

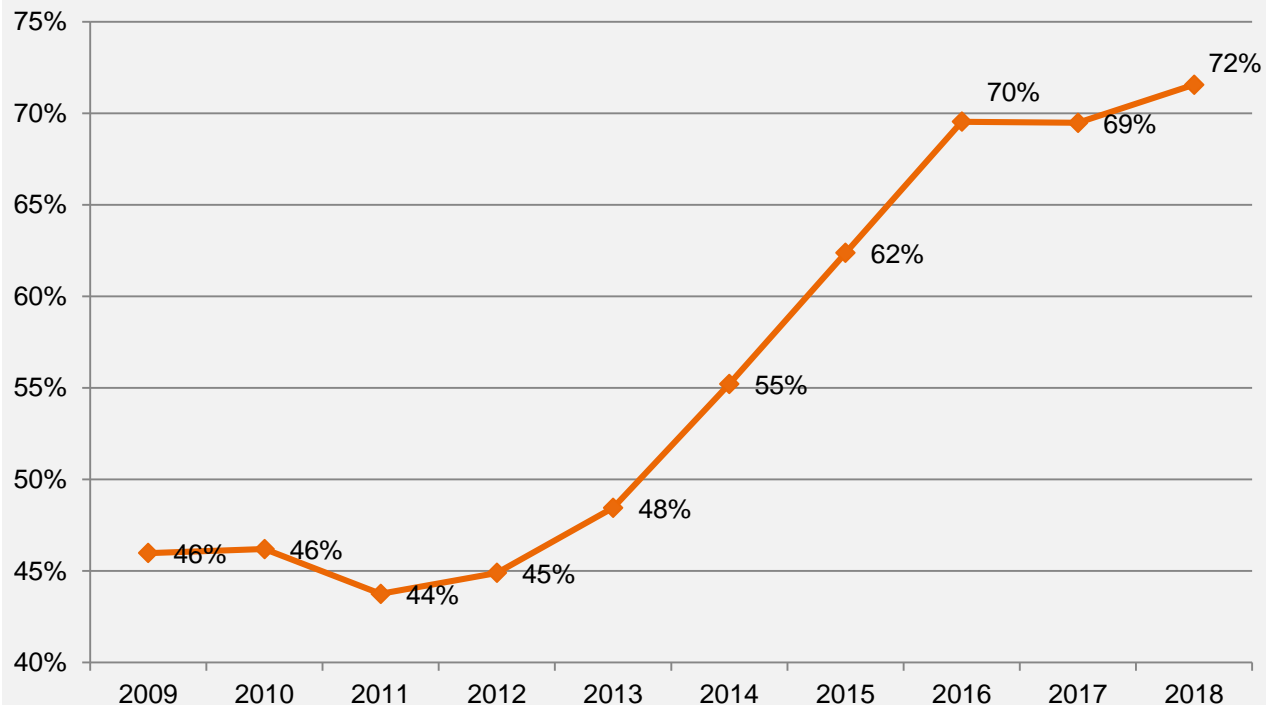
# Industrial Energy Efficiency Best Practices and current trends

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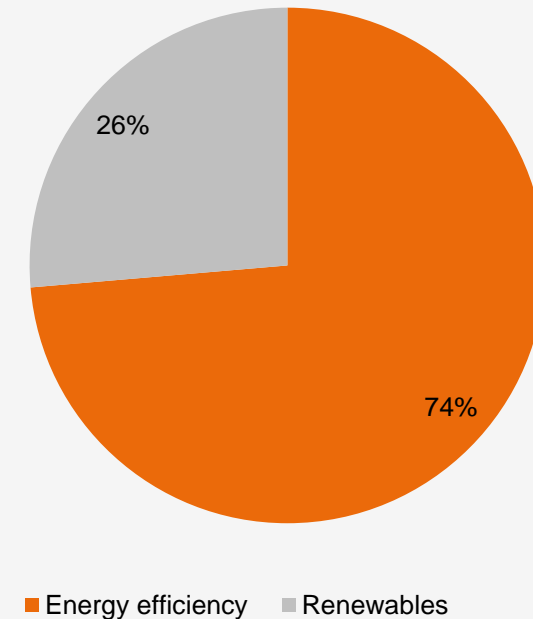


# Energy efficiency in the public eye: The „ugly duckling“

Share of patents regarding energy efficiency compared to renewables



Share of scientific paper regarding energy efficiency compared to renewables

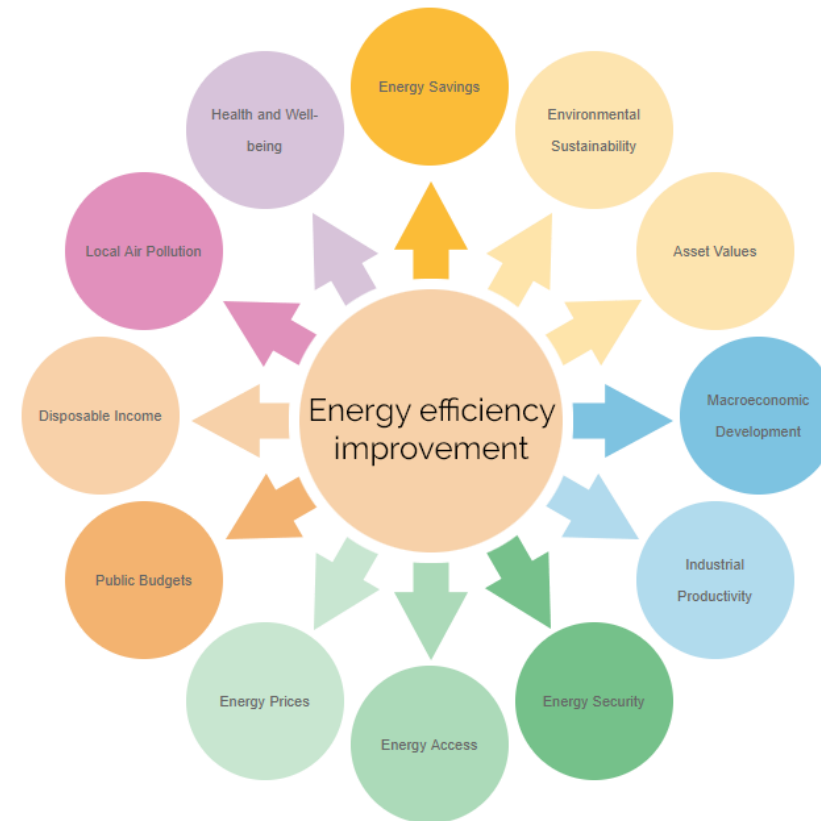


# Why companies should care about energy efficiency: Self-interest

- **Decrease** your energy **costs**
- **Increase** your **independence** from increasing energy prices
- Increase your **competitiveness**
- And much more:

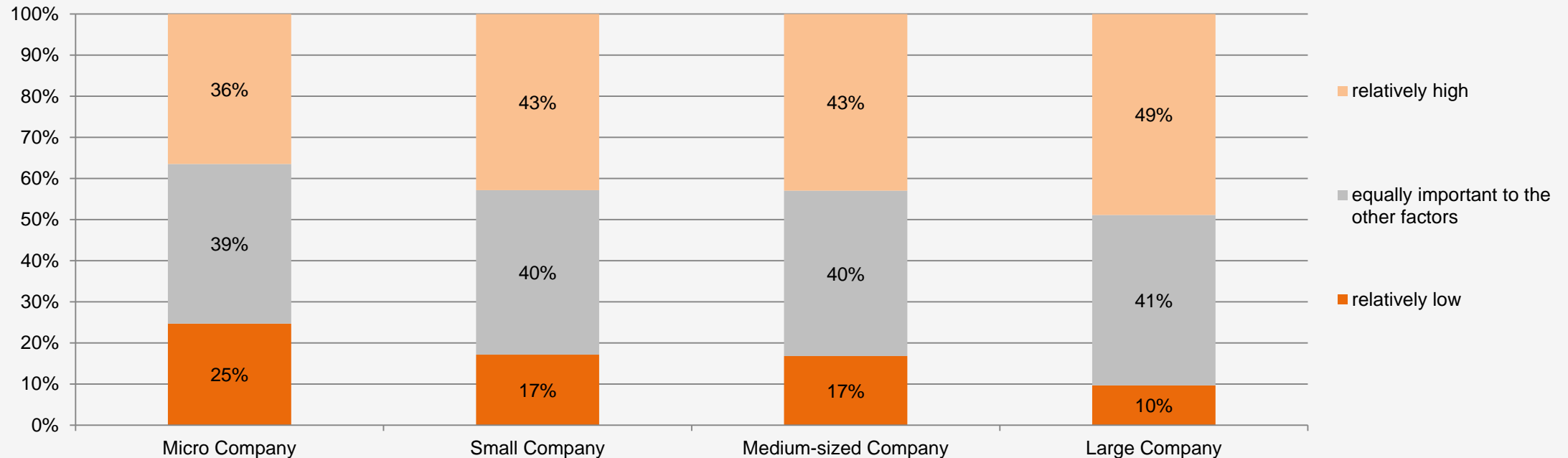


- **Self-interest meets public spirit**
- **Energy efficiency as a company virtue**



# How important is energy efficiency to German Industry? Quite important!

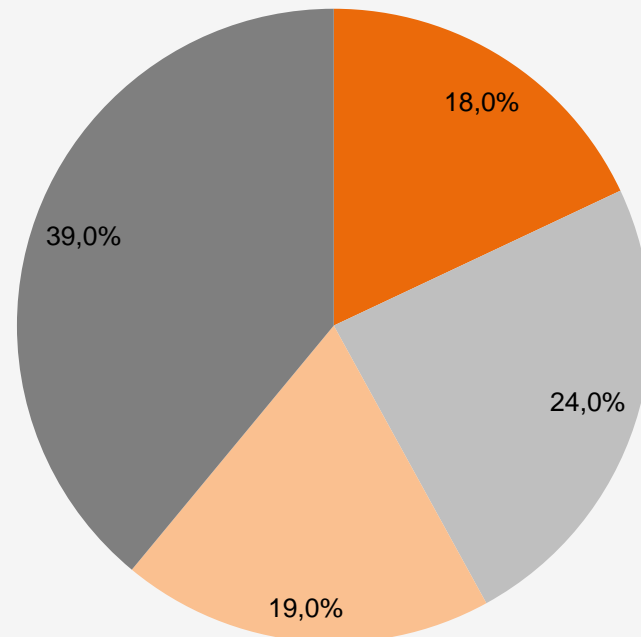
How do you currently rate the importance of energy efficiency to your company in general? It is ... (n=474)



# Barriers for energy efficiency

## Changing priorities

For what reasons does your company not realize energy efficiency potentials? (n=580)

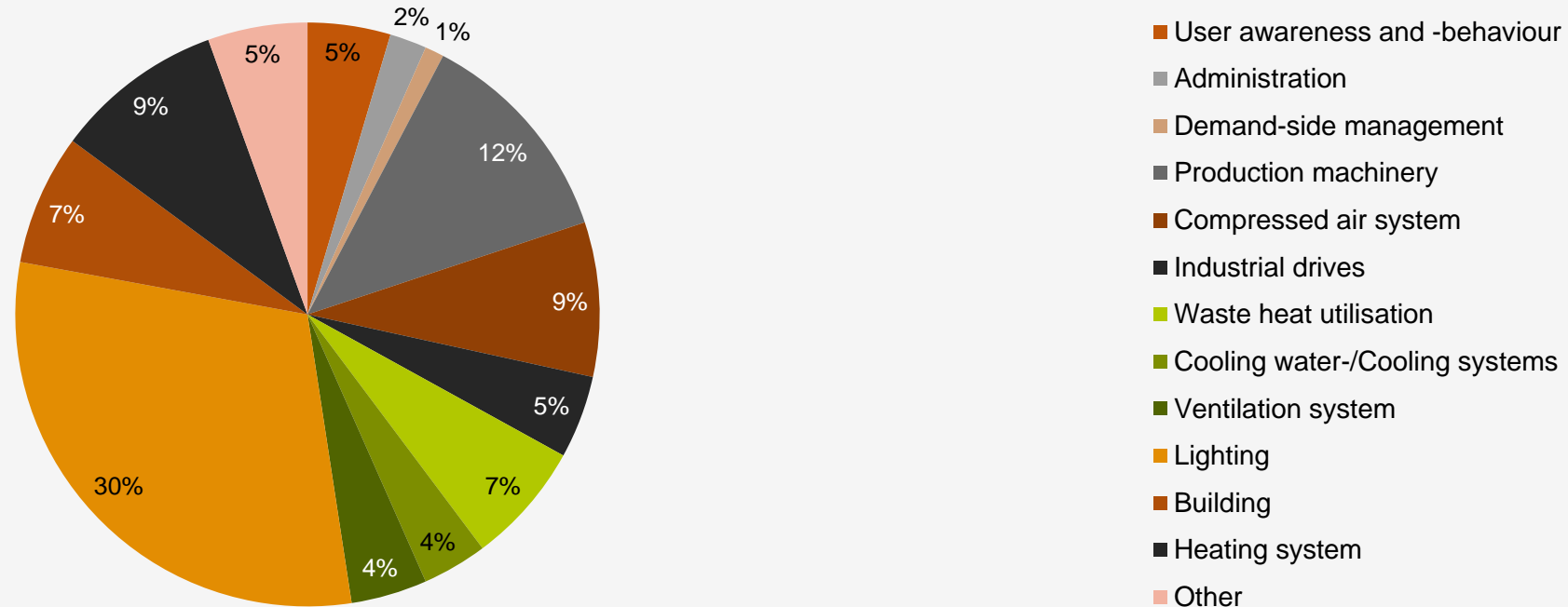


- No trained professionals
- ROI of other measures is higher
- Waiting for attractive incentive mechanisms
- Other strategic priorities

# Areas with largest improvement on EE (multiple choice)

In addition to lighting, the relatively biggest savings were made in production plants, compressed air and heating systems.

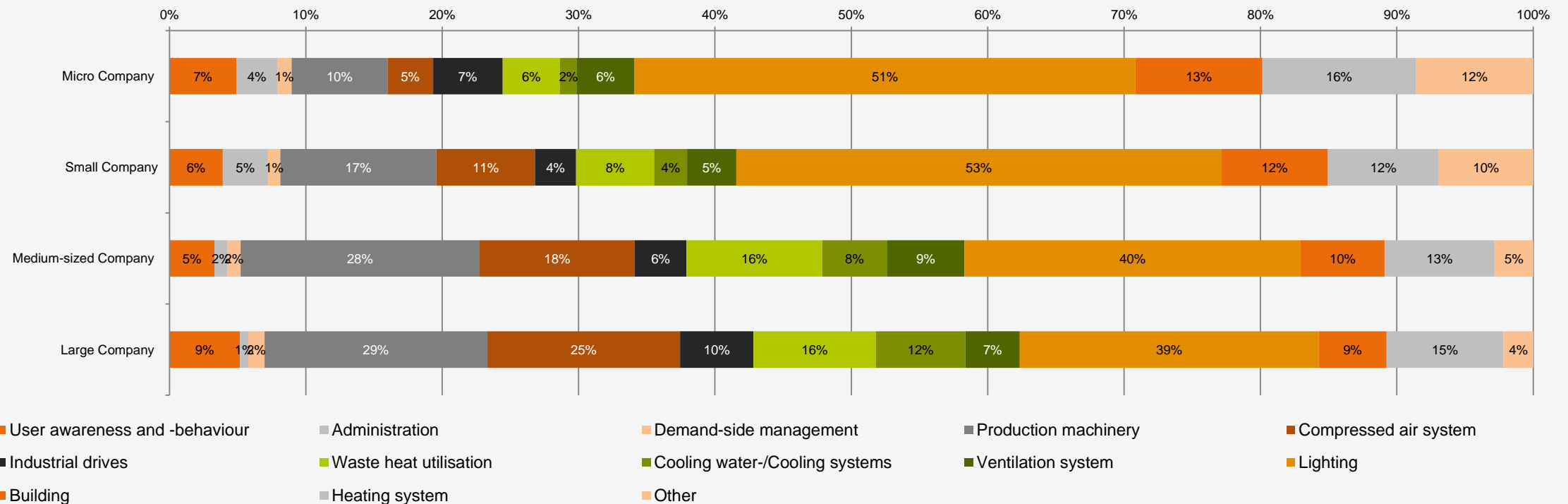
Interventions in what area have led to the largest (relative) improvement in energy efficiency? (n=1047)



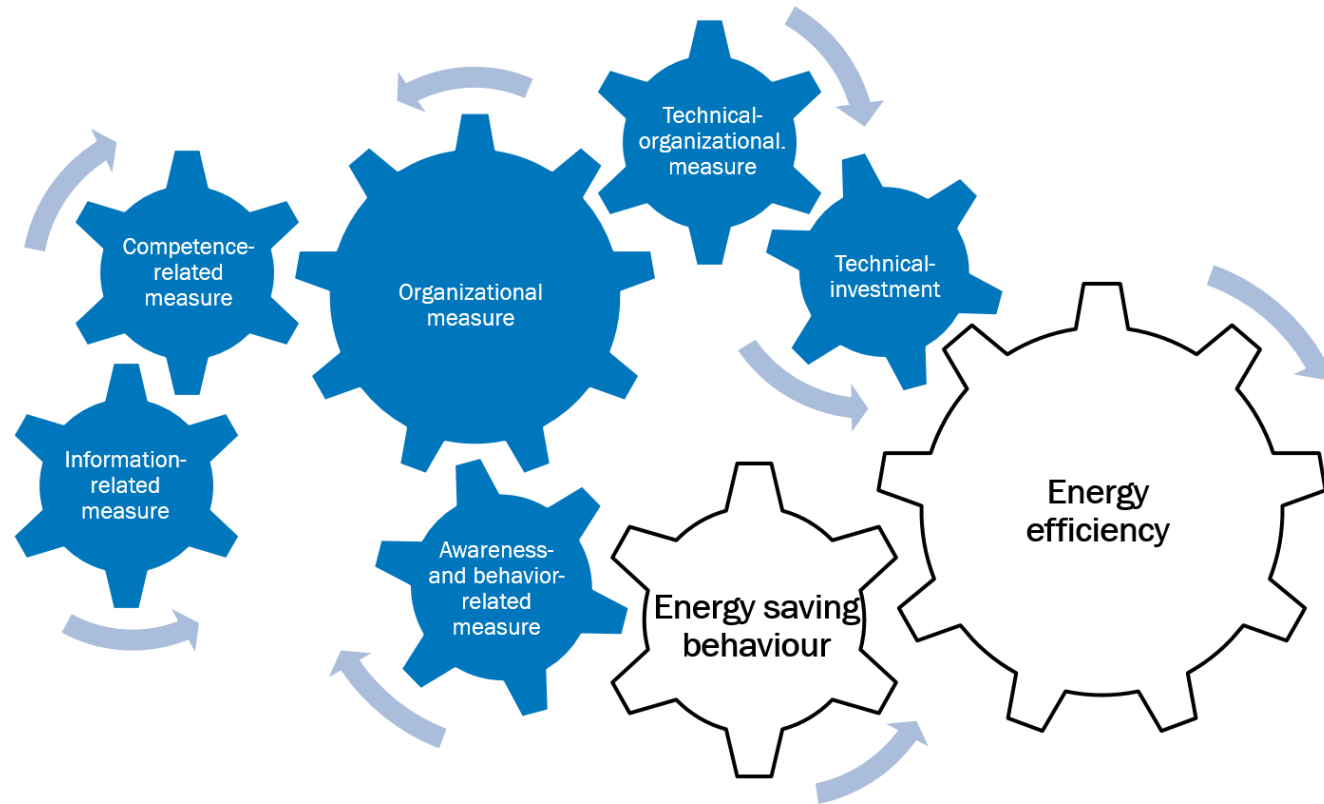
# Areas with largest improvement on EE

For larger companies, above all, relatively largest savings are in production plants and compressed air systems.

Interventions in what area have led to the largest (relative) improvement in energy efficiency? (n=1047)



# Variety of practices and energy efficiency measures boost energy efficiency



**Energy efficiency measures:** Measurement-variety in motion and not only expensive or technical



# Energy Efficiency as a company virtue

- A „strong“ energy efficiency culture of a company is noticed by how **naturally** the topic is dealt with in a company
- Such a culture becomes visible by **who is responsible** for energy efficiency within the company, how responsibility and awareness is distributed, which spectrum of measures is established or energy in general is handled in the daily business routine.
- Energy management and a corresponding leadership action substantially influence the energy efficiency culture in companies.
- In order to have energy efficiency considered as a **cultural ‘no-brainer’**, companies and their leadership but also the companies’ environment and the broader society bear responsibility.



**Increase the probability of decisions for energy efficiency**

# Energy efficiency means a permanent change- and leadership process

- To shape companies energy efficiently means to **start up a permanent change process.**
- This change process in practice often encompasses **a series of different measures – from the sensitisation of staff up to technical investment** and their implementation and optimizing.
- Energy efficiency therefore is an **ambitious management task**, that though not only is related to Management positions but especially key persons.

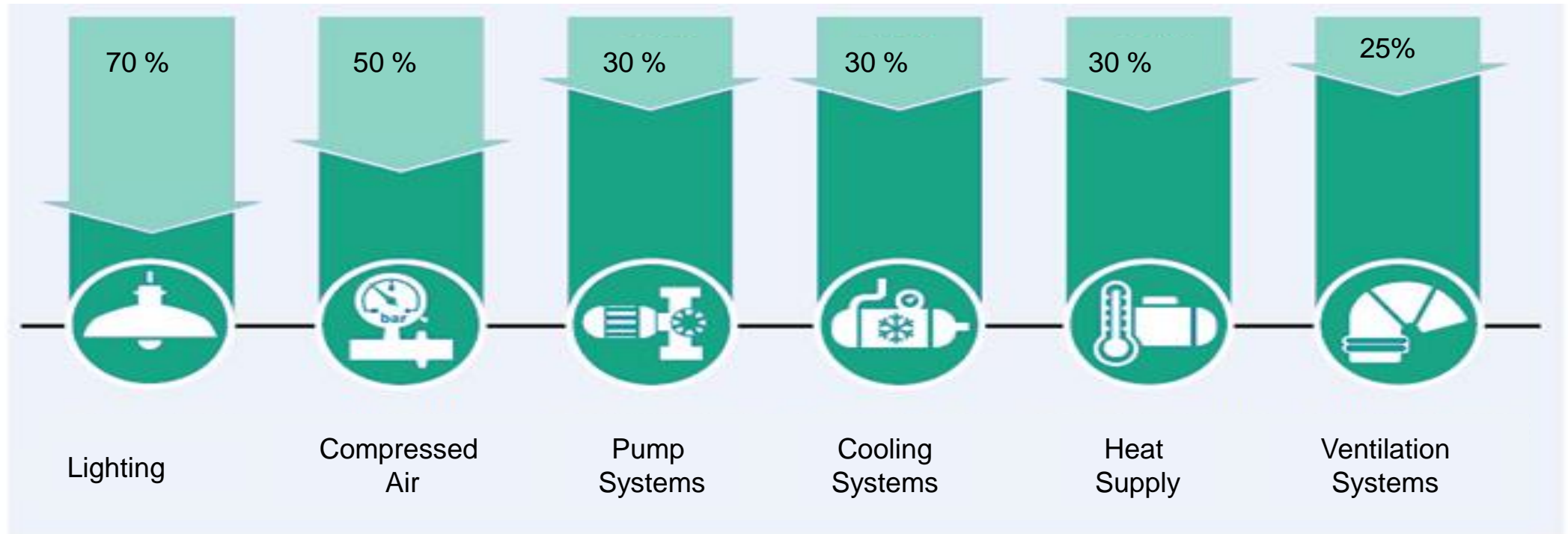
The Management has to:

- Actively create a **significance** of energy efficiency to the company
- **Decentralise** the attention for energy efficiency,
- Bring together **interdisciplinary** know-how

**In Short:**  
**organising and managing energy efficiency**

# Cross section technologies

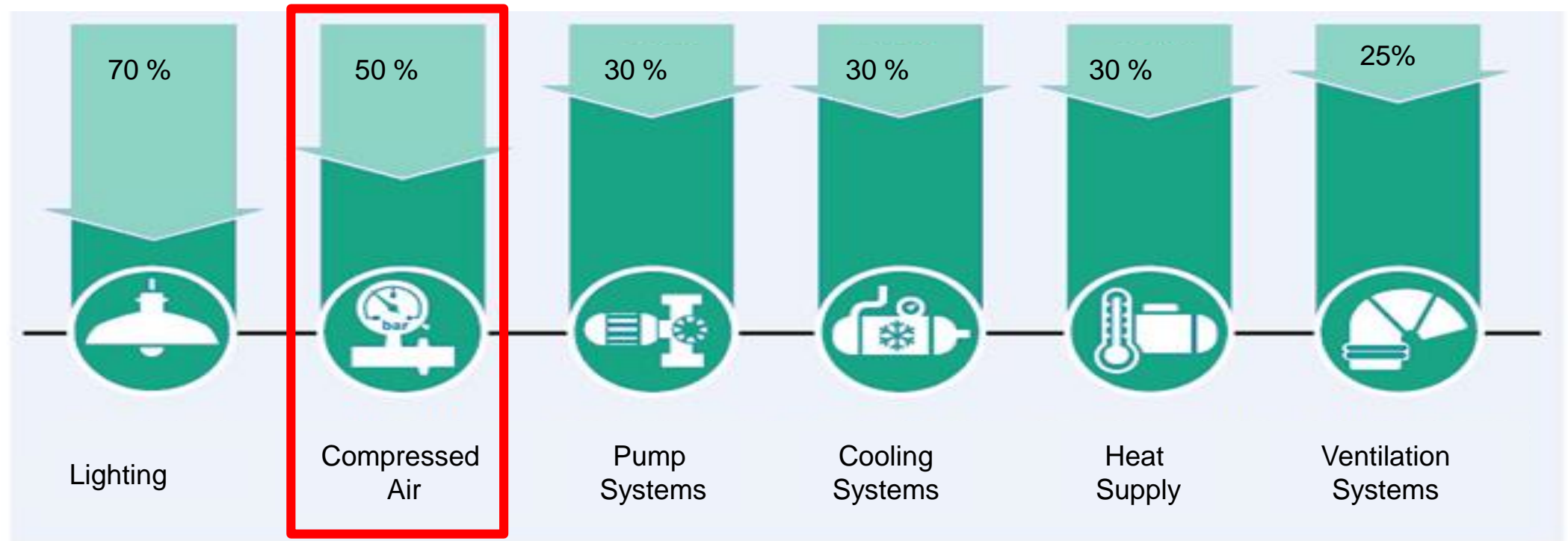
## Analysis of saving potentials



**Take home message:** Address cross sectional potentials for energy and cost savings

# Cross section technologies

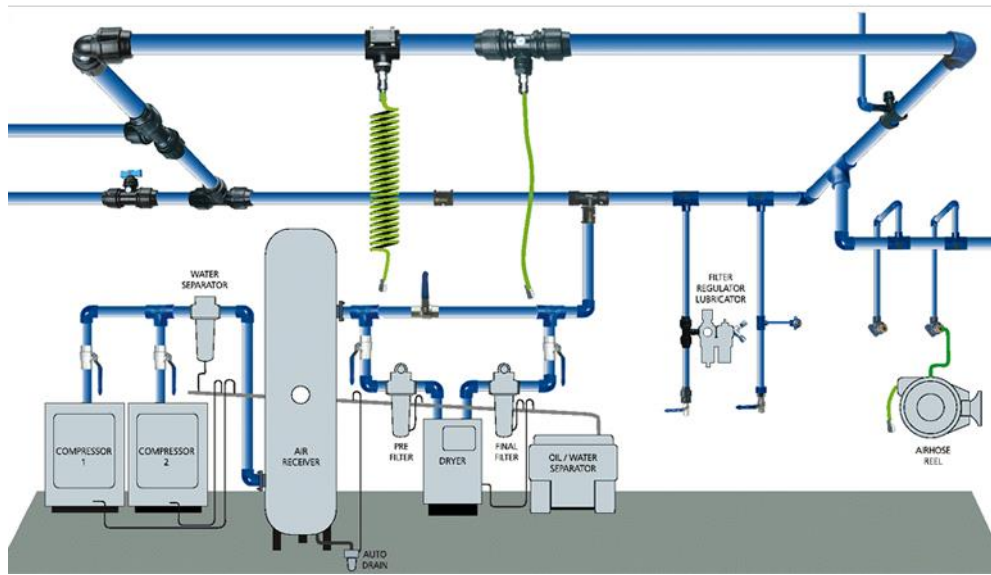
## Analysis of saving potentials



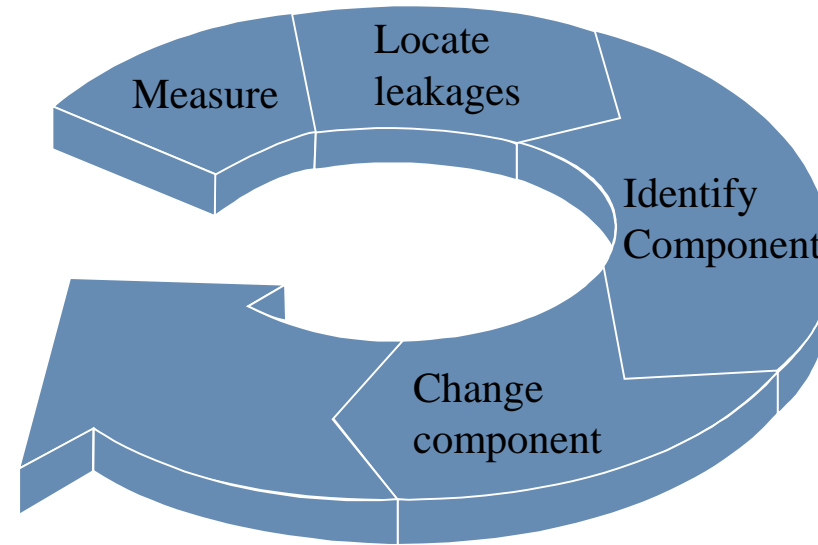
**Take home message:** Address cross sectional potentials for energy and cost savings

# Cross section technologies

## Analysis of saving potentials – compressed air systems



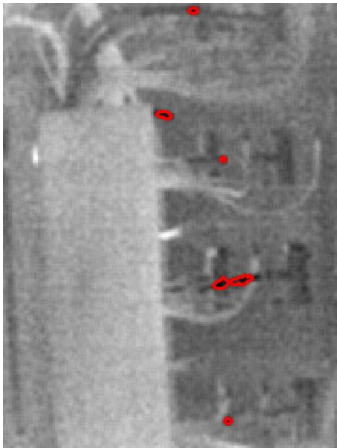
### Maintenance process



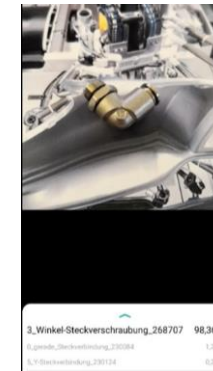
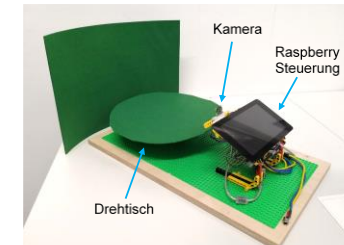
**Take home message:** Regularly check for leakages

# Cross section technologies compressed air systems – frugal digital solutions

## Our solution for a frugal automated leakage detection:



- Stationary thermal imaging camera for continuous monitoring of risk areas where leaks are frequent
- Raspberry Pi + ML-Algorithm
- **Requirement:** Cost-effective hardware and automated recognition



Andorid-App

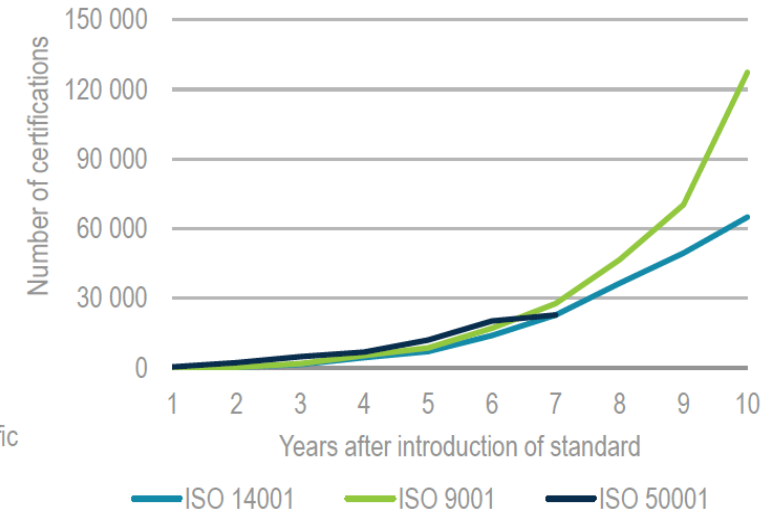
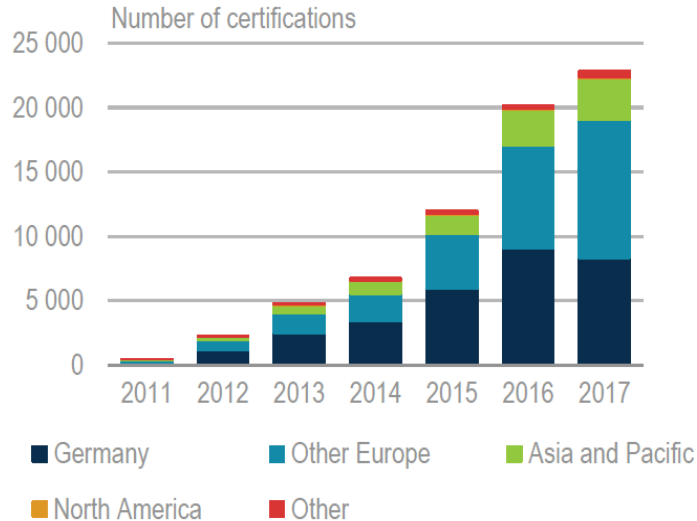
- Problem definition: Identification of standard compressed air parts (fittings) is very time-consuming
- Idea: Development of an image recognition app



**Take home message:** Automated solutions don't have to be expensive!

# ISO 50001 - The industrial perspective

- German companies that introduce an energy management system can take advantage of the renewable energy surcharge (special equalization program) or the energy and electricity tax (energy and electricity tax cap).
- The number of ISO 50001 certifications in China almost tripled in 2016, and the number of certifications grew by over 40% in 2017.



**Take home message:** The industry's energy efficiency policy must make progress in order to achieve greater efficiency gains!

# Conclusion

- Energy efficiency as a company virtues in order to increase competitiveness
- Energy efficiency not only has technical advantages such as a longer service life, but also many other benefits such as cost savings
- Companies must analyze and remove barriers preventing further energy efficiency gains
- Cross section technologies are the first to improve in energy efficiency as they reach many different economic sectors
- Non-technical energy efficiency are an easy step for initial efficiency gains





Federal Ministry  
for Economic Affairs  
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Thank you for your attention!



Christian Schneider, EEP  
10.11.2020



Facilitator

