Table of Contents

RESEARCH ARTICLES

1 Improving Internal Supply Chain Collaboration by Increasing Information-Processing Capacity: The Role of Enterprise Information Systems
Ana L. Rosado Feger, Ohio University College of Business, USA

13 Is it Really so ‘Strategic’? Motivational Factors for Investing in Enterprise Systems: A Survey
Przemysław Lech, University of Gdańsk, Poland

23 A McKinsey 7S Model-Based Framework for ERP Readiness Assessment
Payam Hanafizadeh, Allemeh Tabataba’i University of Tehran, Iran
Ahad Zare Ravasan, Allemeh Tabataba’i University of Tehran, Iran

64 Ontology-Based Knowledge Management for Enterprise Systems
Mohammad Nazir Ahmad, Universiti Teknologi Malaysia, Malaysia
Nor Hidayati Zakaria, Universiti Teknologi Malaysia, Malaysia
Darshana Sedera, Queensland University of Technology, Australia
Is it Really so ‘Strategic’?
Motivational Factors for Investing in Enterprise Systems:
A Survey

Przemysław Lech, University of Gdańsk, Poland

ABSTRACT

This paper presents empirical research on motivational factors for investing in Enterprise Systems (ES), based on the survey conducted among project leaders. The results show that enterprises make investments in ES mostly to increase operational efficiency, provide managers with more accurate information and, which is interesting, to be able to continue the operations on the current level. Almost one third of examined enterprises indicated the replacement of an inefficient IT infrastructure with a new one enabling smooth operation of current business processes as the most important motivational factor for investments. The results of the research presented in this paper may help to understand the productivity paradox as they prove that many enterprises treat IT as a commodity rather than a strategic asset that generates significant business gains.

Keywords: Enterprise Systems, Investment Decisions, IT Investment Motivational Factors, Reasons for Investing in IT, Survey

INTRODUCTION

A lot has been said about the strategic role of information technology and its ability to create competitive advantage (see, e.g., Byrd et al., 2006; Clemons & Webber, 1990; Kaplan & Norton, 2004; Powell & Dent-Micaleff, 1997). According to many authors, IT investments are supposed to be justified mostly if they enable the achievement of strategic goals (Benson et al., 2004; Kaplan & Norton, 2004; Powell & Dent-Micaleff, 1997) or deep organizational changes (Ashurst & Doherty, 2003; Davenport, 1993; Ward & Elvin, 1999). Only then, say the mentioned authors, will IT investment lead to substantial value creation. This way of thinking about IT investment is well grounded in MIS theory and supported by case studies from practice (Dhillon, 2005; Lech, 2007).

On the other hand authors studying the ‘productivity paradox’ phenomenon (Dedrick et al., 2003) found no positive correlation between IT spending and firms’ profitability. Although such positive relationship was discovered between IT investments and labour productivity as well as consumer welfare (lower prices, better service) (Hitt & Brynjolfsson, 1996), the enterprises should rather be interested in increasing profitability or shareholder value.
The question arises, why all enterprises around the world still perform massive investments in IT if this does not yield to any of the above.

Porter (1980) pointed out, that under assumption that markets are effective, without substantial barriers of entry, no enterprise can gain the long-lasting competitive advantage as its temporary success would be soon copied by the competition. Following that conclusion Carr (2003) pointed out that as IT is a freely accessible good, and a way it is used by one enterprise can be copied by the others, competitive advantage gained with the use of IT will be temporary. Although Carr was criticized for lack of evidence for his conclusions, several other authors support the temporary nature of IT related competitive advantage (D’Souza & Mukherjee, 2004; Stathopoulos & Dehning, 2000).

If the relation between the IT spending and firm’s productivity is ambiguous and the gain of competitive advantage through IT is rare, the questions arise, what makes the enterprises invest in IT and what are their expectations with regard to these investments.

To answer the above questions 28 Enterprise System implementation projects are examined in this paper to find out what motivational factors made the decision makers to undertake them.

**Reasons for IT Investments: Literature Review and Discussion**

Many authors take a stance that an investment in IT is justified only if it supports the achievement of a competitive advantage (Clemons, 1987; McFarlan, 1984; Porter & Millar, 1985) or at least is a mean of performing substantial organizational changes. The second is regarded to be the basic condition for IT profitability (Ashurst & Doherty, 2003; Benson et al., 2004; Devaraj & Kohli, 2002; Marchand, 2000; Willcocks & Greaser, 2001). On the other hand research on productivity paradox shows mixed evidence regarding correlation between IT spending and performance, not to mention profitability (De-drick et al., 2003; Hitt & Brynjolfsson, 1996).

If the enterprises continue massive IT investments for more than two decades, not facing the radical improvement of their financial indicators in the same time, one should allow a hypothesis that there are some other motivational factors for doing so. In other words it seems probable that IT is needed in the enterprises even though it neither yields to competitive advantage, nor supports organizational changes which increase the firm’s profitability.

Bacon (1992), examining decision criteria in selecting information systems investments has grouped them in 3 categories:

- Financial
- Management
- Development

Each of them with assigned 3 to 6 subcategories.

The decision criterion used for the evaluation of a planned IT investment is a derivative of a motivational factor that drives the decision to invest. For example: if a decision maker uses the NPV method, it is clear that he/she expects the investment to be profitable. Thus the increase in the firm’s profitability would be his/her motivational factor to invest.

Having that in mind, one should be able to map the above decision criteria with the motivational factors for investment which these criteria represent. Using financial criteria, such as discounted cash flow or payback methods means that the decision makers would like to obtain positive profitability out of the IT investment. A look at the management criteria presented by Bacon results in a conclusion that they can be divided into two types:

- ‘Support business objectives’, ‘support management decision making’ and ‘probability of achieving benefits’ reflect the proactive motivation for IT investment.
- ‘Response to competitive systems’ and ‘legal requirements’ reflect reactive motivation.
In other words: when decision makers use the criteria from the first group, it means that their motivation to invest in IT comes from the need to significantly improve the business measures in their organization. This type of investment follows the paradigm of the strategic role of IT as an enabler of organizational changes.

However, if decision makers use ‘response to competitive systems’ or ‘legal requirements’ as a major criterion for IT investment evaluation, the main goal they want to achieve is rather to maintain the status quo than to achieve a massive increase in any of the enterprise’s key performance indicators. Also one of the three technical criteria: ‘technical/systems requirements’ suggests the reactive motivation. Bacon names the investments done according to these criteria as ‘mandatory’ or must-do projects. Obviously, as the main goal of such investments is to maintain the status-quo or catch-up with the competition to remain on the market, it would be unreasonable to expect them to increase the productivity or profitability of an enterprise.

Also a survey made by Suwardy et al. (2003) does not support the hypothesis that the main reasons for IT investment are achievement of strategic advantage or process redesign. According to this survey the most common motivational factor for IT investment is to increase the operating efficiency.

Obtaining competitive advantage is equally common to such factors as meeting customer expectations, reducing costs or providing better information. The authors conclude that ‘IT investments are still predominantly about doing the same things better’. Such investments, if done correctly, should have a positive impact on profitability, however less significant than the strategic ones.

Summing up the above discussion, the motivational factors for IT investment can be grouped into the following categories:

- **Strategy oriented** – including such factors as:
  - Achievement of a competitive advantage,
  - Support of strategic goals,
  - Business processes reorganization.
- **Operational processes oriented** – including:
  - Cost reduction,
  - Process automation,
  - Ability to provide better information,
  - IT infrastructure optimization.
- **Must-do/obligatory** – including all situations, where a project has to be done for the reasons lying:
  - Outside the organization:
    - Due to legal requirements,
    - To catch up with the competition,
    - Because customers expect it.
  - Inside the organization:
    - Due to technical reasons (replacement of the old IT infrastructure),
    - Due to organizational reasons (current IT infrastructure is incapable of supporting the organizational growth).

The knowledge about the enterprises’ motivation to invest in IT may help to understand so called ‘productivity paradox’ phenomenon. Productivity paradox may be caused by several reasons, both on the macro and micro level. First of all, on the macro level, all initiatives that lead to the competitive advantage would be sooner or later copied by the competitors (Dehning et al., 2005). On the level of a particular enterprise there can also be certain reasons why IT investments do not increase the profitability and market value. One of them, extensively discussed in the literature (Powell & Dent-Micallef, 1997; Statopoulos & Dehning, 2000; Willcocks & Graeser, 2001) is the unsuccessful launching of strategy oriented IT initiatives.

There might be also another reason, not so stressed in the IT literature – that the enterprises consciously and purposefully carry out IT investments that do not lead to significant increase in financial performance. The possible reasons for doing so were listed under ‘must-do’ category in the classification above. Also some operational processes oriented projects may not result in significant improvements of an enterprise’s overall performance.
In the following sections a study on motivational factors for investments in IT will be presented.

**Research Methodology**

The goal of this paper is to determine the motivational factors for investments in IT on the basis of Enterprise Systems (ES) implementations in Poland. To achieve this goal the following research question was posed:

RQ: What are the motivational factors for launching of an Enterprise System implementation?

A survey based on e-mail questionnaire was chosen as a research method. The motivational factors, included in the questionnaire, were prepared on the basis of Suwardy et al. (2003). The questionnaire was tested by 3 project managers and the list of the motivational factors was modified according to their remarks. The initial list of motivational factors, presented by Suwardy et al. (2003) was as follows:

- To keep up with competitors
- To provide IT infrastructure
- To meet customers’ expectations
- To reduce cost
- To provide better information to the management
- To obtain a competitive advantage
- To increase operating efficiency
- To align IT with company’s objectives

After the analysis, made by the project managers from the focus group and the author, the following factors were altered:

- To provide IT infrastructure – all IT projects provide IT infrastructure of some kind, so this factor was considered as too general. A change was made to: ‘To replace an inefficient IT infrastructure with a new one – the current infrastructure did not enable carrying out of current business processes’. This motivational factor reflects the ‘must-do’ motivation from inside of the organization.
- To reduce cost – was also considered as too general and overlapping with the other factors. The cost reduction due to the business change is included in the ‘operating efficiency increase’ factor. Consequently ‘To reduce cost of IT management’ factor was introduced to reflect the cost reductions on the technical side of the project.
- Furthermore the factor: ‘to increase operating efficiency’ was divided into two more specific ones:
  - To increase operating efficiency by business processes redesign,
  - To increase operating efficiency by business processes automation.

Since the ‘provide better information’ was included in the original list, this division reflected the Zuboff (1988) view on the IT role in the organization.

- The factor ‘To align IT with company’s objectives’ was considered to be unclear to the focus group as most of the possible company’s objectives were stated explicitly in the other factors (ex. to reduce cost, increase efficiency, gain competitive advantage). Thus this factor was excluded from the list.

After carrying out of the above-mentioned changes the list was considered to be satisfactory by the focus group. A possibility to add additional factors was also provided in the questionnaire.

The respondents were asked to rate each of the motivational factors on a scale from 1 to 5. A qualitative label was assigned to each rank to avoid misinterpretations:

1. Unimportant
2. Little important
3. Neutral (neither important nor unimportant)
4. Very important
5. Most important
Research Sample

A population for the survey was defined as ‘the enterprises that made a major ES investment in the last 5 years.’ As there is no official list of such enterprises available, a search was made on the web sites of Enterprise Systems’ providers and their implementing partners for references. The 22 web sites of SAP, IFS, Oracle and Microsoft Dynamics vendors/implementing enterprises were subject to examination. Additionally a query was made among the professionals from the local consulting enterprises as well doctoral studies candidates, personally known to the author. As a result the overall number of 138 enterprises was identified. An e-mail questionnaire was sent to these enterprises with the cover letter, asking decision-makers (project managers or steering committee members) for a response. If an e-mail address of such a person was known, the questionnaire was sent to this person directly, otherwise it was sent to the general e-mail address of an enterprise. The total number of 28 enterprises responded to the survey and the majority of the respondents (20 out of 28) played the decision-making role in their projects, being either the sponsor, member of the steering committee or the project manager. The other positions were: team member (3), persons not involved personally in the project (3), free-lance consultant supporting the steering committee (1) and IT department specialist (1).

Research Results

The distribution of the motivational factors rated as the most important (rank 5) sorted by the frequency of occurrence is shown in Table 1.

The motivational factor rated as the most important by the largest number of enterprises was replacement of an inefficient IT infrastructure. This factor suggests a ‘must-do’ type of investment, which main goal would be to sustain the company’s ability to operate rather than improve its operations significantly. The operational improvement related motivational factors were ranked 2 and 3, while the strategic as well as the other ‘must-do’ ones hold following positions.

The motivational factors’ average ranks are shown in Table 2.

As one can see the highest average ranks are assigned to the factors representing the operational improvement. They are followed by the ‘must-do’ motivational factor which is replacement of inefficient IT infrastructure. The strategic motivational factors and the other ‘must-do’ ones still hold further positions. The first four positions are held by the same set of motivational factors as above, but the sequence in this set has changed in favor of the increase in operating efficiency. The possible explanation of this fact is as follows: The ‘most important’ motivational factor expresses the main reason for undertaking the IT project, while the aver-

<table>
<thead>
<tr>
<th>Motivational Factor</th>
<th>Frequency</th>
<th>Position</th>
<th>%of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>To replace the inefficient IT infrastructure with a new one – the current infrastructure did not enable carrying out of current business processes</td>
<td>9</td>
<td>1</td>
<td>32.14</td>
</tr>
<tr>
<td>To increase operating efficiency by business processes redesign</td>
<td>6</td>
<td>2</td>
<td>21.43</td>
</tr>
<tr>
<td>To provide better information to management</td>
<td>6</td>
<td>2</td>
<td>21.43</td>
</tr>
<tr>
<td>To increase operating efficiency by business processes automation</td>
<td>5</td>
<td>3</td>
<td>17.86</td>
</tr>
<tr>
<td>To obtain a competitive advantage</td>
<td>3</td>
<td>4</td>
<td>10.71</td>
</tr>
<tr>
<td>To reduce cost of IT management’</td>
<td>2</td>
<td>5</td>
<td>7.14</td>
</tr>
<tr>
<td>To meet customer expectations</td>
<td>1</td>
<td>6</td>
<td>3.57</td>
</tr>
<tr>
<td>Other – to integrate the systems of a holding</td>
<td>1</td>
<td>6</td>
<td>3.57</td>
</tr>
<tr>
<td>To keep up with competitors</td>
<td>0</td>
<td>7</td>
<td>-</td>
</tr>
</tbody>
</table>
The average rank of the motivational factor shows its mean importance to the decision-makers and includes their ‘side effect’ expectations. For example: no matter what the primary reason for undertaking an ES implementation project is, one would expect obtaining better information and (possibly) automation of some of the processes. Consequently, these two motivational factors would get high (but not the highest) rank. Thus the ‘most important’ motivational factor distribution represents the primary motivation for investment, while the average rank represents the resultant of the primary and secondary motivational factors. This assumption is supported by the frequency of use of the ‘most important’ motivational factor by the respondents, shown in Table 3.

More than a half of the respondents indicated just one the ‘most important’ motivational factor and the maximum number of factors ranked as ‘most important’ in one project was 3. This fact supports the assumption that the distribution of the ‘most important’ motivational factor may be used as a measure of the primary motivation for investment.

Having this in mind one can draw the following conclusions from the data presented above in this section.

High position of the ‘increase operating efficiency by business process redesign’ and ‘provide better information to the management’ factors both, in the ‘most important’ factor distribution and the average rank suggests that these are the overall most important motivational factors. Together they constitute a primary reason for 42.86% of projects examined and each of them is characterized by the second highest average rank. The ‘increase operating

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### Table 2. Motivational factors average rank

<table>
<thead>
<tr>
<th>Motivational Factor</th>
<th>Average Rank</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase operating efficiency by business processes automation</td>
<td>4.04</td>
<td>1</td>
</tr>
<tr>
<td>To increase operating efficiency by business processes redesign</td>
<td>3.93</td>
<td>2</td>
</tr>
<tr>
<td>To provide better information to management</td>
<td>3.93</td>
<td>2</td>
</tr>
<tr>
<td>To replace the inefficient IT infrastructure with a new one - the current infrastructure did not enable carrying out of current business processes</td>
<td>3.79</td>
<td>3</td>
</tr>
<tr>
<td>To obtain a competitive advantage</td>
<td>3.61</td>
<td>4</td>
</tr>
<tr>
<td>To meet customer expectations</td>
<td>3.18</td>
<td>5</td>
</tr>
<tr>
<td>To keep up with competitors</td>
<td>2.86</td>
<td>6</td>
</tr>
<tr>
<td>To reduce cost of IT management</td>
<td>2.75</td>
<td>7</td>
</tr>
<tr>
<td>Other – to integrate the systems of a holding</td>
<td>0.32</td>
<td>8</td>
</tr>
</tbody>
</table>

### Table 3. ‘Most important’ factor use

<table>
<thead>
<tr>
<th>Number of the ‘Most Important’ Motivational Factors Indicated</th>
<th>Number of Projects</th>
<th>% of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/a</td>
<td>1</td>
<td>3.57</td>
</tr>
<tr>
<td>0</td>
<td>4</td>
<td>14.29</td>
</tr>
<tr>
<td>1</td>
<td>16</td>
<td>57.14</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>14.29</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>10.71</td>
</tr>
</tbody>
</table>
efficiency by business processes automation’ is the most common secondary motivational factor as it is assigned with the highest average rank but is considered as the ‘most important’ only in case of 17,86 of projects under examination. The interpretation of this fact is that enterprises expect business process automation when they launch the new ES project, but this is not the main reason for the investment: business process automation is expected as a ‘side effect’ of a project.

The factor most frequently indicated as the main reason for investment was ‘To replace the inefficient IT infrastructure with a new one – the current infrastructure did not enable carrying out of current business processes’. It was the primary reason for investments in almost one third of the projects under examination, its average rank was, however, lower than the rank assigned to the motivational factors discussed above. The possible explanation of this fact lies in the ‘must do’ character of this factor which imposes its binary interpretation: an enterprise either cannot go any further with the current IT systems and it has to invest at once or it does not have a problem at all.

It can be notified in case of projects where the respondents indicated just one the ‘most important’ factor.

Among the projects in case of which just a single motivational factor (Table 4) was indicated as the ‘most important’ one, the ‘replace inefficient IT infrastructure’ was the most frequent choice. It is important to notice, that in 6 out of 9 cases where this motivational factor was considered to be the ‘most important’, it was – at the same time - the only one.

**CONCLUSION**

The research question posed in this paper sounded: What are the motivational factors for launching of an Enterprise System implementation?

Basing on the survey conducted on the sample of 28 Enterprise Systems implementation projects the following conclusions occur:

1. The most common primary motivational factor for ES implementation was: ‘To replace inefficient IT infrastructure with a new one – the current infrastructure did not enable carrying out of current business processes’. It was considered to be the most important motivational factor in almost one third of the projects under examination.

2. The highest average rank was assigned to the motivational factors related to the operational efficiency increase and provision of better information.

3. Motivational factors related to the strategy of an organization hold further positions in each of the classifications.

To some extent, the first of the findings contradicts the paradigms presented in the mainstream IT literature, stating that the IT
plays a strategic role in the organization. One third of the enterprises examined in the survey treated IT rather as a commodity, necessary to maintain the status quo. Furthermore, these enterprises were making new IT investments to be able to perform on exactly the same level as before the investment. New investments were made to overcome the burden of current IT infrastructure and be able to continue the current activities. This phenomenon of IT commoditizing should be taken into consideration in future research on IT role in management and the productivity paradox.

The rest of the findings, suggesting that IT investments are made to increase the operating efficiency rather than support sophisticated strategic plans are consistent with a previous research (Suwardy et al., 2003). Of course the findings from this research do not deny the possibility of using IT to support strategic goals and achieve competitive advantage. In fact combining them with the previous research may explain the productivity paradox:

1. If the assumption, common in the literature, that IT leads to significant economic outcome only if used to support strategic goals or organizational changes, is considered to be true.
2. At the same time (basing on this research): a. Such use of IT is rare, b. Most enterprises use IT as a commodity which enables day-to-day operations or for increasing in the operational efficiency.
3. One should not expect to see the correlation between IT spending and efficiency increase for the whole economy or industry.

Summing up the conclusions, the research presented in this paper supports the thesis that IT investments are intentionally conducted for different reasons, such as:

- Maintaining the status quo,
- Improving the operations,
- Gaining strategic goals.

The role of the IT in the organizations may differ from case to case and can be placed on the continuum from ‘commodity’ to ‘strategic asset’.

Limitations of the Study and Further Research

The sample for the above study was not representative as there was no possibility to identify the whole population of the enterprises that recently completed the ES implementation. Therefore it is not justified to generalize the results of this study to all ES implementations. In case it is possible, a study on a larger sample should be carried out to confirm the results of this research. However, the sample covered all enterprises listed on the reference lists of the major ES providers and thus, the results are unlikely to be subject to a significant bias. The second limitation is associated with the fact that only implementations of one type, namely Enterprise Systems, were examined. The motivational factors for investment in different pieces of IT might vary significantly and so the conclusions drawn from this research must be narrowed to the decisions on investments in Enterprise Systems only. An interesting direction for further research would be examination of the correlation between the maturity/purpose of an IT element and the motivational factors for investment. One could expect to observe a process of commoditizing of an IT element as it matures and is used by the increasing number of enterprises.

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