Managing and Mitigating risk within Strategic Facility Management

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The subject of this paper is risk management and mitigation through strategic facility management (FM), and it is based on fieldwork performed by the Vienna University of Technology, Department of Information and Facility Management (IFM); PriceWaterhouseCoopers Austria (PwC); and experiences derived from the delivery side of the service provider ISS Austria's FM business.

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Table of Contents

Executive summary

The significance of risk management and control activities has increased as a result of various legal initiatives in the United States and Europe, but also as a result of the current economic situation. In this context, a methodology is presented that provides measures to implement or optimise a company's risk management system as well as its internal control system (ICS). In addition, this paper demonstrates how facility services outsourcing can be implemented in an optimum way in order to manage and, ultimately, minimise risk.

In doing so, risk maps and reference processes, in addition to reference risk and control matrices deriving from companies and institutions, can be used as points of reference for developing organisations' own risk management systems and ICS, as well as for designing their operational and organisational structures. Naturally, when applying these measures within a specific organisational unit it is necessary to individually tailor the reference models. This also includes defining roles and responsibilities within business processes, optimising the outsourcing activities of facility services and taking aspects of risk management into consideration.

The recommended reference models considerably minimise project cost and effort.

Introduction

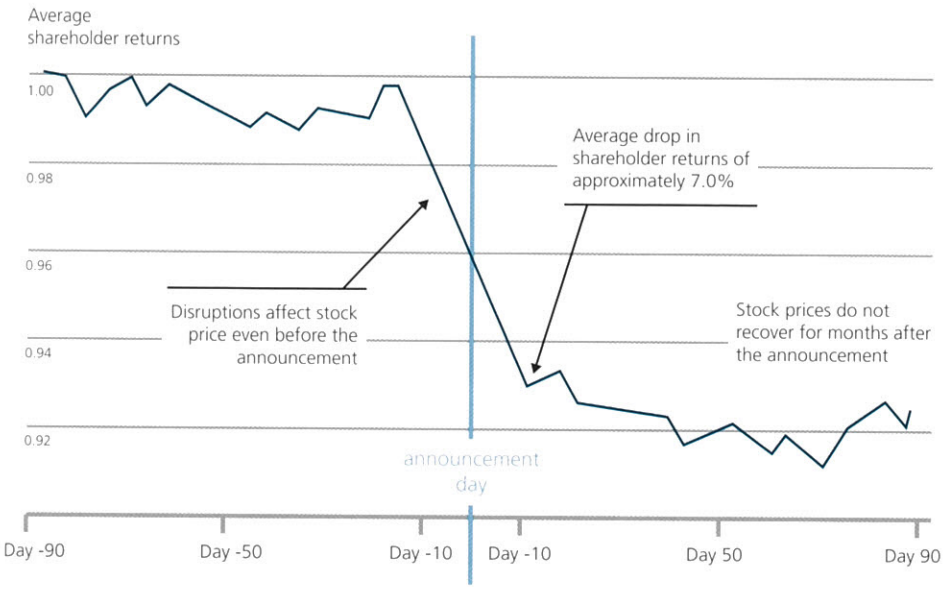
Taking risks can boost entrepreneurial activity but if the risks are not managed correctly they can also pose a threat to the organisation. In medium-sized businesses, avoiding risks that could threaten a company's existence has always been a key concern with regard to business management. Risk¬ management as a systematic approach has gained importance in this area, although this has been a recent development in these companies compared to larger businesses (Alexander 1992; Gleißner 2008, 1–7).

Moreover, having been triggered by the recent financial scandals and bankruptcies of several companies and groups, various legal initiatives have been enacted in recent years to implement and optimise risk management systems within the scope of external¬ accounting. In the United States, the "Public Company Accounting Reform and Investor Protection Act of 2002" ("Sarbanes Oxley Act" or "SOA" and "SOX") entered into force. In Europe, Directive 2006/43/EC of the European Parliament and the Council (8th EU Company Law Directive) has been enacted, providing strict requirements that entail mandatory auditing of annual and consolidated financial statements of companies with a public interest (Redlein & Giller 2008, 183). The 8th EU Directive was ultimately implemented into Austrian legislation within the scope of the Company Law Amendment Act (URÄG). Without doubt, these legal initiatives have had a strong influence on company processes and risk management activities, particular with regard to public interest companies (groups of companies, associations, etc.) The buildings, installations and facilities to which FM is relevant represent important company assets.

According to a study carried out by the International Facility Management Association (IFMA), these assets are the source of 10 to 19 per cent of company expenditure and represent 25 to 50 per cent of company assets. Therefore, in the case of all companies, and not just real estate companies, FM processes influence company figures and are formidably significant within the framework of risk management.

Additionally, facility service providers have a high impact on a company's supply chain risk. Most companies are seeking to reduce costs and improve working capital management while their supplier relationships develop to close partnerships. including facility service providers. The supplier relationship is likely to involve a combination of some of the following aspects: global sourcing, single sourcing, a partnership approach and just-in-time operations. Decisions regarding these are being taken against a background of increased market shortages and complexities within supply chains. Paradoxically, the actions taken to decrease costs are likely to increase risk within the supply chain. Supply chain disruptions can reduce a firm's shareholder value by approximately 7 per cent (Accenture 2013, 33).

As a result of "information dissipation, communication and speculations", shareholder value typically starts slipping approximately 10 days before the date on which the disruption is actually announced, according to the report. "The longer it takes to resolve the disruption, the more negative is its impact. Firms need to develop the ability to quickly resolve the problem and prevent escalation and worsening of the situation" (Accenture 2013, 33). The question will now be asked: how likely is it that there will be a supply chain disruption?



Source: "Building Resilience in Supply Chains," World Economic Forum, January 2013

Figure 1: How Supply Chain Disruptions Hurt Shareholder Value

A Business Continuity Institute survey in October 2011 indicated that around 85 per cent of companies have experienced a supply chain disruption over the previous 12 months. Many had experienced multiple disruptions over the same period, and 40 per cent of these disruptions occurred at below tier 1 level, that is, the direct supplier to the relevant company. Consequently, there are a number of areas that companies can examine to improve supply chain risk management, including the approach to risk assessment, supplier due diligence, supply chain risk tools and risk transfer.

This paper handles two important areas:

1. Risk management that is performed at a company-wide level
2. The ICS at a level that includes operative processes

With regard to the risk management system, a company-wide risk map based on the company's risk appetite is taken into consideration. Senior management defines this at a strategic level. General maps can serve as templates that are tailored to the company. This paper describes the measures that companies can take to avoid or manage their risks.

An integral component of risk management is the ICS that is designed to ensure the efficient, but also correct, execution of operative processes. With regard to the ICS, this paper describes a possible methodology for the identification of risks on the one hand and, on the other hand, details appropriate risk management measures that are applicable in the field of FM.

In this manner, facility managers should be provided with a tool to identify and manage possible business process risks during the real estate utilisation phase. This paper describes the status of current research and is to be understood as a working paper.

Basic concepts and terms

Gleißner defines *risk* in a company as...

"die aus der Unvorhersehbarkeit der Zukunft resultierende, durch ‚zufällige' Störungen verursachte Möglichkeit, von geplanten Zielen abzuweichen" (Gleißner 2008, 9)

"the possibility of deviating from planned objectives resulting in the unforeseeable future caused by 'incidental' disturbances" (Gleißner 2008, 9)

Romeike differentiates between financial and operational risks. Furthermore, operational risks are classified into strategic risks (e.g. the risk that a certain company strategy does not result in the best possible outcome) and operative risks that can arise as a result of inadequate performance of technologies, processes, personnel or organisations, or external events (Romeike 2005, 22–23). The second area is particularly relevant to FM because it exposes the infrastructure for the core business and can, for example, be caused by false assumptions (an inadequate service level), production failure or even a high level of illness.

Within the framework of "Company-wide Risk Management" by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), the comprehensive approach of company-wide risk management is defined as follows:

Enterprise risk management is:

- a process, effected by an entity's board of directors, management and other personnel
- applied in strategy setting and across the enterprise
- designed to identify potential events that may affect the entity and manages risks to provide reasonable assurance regarding the achievement of entity objectives (COSO 2004)

Several important related terms include the following:

- Governance represents a company's internal structure to support risk management and monitoring (e.g. communication between board of directors and departments, code of ethics)
- Compliance should secure fulfilment of internal and external requirements (laws, policies)

The ICS is part of risk management and is aligned with operative processes. According to COSO, an ICS relates to all the processes, methods and control measures that are carried out under the order of the supervisory board and/or senior management and serve to ensure that business operations function correctly. The organisational measures of the ICS are integrated into operating procedures. This means that they occur during the course of work performed take place directly before or after a work activity (COSO 2004, 2).

The ICS plays a supporting role in the case of:

- achieving business objectives by means of effective and efficient management
- compliance with laws and regulations
- protection of business assets
- preventing, minimising and discovering errors and irregularities
- ensuring reliability and completeness of accounting
- timely and reliable financial reporting (cf. COSO 2004, 2)

The methods by which companies should proceed with the implementation of a risk management system and an ICS are presented in Sections 4 and 5.

Implementation/optimisation of a risk management system

First, senior management must define the company's risk appetite in order to align an organisation's inclination to take risks with its strategy. In addition, this will enable risk-related decisions to be taken. As a second step, related key risks are defined and subsequently evaluated.

Both the risks and opportunities that are seen as significant to the company are defined at the senior management level using brainstorming techniques. In order to facilitate easier definition of a risk map, a best-practice map, which was based upon numerous case studies, was created in a joint effort by the IFM of the Technical University of Vienna and PwC. This is depicted in Figure 1. In order to support the client in minimising risk, the graphic displays the opportunities and risks of large companies covered by FM through an internal department as well as those covered by facility service providers.

In particular, the map covers the following areas:

- Strategy and objectives
  - technology
  - procurement market
  - capital market

- Employees and organisation
  - sales market/customers
  - legislative requirements and internal directives

- Business processes
  - rival businesses (cf. PwC)

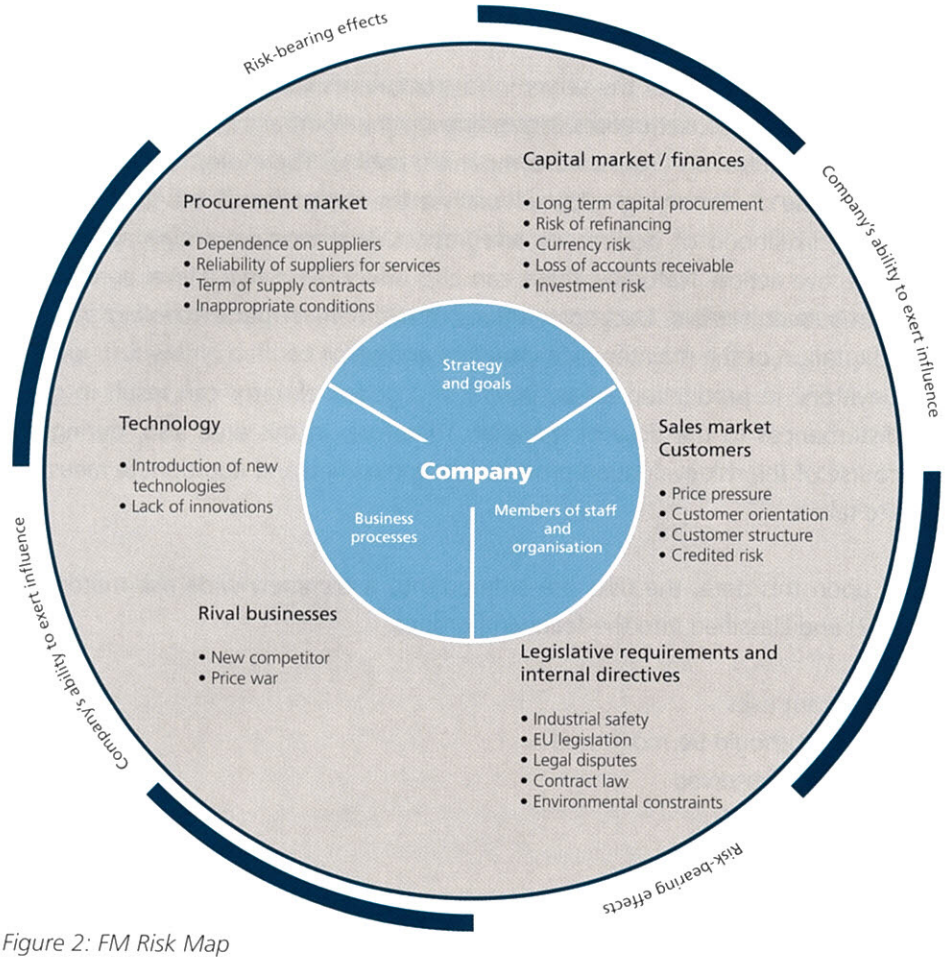


Figure 2: FM Risk Map

Particularly in the case of FM, large companies are faced with the strategic decision of whether to "make or buy" – this refers to whether they should carry out the implementation themselves or subcontract it to a professional provider of facility services and hence transfer risk. Many users also assess the area of legal compliance – meaning compliance with legal requirements – as a risk. This mainly involves the areas of industrial safety and fire protection but also covers environmental protection. For service providers, this entails competitive pressure, price wars and maintaining/ optimising quality.

After listing risks and opportunities in the risk map, a quantitative evaluation of risks and opportunities with respect to the extent and likelihood of occurrence is performed.

Two examples are mentioned here:

1. Server room: Failure of the server infrastructure resulting from overheating can have dramatic consequences depending on the IT infrastructure dependencies of the organisation (insurance companies, banks). Therefore, the company, in the course of identifying risks, will analyse the issue, classify the risk according to the likelihood of occurrence and impact, and thus determine appropriate corrective action. Naturally, these can also affect FM: Service level agreements with subcontractors, backup solutions, investment in better cooling systems, adaptation of the maintenance intervals, and so on.
2. Elevators: In production areas, failure of a goods elevator can result in grave disturbances to the flow of material. Therefore, in this area also, during the course of the risk evaluation process, risk is classified and appropriate measures are taken.

Based upon this data, the risks are entered into a company-wide risk matrix (see Figure 2) and classified into the following groups:

- significant risks
- risks that should be monitored
- risks to be observed

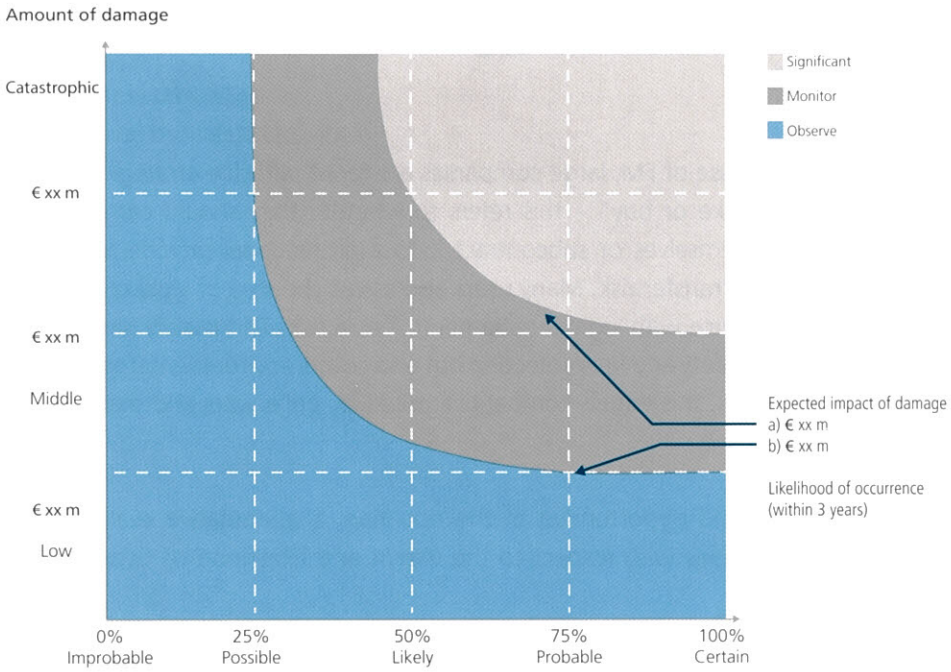


Figure 3: Risk Matrix

The possible control measures can be deduced from the matrix:

- avoid the risk → refrain from doing
- minimise the risk → internal measures, process improvement
- share the risk → transfer the risk to another, e.g. insurance compnaies, or outsource facility services to a professional partner to minimise risk
- accept the risk → consciously bearing the risk

The result of risk management is that risk owners carry out and evaluate actions, and manage risk within defined tolerance limits.

Internal control system (ICS)

Implementation/Optimisation of an ICS

The company also has to build and optimise an ICS as part of the risk management process. The methodology for this is based upon SOX requirements but has been subsequently simplified in order to reduce work expenditure during implementation.

Step 1: IIdentification of material financial accounting records/reporting components

In common practice, all profit and loss accounts that individually constitute at least 5 per cent of total turnover or meet other quantitative criteria (high number of bookings, high risk of fraud) should be defined as material accounts. As, according to studies, FM expenditure in most companies amounts to between 10 and 19 per cent, FM accounts are defined as material accounts.

Step 2: Defining and designing company processes, if necessary, that have an influence on material accounts/in the process of which bookings are made to these accounts/that have an influence on legal compliance

The description of the organisation's processes (process descriptions, operating instructions, etc.) serves as a base. If appropriate descriptions are not available, the processes need to be defined.

The modelling of these processes represents the largest expense and effort within the scope of an ICS implementation. In order to optimise this effort, reference processes that represent best practice methods and are tailored to the company situation can be covered within the scope of workshops.

Reference processes generally comprise typical business processes that are carried out in much the same way in all companies (Becker & Meise 2008, 123–124). Typical reference processes include, for example, the purchasing or product sales processes. Within the scope of case studies, reference processes were developed for crucial FM processes by IFM and the Technical University of Vienna (Fleischmann 2007). These can serve as a basis when defining a company's FM processes.

Step 3: Analysis of potential risks as well as possible risk management and control activities for each individual process step of the reference model

Generally, the identification of risk takes place at the process level with the aid of risk workshops (especially in the case of operative risks), the analysis of strategic and operative company planning, the analysis of risk checklists (cf. Deloitte Touche Tohmatsu 2008 for example) and by means of brainstorming and interviewing subject-matter experts, employees, and so on (Gleißner 2008, 46–60). Building upon this, control activities are defined that control these risks.

Reference risk and control matrices can serve as a model for the identification of risks and control activities in addition to validating and considerably reducing implementation expense and effort.

Step 4: Detailed evaluation of possible risks associated with company processes for classification into critical and non-critical risks

After completing the necessary qualitative steps, a risk quantification is carried out, in which the likelihood of occurrence of a certain risk and its possible impact are considered relevant criteria. Normally, both of these criteria are assigned a factor score, whereby the product of both scores equals the risk factor classification (cf. example Hörmann 2007, 61–63; WGKT 2008, 6–7; for critical comment with regard to this, however, see Gleißner 2008, 119–123).

Step 5: Definition of adequate risk management measures for company processes

After successful risk evaluation, control activities that are deemed adequate for company processes may be defined. In this connection, it is also possible that the measures that are deemed necessary result in a procedural change to the reference process itself.

Example: Inspection and maintenance of facilities and installations

In this section, the current research results at the Technical University of Vienna are to be presented using the process "Inspection and maintenance of facilities and installations" as an example. This reference process was described for the first time by Fleischmann in the dissertation that he completed in 2007. His definition is based on existing process descriptions derived from 11 companies. The objective of the process is to analyse the current conditional state of facilities and installations as well as the maintenance or improvement of this state through maintenance measures. It comprises the planning and execution of inspection, and maintenance of facilities and installations, although it does not deal with specific activities in detail.

Process steps have been added to this procedure, whereby inputs from members of a work group for the preparation of a new European standard for FM processes (prEN 15221-5:200x: "Facility Management – Part 5: Guidance on the development and improvement of processes") and other expert interviews have been taken into consideration.

Based on the activities defined in the detailed reference procedure, experts were subsequently interviewed in order to indicate possible risks and related risk management and control activities. As a counter check, consulting firm Deloitte's risk checklist, which they developed from experience of a multitude of consulting projects, was used. The result of the interviews up until this point and the counter checks are presented in Table 1; sub processes and their risks have been compiled separately and are referenced in abridged format in the table.

Activity	*Risk or risks*	*Risk management/Control activity(ies)*
Tactical level		
1. Analyse available information (evaluation, objectives, costs) and collect missing data	• Undiscovered objects, lack of information	Periodic inspection of relevant facilities and installations, updating documentation
2. Define maintenance strategy and required infrastructure availability	• False assumption(s) with regard to the necessary availability/the risk of infrastructure failure	Carrying out periodic review of the requirements of the core business and taking practical experience into consideration
Level of operative planning		
3. Update list of relevant objects	• Undiscovered objects	Periodic inspection of relevant facilities and installations, updating documentation
4. Define/Update activities per object	• Failure to perform timely maintenance on facilities and installations (including necessary procurement)	Orientation of maintenance/inspection intervals to the lifecycle data, relevant standards and the practical experience of experts, taking required time for procurement into consideration
5. Define maintenance/Inspection intervals	• Maintenance intervals too frequent or too seldom	Verify standards and documentation
6. Perform economic efficiency¬ analysis and plausibility check	• Verification of check is not carried out by all responsible persons • Specific requirements are not taken into consideration, e.g. as a result of the location of facilities or installations	Verify allocation of responsibilities Consideration of specific requirements during the cost effectiveness study
7. Create maintenance/inspection schedule		
Operative level		
8. Plan execution		
9a. Use internal resources		
*9b. Procure service(s) *)*	• *Procurement risks*	
*10. Procure material *)*	• *Procurement risks*	
11. Inspect material quality and quantity		
12. Accept material	• Material is not available • Use of wrong spare parts or wrong material	Stock spare parts and relevant material Check specifications
13. Perform maintenance/inspection	• Use of wrong material • Inadequate execution of maintenance/ inspection	Check performance and material (see Activity 14), check service manual
14. Review performance and consumption of material	• Inspection cannot be carried out or cannot be carried out adequately because of lack of special knowledge on the part of the personnel responsible	Taking the availability of personnel into consideration, improving the selection and training of personnel
15. Document service/material	• Incomplete documentation	Define standards for documentation

**) Sub-process*

Table 1: Inspection and maintenance of facilities and installations – risk and control matrix

The second column of Table 1 can be considered a "risk inventory" of the reference processes. This is a basis for the risk and control matrix of the specific company. However, within the scope of implementation, an additional quantitative risk evaluation carried out by the specific company is necessary.

Example process: Carry out equipment management activities

The process "Carry out equipment management activities" is associated with serious risks (e.g. server room, lifts) and has been identified as relevant to determination of the risk map.

As a result, ICS activities have been devised and introduced for the purpose of operative implementation in order to reduce the likelihood of a risk's occurrence (see risk matrix).

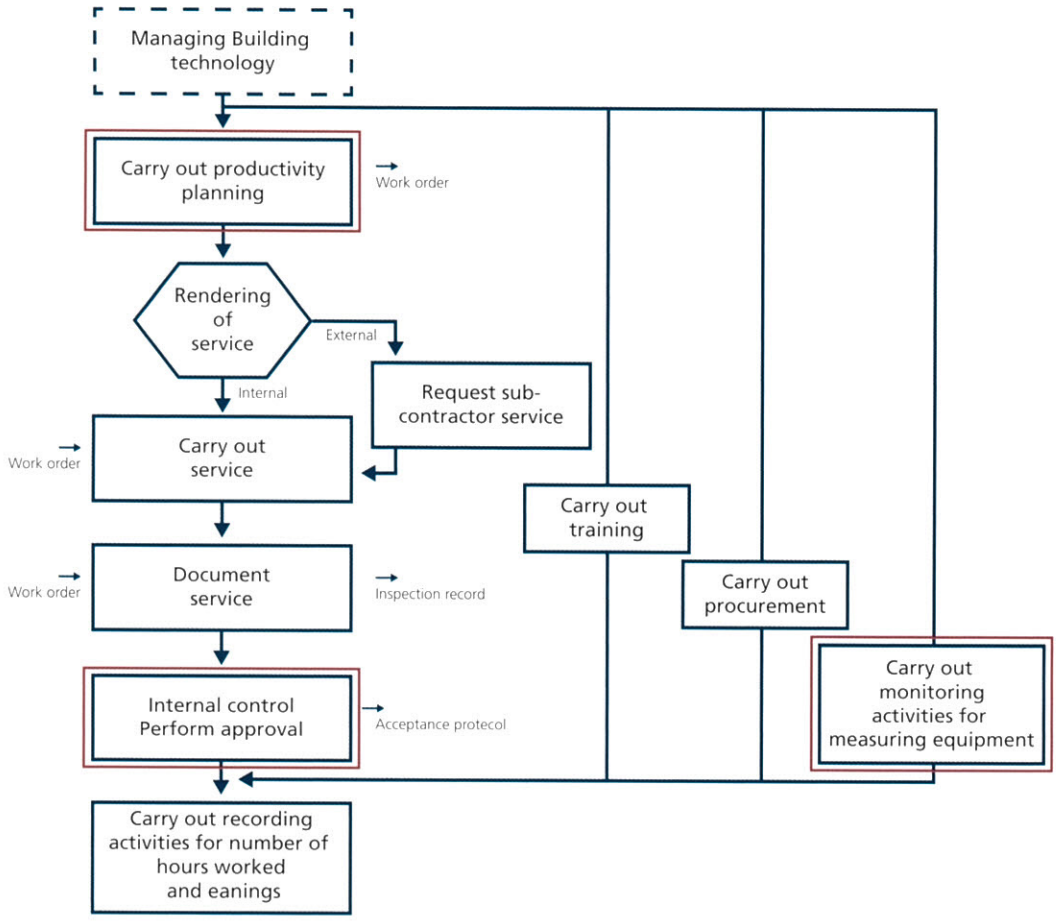


Figure 4: Building technology management process

Overview of activities that are relevant to ICS (see marking above) including the control activities implemented:

Activity	*Risk or risks*	*Risk management/Control activity(ies)*
Carry out productivity planning	• Installation failure due to lack of/poor maintenance • Statutory audits are not held	• Illustration of all components → maintenance schedule • Automatic escalation if deadlines are not met
Perform inspection/approval	• No accurate documentation of the activities performed • Individual implementation (no standard available	• The work order is created in the CAFM tool and defines exactly which activity is to be performed
Carry out monitoring activities for measuring equipment	• Quality statements are carried out with measuring equipment which has not been calibrated → statements flawed and not understandable	• Monitoring measuring equipment managed in the CAFM tool

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