Journal of Internet Banking and Commerce

Facility Management Process Architecture Framework

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Abstract

Due to a lack of consistence among different components of management systems, there is a barrier limiting an effectiveness of organizational functionality in the present business world. St. Gallen School has offered Management Process Architecture Framework as a base helping with achievement of the consistence among the management systems. Dividing the base into three levels: strategy, processes and systems, will reduce complexity of an enterprise real life, and it will allow to create a model presenting the organization in total. The new-built of the Facility Management Process Architecture Framework is the start up for using in full management process architecture. The process architecture shows the processes and a logic of their links on different organization levels; it is an image of the internal organization process structure; it allows a complex check and systematization of different approaches in the scope of the complex organization.

A goal of the article is to build a concept of the process architecture framework for the Facility Management area. The area is a subject to permanent evolution. Going from the administration and functionally organized FM area to the dynamic and active approach considering influence onto other organizational processes requires the very precisely dedicated goal. Additionally, it requires have established some interrelations among basic processes taking place in the organization and the FM area. The tools used to model the processes make possible both: an introduction of the new approach to management of the FM area, and some directions to create some new IT tools, including IWMS (*Integrated Workplace Management Systems).* There is a try taken in the article to create a concept of

the process architecture framework in the FM area, and it is the start point to form more sophisticated reference models in the scope.

1. Introduction

The purpose of the FM process architecture framework model presented here is to visualise the processes at various levels of detail. The architecture constitutes a map which enables planning and further development of process approach in organizations. The proposed language of relations between FM services recipient and supplier (internal or external alike) is another essential advantage of this model type. The paper is a continuation of previous studies of the subject (Gabryelczyk, Sliwinski, 2009).

2. Business engineering architecture in the Facility Management area

The world of business keeps looking for new ideas how to improve the organization's performance and thereby to gain advantage over the competitors and to increase the customer value in effect. At the beginning of the nineties, when the term *process* became a key word and business process orientation gained importance, no one suspected that these concepts would be even more relevant twenty years later. Today, the conceptions of management aimed at process orientation of the company have undeniably taken the lead among various conceptions of the organizational change. Although the methodology of radical changes and redesigning the organization's processes has been replaced by a definitely more evolutionary approach, with the conceptions of business process improvement and management squeezing the reengineering technique out, the process orientation proper keeps developing and evolving, having become an indispensable element of business engineering today. High quality of services, avoiding needless costs and seeking economies at the process level are coming to the fore of traditional organizational goals.

Buildings and installations are often perceived as assets that are special in terms of their function and physical form, having no significant impact on the organization's core processes. Nothing can be more mistaken, though. The property along with the space being provided together, is a resource which needs to be subordinated to the company's strategic goals. And this is the direction of the real property management evolution – from the traditional, administrative approach towards user-oriented facility management. This is also how Wahlen (1997) defines the FM area: "*As regards real property, facility management is a customer-oriented, complete service, covering the comprehensive decision-making principles for optimum planning, usage and adaptation of buildings, their installations, premises and services – reinforced by information systems supporting company management in a strategic manner and with regard to each job/performer participating in the core process.*"

Business process architecture presented by St. Gallen School is one of the conceptions enabling consistency of the FM area and organization's other processes. Addressing three levels: strategy, processes and systems, the method reduces complexity of the organization's reality and enables construction of a model where the organization is approached in a holistic manner (Kolbe, Österle, Brenner, 2003).
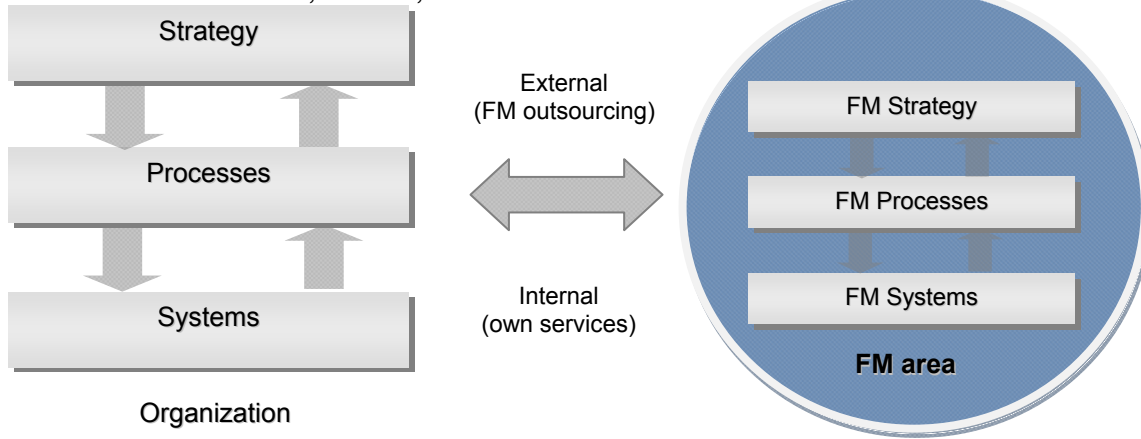
Figure 1: *Business Engineering Architecture levels and Facility Management area*

In the business engineering architecture for both the organization and the FM area, processes link strategy to information systems, constituting a central element of the architecture. The strategy is implemented through processes in these areas. Key processes are formed through combination of interdependent activities, decisions, information and materials having the greatest impact on the company's competitive position and they should yield a noticeable utility to the customer – a utility the customer is ready to pay for. The FM area processes are of an auxiliary nature, but considering their significant effect on the organization's performance, they should be – similarly as key processes – integrated with the processes in other areas of the organization. They deliver services of an economic nature (Economic FM), technical services (Technical FM) and infrastructural services (Infrastructural FM). The FM area strategy is also subordinated to the property life cycle. The study is limited to the phase of facility operation, but it is no less important to take the organizational strategy into account at the stage of facility planning and designing.

The processes are mapped in the organization's information systems, and can therefore be planned, performed and controlled. On the one hand, development of modern information and communication technologies is becoming a driving force behind organizational changes and on the other hand – providing IT tools – it enables efficient implementation of the management conception. According to the thesis presented by Davenport (Davenport, 1993), and still valid, IT initiates process changes and the economic effect occurs no sooner than as a result of process change. It is the primary value of IT that it enables a radical, well thought-out organizational change instead of implementing new IT systems or computerizing segmented processes. Processes that are inefficient or obsolete and are not proving to be effective in the organization's new, dynamic environment, should not be computerized, but redesigned, with the opportunities offered by IT taken into account.

3. FM as a support process

When analysing the FM area in the business engineering architecture context, one should look at Facility Management at three levels:
- strategic level – as participation in achievement of the organization's strategic guidelines;
- process level – to provide services (facilities) to the property user;
- system level – *as an information system integrated with the organization's entire information system.*

The requirements imposed on facility managers are growing in the competitive environment, addressing three dimensions of the company performance: time – costs – quality, just as the process approach does. The need to enhance quality of services through seeking customer added value in processes and avoiding unnecessary costs of resources through improvement of processes are coming to the fore. An approach like this has been defined as a resource-based view. The study attempts to expand this approach towards integration of the FM area strategies, processes and systems with the organization's activities. This

complies with the process-based view and determines the FM area strategy adjusted to organization's other areas.

The strategic goal in the FM area is to take active part in implementation of the organization's strategy. It is therefore worth verifying Facility Management methodologies in terms of their strategies from with respect to activities of the company.
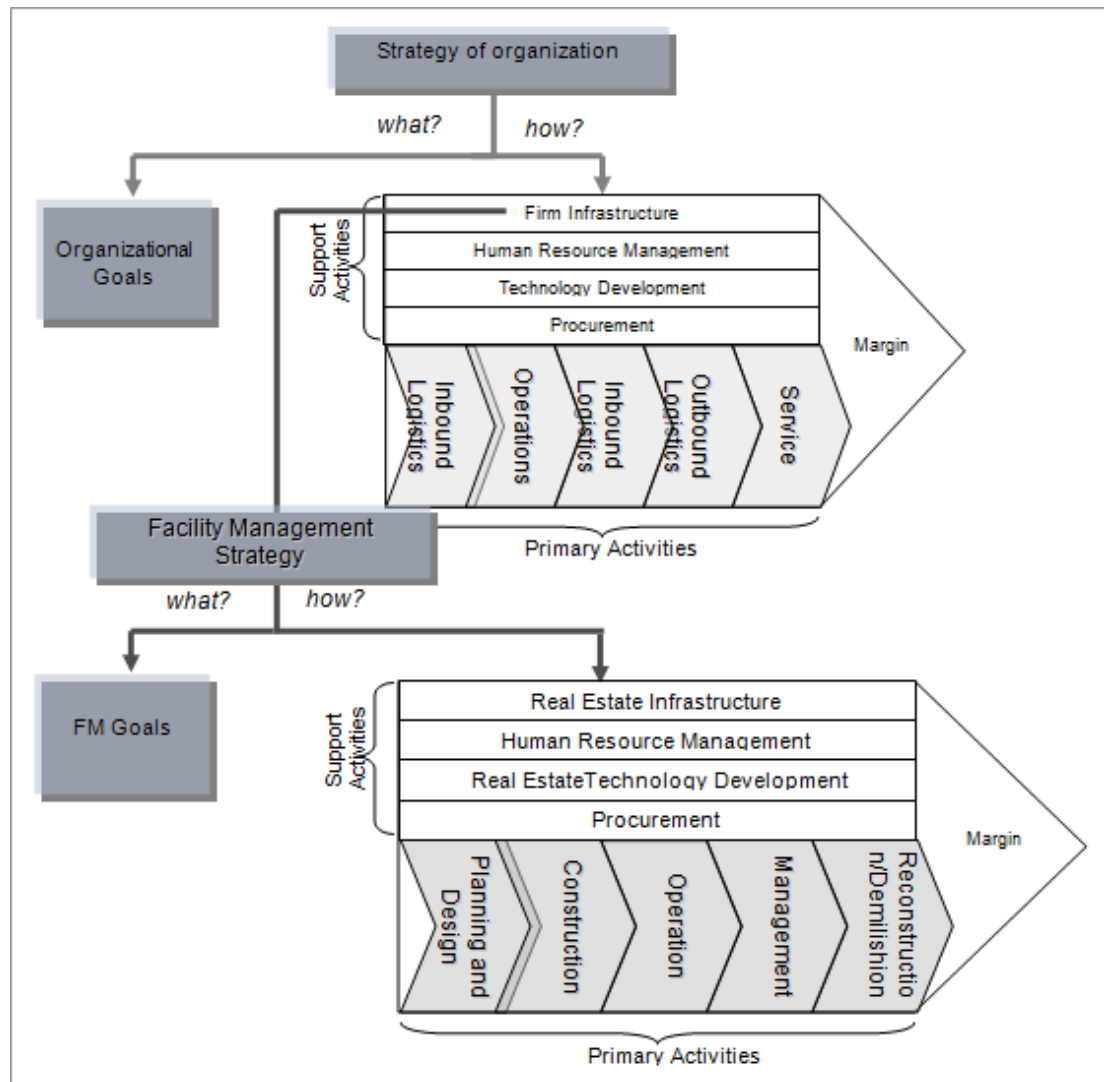

Figure 2: *Integration of Goals and Added Value Chain of Organization and FM area*

The following strategic goals can be distinguished as regards the strategic relation between the organization and the FM area:
– increasing workplace flexibility to enable immediate adaptation to the user's changing needs;
– building an efficient workplace, where more resources can be used more productively;
– promoting conveniences intended for external customers in the form of focus on external customer services;
– organizational security covering activities in the risk management area;
– minimizing costs through active investment policy in the entire lifecycle of the facility.

Porter (1985) – the strategic management guru - in his single-dimensional added value chain conception presented a model of an organization interrelated with its surroundings and split the organization's activities into primary and support (auxiliary) activities. It is worth stressing

in this context that Porter's value chain conception recognizes the FM area namely as one of the resources (within the company infrastructure) which supports both primary and the remaining supporting processes, which has its own strategy and can be described by means of the added value chain.

4. Process architecture configuration for FM

Process architecture describes processes and the logic of interfaces between processes at various levels (Cyfert, 2006). Process architectures reflect the internal structure of a process organization and contain methodological knowledge about relations between individual processes and levels of organization description. The organization can benefit from using them, gaining construction framework and guidelines for modelling individual processes as well as for creating reference models covering a part or the whole of the organization. The term *architecture* appears here in clear analogy to the art of building, which has been providing rules of planning and construction for years. In the business practice, reference architectures developed by private consortia, standardization centres and governmental programmes are becoming increasingly popular. Reference architectures can be customized to individual users' needs and they present consistent initial solutions adaptable to users' various applications (Keller, Teufel, 1997).

According to Cyfert (2006), process architecture configuration is described by means of two parameters: process description levels and a layout of processes at the first level.

Description levels, also referred to as process depth (Cyfert, 2006) can be single-dimensional or multidimensional in their nature. Porter's chain value is an example of a single-dimensional model. The fact of identifying a value chain in the organization does not mean that the organization is process-oriented and that processes are running horizontally across the organization's various departments. A function-oriented organization and a value chain are not mutually exclusive. But the value chain identified in the organization can be used as an instrument for planning or identifying processes that really "add value".

According to Cyfert, the following multidimensional models can be listed:
− a two-level conception presented by Hammer and Champy (Hammer, Champy, 1996), with a high-level process map and the second level where sub-processes are described,
− a three-level performance improvement conception by Rummler and Brache (Rummler, Brache, 2000), with an organizational level, a process level and a job/performer level. The organizational level is described by maps of relations, enabling one to understand how the organization behaves as a system. The process level, presenting process flows on the process maps constructed by means of Swimlane diagrams for example. Job descriptions are a basis for designing and managing them according to the process approach guidelines,
− a four-level conception by Harrington (Harrington, 1991), where a hierarchy o macro-processes, sub-processes, activities and tasks relating to the methods of performing these activities.

A multidimensional model is proposed here for Facility Management area process architecture configuration. Levels 0 and 1 constitute the initial point. The depth of processes at each of the remaining levels should be determined with the model comprehensibility and level of detail taken into account (Gabryelczyk, 2000). The process flow should be presented as briefly and clearly as possible. Process functions should be described in a manner comprehensible to readers who do not participate in process designing directly. It is therefore necessary to define a uniform language to be used for describing all of the processes. The level of model detail depends on the process type, its environment and its participants' demand for information.

Usually, level 0 shows subjects involved in activities, relations between them and main elements of the management systems contributing to creation of products and services. The purpose of level 0 is to construct a framework for the processes being modelled – i.e. to build a structure which enables communication of all interested parties, constitutes a common reference point and presents the reference model at the highest level of abstraction. Most typically, the framework structures address specific usages of models, e.g. in an industrial company (Y-CIM Model), in business process management (ARIS House). The model presented in the study (House of Facility Management) is being proposed as a superior determination of the strategy type for the FM area, according to the classification presented above or based on property user's own strategy. As far as processes are concerned, it seems justifiable to follow the conception of classification by economic, technical and infrastructural areas, this enabling one to concentrate on these areas better, especially that a slightly different professional knowledge and other organizational solutions are required here in case if these processes are outsourced from the organization. The processes background includes skills of various levels that are often underestimated (methodological skills – with the up-to-date professional knowledge of the FM area, professional skills – using FM area tools and methods, social skills – communication and teamworking), as well as standards and certifications carried out at both the domestic level (national FM organizations) and the international level (IFMA, BOMA). Moreover, the use of IT systems designed to support management is almost a definitional feature of facility management today. These systems are a contemporary Facilities Manager's tool base.
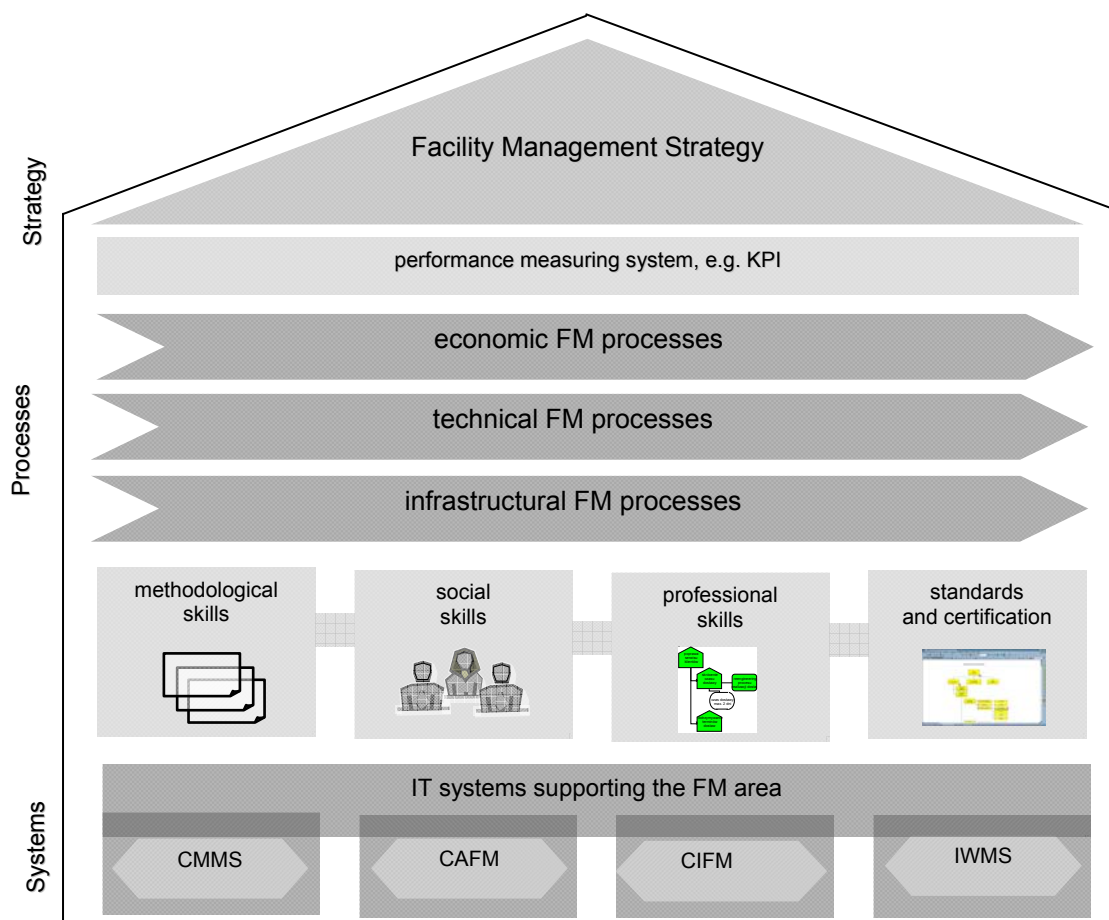

Figure 3: *House of Facility Management*

Level 1 of process description can be preconfigured for the organization and it depends on the organization's lifecycle. The need to identify the processes that will be taking place within

the premises emerges at the stage of property planning. Planning space for various types of company operations to be performed in the office building or ensuring adequate standard of equipment for the user's everyday activities can be given as examples here. But the operational phase, where the plan and its implementation are actually verified against users' needs, is most universal in description. Planning proper processes in this phase is a prerequisite for facility efficient operation and for performance of the organization's core activities. Without departing from division into economic, social and infrastructural areas, we are proposing identification of a bundle of processes being performed within the facility (Sliwinski, Sliwinski, 2006).
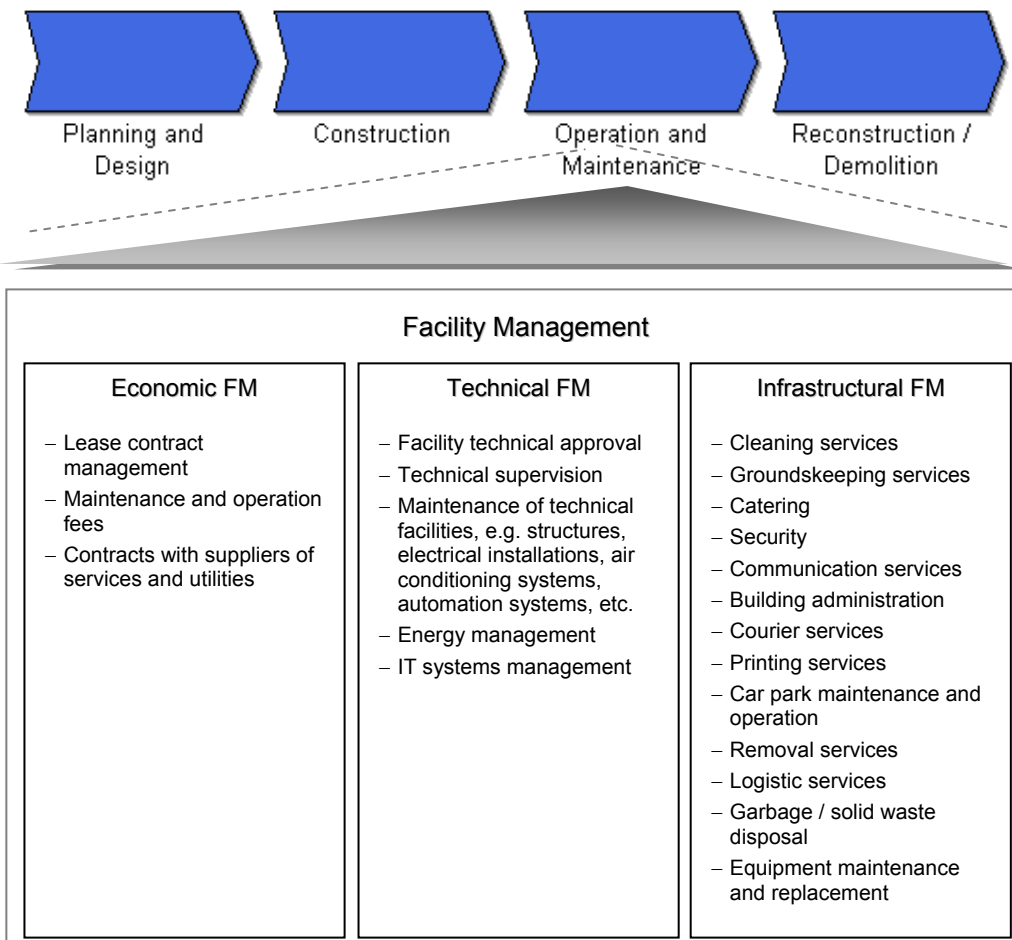

| Planning and Design | Construction | Operation and Maintenance | Reconstruction / Demolition |

Facility Management

Economic FM	Technical FM	Infrastructural FM
– Lease contract management – Maintenance and operation fees – Contracts with suppliers of services and utilities	– Facility technical approval – Technical supervision – Maintenance of technical facilities, e.g. structures, electrical installations, air conditioning systems, automation systems, etc. – Energy management – IT systems management	– Cleaning services – Groundskeeping services – Catering – Security – Communication services – Building administration – Courier services – Printing services – Car park maintenance and operation – Removal services – Logistic services – Garbage / solid waste disposal – Equipment maintenance and replacement

Figure 4: *Main processes level in the Facility Management area*

Lower levels of description depend on the nature of the company business and on identification of the supporting facility management processes to be performed within the premises. At these levels the model framework is specified, modelling methods are assigned, semantic rules of modelling and conventions for model elements description are defined, uniform specialist terminology of all those involved in modelling is used and model deployment procedures are developed (Becker, Schütte, Geib, 2000). For the sake of illustration, we have selected one of the processes (the process of equipment purchasing which is a part of the FM infrastructural area – equipment maintenance and replacement process). The process is presented by means of ADONIS tool, although it can also be planned with other process design tools (such as ARIS for example).

Methods of process description offered by ADONIS allow to define a hierarchy of modeled processes, read a process course, its basic characteristics and logical connections with other processes on various levels of detail. Process maps created with help of information tools make a on-line picture of an organization, allow to navigate among individual processes, enable for fast updating of models, their analysis and simulation and are a good starting point for building an organization oriented on processes (Gabryelczyk, Sliwinski, 2010).
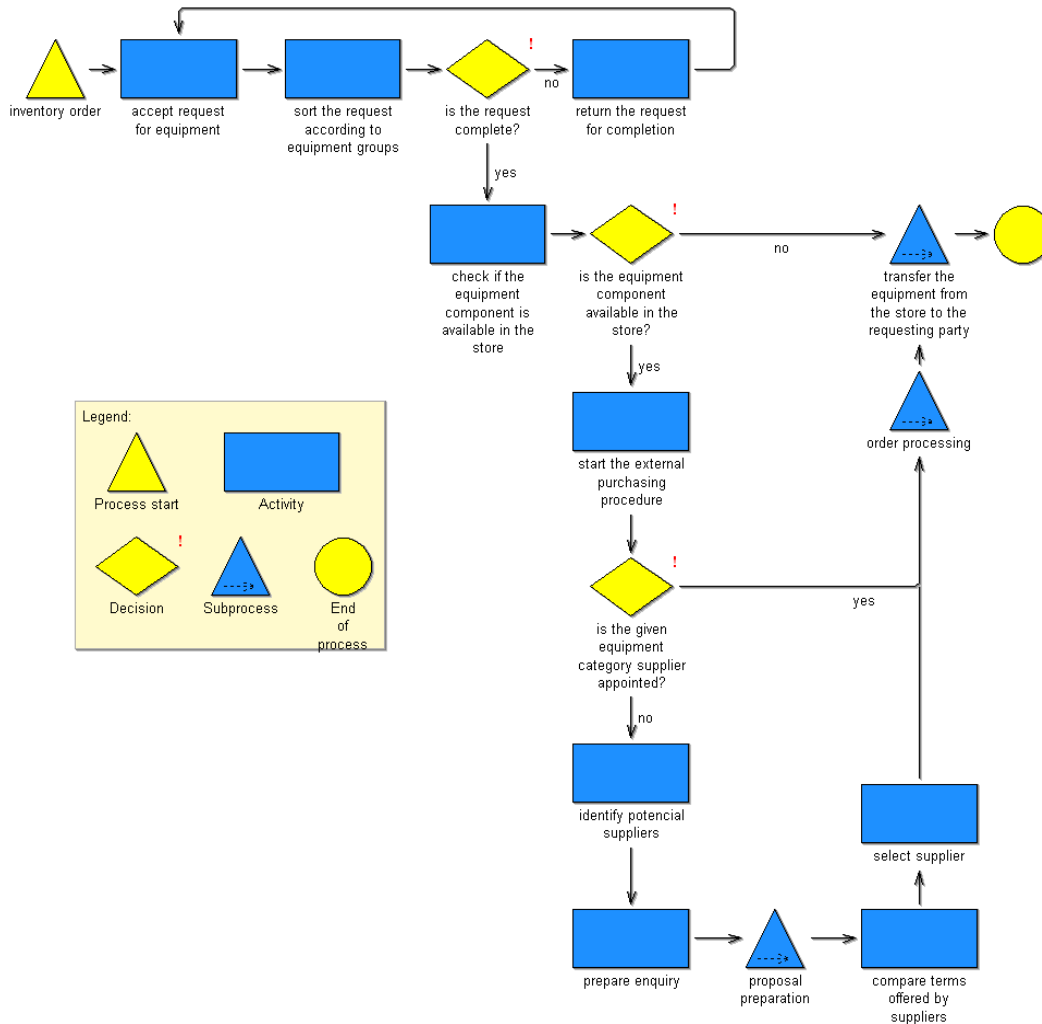

Figure 5: *Equipment purchasing process within infrastructural FM – ADONIS model*

5. Conclusion

When discussing the organization's FM area, it is necessary to adopt process approach as the one which binds various areas of the company in a relatively consistent description method. This enables one to take into account the complexity of processes being performed at various levels (resources, functions, hierarchy, etc.) and also links the FM area to the organization's core activities more tightly. The call for more active management of the facility resources expressed by those dealing with the FM issues can be responded to, namely though creating a description of the FM area processes and including them in the organization's other processes. Developing reference models and implementing them in organizations, we are creating an opportunity to answer the question about the FM processes' contribution to the organization's performance and their role in the organization's overall activity. The presented solution is an attempt to systematize the FM field knowledge and to adapt it to the process approach. The method of process description (ADONIS) used

seems to be sufficient for the purpose of describing the FM processes. Besides, it gives an opportunity to prepare detailed process maps to serve as standards in the FM area.

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