

# **ECONOMIC EFFECTIVE IMPLEMENTATION OF FM – RESULTS OF RESEARCH**

Friedrich Sustr, Alexander Redlein, IFM/Vienna University of Technology, Austria,  
email: [friedrich.sustr@ifm.tuwien.ac.at](mailto:friedrich.sustr@ifm.tuwien.ac.at); [redlein@tuwien.ac.at](mailto:redlein@tuwien.ac.at)

## **ABSTRACT**

In the past, analysts used to compare the ROI (Return on Investment) related to objective oriented economic feasibility studies. The new study aspect of the IFM Institute is to raise a general approach. In the previous Facility Management (FM) study (2005, 2006) it was possible to show savings in the sectors of cleaning, service and maintenance, waste management and power supply. Based on the general approach, a new questionnaire was designed and a survey (2007) was conducted.

The general question is how to find new statistical models describing the influence of parameters on the efficiency of FM (cost reduction, increase of productivity and cost drivers). Not only the effect of single parameters but also the cumulative effects should be taken into consideration. An additional advantage for series analysis in case of shifts of the markets and prices (specifically the effects of inflation to the stable Euro) could be conducted.

To answer this, the "Mixed Method Approach" (one qualitative and one quantitative research step) will be used.

During the first part, the survey analysis, some new parameters as "corporate affiliation"; "status of education"; "age of employees" were collected and analysed.

The second phase will be an extensive qualitative ex post office analysis of the existing company accounts (P/L and balance sheet) in order to obtain more detailed information. Additional expert interviews will also take place and based on this research, hypotheses will

be established. The third part – the questionnaire 2008 – will be used to validate these hypotheses.

## **CATEGORY OF THE PAPER:**

Research paper

## **KEYWORDS**

Facility Management, general approach, Mixed Method, new parameters, profitability of Facility Management, time series analysis

## **INTRODUCTION**

The profit and the performance of a company gets more and more important – not yet since the current crises started. Additional to this fact the question how far the facility management is able to improve the performance of a company and reduce the costs for the use of the building will be of interest? Is this affect measurable and is the facility management the right tool, as the other used common business tools? Generally, in the past, analysts used to compare the ROI (Return on Investment) related to objective oriented economic feasibility studies (Zechel *et al.*, 2005, Bauer, 1996, Scharer, 2002). The new aspect in the studies of the IFM Institute is to get a general approach of parameters on the efficiency of FM (cost reduction, increase of productivity and cost drivers). The result of the first two Facility Management market survey (2005, 2006), of the IFM Institute, comes to the following conclusion: “Instead of high implementation costs, Facility Management is able to generate cost-effective and efficient business management of real estates” (Hauk, 2007).

The potential savings were found in the subsections cleaning, attendance & maintenance, waste management and energy supply. Responsible for this effect of savings was outsourcing in combination with the definition of new profiles, and cheaper prices (Redlein *et al.*, 2007).

This paper describes the research conducted along on this general approach of the IFM Institute (Redlein and Sustr, 2008). All parameters found were evaluated and some new criteria were added. In addition the authors focused on the question of synergies between the different subsections.

The authors did a relevant statistic analyse of the existing parameters and analysis of the additional new parameters. The new parameters were:

1) “Corporate affiliation ”

To see, if the tested person did other jobs in the same company, and has an internal knowledge of the organization.

2) “Age of employee”

How old was the test person, to see if the person is a “newcomer” or “seasoned senior”.

3) “Facility Management profession”

How long the tested person was working in this field at this related company.

By keeping the questionnaires from previous studies and adding the new criteria the authors could trace data over time and conduct a time series analysis.

The general question is how to find new statistical models describing the influence of parameters on the efficiency of FM (cost reduction, increase of productivity and cost drivers). Not only the effect of single parameters but also the cumulative effects should be taken into consideration. In addition, we can use time series analysis in case of shift of the markets and prices (specifically the effects of inflation to the stable Euro).

## **METHODOLOGY**

The authors choose the “Mixed Research” method to combine qualitative and quantitative research methods. Through this research method, it is possible to combine the best aspects from qualitative as well as quantitative methods (Johnson, 2006). The second reason why the authors choose the “Mixed Research” is not to move into different methods. All the related studies (Hauk, 2007), at the IFM-Institute, were proven by the "Mixed Method Approach" (combining qualitative and quantitative steps) as an effective approach to give an answer to the questions mentioned above.

According to the fundamental principle of “Mixed Research”, “researchers should collect multiple data using different strategies, approaches, and methods in such a way that the resulting mixture or combination is likely to result in complementary strengths and no overlapping weaknesses” (Johnson and Onwuegbuzie, 2004).

The study consists of four steps. The purpose of the qualitative steps is to prepare the next quantitative steps. The questionnaire, for the following quantitative stages, is based on the results of the qualitative steps, the questionnaire for the following quantitative steps were developed. The aim of the quantitative studies is to validate the results of the previous qualitative steps.

### **Quantitative Step (as an improvement of the first questionnaire)**

The initial step was to analyse the existing data of the surveys and to improve the questionnaire. Following key improvements were performed:

- Shorten the questionnaire: The questionnaire grew during the last two years. At this stage, it was necessary to shorten it in order to increase the return rate of study participants.
- Account for new research results: Over time (the first questionnaire created in 2005) the authors had to create new questions for new parameters.

- Improve data quality: The range of plausibility checks and questions were “optimised” to improve the quality of the received data.

Based on this the new questionnaire the survey (2007) was carried out.

### **Qualitative Step**

Based on the quantitative results, a qualitative step started.

In this second step an extended ex post office analysis of the existing profit and loss reports and balance will take place. The main aim of this step is to provide data that are more accurate and to verify the new parameters. With the help of the parameters and the detailed information on the ex post analysis, new hypotheses will be established.

### **Quantitative Step**

The survey 2008 will be based on the new questionnaire and the results will be used to validate the hypotheses. An index of the respective years should verify that the results are comparable.

As said before, apart from time series analysis a primary goal of the work is to find new statistical models describing the influence of parameters on the efficiency of FM (cost reduction, increase of productivity and cost drivers), also for cumulative effects.

## RESULTS

The new questionnaire was restructured, but had still 52 questions.

The authors tested it with the 300 biggest turnover companies in Austria in late 2007. The IFM Institute tried a new challenge of a questionnaire via internet to get faster response. Additionally the authors had to assist the test person by phone for this very complex questionnaire (up to 52 questions and one hour of time to answer). Finally, the result was 200 contacts and 97 answers. During the validation of data, the authors had to correct these down to 67 validated answers.

There was also a need to create some new parameters as “corporate affiliation”; “status of education”; “age of employees”. An effort to get more detailed information than the published balance sheet turned out as a “no go” and had to be omitted in the analysis.

As described previously, the main results of the first study (Hauk, 2007) – “Instead of high implementation costs, Facility Management is able to generate cost-effective and efficient business management of real estates”. The potential savings were found in the subsections cleaning, attendance & maintenance, waste management, energy supply (Redlein, *et al.*, 2007). Responsible for this effect of savings was outsourcing in combination with the definition of new profiles, and cheaper prices. The ambition of the authors was to get a subsume result to all in detail tested parameters.

## HYPOTHESES

In the former questionnaire, the IFM Institute asked in each subsections, if there will be a potential of savings. There was no general question:”Do you generally generate savings in order of an implemented Facility Management Department?” Of course the interpretation of the relevant data could also give an answer, but only in the reflection of each subsection and not in the summarization of all answers of the single subsection.

The hypothesis is to get a general approach of all cited results concerning the saving in connection of the use of a Facility Management Department.

First of all the important point was to see, if there would be a certain change, either in the structural of organisation or in the way of monitoring the ongoing exercises.

1) Was there a focus on the belief in a need for a Facility Management Department?

FM dept. [%]	2005	2006	2007
Yes	68	78.6	80
No	32	21.4	20
Sum	100	100	100

Table 1: Need for a FM department 2006, 2007 and 2008 [%]<sup>1</sup>

The result, in Table 1 shows, that in the first two years there is an increasing trend.

This effect follows a smoothed curve for the year 2007.

The second question, which has been of interest concerning the Facility Management Department is the way of the specific monitoring:

2) Was there any change in the use of getting in touch with the management?

Contact to management [%]	2005	2006	2007
No coordination (on demand)	9.3	3.4	14
Daily	no data	no data	21
Weekly	66.3	61.5	50
Monthly	17.4	30.8	15
Quarterly	7	4.3	0
Sum	100	100	100

Table 2: Contact to Management [%]<sup>2</sup>

Table 2 shows a shift in desire towards more accurate and quicker information to the management.

<sup>1</sup> Aggregation of Hauk, 2007; Questionnaire Sustr, 2007

<sup>2</sup> Aggregation of Hauk, 2007; Questionnaire Sustr, 2007

The third question is needed to reflect the above mentioned hypotheses of the IFM Institute (“the general approach”).

3) Do you generally generate savings due to an implemented FM department?

[%]	2005	2006	2007
Yes	no def. question only		62
No	interpretation of partly relevant data		38
Sum	-	-	100

Table 3: Contact to Management [%]<sup>3</sup>

The result, of table 3 shows, that 62% of the dataset affirm the savings in the general domain of Facility Management.

#### INTERPRETATION

The interpretation of Table 1, verifies no change in the opinion of a need for such a department. Table 2 will argue that the management has the wish to get faster and daily information. Concerning to Figure 1 “contact to management” the authors had a discussion after the pre-test, of the ex ante questionnaire, to inserted the field “daily” in the questionnaire of 2007, to get possible replies. During the needed telephone conversations, most of the test persons required an answer for a shorter period of time. The result of “daily” approved the assumption with a request of app. 1/5 of all tested persons. Even the interpretation of, “no coordination”, in the meaning of “on demand” emphasize the argument of quicker information to the management.

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<sup>3</sup> Questionnaire Sustr, 2007



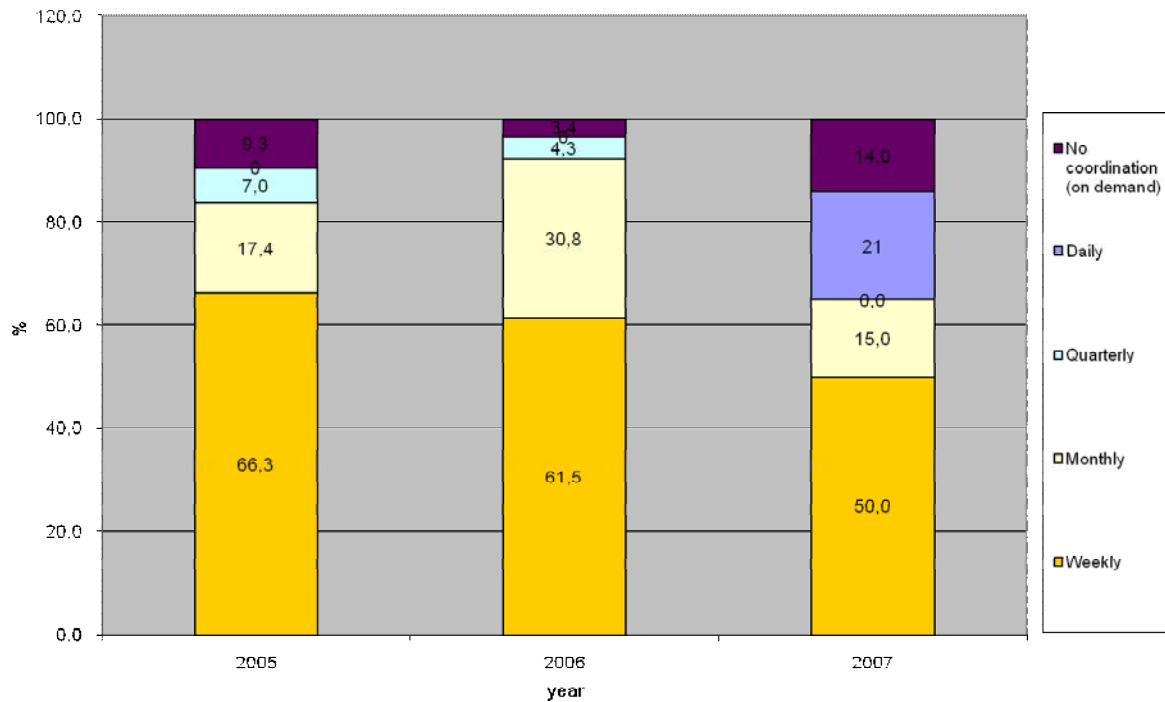


Figure 1: "Contact to management"

The answer of 62 % of the dataset, who affirm the savings in their expenses, raises a new discussion. This will base in connection to the first question, which shows a significant lag of companies with a FM department and without savings. What could be the reason, why 20 % of the companies need no FM department? One possible answer could be the organisation structure. According to this, the authors will use the data of the existing earnings reports and balance sheets. This will be done in the next qualitative step.

The question, "Do you generally generate savings through an implemented FM department?", raise up an interesting discussion. If it will be a significant change in the used subsections and / or in the possible synergy change of the services, what change would be significant for the savings, would the result compensate each other?

For the interest of the comparability over time, and in order to pick up the difference, the authors started a comparison of the variances of the last three years. Even to follow, the general focus of the IFM Institute the authors had to compare the differences of all subsections.

The questions are:

- 1) There will be a new criteria created?
- 2) Is there any change in the importance or ranking of the subsections?

Position	Hierarchy 2005	Hierarchy 2006	Hierarchy 2007
1	Cleaning	Cleaning	Cleaning
2	attendance & maintenance	attendance & maintenance	winter services / grounds
3	winter services / grounds	winter services / grounds	Disposal
4	Catering	Catering	attendance & maintenance
5	security, incl. access control, doorman	security, incl. access control, doorman	Catering
6	Disposal	Disposal	security, incl. access control, doorman
7	removal service	laundry service	energy supply
8	laundry service	removal service	removal service
9	energy supply	energy supply	laundry service
10	car pool	car pool	construction works
11	postal service	postal service	communication / information technology
12	logistics, receiving department	logistics, receiving department	job safety / health (NEW)
13	opt. service-process (e.g. hotline, helpdesk, standby)	opt. service-process (e.g. hotline, helpdesk, standby)	postal service
14	Miscellaneous	Switchboard	travel agency (NEW)
15	Switchboard	construction works	opt. service-process (e.g. hotline, helpdesk, standby)

16	construction works	commercial FM services	commercial FM services
17	commercial FM services		copies (NEW)
18			utilization of interference documentation (NEW)
19			reprography, document digitization (NEW)

Table 4: Position of assembly subsections 2005, 2006 and 2007 <sup>4</sup>

The results of the ranking were appraised by counting the nominations. New services, as job safety / health, travel agency, copies, utilization of interference documentation, reprography, and document digitization could be found.

The interpretation of the following new ranking of subsections:

Cleaning (top 1 for three years),

Winter services / grounds, disposal (are getting more interest),

Attendance & maintenance (loosing two places),

Catering, security, incl. access control, doorman (lost one place),

Energy supply, removal service (won one place)

The authors used the table 4 as a comparison to the former results, to see if there will be another subsection, which was not in the former potential of economies. In the case of winter services / grounds the table 4 shows a new potential of economy. But the detailed data of the questionnaire (2007) could only confirm a synergy between the service of cleaning and winter services / grounds, which were done by one and the same service company and not as a new potential as the former result of possible synergies (Redlein *et al.*, 2007).

In order to find new results, the new survey aimed to find new – soft facts - parameters<sup>5</sup>. The authors formulated a new hypothesis: “Companies with a FM department will have better

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<sup>4</sup> Aggregation of Hauk, 2007; Questionnaire Sustr, 2007

efficiency of FM (cost reduction, increase of productivity and less cost drivers), if these companies hire qualified staff.”

To get relevant data the authors created new questions to make an enquiry regarding “corporate affiliation”; “age of employee” and “Facility Management profession”. The idea was to find out, if the experience of the test person would have any influence on efficiency in the Facility Department, assuming that the same person is working there.

In detail these new, soft-facts, parameters are:

1) “Corporate affiliation ”

To see, if the tested person did other jobs in the same company, and has an internal knowledge of the organization.

2) “Age of employee”

How old was the test person, to see if the person is a “newcomer” or “seasoned senior”.

3) “Facility Management profession”

How long the tested person was working in this field at this related company.

First the authors will list the results of the new parameters:

1 to 2 years	2.4%
3 to 5 years	31.7%
6 to 10 years	12.2%
11 years & more	53.7%

Table 4: “corporate affiliation”

The result of table 4 shows the main periods of corporate affiliation. Pointing out of two groups:

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<sup>5</sup> Crilley, G. and Sharp, C. (2006), “Insights from research Managerial qualities and operational performance: a proposed model”, *Journal of Measuring Business Excellence*, VOL. 10 NO. 2, pp. 4-18.

“3 to 5 years” with 31.7% and “11 years & more” with 53.7%. This second group shows a low fluctuation in these companies.

Up to 30	4.9%
31 to 40	29.3%
41 to 50	53.7%
51 & more	12.2%

Table 5: “age of employee”

Table 5 points out two groups:

The first one between the age of “31 to 40” with 29.3% and the second one between the ages of “41 to 50” with 53.7%. This second, elderly group is mainly responsible for Facility Management.

1 to 2 years	7.3%
3 to 5 years	31.7%
6 to 10 years	34.1%
11 years & more	26.8%

Table 6: “Facility Management profession”

Table 6 shows no significant group. All groups are around 30% except the first interval “1 to 2 years”.

## INTERPRETATION

The age might have a connection to the corporate affiliation for a reasonable explanation of low fluctuation in the companies. This could be an indicator for certain expert knowledge, but the length of the Facility Management profession does not correspond to these two parameters.

The data collected could neither prove nor disprove the hypothesis. The definition of “qualified” will need more information on the parameter of “status of education” to verify the

hypothesis sustainably. You would get a different result, if the interviewee had trained on the job or he had got a specific education. For this reason we extended the latest questionnaire by two additional questions. One is “school education” and the second one is “facility management education”. After the post interviews will be finalized, the authors will reanalyze the new parameter.

## **FUTURE RESEARCH AGENDA**

After this actual analyse, the authors will start the second phase, a qualitative extended ex post office analysis of the existing profit statements and balance sheets. This should provide more detailed data. Additional expert interviews will also take place and based on this research, hypotheses will be established. The third part – the questionnaire 2008 – will be used to validate these hypotheses. Even new statistical models describing the influence of parameters on the efficiency of FM will be created. Parallel to this research in the Austrian FM Market, the IFM Institute has done the same standardized questionnaires in Germany, Bulgaria, and Turkey. Several additional contacts have been established to bilateral cooperation for using this standardized questionnaire. All countries will be invited for cooperation.

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## **AUTHORS**

SUSTR, Friedrich, Mag.

Dissertant / Institute „IFM - Zentrum für Informations- und Facility Management“

Vienna University of Technology

Karlsplatz 13

Vienna / A-1040

Austria

Phone (incl. Country Code): +43 1 58801 42700

E-Mail: [friedrich.sustr@oenb.at](mailto:friedrich.sustr@oenb.at)

Technical and commercial training (Polytechnic and University of economics; graduated as engineer and Master of economics)

Till 2002 company officer with statutory authority of a Austrian wholesale company in the printing plant industry and 1998 formation of a branch in Hungary. Both locations (Vienna and Budapest), in the FM range, were managed by Mr. Sustr.

These tasks included local activities and an interconnection of IT systems of the two locations. Mr. Sustr took care in sum of 103 persons and an office-, storage space, of 4.000 m<sup>2</sup> net.

Since 2004, Mr. Sustr worked as a FM Controller adviser and since 2006 Branch Controller in the Austrian-Central-Bank. The department take care in sum of 905 persons and a space of 96.563 m<sup>2</sup> net, at three buildings. The FM tasks are partly fulfilled by own staff and by a general contractor, who is contractually fixed.

Starting in 2007 a phd programme of social and economic affairs (DSocEcSc) at the Institute „IFM - Zentrum für Informations- und Facility Management“, Vienna University of Technology, Karlsplatz 13, A-1040 Vienna



REDLEIN, Alexander Prof. Dr. (co-author)

Professor / Institute „IFM - Zentrum für Informations- und Facility Management“

Vienna University of Technology

Karlsplatz 13

Vienna / A-1040

Austria

Phone (incl. Country Code): +43 1 58801 42700

E-Mail: [redlein@tuwien.ac.at](mailto:redlein@tuwien.ac.at)

Dr. Alexander Redlein is a.o. Univ. Prof. for FM at the Viennese Technical University. After his interdisciplinary studies at the Viennese Technical University and at the University of Economics and Business Administration, he is now engaged in research, education and consultation in the area of FM. He is head of the Centre of Information- und Facility Management (IFM) at the Viennese Technical University. Apart from his research activities, he is responsible for the technology transfer between the university and Central European companies.