

## BUSINESS PROCESS MANAGEMENT IN SUSTAINABLE PROPERTY/ASSET MANAGEMENT BY USING THE TOTALOBSERVER

by

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*The use of software became of great importance for successful facility and property management worldwide, because of its possibilities for generating savings in multiple areas and not just in operational areas and improving business processes. This paper displays the growing facility and property management market in Serbia and the software TotalObserver as a solution for the emerging problems for this market. Case studies and operational use of TotalObserver confirmed that significant savings can be generated by using software for asset management.*

**Key words:** *facility management, property management, computer aided facility management, totalobserver*

### Introduction

Facility management (FM) is not a completely new concept in Serbia, although it causes confusion and doubts in people of formal technical education. The real FM development started only after the year 2000, but its roots are much deeper and reach far into the past; the maintenance and management of the facilities[1] were more or less always present, since the facilities were built, only the term “Facility Management” is replaced with the terms “maintenance” and “management” of facilities in operation. During past two decades, and in the time of intense development of FM in the world, the lack of money caused only minimal and essential maintenance to be performed, and the development of services that were already established in foreign markets didn’t exist in Serbia. By re-opening the country to the world, and the start of economic transitions, many companies have opened their offices in the country, and with them came the FM as known today. We were faced with the new standards in maintenance and management, the established examples of “good practice”, a new set of services, the construction of intelligent buildings, energy efficiency *etc.* [2].

The problem is that there is still a consciousness that nothing has to be maintained in the new facility or the services should be kept to a minimum or only if something breaks or

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stops – which is surely the worst approach. With the arrival of more serious investors to our market and more active participation of investment funds, which seriously take into account the net value of the facility (current and during the years), will indicate the need for the service, for all the segments of property management (PM), which includes the responsibility and guarantees of the costs level.

Another problem is that the legislative doesn't cover enough area of maintenance and management [3]. But with the arrival of foreign investors to our market a need for this type of service emerged, but still insufficient or insufficiently expressed to allow the companies that are engaged in that business to grow and develop in line with real market demand.

### Facility management in Serbia

Research of the FM scene in Serbia is an extensive work [4], but focusing only on Belgrade three different groups of objects emerge on which the application of modern concepts FM can be analyzed [5].

- The first group includes buildings that were built up and managed by international companies (hotels, large shopping malls, banks, fast food restaurants). These companies have entered the domestic market with an already established and tested FM standards and continued to implement them, as in the home country (headquarters). The maintenance concepts of these buildings remain isolated, *i. e.* they do not change in Serbia, but do not spread and have an impact on local organizations or state institutions.
- The second group are the objects in which the FM technology is fully implemented, and was planned, as required by the rules, in the design and building phase. This group is represented by the building of the business center Usce. The building was built with the complete FM solution, equipped with the latest systems for management and control in the exploitation phase.
- The third and largest group includes administrative, school, business, industrial and many other buildings in use, that require a very intensive use of FM technology. This group is characterized by multiple factors: large operating costs, the need for intensive reconstruction and renovation, privatization/change of ownership, change of use, requirements for functional changes and the adjustment of modern business forms.

The exchange of experiences with FM experts from Hungary (the company Honeywell), who passed through this phase a few years ago, it was concluded that the objects of the third group were the most numerous, the most interesting and the most potential for the use or redefining the concept of the FM model (fig. 1).

Elements for fig. 1 are as follows:

- Operative – Group of operative activities within facility management.
- Organization – People, activities, communication dedicated to this function.
- Soft services – Group of activities that mostly relate to, so called, “soft” activities: communication with tenants, expenses tracking, invoicing, tax calculating, *etc.*
- Hard services – Group of activities that relates to maintenance of equipment, buildings, *etc.*
- Security – Group of activities that relates to security, fire prevention and alarm.
- Management consulting – Management consultancy activities related to proper positioning of FM function within organization.
- Suppliers – Contract management activities, support for establishing of relations with external companies that are included in facility management activities.
- Budget planning – Activities of formulation invoice and expense groups, and definition of budget plan upon previous experience.

## Facility management in Serbia compared with the EU

European FM market is growing each day and gets increasingly linked into a unique market, and Serbia as a country currently in transition, belongs to this market and has to create an opportunity to soon converge to the European and world standards [6]. For starters, it is necessary to be actively present on the European FM scene and exchange information and experiences. In Serbia, SERFMA (Serbian Association for Facility Management), which is currently being established is in charge of this. Monitoring of FM in the European scale is very important, because the preparation of European standards is in development. They will include a FM system, the integration process, model and FM contracts in order to be compatible throughout Europe, leading to a balance of price and quality [7]. This unique European standard also provides a certification of FM companies in order to allow the comparison of the quality of FM services on a unique European market among other things. The most important thing is to inform and educate the staff about the modern approach and the use of FM technology in the company [8].

The Serbian market of FM services is still far behind the EU market, with the exception of companies that “brought” their own concepts of FM [9]. Only with the rapid adoption of knowledge (education) and the consistent implementation of procedures and regulations can Serbia catch up with Europe and the World.

### FM model defined according to EU standards

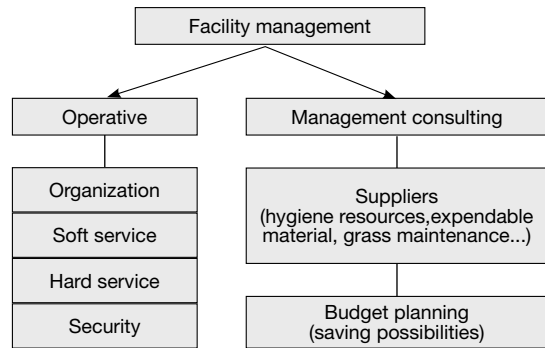
The FM model defined in the proposition of the European standards about the FM by the technical committee CEN/TC 348 [10], is based on two basic assumptions:

- FM is one of the essential functions in business,
- FM manager is one of the leaders in the business process,
- this model (fig. 2) provides five different aspects of FM:
  - the relationship between business cycles and FM,
  - the interdependence of internal services and needs,
  - the so-called 'Top-down' FM processes,
  - the so-called 'Bottom-up' FM processes, and
  - the impact of FM.

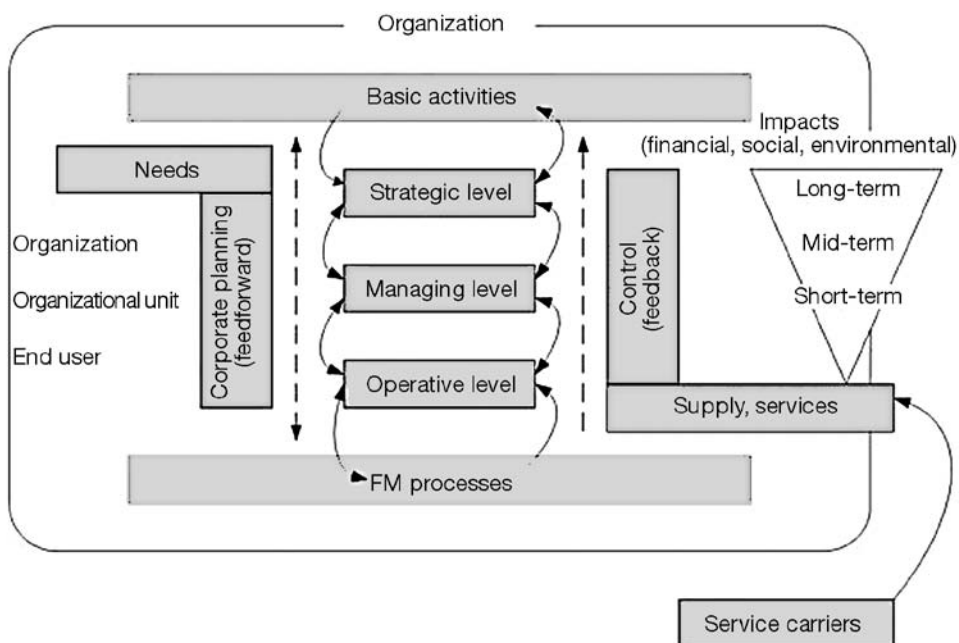
The following can be concluded from the FM model:

- FM is not just about buildings, but includes a large part of the services which are managed in relation to buildings,
- the building (the constructed area) falls under one of these services, and
- the way in which the services are performed is crucial for the FM, is only a result of economic impact.

In a time of increased IT use it's becoming almost impossible to imagine any concept of design, planning, construction and management without proper use of computers and software (systems).



**Figure 1. The simplification of the FM services in Serbia**



**Figure 2. The FM model, according to the plans of the European standards in FM, defined by the technical committee CEN/TC 348**

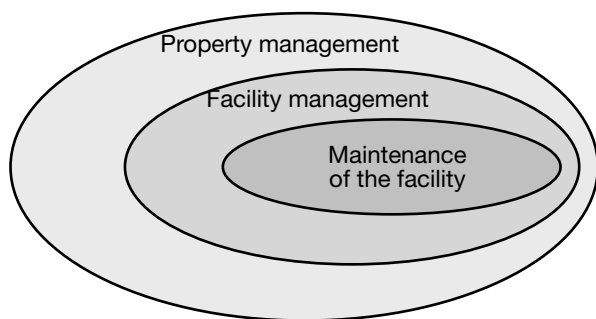
### Property management in Serbia

The question of similarities and differences between the facility and property management emerges (fig. 3). Many companies that offer this kind of services include both fields. In fact FM was created and developed out of the PM services. If we compare the FM with an engineer contractor on the building, then the PM is equivalent to Engineer-monitoring authority, acting on behalf of investors.

The PM plays an important role in the assets of the company. The main objective of PM is to organize and to successfully accomplish all the operations related to real estate, such as:

- renting,
- shopping,
- selling, and
- leasing.

Business in this segment of the property appeared just five to ten years ago and MPC properties is definitely a pioneer and founder of this type of services essential to the proper functioning of each property. MPC properties is biggest property owner in Serbia, one of the first that started to operate in organized



**Figure 3. The relation between the property management, facility management and the maintenance of facilities**

way, implementing FM function within separate company with about 100 employees (lot of experience and knowledge came out of work with this property owner). Currently in this market there are somewhat developed companies with some of the services that fall within the FM (cleaning, security, catering, maintenance of green grass...) and some of them are trying to develop and cover a wider range of services. On the other hand, only five companies were able to provide the complete service in the field of FM, and only two to three companies that could perform in the field of property management (research conducted for this study).

### **The computer support to the FM**

Computer Aided Facility Management (CAFM) is the computer support to the FM, *i. e.* information system backed by a reliable database. It offers the possibility of collecting, storing and combining different types of information (alphanumeric and graphical) of the facility, equipment and maintenance. All information is collected by experts of different profiles using different methods that must be well handled and clearly presented [11]. If we simplify the whole thing we can conclude that aesthetic and functional aspect of the building is important to the architects, the structural aspect is important to the builders and the functional aspect to the mechanical engineers and installers and then it becomes clear how different information from different professionals involved in the process of designing, planning, construction and management must be integrated in the information system support for the FM. CAFM is a tool for managing all the data that can be saved. The efficiency in the implementation of such a support system for the FM is most applicable in large companies, which consist of several different departments, because all departments have their own plans and alphanumeric data in order to do their job. If we assume that the building is 20 years old and that the graphic plans are on paper, one can easily conclude that they are at least 21 years old, *i. e.* that they are not updated, and as such are of little use. If they are up to date, which is a rarity here, and are in paper form one should only imagine how much time it takes to make a management decision, *i. e.* how many pages with graphical information must be rotated and used in order to come up with some basic information, for example. square meters of office space on the third floor or equipment used there, the availability of space, the electricity installations, *etc.* It should be added that the plans in graphical form come from various sources (architectural plans, structural calculation, water and sewage, electrical installations, heating, ventilation, air conditioning...) and are of different dates in relation to the design and execution which proves the building management based on a variety of basic information without the support of a CAFM results in making bad decisions and problems in communication between different sectors, all together costs a lot in terms financial [12].

The basic idea and advantage of the CAFM is storing, management and easy updating of different information in a single database, which allows that every department of a company can use the same data and develop its own strategy for data exploitation (fig. 4.). The data about objects can be easily entered, structured and updated. Also this type of work and use of databases allows great flexibility in displaying and analyzing data, which results in providing transparent, efficient and rational business and cost-effectiveness.

The program or software system for support of the FM processes and its implementation does not mean just the program installing, but also the adopted strategy of managing integrated structures, processes and human resources.

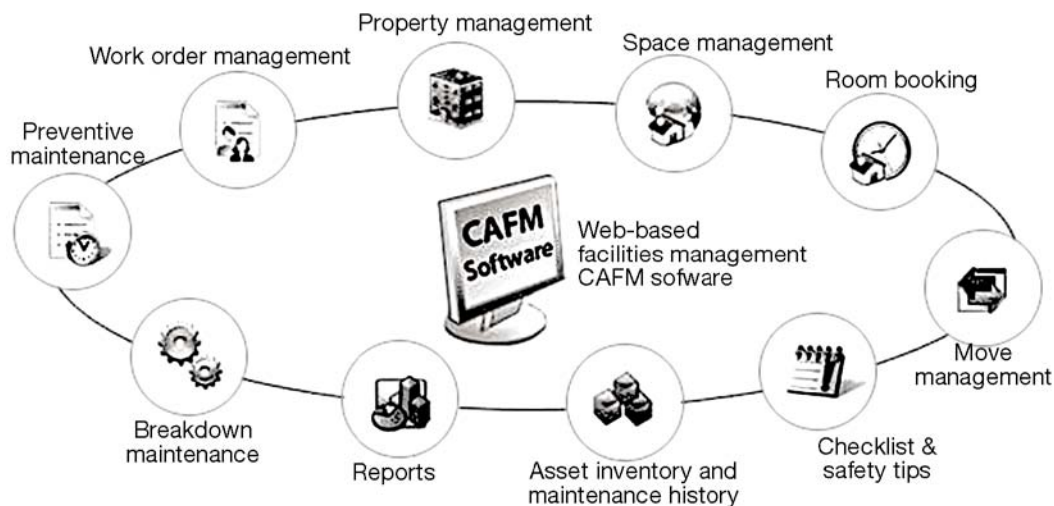


Figure 4. The model of connectivity using a CAFM software

### TotalObserver (integrated property management)

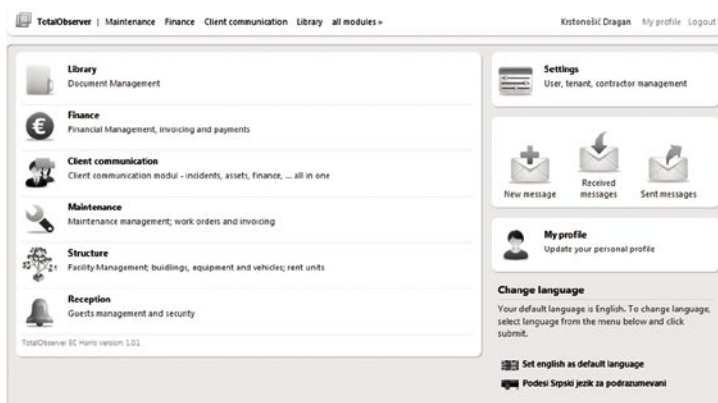
TotalObserver [13, 14] is a software solution for FM and PM, which integrates a set of modules and features intended for the management of all business processes. TotalObserver is intended for companies that operate in the field of asset management, and have a tendency to simplify and cut costs of the process while increasing the quality of service and generating savings. The solution provides the establishment and management of the entire spectrum of services and activities related to the asset management. This solution is fully adapted to the local and regional markets and is primarily intended for medium and large companies. The solution was verified through a series of integrations during which a wide range of good practices was identified and incorporated into the software, the solution also allows additional adjustments which are the task that is realized in the process of porting and integration. The business model, in which this solution is offered on the market, can be fully implemented in accordance with the business dynamics and user capabilities of local companies.

The emphasis is on integration of different data groups and features, which in should in synergy provide a simpler and more efficient asset management. The aim of the solution is to standardize all activities within the property management and to enable clients to follow the predefined process through the use of this program. As displayed in fig. 5, the main modules featured in the standard version of the TotalObserver software solution are:

- structure module,
- finance module,
- maintenance module,
- client communication module,
- document management module *etc.*
- call center module, and
- reception module.

The structure module is the base module intended for creating, recording and “structuring” of objects through the entering of all facilities and equipment, with as much relevant information. This information is later used in different parts of the application for different

**Figure 5. The main dashboard of TotalObserver, displaying the modules**



purposes: *e. g.* the size of the rent space will be used to form a units (rent spaces), which will be used later in the finance module for the charging and collection of rents and maintenance fees. Units can also be associated with the equipment (heating and cooling, lighting...), which allows the tracking of costs associated with property and business optimization.

The finance module is designed for automating the monitoring of all incomes and costs within maintenance and renting. In particular, the issues solved by this module are the maintenance charges and payment of rent and maintenance fees. TotalObserver supports the entering of relevant information from the contract (a contract is entered once into the software), and then the software automatically generates proforma invoices and invoices, tracks payment and generates warning letters. In this way the billing process is fully automated. Through the recording of all costs, allocating these costs to customers and equipment, the solution allows tracking of all costs, as well as accurately locating cost centers which creates conditions for savings. This is especially referred to maintenance that eventually becomes the dominant cost generator. TotalObserver can be synchronized with the “Building Management System” (BMS), from which it is possible to read information on electricity consumption, import them into TotalObserver and distribute it to the clients.

The maintenance module covers a full set of activities in terms of maintenance, and its work relies on the client communication module. This module allows the complete monitoring of the maintenance process and reporting of the activity status to the clients. Also, combined with the finance module, the application enables the generation of proforma invoices and invoices related to maintenance and additional works. The maintenance module integrates all maintenance activities for both the regular (preventive) and incidental maintenance. Combined with the created structure it allows the generation of powerful reports that can track the status of equipment and objects and costs associated with maintaining them. TotalObserver shows a special force when coupled with the Building Management System where all main alarms are automatically collected and forwarded via SMS and e-mail to be treated through requests, work orders, *etc.*

The client communication module is intended for establishing and maintaining formal communication with the users of the premises – clients. This communication is primarily related to incident reports and making requests for additional works, but also the whole range of other activities for exchanging information and documents. The aim of this module is to formalize the communication (each request is tracked), and perform the communication through the software and not over the phone. In this way, for example, a lot of pressure is removed from the maintenance team and it can be devoted to its work.

The document management module is intended for the collection and storage of all documents related to the management. These documents are recorded, stored and their use is monitored. Also, the documents generated by the software itself, first of all the financial documents are automatically stored in the system and are always available to authorized persons. In this way, all problems caused by the staff, departure of people and knowledge from the company are put under control.

The call center module offers the possibility of recording specific complaints, requests or incidents reported from clients to the company's call center and forwarding them to the maintenance module, where they will be reviewed and treated.

The reception module is used to track the visits to a specific location or building. Guest cards can be issued and their use can be tracked. Information about visits is collected and stored through a simple and intuitive system, in order to be used for further analysis.

The TotalObserver software solution is activated and used through background Java applications, while the user interface is available via a standard web browser (Internet Explorer, Mozilla Firefox, Google Chrome...). The information can be updated via these web browsers and the system is fully secure and provides special rights for each user, so some users can only monitor data, and some groups or individuals can also perform data changes.

### ***Customized TotalObserver versions***

In addition to the standard version, TotalObserver also possesses certain versions customized for different specific market demands and client needs.

#### ***TotalObserverSM***

TotalObserverSM is integrated software customized to manage and automate key business processes in shopping malls and retail stores. The integrated solution provides daily operational activities of all operational and management levels, organization and standardization of work, as well as the control of all activities with the aim of optimizing and generating savings. TotalObserverSM features the support of the following functionalities: the automation of invoicing and tracking payments, cost recharging, free form billing, payment tracking, multi-currency operation, price indexing and changing, technical maintenance management, document management, budgeting and business monitoring, cost tracking and audits.

#### ***TotalObserverPD***

TotalObserverPD is integrated software intended for effective asset management and maintenance, for optimization of costs in companies that distribute electricity. The solution allows the monitoring of the main processes of planning, maintenance and use of resources in real time through reports, notifications, and cross-context audits that allow detailed analysis of operations and costs. Power Distribution Company of the Autonomous Province Vojvodina, Elektrovojvodina PD, uses TotalObserverPD. The overall goal was the full integration of the property of Elektrovojvodina PD, its planning, the management of maintenance of the power distribution system and improvement of cost control.

Elektrovojvodina PD started using TotalObserverPD in the autumn of 2011. During the last quarter of 2011 and the beginning of 2012 TotalObserver enabled a significant generation of savings and also provided the possibility for creating the additional value.



TotalObserver started to show the advantages of using the right software as soon as it was put to operational use. By using software customized for facility and property management, Elektrovojvodina PD achieved significant cost cutting in the field of power distribution system maintenance. Figure 6 displays the distribution of costs of Elektrovojvodina without using TotalObserverPD during the period between October 2010 and February 2011 and with using TotalObserverPD during the same period a year later.

It can be concluded that while the material costs remained in similar figures, Elektrovojvodina PD cut nearly 30% of its maintenance services costs by using TotalObserverPD and improved its business processes. Material cost is now more dominant in the overall cost of maintenance, because maintenance services cost is reduced significantly.

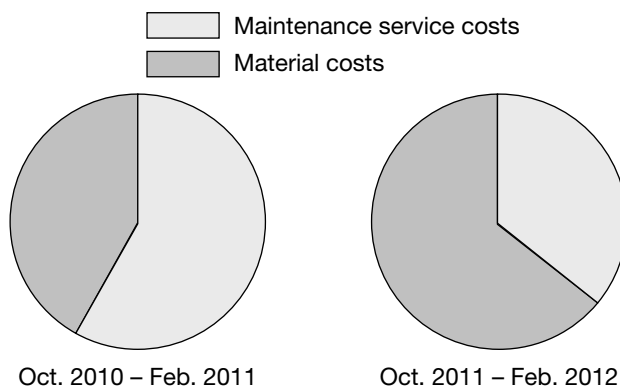
TotalObserverPD offers a wide range of different kinds of reports that allow middle and top management better and more efficient management of the company's resources and the statuses of facilities in real time. Reports in TotalObserverPD offer the information about: ongoing regular and incident maintenance (through active work orders, requests and plan items), costs generated by each type of maintenance service for each type of power distribution object or for a specific object, comparison of costs and maintenance services between different objects, object groups or different time periods for the same object, maintenance history for each object, incomes for investment maintenance also by different types and time periods, use of material in totals or by object, organization unit or type of maintenance service, different kinds of balance sheets, summaries of weekly and annual plans and many more reports with various helpful information.

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One of the most used reports by top and middle management of Elektrovojvodina PD is the Maintenance costs report (fig. 7), which displays the costs of maintenance by Organization units and by types of costs, it also allows more detailed information by clicking on a specific unit where costs per unit subdivisions and belonging objects are displayed. On the bottom of the report there is a graphical display of costs distribution by units and by types. All the financial amounts have been blurred because of client confidentiality.

## Conclusions

Since the EU membership is only a matter of time for Serbia, in the upcoming period it is expected that the FM in Serbia gets closer to a single, unified European market, primarily referring to the application of standards (interpretation and adoption at the national level), passing and compliance with the legislation, developing awareness of the importance of FM in the lifetime of the building and investing major funds in this area, by either state or private investors [15]. Our big chance is that in this industry we also position ourselves as the software developers, because we have qualified experts.



**Figure 6. The maintenance costs distribution of Elektrovojvodina PD without using TotalObserverPD and with using it**

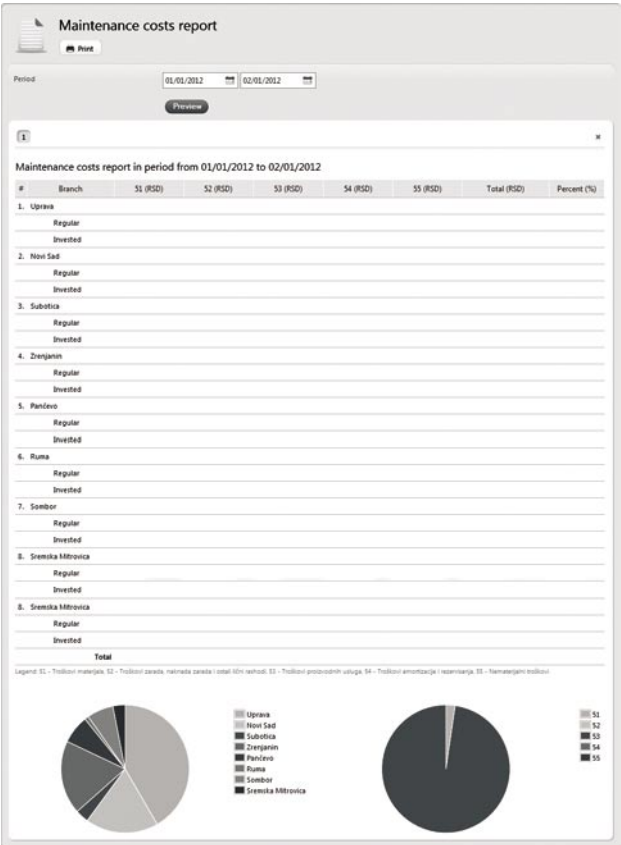


Figure 7. The maintenance costs report of Elektrovojvodina PD displaying costs by organization unit and cost type for the selected time period

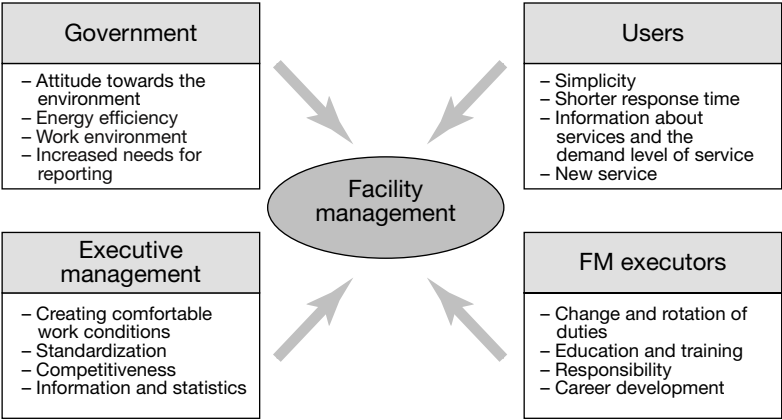


Figure 8. Display of the demands (needs) of the Serbian FM market

The most funds in investment maintenance will still be invested in the energy sector and road and railway infrastructure. The state will have to make great efforts in introducing the concept of proper FM in educational institutions, health centers, government buildings and the buildings of local governments, also a particular aspect that is always present is the management of medical waste (this type of waste requires special care defined by strict legislation procedures, like radio-active waste, which further results in greater costs associated to management of it). The biggest problem with the implementation of FM will be in residential buildings built before 1990, because the change of ownership structure in the 90s, caused the state to stop “concerning” those objects, and the new owners were not willing to take the maintenance upon themselves.

FM classes should also be included in all technical colleges, universities and everywhere the economic discipline is studied, professional journals should be established, which will present the news and developments in this field.

Implementation of such a numerous and comprehensive FM structures that will be able to coordinate and satisfy all the needs that today’s market has (fig. 8) requires the development of complex and high-quality integrat-

ed software that will show all the power of modern FM, and which should achieve maximum optimization of work with well-designed property management, and lead to major savings in maintenance process. TotalObserver, as such a solution, meets all the demands in the best possible way, for example through the implementation of a management in Elektrovojvodina PD can be seen what a positive effect (in terms of generated savings) this software has. Constant improvement and expansion of capabilities will in the future lead to even better results, which will put TotalObserver among the most wanted solution when the FM area is in question.

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