A Method of Measuring the Added Value of Facility Management as a Competitive Advantage and a Knowledge Generating Tool

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Abstract: This paper shows a method of measuring the added value of facility management as a knowledge generating tool. It shows ideas, the latest research insights based on intensive desk research, and also implemented innovations with specific cases and best practice solutions. The purpose of this reasearch is to describe how the measurement of the added value of facility management can be transfered into operational practice. The methodology used in this paper is the embedded case study method focusing on the market leader in the German shopping center industry.

Keywords: Facility Management (FM), VUCA, added value (AV), value creation (VC), Measurement, customer satisfaction

1 Introduction

1.1 The VUCA world

The VUCA world, short for volatility, uncertainty, complexity, and ambiguity, forces companies to take pride in facing challenges of the market and to make use of new solutions. [1] The increasing digitization, increasing sustainability requirements, changes on the tenant market, and the increasing competition for talented employees – these are numerous challenges. In this environment, especially innovations have become a crucial success factor. The current challenge in retail as well as the shopping center industry in Europe is: everything is changing. There are manifold reasons for this issue, among others:

- New technologies and digitization
- Mobile technology
- Big data
- e-commerce and m-commerce

1.2 VUCA and its effects on the German shopping center industry

The management of the German market leader in the shopping center industry, ECE Projektmanagement G.m.b.H & Co. KG (ECE), based in Hamburg, was interviewed regarding the market changes, the impact on various stakeholders, as well as the VUCA implications on the shopping center operators [2].

The VUCA world affects the business model of shopping center operators massively. The following table shows the different effects:

Tab. 1 *Cause-Effect-Overview*

Cause	**Effect**
Digitization	Product (Shopping center)
Speed of changes	Planning process (Shopping centers are long term investments)
Networks	Communication (Speed of communication)
Transparency	Working systems (Reporting and benchmarking)
Customer centricity	Strategy (Added value for customers due to competition)
Complexity	Processes and procedures (Many involved parties)

As expressed by ECE, the investors required transparency, flexibility, innovative capability and customer centricity from the center operators. The tenants (retail partners) want professional advice, benchmarking, marketing, as well as a variety of center events. For the visitors, it is important to find an attractive industry mix and nice gastronomy, create emotions and obtain convenience. [3]

To meet the customers' needs, it is important to have a "comprehensive management approach that encompasses the leasing, marketing, operational center and facility management as well as the commercial management of the assets. Operational excellence and optimum interaction in these core services ensure long-term sustainability in the operation of shopping centers and ensure that they will also remain an attractive venue for many generations in the future." [2]

Due to the different changes in the market and the impact on the involved parties, the facility management will become a strategic tool in the future. It is a management discipline that touches all the stakeholders and constitutes the interconnection in the value chain of real estates. In the following subchapter, the problems resulting from the market changes are derived from the facility management perspective.

1.3 VUCA and the increasing importance of the facility management

Customer satisfaction can have big influence on productivity measurement in FM. "Measuring customer satisfaction amongst customers allows a service provider to make strategic decisions in respect to resource allocation (i.e. which complaints to resolve) and customer relationship management." [4].

2 Added value of facility management

2.1 Definition of facility management

The facility management (FM) is the "integration of processes within one organization for the provision and development of the agreed services, which help to support and improve the effectiveness of main activities of the organization." [5]

Effectiveness means the ratio of the achieved result (output) and the means used (input). If the output is bigger than the input, FM has created benefits to the company. But how can this added value be measured exactly? And what exactly is meant by an added value in FM? How can it be operationalized?

The nature of the benefits of a FM department is widely described in the literature and has become increasingly important in the recent years. The reason for this is that FM has so far been regarded only as a "Cost Collector". However, the management discipline can make a significant contribution to the core business and to the entrepreneurial competitive position by controlling secondary processes. This contribution by FM is currently not being used by many managing directors and companies. It is, therefore, important to prove this benefit both qualitatively and quantitatively.

The main problem is that it is not clear how to measure this benefit, which is sometimes called added value. The measurement of the benefits of a FM department has not yet been operationalized and has been mostly conceptual in nature.

2.2 Definition of the added value in facility management

The added value was initially defined as follows: "Added value is understood as positive impact, which brings benefits to organizations and relevant stakeholders." [6]

As part of the literature analysis, it has been found that there are many models on the subject of "added value", but not all models for the research-related issues are useful or helpful. There is no standard definition of added value in the current literature, neither within the different sectors considered in the literature analysis (sustainability, hospitals, logistics, etc.), nor in FM. So, if the added value is interpreted as a pure advantage, then every goal achievement of a company can be an added value. This definition means that many models focus on pure goal fulfillment and not over-fulfillment, which was considered the actual definition of added value during the literature review. Furthermore, some causal relationships between goals and measures are disregarded and the reality is greatly reduced.

This view does not do justice to the complexity of the FM. Many models turned out to be very conceptual during the analysis, making it difficult to assess whether there is any potential to develop these models further. If no key figures are mentioned or there is no space in the models for key perfomance indicators (KPIs), benchmarks, etc., then the measurability of the added value is not given. This problem was common to many models, which meant that they could not be used for the research question. One aspect that was very interesting during the literature review was the fact that added value had already been successfully measured in many industries. The best example would be the medical industry. Here, the effects of different types of treatment on the recovery time of patients have been measured for years, which means it can be determined which type of treatment leads to earlier recovery and discharge of the patient by treating two patients with a similar health picture differently. Unfortunately, such experiences are very difficult to apply to the FM because of their industry

specifics, as real estate is often not focused in combination with the users and this is the actual focus of facility management. The last point that was problematic in the literature analysis was the very theoretical nature of the models. Many models are not practical or have not been used in practice. These were very conceptual in nature and sometimes hardly mature. The listed problems ultimately led to a total of five models fulfilling all defined requirements and being able to be used as the basis for the creation of an added-value model of this dissertation project. In summary, there are a variety of models in contemporary literature dealing with added value. Basically, there are usually only missing data sets with which the models would have to be supplied, in order to be able to deduce their practical suitability and optimization potential. Only when these data sets are determined and applied within the framework of a scientific work or general project work, can an ideal model for measuring the added value be generated.

2.3 Measuring the added value of facility management – The Track Record Model

The goal of embedded case study was to make the added value of FM measurable. The procedure followed the following structure:

- Literature research
- Process selection / embedded case study
- Interviews
- Derivation of the KPIs

The research-guiding question of this case study was: "How can the measurement of the added value be done in practice?" The challenge here is that the added value is currently treated conceptually, and no scientifically sound sources are available. In the case study, the choice fell on an embedded case study. The case study is a holistic research methodology that comprehensively studies cases of interest in a holistic way, taking into account their context and using different data sources and survey methods. [7] [8] It is capable of comprehensively examining cases of interest (such as a person, an event, an organization, etc.) that are of interest in a holistic way and in-their context. For this procedure, interviews with proven ECE experts were prepared and then carried out. From the evaluation of the interviews, understanding of the organizational structure as well as the added value in relation to ECE's core business activities was gained. Furthermore, the interviews revealed derivation of potential, specific measurement indicators. On the basis of these indicators, modeling was started based on the Bernhold model and the TdB. The interdependencies of the numerous KPIs in the shopping center portfolio, which were mentioned within the interviews and suspected by the project participants, turned out to be particularly complex. In order to be able to identify the influence of the individual KPIs, the track record must be determined. The Bernhold model is the first conception of a measurement model that covers the relations between the different stakeholder groups, the outcome as well as the taken measures. This model is based on the consideration that the added value is primarily reflected in the return. Using the model, it should be possible to measure how much one factor affects the other and what impact this has on returns - for example, how customer satisfaction contributes to the level of return through other factors. The weighting should make it possible to measure the share that FM contributes to the return. The main content of the model presented below is the content of the interviews conducted, the definition of the added value developed on the basis of the literature analysis and own ideas, as well as aspects of the TdB, which were used as the first approaches for calculation options. The primary goal was to develop a model that was as

practical as possible. This should take into account the requirements and the explicit circumstances of the ECE.

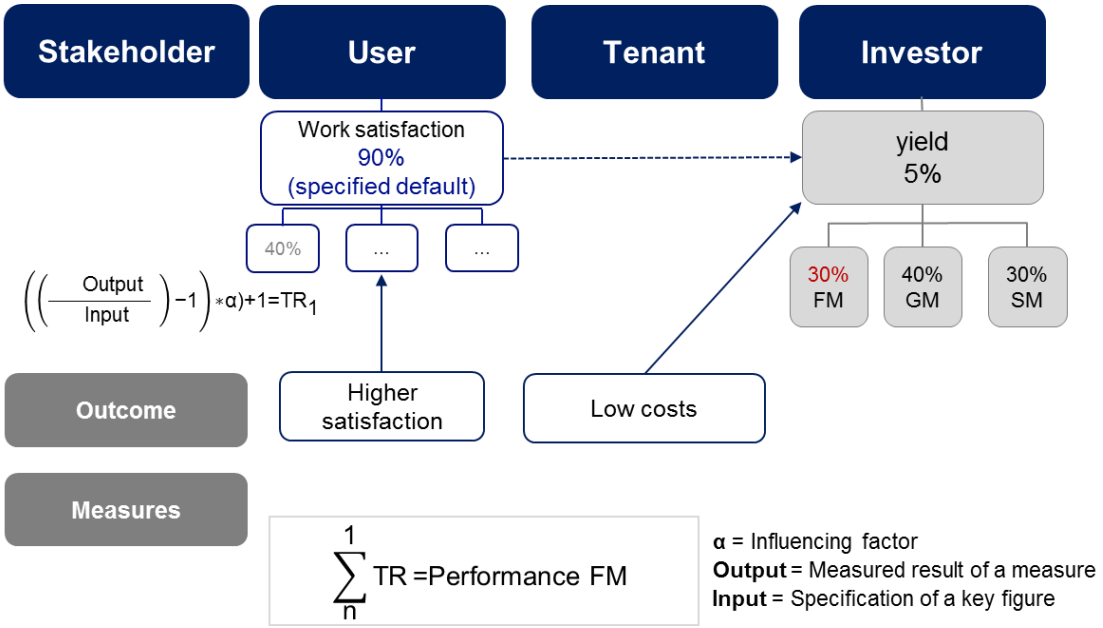

Fig. 1 *The Bernold´s model*

The Tableau de Bord (TdB) is a “decision support and control tool” [9], which also incorporates the perspective of the "intangible assets" (non-financial success factors). It pays attention to linking horizontal and vertical management units by showing a cause and effect relationship by creating an understanding of the objectives and actions of different levels of management. [9]

The TbB is relevant for the model development consisting of:

- Creating of a complete overview
- Creating a cause-and-effect understanding
- Deriving a company vision and strategy objectives at operational level
- Creating a rough overview instead of disproportionate depth of detail with the aim of rapid control

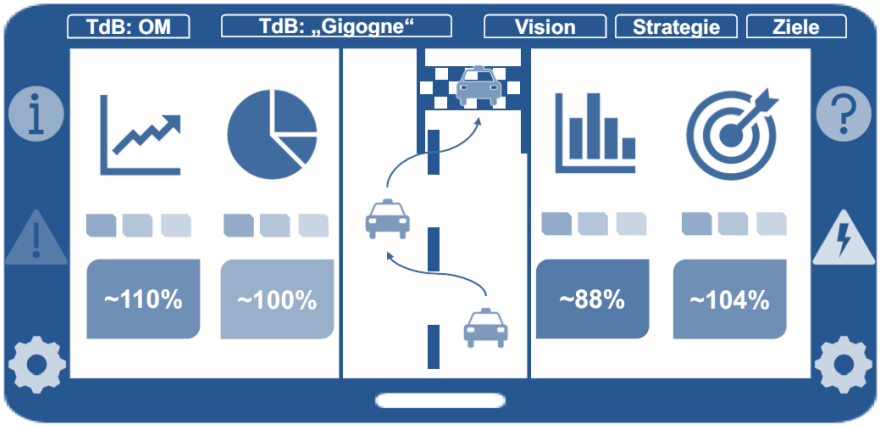

Fig. 2 *The Tableau de Bord model*

These two models mentioned above were combined with the value creation (VC) model of FM based on Schlicht. This model has three dimensions. The first one is the corporate dimension. This pillar is divided into the corporate strategy, the business model and the benefit as well as the added value that is created for a specific stakeholder group. The second one is the stakeholder or customer dimension, and the third one is the value dimension consisting of reward and risk. This represents the interconnection, where FM can create added value. Based on the corporate dimension, FM can foster the innovative component, for example in making a shopping center smarter. It can help to lift the product “shopping center” in the next lifecycle phase and, therefore, increase the resistance of the real estate in a highly competitive environment. The added value for the different stakeholder groups can be of quantitative or qualitative nature. Quantitative added value can be savings in a monetary, temporal or consumption-orientated way. Other quantitative benefits of the FM can be created yields or other sources of income. The qualitative component of the added value of FM can be divided into the risk and the quality cluster. The VC model shows that the AV of FM can be derived from the core business, the involved stakeholders as well as the business environment of the corporation.

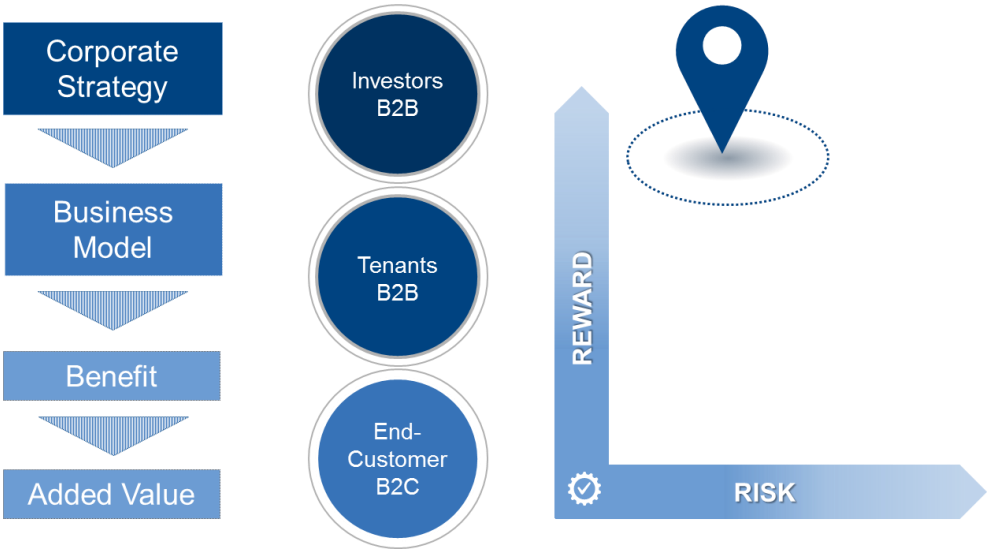

Fig. 3 *The model of value creation in FM based on Schlicht*

Out of these three models, the track record model for measuring the added value of facility management was developed in the case study with ECE. [10] It focuses on the facility management goals that were derived directly from the corporate strategy and goals as shown in the following figure.

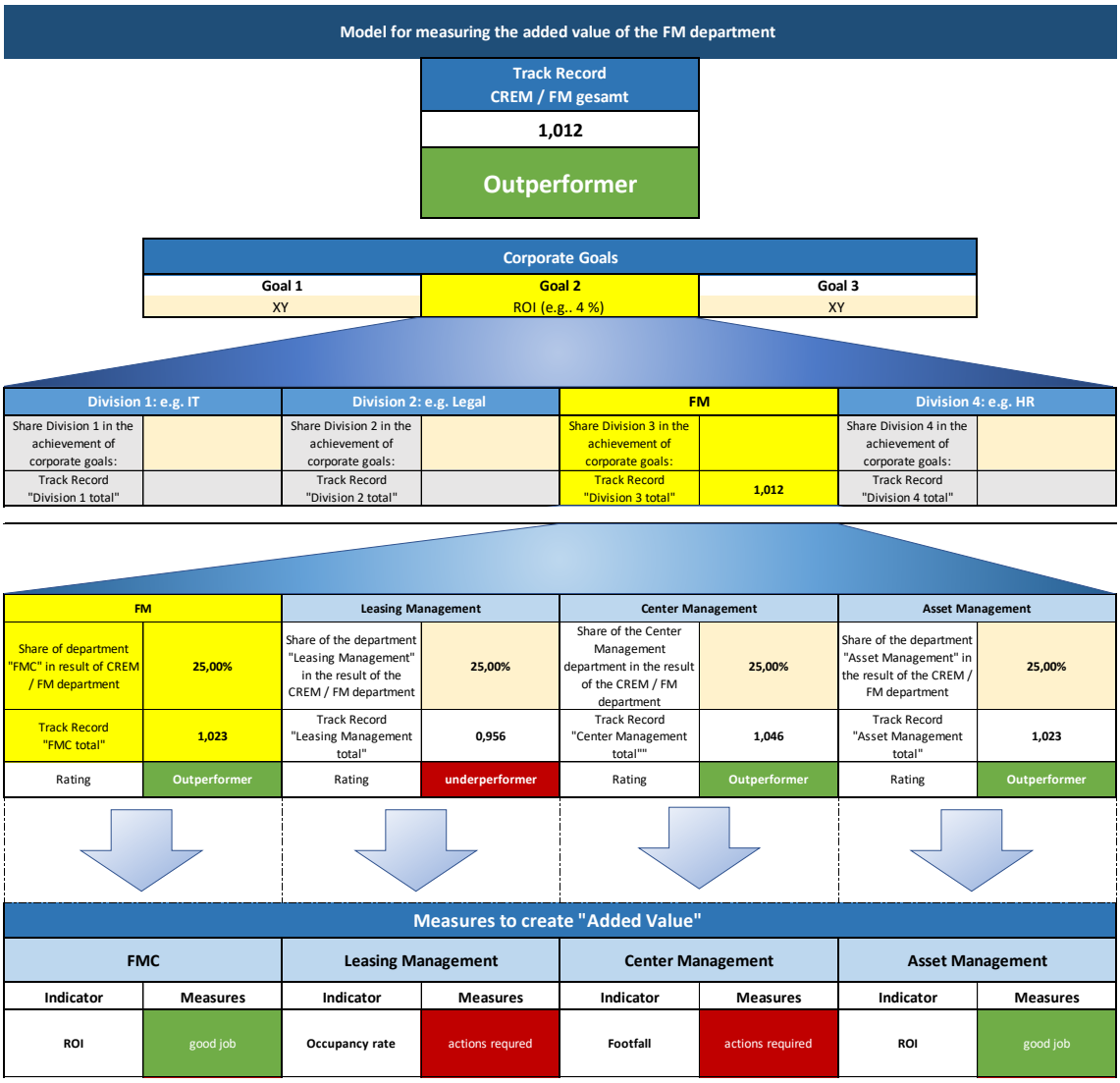

Fig. 4 *Example of the track record model for measuring the added value of FM*

In addition to the FM department, other departments influence the company's target achievement. Targets related to the KPIs can be adjusted by the company in the tool. From the interaction of input, output and weighting factors of the KPIs, the track record for each department and the associated targets can then be calculated. Adding the track records from Center, Asset and Leasing Management as well as Facility Management results in the entire track record of the FM department that can be calculated.

The track record can be used to uncover weaknesses and generate optimization potential. Food for thought for possible improvement measures is mentioned in the tool. External influencing factors, such as general economy, urban development or development of online

shopping are not considered in the model. If necessary, the calculation can be transferred to another department (e.g., Human Resources) so that all business units can ultimately be measured against their KPIs and their performance can be considered in relation to the common business objective.

The developed model covers the following logic:

- The key figures and services must be made measurable. (Interviews with the employees delivered the respective KPI)
- Transfer of the business units to the model. (Asset, Leasing and Center Management as well as the FM department)
- Each business unit is responsible for specific metrics.
- The model metrics were developed based on the interviews with ECE departments: FM, Asset, Leasing and Center Management.
- The business units have a different impact on business goals.
- The model measures the performance of the departments against their respective targets and calculates / measures the track record for each goal.
- The company has goals to achieve within a given time frame.
- All departments of the company work to achieve the company's goals and influence them to a certain extent.
- However, the share is currently unknown and, therefore, all four departments, each with 25% of the achievement of objectives, are equally involved in achieving the company's goals.
- Each department (for example, FM) is measured against specific targets, which in turn have a certain impact on the target achievement of each department. The weighting is the responsibility of the ECE and is individually adaptable.

Track record calculation

The track record is calculated by using the following formula:

$$\left(\left(\frac{\text{Output}}{\text{Input}}\right) - 1\right) * \alpha) + 1 = \text{TR}_1 \tag{1}$$

In the developed model, the ratio of the target achievement to the target for a given indicator / KPI is multiplied by a corresponding weighting of the indicator / KPI, thereby calculating a weighted track record for each indicator / KPI. The sum of the weighted track records for each indicator / KPI in a department gives the overall track record for a department and the sum of the department's weighted track records gives the track record for the FM department. According to the defined definition of the added value, the track record can be used to calculate the “overcrowding of goals set by the company” and to set the appropriate weighting of the goals in order to achieve a result that is as “business-oriented” as possible. The results of the calculation can be classified into three different categories according to the following description: If the calculation of the track record for a target results

in a value <1, the target for the corresponding indicator has not been reached, and thus the department is classified as "underperformer" with regard to this indicator. If the result is exactly 1, then the respective target was reached exactly. Thus, the result is classified in the category "goal achieved". As soon as the result is > 1, the result has to be classified in the category "outperformer". This classification is customizable by the ECE.

For example, the model may be adapted to achieve the category "outperformer" starting at a value of 1.2 as it may do more justice to the idea of over-achieving the goals than the computational solution of 1.0. The department has achieved more than what has been specified with regard to an indicator of the department and has thus achieved added value for the company.

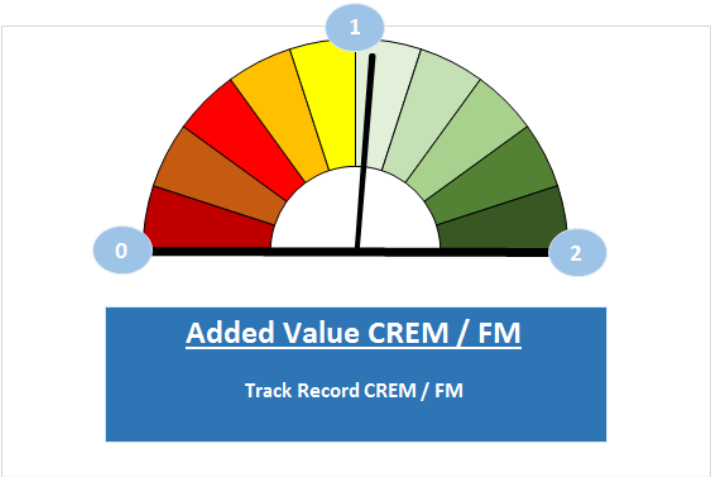

Fig. 5 *Cockpit of the track record model*

As part of the case study, the model was not only conceptually developed but also operationalized for the company ECE Projektmanagement GmbH & Co. KG (ECE) in the form of a comprehensive Excel application. This Excel application is structured in such a way that it can initially be filled out by the ECE headquarters in Hamburg, but it can also be extended accordingly in the form of data from the 200 centers of ECE. Furthermore, a calculation for each center, each region, and each jurisdiction is possible. This Excel application calculates the added value for a single indicator and indicators of an entire department as well as for the whole company. The results of the added value measurement are visualized for each department according to a tachometer diagram.

3 Conclusions

The VUCA world affects the business model of shopping center operators massively. The investors require the center operators' transparency, flexibility, innovative capability and customer focus. The tenants (retail partners) want professional advice, benchmarking, and marketing as well as wide variety of center events to be satisfied. For the visitors, it is important to find an attractive industry mix and nice gastronomy, to create emotions and to obtain convenience. To meet the customers' needs, it is important to have a comprehensive management approach that encompasses the leasing, marketing, operational center and facility management as well as the commercial management of the assets. Operational excellence and optimum interaction in these core services ensure long-term sustainability in

the operation of shopping centers and ensure that they will also remain an attractive venue for many generations in the future [2]. The facility management (FM) is a cross-divisional service function. It has many touch points with all customer groups, such as tenants (retail partners), investors and end-customers (visitors) of shopping centers. Thus, there is a lot of potential to create added value. Without FM, it would be impossible to operate a shopping center. Currently, FM is also in the transition phase. Out of the outcomes of this dissertation project, the definition of FM [5] mentioned in chapter 2.1. needs to be changed. According to the ISO 41011, Facility Management will fit better with the definition (April 2018) below:

"Facility Management is the organizational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business." [11].

This definition illustrates the effect of FM very well. Therefore, the FM has big impact on the quality of stay (convenience) and satisfaction of the customers. Digitalization can facilitate this development, especially in the FM of a shopping center. With the help of 3D-Scanning, a "digital twin" of the property allows innovative indoor heat maps and traffic analytics in shopping malls (via customer tracking). FM can influence and deliver important data and key performance indicators, such as footfall, dwell time, visitor insights, shopping paths, returning customers, store analysis and many more.

By using a skillful combination of these data, the shopping center operator can manage the FM services in a more demand-oriented way. This leads to better productivity in terms of cost and quality. Therefore, further research has to focus on productivity measurements in FM, which still have not been studied in any real depth. With real time information regarding foot-fall and frequency, it is possible to operate the building technology and the whole shopping center much more efficiently. For these reasons, FM can make big contribution to creating a lasting competitive advantage in this volatile market environment. The FM department of ECE is pursuing the "smart center approach", which means that a building can be operated in response to demand, for example by switching off the air condition if the footfall is low.

This paper creates the basis for further scientific investigation. Within the literature analysis, it was found out that many models were not practical or had not been used in practice. These were very conceptual in nature and sometimes hardly mature. That was also shown in the change of the definition of the added value of FM during the project. The embedded case study showed that the added value approach with the use of the track record model could be operationalized in the real life.

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