

ENGINEERING
TOMORROW



Danfoss Climate Solutions

Your partner for overall
efficiency

Smart Heating Croatia 2021 - Danish
Croatian District Heating Days
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Four **business segments** geared for growth



Danfoss Power Solutions

#2 Market position

- 7,826 employees
- 28 factories in 12 countries
- 2.2bn EUR annual sales



Danfoss Cooling

#2 Market position

- 6,108 employees
- 15 factories in 10 countries
- 1.7bn EUR annual sales



Danfoss Heating

#1 Market position

- 4,684 employees
- 24 factories in 11 countries
- 0.9bn EUR annual sales



Danfoss Drives

#2 Market position

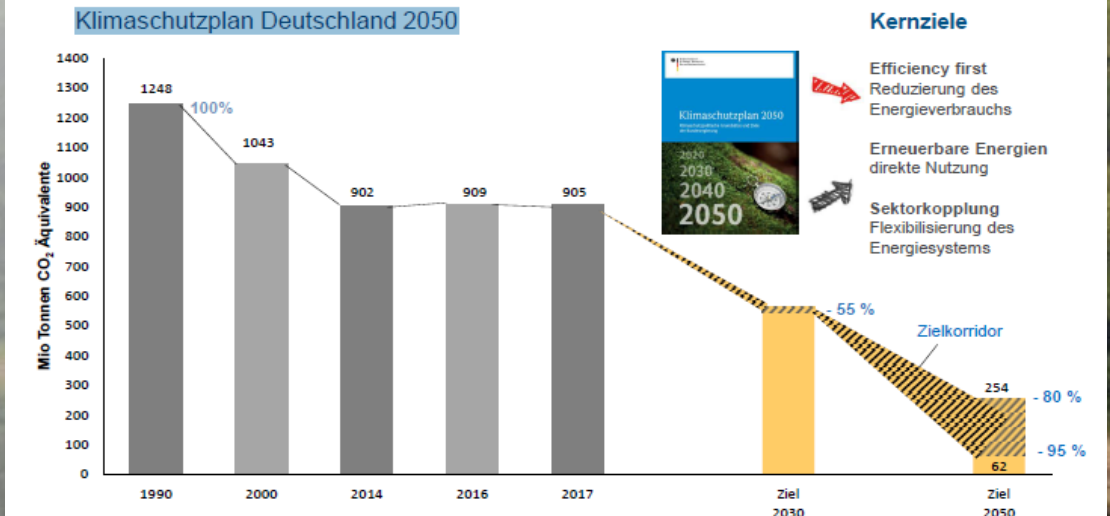
- 4,504 employees
- 10 factories in 7 countries
- 1.5bn EUR annual sales



What drives all of us?

1. Energy **efficiency** and business **excellence** in all segments of business and work
2. **CO2 coupons** and increase in **OPEX** (currently 60 EUR/ton, will go up to 100 EUR/ton)
3. Introduction of more **RES** and **Integration** of electricity, heat, gas and transport sectors
4. **Recovery** and **resilience**
5. Strong **end-user** role

Germany sets the scene:



Key targets:

- **Efficiency first**
- Reduce energy consumption
- Renewable Energies
- Further deployment – direct use
- Sector Coupling
- Flexibility for energy system

Main Challenges in District Energy



ΔT Optimization

Economical balance between temperature and flow



Optimal Network Design

With new connections and new buildings



Decentralization – increased energy source complexity

In production: more heat sources including renewables



Decarbonization

Legislation and environmental care / energy efficiency

Peak energy demand

Drives up overall cost (OPEX as well CAPEX)



Legacy SCADA

Make data integration difficult and time consuming



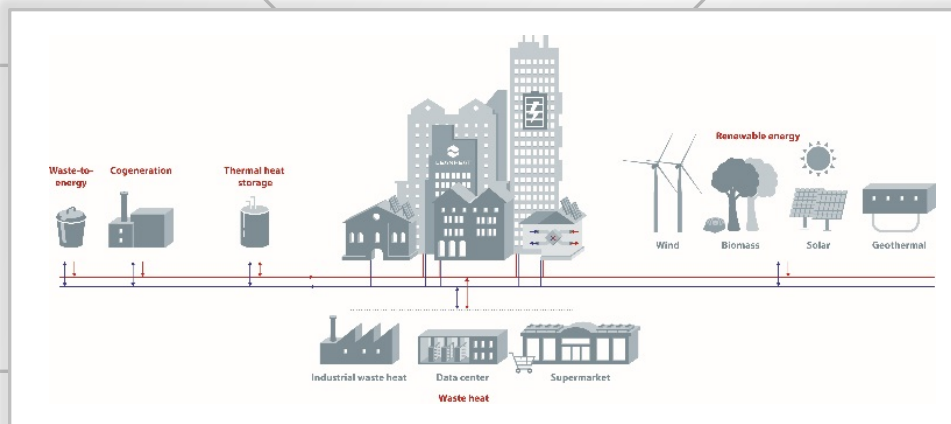
Increase focus on Business models

Create attractive business environment for future

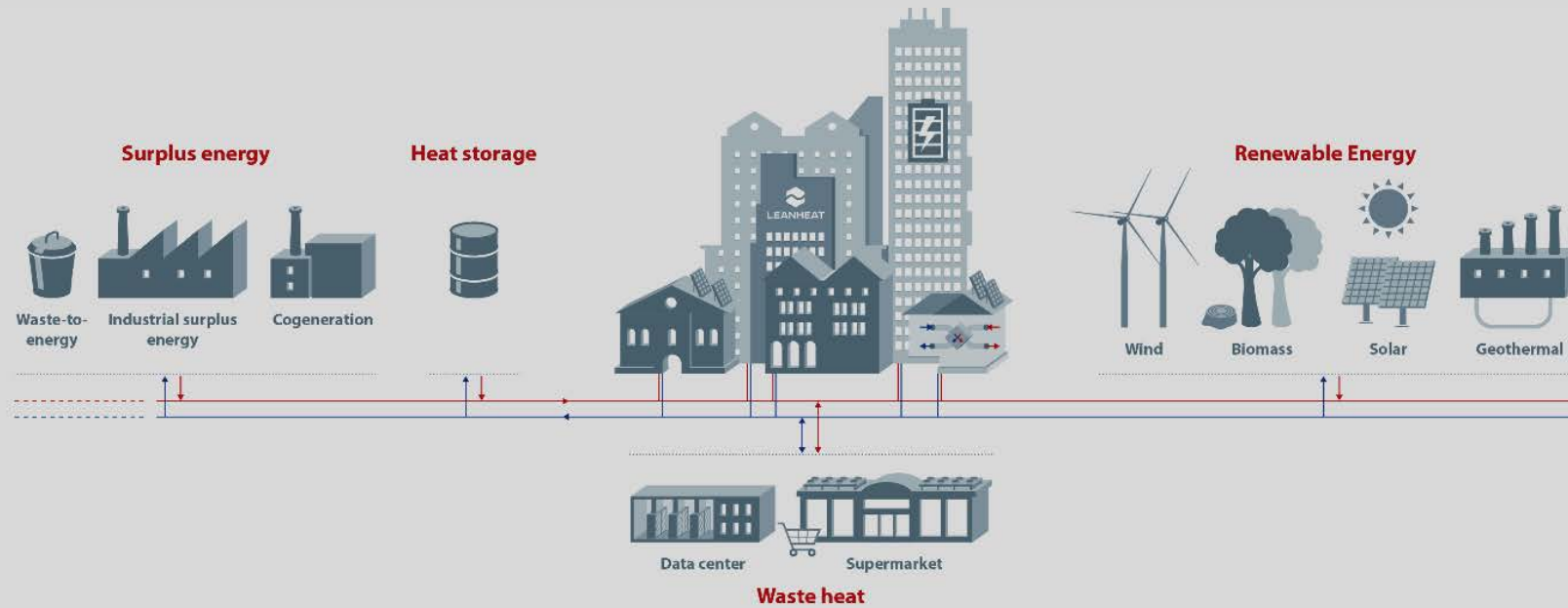


Resilience

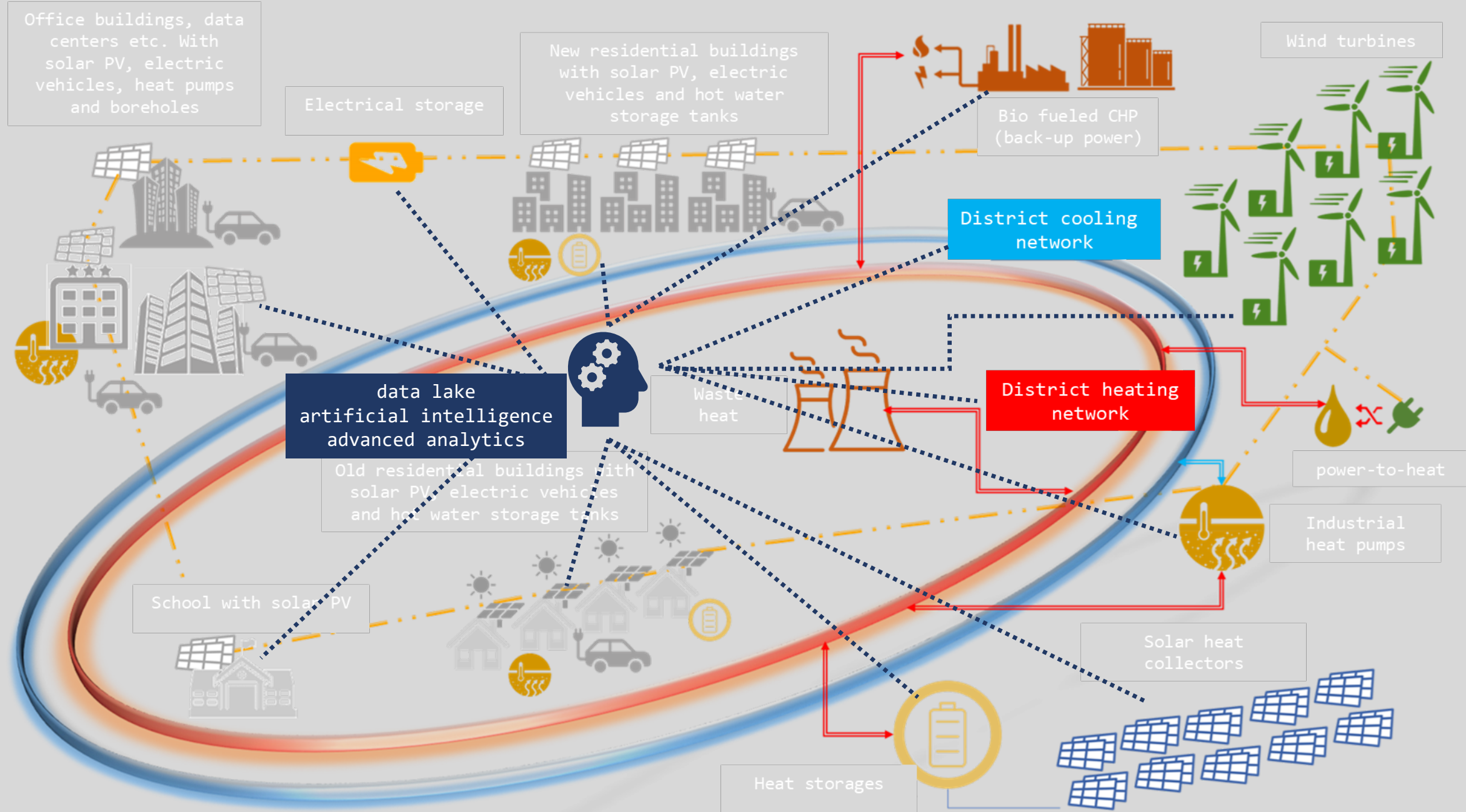
Secure high efficiency of operation and coverage of customer needs by providing undisturbed district energy distribution (or service), also in most demanding and unexpected conditions.



Our definition of a **state-of-the-art**: District Energy system



- From single source to **multisource**
- From fossil to **renewables & surplus energy**
- From high temperature to **low temperature**
- From one-way to **bidirectional**
- Positive **regulatory trends** across the globe
- Changing **customer structure** & increased **investments** (Engie, Veolia, Fortum,...)



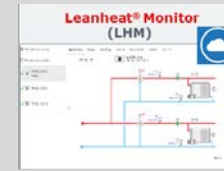
How, in what way and with the help of which technologies to respond to challenges?

Danfoss has a SOLUTION!

The Hydronic Control System

Software Optimization

District Energy



Buildings



Optimization

Own The Applications



AHU Control
Chiller plant
Room Control

Monitoring and Benchmarking

Design Support

In The Core

Software enabled hardware



Building side

Sub-systems



Distribution Substations



Building Substations



Domestic Hot Water Substations



Flat Substations



Heat Recovery Substations



Advanced Components/
Product Bundles

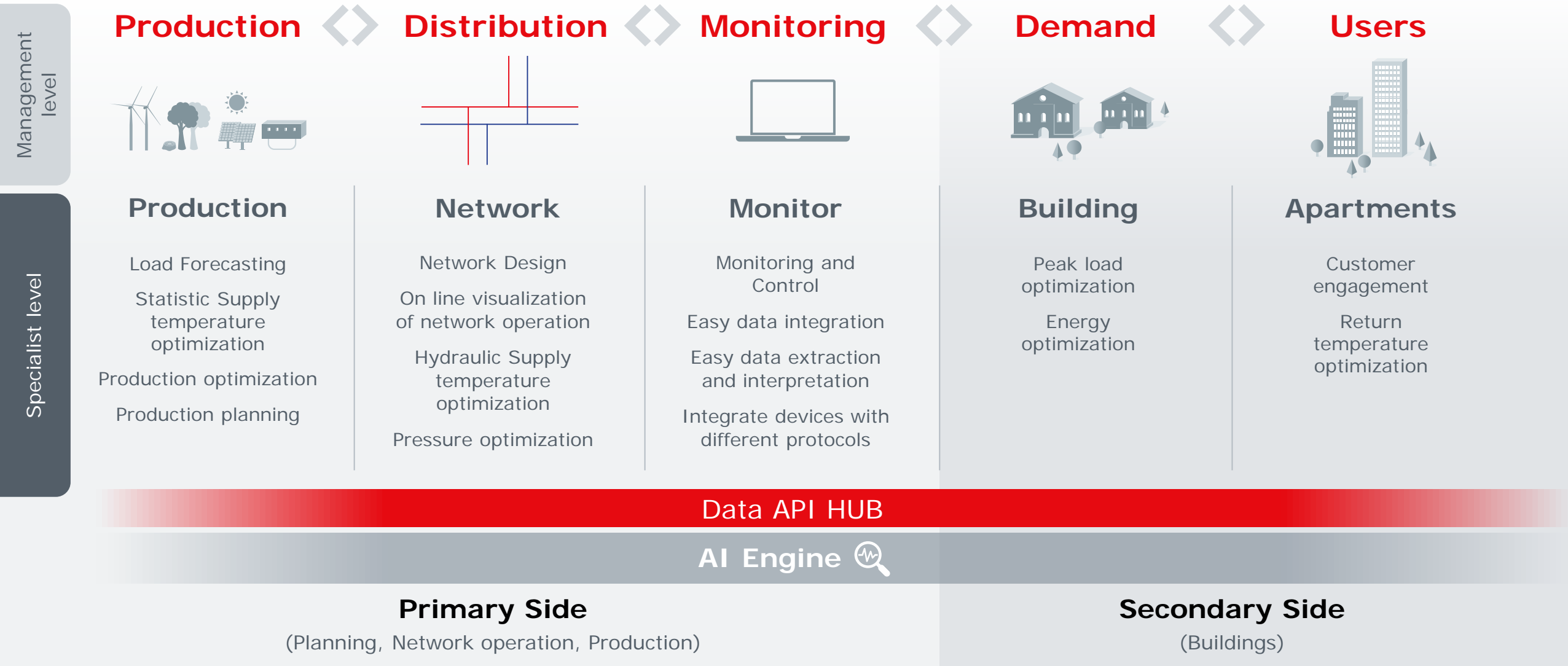


Field equipment

End to end, technological solutions from the necessary equipment in the field (from production to final consumption) to advanced software solutions (data aggregation, advanced analytics, optimization, and again from production to final consumption).

Danfoss Leanheat®

Full end-to-end energy optimization solutions



Danfoss Drives the best global expert in drives business presents: VLT® AQUA Drive FC 202-the best choice for pump applications in district heating solutions

Nothing beats know how and experience



- Built on a solid foundation of know-how and experience, combined with Danfoss quality and a global network of local 24/7 service
- Freedom to combine the favored motor technology with the perfect match for all W&WW, district heating and similar applications
- The combination of the three pillars
 - Energy savings
 - Reduced installation costs and
 - Solid dedication to all water applications lead to a unique performance

30%

cost reduction in
1st year compared
with next best
alternative



Product range

- 1 x 200 – 240 V AC: 1.1 – 22 kW
- 1 x 380 – 480 V AC: 7.5 – 37 kW
- 3 x 200 – 240 V AC: 0.25 – 45 kW
- 3 x 380 – 480 V AC: 0.37 – 1000 kW
- 3 x 525 – 600 V AC: 0.75 – 90 kW
- 3 x 525 – 690 V AC: 11 – 1400 kW*

*Up to 2000 kW available on request



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