

# How the Cleaning Industry is approaching Innovation:

## Facts, Trends and Outlook for Europe



White paper  
2020

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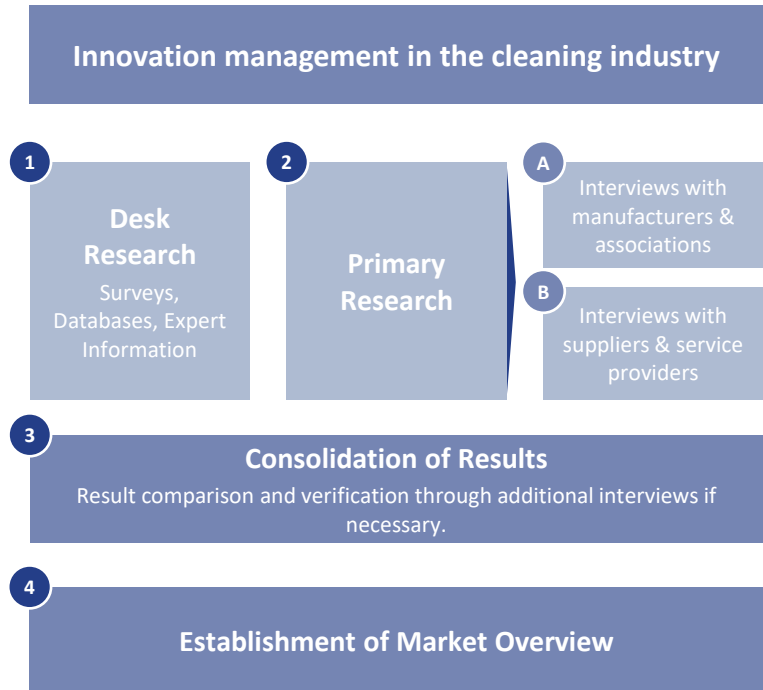
**DTO Research**  
Cleaning Markets



## How the data was collected

- Co-initiator and partner of this study is ISSA, the worldwide cleaning industry association.
- The data for this white paper were collected through secondary data analysis and qualitative expert interviews.
- The survey period took place from 16th December 2019 through 15th February 2020.
- A total of 18 guided interviews were conducted.
- The target group for the survey is made up of manufacturers (8), associations (1), building service contractors (BSCs\*) (5), dealers (2) and service/technology providers (2) who represent 12 European countries.

\*BSCs = Cleaning companies



## Innovation management in the cleaning industry

- Digitalization, automation, robotics, staff shortage, relevant qualification, industry recognition and sustainability are the most pressing matters.
- Innovation in the industry is moderate and influenced by developments from outside.
- Requirements of BSCs and in-house cleaners are not considered enough in the innovation process.
- R&D cooperation is seen as very important but hardly exists in practice.
- Robotics and digitalization are here to stay, and their impact will grow in the future.



**Digitalization and  
Automatization**

**Robotics and  
IOT**



**Staff shortage,  
qualification and industry  
recognition**

## Innovation management in the European cleaning industry

### Facts, Trends & Outlook

1. Status quo and current trends
2. Innovations and innovation management
3. Digitalization and robotics
4. Future of cleaning
5. Conclusion and recommendations

## Importance of different topics according to the interviews:

### Digitalization



### Robotics



### Automation of cleaning processes



### Staff shortage and qualification



### Sustainability



### Controlling issues



● High relevance ○ Low relevance

## The industry's major trends and most pressing matters

- Digitalization and robotics are currently the most important topics discussed by manufacturers and technology providers in Europe
- While digital products and solutions are already in use, robotics is perceived as a future topic.
- Automation of cleaning processes will go along with reliable cleaning robots.
- Staff shortage and qualification are the major challenges BSCs face.
- Sustainability is a main priority that affects all segments. This development will continuously increase in its importance.
- The optimization of controlling processes to ensure the quality of cleaning results with digital solutions is also discussed.

Sources: Interviews DTO Research

## Trends by segment

### Machines



- Robotics
- Autonomous cleaning
- Sustainability

### Equipment



- Better ergonomics
- Digitalization

### Chemicals



- Sustainability
- Dosing
- Value-added services

### Facility Management



- Staff shortage and qualification
- Improvement of industry reputation

## Most important trends in the following cleaning segments

- Considering machines, the most important trends are autonomous cleaning with robotics and reduced chemical use to meet sustainability requirements.
- Improvement in ergonomics for the well-being of cleaners as well as for the reduction of downtimes is a major trend across equipment.
- In the segment of chemicals, sustainability is a core topic, as well as the offer of value-added services from the manufacturers.
- The most important issues for BSCs are digitalization, process automation and staff qualification.

## Biggest challenges and problems

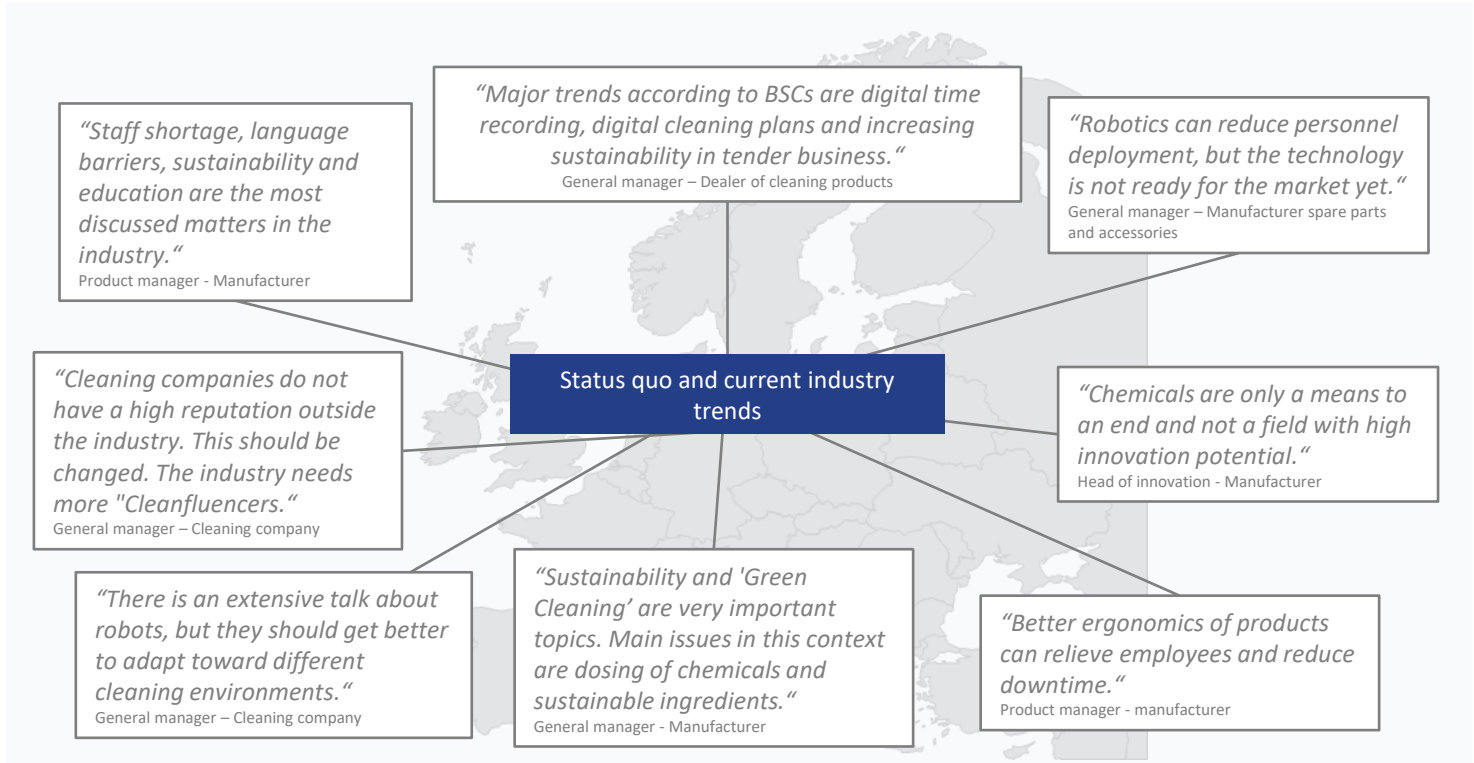
- Staff shortage is still one of the biggest challenges the industry faces. Staff qualification is often poor with many lateral entrants.
- The reputation of the cleaning industry is still not very strong outside the sector. Measures like daytime-cleaning or the utilization of “Cleanfluencers” could help to optimize the awareness toward cleaning. Also the Corona Crisis might have an impact.

Sources: Interviews DTO Research



# Status quo and current trends

## Notable quotes from the expert interviews



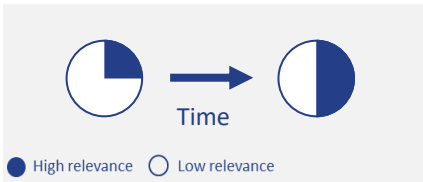
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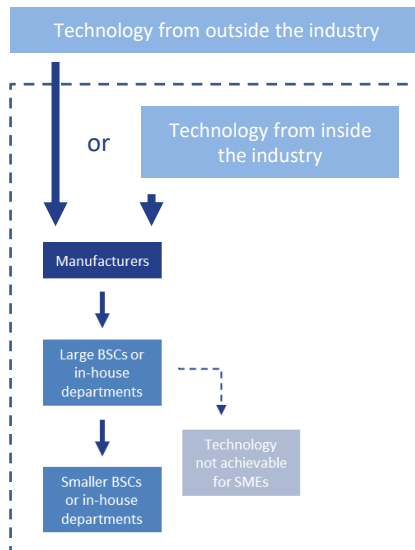
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## Innovation power



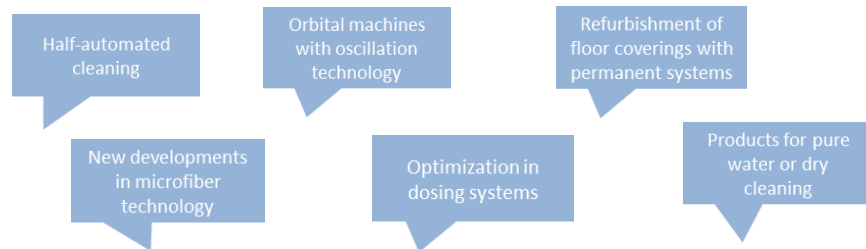
## Top-down approach



## Innovation of the industry

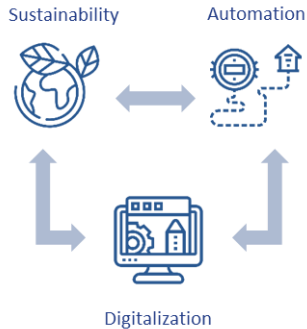
- The industry is described as less innovative and rather conservative but a slight change of opinion in the recent past is apparent.
- Cleaning is influenced more and more by technologies from outside the industry which increases the number of innovative products and services.
- Often new technologies are only used by large BSCs or in-house departments which limits their market penetration.
- In many cases product improvements were declared as innovative while real innovation often only took place in niche segments.

## Most important innovations in the last five to ten years

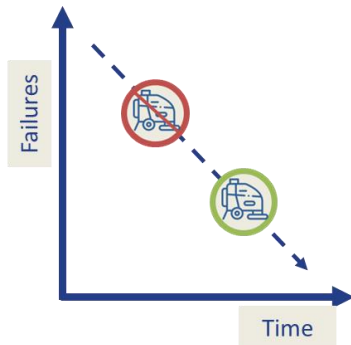


Sources: Interviews DTO Research

## Innovation triangle



## Failures are part of the natural innovation process



## Highest potential for new innovative products or services

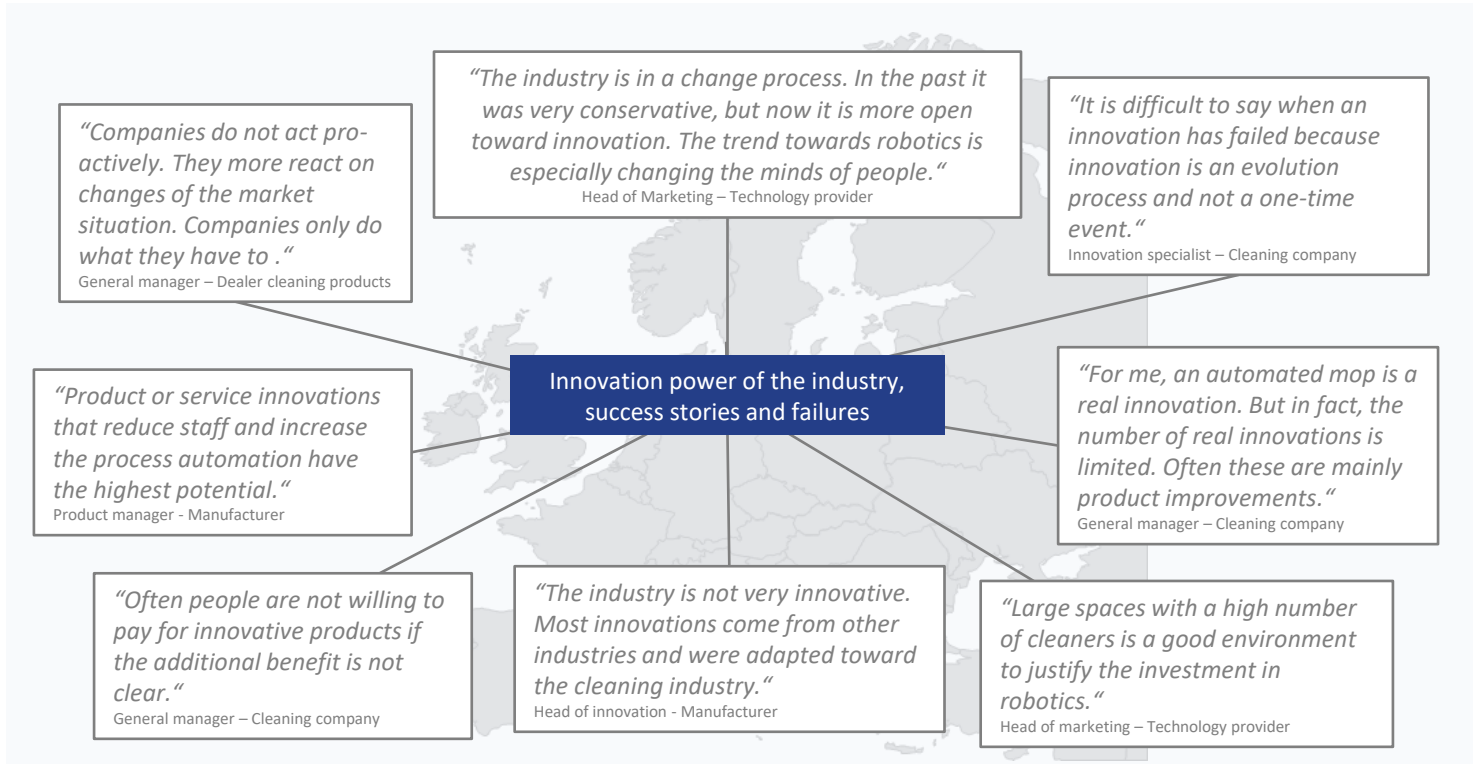
- Innovations that reduce staff and increase process automation seem to have the highest potential in the market due to the cost structure of BSCs.
- Products focused on sustainability and environmental protection are also increasing in importance.
- Digital solutions that improve controlling or optimize the cleaning process (e.g. sensors or chips in cleaning equipment).

## Products/services that were not as widely adopted as initially expected

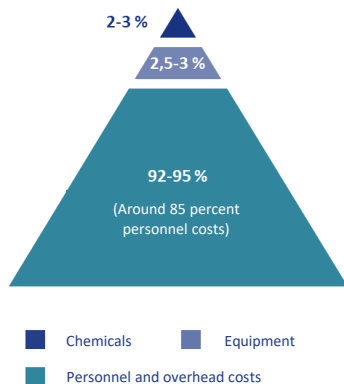
- First generations of cleaning robots (floor cleaning)
- Robots for façade or solar cleaning as well as cleaning drones
- Nanotechnology

Sources: Interviews DTO Research

## Notable quotes from the expert interviews



## Cost structure maintenance cleaning



## Overall success criteria for innovation



Staff reduction



Time savings

## Cleaning facilities that experience the largest adoption of new technologies

- Large spaces (e.g. in malls, logistic centers, airports etc.) which need a high number of staff for cleaning are especially described as environments that experience the largest adoption of new technologies especially in robotics.
- This may not be surprising, as personnel costs are the most significant item in the cost structure of a BSC and the target is to reduce staff.

## Most important product features for successful innovations

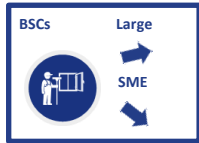
- Simple and intuitive handling
- Real problem solving and not only nice to have
- ◐ Robustness and durability
- ◐ Clear unique selling proposition (USP)
- ◐ Cost efficiency
- ◐ Scalability
- ◐ Easy to transport

Sources: Interviews DTO Research

● High relevance ○ Low relevance



## R&D activities and staff qualification



## Basic questions of cleaning



## Innovation, R&D activities and staff qualification

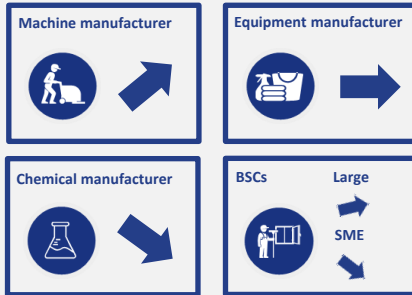
- In opposite to smaller companies most large manufacturers and BSCs have well-educated staff to support R&D activities.

## Consideration of BSCs and in-house cleaners' requirements in the innovation process

- Many products are developed without paying enough attention to market requirements.
- There is a lack of communication with the BSCs.
- BSCs are the professionals that know best where they have challenges and should be integrated in the innovation process.
- In most cases, only requirements of large BSCs are considered, but to truly gain more accepted implementation, considering medium-small BSC needs is required.

Sources: Interviews DTO Research

## Who is paying most attention to innovation



## Importance of R&D cooperation



## Dissemination in practice



● High relevance ○ Low relevance

## Availability of sufficient innovation strategies

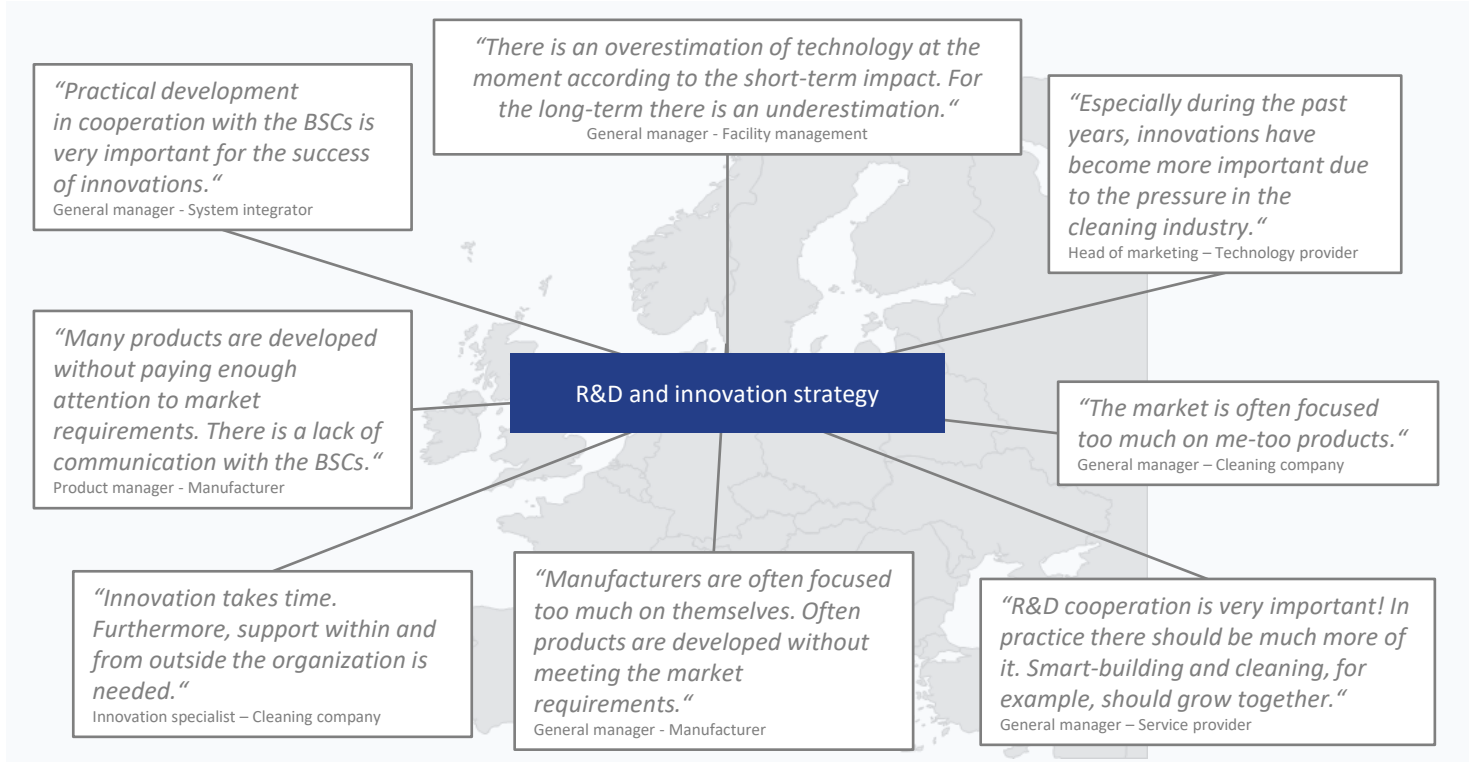
- Some companies have a sufficient innovation strategy, but not all.
- Knowledge is often not systematically shared within the companies to support a holistic innovation process.
- There is often a more local thinking in the market. As a result, requirements of companies in other countries are not taken into consideration. There is still lack of global exchange of ideas, collaboration and information.

## Importance of R&D cooperation

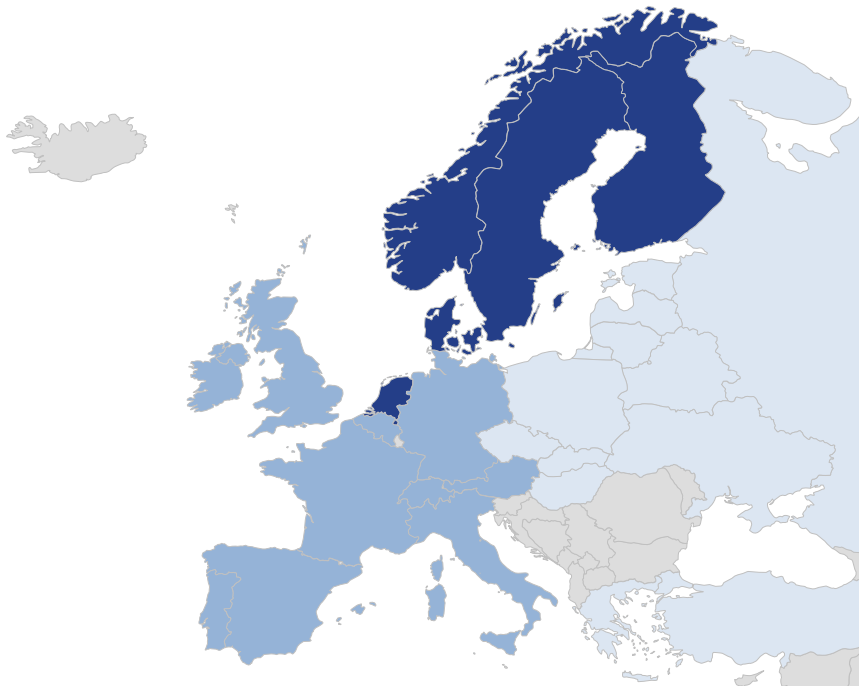
- R&D cooperation is seen as very important, but in practice this does not take place often.
- For example, the exchange between machine manufacturers, chemical manufacturers, universities, companies from outside the industry and BSCs should be improved.

Sources: Interviews DTO Research

## Notable quotes from the expert interviews



## Differences across European markets



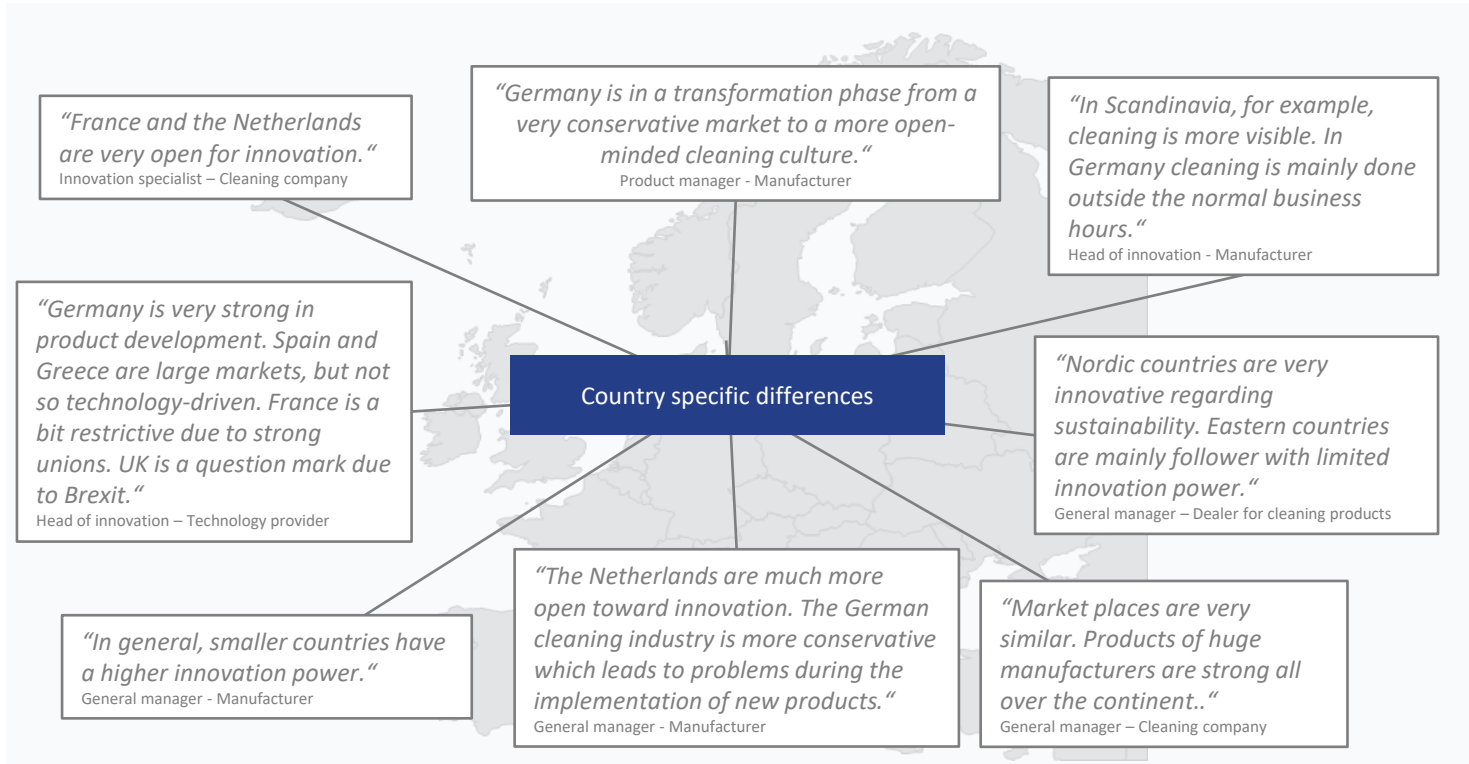
■ Higher level of innovation ■ Lower level of innovation ■ Countries not included

- Countries can be roughly classified in 3 categories according to their acceptance of innovation.
- Germany is in a transformation phase from a very conservative market to a more open-minded cleaning culture.
- The Nordic countries and the Netherlands are open to innovations, especially in the case of sustainability and visible cleaning.
- Eastern countries can be more-or-less seen as follower with limited innovation power.

Sources: Sources: Interviews DTO Research



## Notable quotes from the expert interviews



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## Current market penetration



● High relevance ○ Low relevance

## Future importance of robotics and digitalization



## Current developments in the field of robotics and digitalization

- The industry is just beginning to adopt robots at scale.
- Increasing functionality and flexibility of these machines will support mass adoption in the future.
- Data protection and data utilization are very critical issues at the moment.
- While digital solutions are already implemented, robotics are still in a testing phase.

## Importance of these technological innovations for the next decade

- There has been a consensus that the role of robotics and digitalization will play a greater role in the future of cleaning.
- Robotic technology is fitting for cleaning environments with large spaces like warehouses or large areas with carpets.
- Large BSCs are the first players in the market who will benefit from the new technologies.

Sources: Interviews DTO Research



## Most important and needed innovations:

- Open technology platform for Internet of Things (IOT)
- Robots with different features to perform different cleaning tasks (e.g. vacuum, scrubbing and floor sealing)

## Most important opportunities and challenges:

- Adaptation of robots for different cleaning environments
- Improvements in artificial intelligence
- Product individualization (toward user requirements and country specifics)
- Investment and financing

## How the different segments will benefit from these technologies the most and why

- In general, all segments will benefit but with very different intensities.
- Especially large BSCs will have a competitive advantage with new technologies because they have the resources to implement them.
- It might be difficult to get SMEs to invest more in digitalization and automation if it is resource-intensive and complex.

### Manufacturer



- Increase turnover
- Creation of an USP
- Data collection for new services
- Higher customer loyalty

### BSCs

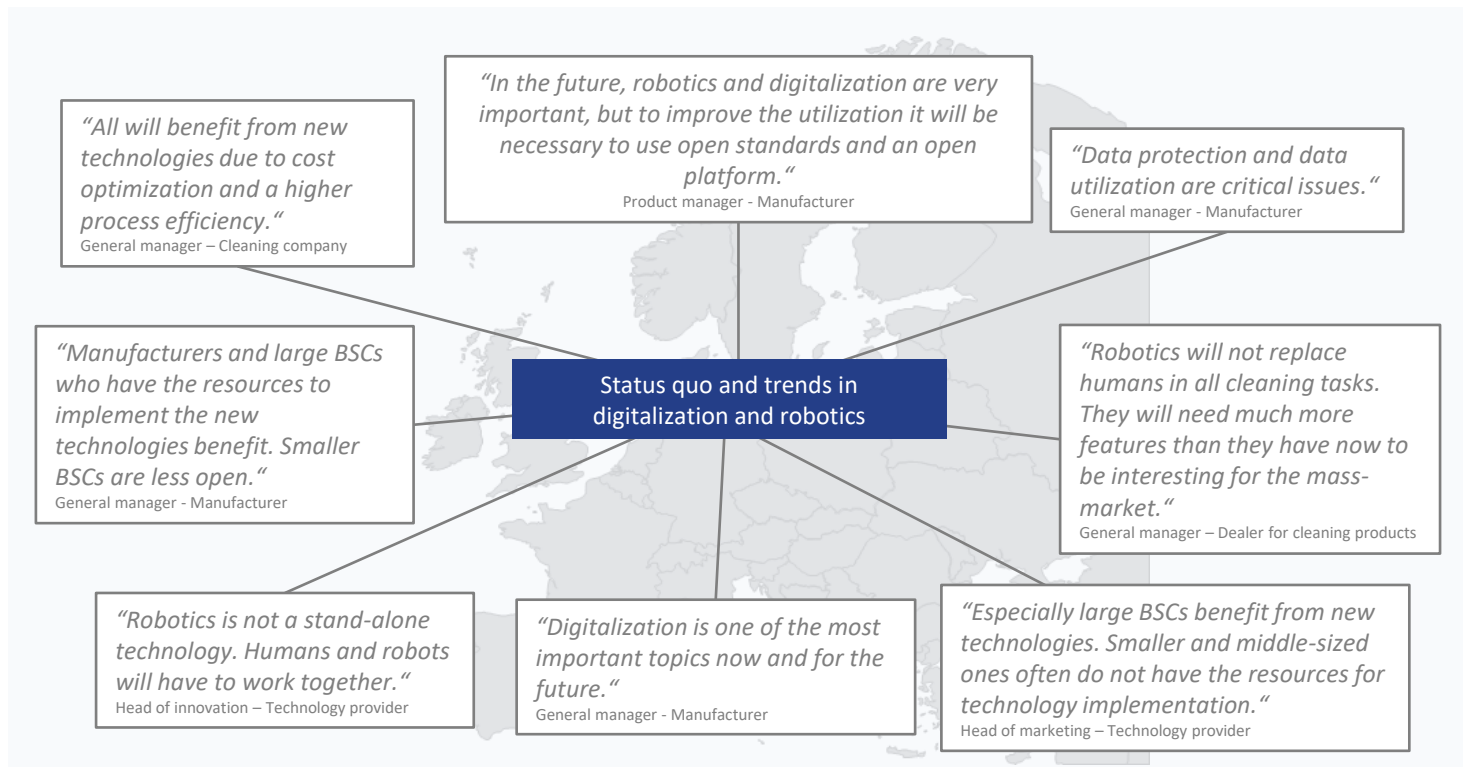


- Higher process efficiency and ongoing optimization
- Improvement of controlling
- Reduction of staff and cost optimization

Sources: Interviews DTO Research



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## Main drivers for technological development:

- Cost optimization
- Legal changes
- Creation of synergies
- Internationalization
- Competitive pressure
- Process efficiency

## Top countries/regions for innovations in robotics and digitalization:



## How the cleaning industry will change in the future

- The way of cleaning will change, but not so fast. Large spaces will be cleaned by robots but not everything can be automated.
- Automation will be implemented step by step, however, in 10 years cleaning will still be mostly done by humans.
- Cleaning and building infrastructure will merge slightly.
- In general, cleaning will become much more sustainable and visible.

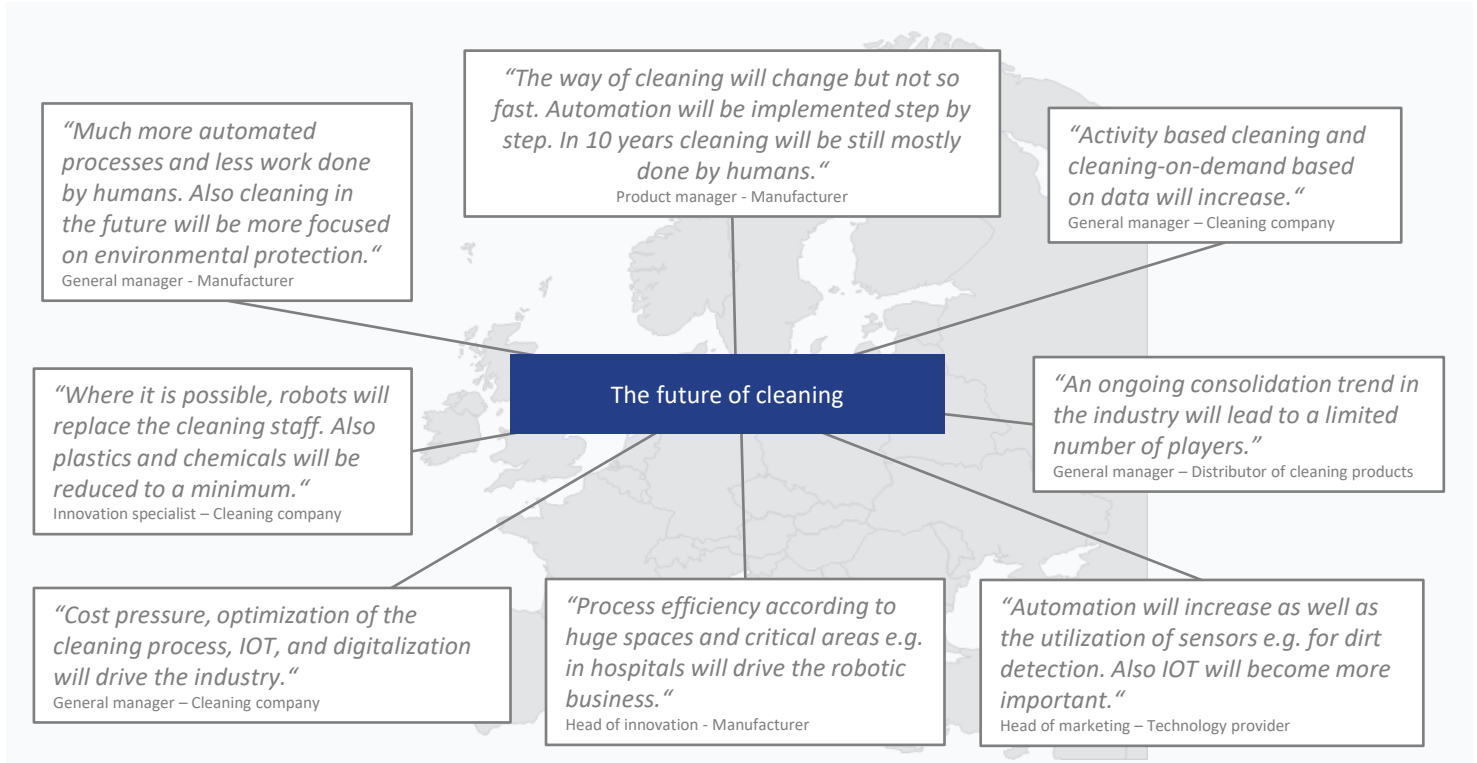
## Role of Europe according to new technological developments and importance of other regions

- North America and Europe will be the main drivers of innovation in the industry, but the role of Asia is emerging very fast.
- In Asia, developments are often much faster than in Europe.
- In the past, products were often copied in Asia. Now, however, their influence has started to increase.

Sources: Interviews DTO Research



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**Openness toward innovation**



**Need for innovation**



**Adoption rate of innovations**



**Need for R&D cooperation**



**Future importance of new technologies**



**Future importance of qualified cleaning staff**



## Key learning points for the industry

- The industry is much more open to innovation but not all industry segments benefit the same way.
- There is high competitive pressure on the manufacturers and technology providers to establish new products or services.
- Many of the developments in the past were not seen as innovations by the BSCs because the added-value and product USP were not understood.
- Networking and R&D cooperation within the industry is mentioned as essential, but a global platform for innovation is missing.
- The way of cleaning will change in the future, but how fast this will happen highly depends on cooperation of companies within and from outside the industry.
- Digitalization and robotics will be very important in future cleaning, but well qualified staff and human machine interaction are also significant success criteria.

Sources: Interviews DTO Research





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