



# **Make a game-changing impact – before the others do**

The impact of digitalization in  
district heating

12/2016

*-We introduced a major 5-year energy changing project, and we achieved a 6-year payback period*

- What role did heating companies play in the project?

*-None whatsoever.*

- Why not?

*-Good question... It did not even cross our minds that they would have the knowledge or interest to help us save energy...*

**Major actor in  
real estate**

# Summary

## Digitalization is speeding up the transition

*District heating companies must decide on their role as the demand for heating energy decreases and the availability of alternative heating methods improves*

### The role of digitalization in the operating environment of district heating suppliers

The changes currently taking place in the operating environment present district heating companies with both opportunities and threats. One of the trends affecting the district heating business is digitalization, which will change the ways of working business models, services and products as well as the customer experiences. Besides digitalization, the operating environment and business operations of district heating suppliers are affected by the improved energy efficiency in buildings and better access to alternative heating methods, both of which continually reduce the demand for heating energy. The major wave of modernization, which will shake the basic structures and business models, is yet to come.

#### Change in customer behavior

Changes in customer behavior will drive change in the way businesses work – digitalization will bring new methods to meet the changing needs.

- Above all, customers value easy solutions and are typically not interested in actively communicating with the energy supplier.
- Customers wish for a professional partner who can offer easily accessible overall solutions
- Other key motives behind customer behavior are reliability of operations, securing required operating conditions and the clarity of service content and pricing
- The unmet needs of district heating customers create a vacuum which can be filled by various competing operations, such as energy efficiency consultants or providers of alternative heating methods

#### The impact of digitalization

digitalization affects the value chain in the district heating business every step of the way – competition in the field will become stiffer

- digitalization will speed up the ongoing transition in district heating – a key role in the competition between different methods of heating will be played by the actors' capacity to leverage the opportunities presented by digitalization
- The amount of knowledge will increase with digitalization, and so will customers' awareness of available options and the likelihood of customers seeking higher energy efficiency and switching to another method of heat production
- Highly developed technologies are within everyone's reach and real-time data related to the supply and consumption of heating will be more readily available than ever
- Blockchain technology and AI enable the development of smart, distributed networks

#### Opportunities created by digitalization

digitalization will create a broad range of opportunities from improved efficiency to complete transformation of the business operations

- digitalization can be leveraged in
  - the development of customer experience and in engaging the customer
  - the creation of new business models, products and services
  - improving the efficiency of and optimising the core business
  - Improving the efficiency of and optimising the support functions
- digitalization supports the emergence of new roles and business models with district heating companies, other operators in the field and external third parties
- District heating companies must select their digitalization strategies to drive the change – listening to the customer, the company's culture and an experimental approach are key

# **Digitalization as the driver for change**

What does digitalization mean in general?

# Digitalization

Digitalization refers to development powered by technology. Digitalization changes the way we behave and operate, the way the customer experience is formed, business models, services and products. Digitalization affects the competitive positions and breaks down traditional barriers between business segments.

Digitalization makes things easier and faster. More and more tasks can be automated thanks to technology, without the need for human, manual input.

*"There is no doubt that new services  
are on their way in.  
We need to cannibalize our own business by offering  
energy saving services. If we don't do it,  
somebody else will."*

**District heating company**

# Digitalization driving change

Digitalization is one of the strongest trends affecting the district heating business

## Changes in the business environment...

Urbanization

Climate change and carbon-free future

Rising environmental values

Regulation concerning new construction  
production and renovation

Improving energy efficiency

Regulation on district heating industry

Developing energy technology

Availability and price of alternative heating systems

Digitalization

Distributed generation

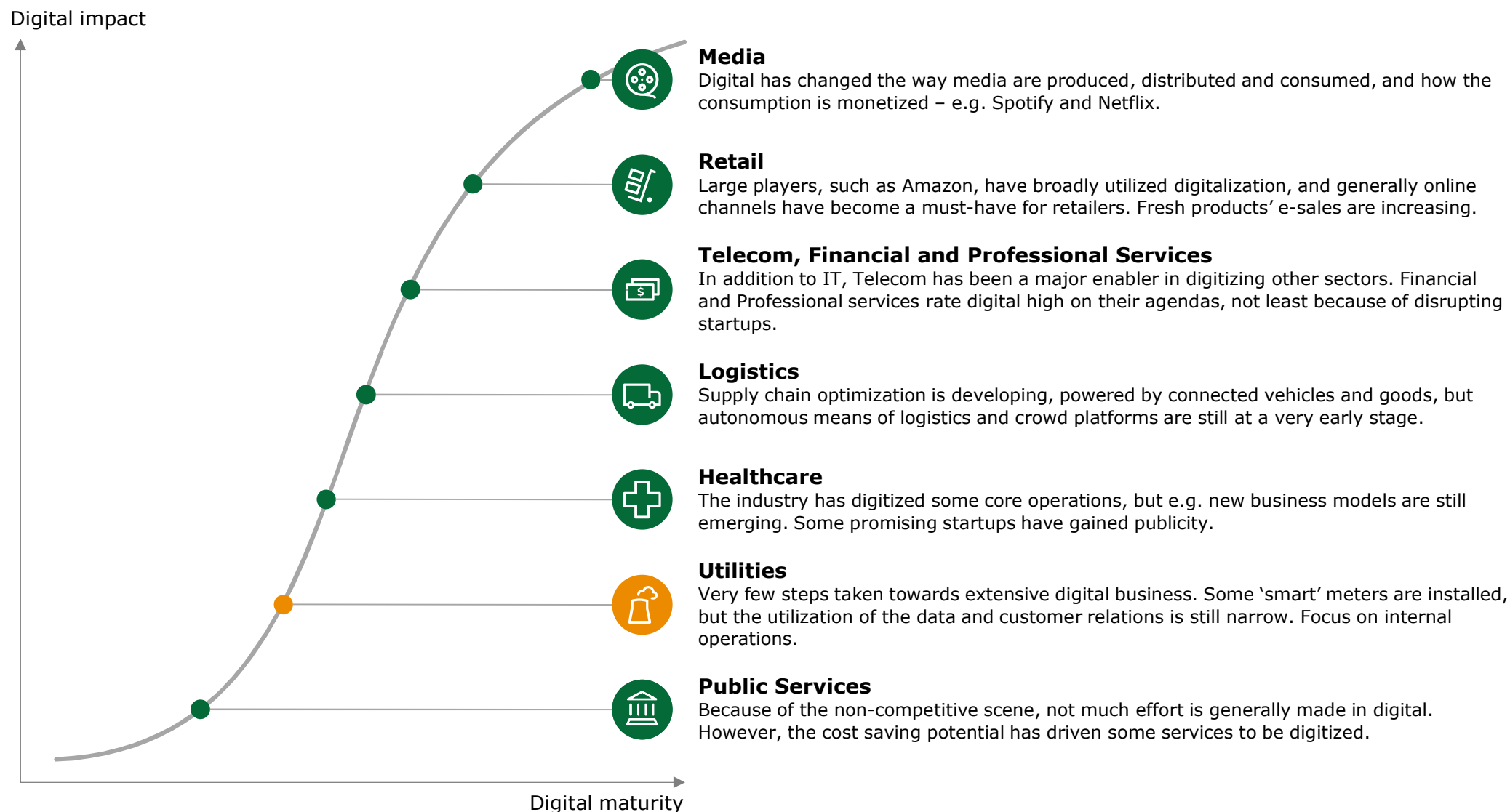
## ...create challenges and opportunities for district heating companies

- **Where we can find growth in the future? Have we investigated all relevant options?**
- **What do our clients really need now and in the future?**
- **Who are our main competitors? Will there be newcomers or substitutes in the market?**
- **Are we able to improve our competitiveness? Are we able to maintain our current clients?**
- **What should we prioritize?**
- **What won't we need in the future?**

***How can digitalization help to address these challenges?***

# Digitalization driving change

## Utilities are still a little way off the pace in digitalization





# Digitalization as the driver for change

Long-term success may prove a hindrance to development – the energy sector has its own cross to bear

## District heating operators may have qualities ...

Good resources

Market leadership

Decades-long planning periods

Good, controlled profits

Natural monopoly

Internal rigidity

Slow innovation

## ...that have proved a disadvantage in other sectors...

**ANTILA**

**STOCKMANN**

**TAKSI**

**mtv3**

**posti**

**NOKIA**

## ...when disrupting startups relying on digitalization have entered the markets

**amazon**



U B E R



**zalando**

High switching costs have prevented a rapid loss of customers in the district heating business – the stagnation of district heating companies will, however, create a vacuum asking to be filled by (digital) disrupting startups

# **The needs of district heating customers**

What do district heating customers value and need?

# The behavior of district heating customers

The change in customer behavior drives business sectors towards change – digitalization provides a tool to respond to the changing behavior

## **The make-or-break customer experience**

An interactive customer experience may either consolidate a customer relationship or destroy it

## **Tailored services**

Customers expect clearly packaged service experiences that are as personalized as possible

## **The importance of impressions**

Purchase decisions and customer loyalty are increasingly strongly based on image and impressions

## **Shift in power**

The power is being shifted to an increasing degree to the customers (e.g. ownership and use of customer data)

## **Emphasis on the social aspect**

The selling of products and services has gained a strong social dimension

## **Blurred boundaries**

Expectations of the level and quality of services are constantly increasing – comparisons are made across sector boundaries

digitalization not only affects customer behavior and expectations, but also provides tools for the development of the customer experience, business models and service offering.

In the development work based on opportunities offered by digitalization, three issues are vital:

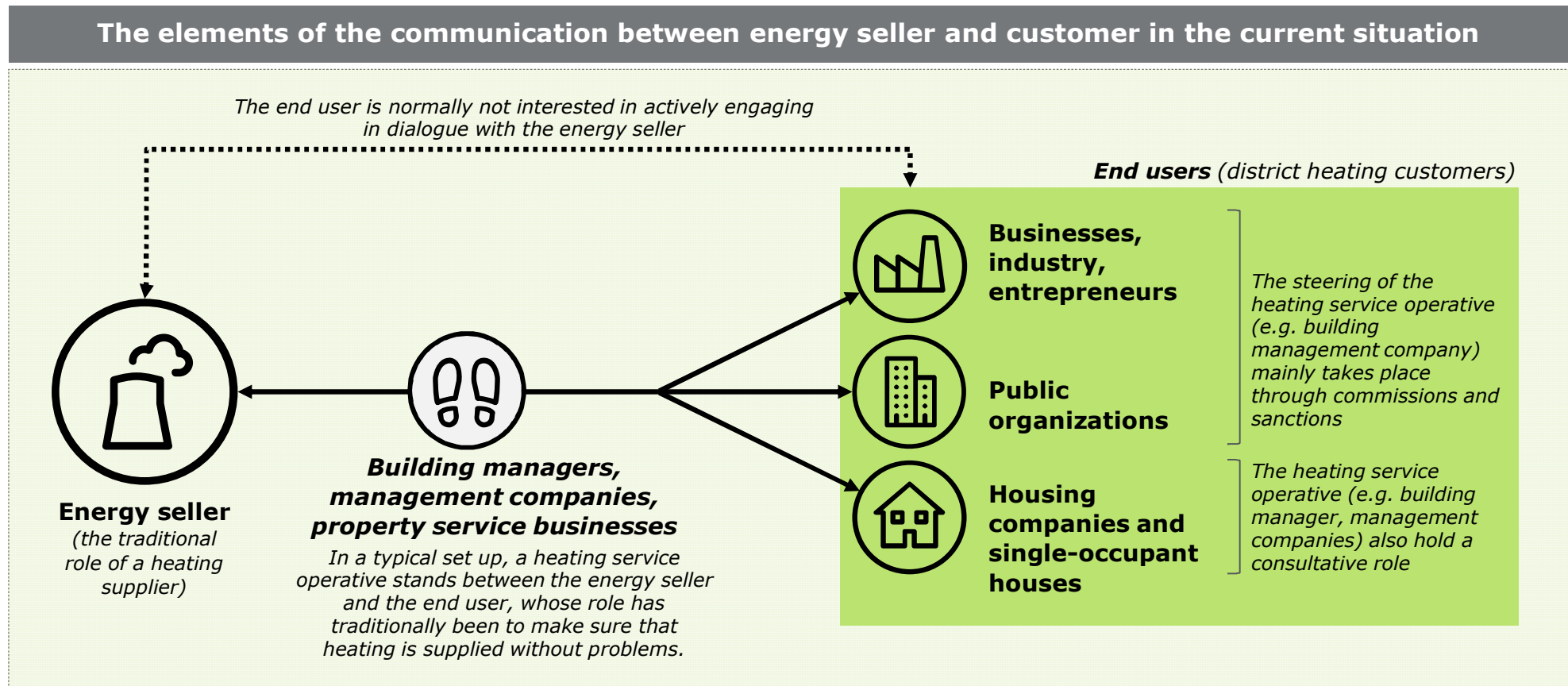
1. The product/service must be **desirable from the customer perspective**.
2. The product/service must be **technically feasible**.
3. The product/service must be **financially profitable**.

District heating companies must be aware of their customers' everyday lives and identify the things and activities that customers are genuinely interested in and prepared to pay for.

# The segmentation of district heating customers

Segmenting is based on the motives related to customers' heating service preferences, such as reliability and price

In the analysis of customer needs, district heating customers are segmented according to these motives. The question asked in this analysis is, *"What key motives\* does the customer have regarding district heating? And how should these needs be prioritized?"*



\*) Motive = the reason or rationale behind an action. Sources: Customer interviews, Deloitte analysis

## **KEY FINDING FROM THE INTERVIEWS:**

Customers want a professional partner who can offer easily accessible overall solutions.

Individual digital services, such as usage monitoring, are interesting but do not provide significant added value to the customer.

# The needs of district heating customers

## Summary of the identified needs by segment

### CUSTOMERS ARE PARTICULARLY INTERESTED IN:



Businesses,  
industry,  
entrepreneurs

- **Securing reliability** – customers are prepared to pay to minimize risks to their business operations
- **Securing health and safety** – customers approach (business critical) operating conditions as a whole, and heating is just one factor among many



Public  
organizations

- **Open communication and true partnership** – customers are prepared to invest time in optimizing the heating supply, but need the assistance of a professional and profitable partner in this
- **Securing health and safety** – customers approach (business critical) operating conditions as a whole, and heating is just one factor among many
- **Professional consultation on the status of properties based on benchmarking** – customers are interested in comparative data for facilities and properties



Housing  
companies  
and single-  
occupant  
houses

- **Transparent overall solutions** – customers want to see their heating services presented in concrete, plain language
- **Overall economy** – customers want to understand the effect of the services they have selected on the annual user expenditure in the long run
- **Flexible solutions** – customers are concerned about vendor lock-in and want to reserve the right to reorganize their heating services in a different way in the future

### CUSTOMERS DO NOT WISH TO BE INVOLVED IN:

- **Manual adjustments & optimization** – customers are not prepared to spend time on heating optimization
- **Heating method** – instead of heating methods, customers need to discuss what the different heating operatives can offer them through their services
- **Raw consumption data** – customers are interested in final conclusions

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- **Individual solutions** – customers want clear and easy solutions that include the entire property stock under their management
- **Provider-dictated pricing** – customers want more influence over the user costs of heating services

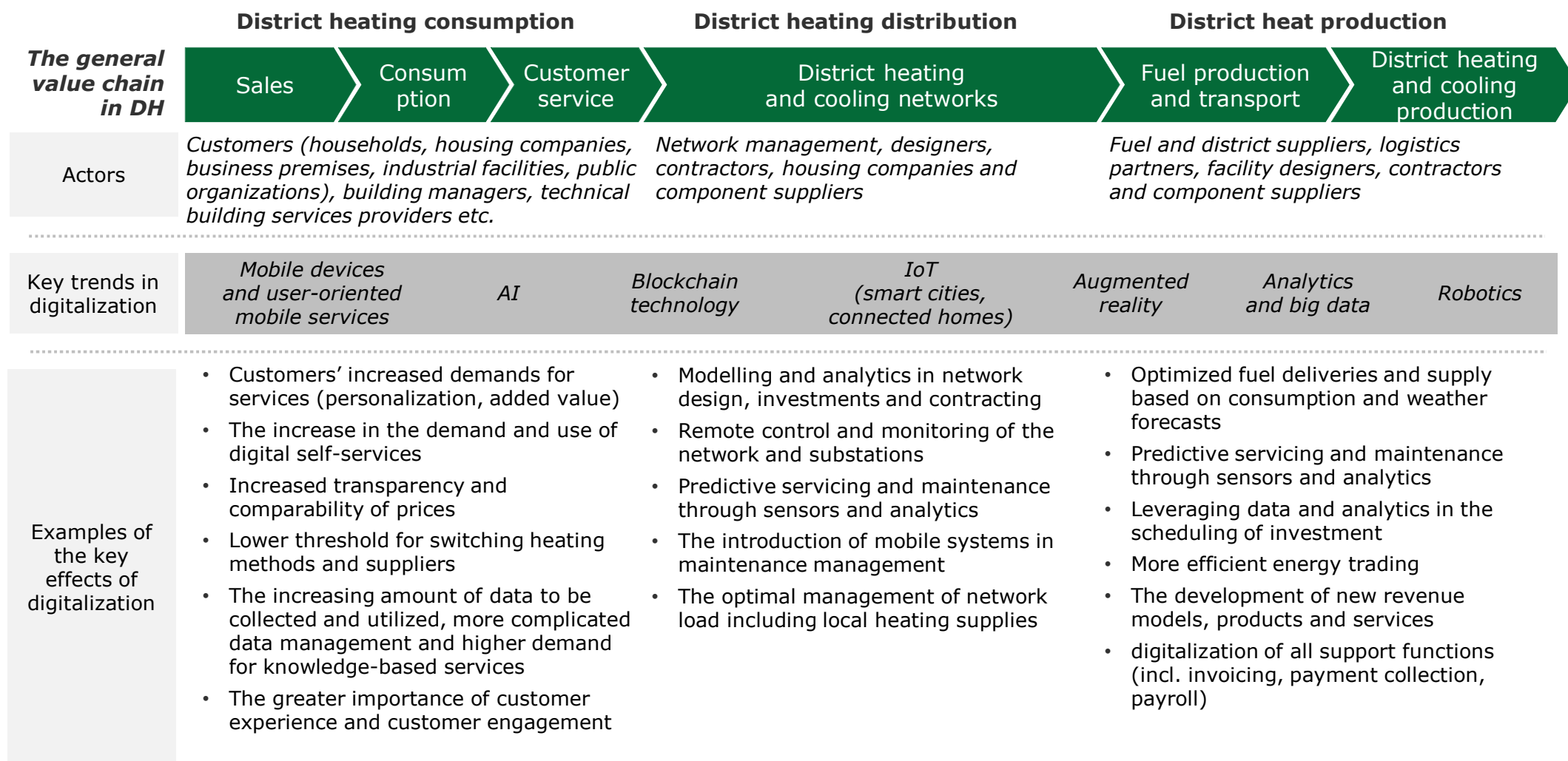
- **Overall responsibility for heating services** – customers want a partner to assume the responsibility for the implementation and optimization of the heating services
- **Decision-making & competitive tendering** – customers are not prepared to make decision on heating services without the necessary knowledge about the field
- **Raw consumption data** – customers are interested in final conclusions

# **The impact of digitalization on district heating**

How will digitalization change the operating environment for district heating suppliers?

# The impact of digitalization on district heating

## Digitalization affects the value chain in the district heating business every step of the way





# The impact of digitalization in district heating

Digitalization increases competition between heating methods and the growing service business operations within the field

## Technology production costs will grow smaller

*Customers are offered several alternative production methods and better possibilities for optimizing their consumption of heating*

## New products and services

*Service and product portfolios will continue to expand beyond traditional heat supply and sales, competition will no longer be limited between different forms of heating*

## Ecosystems and networks have more to offer to customers and heating suppliers

*The operating model typical of the digital era enables the expansion and new optimization of the business operations of district heating companies*

## Information about alternatives is more readily available

*The threshold for switching production methods, suppliers and service providers becomes lower*

## Real-time data is more widely available

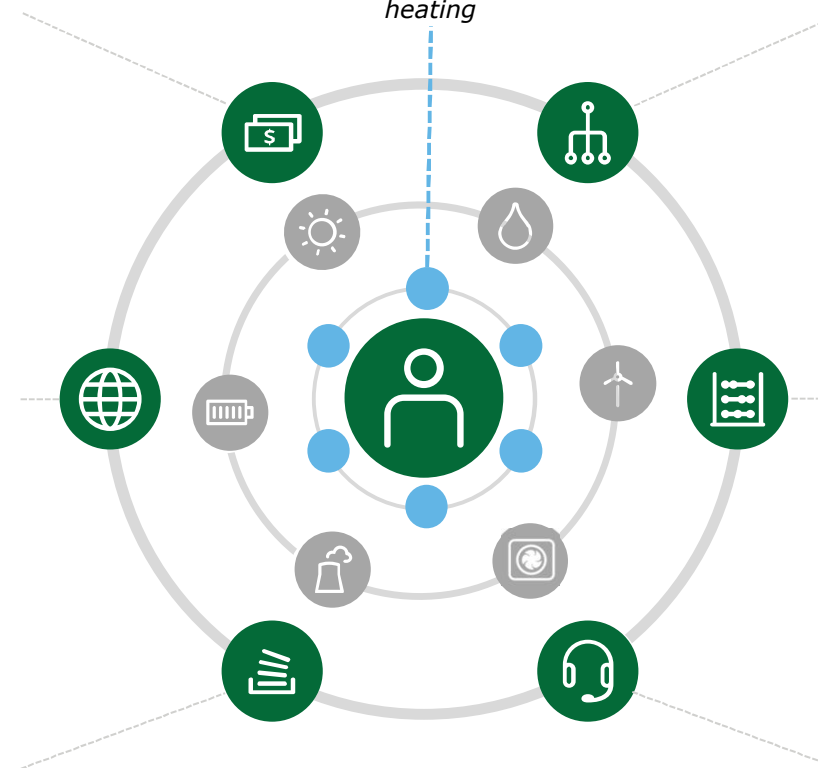
*Accumulating the awareness of customer needs using analytics, fulfilling customer needs using analytics (service content, timing of service offering)*

## AI and blockchain technology enable smart distributed networks

*Customers will benefit from easier price comparison, purchasing distributed energy products and smart meters*

## Expectations for customer experiences come as a given to district heating companies

*The level of customer expectation is based on customer experiences*



● = alternative heating methods

● = services available to users (district heating service business operations)

# **Opportunities created by digitalization**

What type of opportunities does digitalization open up for district heating companies?

# The four interrelated areas with digital potential for district heating companies – focus on customers, enabled by digital operations

## “Broaden the view”



Customer  
experience &  
engagement



New business  
models, products  
and services



Core operations  
and costs



Back office  
operations

*digitalization enables the building of a fully digitalized service path and a personalized multichannel customer experience*

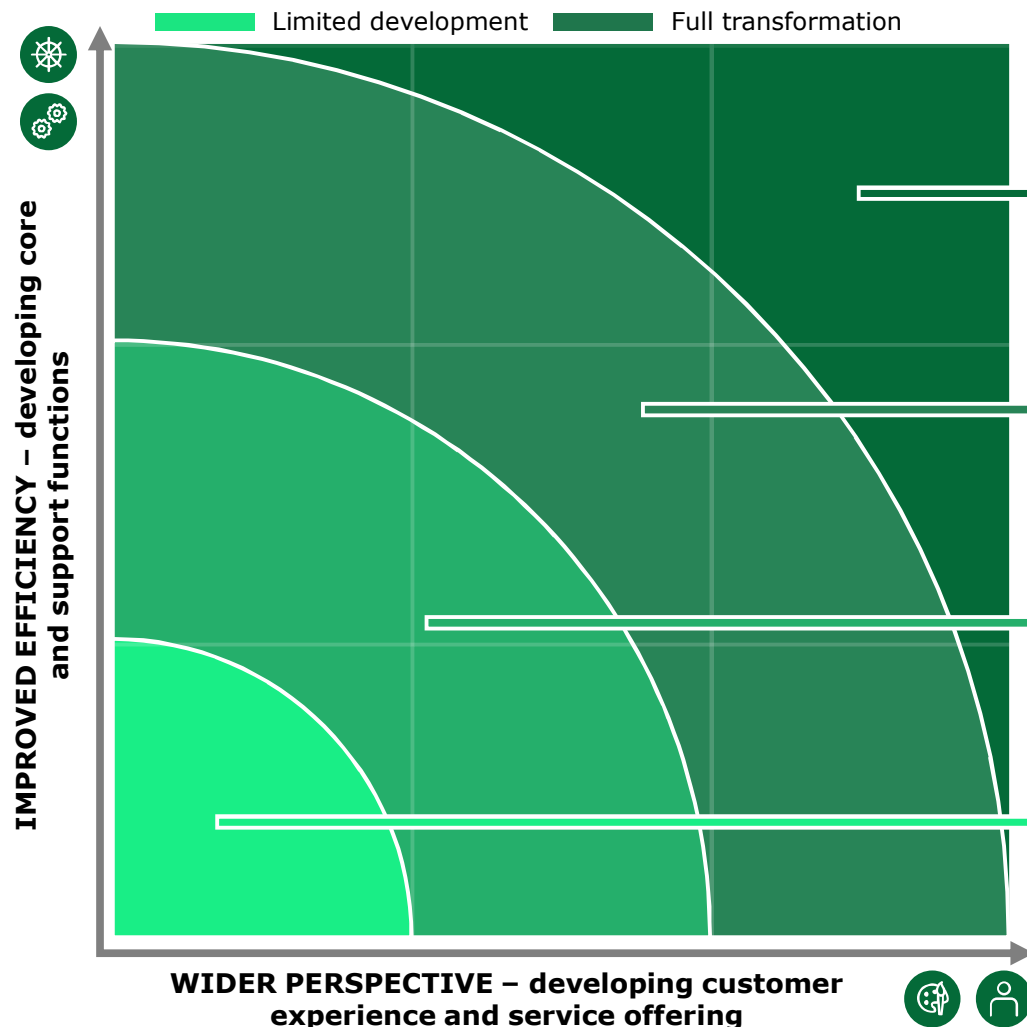
*digitalization enables a deeper understanding of customers' needs and changes in the earning logic and pricing models in business operations*

*digitalization enables a more efficient optimization of production and the distribution network as well as a better timing of investments*

*digitalization enables processes based fully on electronic data management and a higher automation rate*

# Opportunities created by digitalization

Digitalization will create a broad range of opportunities from improved efficiency to complete transformation of the business operations

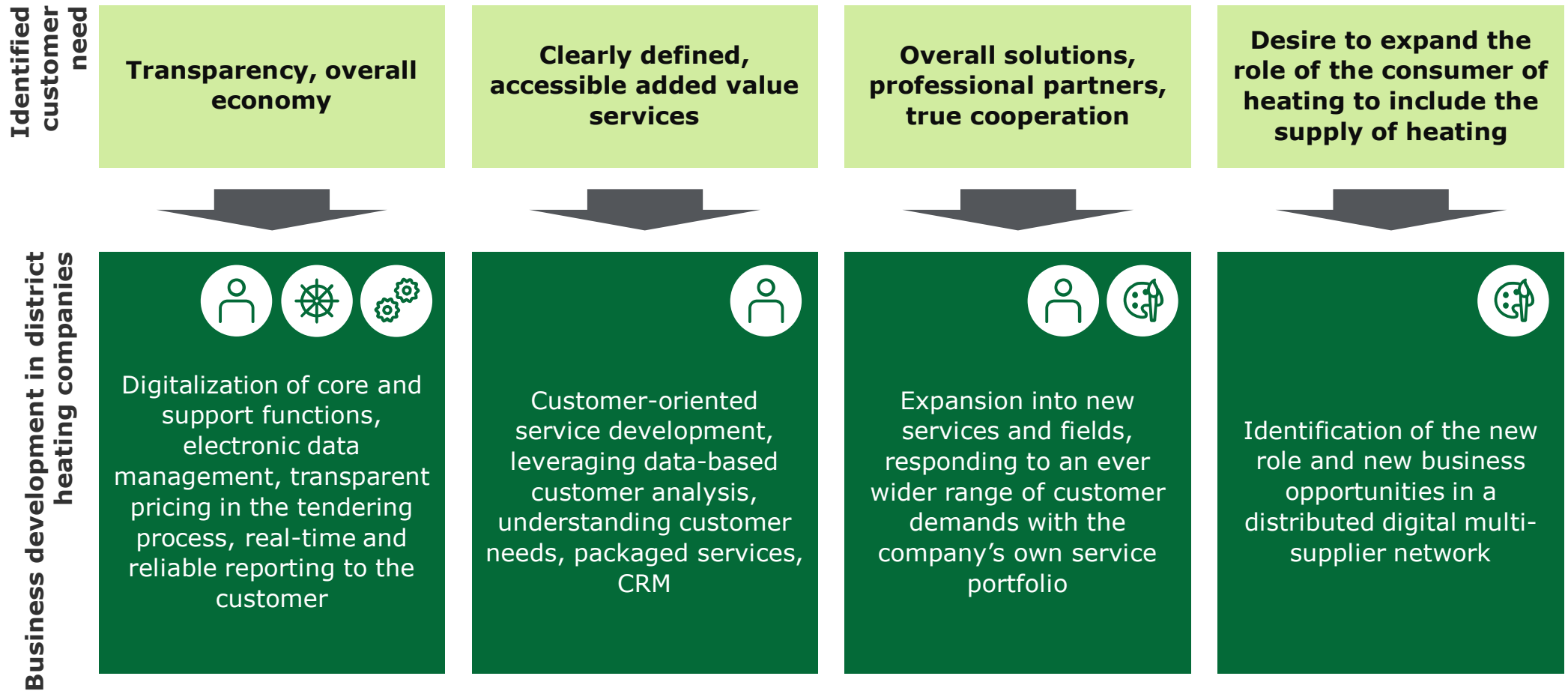


Sources: Deloitte analysis

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# Opportunities created by digitalization

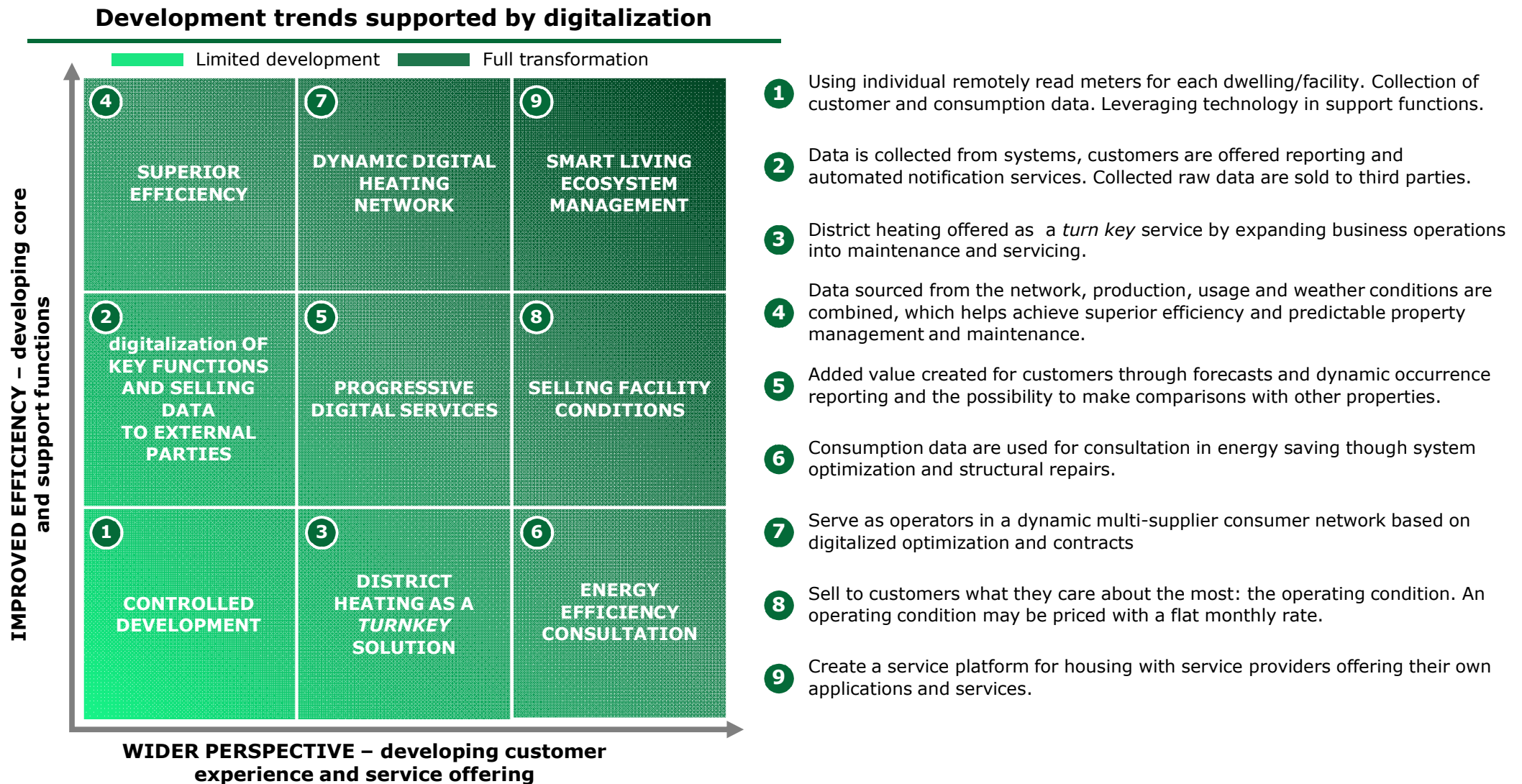
The identified needs of DH customers serve as an incentive for companies to undertake a complete development of their business operations





# Opportunities created by digitalization

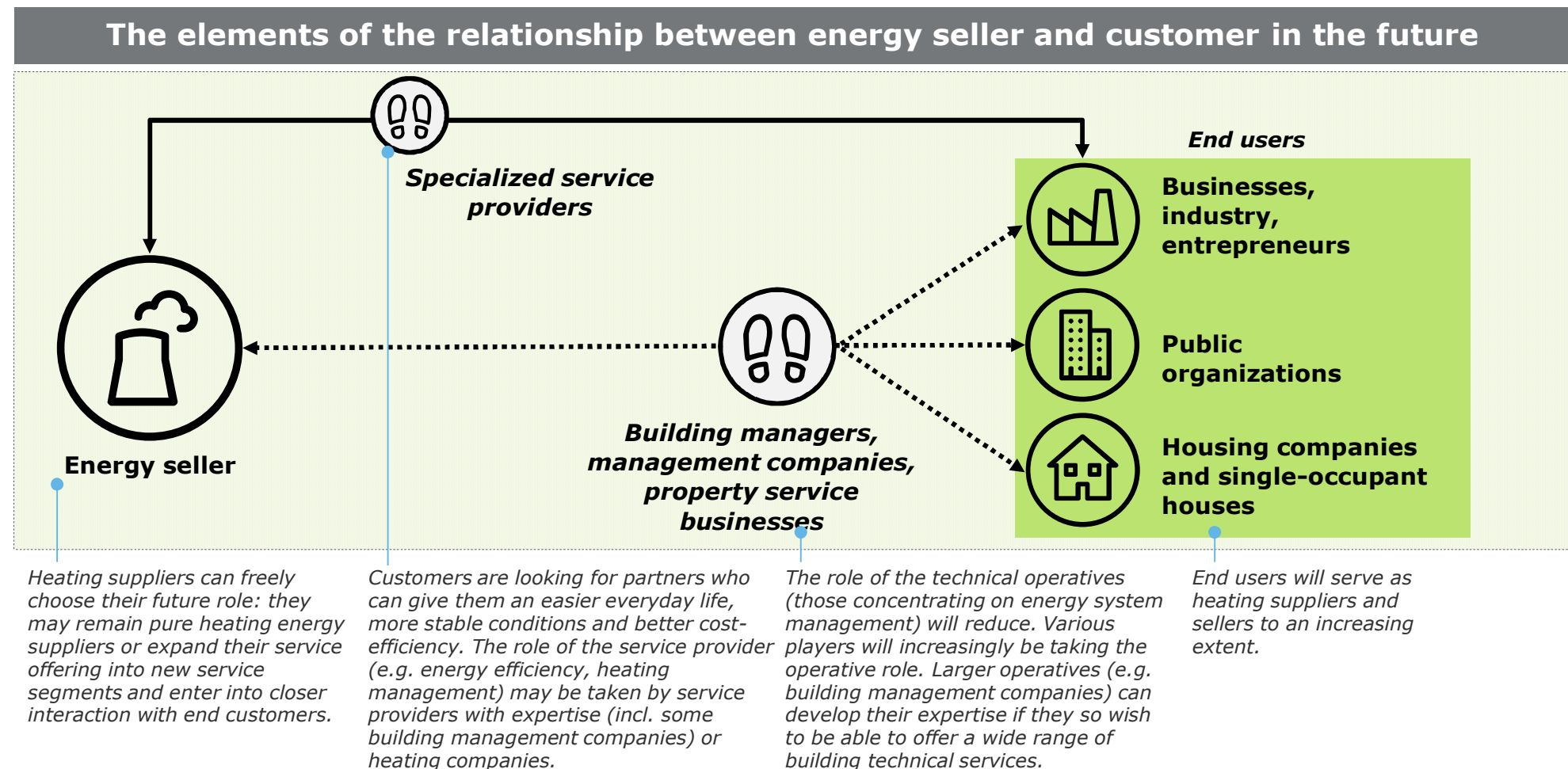
Digitalization creates development paths that DH companies towards new roles in a changing operating environment



# Opportunities created by digitalization

Digitalization emphasizes the change in the roles of different operatives and the new opportunities now available to new providers

Digitalization supports the emergence of new roles and business models with district heating companies, other operators in the field and external third parties



# Sources

## Customer interviews

- The customers of district heating companies
- Consumers and businesses who have selected another heating method

## Sector and expert interviews

- District heating and energy companies
- Component suppliers for district heating networks
- Big data application providers
- Energy management expert company
- Energy expert, adjunct professor

## Public sources

- Company websites
- Sector reports
- Academic studies

## Deloitte's experience

- Deloitte studies
- Deloitte analysis
- Deloitte's expertise and experience in other fields

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