OTC2015
2015 Offshore Technology Conference
4–7 May 2015
HOUSTON, TEXAS, USA

25742
From On-Orbit to Offshore: Shared Challenges, Collaborative Solutions

Gianluca Callini
JACOBS

Agenda

Similarities

Innovation

NASA @ WORK

Shared Challenges

Collaborative Solutions

Agenda

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Innovation

NASA @ WORK

Shared Challenges

Collaborative Solutions

Similarities

Space and Offshore Environments

Agenda

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Open Innovation @ NASA

Innovation

Center of Excellence for Collaborative Innovation

Challenge Cycle

- Develop Plan (Scope, Cost, Schedule)
- Develop Challenge Plan (Refine Scope, type of challenge, and desired outcome)
- Execute Challenge (Marketing, evaluate solutions, award prize)
- Post Challenge (evaluation, lessons learned)

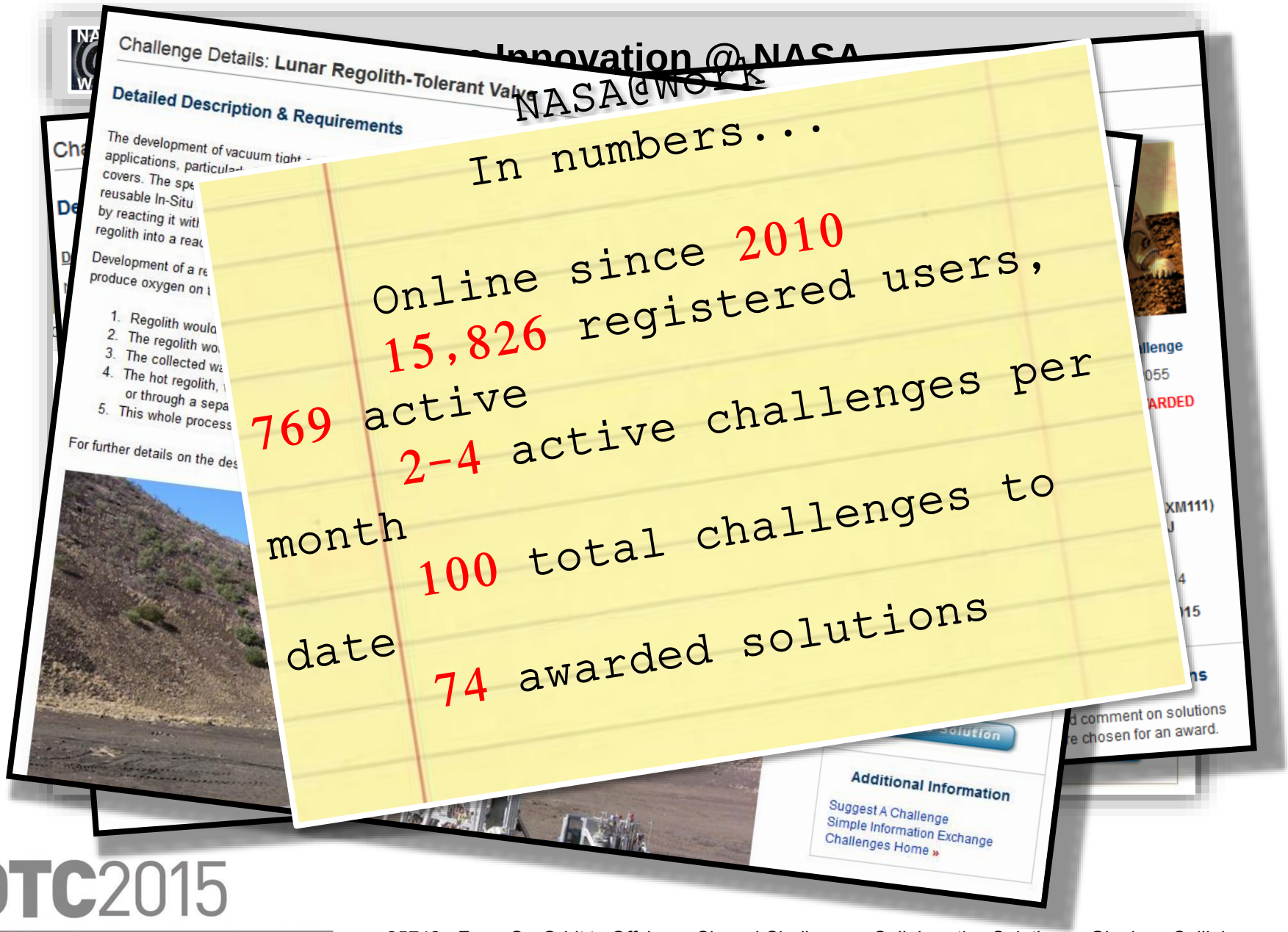
Services

- Educate & Share Best Practices
- Implementation Guidance
- Measure Impact

CoECI

Current Platforms

- NASA Challenge owners
  - NASA@Work
  - NASA Innovation Pavilion (InnoCentive)
  - NASA Tournament Lab (Harvard/TopCoder)
  - yet2.com
- Other Federal Agency Challenge owners
  - InnoCentive
  - Harvard/TopCoder
  - yet2.com


Challenge Details: Lunar Regolith-Tolerant Valve
Detailed Description & Requirements
Additional Information
Suggest A Challenge
Simple Information Exchange
Challenges Home »
NASA@work
In numbers...
Online since 2010
15,826 registered users,
769 active
2-4 active challenges per month
100 total challenges to date
74 awarded solutions

NASA @ WORK Innovation

Open Innovation @ NASA

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FILLING VASCULAR SPACES

Alan B. Lumsden, M.D., DeBakey Heart & Vascular Center

PIPELINE INFECTION

ROBOTS IN HOSTILE ENVIRONMENTS

Robert Ambrose, Ph.D., NASA/Johnson Space Center

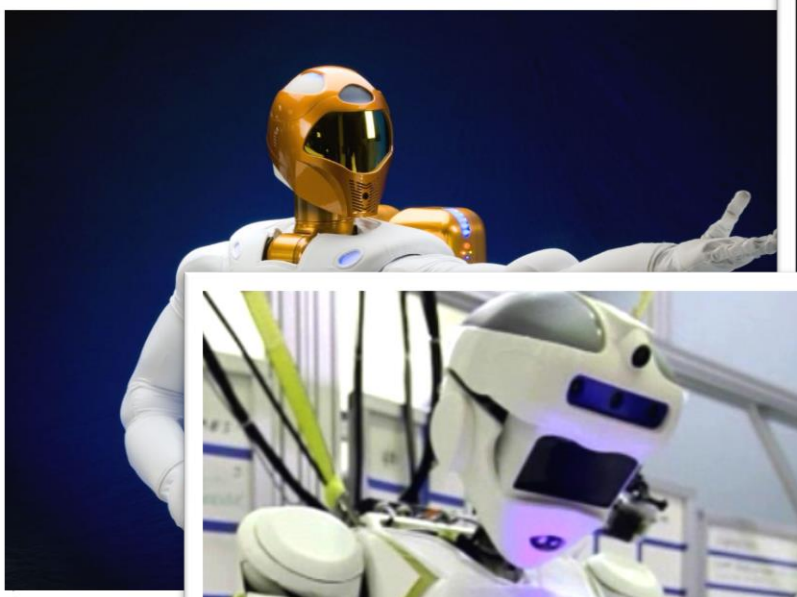
Click here to view the Challenge Lecture

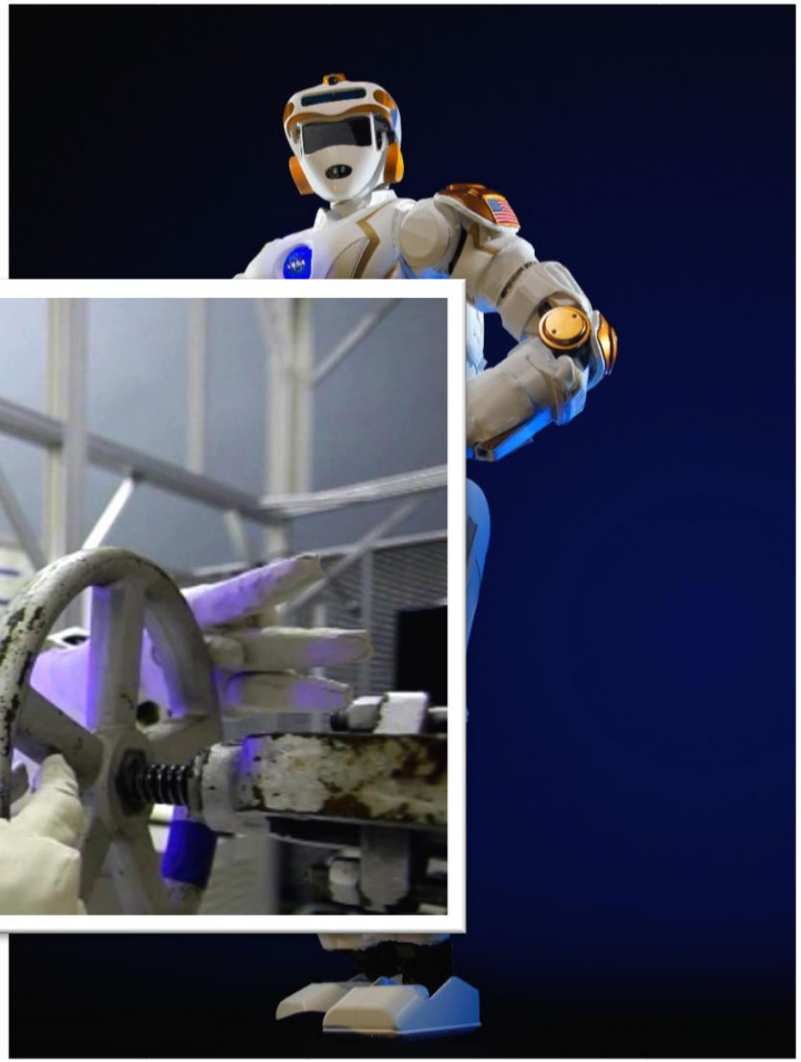
To send your thoughts or ideas to Robert Ambrose click here

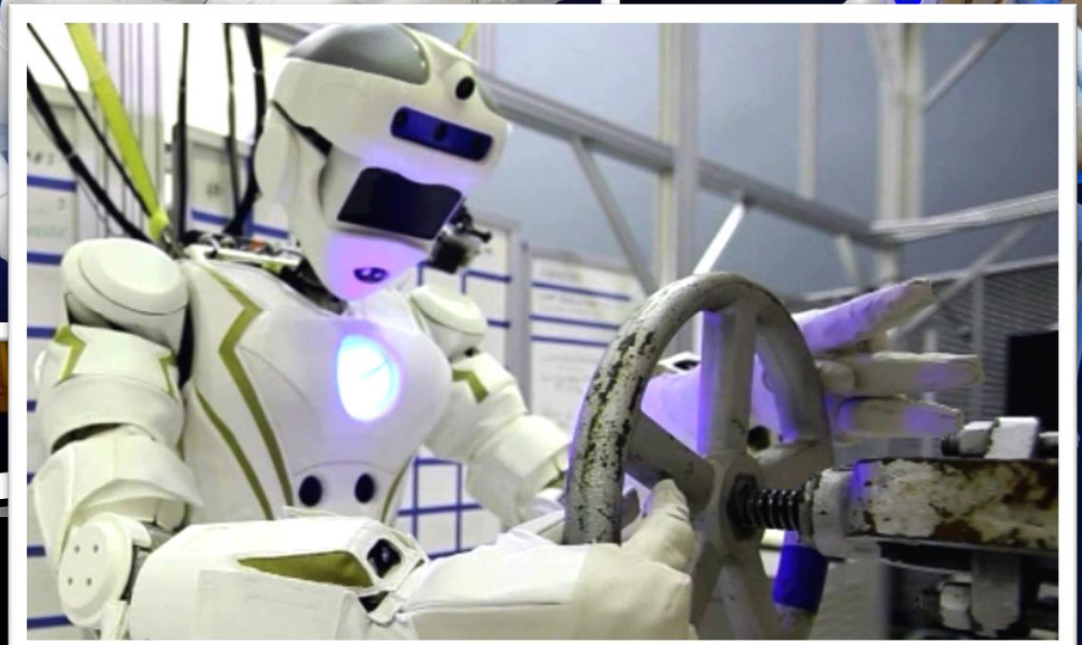
PUMPS &

NASA @ WORK Innovation

Open Innovation @ NASA







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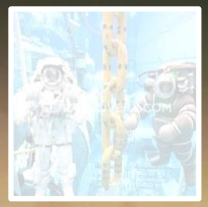

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Areas	Challenges
Crew and Thermal Systems	Life support systems and thermal control systems in extreme environments (pressure, thermal, remote).
Aerosciences and Flight Mechanics	Mission design, risk mitigation; software reliability and safety.
Propulsion and Power	Safer battery technologies in extreme environments.
Software, Robotics, and Simulation	Assist/Augment humans; take humans place in hazardous situations; teleoperation/telepresence.
Structures	Lighter, human-rated composite structures.
Avionics	Autonomous guidance, navigation and controls; RFID asset management; human interface systems.

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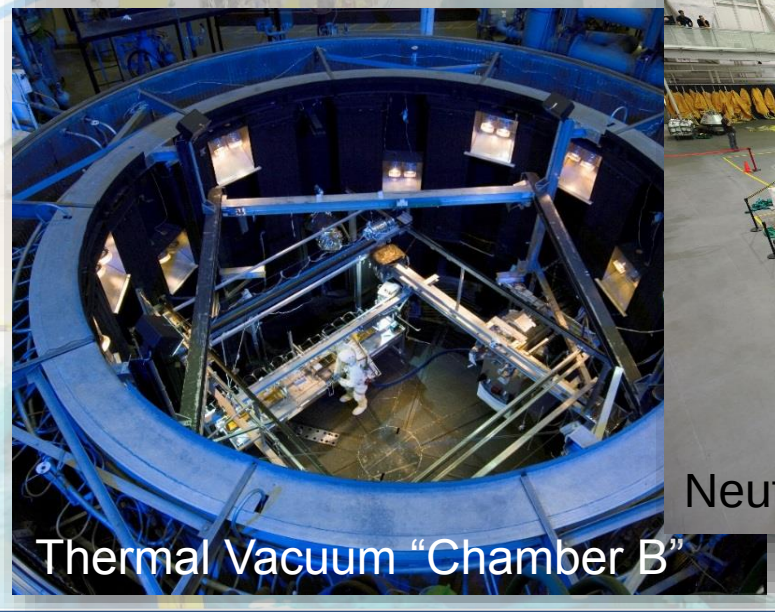
Environmental Analogs


Thermal Vacuum "Chamber B"


Neutral Buoyancy Laboratory

Repurposing/adapting space simulation test facilities (e.g. thermal/thermal-vacuum, weightlessness) for training and testing.

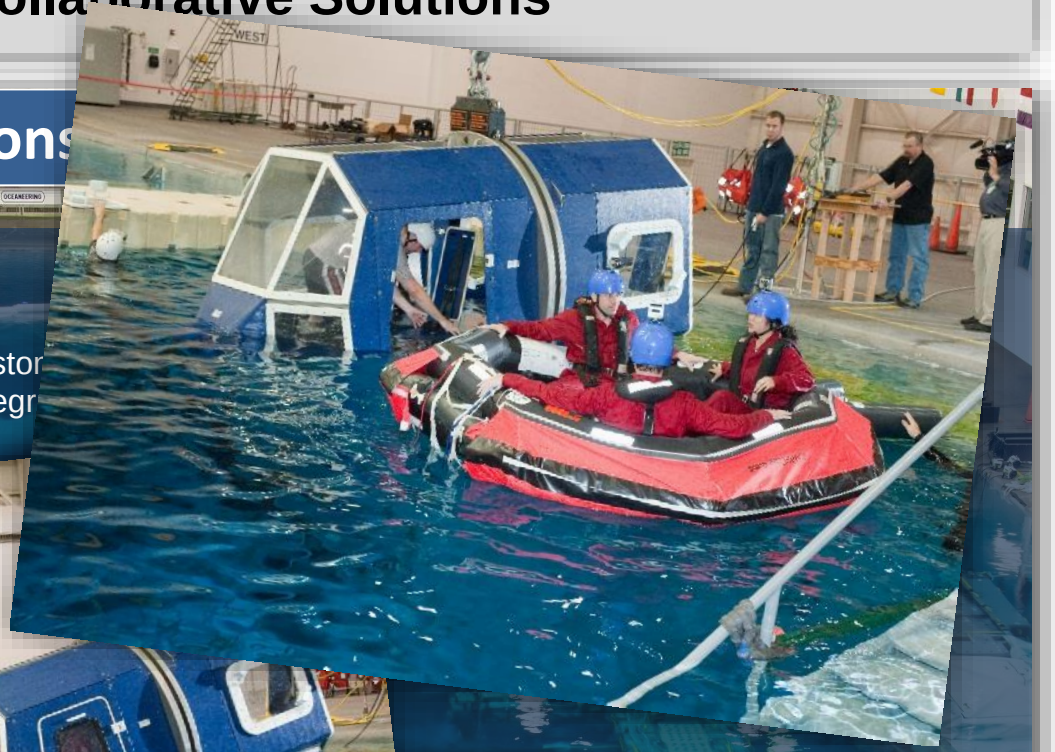
Collaborative Solutions

Collaborative Solutions

Hazardous Operations

The Customer

Petrofac can provide services to custor
cycle, on either a stand-alone or integr
to a customer's needs.



ress training. Utilize NBL operations

to offer these services long term

Collaborative Solutions

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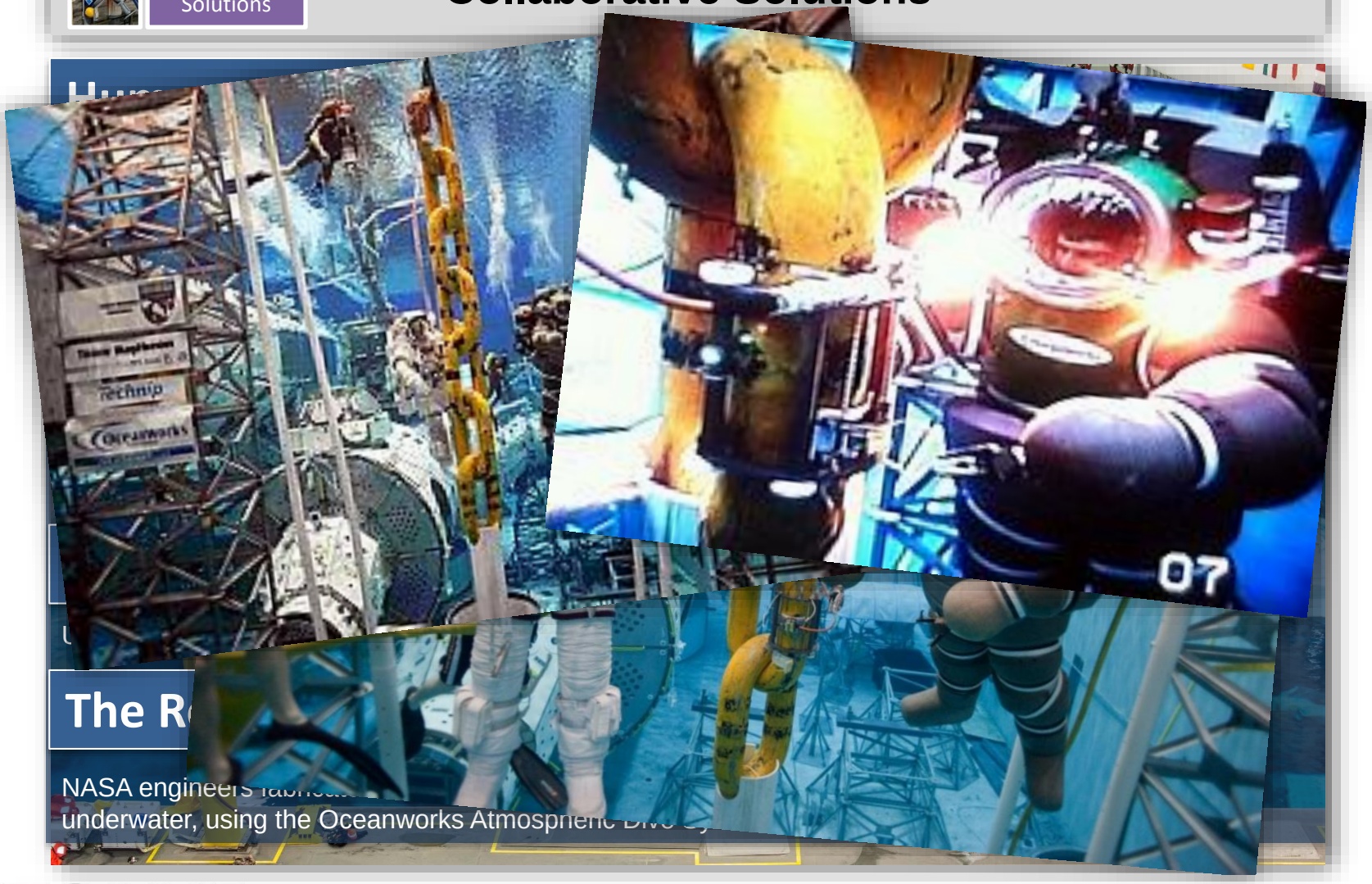

Collaborative Solutions

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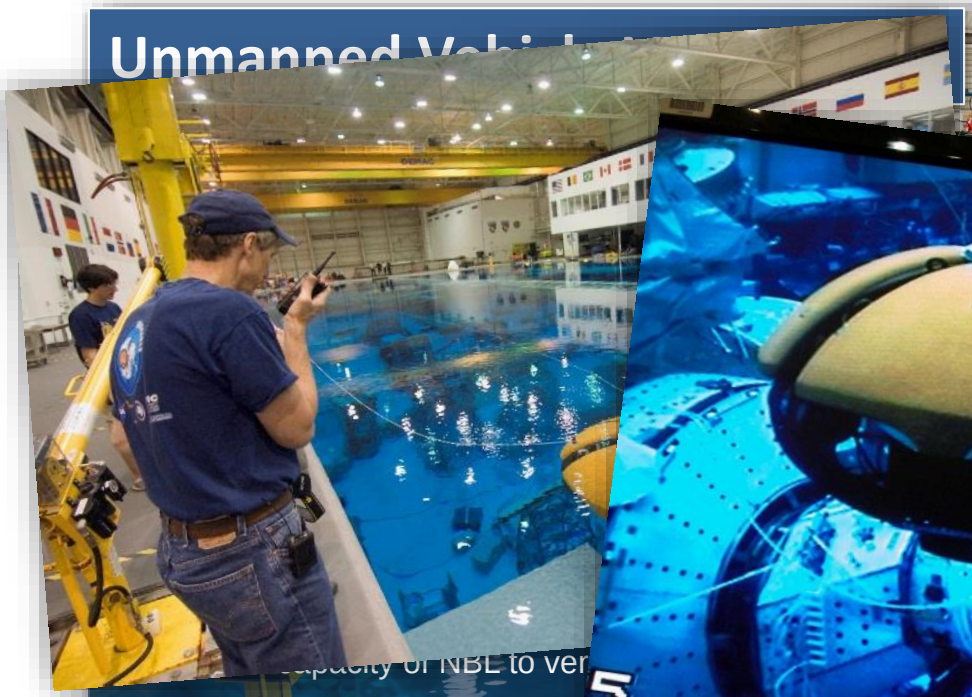
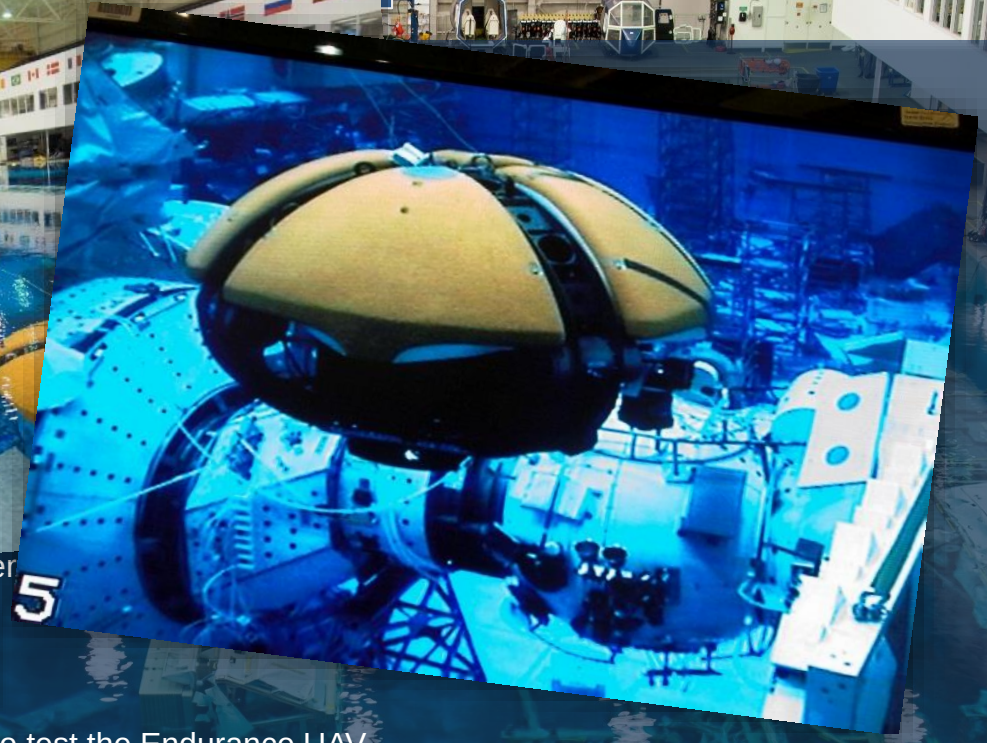
Unmanned Vehicle





The Result

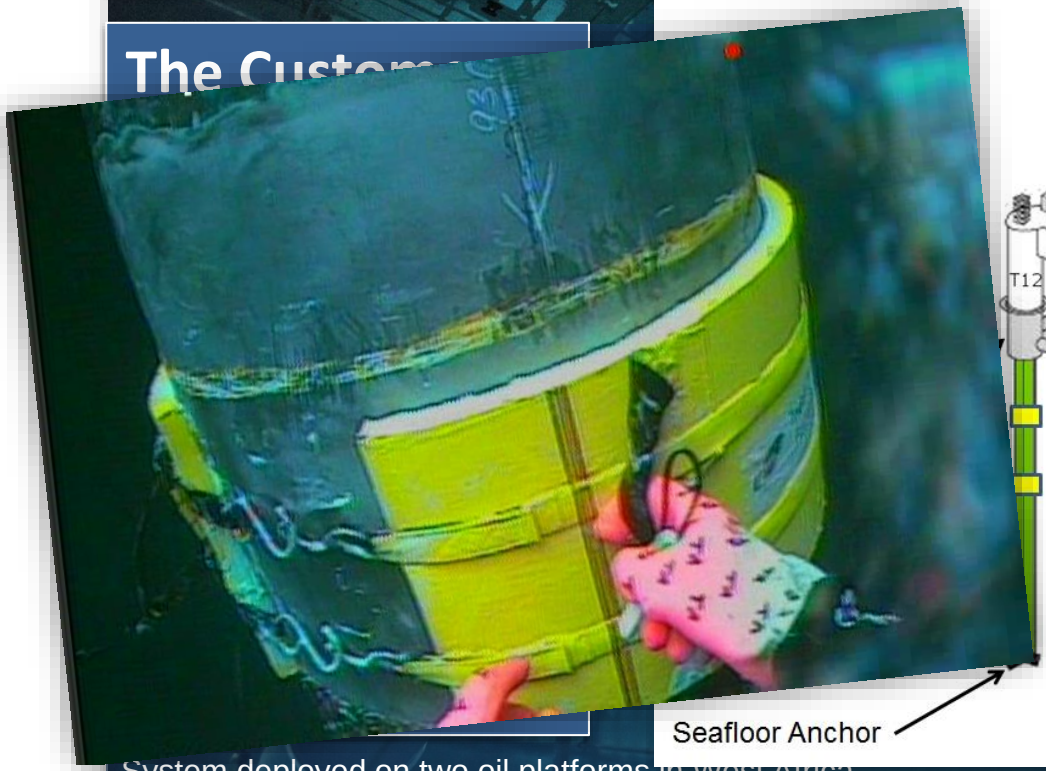
NBL available volume was used to test the Endurance UAV

Collaborative Solutions

Collaborative Solutions

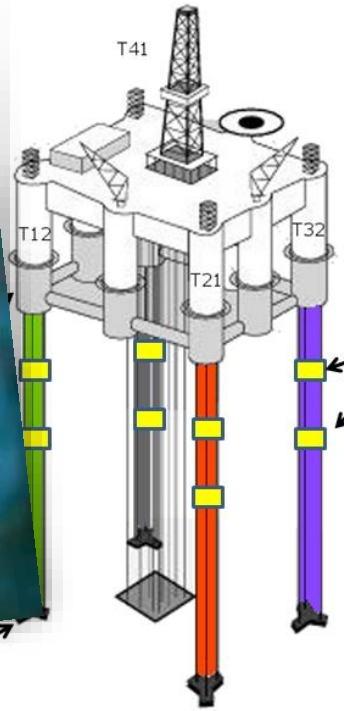
Hardware Development

The Custom



System deployed on two oil platforms in West Africa

Tension Leg Platform



Instrumented Clamps (Two per Tendon at 60 and 120 ft Depth)

A total of 16 clamps were installed on two oil platforms

Collaborative Solutions

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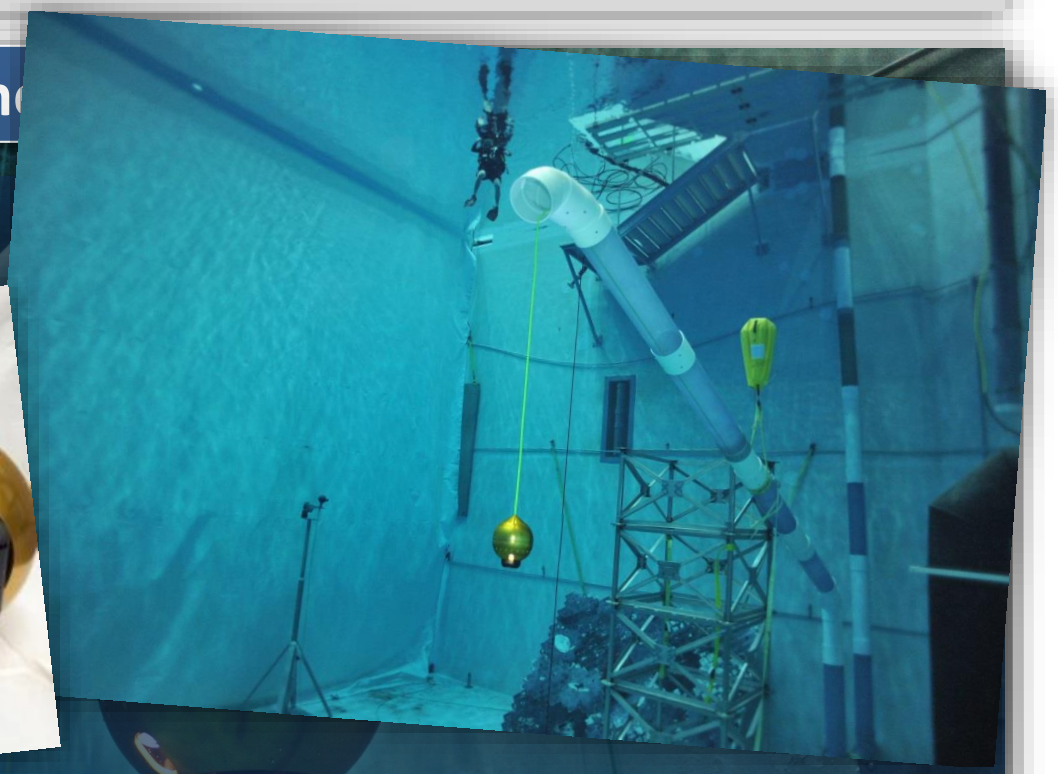
Hardware Developm

The Customer

Major oil and gas compa



Using some technologies developed for a prior extravehicular camera, built, test and delivered sensor spheres. Tested at NBL and at remote oil platforms.

Conclusion

Today's NASA is in a very different environment than at its inception

Opportunities for collaboration with other industries driving technology in their respective fields

Agency is transforming to become lean and more adaptive to innovate and collaborate

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This is just the beginning…

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Acknowledgements / Thank You / Questions