

Preface

This book deals with the subject of information management; this process is analyzed within the Facility Management field, with a particular focus on the aspects connected with building maintenance management.

The market of Facility Management (FM) is significantly growing in the last ten years with a general tendency to more and more integrated services, longer-term contracts, and expansion of the strategic activities.

The increasing complexity of the organization models, the enlargement of the areas of interest and involved disciplines, the creation of new roles, the requests of new competences and support tools, the increasing expectations for the efficiency improvement in the processes, and the demand of improvements in the practices of planned maintenance are just some of the main effects of the rapid growth of the FM field which is still young but very dynamic and promising.

Furthermore, if we consider the latest developments of the BIM (Building Information Modeling) applications, the current scenario may appear even more complex, but at the same time full of potential. The possibility to have a unique and coherent three-dimensional building model, collecting all the information coming directly from the design and construction phases, paves the way for new and more advanced experimentations. These experimentations may be focused at least on two topics: on one side, the way for integrating, in the BIM model, information related to the operations and maintenance phase and, on the other side, procedures enabling the interoperability of information systems for FM within BIM environments.

Within this “multi- and interdisciplinary” scenario, information management has a fundamental role and acquires various meanings according to different timescales.

Regarding the “past”, information management in a FM service means to be able to collect over time and process various data coming from several sources and concerning conditions, events, and actions that had affected the building. The aim is to create a knowledge base, constantly growing. The knowledge base is an essential condition to be able to predict next behaviors and costs, develop indexes for the systematic comparison of process and performance, and have more and more awareness about criticalities. Regarding the “present”, information management

means to be able to collect and process data in real time in order to monitor the conditions of the buildings, the performances of the suppliers, the development of the planned activities, the ongoing expenditures, and the requests for interventions. Regarding the “future”, information management means to process data useful to develop previsions, draw scenarios, plan actions, and promote innovations.

So, information represents an important value for FM services, since it is fundamental for the efficiency and effectiveness of the service, the quality of the assets and the processes, and the evolution of the organizational models. At the same time, information is a cost. Information costs for collecting, processing, sharing, and updating. If we consider how many data are connected to the large amount of entities constituting a real estate and to the high number of operators and processes in the long life cycle of the buildings, it is easy to understand that information represents the essential condition for the development of the service, but at the same time a high risk of inefficiency and runaway expenditures. Strong inefficiencies are possible if, as it may happen, the activities that require the information collection are carried out without an adequate planning phase and appropriate coordination. The cases of negative experiences in building inventory activities are not rare: they may result excessively expensive and difficult to be completed, since they collect excessive amounts of data or because they are not oriented to a selective information acquisition.

Furthermore, about the risks of inefficiency in collecting information, we can mention the recurring situations in which different subjects collect—independently and in an uncoordinated way—information on the same building with various purposes. It is possible to find many cases in which, besides the realization of the building inventory, it is ongoing the development of other processes requiring information collection (i.e., due diligence, diagnostic, analysis for energy performance assessment, risk assessments, etc.). In the absence of a standardized schema for the identification of different spatial components and building elements, the various operators may collect information often redundantly or, in some cases, coming to conclusions that are not in accordance ones with each others. Information is used only for the specific purpose, but it is not recorded in the knowledge base of the building.

These are all effects of an inadequate analysis of information needs and deficiencies in the preliminary preparation of support tools (i.e. breakdown and coding schemes, procedures and instructions for collecting and recording, inspection plans).

From the analysis and comparison of several tender documents (both public and private), it can be noticed how the common practice is late in maturing a full awareness of the close relationship existing between management of the services and information. In many tenders, a generic demand for supply is merely included; in many others, there is even the lack of a systematic request about strategic topics that are the inventory processes, the building registry structure, and the information system.

So, this book intends to investigate these topics with the aim to offer both clients and suppliers (and also designers and students working and studying in the field of

FM), an overview of the various aspects that should be considered in designing FM agreements from the point of view of information management. The analysis proposed by the book is supported by a framework of international standards dealing with the subjects of FM services, maintenance management, and documents management, in addition to literature references and outcomes of some experimentation carried out by the authors. In particular, the system of standards, which contains useful guidelines and specifications for all the subjects concerning information management, demonstrates the worldwide interest for developing rules and references to be used and shared in order to improve communication among all the stakeholders involved in FM services during the whole life cycle and to enhance integration and coordination of all the support services.

The book is organized in seven chapters following the information management process within FM services, with a particular focus on the service of maintenance management, considered as a strategic service highly involved in the information management.

In Chap. 1, Cinzia Talamo introduces some main aspects and needs connected to information management within the Facility Management integrated services. Starting from the observation of the current evolutions in the FM market and organizational models, the aim of the chapter is to highlight the activities, developed within the various levels of a FM service, and the related information needs.

In Chap. 2, Cinzia Talamo analyzes contents, roles, characteristics, and phases of inventory activities in relation to FM services. Starting from the basic concept defining the inventory as a continuous process of retrieval, selection, validation, acquisition, and updating of information, the aim of the chapter is to propose tools and actions necessary for planning and developing the inventory. The main activities related to information collection are analyzed (documents audit, regulatory review, contract evaluation, diagnostic investigation, acquisition of information about the “history” of the building) in relation to an overview of the various information categories.

In Chap. 3, Cinzia Talamo introduces and analyzes the concept of building registry, interpreted as a database containing information collected through the inventory and necessary to describe consistency and functional and technical characteristics of the buildings. First, the chapter aims at clarifying the meaning of building registry and its relationship with the inventory process and the information system. Then, the chapter highlights criteria for the classification and the application of codes to the buildings and their construction entity parts by analyzing several international standards that propose various frameworks for the classification of information, all ascribable to a hierarchical structure.

Finally, the chapter proposes a synopsis of the information that can be acquired for the implementation of the building registry and the structure of the data sheets, interpreted as a tool for data collection.

In Chap. 4, Cinzia Talamo highlights main functions and specific requirements characterizing an information system for real estate management with a particular focus on maintenance management process. Starting from the analysis of information used in relation to some key functions (building registry, monitoring,

collection, and processing of feedback information), the chapter proposes the structure of the database, which is the core of the information system, by assuming some reference standards. The aim of the chapter is to propose key aspects of the information system, useful for the client engaged in the acquisition of a FM service, when starting the investigation stage, preliminary to the setting of the service and the subsequent drafting of the tender. The key aspects focus on the definition of a gradual implementation of the service over time, storage and data processing modes, procedures for the collection of feedback information, characteristics and forms of the reporting, and management of the planned maintenance.

In Chap. 5, Cinzia Talamo proposes an interpretation of the core structure of a FM service, here named “Command Center” (CC), highlighting its characteristics and activities related to the key functions of planning and coordination of interventions, monitoring of the outcomes, and management of the information flows. The aim of the chapter is to propose some models of the command center and analyze information management, as well as the role of the information system within the various models.

In Chap. 6, Marcella Bonanomi highlights the need for an Information Lifecycle Management using BIM methodology within the context of facilities management. Therefore, the purpose of the chapter is to investigate the topic of information integration within a BIM environment focusing on information needs of FM activities. Existing BIM-Objects Information Requirements and data standards are critically analyzed in order to understand strengths and weaknesses and, at the same time, pave the way to a possible FM-based implementation.

In Chap. 7, Marcella Bonanomi investigates a possible implementation of the existing BIM-Objects Information Requirements and data standards in relation to information needs of FM processes. In order to address this topic, it is presented the output of a methodological experimentation carried out at Politecnico di Milano with the aim of defining a datasheet template enabling information exchange to support FM activities in a BIM environment. The developed data schema may implement not only current data standards which have some weaknesses concerning information needs of FM activities, but also existing interoperable overlays between BIM software and facilities information systems.

Finally, the authors propose a glossary, useful for the better understanding of terms and definitions used in this book and, at the same time, underlining some relevant terms that by now belong to the common language of the Facility Management context.

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