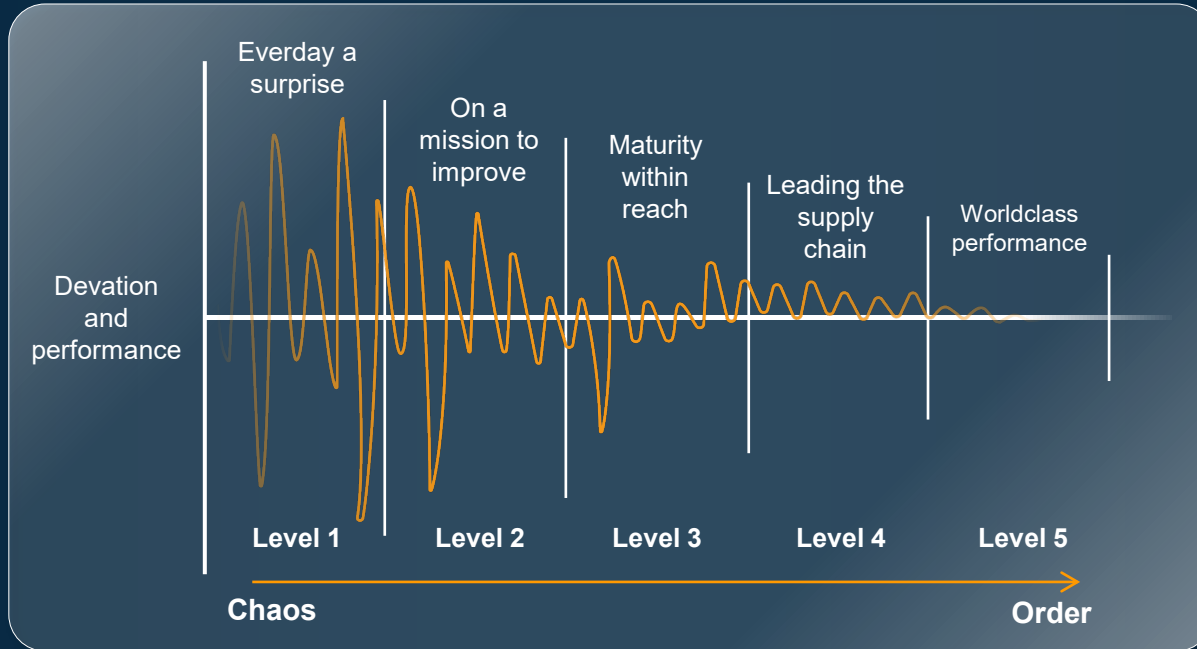
Business value

Digital process innovation within shipyards



Gradual improvement

Predictability and productivity



Level 1

A paperless shop floor

Key:
automate
manual efforts



Set foundation

Level 2

Look ahead
& beyond

Key:
engage and
reflect beyond
your team and
today



Accountability

Level 3

Intelligent
planning and
control

Key:
optimize
processes
holistically



Deflate buffers

Level 4

Shipyards
holistic
control

Key:
integrated control
from deck plate
to portfolio level
and process to
supply chain



Overall chain

Level 5

World class
performance

Key:
incorporate
novelties through
continuous
improvement
culture



Culture and novelties

Operational Impact

[Savings & cost avoidance, immediate & future]

	As-was (baseline)	Realized (Floor2Plan)
Daily bureaucracy for the supervisor	90 minutes*	15 minutes*
# databases for supervisors	5*	1
Performance feedback (hrs/progress/growth)	>2 weeks after the event	Next day
Average task size	600 – 800 hours*	160 hours*
Workload per planner	100.000 production hours*	200.000 production hours*
Planning focus	Per domain / dept / team	Value streams of the supply chain
Planning integration level	Disconnected plans per domain	Integrated processes/projects

* based on Floororganise' experience throughout US/EU

Reduction Forecast

[Savings & cost avoidance, immediate & future]

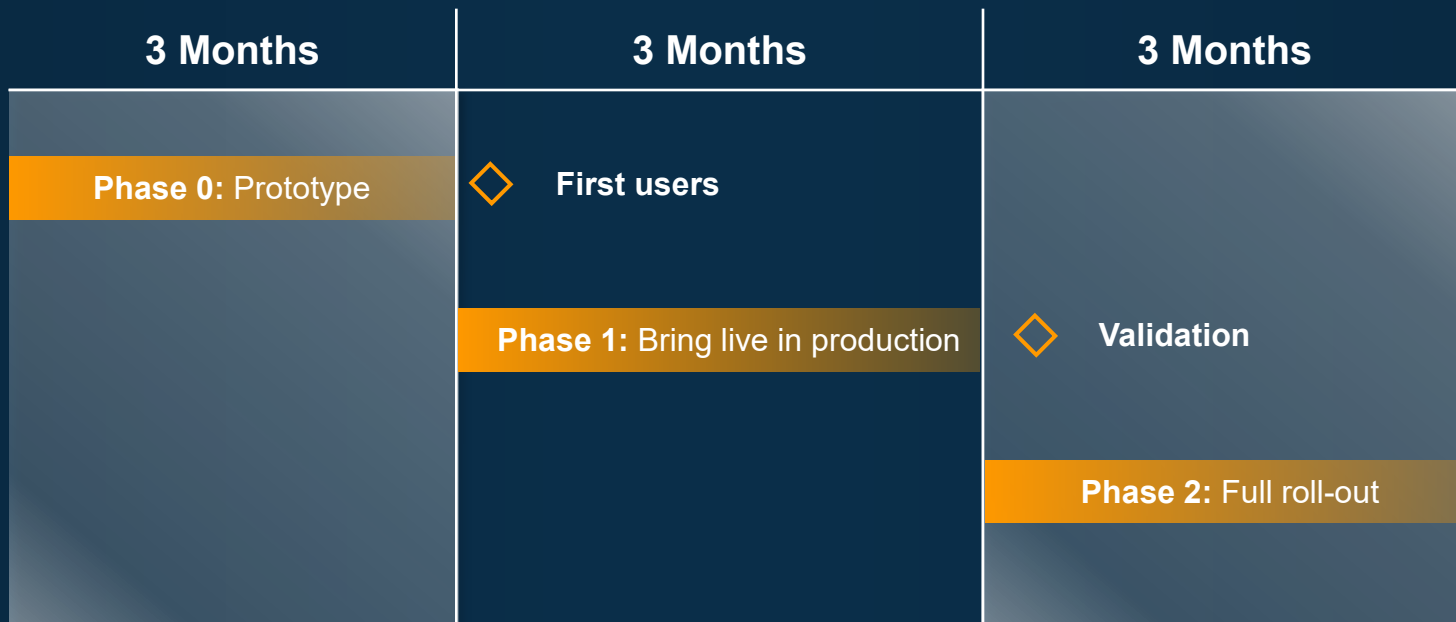
Phase	Cost category	As-was (baseline)	Realized (Floor2Plan)
1	Hours spent on bureaucracy by supervisors (90 min/15min)	\$ 990,000 a year	\$ 165,000 a year
1	Limit timesheet corrections saves more than a fulltime HR employee	\$ 75,000 a year	-
1	Hours spent on manual planning efforts can be decreased with 50%	\$ 1,500,000 a year	\$ 750,000 a year
Automating manual effort saves: (\$ 2,565,000 -\$ 915,000) \$ 1,650,000 annually			
2	Saving man-hours >15% <ul style="list-style-type: none">• Process optimization / less buffering / accountability• Integrated views on process/projects/risk• Use templates for detail planning/control	\$ 15,750,000	-
Total cost reduction annually		\$ 17,400,000 per 1.000 workers	

Prototype or pilot project

Your assessment of added value



| Prototype project timelines





| NSRP sponsored pilot

- *We propose:*
 - *NSRP-sponsored pilot*
 - *Focus area:*
 - *planning-to-execution integration*
 - *Goal:*
 - *Reduce variability*
 - *Improve labor efficiency*
 - *Demonstrate scalable digital solution*

THANK YOU

Questions time



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