



# The Future of Optimised Underwater Asset Management

ROV (Remotely Operated Vehicles) Technology and Services

PIANC - 5<sup>th</sup> September, 2022

[rovingintelligence.com](http://rovingintelligence.com)



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## Introduction:

Matt Curtain

- System Development / Integration
- System / Business Process Development
- Robotics Engineering
- UAV (Drone) Systems & Payload Development
- AI, SLAM & Autonomous Systems
- CEO R&D / Prototype Development Company

ROVing Intelligence

- Founded from an R&D project in 2019. Technology & Services Developed
- Successful Field Testing and Initial Customer Engagements
- Strong Alliances and Partnerships

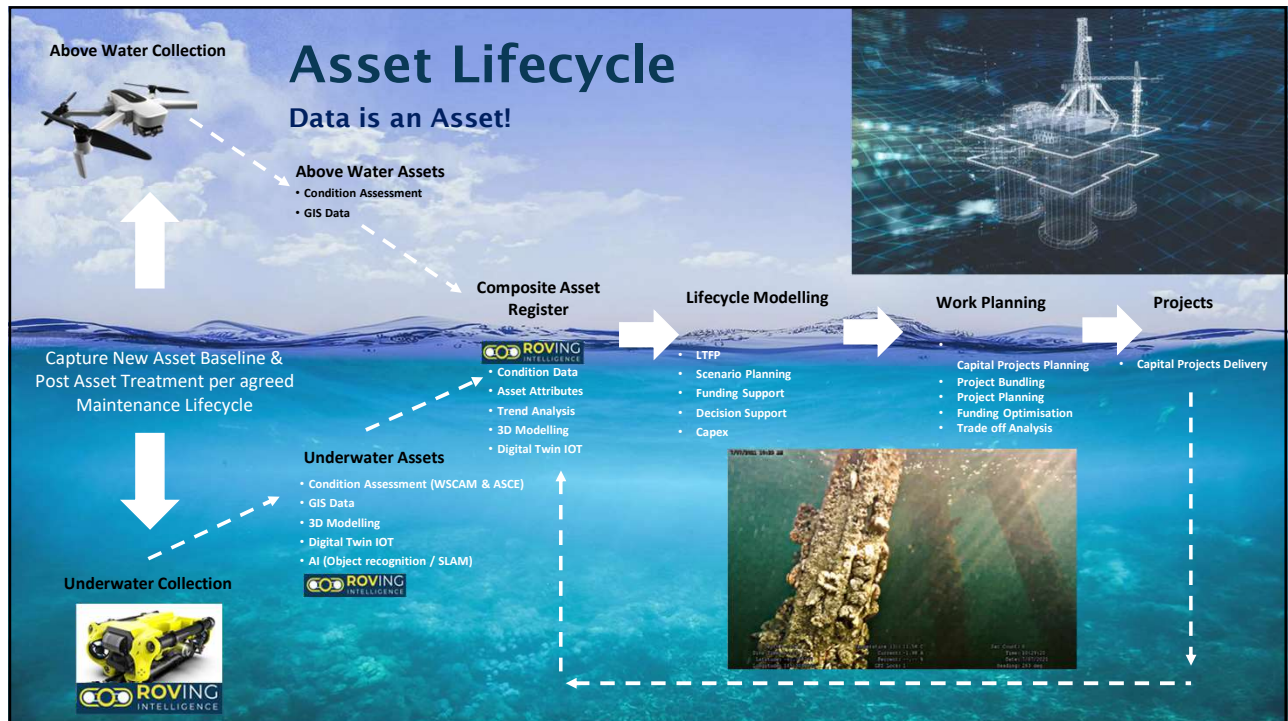
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# The Future of Underwater Asset Maintenance

Investor Briefing

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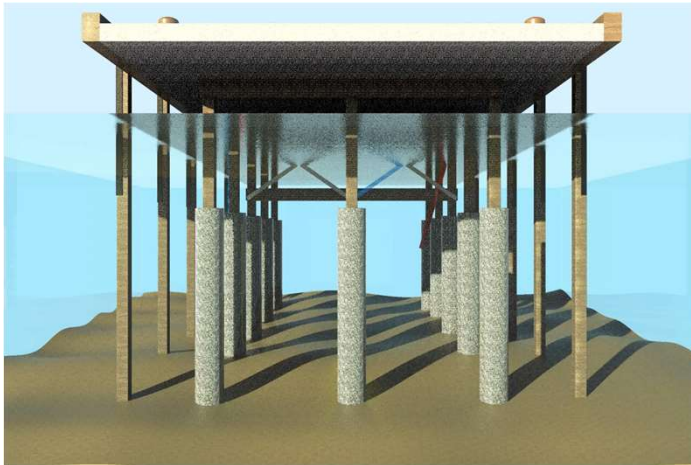
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# Think Differently?

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# Digital Twin Overlayed with Current Data



### Asset Register Keyed Heatmap

Asset Code	Description	Type	Code	Latitude	Longitude	Inspection Date
WAR-01	Wharf	WAR				
WAR-08-06	Bollards					
WAR-08-06-01	Bollard No.C15	BOLL				
WAR-09-07	Deck					
WAR-09-07-01-02	Deck Top No.01-02					
WAR-10-09	Fender System					
WAR-10-09-02	Fender System No.02	FEND	-40.768360	145.304550	5/07/2021	
WAR-10-09-03	Fender System No.03	FEND	-40.768320	145.304570	5/07/2021	
WAR-10-09-04	Fender System No.04	FEND	-40.768280	145.304600	5/07/2021	
WAR-11-10	Piles					
WAR-11-10-01	Pile No.A01	PILE	-40.768380	145.304436	6/07/2021	
WAR-11-10-02	Pile No.B01	PILE	-40.768378	145.304476	6/07/2021	
WAR-11-10-03	Pile No.C01	PILE	-40.768391	145.304516	6/07/2021	
WAR-11-10-04	Pile No.A02	PILE	-40.768330	145.304400	6/07/2021	
WAR-11-10-05	Pile No.B05 Cross Brace	PILE	-40.768341	145.304461	7/07/2021	
WAR-11-10-06	Pile No.C05	PILE	-40.768222	145.304612	5/07/2021	

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# Passing the Baton

Interpreted asset data feed inline with asset register

Asset Code	Description	Type Code	Latitude	Longitude	Inspection Date
WAR-01	Wharf	WAR			
WAR-08-05	Bollards				
WAR-08-06-01	Bollard No. C15	BOLL			
WAR-09-07	Deck				
WAR-09-07-01-02	Deck Top No.01-02				
WAR-10-09	Fender System				
WAR-10-09-02	Fender System No.02	FEND	-40.768360	145.304550	5/07/2021
WAR-10-09-03	Fender System No.03	FEND	-40.768320	145.304620	5/07/2021
WAR-10-09-04	Fender System No.04	FEND	-40.768280	145.304600	5/07/2021
WAR-11-10	Piles				
WAR-11-10-01	Pile No.A01	PILE	-40.768380	145.304436	6/07/2021
WAR-11-10-02	Pile No.B01	PILE	-40.768378	145.304476	6/07/2021
WAR-11-10-03	Pile No.C01	PILE	-40.768391	145.304516	6/07/2021
WAR-11-10-04	Pile No.J03	PILE	-40.768330	145.304460	6/07/2021
WAR-11-10-05	Pile No.B05 Cross Brack	PILE	-40.768321	145.304461	7/07/2021
WAR-11-10-06	Pile No.C05	PILE	-40.768222	145.304612	5/07/2021

Year	Current Budget	Increased Budget	Reduced Budget	Unconstrained
2021	\$1,498,075	3,671	\$2,499,844	3,660
2022	\$1,498,287	8,811	\$2,161,644	4,298
2023	\$1,497,830	3,208	\$2,499,483	3,229
2024	\$1,498,055	2,889	\$1,916,707	3,134
2025	\$1,498,411	2,877	\$1,347,278	2,880
2026	\$1,498,287	2,889	\$1,916,707	2,880
2027	\$1,498,287	2,889	\$1,916,707	2,880
2028	\$1,498,287	2,889	\$1,916,707	2,880
2029	\$1,498,287	2,889	\$1,916,707	2,880
2030	\$1,498,287	2,889	\$1,916,707	2,880
2031	\$1,498,287	2,889	\$1,916,707	2,880
2032	\$1,498,287	2,889	\$1,916,707	2,880
2033	\$1,498,287	2,889	\$1,916,707	2,880
2034	\$1,498,287	2,889	\$1,916,707	2,880
2035	\$1,498,287	2,889	\$1,916,707	2,880
2036	\$1,498,287	2,889	\$1,916,707	2,880
2037	\$1,498,287	2,889	\$1,916,707	2,880
2038	\$1,498,287	2,889	\$1,916,707	2,880
2039	\$1,498,287	2,889	\$1,916,707	2,880
2040	\$1,498,287	2,889	\$1,916,707	2,880
2041	\$1,498,287	2,889	\$1,916,707	2,880

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# Passing the Baton

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    graph LR
      DC[Data Collection] --> DA[Data Analysis]
      DA --> ASF[Asset Service Framework]
      ASF --> SMV[Strategic Modelling & Visualisations]
      SMV --> WP[Work Packaging]
      WP --> P[Projects]
      P --> DC
  
```

**Data Collection**

**Data Analysis**

- Data Interpretation
- 3D Twin
- Maintenance Heat Map

**Asset Service Framework**

- Performance Data
- Asset Attributes

**Strategic Modelling & Visualisations**

- LTFP
- Candidate Capital Works

**Work Packaging**

- Plan Capital/Maintenance Projects

**Projects**

- Deliver Capital Projects

Specialist UW Engineering & WSCAM

Specialist Asset Maintenance Companies such as Brightly (previously Assetic)

Specialist Project Delivery

Continuous Cycle that tightens every year with updated Asset data.  
UW Maintenance should lead to a reliable x 5-10 Year Cycle with verification every x2 Years

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## Customer Focus needs to be on core Productivity Agenda

Robust, stable & flexible chassis

Forward facing lights 6000 lumens

Camera and laser scaler (tilts 180 degrees)

Multiple sonar options Navigation or survey & LIDAR

Gripper or Biofoul removal tool

GPS/RTK for surface positioning (Pre-dive)

Acoustic positioning system

Ultrasonic thickness tester

DVL (Doppler Velocity Log)

Second 4k camera with multiple mounting locations & Zoom

**Leave the Collection & Interpretation of the Data to the Experts**

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## Focus on your core Productivity Agenda

### Sensor Fusion & Data Collection

- > All video & still imagery is overlaid or embedded with the required data
- > Mission status and live video can be streamed directly to interested parties

### Onboard AI Edge Computer Capabilities

- > AI assisted piloting functions
- > AI Event triggering to identify and flag defects

**Leave the Collection & Interpretation of the Data to the Experts**

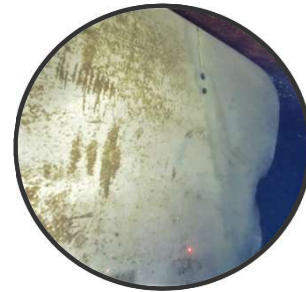
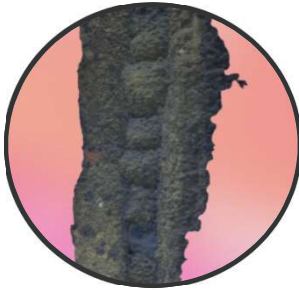
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# Proven Value

Immediate Success/Immediate Value

Field mission samples



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# Digital Twin – Using Photogrammetry Techniques



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# Australian Made

Development of a competitive Australian Based ROV System /Services that is integrated with multiple payloads in support of “high value” Asset Maintenance Activities.



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# Thankyou

## Contact Us for a Demonstration

If you would like a demonstration or have any questions, feel free to contact us at your convenience via the following details and form.

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