

DEVELOPMENT OF FACILITIES MANAGEMENT: RESULT-ORIENTED CLEANING

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Abstract

The development of facility management is not far behind, but cleaning services are well known for even longer. For decades, the process of cleaning has not changed, although it has some negative aspects. Such negative aspects of the common way of execution – namely activity-based cleaning – can be solved through the new way of result-oriented cleaning. On the one hand, this fixes the challenges of activity-based cleaning and can achieve better cleaning results, is more environmentally friendly and the participants of the process are overall more satisfied with the result. On the other hand, it is not associated with a better price due to unpredictable actions of users of the building. Moreover, there is more work necessary to control the quality of the cleaning services. The quality factor of services and products is becoming increasingly important. Some trends – for example, digitalisation and globalisation – continue to lead to immense pressure for facilities services companies. There is massive competitive pressure among service providers nationally as well as increasingly internationally. A suitable system with a mix of sustainability and the suitable process needs to meet the requirements of the client. An entrepreneurial focus has never been as important as it is today. New technologies and digitalisation bring optimisations for all areas and companies that adopt new ways of working can be more successful than even before (Erdt 2018).

Keywords: Facilities management, result-oriented cleaning, digitalisation, on demand

1. INTRODUCTION

The facilities management industry is characterised by an immense time and cost pressure as well as the consumption of resources. It can have a negative impact on the people who are carrying out the work as well as the performance result. The activity-oriented execution of facility services (here: cleaning) with rigid intervals and agreements is common and well known. The expectations of the clients are a clear condition of the building, although this expectation cannot always be fulfilled by a fixed interval and same methods each time. The customer specification in combination with expectations excludes that the required condition of the systems can be permanently achieved. Accordingly, another service approach is needed to fulfil the clients' and service providers' needs.

The result-oriented execution of cleaning fixes these challenges. Quality and not intervals are agreed in the engagement letter between the client and contractor. The way to achieve the level of quality (interval, execution procedure, etc.) is determined exclusively by the service company and no longer by the customer. Depending on the equipment of the building, facilities and their usage, a mix of methods is necessary to achieve a result that corresponds with the client's ideas. New technologies, such as sensor technology and Internet of Things applications offer benefits to be considered in cleaning services. In order to optimise cleaning services and its impacts, the current market developments need to be considered. Another important aspect is the opinion of cleaners and users about the modern way of executing cleaning services. Result-oriented execution not only offers the opportunity to save money, but also to save other resources such as water and chemicals. What other influencing factors determine the distribution of the modern cleaning method and what are the persons who are carrying out the work and who are leading it think about it?

2. MATERIALS AND METHODS

2.1. Cleaning

Cleaning services of buildings play an important role in the real estate lifecycle, due to the high proportion of costs that they cause. During the planning phase of a building, individual factors such as materials, safety and lifecycle costs need to be considered and planned in detail, resulting in less maintenance, easier cleaning and a longer lifetime of facilities. Increasing expectations and market transparency lead to the demand for result-oriented cleaning. Activity-oriented cleaning can be increasingly replaced in the near future (Janzen 2018). There are two options for real estate owners: to clean the buildings with their own employees or to outsource the service and thus all risks associated with it.

Activity-oriented cleaning is the common and well-known way of cleaning services. Contracting parties conclude a contract with a fixed-service specification and description, fixed cleaning intervals and fixed activities. All of these specifications are agreed for a specific object. The performance of the cleaners is normally not controlled through the client in a frequent way. The evaluation of the result is seen in a different way by all parties. Although the parties spend a lot of time defining the description of services, some details are missing and will not be cleaned. The provider fulfils the agreements in the contract and the client wants a clean building. In case the agreed interval is too long, the building cannot always be clean, and thus the provider does his work. The specifications are agreed in a contract between the client and the service provider and are used for transparency regarding the exact way of execution, e.g. the interval and methods of cleaning. Such agreements make it possible for managers of the provider to create a cleaning plan for each week, which always looks the same. No flexibility of cleaners, users or clients is needed. The activity of cleaning is the important factor in this way of execution of the service (Reichert 2008).

The efficient system of result-oriented cleaning depends on the need. Rigid specifications of cleaning services are replaced by target qualities of the building. The client and the contractor do not agree on a specific cleaning interval or method. Cleaning staff need to be more flexible according to their cleaning plans and daily tasks, which no longer exist in the usual way. Areas need to be inspected to decide whether cleaning is necessary or not. Special training and a different mindset are assumptions to be successful with result-oriented cleaning (Dussmann Group n. d.). Besides all advantages of result-oriented cleaning, it is necessary to execute a further quality control, which is on the one hand both time- and cost-consuming. On the other hand the further quality controls result in a better overview of the buildings. The owner can discover further peculiarities in his real estate beside the cleaning result. All details of the quality definitely need to be agreed upon between the contractor and the client, because misunderstandings can be solved from the beginning. If the quality does not fulfil the expectations of the client, there is a possibility to impose sanctions in the contract. Such sanctions are deductions from the incoming invoices of the service provider (Reichert 2008). In order to perform an optimal process, an interaction of all involved actors is necessary. Moreover, a special basement of trust is helpful to achieve a smooth process, because the gateways between the client and provider are more intense, especially in the quality control.

2.2. Development of Cleaning

Cleaning has always been an important factor in every human's life. Hygienical factors are important to prevent the spread of diseases and live a comfortable and healthy life. The service of cleaning changed during the 19th century, whereby new technologies are becoming increasingly involved in daily work and within companies. In 1934, the role of a cleaner was recognised as a craft trade for the first time. Although the role was defined to clean facades and glass at the beginning, it changed to become increasingly important as a maintenance factor for buildings (Lutz 2012). Today, the role of cleaning services is one of the most important services in comparison with all handicrafts. In Germany, every 100th employee is working in the field of cleaning (Die Gebäudedienstleister 2018). This further shows the importance of improving the processes of the service with a focus on development and sustainability. Requirements of the market are in a constant change, whereby cleaning has to react and adopt to the modern times.

There is an increasing demand for bundled services and their consolidation, which has influenced the facilities management since 2016. Back in 2014, there were some significant strategic acquisitions to result in a wider range of services. The second aim of such acquisitions was to contribute more services by themselves. All FM organisations that want to have a sustainable and future-oriented business model need to understand the opportunities and advantages that digitisation brings. In order to be fit for the new ways of working, all companies, users and employees need to adopt a digital mindset. The Lünendonk List publishes the most successful facilities management companies in Germany each year, which increase their sales much more each year than all other companies. Not only organic but also anorganic growth is an important factor in this respect. Their EBIT margins have reached a 2-5% level in recent years (Ball 2016). The growth of the major suppliers of facilities services is still unbroken (Facility Management 2019).

2.3. Drivers for the Further Development of Cleaning

Globalisation is also creating change in the future of services. Organisations are connected in a cross-border manner and have the possibility to exchange their knowledge, people and products across borders. New media and the constant advantage of infrastructure increases every companies' business landscape. New challenges like polarisation, diversity and cultures are to be faced in the near future (Facility Management 2019).

Collecting a lot of data and analysing Big Data will have an impact on the further development of cleaning. All environmental information can help to monitor the costs, efficiency and correlations between processes (PwC 2018). Big Data technologies aim to structure and interpret data. These data science approaches can help facilities management to organise all information about buildings and their assets. Predictions will be possible if all data is selected and bundled into an optimisation model (Rodeck et al. n. d.).

2.3.1. Impact of Digitalisation

Digitalisation will have an enormous impact on the future of cleaning services.

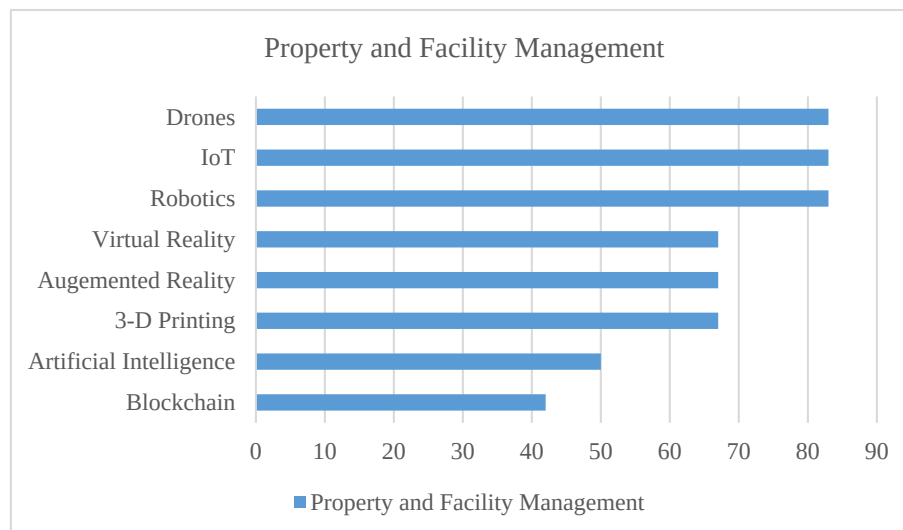


Fig. 1. Impact of new technologies on property and facilities management; in %

Source: PwC, Real Estate Asset Manager Benchmarking Survey, vol. 1 (2018), p. 54

In a benchmarking study by PwC in Germany, asset managers were asked about the impact of new technologies in property and facility management. The Internet of Things was mentioned as one of the most important technologies for business. It will generate new services and change the way in which we work and live today. Sensors and facilities will generate real-time data about assets in the future. They

can be used to define better processes, gain information about usage and behaviour in cities as well as in buildings. Servicing and maintenance can be improved based on a database (PwC 2018). The management can optimise based on information that they have never previously had. Regarding result-oriented cleaning, it is possible to connect building information such as dust, humidity and the number of users to the cleaner. Without being on site, the cleaner could have the possibility to decide whether cleaning is necessary or not. New business models will arise from new concepts of working and living together in the digitised world (PwC 2018).

2.3.2. Impact of Organisational Change

One characteristic of cleaning services is that they are not tangible for clients and users (tenants) of the service provider. The services are neither touchable nor visible, depending on the level of staining. Providers of cleaning services need to attract awareness through their employees, who are branded with T-shirts and stand out through their positive appearance (Coenen & Felten 2014).

3. INTERVIEWS AND STUDY

Cleaners, middle management of service providers and the clients and their executives were interviewed to obtain more information about cleaning processes and the impact on cleaners. On top of that real estate was equipped with sensors and the use of the building was investigated over a period of six weeks

Role	12	100%
Cleaners	4	36.35%
Middle Management	2	35.35%
Executives	4	18.2%

Table 1. Interviews with cleaners, middle management and executives

Source: Own analysis

3.1. Organisation/Strategy

The performance and efficiency of the employees of the interviewed companies is tracked and expressed in grades. In cooperation between the client and the contractor, the quality of the cleaning results is measured. According to the contractor's managers, an employee should clean at least 80 to 120 square metres of floor space per hour. The cleaning company employs about ten percent regular staff and about three out of ten new employees remain in the company for long term. The interviewees agreed with the notion that the overall process of result-oriented cleaning is positive.

The cleaners receive a cleaning plan with the time and place during their missions.

3.2. Processes

The cleaning process is not defined by the contractor, but is communicated in the same way and passed on to new employees during the first briefing. Regarding the sustainability of resources, the contractor's managers evaluate the results-oriented process positively, because resources are used when they are needed. The contractor and the client both think that the result-oriented execution of the cleaning services cause additional expenditure. The additional work of quality controls is measured by two control tours per week by two people, as well as several additional checks if necessary.

For the execution of the cleaning activities, no modelled processes are available and from the perspective of the cleaners also not necessary. Half of the respondents rated the cleaning process as rather positive and the other half as rather negative. The satisfaction of all those involved in the whole cleaning process (user, client and provider) is rated as good or rather good. All interviewed cleaners agree that the stairwell of an apartment building must be cleaned at least once a week.

3.3. Employees and Users (Tenant)

All respondents of the management stated that cleaning service providers are generally exposed to high competition. The cleaner suffers from this, as well as the customer, if the service cannot be carried out according to his satisfaction due to the low payment. The result-oriented execution results in a unique selling proposition for the service provider, because this type of execution has not been widespread to date. According to the contractor's managers, the cleaning staff – who clean in a result-oriented way – develop close ties to the buildings and are therefore more satisfied, although they are more controlled.

Apart from one person, the interviewed cleaners are lateral entrants with many years of professional experience. According to them, there are no seasonal fluctuations that affect their employment. The main problem in carrying out their work is the user behaviours (three nominations) and the flooring in the buildings (one nomination). Three of the four respondents indicated that they cleaned the buildings in a performance-oriented manner and one respondent indicated a mix of performance and result-oriented. In general, 75% of respondents prefer to clean in an activity-oriented manner. The reason for this is that it is easier for the cleaner as well as the user in the building to understand the process and timeframe of cleaning. In addition, they mentioned that the cleaner could be more satisfied with the quality of his work with result-oriented cleaning.

3.4. Systems

In the current execution of cleaning service, the interviewees do not use any systemic support. Only one of the respondents wants a system to simplify communication between the middle management and the cleaner to carry out quality control. The others reject technical support, because they have to carry too much during the day and up and down the stairs. Contractors and clients indicate that the cleaning process and quality control are not supported systemically. They desire the use of technology in quality controls of cleaning services.

3.5. Sustainability

The contractor's managers state that the cleaning products are environmentally friendly and used in a way that saves resources. Dosage caps on top of the cleaning products support the correct use. An overdose of the products leads to a lubricating film on the floor, whereby the incorrect use can be quickly detected. The sustainable use of resources is a permanent goal of both the service provider and the client. The clients cannot make a reliable statement on sustainability, but they consider the sustainable use of resources to be very important. There needs to be a suitable balance between effective cleaning and sustainability.

3.6. Usage

An Analysis based on sensor data in buildings gives information about the usage of the buildings. It is obvious that more people leave and enter the buildings during the week. On weekends there is less traffic. The consideration of individual days shows, that most people leave the house between 7 and 9 am during the week. On the weekend most people leave the house between 9 and 12 am. Most of them come back at 3 pm during the week and on the weekend its between 4 and 7 pm. On the basis of those data and assuming the building's dirtier after a lot of people have gone through it, it is possible to determine the best cleaning time.

The following diagram is an example of one building.

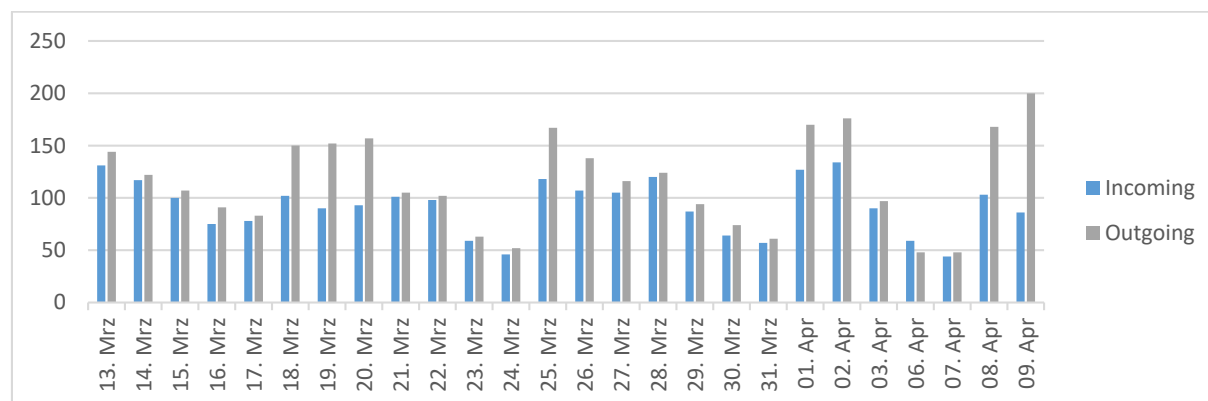


Fig. 2. Sensor data of building usage per day; Soruce: Own analysis

4. RESULTS

The managers agree that they would like to continue executing result-oriented cleaning. Despite the additional effort for the calculation and control of the cleaning service, they perceive saving potentials. Furthermore, a challenge for cleaning companies – employee retention – can be improved by employees identifying themselves more with the building and their work. Fluctuation is to be reduced. They need a uniform process of execution to create a basis for tendering and execution, which will result in an improved allocation rate for result-oriented cleaning and a better basis for the comparability of different service providers.

5. DISCUSSION

The numbers show the immense savings that can be fulfilled if the processes of cleaning are changed from activity- to result-oriented cleaning.

Table 2 shows reasons to execute result-oriented cleaning for each category, as well as the perspectives of the contractor and the client. Future recommendations derived from this are shown in the last column. Since the performance of the service in the result-oriented manner has not yet been established, a good relationship of trust between the contractor and client is important. If this is available, the result-oriented performance of the service can unfold its advantages and lead to a higher satisfaction of all participants.

Perspective Category	Contractor	Client	Recommended Actions
Organisation/Strategy	Hope for satisfied client because of a better quality of the cleaning service a thus possibility of a higher margin.	Hope for a constant quality of the buildings and a great relationship of trust with the contractor.	Strategic foresight into the future, including the competencies of the respective company. Shed scepticism towards the parties and create a clear contractual basis.

Processes	Free process design but high control pressure through client.	Integration in quality assurance, but free process design of the contractor.	Planning of a suitable process for the specific building with reaction times and exact definition of the quality of the cleaning condition.
Employees and Users	Connectedness with the object and thus long-term belonging to the company.	Increased customer satisfaction.	Execution of the result-oriented cleaning in order to achieve a more satisfactory result throughout for all parties involved.
Systems	Use of new technology to simplify processes.	Use of new technology to simplify processes.	Evaluate market developments and think about their areas of application in your own company.
Sustainability	Resource management can be improved by using only when necessary.	Resource management can be improved by using only when necessary.	Consciously resource-conserving handling of concrete specifications and control of these to achieve success.

Table 2. Perspectives and categories of result-oriented cleaning

Source: Own analysis

The implementation of new cleaning concepts and processes can have an immense impact on several aspects. In Norwegian defence buildings, a new concept was integrated that saved many resources, specifically:

- 27% reduction of cleaning costs
- 85% reduction of plastic waste
- 46% reduction in use of cleaning chemicals
- 40% reduction in sick leave among the cleaners
- 32% reduction in dust load among surfaces
- Satisfied cleaners, users and customers

6. CONCLUSIONS

Results-oriented cleaning is a method of execution that meets the needs of the client and the contractor. For both sides, there are advantages that improve the negative sides of performance-oriented cleaning. On the other hand, there is additional work involved in tendering the service and quality control. These aspects must first be brought to bear and put into practice. The benefits of cleaning services in buildings are primarily value retention, hygiene, safety, comfort and image of the building or the occupants of the building. In the changing market, the ways and procedures for fulfilling these benefits and thus the demands of the cleaning company and its management are changing. Promising approaches for

optimising cleaning performance in a world of new technologies and digital change are already being tested on the market. Thus far, generally-applicable models could not enforce themselves throughout the market. Cleaning companies that carry out result-oriented cleaning should also keep an eye on the risks and accurately calculate the performance. If this is not the case, it can also quickly lead to the additional expense of quality control with this type of cleaning, resulting in the work not yielding positive results. Managers should be prepared for incidents in the buildings resulting in overtime and the use of more resources. The useful implications of technology can help to save time and communicate with responsible employees in an easy way (Coenen & Felten 2014).

Real-time data on a building's occupancy rate, pollution level and weather conditions can help determine the appropriate time to clean a building. Research work with sensors that collect the aforementioned data allows a model to be developed that predicts the perfect time.

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