

## TechXchange 2016

### Programme

Time	Programme
8:00 am	1:1 Meeting Session
9:00 am	<p><b>Welcome Address – Mr Harry Seah, Chief Engineering and Technology Officer, PUB, Singapore’s National Water Agency</b></p> <p>How Singapore supports the commercialisation of innovative technologies throughout the entire water value chain.</p>
9:10 am	<p><b>Plenary Debate</b></p> <p>“Is there a lack of good ideas in the market vs a lack of funding”</p> <p>A panel of high profile speakers will debate this key topic in the industry. This exciting interactive debate will involve audience participation through our customised app developed specifically for TechXchange and sponsored by XPV Water Partners.</p> <p>Moderator</p> <ul style="list-style-type: none"> <li>• Steven Kloos, Partner, True North Venture Partners</li> </ul> <p>Speakers</p> <ul style="list-style-type: none"> <li>• Melissa Meeker, Executive Director, WERF</li> <li>• ReinhardHubner, Investment Director, Skion</li> <li>• Piers Clark, Chairman, Isle Utilities</li> <li>• Trevor Hill, CEO, Fathom</li> </ul>
10:00 am	<p><b>Innovation Competition</b></p> <p>This forum will feature presentations from 7 innovative technologies followed by questions, analysis and debate involving both audience and panel. The audience will take part in this interactive competition as the fourth judge and will have the opportunity to vote for who they believe should will the innovation award.</p> <p>Innovators:</p> <ul style="list-style-type: none"> <li>• Syrinix - James Dunning, CEO, UK</li> <li>• Century Water – Eugene Liu, Managing Director, Singapore</li> <li>• Oxymem - Dr. Eoin Syron, CTO, Ireland</li> <li>• Subnero - Manu Ignatius, Project Manager, Singapore</li> <li>• Lighthouse - Choo Chun Keong, General Manager, Singapore</li> <li>• Utilis, Eddy Segal, VP Sales, Israel</li> <li>• Orege, Pascal Gendrot, CEO &amp; Founding Partner, France</li> </ul> <p>Judges:</p> <ul style="list-style-type: none"> <li>• Thierry Mallet, SVP for Innovation, Marketing and Business, Suez</li> <li>• Tim Lam, Managing Director, Isle Singapore</li> <li>• Steven Kloos, Managing Partner, True North Venture Partners</li> </ul>
11:00 am	Coffee Break - 1:1 meeting facility
11:30 am	<p><b>Technologies as True Solutions to Future Water Security</b></p> <ul style="list-style-type: none"> <li>• Trevor Hill, CEO, Fathom</li> </ul>

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11:45 am

### Suez's perspective of emerging technological trends

- Thierry Mallet, SVP for Innovation, Marketing and Business, Suez

12:00 pm

### Round Table Debates

Take part in roundtable discussions hosted by leading industry experts. These sessions are designed to enable you to share ideas, discuss key industry issues and develop business leads. There are 4 themes led by moderators, who will first provide a 3 minute talk on each theme and related topics before inviting the roundtables to start discussion. Once the discussion closes, the moderator of each theme will re-join the stage. Selected roundtable hosts will share information on the topics discussed and the moderators will provide.

#### Theme 1: Accelerating technology development through investment and partnerships

This table will discuss best practices globally in structuring partnerships through to the development of incubator programmes. It will analyse the ideal approach to commercialise technologies and whether cooperation between sector players is the key to achieving innovation.

Moderator:

- Dave Henderson, Managing Partner, XPV

Table Hosts:

- Nathan Allen, Executive Director, WaterStart
- Hein Molenkamp, Managing Director, Water Alliance
- ReinhardHubner, Investment Director, Skion

#### Theme 2: Smart Data and Operations

This table will focus on smart data and the Internet of Things (IoT) in the context of the wider water industry. The participants will discuss everything from how the IoT will revolutionize operations through to how best to integrate SAAS from SME's into water utilities/industrial clients. This debate will also look a cyber security and the security risks involved as the industry deploys more powerful smart technologies.

Moderator:

- Lorraine Frega, Chief Strategy Officer, Shanghai Wending Environmental Technologies

Table Hosts:

- Kevin Fisher, Head of Water Treatment, SNWA
- Trevor Hill, CEO, Fathom
- Martin Shouler, Associate Director, Arup

#### Theme 3: The Resource Revolution

This table will discuss whether the private sector can provide investment models that will facilitate the resource revolution and the opportunities for investors in this space. It will also delve into potential transformative innovations that can boost resource supply and productivity while leveraging the water-energy nexus.

Moderator

- Andrea Gysin, Managing Director, Ostara

Table Hosts:

- Piers Clark, Chairman, Isle
- Saud Siddique, Executive Chairman, Odyssey Capital and Tigris Infrastructure Partners

#### Theme 4: Membranes for Water Reuse and Drinking Water Treatment

This table will focus on new and novel holistic membrane technologies as an enabler for water reuse. It will also look at how water utilities and other industry leaders can work together to overcome public perception of water reuse. Finally they will discuss whether decentralized water systems is a real opportunity and what this look would like.

Moderator:

- Frank Rogalla, Head of Innovation, Aqualia

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	<p>Table Hosts:</p> <ul style="list-style-type: none"> <li>• David Jellison, Global Business Development Leader, Nanostone</li> <li>• Dr Eoin Syron, Chief Technology Officer, Oxymem</li> <li>• Bertrand Garnier, Technical Director, Suez</li> </ul>
1:30 pm	Networking Lunch
2:30 pm	<p><b>Keynote Talk</b></p> <p>Enabling global change: How are global water leaders developing frameworks to encourage and incentivise the adoption of new technologies. Speaker:</p> <ul style="list-style-type: none"> <li>• Patrica Mulroy, Distinguished Maki Faculty Advisor, Desert Research Institute.</li> </ul>
2:45 pm	<p><b>Microsoft's vision and opportunities for real time data services for water consumers</b></p> <ul style="list-style-type: none"> <li>• Mr Ujjwal Kumar, Senior Technical Evangelist, Microsoft</li> </ul>
3:00 pm	Coffee Break - 1:1 meeting facility
3:30 pm	<p><b>Innovation Competition</b></p> <p>This forum will feature presentations from 7 innovative technologies followed by questions, analysis and debate involving both audience and panel. The audience will take part in this interactive competition as the fourth judge and will have the opportunity to vote for who they believe should win the innovation award.</p> <p>Innovators:</p> <ul style="list-style-type: none"> <li>• Arvia - David Parocki, Sales Director, UK</li> <li>• Aerofloat - Ray Anderson, Managing Director, Australia</li> <li>• Envirotech &amp; Consultancy, Janet Lee, Managing Director, Singapore</li> <li>• Nanostone, David Jellison, Global Business Development Leader, USA</li> <li>• Environmental Dynamics International, Randall C. Chann, President and CEO, USA</li> <li>• Vienna Water Monitoring, Wolfgang Vogl, CEO, Austria</li> <li>• Muradel, Prof David Lewis, CEO, Australia</li> </ul> <p>Judges</p> <ul style="list-style-type: none"> <li>• Adam Lovell, Executive Director, WSAA</li> <li>• David Henderson, Partner, XPV Water Partners</li> <li>• Lorraine Frega, Chief Strategy Officer, Shanghai Wending Environmental</li> </ul>
4:30 pm	<p><b>How the Venturi portal can work for you</b></p> <ul style="list-style-type: none"> <li>• Martin Shouler, Associate Director, Arup</li> </ul>
4:45 pm	<p><b>Innovation Awards Ceremony &amp; Closing Comments</b></p> <ul style="list-style-type: none"> <li>• Piers Cark, Chairman, Isle</li> </ul>
5:15 pm	1:1 Meeting Facility



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### Sponsors

Silver Sponsor – Fathom



**FATHOM** is a Phoenix-based, utility-derived, technology agnostic, geo-spatial platform that defines the meter-to-cash vertical in the water space. FATHOM is currently deployed on 4 million meters in the US and is uniquely architected to harvest the value of AMI data for all water utilities - and making that data useful to operators and customers through all phases of Meter Data Management (MDM), Billing and Customer Presentment. FATHOM allows for the incremental adoption of Advanced Metering Infrastructure (AMI) by homogenizing and normalizing the data from any meter vendor, any technology – manual, Automated Meter Reading (AMR, or drive-by) and AMI – and makes that information available instantly across the utility estate. FATHOM also provides a platform that facilitates technology adoption by utilities. The FATHOM Store provides a normalized data integration methodology for technologies, and a simple way for utilities to acquire technology.



**XPV Water Partners** is comprised of experienced water entrepreneurs, operators, and investment professionals dedicated to making a difference in water. XPV partners with, invests in, and actively supports entrepreneurial companies so they can grow and deliver value for all stakeholders. XPV manages over \$400 million in investment capital from some of the top institutional investors in North America, Europe, the Middle East, and Asia.

The XPV family of portfolio companies is making a difference in water both by driving more efficient management of the world's most critical resource and by creating significant shareholder value that can help move the industry forward.



**WaterStart** aims to make Nevada a channel for innovation by leveraging the state's leadership and expertise in water. Our business model involves a joint venture between academic, public, and the private sector. Each of our partners brings together strategic resources and expertise, connecting water management agencies, technology companies, and policy makers in order to spur economic growth in the water sector. We're a cluster of global leaders in the implementation of water innovation. Our core mission will create quality job growth and economic diversification in the region



**Ostara** helps protect precious water resources by changing the way cities around the world manage nutrients in wastewater streams. The company's Pearl® technology recovers phosphorus and nitrogen at municipal wastewater treatment plants and transforms them into a high-value, eco-friendly fertilizer, Crystal Green®. The process greatly reduces nutrient management costs and helps plants meet increasingly stringent discharge limits while improving operating reliability. Crystal Green is an enhanced efficiency fertilizer comprised of phosphorus, nitrogen and magnesium (5-28-0 10% Mg), and is marketed through a global network of blenders and distributors to growers in the turf, horticultural and agriculture sectors. Its unique Root Activated™ mode of action improves crop yields, enhances turf performance and significantly reduces the risk of leaching and runoff, thus protecting local waterways from nutrient pollution. Ostara operates multiple facilities throughout North America and Europe

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and will open the largest municipal nutrient recovery facility in the world with the City of Chicago in 2016. The company is the recipient of numerous awards including a World Economic Forum 2011 Technology Pioneer and the Global Cleantech 100.

### Bronze Sponsor

Arup - Shaping a better world



Arup are an independent firm of designers, planners, engineers, consultants, economists, scientists and technical specialists offering a broad range of professional services across the water cycle. Through our work we make a positive difference in the world for people and the environment.

Arup has formed a joint partnership with WRc Ltd, a prominent UK company working in the technology sector; both companies renowned for innovation and forward thinking. Together we have developed **Venturi** – our global innovation portal.

A unique platform for creating a continuum of faster technology implementation, Venturi is designed to offer the market a new vehicle to speed up innovation adoption in the water sector - providing an end-to-end identification, evaluation and implementation scheme. The scheme includes pre-assessment, due diligence and piloting stages managed by industry experts from the supply chain and accredited third party validators.



**Aqualia** is the water management company of FCC, one of the largest European services groups. Aqualia is the third largest private water company in Europe and seventh in the world. Aqualia responds to the needs of all parties, private and public, at all stages of the water cycle, providing water for human, industrial, and agricultural uses. Its main activity is the management of municipal water services and operation of large BOT projects.



**Winner** is a Shanghai-based water and wastewater solution company, dedicated to solving China's toughest pollution problems. Over the past 15 years, Winner has built a solid reputation for technological excellence by successfully executing more than 200 EPC contracts. We have implemented wastewater, water reuse and pure water solutions for some of the world's most demanding industries: chemicals, metallurgy, electronics, printing/dyeing, and food & beverage. We are a nimble, fast-growing company with a tremendous passion for water technologies and environmental protection. We are quickly expanding into small to medium-scale PPPs and BOTs. We constantly seek new partners to bring innovative technologies to our Chinese clients, and we believe in tailor-made partnerships that deliver outstanding value to all stakeholders.

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### Participating Companies



**Syrinix** is an award winning leader in providing intelligent pipeline monitoring solutions. Combining high-resolution data with automated analysis and alerts, Syrinix's solutions are transforming utilities' ability to reduce leaks, breaks and costs.

TrunkMinder – real time monitoring for active leak detection on critical trunk mains. Multi-sensor array, immediate event alerts and high resolution pressure and flow data capability.

PipeMinder – flexible network monitoring solution with a 5-year battery life and continuous high sample data analysis, essential to leak/burst reduction, network calming and asset repair planning.

RADAR – cloud based portal with detailed analytics, reporting and notifications. A single platform for multiple products.



**Arvia Technology** designs, manufactures, supplies and installs tertiary or advanced wastewater treatment systems to reduce hard COD, remove colour and treat organic micro-pollutants

Arvia's ODC™ System brings you the next generation of clean water and wastewater treatment. Within the ODC™, molecules of recalcitrant organics are broken down by hydroxyl radicals, whose generation likens Arvia's technology to an AOP. What makes Arvia's system superior to other AOPs is that prior to the electrochemical organics destruction, the ODC™'s highly conductive proprietary adsorbent, Nyex™, concentrates them on its surface, allowing for targeted, chemical-free, energy-efficient oxidation. In a nutshell, Arvia's ODC™ System embodies the AOP+ of tomorrow.



**Mycometer** provide rapid on-site analysis of total bacteria in water – The technology is US-EPA verified and in use worldwide. Mycometer A/S was founded in 1998 and develops rapid microbiology analysis for IAQ surveys, water utilities, industry and consultants. Selected references include; PUB, Intel, VITENS, Walter Meier Group and US government agencies. Mycometer is headquartered in Denmark and has offices in Tampa, US and Singapore to provide worldwide services.

### About the Products

Bactiquant®-water is a robust and reliable technology for the analysis of total bacteria in water samples, slurries, hydrophobic liquids (Oil) and a wide range of industrial liquids such as paints and beverages. The analysis results can be obtained in minutes. The technology can be implemented for on-site, as well as, lab based use. Applications include; Water Process Monitoring in Utilities and the Industry, Water Safety and Emergency Response, Legionella Risk Assessment, Industrial CIP, Aquaculture, Cooling towers, Consulting, etc.



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**Utilis** developed a unique technology for leaks detection in urban/rural drinking water distribution networks. Using technology that is used to look for water on other planets, Utilis analyzes satellite imagery to detect leaks in underground infrastructure. Leaks are identified within a few meters radius buffer from satellite images covering thousands of square kilometres at once, saving significant resources associated with finding leaks with current tools.

Utilis uses spectral aerial imaging – taken from satellite mounted sensor – to detect leakage in subterranean drinking water networks. Potable water leakage is detected by looking for the particular spectral signature typical to drinking water. Eventually, the user is presented with a Leakage Report on a GIS based application including leak size estimate.

Utilis has managed numerous projects across the globe, including in the U.S., South America, Australia, Europe and Israel, and has yielded successful, proven results.



**Nanostone Water** is leading development efforts for the next generation of ceramic membranes with a high surface area ceramic monolith UF membrane intended to provide well-recognized benefits of ceramic membranes at a price point competitive with polymeric membranes. This game-changing technology will make ceramic membrane technology affordable to a variety of MF/UF membrane applications for the first time. Nanostone Water also has a product line of polymeric membrane elements serving a variety of industrial process fluid and water treatment applications in Food & Beverage, Dairy, Electro-coating, and Landfill Leachate. Combining the power of our revolutionary ceramic membrane technology with a proven high-performance line of polymer membranes promises to deliver uniquely capable membrane solutions to a variety of applications.



**OxyMem** solves energy intensive wastewater treatment with an innovative 'Drop in' solution for wastewater aeration, the Membrane Aerated Biofilm Reactor (MABR). OxyMem MABR can complement existing treatment systems and deliver up to 50% additional biological capacity in an existing aeration or alternatively replace a legacy systems.

Conventional wastewater treatment consumes 2-3% of a nations electricity production. This is due a 100 years reliance on bubble diffusion for conventional treatment plants which will typically suffer energy losses of 65-70% in the process because of the oxygen transfer limitations in the process. OxyMem does not have any such limitations.

OxyMem uses hollow fibre gas permeable membranes to support a fixed film ecosystem for the biology which allows for direct delivery of oxygen to the micro-organisms. OxyMem can achieve 95% oxygen transfer rates which results in superior energy performance (75% saving), lower sludge production (50% less sludge), along with impressive process resilience.



**Aerofloat** is an Australian owned company which specialises in the treatment of greywater and industrial wastewater from a wide range of industries, including the food processing industry. Aerofloat designs, manufactures and installs simple, affordable wastewater treatment systems using its patented Dissolved Air Flotation (DAF) products and patent pending MBBR systems (Moving Bed Biofilm Reactor). The Aerofloat DAF uses a double hopper tank with a unique, patented hydraulic float removal system to funnel the waste float material from the top of the tank. Unlike traditional DAFs, the Aerofloat DAF has no mechanical scrapers, is essentially self-cleaning and uses a sealed and vented tank. The Aerofloat design features include: compact footprint, low power requirements, mechanically simple design - all of which, ultimately provide a more affordable DAF solution (treatment capacities range from 0.5-50 m3/h).

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Aerofloat also designs and manufactures unique MBBR systems which are in a covered polyethylene tank with easily removable aeration diffusers – enabling simple maintenance and cleaning procedures without draining or emptying the tank.

Aerofloat is actively looking for international distributors who, in conjunction with Aerofloat Australia will be able to complete a full treatment design, construct and installation option or provide advice and consultative services.



**Vienna Water Monitoring Solutions** (VWM GmbH) presents a new and revolutionary technology for online, real-time measurement of microbiological contamination of water. As an alternative to classical cultivation methods, VWM introduces the direct measurement of metabolic (specific enzymatic) activity of living microorganisms, as a measure for microbiological contamination. The measurement is performed fully automated, taking 15 minutes from sampling to result. The measurement devices named ColiMinder® have been examined and tested by universities and industries for the last 2 years, proving their performance and stability of measuring contamination from ultrapure to sewage water samples. VWM presented the ColiMinder at the International Water Summit in Abu Dhabi 2016 and has been awarded “FIRST PLACE INNOVATOR” in the [Innovate@IWS](#) contest.

For the first time in history the ColiMinder® makes microbiological contamination data available for process monitoring and control, enabling direct visualization and processing of microbiological contamination levels as a new base for process- monitoring, -optimization and – control, to gain efficiency and safety throughout water treatment processes and networks.

### Advisory Board

No.	Name	Company	Designation	Country
1.	Hein Molenkamp	Water Alliance	Managing Director	Netherlands
2.	David Henderson	XPV Water Partners	Partners	Canada
3.	Adam Lovell	Water Services Association of Australia	CEO	Australia
4.	Harry Seah	PUB	CETO	Singapore
5.	TahaOuarda	Masdar	Head of Water and Environment	UAE
6.	Reinhard Huber	Skion	Investment Manager	Germany
7.	Frank Rogalla	Aqualia	Head of Innovation	Spain
8.	Nathan Allen	CoE	Executive Director	USA

Info accurate as of 15 June 2016. List is subject to changes.