Neil initially studied business in Aberdeen then trained as a commercial diver spending eight years carrying out numerous diving assignments in the UK and Norwegian waters involving new construction projects, pipeline surveys, welding and inspection. He has over 25 years' management experience in director and business development roles, combined with over 15 years in the subsea industry.

Prior to joining Subsea UK, he spent four years managing the National Hyperbaric Centre which included project-managing saturation diving operations and hyperbaric weld trials. He more recently developed the subsea safety training and consultancy aspect of the business, where he regularly lectured to subsea engineers and delivered a range of training courses both in the UK and overseas.

He has experience working in India, Middle-east, Africa and Brazil and has worked with the Oil and Gas Producers diving operations sub-committee on client representative training and competency for subsea projects. He was also an active member of the IMCA diving safety, medical, technical and training committee.

In 2013, the inaugural subsea robotics conference covered the oil and gas drill support and construction markets. New developments were coming in both hydraulic and electric vehicles, as well as tooling and sensors. The market for our services was booming.

Fast forward to 2019 and the conference agenda reflects an industry that has been through a roller coaster ride and is now on the cusp of transformation. Advances in autonomy, batteries, through-water communications, remote control, software, fast digital imaging, unmanned surface vessels, artificial intelligence, 3D scanning, drones, electric powered tooling, field resident subsea systems, and hybrid autonomous / remotely operated systems, now form the substance of our agenda.

The convergence of these technologies is arriving at a time when the industry has been starved of investment, and many traditional players have struggled to maintain their business in the face of a generational downturn.
So how do we square the opportunity with the economics? And what will the future of subsea robotics look like?

*Steven Gray founded ROVOP in 2011 after 16 years in the legal, banking and investment industries.*

10:15 Chris Shepherd – Head of Strategic Capability – Maritime at the UK Defence Solutions Centre

The UK Defence Solutions Centre (DSC) is an independent organisation established capability and industrial strategy with a primary focus on the international market and UK prosperity. Chris joined the UK DSC earlier this year as the new Maritime capability lead on secondment from Thales UK.

*Having graduated from the University of Leeds in Mechanical Engineering and Business Management Chris’ career started in the defence sector working for QinetiQ, over the next 15 years he worked on some of the largest defence programmes in the UK spanning aerospace, land, complex weapons and finally moving to maritime. Prior to joining the DSC Chris was the Sector Director for Mine Warfare in Thales involved heavily in the MMCM programme and developing the first “drone of drone” system soon to be operational with the Royal Navy. Most recently Chris has been working alongside Navy Headquarters to help develop the capability roadmap and understand how technology and autonomous assets will change the future battlespace, not only for our Navy but the ever changing threat.*

This presentation will discuss some of the current strategic thinking of introducing new technology and specifically autonomous platforms in to the Royal Navy - Why is it important to the Royal Navy, What considerations need to be made and Where are we likely to see near term success.

10:45 – 11:15 Coffee Break and Networking

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11:15   Eric Primeau, Senior Technical Specialist, BP

For the past 30 years there has been little change in underwater asset inspection methodologies: video cameras and contact cathodic protection measurements acquired from work class ROV operated from ever larger surface vessels. Traditional inspection velocities anywhere between 500m – 800m per hour. The advent of fast digital imaging which replaces video with multiple perspective high definition stills imagery, optional colorised points cloud and field gradient cathodic potential measurements has seen inspection velocities in excess of 5 kilometres per hour. The next evolution is to host these sensors on underwater vehicles specifically designed for fast digital imagery as well as operation from unmanned surface vessels.

Eric Primeau presents BPs experience and path to 2025 where the vision is to undertake all BP underwater asset inspection employing unmanned remotely operated systems.

Eric Primeau graduated Plymouth and Heriot Watt universities in Marine Civil Engineering, Hydrographic Surveying & Subsea Engineering respectively. He spent many years in the field from surveyor & Party Chief through to Consultant on a wide variety of survey, site investigation, inspection & engineering projects.

Onshore, Eric worked for several major contractors in Project Management & Business Development roles. In 2011 Eric commenced with BP as Geomatics Manager for the Caspian region, subsequently migrating to North Sea, in 2014 where he currently remains. In 2019 Eric was appointed as Senior Technology Specialist for BP with the remit to drive technology developments within BP, specifically the Global Subsea Execution function. Eric is a Fellow of the Chartered Institute of Civil Engineering Surveyors and a Chartered Engineer.
11:45  Enabling Autonomous Inspection Technologies to Transform IRM Operations

Subsea Oil and Gas Inspection Repair and Maintenance (IRM) services have traditionally been vessel-based, relying on Remotely Operated Vehicles (ROV) or Diver operations. The industry challenge to reduce costs is driving the development of new working practices, leveraging the latest in communications, system electrification and autonomous technologies to enhance underwater vehicle capability.

The recent focus on the development of onshore ROV Control Centres and high-speed survey vehicles are examples of bringing significant but incremental savings to the market. These initial steps have demonstrated that innovative technology driven solutions can again deliver good results. The industry is now more open to trying new technologies and methods. The long-aspired objective of reducing costs, whilst maintaining a high-quality service is now being looked at with renewed impetus, powered by the recent successes.

Several developments are underway towards the field resident hybrid ROV/AUV systems capable of a wide range of IRM tasks. These systems target benefits beyond cost reduction - enabling digitalization and condition-based monitoring, reduced environmental impact, reduced HSE Risk and increased production efficiency.

This move towards seabed residency places an increasing burden on the autonomy and endurance requirements for the underwater vehicles.

This presentation will outline some of the enabling technologies in development for underwater autonomous inspection. In particular, extensive developments in goal-based mission autonomy, reliable subsea docking and feature-based navigation. Each of these technologies has tackled unique challenges in both hardware and software. This presentation will also comment on the trend towards electrification and digitalisation of highly capable and powerful underwater vehicles.

Jim is i-Tech 7’s Strategy and Technology Development Manager. As a Chartered Electronics Engineer, he has spent more than 30 years working with underwater vehicles and robotics in design, development and operations. He has held roles in engineering, project management and technology development. Jim considers himself fortunate to have been part of many ground-breaking projects and continues to promote the introduction of autonomous technology in underwater vehicle services.
Jon was appointed Managing Director for Saab Seaeye in September 2012. He joined the company in 1998, rising from ‘special projects’ engineer to Engineering Manager then Engineering Director. In this role he was responsible for bringing smarter underwater robotics to the market with significant technological advances and product design achievements. Notable developments include the highly successful and powerful XT systems; the intelligent control of nodes concept (iICON); and undertaking the complex challenge of integrating military and commercial underwater technologies to bring new solutions to problems in both sectors of operation.

Risk mitigation, cost reduction and successful execution are common goals associated with underwater robotics applications in both the defence and commercial energy markets. With common goals, it stands to reason that synergetic technologies can be leveraged across both sectors.

This paper is a case study of the deployment of a remotely operated vehicle from an unmanned surface vessel for the mine countermeasures application, specifically mine neutralisation. The scope of the project requires targets to be acquired, identified and neutralised with the vehicle and USV operating in extreme currents.

This application and operating conditions requires a vehicle with a high degree of stability and manoeuvrability. The low bandwidth, high latency communication link between the control station and the USV & ROV required a high degree of automation and autonomy to be included in the vehicle design.

While the application is defence based, the presentation demonstrates how the technology involved in this demanding application is also used in similar and other offshore energy applications.
13:45  Taking Autonomy to the Next Level

The proposed presentation will examine how Oceaneering has continued to meet the industry’s need with advanced field-proven subsea robotic and autonomous systems. The presentation will show Oceaneering’s commitment to technology development and focus on the most recent advancements in autonomy in relation to our next-generation vehicle, the Freedom ROV. The presentation will pay particular attention to the ongoing testing happening at our ‘living lab’ in Norway. It is at this lab that Oceaneering developers are testing and enhancing the technology that will enable us to take autonomy to the next level. We will present some of the takeaways so far as well as some of the challenges that we are currently working to overcome.

Steffan earned a Masters degree in Naval Architecture from the University of Southampton. He has worked as a Naval Architect for Maersk, building everything from container vessels to tug boats. He later worked as a Project Manager for Damen Shipyards in Singapore, building fast aluminium patrol vessels and crew carriers.

Steffan is currently employed by Oceaneering where he has held various roles, starting with subsea engineering. His most recent role Director of Emerging Technology involves exploring, mapping, and linking new technologies with the future needs of Oceaneering’s customers. This diverse customer base includes those in oil and gas, offshore wind, aquaculture, and general manufacturing, to name a few.

14:15  Reaching beyond its class – The Versatile and Lightweight Observation ROV

Seatronics are synonymous with providing fully integrated sensor packages for use on larger work class ROV’s. The presentation will discuss how this same approach was the focus for the design and development of the VALOR platform enabling our clients to conduct survey, light intervention tasks and inspections from a small, reliable and cost-effective system. The benefits of the inbuilt multiplexer system will be explained but not in isolation as the significant power and current handling capabilities of VALOR will be shared following a series of environmental tests. The presentation will also lift the lid on Seatronics Syntonic software which harnesses the considerable power on offer allowing users to gather data in challenging conditions whilst either holding station or moving in a smooth controlled fashion around the worksite.
The presentation will demonstrate the differentiators inherent within VALOR which allow it to replicate the connectivity of a survey grade work class vehicle, offering significant cost savings and reduced mobilization costs to the end user.

Prior to joining Seatronics in January 2019, David spent over 16 years working in the design and development of observation-class electric ROVs. ROV control systems and task automation are David’s main areas of work as well as ROV components and electric ROV tooling. David plays a pivotal role in leading the development of Seatronics ROV technology and products, in particular the newly launched VALOR ROV.

14:45 – 15.00  Coffee Break and Networking

15.00  UV optical modems: lights, camera, subsea internet!

Using high power, rapidly modulated light emitting diodes (LEDs), it is now possible to transfer very large volumes of data from point to point – exponentially more than is traditionally available using acoustic techniques. This volume of data and range enable new concepts for deploying and operating autonomous subsea robots. An Autonomous Underwater Vehicle (AUV) can carry out an autonomous mission and turn into an untethered ROV while in close range of a structure or platform. A pilot using a connection cabled to shore can control the AUV and carry out light intervention tasks.

There is one catch, the visible light spectrum is also used by ROV/AUV cameras and lights. This talk presents a solution, operating at a lower wavelength it is possible to still enjoy the benefits of a large bandwidth.

Ioseba (Joe) Tena is tasked with helping shape and grow Sonardyne’s business within the global maritime defence and autonomy markets. Joe has more than 20 years’ experience working with marine robotic systems. At Sonardyne he works alongside his colleagues to ensure that clients’ operational requirements are completely satisfied through the delivery of fit-for-purpose, low-risk, subsea technologies. Joe has a PhD in Electrical and Electronic Engineering from Heriot-Watt University focusing on the use of sensors to improve situational awareness for underwater robots.
15:30 Field Proven Artificial Intelligence

Viewport3 are providers of subsea 3D object scanning services to the IRM sector saving our customers in the region of £10 million to date.

The most attractive and de-risked methods of deploying AI are those which are purely software based, absent of any demand to develop or locate new hardware in the field.

AI now enables 3D inspections to be completed at accuracy levels and in locations which were previously unachievable. Industry can now demand technical grade, sub-millimetric 3D scans of critical subsea hardware.

Furthermore, operators are becoming increasingly aware that they can deploy these scans – one of the most flexible examples of AI – without risking operational time on un-proven hardware.

We are now able to better understand the way our subsea hardware changes shape during its lifecycle. This enables us to make more intelligent decisions and ensure we derive the best possible value not only from its operational efficiency, but also by avoiding brown-field hardware being replaced too early or being deployed beyond its assured capabilities.

Viewport3 simplify value extraction and carry out inspections in difficult to reach locations.

Richard’s Oil and Gas career began with Kvaerner FSSL (now AkerSolutions). Over a 14 year period Richard traced a path from Technician to Tendering / BD Manager in the subsea environment. This was followed by 2 years at Centrica Energy, seeing the challenges of working subsea from the Operator’s view.

Richard is Co-founder and Director at Viewport3, which exists for the purpose of using advanced 3D scanning methods and intelligent assessment techniques to solve high-risk problems. These methods increase our knowledge of what lies subsea and how we can best assess, measure, analyse and interact with it. Viewport3’s ultimate goal is to reduce the costs of IRM, decommissioning and operations in a mature basin.

16.00 Networking & close

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