

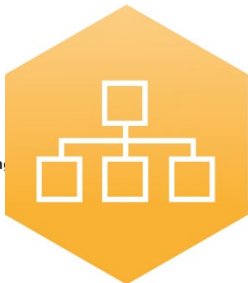
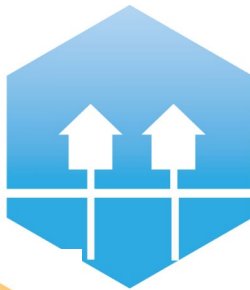
HEATman

Next generation district heating concept



NIRAS

By
Alfred Heller (presenter)
Rasmus Aaen
Michael Lassen Schmidt



4DH
4th Generation District Heating
Technologies and Systems



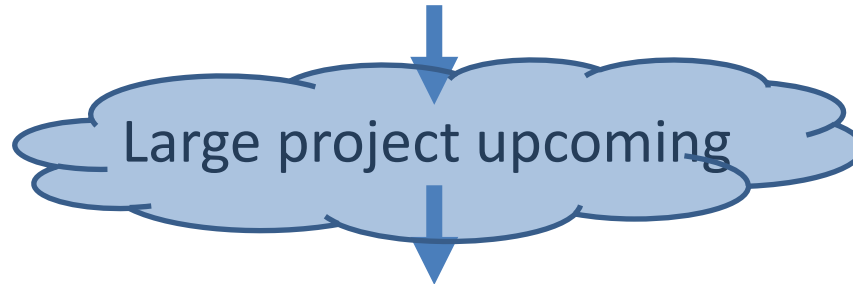
4th International Conference on Smart Energy
Systems and 4th Generation District Heating 2018
#SES4DH2018

Standing on the shoulders of giants



and others....

1.2 bill. DKK previous investments in research and innovation



Digitally-supported district heating concept **HEATman**



AALBORG UNIVERSITY
DENMARK



Standing on the shoulders of giants



- One State-of-the-art leakage management solution
- Seamless and generic interfaces
- Optimize the value of each individual system when combined

Our understanding of district heating systems






Operation			
Planning			
<u>Others</u>			

The principle idea: From individual software

Before situation



Operation			
Planning			
<u>Others</u>			

To coherent product service platform

After situation - HEATman

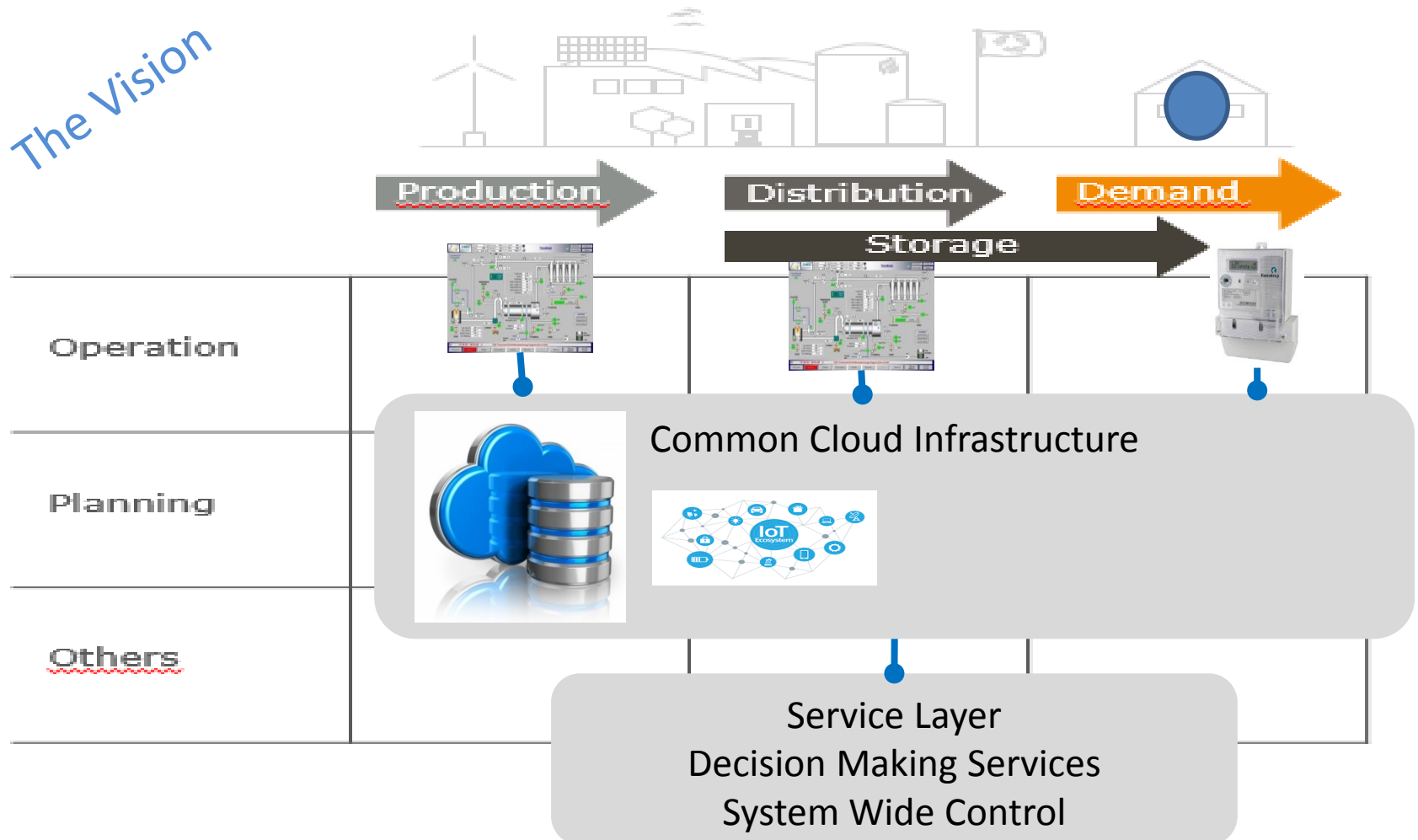


Operation				
Planning				
<u>Others</u>				

How do we do this? A Digital Service & Product Platform

Distributed Digital Service Platform - HEATman

The Vision



Partners

Product service platform - HEATman



Industries

LOGSTOR

Danfoss

kamstrup

District Heating



TRE FOR
Varme



Software Companies

NorthQ

EMD
www.emd.dk

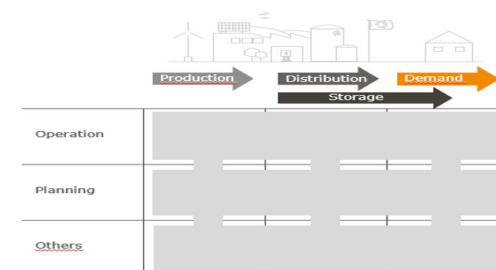
ENFOR
THE REFINES THE FUTURE

NEOGRID
TECHNOLOGIES

Tomorrow

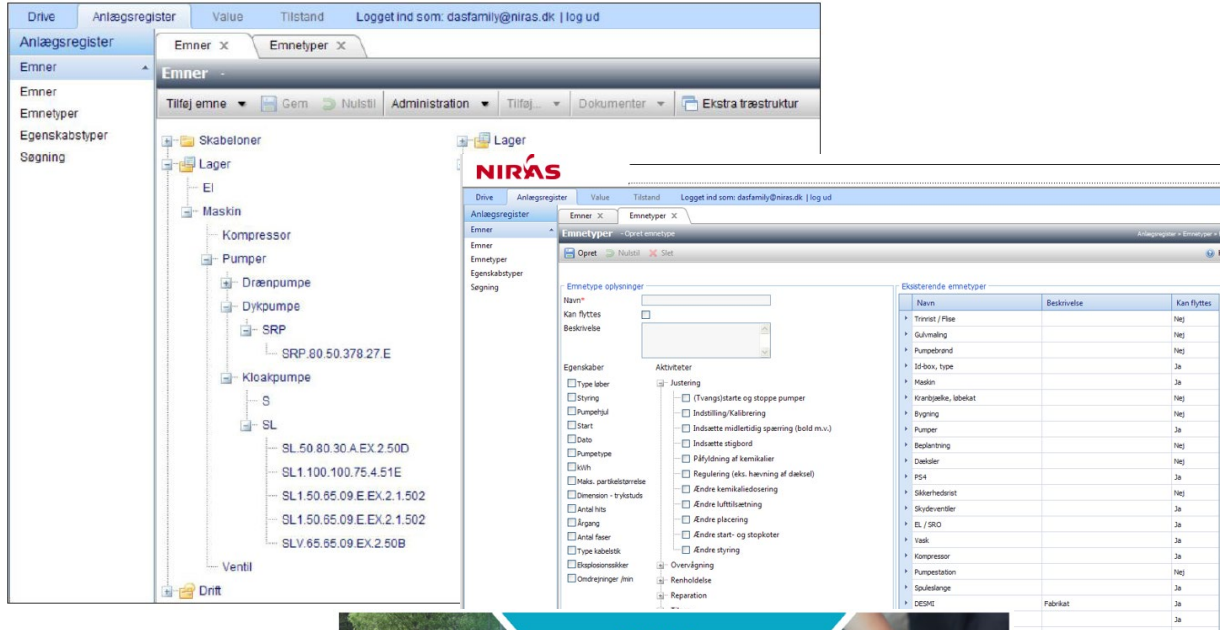
LEANHEAT

Universities

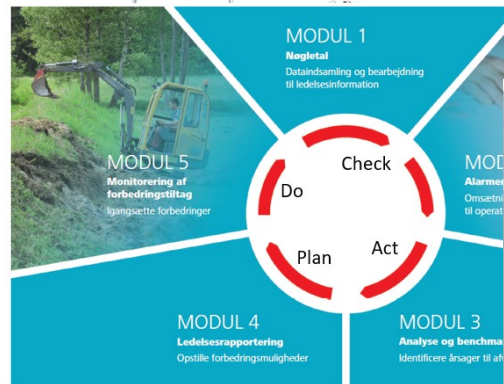


NIRAS Services and Tools

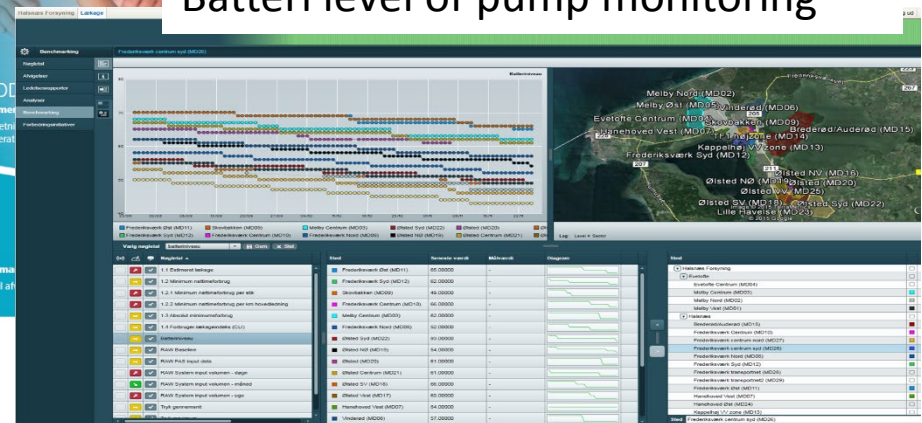
Asset management for Utilities (whole lifecycle)



Decision making



Batteri level of pump monitoring



Data-intelligent Temperature Optimization across the whole system

An activity example



Operation	Data-intelligent Temperature Optimization across the whole system Research: DTU Compute Implementation: All IT partners Testing: District heating companies		
Planning			
Others		Others	

Data-intelligent Temperature Optimization across the whole system

An activity example



Operation			
Planning	Long term planning Research: DTU Management Application: Grøn Energi		
<u>Others</u>		Others	



Hillerød Forsyning



From independent software > To holistic services

Digital Service Platform - HEATman



Operation	Integration with el. system Research: DTU Testing: EMD		
Planning			
<u>Others</u>		Others	

From independent software > To holistic services

Digital Service Platform - HEATman



Operation			Heating unit optimisation Research: AI Leanheat (FI) Implementation Danfoss Testing: DH Brønderslev
Planning			
<u>Others</u>		Others	

From independent software > To holistic services

Digital Service Platform - HEATman



Operation			Demand forecast (buildings) Research: DTU Civ.Eng. Application: NIRAS Testing: All District Heating
Planning			
<u>Others</u>		Others	

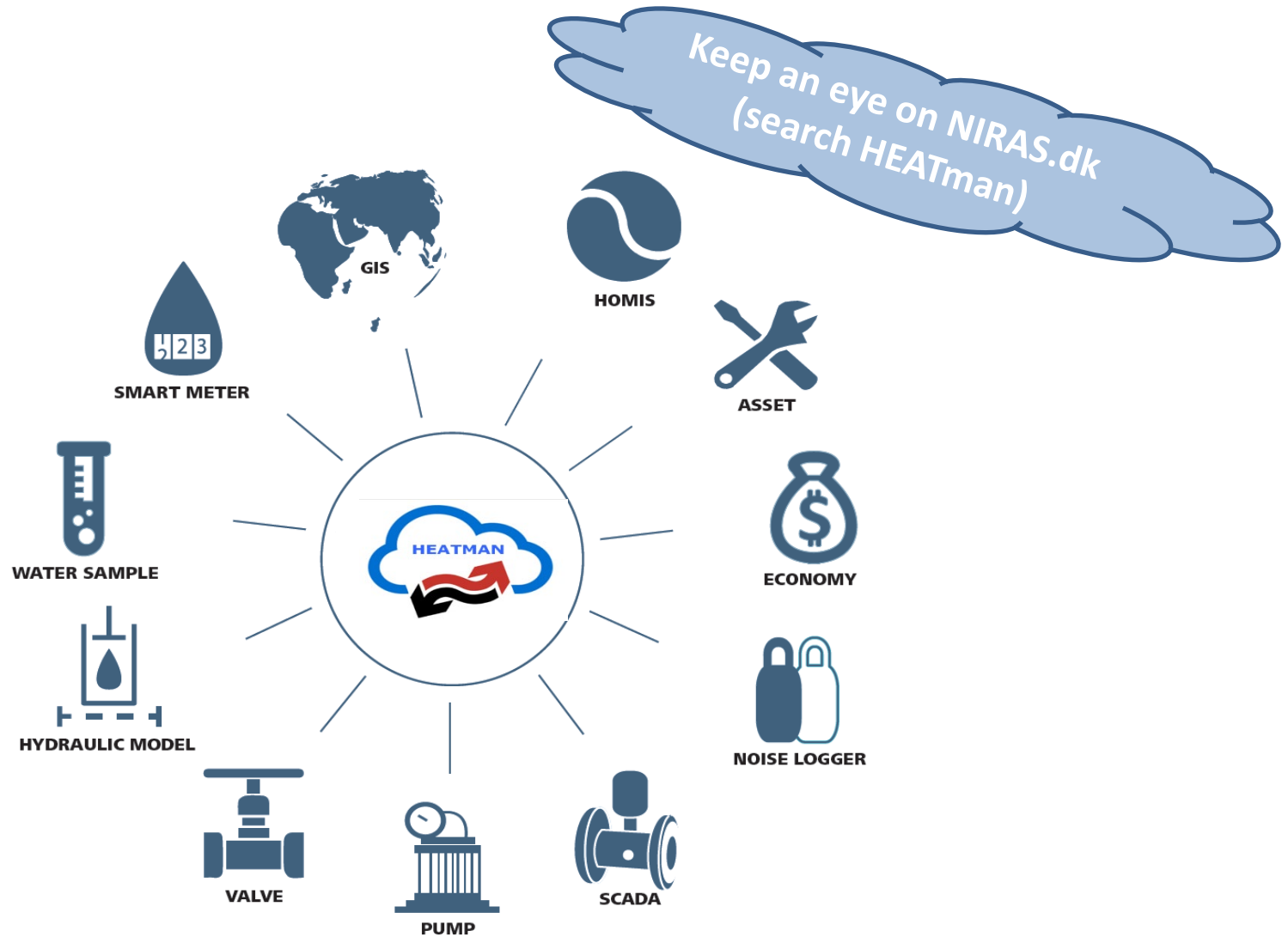
From independent software > To holistic services

Digital Service Platform - HEATman



Operation			MPC in building Research: AU Implementation: Neogrid Testing: All DH
Planning			
<u>Others</u>		Others	

ALL THIS GOES TOGETHER INTO HEATman



Thank
you

... and all project partners

Alfred Heller, ahr@niras.dk



NIRAS