

A Study of Information Systems Investment Evaluation in the Greek Banking Sector

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ABSTRACT

This article describes the idiosyncrasies towards information systems investment evaluation approaches in the emerging market of Greece. Five case studies are examined from the banking industry, each of them representing a different positioning in the market. The article discusses forms of formal and informal investment evaluation techniques used, relating them with the business and strategic concept of information systems and formulating a matrix that positions the organizations based on the techniques used and market maturity. The research highlights how the differentiation towards the concept of information systems investment evaluation correlates with market maturity and industry goals. © 2008 Wiley Periodicals, Inc.

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1. INTRODUCTION

The increased introduction of new information systems and technologies (IS/IT) and their utilisation throughout various organizational structures in the last decade has led to the need for evaluation of these investments particularly in the light of escalating costs. Evaluation can be considered as a process to diagnose malfunctions and to suggest appropriate remedies as well as contributing to the planning of organizational activities (Hirschheim & Smithson, 1988), where the gathered results can be a very useful tool for planning and decision-making leading trends and practices in organizational management levels.

Most companies are conducting their IS/IT evaluations in the feasibility analysis stage and after implementation. Moreover, formal evaluation of complex IS projects often tend to take into consideration only quantifiable costs and ignore many intangible ones (Avgerou, 1995). The returns of such IS investments are spread throughout the organization, affecting not only production but also organizational procedures and practices. It appears there is no

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“silver bullet” for overall evaluation of IS, but only techniques to evaluate fragmented parts and often delivering fragmented pictures of the performance of the system.

Academics recognize the complex nature of IS evaluation. Some fundamental difficulties have always to be taken into consideration when assessing an IS, limiting the scope of an evaluation, and thus creating the need for a formal applicable evaluation process being able to overcome those obstacles. When implementing IS/IT systems in organizations (Irani, Ezingard, & Race, 1999), returns of IS investments may be tangible or intangible, and it is very difficult to predict the uncertainty of a developing project (Land, 1982). In addition, according to Symons (1991), IS are complex social systems, affecting organizational, economical, and social sides of the organization, while evaluation is always affected by subjective judgements, assumptions, criteria and time horizon as well as bias of information. These are a few of the difficulties limiting the scope of an evaluation, creating the need for a formal applicable evaluation process that is able to overcome such obstacles.

Given the above context, it is important not only to realize the potential benefits of evaluation feedback on an IS, but to identify the circumstances under which an organization will be benefited the most from such a practice. The limited usage of the practice has been reasoned from the aforementioned drawbacks, though it is not fully understood how the organizational lifecycle is connected to the practice itself. Evaluation of IS/IT is one of the most neglected practices in information systems development in small markets like Greece (Avgerou & Doukidis, 1993), as well as in large ones like the UK (Hochstrasser & Griffiths, 1991).

This article is divided into four sections and a discussion along with some concluding points. This first section briefly introduces the research and its objectives. The next section is a review of literature surrounding the concept of IS/IT investment evaluation, along with associated risks and benefits. The third section examines the research methodology adopted for this research, justifying why it has been chosen as a method and explaining the structure of the research. The fourth section presents five case studies along with an analysis of the findings. Finally, a discussion about the key research findings examines concepts discovered and reports additional issues that have risen in the context of IS investment evaluation in the Greek context, and the article concludes by outlining some future research directions.

2. RESEARCH CONTEXT: THE IMPORTANCE OF IS EVALUATION

It is often common for individuals within the organization who are affected by the introduction of a new information system to conduct their own “informal” evaluation (Angell & Smithson, 1991; Symons, 1991). This is only natural as an automatic response to the changes that the new system may have created and the effect it may have on the company and individuals. Informal evaluation is important and can reveal many aspects of the system under evaluation, though the majority of researchers (Farbey, Land, & Target, 1995; Symons, 1991; Willcocks, 1994) agree that it is important for the success of a project and the company itself, to conduct a formal evaluation.

Formal evaluation refers to “hard” quantitative approaches that are based on a “scientific approach” (i.e., those primarily focused on justifying investments using accounting principles such as economic ratio or discounting techniques) and “soft,” qualitative approaches that are based on interpretation (such as taking a strategic perspective that is largely based on senior management experience and judgement). However, Serafeimidis and Smithson (1995) report that the adoption of the “scientific” method is inadequate for the evaluation

of IS due to the complex nature of information systems. It seems, though, that a business driven evaluation, taking into consideration different stakeholders' perspectives, organizational values, as well as sociopolitical structures, is more suitable for the assessment of complex IS projects. According to Markus (1983), people resist IS due to their own internal factors because of poor system design and the interaction of specific system design features. Therefore, evaluation ultimately should be able to find agreement on the worth of a social action, not a method of pinning numbers on things to prove or disprove a case (Farbey et al., 1995).

Still though, the importance of formal evaluation techniques is expressed by many academics. Hirschheim and Smithson (1988) claim that the pressure for a formal evaluation procedure is a result of the drastic organizational changes associated with the introduction of a new information system. Formal evaluation, even though it lacks some elements found in "soft" approaches is supported by a number of reasons. For instance, organizational learning is of great importance, supporting the knowledge of the organization (Farbey et al., 1995; Walsam, 1993). According to Hawgood and Land (1988), evaluation and the subsequent measurement and comparison with actual achievements provides the learning experience which is necessary for the organization to improve its system evaluation and development capabilities. In addition, business intelligence can benefit from "softer" evaluation techniques, as traditional evaluation techniques may perform poorly since many of the benefits are strategic and, consequently, more difficult to quantify (Irani & Love, 2001)

Managers, because of the fast changing organizational environment, have an increased demand to control uncertain IS/IT investments. This subsequently increases the need for a formal evaluation which could provide economic, operational, and organizational benchmarks in order to assess them and support their decision making (Farbey et al., 1995). In addition, Angell and Smithson (1991) argue that from a system's perspective, evaluation is the crucial feedback function that helps managers to plan and control their investment as well as helps the organization to learn. Strassmann (1990) reports that direct benefits such as cost reduction appear quickly and clear in financial assessments, where indirect benefits, such as risk reduction, are more difficult to relate due to IT investments.

Another frequent argument for evaluation is the high investment in IT (Earl 1989; Farbey et al., 1995). Because the expenditures for IS represent a significant proportion of an organization's turnover and investment budget, the measurement of their value to the organization is a natural concern for managers. As Serafeimidis and Smithson (1995) report, senior management is seeking clear evidence of the contribution of IS towards the success of the business and the value the organizations are getting from their extensive IS/IT investments. We also have to note that IS can be regarded as capital investment or as operational expenses according to the IT strategy of the organization.

2.1 Limitations in IS Evaluation

The literature reviewed to this point recognizes the complex nature of IS evaluation. Some fundamental difficulties have always to be taken into consideration when assessing an IS. These difficulties are limiting the scope of an evaluation, creating the need for a formal, applicable evaluation process being able to overcome those obstacles.

The nature of the expected benefits of an IT investment can be distinguished as "tangible" and "intangible" (Powell, 1992). Tangible ones are easier to recognize and assess with formal evaluation practices. Intangible benefits are more difficult to be recognized and measured. According to Farbey et al. (1995) benefits such as better communication or better decision

making derived from accurate and updated information are almost impossible to measure. The problem with benefits assessment is to place a value on information itself (Angell & Smithson, 1991). Thus, most of the time, evaluators are confined to measure what is easy to measure, or what is most likely to produce the desired result.

Information systems are regarded as complex social systems interacting with various elements and surroundings of an organization (Symons, 1991). The economic, social, and organizational structure of an organization is greatly affected by the introduction of a new information system. It is very difficult to determine how those structures are going to be affected as well as what positive or negative implications the new system may bring to the organization. According to Farbey et al. (1995), after the introduction of a new system there are subsequent and higher order effects that interact with each other to give rise to quite unpredictable results or emergent effects. Farbey further implies that it is usually difficult to recognize these side effects that have been developed due to high degree of interdependence.

Evaluation is also a highly political activity with emerging implications, where conflicts of interest often emerge within as well as between stakeholder groups (Farbey et al., 1995). Individuals, groups and functions have divergent perspectives on the same IS, according to their perspectives and roles in the organization. Each stakeholder may use IS evaluation as a mode to strengthen his/her interest and to influence others. Where there are conflicts in hidden goals, IS evaluation becomes an arena for organizational politics (Symons, 1991). This indicates one more time the sensitive and complex nature of information systems as well as the interaction of different elements of an organization with the IS in question. In well-publicized cases, such as the London Ambulance Service and the London Stock Exchange, politics had a crucial role in the development and the resultant benefits of a new system.

Another point worth mentioning is that evaluation as a process is carried out by certain people at a particular time using criteria based on specific assumptions leading to bias of information. According to Symons (1991) in conceptual terms, evaluation is never value-free, referring to the subjectivity of the gathered data and results. Smithson and Hirschheim (1988) report that in most cases of IS evaluation, people are stressed about delivering answers that are actually predetermining the results. This comes along with the political pressures for a successful IS for the organization. Furthermore, Serafeimidis and Smithson (1995) supplement that evaluation apart from being influenced by the human bias of the evaluator is also limited by his/her mental inability to capture and understand the rich and complex context of the situation. Evaluators, by simplifying reality, provide a partial and subjective view of a situation in a specific point in time (*ibid*).

Also, the planning time horizon, the period for current plans to be implemented, may often be longer than the forecasting horizon. Therefore, it is impossible to forecast with any accuracy what the world will be like at the time the system is to be implemented (Land, 1982). Land's analysis of the uncertainty which surrounds the development of a new IS has some very interesting findings demonstrating the complexity of the relationship between the developing system and its targeting environment.

It is also important to keep in mind that, in practice, post implementation evaluation is rarely carried out and where it is, it is performed soon after implementation by the system developers purely as a project closure activity (Blacker & Brown, 1988). Symons (1991) suggests that the reason for this phenomenon is the feeling that a working system is sufficient reward in itself and that the work involved in post audit is not really "productive," along with the risk that the evaluation might not show a cost effective or a desired result.

2.2 IS/IT Investment Evaluation in Emerging Economies

Emerging economies are low-income, rapid-growth countries using economic liberalization as their primary engine of growth. According to Arnold and Quelch (1998), an emerging economy can be defined as a country that satisfies two criteria: the adoption of a free-market system as well as government policies favouring economic liberalization and a rapid pace of economic development. In this context, research by Hoskisson, Eden, Ming, & Wright (2000) identifies Greece as being in the upper level of emerging economies.

The use of IS/IT investment evaluation in Greece is often seen as a trivial procedure in the private sector. The banking sector is one of the most powerful sectors of the Greek economy and the banks have made heavy investments in the IS/IT arena. Privatization is seen as one means of placing pressure on former public enterprises to effect major changes in their strategies as they adapt to the competitive pressures of a market-based and open economy (Rondinelli & Vastag, 1998). Until the early 1990s, the Greek banking system was regulated by state laws; interest rates, terms of lending, and many other issues of banking established and maintained by the state. From the mid 1990s, liberalization was introduced and gradually the Greek banking system has made significant progress in this direction. At the same time, the state decided to privatize gradually all the Greek state banks and more than 80% have been privatized up to now (i.e., Bank of Macedonia and Thrace, Bank of Central Greece, Bank of Crete, Ioniki Bank, Hellenic Industrial Development Bank, Emporiki Bank, Geniki Bank) and by the end of 2008 it is anticipated that the rest (i.e., Agricultural Bank of Greece and Post Bank) will follow suit. Therefore, it is fair to suggest that currently (as of 2007) the Greek banking sector is nearly fully privatized.

3. RESEARCH DESIGN

The objectives of this research are to determine how and to what extent Greek banks deal with the concepts and procedures of IS/IT investment evaluation. Part of the objectives is to describe the methods used, their impact, and the implications of the role IS/IT investment evaluation plays. In order to do so, we need to examine the role of IS/IT in Greek banks as a whole as well as the decision-making procedures. Due to the complex nature of IS, and IS/IT investment evaluation, a qualitative approach based on case studies was adopted for this research. Case study research is the most common qualitative method used in information systems (Orlikowski & Baroudi, 1991; Yin, 2002), along with semistructured interviews, observation, and examination of documentation (Denzin, 1978; Saunders, Lewis, Thornhill, 2000; Yin, 2002). The case study research methodology is particularly well-suited to IS research because the object of the discipline is the study of information systems in organizations and the “interest is shifted to organizational rather than technical issues” (Benbasat, Goldstein, & Mead, 1987). Conversely, from a practical perspective the findings from case study based research will be of more interest and direct relevance to business managers and has the potential to inform future research aimed at solving “real world” IS/IT issues.

Therefore, the overall approach adopted for this research is of qualitative nature, combining case study research with a literature review (Yin, 2002). Qualitative research presumes that multiple ways of interpreting experiences are available through interacting with others and that it is the meaning of our experiences that constitutes reality (Bogdan & Biklen, 1992). Qualitative data are most often words and actions captured expressed by language and behavior that allow the researcher to examine the facts and interpret them together with

other factors surrounding the target (Maykut & Morehouse, 1994; Yin, 2002). Moreover, this type of research has been chosen because the nature of IS/IT evaluation itself is a rather complex one while the relevant research in the field is limited. A brief description of the research methods used is as follows.

- *Interviews*: in-depth and semi-structured interviews using open-ended questions with the IT directors of five Greek banks.
- *Documentation*: Company documents were gathered and examined in order to acquire more knowledge about the activities of each bank and to support findings from the observations and interviews. This is subject to the documents availability, as well as their sensitivity, and included company documents, newspaper articles and internet references.
- *Observation*: involving observation of the companies' facilities and practices, as well as conversations, between various employees. This involved conversation directed from the IT directors to subordinate employees as well as open conversation with a number of other middle and operational level employees.

The above-mentioned approach is consistent with guidelines for qualitative research suggested by researchers such as Baskerville (1999) and Miles and Huberman (1994). They propose the use of *in-depth interviews* to collect and examine the following data: people's responses, opinions, perceptions, and knowledge; collection of *written documents* to examine and study organizational records and documents, reports, official publications, questionnaires, and surveys; and *direct observation to identify* detailed descriptions of people's activities, behaviors, actions, and interactions within and around the organization.

In total, five IT directors were formally interviewed for an average of an hour and a half each during the period March to August 2004. The conduct of the interviews was sometimes problematic though, due to sensitivity of the data as well as the secretive mentality of the managers being wary of giving detailed information, even though the interviews were evidently for research purposes.

The interviews were based on an in-depth structured questionnaire with open ended questions followed by supplementary discussions of general concerns about IT and banking. The interviews were based on a flexible topic guide, helping to maintain consistency across the interviews. Apart from the formal interviews with key stakeholders, the researchers had the opportunity to speak with other employees involved in day to day operations, including software development and maintenance in order to gain a more realistic perspective about the daily operations and the impact of IS/IT on the organization. On the other hand, observations were brief and limited to around half a working day spent in each organization for the purpose of this research. However, they enabled the researchers to understand the research area to an extent which would not have been possible if they had been only limited to the insights of others obtained through interviews (Patton, 2002). Furthermore, combining the interviews with observation and a review of bank documentation allowed the researchers to verify and validate the empirical finding through triangulation (Denzin, 1978; Ragin, 1987; Saunders et al., 2000; Yin, 2002).

Follow-up structured interviews were thereafter arranged with the same employees in order to confirm the results and clarify any unclear information (Yin, 2002). The follow-up interviews were brief (between 20 and 30 minutes) and started with the interviewer summarizing the key findings from the main interview, which was followed by a questioning phase to address any unclear information or themes that may have been overlooked during

the first interview. This offered the opportunity for both the interviewer and interviewee to verify the information disclosed during the interviews (Cresswell, 1994; Denzin, 1978; Yin, 2002).

Part of the research involved investigating the economic and political context in which the examined organizations are operating. The next section concentrates on those issues and highlights the importance and influence of this context on the organization's performance and its perception on IS/IT investment evaluation.

4. IS/IT EVALUATION IN THE GREEK BANKING CONTEXT: FIVE CASE STUDIES

This section describes the empirical findings. The analysis is based on the following thematic frames: business and IT strategic planning as well as the alignment of the two; the nature and scope of IS/IT investments; IS/IT decision-making structure and procedures; and the scope and perspective of IS/IT evaluation.

4.1 Case Study 1: Bank A

Business and IS/IT strategy

Bank A is a large organization and its business strategy is set by the board of directors according to prevailing market needs, while the role of IS/IT in the organization is very strategic and considered to be a major enabler to business strategy. The IS/IT strategy has been defined as a set of high-level guidelines, while the business strategy is actually orienting the alignment of the IS/IT strategy. Most important, IS/IT is acting as an underlining instrument supporting the business units of the organization.

Evaluation of IS/IT investments is conducted with a variety of informal and formal procedures and tools mainly at the early stages of a project. Criteria examined in approving an IT investment plan are based on costs, benefits received, and compatibility issues as well as its strategic importance.

Investments

Target of any investment is to generate benefit to the organization. Development of new information systems is targeted to increase revenues, reduce risks, and reduce costs. The information systems budget constitutes a considerable percentage of the revenues. The budget itself is settled with regard to the costs and benefits to be ultimately delivered from any additional project. The time horizon the budget is targeting is of annual basis, while its flexibility is directly related with the priorities set by the organization. The investments are financed by the bank itself, sponsors, and in case of development of specialized applications, the benefiting business units. Moreover, the annual IT budget is fragmented according to the internal needs of business units.

Decision making

The need to invest in a system is initiated by one or more business units. After gathering their requirements, the proposal is considered from the IT department in order to examine possible solutions. A structured report is prepared and according to its estimated budget is given to higher decision-making authorities. The role of the IT director in such cases is more of an investigator of the actualization of the project. He has to examine that the plan is complete and feasible as well as convince with evidence the board of the organization about the suitability of it for the specific needs.

Evaluation

Investment evaluation procedures are taking place before and after the development of a project. Formal methods to estimate the costs and expected benefits are used, focusing on feasibility studies and return on investment (ROI). Feasibility studies are conducted before any IS/IT investment decision and for large projects informal evaluations regarding less tangible benefits are conducted. Problems that usually arise during the evaluation are mainly concerned with the segmentation and realisation of costs estimation. Intangible benefits in this case are difficult to allocate although some of them are translated into quantitative values, such as time.

Post evaluation

The importance of investment evaluation for the organization is mainly concerned with targeting to coordinate the various organizational units involved in the development of a project. This means there is not much interest to evaluate a completed system that is directly delivering what it was estimated to do. Informal evaluation techniques are used, targeting further costs evaluation and maintenance. Even though most of the benefits are directly realised after the completion of the project, further evaluation may be conducted if the returns are not as expected. Moreover, the organization recognizes the importance of organizational knowledge and the importance of investment evaluation. For that reason, knowledge repository teams are formed, enhancing the learning ability of the organization and sharing the knowledge across the organizations' boundaries.

4.2 Case Study 2: Bank B*Business and IS/IT strategy*

Like Bank A, Bank B is a large organization and its business strategy is orienting the alignment of IS/IT strategy. Most important, IS/IT is acting as an underlining instrument supporting the business units of the organization. Business strategy itself is able to focus its plans through IS/IT or any other procedural instrument. The target of this alignment is to reach the business objective in the most effective way.

Investments

The nature of IS/IT investments that have been recognised by the bank is of two types. One type is seeing and using IS/IT as a tool to modernize the organization, while the other is using IS/IT as a support service to facilitate business decisions and processes that are critical for the organization.

Often, after a period of intensive use of IS/IT in large organizations, the trend is to restrict budgets related to IS/IT, so decisions regarding a new IS/IT investment have to be very carefully planned, giving emphasis on "when" and "why" an investment is done. Under this perspective, the investments are focused on IS/IT infrastructure, submitted from the IT department and business, involving the relevant business unit. On both the aforementioned perspectives on IS/IT, there is an evaluation on what, how, and why the proposed system will add value and benefits to the organization and the business goals set by it. The budget is annually estimated and distributed towards the various organizational needs. A brief estimation of Bank B's IS/IT budget would be in the region of 10 million euros.

Decision making

Because the IT infrastructure is the base upon which the business demands will have to be built, it is of great importance to be able to create groups of people from different disciplines, each of them specialized in a field needed and being able to control and coordinate big

projects. Like in Bank A, the role of Bank B's IT director is more of an investigator of the actualization of the project. He has to examine that the plan is complete and feasible as well as convince with evidence the board of the organization about the suitability of it for the specific needs.

Evaluation

IS/IT evaluation is conducted by formal committees mainly with cost and benefit analysis, while evaluation of intangible benefits is not a key priority. Moreover, IT infrastructure and development projects are evaluated by a committee formed by the IT department, while with business projects the committee is composed of people from the various business units and line managers.

Pre-evaluation is usually conducted for large projects where the costs and the future returns on investment would be equally large. In addition, prioritisation of the projects is done and when needed, vendors are selected using a formal selection process where different vendors will compete for Bank B's business. For the evaluation of a project, feasibility studies are conducted as well as other formal evaluation practices such as ROI approaches. Overall, other benefits that could be evaluated are not of great importance for the organization since their value cannot or is very difficult to be described in monetary terms. In addition, answering the question of whether the organization has received more benefits than actually intended, the IT director pointed out that approximately 90% of the projects delivered what they were meant to, while the rest (10%) were underperforming in one way or another, in which case post evaluation was conducted.

Post evaluation

The organization is not concentrating on post evaluation because the nature of Bank B's projects are such that related benefits are delivered and realised very soon after the completion of the project. Moreover, such an evaluation is regarded as resource consuming without delivering much of an insight. Though, in the cases of unsuccessful projects, post evaluation was not regarded as a needless luxury but used as a means to understand what went wrong and add value to the organizational knowledge.

4.3 Case Study 3: Bank C

Business and IS/IT strategy

Bank C was again a large organization. In the context of business strategic planning and the influence it has on IS planning, although the IT department in Bank C is not involved in the creation of the first, the role of IS/IT is to support and enhance the business plan and strategy. The outline of the IS/IT strategy is also decided from the IT department in coordination with the other various business units and their needs. However, the systems architecture, the platforms, the development strategy, as well as outsourcing policies, are set solely by the IT department.

Investments

The projects in Bank C can be differentiated into two major categories. The first is related with information systems security issues, focusing mainly on the development of disaster recovery plans as well as a disaster recovery center. The second is related with supporting decision-making systems for top managers. In the same context, Bank C is also restructuring existing clients' databases following a relational data modelling approach.

Because the first category is considered mandatory in most organizations, the focus is on the second category of projects. The target of this group of projects is to create a system following the idea of data mergence and being able to cooperate with business objects tools and analytical CRM tools. The reason for this is to focus on better decision making, customer support, customers' market segmentation and any other related data that can provide information to the bank.

The budget for the period 2004 to 2007 is around 4.5 million euros, while there was also an ongoing restructuring of the back-office with a budget of 1.2 thousand euros.

Decision making

Business plans in the bank are forwarded to the IT department which cooperates with other units in order to develop projects. The overall business plan set by the bank is for three years, while every year it is assessed and reconfirmed or amended. In addition, there is also a "steering committee" comprising of the IT director as well as other departmental directors from various business units of the bank that help schedule the annual business plan and budget. As the IT director pointed out, one of the main challenges faced during this process is the successful alignment of business strategy with IS/IT.

The unit responsible for the decision to create a project is the board of directors of the bank. For this particular case, we have to note that because the bank is a public one, the board of directors are also the shareholders representing the public sector. Formal procedures are followed in order to examine each project according to its budget level. Usually, the higher the resource demands of the project the higher the authority that needs to assess the necessity of the project.

Evaluation

According to its organizational culture (being a public sector organization), the bank does not intend to be a leader of technological achievements. Rather, Bank C prefers to avoid situations where a system is developed with a trial and error procedure. For that reason, there are no extended evaluation stages; IS/IT evaluation is limited mainly to the feasibility stage and measuring quantitative, tangible benefits.

For the evaluation of projects, formal procedures are used mainly focussing on tangible and quantitative benefits. Pre-evaluation procedures are used in order to assess the initial idea. Methods such as ROI and cost benefit analysis are used, focusing only on quantitative values. During and after the completion of a project, an IT team is created in order to train, inform, and support the users of the new system. At the same time, evaluation of the project is done in an informal manner, gathering the reaction and thoughts of the users towards the system. Also, the evaluation is mainly conducted from the business units of the bank and being focused on the performance of the distribution channel using the system and not on the performance of the system individually.

Post evaluation

There were no evident post evaluation procedures in place at Bank C. According to the IT director, a post evaluation exercise was conducted only for quantitative values for one small project that was completed in the past. It was revealed that Bank C could not afford proper post evaluation of all projects as they require resources, both in monetary terms and human resources. This, along with the restricting budgetary policy of the last years in the banking industry, does not allow the bank to proceed to further investment evaluation procedures. Currently, the IT department is conducting a purely infrastructural based IT evaluation as part of cost justification for a larger project.

4.4 Case Study 4: Bank D

Business and IS/IT strategy

Bank D is a large organization and, unlike Bank C, Bank D's IS/IT strategy is aligned with its business strategy. Part of that strategy is that the bank wants to have a technological advantage in the Greek market. The bank follows the developments of technology from one step behind, seeking something innovative but not at the cutting edge of technology, thus reducing the risks involved. There is also an existing development strategy with vendors and outsourcing. Moreover, there is also a strategy on how to cooperate with various business units. Overall, the development strategy targets to create various projects best suited for specific purposes rather than develop a big system capable of everything with medium results. This means that there are independent smaller systems designed to interact with each other as a part of a big system. For that purpose, an architecture standard exists which is modified and enhanced over time. As the IT director emphasised, the successful integration of all the modules into a unified system needs a variety of skills such as systems integration and project management skills.

Investments

The IT departmental incurs both fixed costs and new investments. For the investment, an action plan aligned with the development policy of the bank is created and followed. Among the various expenses there are also mandatory and compliance issues. Altogether, this is structuring the annual IS/IT budget as well as the plan for new investments. Overall, IS/IT is regarded as an expense where the return of investment is expected from the relevant business unit.

Moreover, mandatory or regulatory investments such as the Y2K and the EURO transition are regarded as compliance projects that cannot be avoided but where one can only minimise the relevant costs.

Decision making

The idea for a new project emerges from a business need of the organization. Two main reasons for the expression of such a need have been identified: cost reduction and various market needs. The projects themselves increase the dividend value for the shareholders; as the IT director pointed out, after all the main reason for his organization to exist is to generate revenue for the shareholders. The profit itself, from a financial perspective, increases either from cost reduction or increase in revenues, something that the IT director is called to answer.

IS/IT projects, whether big or small, are implemented only if they are adding value and addressing overall business needs. In most cases they help reduce the costs, something which is formally expressed in terms of process changes and the benefits gained regarding time, money, or any other benefit or resource. This indicates a tendency to evaluate IS/IT in terms of costs and benefits.

Evaluation

The IT director expressed the opinion that the evaluation procedures they follow are not restricted to ROI analysis for each component of the project and feasibility studies in the early stages of the systems' creation. On the other hand, evaluation of intangible benefits was regarded as time and money consuming and is preferred to be done with informal procedures.

Other cases of evaluation are concerned with "internal IT" projects, such as the development or provision of a new development tool. In such cases, the benefits would be

smaller development time, though such benefits are difficult to be expressed with evaluation procedures. Instead, informal evaluation is conducted as an internal procedure of the department to justify the decision for such an investment.

Post evaluation

Regarding the IT investment evaluation processes, focusing on post evaluation the IT director was of the opinion that formal and analytic approaches consume too much time and resources. He suggested that fragmentation of each unit's responsibilities is in some cases so extensive that evaluation exercises ultimately return with only assumptions of the true cost and benefits of IS/IT projects. In addition, the IT director was of the opinion that the investment process is too focused on accounting issues and often ignored indirect costs and benefits that were of a strategic nature. Also, the IT expenses are central for a bank's budget, while the returns on investment are distributed among the business units of the bank—although it is a common practice for these to be allocated to profitable business units rather than the ones that are seen as less profitable for the organization.

4.5 Case Study 5: Bank E

4.5.1 Business and IS/IT strategy. Bank E is part of a leading group of banks in Europe. The bank's goal is to be one of the leading banks in the Greek market and an epitome of quality and service. The business strategy is driven by the PCP group of companies and is deployed in the Greek context. The same applies for the IS/IT strategy, which is shaped entirely by the PCP Group. There is a universal strategy regarding IS/IT, applicable, with variations and adjustments to the rest of the world. Shared platforms, technologies, infrastructure, software, and vendors are used for Bank E in Greece as well as all banks belonging to the Group in the rest of Europe. In order to meet the different social and economical needs in each country, regulations are shaped to best fit each environment so that a universal IS/IT strategy is adjusted according to the local needs. An important issue to be addressed is the successful alignment between IS/IT and business strategy, something that Bank E has achieved according to its IT director.

Investments

The main challenge the bank had to face while entering the Greek market in 2000 was the extremely competitive environment. The bank deploys a number of alternative distribution channels, a breakthrough for the Greek market. Developing projects are related to security, which is always an important issue especially in banking systems and e-banking. The latter is being developed in order to transfer the provision of services from the branches to the internet, lowering costs for the bank. As the IT director pointed out, an important issue here though is the fact that the average adult may not feel so comfortable with e-banking yet. Therefore, the following years are of crucial importance for the banks seeking to develop e-banking because the acceptance of technology from the later generations is driving the market itself.

Decision making

In respect to the organizational culture and strategy, there are two main reasons affecting the decision for the development of a project in Bank E. The first is the specific time period how useful a system can be in a given instance is of great importance. Also, how and to what extent the bank is going to benefit and in what time horizon there is going to be a return on investment is important. Apart from ROI, there is always a cost and benefit analysis demonstrating what the bank might gain if the system is developed.

For the approval of an IS/IT project, the proposition has to go from the IT director to the general director and, according to the budget constraints, spending can be approved ad-hoc. The IS/IT budget is calculated once a year and is compared with the running budget. The IS/IT budget is directly related with the business units and, according to the IT director, the IT department is like the neural network of the bank. With this in mind, Bank E does not require IT to produce revenues itself but rather expects returns on the investments through the business units.

Evaluation

IS/IT investment evaluation is restricted to formal procedures and quantitative values and it is usually conducted from the business owner, the unit benefited by the project, of a project request. Target of the evaluation is to help understand how to increase the revenues while the IT department is providing an estimation of the development costs. Timing, again, is very important because the goal is to prioritize the needs to be addressed immediately and those that are not of such importance. After a month's period, the project is reexamined in order to see if the return on investment will be as expected. This procedure is known as the "follow-up" of a project.

The IT director further emphasised that the evaluation is allowing the organization to understand the actual benefits it will gain with a project. He pointed out that, at the same time, the demands of the business units are getting more conservative because the prioritization of needs for IS/IT projects is set according to the actual needs of the organization and not to supplement less essential ones.

Post evaluation

Evaluation is of great importance especially for an organization like Bank E that is trying to reach the break-even point in terms of profit and loss. In bank E, small project are avoided, favoring development of large projects that are going to create revenues as soon as possible. The policy of the bank from inception is big investments for short periods of time, with the smallest possible time horizon for return on investments. According to the IT director, overall post evaluation is restricted to tangible benefits and value recognition. The importance of intangible benefits is somewhat recognized, though not perceived as important enough to withhold recourses needed elsewhere.

4.6 Case Summary

All five banks examined were using "hard," quantitative IS evaluation methods with formal procedures in the early stages of a project. In addition, the organizations are concentrating on actual quantitative results, characterizing as "very difficult and resource consuming" any further evaluation for intangible benefits. Moreover, intangible benefits were considered as subjective and resource contestants in the organization prevented management from exploring alternative means to evaluate intangible benefits. However, all organizations confidently supported the view that what they gained from almost all of their projects was what they initially expected. The contribution of investment evaluation towards organizational knowledge was also regarded as very important, although intangible benefits were not sufficiently recognized.

The benefits expected after a pre-evaluation exercise of most systems are as follows: the need for more effective and efficient data processing, analysis, and presentation; faster access to up-to-date and accurate information; increase in productivity; improvements in the decision-making process; and better communication.

The following section discusses the research key findings, along with some final points and further research recommendations.

5. DISCUSSION: IDIOSYNCRASIES TOWARDS IS/IT INVESTMENT EVALUATION IN THE GREEK BANKING SECTOR

This research has shown that the Greek banking market is still developing. Even though it has passed the point of emergence, it is still not mature. This, along with the recent economic and political developments, clearly sets a stable base for future developments and further maturity in the banking sector. Until that time, IS/IT aspects that are not contributing towards a more speedy development are considered as an extra luxury that uses resources that are needed more elsewhere. As outlined before, investment evaluation is one of the rather complex aspects of IS/IT; accordingly, it needs a resource and IS/IT mature organization to assimilate and use properly. Greece can be classified as an emerging economy in Western Europe and corporate strategies in such economies are facing strong environmental pressure for change, which is often enhanced by unstable political environments; political turbulence frequently leads to large macroeconomic and political instabilities thus increasing uncertainty (Lalvani, 2003). As a result, many organizations avoid investments in IS/IT where the external environment is unstable or where a market entry would imply high-cost investments (Hoskisson et al., 2000). Nevertheless, the empirical results in this study clearly show that when an organization has to support its operations, providing infrastructure and IS/IT is seen as the main leverage to establish a baseline for its operations.

In the case of a market entry, as seen in at least two banks researched for this study, heavy investments in IS/IT projects are of paramount importance. It can be argued that new entrants in a transitory economy suggest further turbulence until the market settles while development, on a macroeconomic level, is also directly affected by the success of such IS/IT projects. In such cases, investment evaluation could provide crucial feedback regarding the potential success and contribution of these IS/IT projects. Moreover, certain characteristics of emerging economies can greatly affect the means by which an organization will expand. A good example is Bulgaria, which has a low Internet penetration rate of 28.7% but a usage growth of 411.6% (between 2000–2007) (www.internetworldstats.com/stats4.htm).

Although corporate customers represent a strong base for the banking sector in Greece, it is clear that there was a tendency for all five banks studied to address and create more products and services for individual customers rather than for corporate customers. However, it was confirmed by all five banks that the emergence of new technologies, especially the Internet, creates new distribution channels enabling them to reach more and different customer types while keeping the relevant expenses low. Evaluation in such scenarios is not considered as really important: “We can see the results when the system is on line, though it is difficult to segment the contribution of each subsystem towards the overall performance of the distribution network,” stated one IT director.

During an interview with the IT director of one of the banks with a stronger IS/IT presence, it was expressed that politics and conflicting stakeholder interests seemed to govern the current and future IS/IT trends in the banking sector in Greece. IS/IT is still evolving in a more aggressive, though not cohesive fashion. Economic interests seem to greatly govern the relations between the needs and the implementation of most of the IS/IT projects. The European Union is having a battle with the limited but rising regulatory forces that shape IS/IT in Greece, and it seems that until such issues are settled, Greece, even though advancing, will continue to be the “land of confusion,” as commented by one of the interviewees.

Although the majority of the companies are using a form of formal evaluation for IS/IT, they tend to conduct informal ones more often: “We don’t need a full scale report every time we change something, there are things you evaluate with experience,” reported an interviewee. All the interviewees characterized a big part of expected benefits as “intangible,” qualitative ones they did not try to measure. In addition, all of them were aware of “hard” evaluation techniques (such as return on investment, cost benefit analysis, net present value etc.), using some of them to an extent, and they believe that these methods are, to a degree, subjective. This underlines the emphasis by Smithson and Hirshheim (1988) that most formal IS evaluation procedures are subjective to a degree.

Clearly, all organizations indicated that pre-evaluation was important and essential in large scale projects, while a post evaluation would be considered only in the case of a failing system. Evaluation between the other stages of a system’s lifecycle is rarely conducted and, when it is done, is more of an informal procedure aimed at monitoring if everything is going according to plan. However, the importance of knowledge management and organizational knowledge has been recognized by all organizations as well as the feedback value of investment evaluation for that purpose. According to Gibson, Arnott, and Jagielska (2004) investment evaluation results can help the business intelligence of an organization, providing significant business value by improving the effectiveness of managerial decision making.

Evaluation is considered of great importance in one organization where the bank was at a break-even point. In this case, every project designed was evaluated before its implementation while, in many cases, post evaluation was also conducted. In an emerging organization, every new project has to be essential and not just “nice to have,” as one interviewee commented. Even though evaluation is considered as a resource consuming process and an emerging organization often has budget constraints, evaluation in this case was of “absolute importance” as emphasised by the IT director. He went on to explain that evaluation helps to locate where the budget is spent and what results were brought by new systems. On the other hand, when an organization has moved beyond the emerging stage and develops non-critical systems, the target is to “be able to hold yourself in the market and keep selling,” the IT directors suggested. In addition, according to the size of the project budget, a different authority needs to examine and approve new investments (see Table 1). In this context, Table 1 underlines the importance of power and politics (Markus, 1983) and how it is spread according to the scale of the project.

An interviewee answering why other, and perhaps more suitable, investment evaluation procedures were not used in his organization stated that “evaluation techniques such as ROI were introduced in the 1990s mainly in order to justify the work of IT professionals, in the current context they are not that important.” Moreover, he suggested that the return is virtual and it is based on assumptions. According to this interviewee, evaluation is useful in the beginning of a project in order to make an initial decision and assessment of the first step because later on the results are not always realistic and tangible. In addition, he

TABLE 1. Budget Scale and Decision Making

Budget (million euros)	Authority
= < 0.1	Sponsor
0.1 – 1	Business domain
> 1	Executive committee

TABLE 2. IS/IT Benefits Evaluation Ladder^a

Step no.	Description
8	Business transformation
7	Strategic systems
6	Inter-organizational systems
5	Infrastructure
4	MIS and DSS
3	Direct value added systems
2	Automation
1	Mandatory changes

^aFrom "A taxonomy of information systems applications: The benefits' evaluation ladder," by Farbey, Land, and Target, 1995, *European Journal for Information Systems*, 4, p 41–50.

supported that situations where an evaluation can deliver tangible and thus useful values and information to the organization are very limited, while "the organization is depleting its resources trying to justify things that are obvious." Most of the interviewees shared this viewpoint to an extent, questioning the necessity of such a process. On the other hand, all of the interviewees agreed on the importance of IS/IT investment evaluation towards organizational learning but provided reasons that sometimes limit their choice to use it. Some of these reasons were lack of available time or resources, the belief that IT is a tangible science with strategic nature in need of "hard" tangible values and difficulties arising due to the complex nature of IS. A number of researchers (Farbey et al. 1995; Powell, 1992; Willcocks, 1994) have also reported various reasons for an organization to lack an IS evaluation plan, including the aforementioned.

Also, it was revealed that when the projects are bigger more business units are needed to cooperate, thus complicating even more the investment evaluation of such projects. Due to political reasons (i.e., such as the desire to be seen as having the latest technology or e-banking services), it was revealed that, in some cases the project costs are likely to be underestimated and its benefits presented in a favorable tone. Moreover, conflicts of interest often emerge within as well as between stakeholders groups. In such cases, in order to interpret possible biased results, it is necessary to identify the stakeholders (often the key stake holders would be members of the board of directors in the bank), their interests, perceptions, as well as the power of influence of each other.

In order to further analyse and contextualize IS/IT investment evaluation in the Greek banking sector, the model proposed by Farbey et al. (1995) is relevant to consider for this research. In Farbey's model, a benefits evaluation ladder is proposed. According to this model, each step of the ladder represents a type of change and hence a type of application. Moving up the ladder, each step represents increasing potential benefits but also increasing uncertainty of outcome and risks.

The organizations examined in this research can be evaluated using the above model. In step 1, mandatory and regulatory changes tend to lack investment evaluation practices because in most cases the resulting outcome of such a system is already determined. Moving along the ladder to strategic IS, evaluation techniques are used in order to minimise the risk and examine the potential benefits of such a system to the organization. Therefore, in the Greek banking context, the higher the ladder's steps the bigger the priority for IS/IT investment evaluation is. Table 3 below summarizes the overall findings of the case studies

TABLE 3. The Scope of IS/IT and Investment Evaluation in the Greek Banking Industry

Area	Banks				
	A	B	C	D	E
Market positioning	Urban/mature leader	Urban/premature regulatory	Rural/mature follower	Rural/mature leader	Rural/emerging follower
IT importance	Very high	Normal	Low	Very high	High
IT Systems in relation to Farbey's ladder	Step 7-8	Step 6-7	Step 6	Step 7-8	Step 7
Alternative distribution channels	Extensive	Many	Few	Extensive	Many
Quantitative evaluation	Y Pre and post evaluation	Y Pre and some post evaluation	Y Pre and few post evaluation	Y Pre and some post evaluation	Y Pre and post evaluation
Qualitative evaluation	Y Few post evaluation	Y Few post evaluation	N None	N None	Y Some post evaluation

Even though researchers, such as Farbey et al. (1995), Powell (1992) and Willcocks (1994), have produced similar results to that of this research when contrasting these findings with this research, we can see that although the reasons for the limited acceptance of evaluation might be the same, the positions of the organizations towards evaluation is different. Overall, the banking industry is composed of “safe players” where risks are minimized mainly by not taking risks and waiting for emerging technologies to mature enough in order to ensure easy transitions. Other industries—where deployment of new technologies are necessary in order to provide new services, such as telecommunication—are in greater need of investment evaluation practices delivering feedback for future investments in IS/IT. In addition, organizations with less demanding financial targets concentrating more on aspects such as accessibility and friendliness of a system like government agencies tend to need more feedback regarding intangible benefits.

6. RESEARCH CONTRIBUTION AND CONCLUSION

This research has contributed to knowledge in the field of IS/IT investment evaluation in two ways. First, by drawing together acknowledged normative literature sources this article has highlighted the significance of IS/IT investment evaluation and outlined the limitations of methods currently used to appraise IS/IT investments from a theoretical perspective. Second, by exploring the IS/IT investment evaluation habits of five banking organizations in Greece, this research has provided some insight into the practical implications and challenges that senior managers face when having to justify investments in IS/IT. The research has also confirmed that not only is IS/IT investment appraisal and justification a

tedious task but in emerging economies it is often overlooked in favor of the short term benefits that can be attained. This is further compounded by organizations' desire to break even technologically with competition. The empirical research has also confirmed the ever familiar scenario of lack of synergy between business and IS strategy in organizations; IS/IT was seen more as a means of automation rather than a strategic tool. This can particularly be a significant long-term drawback for countries with less affluent economies (such as Greece) in a rapidly expanding Europe.

While adding to existing knowledge in the area, this article has also confirmed the notion that IS/IT investment evaluation is often undertaken as a passive exercise; this highlights the need for more research to understand the process as well as methods used in the practise of IS/IT investment evaluation. Sadly, though, empirical research has suggested that in Greece the need for more detailed investment evaluation practices are not considered as a theme that is of immediate interest, particularly for banking organizations that have achieved a certain degree of maturity. This is contrary to the literature that regards IS as complex social systems (Symons, 1991), where the realization of both tangible and intangible benefits as well as costs accrued should be measured.

The findings from this research, combined with a review of the medium to long-term success of the five banks discussed in this article will provide a frame of reference that is relevant to other emerging economies, particularly in the European context (i.e., countries such as Bulgaria, Spain, and Turkey) as well as other developing Eastern European economies such as Czech Republic, Hungary, Poland, etc. While successful IS/IT strategies and investment appraisal approaches discussed in this research can be mirrored, mistakes from the less successful ones can be avoided. The Greek market in which this research was conducted is a developing one with some strong organizations already expanding their business in the Balkans and rest of Europe. Therefore, as future research, it will also be interesting to examine the importance of IS/IT investment evaluation for these organizations 3 to 5 years from now when they may be more mature and concentrating not only in development projects but also on systems they might need to restructure and optimise.

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