

An aerial night view of a city skyline, likely Copenhagen, featuring a river and a bridge. The city lights are visible against a dark blue sky.

uponor

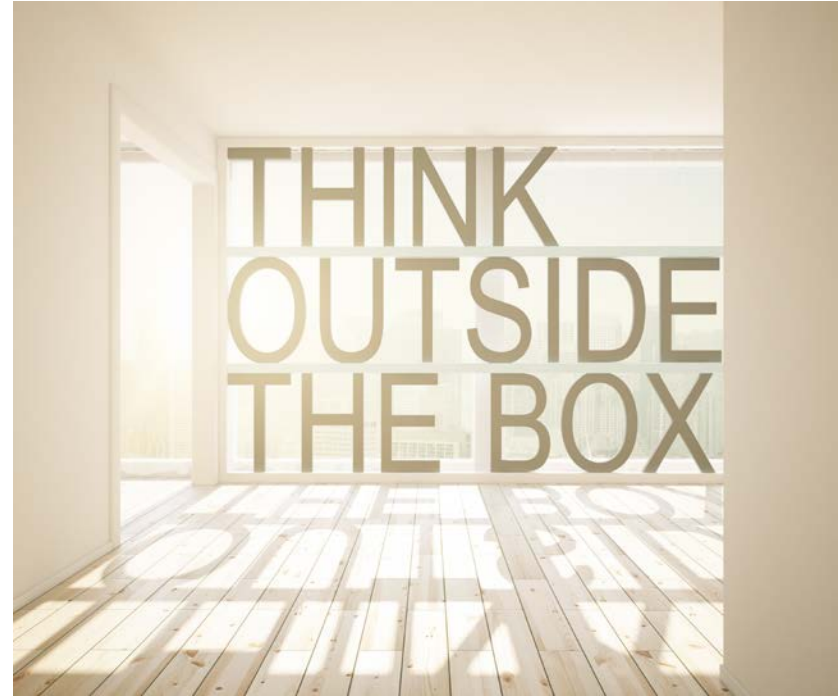
# Reaching beyond the box to respond to global megatrends

Fernando Roses  
Executive Vice President, Group Technology and Corporate Development  
2 June 2016

**CMD**  
**2016**  
Capital Markets Day

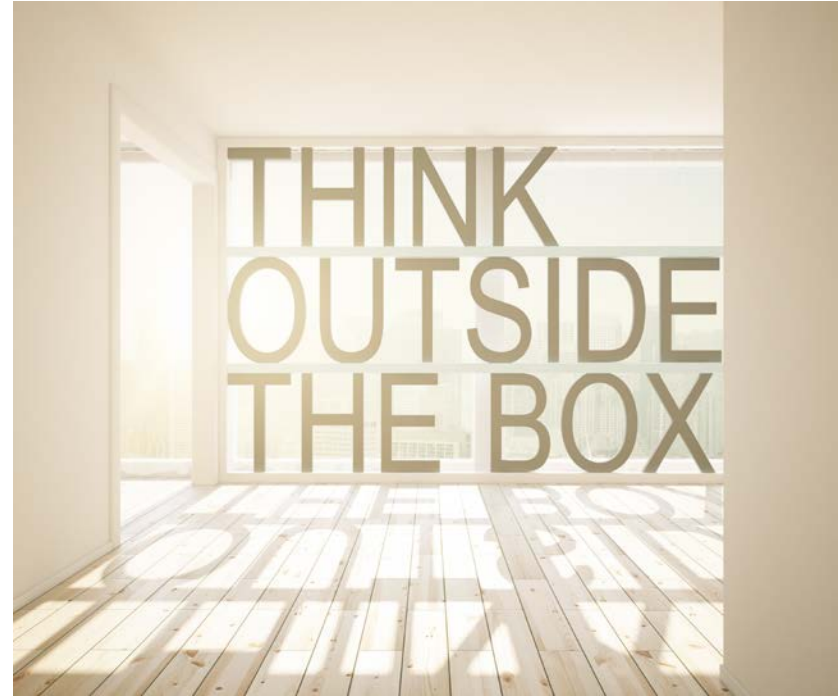
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# Already during the Roman Empire...



Pressurising water by means of

- gravity
- a pump, or
- a water wheel driven by water stream

Has caused the water to flow through

- an aqueduct or
- a pipe

To the point where a person wanted to use the water

After which the water has been dispersed back to the ground or a nearby lake

# Today's water distribution systems are more similar than different...

... from those of the Roman Empire:

- Dominant plumbing systems have changed from galvanised iron pipe to copper tubing to CPVC and to PEX
- These changes have dramatically changed the methods of installing the pipe as well as who is providing the materials
- Despite these changes, plumbing has essentially continued to provide the same function over the centuries. And while it will continue to provide that essential function...



We at Uponor believe that real change is finally coming to plumbing. Yes, that could mean a new material will again replace the piping network or the fittings to connect them but that is not the only change we are anticipating.

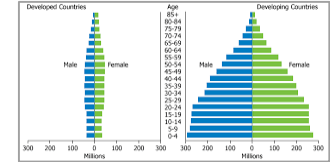
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# Megatrends affect societies fundamentally and over a long period of time



Climate change and scarcity of resources

Urbanisation

Digital transformation

Shift of economic power towards emerging markets

Demographic split to aging and growing populations



New product and technology requirements

Water systems will become more intelligent

# Combination of climate change, urbanisation, aging infrastructure and scarcity of resources

## Urbanisation

- More surface area covered
- Bigger cities
- Need for efficient construction process

## Aging buildings and infrastructure

- Losses in water systems
- Hygiene issues

## Climate change alters rainfall patterns

- Wet areas get wetter
- Dry areas get dryer

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- Energy efficiency
- Environmental impact
- Water efficiency
- Recycling of water

## Scarcity of resources



# ... creates interesting product and technology opportunities

- Increased need for storm water management systems
- Requirements for cleaning storm water to avoid lake and ground water contamination
- Larger dimensions of pipes needed
- Pre-fabricated elements

## Urbanisation

- More surface area covered
- Bigger cities
- Need for efficient construction process

## Aging buildings and infrastructure

- Losses in water systems
- Hygiene issues

- Non-leaking pipelines help save significant amounts of clean water
- Preventing leaks in sewage systems is an important environmental task
- Hygienic pipe systems lower the risk of drinking water contamination

## Climate change alters rainfall patterns

- Wet areas get wetter
- Dry areas get dryer

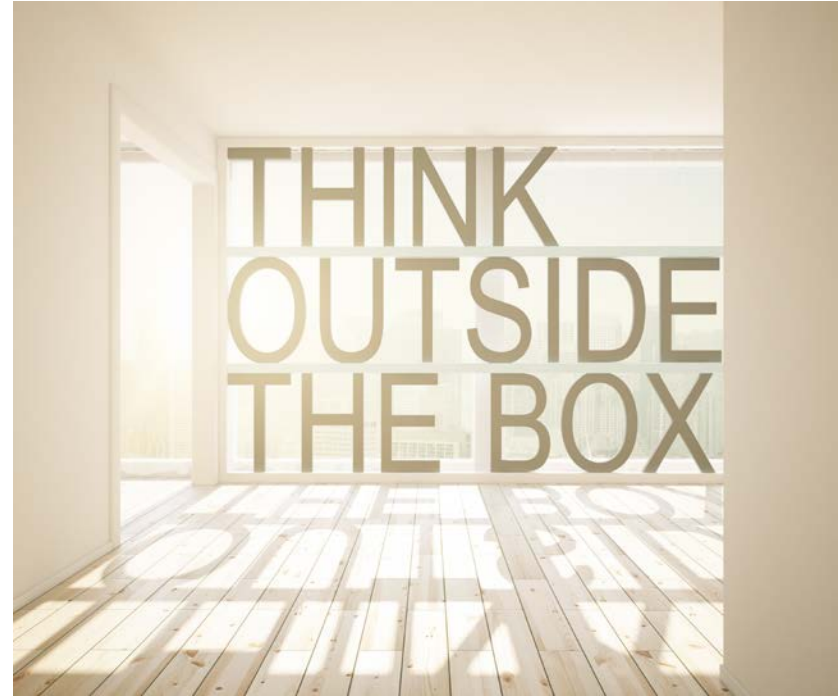


- Energy efficiency
- Environmental impact
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## Scarcity of resources

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# Water systems will become more intelligent

Climate change

Urbanisation

Aging buildings  
and infrastructure

Scarcity of  
resources

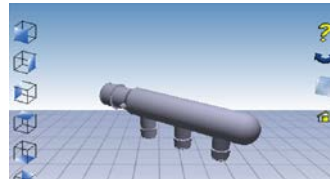
Digitalisation

- Energy management
- Smart utilisation of renewables
- Prediction of extreme weather events

- Smart cities, buildings and infrastructure
- Construction process efficiency
- Installation capacity and competence challenges

- Predictive maintenance
- Fault detection and diagnosis
- Performance upgrades to existing buildings and infrastructure

- Water efficiency and conservation
- Water quality management
- Smart product tracing, recycling and reuse of materials



# Intelligent management of indoor climate benefits people, planet and profits

Indoor climate solutions with health and productivity benefits



Digitalisation and embedded intelligence as enablers



Reduction of emissions and sustainable use of resources



- Intelligent heating and cooling in smart homes and offices
- Optimised integration of heating, cooling and ventilation
- Predictive and adaptive control of the thermal environment
- Solutions for optimised utilisation of renewable energies

# Uponor supports builders in improving the efficiency of the construction process

Construction industry is facing an increasing need for **efficiency**

- 1 Long lead times increase uncertainty and capital employed
- 2 Increasing expectations from consumers for customised features
- 3 Scarcity of skilled labour

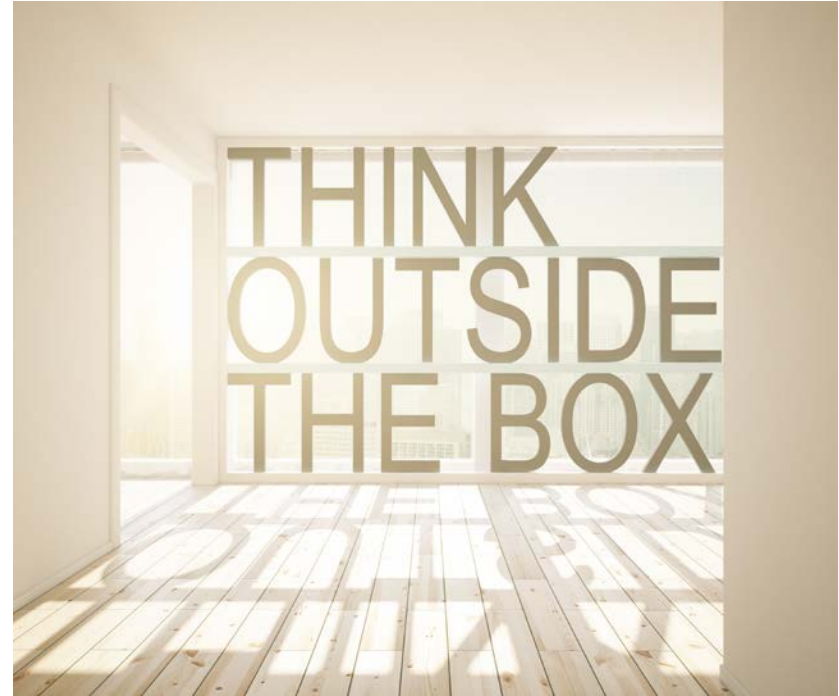


**Uponor is part of the solution**

- Increasing portfolio of pre-fabricated elements
- Building Information Models (BIM) created for thousands of catalogue items
- Uponor solutions offering designed for professional builders
- Uponor develops tools to increase efficiency, suitable also for work force with different skills levels

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# Recent Uponor innovations

Building solutions:  
Europe and North America



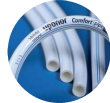
**2011**

The best cordless expander tool for a quick and easy installation



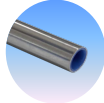
**2013**

SACP Technology, the first seamless aluminium composite pipe



**2014**

Comfort Pipe PLUS, the most flexible Uponor PEX pipe for radiant heating and cooling



**2014**

The world's first multi-layer composite pipe with metallic look and feel



**2015**

U@Home App for easy control and aftersales service to end users



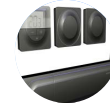
**2015**

HelioPEX launch in Canada marked the first new crosslinking method for PEX in 40 years



**2015**

Propex tool and all fittings for Very Large Diameters – through 3"



**2015**

Intelligent monitoring of heating and cooling devices for comfort and energy savings



**2015**

Fully integrated way to remotely monitor and alarm for water quality deterioration

**2010**

**2016**

Infrastructure solutions



**2010**

Uponor IQ – a smart and sustainable storm water pipe system for dimensions 200-1200 mm



**2011**

Clean 1, digital monitoring of waste water treatment



**2011**

Peat filter for greywater cleaning



**2013**

Wehopanel chamber saves installation time with prefabricated cubic shaped tanks and chambers



**2013**

Ultra Classic, sustainable sewer pipe range with reduced carbon footprint



**2014**

IQ Infiltration pipe system for easy maintenance



**2015**

Infra Culvert including all media



**2016**

Decibel, a noise reduced soil & waste system



**2016**

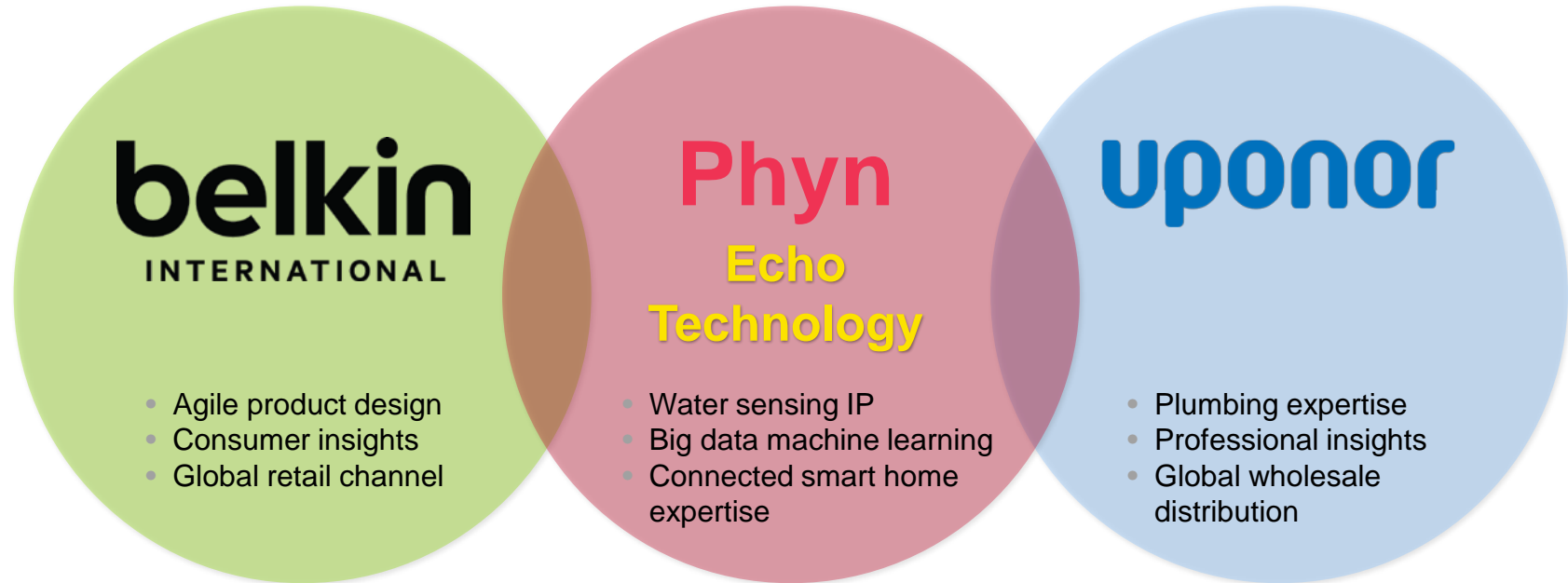
Barrier PLUS potable water pipe system for installation in contaminated soil

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# Phyn – a joint venture\* to develop and commercialise water sensing technology



\* Closing expected in July 2016 subject to regulatory approvals and other customary closing conditions

# Echo technology is a pioneer in water sensing

Accurately monitors and helps manage how water is used in your home

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- Echo technology senses water pressure changes that occur throughout your plumbing system every time you use water
- Echo's advanced machine learning-based algorithms
  - analyse vibrations and accurately identify every fixture in your home—from shower to toilet to irrigation—and log when each is used and for how long
  - calculate water consumption by fixture
- Helps use water more efficiently; can identify leaks and other potential problems—before they become serious

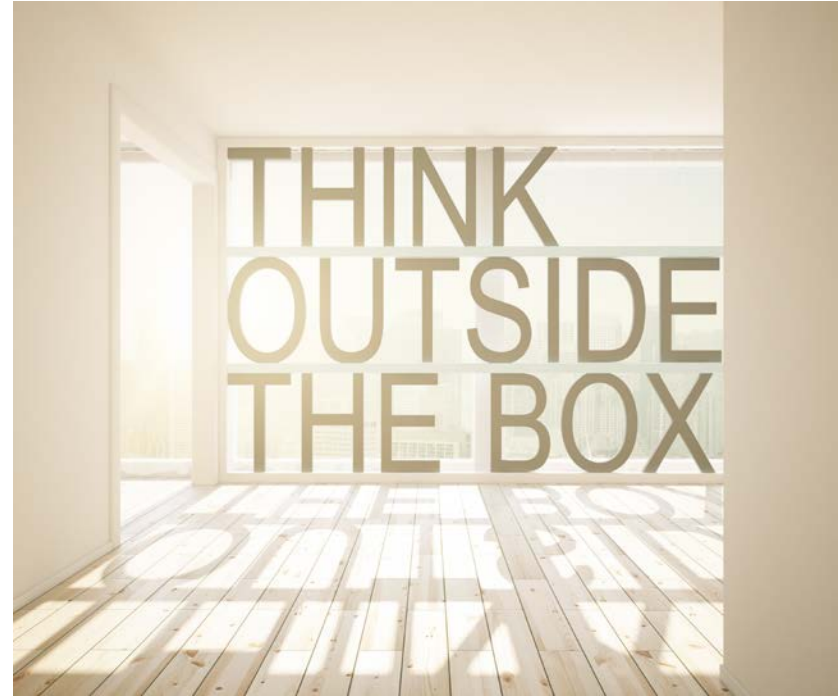
## Next steps

- Over the next 12–16 months hundreds of test units will be installed into U.S. homes in order to obtain real time learnings and experiences
- After the field test, learnings will be incorporated into the product and cloud network
- The first product launch targeted toward 2017/2018



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# Technology development supports Uponor's strategy to generate sustainable growth



## Technology focus

- Hygienic materials
- Water quality monitoring
- Digitalisation of offering

- Pre-fabricated elements
- Big dimensions
- Engineering services

- New jointing technology
- Volume offering
- Controls development



# Reaching beyond the box to respond to global megatrends

## Q&A

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