Methodologies for Evaluating IT Business Value Management

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Abstract: Most organizations in all sectors of industry, commerce and government are fundamentally dependent on their information systems (IS) and would quickly cease to function should the technology (preferably information technology – IT) that underpins their activities ever come to halt [15]. The development and governance of proper IT infrastructure may have enormous implications for the operation, structure and strategy of organizations. IT and IS may contribute towards efficiency, productivity and competitiveness improvements of both inter-organizational and intra-organizational systems [1]. On the other hand, successful organizations manage IT function in much the same way that they manage their other strategic functions and processes. This in particular means that they understand and manage risks associated with growing IT opportunities as well as critical dependence of many business processes on IT and vice-versa. IT risk management issues are not only any more marginal or ‘technical’ problems and become more and more a ‘business problem’. Therefore, in this chapter a Corporate IT Risk Management model is proposed and contemporary frameworks of IT Governance and IT Audit explained. Also, it is depicted how to model information systems and supporting IT procedures to meet ‘always-on’ requirements that comes from the business. In fact, a number of IT metrics proposed in the chapter support the alignment of IT Governance activities with business requirements towards IT.

Key-Words: IT Business Value Management, IT Governance, IT Audit, CobiT

1. Introduction: Governing IT is a business not a ‘technical’ problem

In the early days of implementing IT in the business, it was often seen as a technical support function and was typically managed by finance departments. When evolving from technology providers into strategic partners, IT organizations typically follow a three-stage approach. Each evolutionary stage builds upon the others beginning with IT infrastructure management (ITIM). During this stage, the IT’s role in the organizations focus on improving the management of the enterprise (technological) infrastructure. Effective infrastructure management mainly is associated with maximizing return on computing assets and taking control of the infrastructure, the devices it contains and the data it generates [10]. The next stage, IT service management (ITSM), sees the IT organizations actively identifying the services its customers need and focusing on planning and delivering those services to meet availability, performance, and security requirements. In addition, IT contributes to the businesses by managing service-level agreements, both internally and externally, as well as by meeting agreed-upon quality and cost targets. Ultimately, when IT organizations evolve to IT business value management (IT Governance), they are transformed into true business partners enabling new business opportunities [8]. In that stage, IT processes are fully integrated with the complete lifecycle of business processes improving service quality and business agility.

Figure 1. Evolvement of IT as corporate function
While early IT implementations were clearly focused on automation of clerical and repetitive tasks, in today’s highly competitive business environment, effective and innovative use of information technology (IT) has the potential to transform businesses and drive stakeholder value [22], [15].

According to the recent ITGI-PricewaterhouseCoopers study results, IT is quite to very important to delivery of the corporate strategy and vision [11]. On the other hand, poorly managed IT investment or badly implemented IT projects will lead to value erosion and competitive disadvantage [4], [12], [23]. A number of or company–level studies and analyses show that IT contributes substantially to company’s productivity growth. This contribution is by all means strong where IT strategy is linked with business strategy, thus IT can initiate major changes in organization structure, business processes and overall activities.

In one study, Brynjolfsson and Hitt [1] concluded ‘that while computers make a positive contribution to productivity growth at the firm level, the greatest benefit of computers appears to be realized when computer investment is coupled with other complementary investments; new strategies, new business processes, and new organizations all appear to be important.’ Central message from the research literature, and one that is universally accepted, is that technology itself has no inherent value and that IT is unlikely to be source of sustainable competitive advantage [15]. The business value derived from IT investments only emerges through business changes and innovations, whether they are product/service innovation, new business models, or process change.

IT Governance issues are not only any more marginal or ‘technical’ problems and become more and more a ‘business problem’. Therefore, in this paper emerging issues in IT Governance are discussed and the methodologies for evaluating IT Business Value explained in further details.

### 2. Evolving the IT Governance model

A good theoretical path to IT Governance issues could be found in IT Strategy and IT/Business Alignment literature. Venkatraman [22], for example, illustrates the changes that occur in the perceived contribution of IT by the business during the transformation from Service Provider to Strategic Partner as presented in Table 1.

<table>
<thead>
<tr>
<th>Service provider</th>
<th>Strategic partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT is for efficiency</td>
<td>IT for business growth</td>
</tr>
<tr>
<td>Budgets are driven by external benchmarks</td>
<td>Budgets are driven by business strategy</td>
</tr>
<tr>
<td>IT is separable from the business</td>
<td>IT is inseparable from the business</td>
</tr>
<tr>
<td>IT is seen as an expense to control</td>
<td>IT is seen as an investment to manage</td>
</tr>
<tr>
<td>IT managers are technical experts</td>
<td>IT managers are business problem solvers</td>
</tr>
</tbody>
</table>

Table 1: IT as Service provider or as Strategic partner

Van Grembergen [21] stands on that point, but also emphasizes the strategic potential IT initiatives could have if managed (or rather ‘governed’) properly. When engaging in those changes, IT becomes not only a success factor for survival and prosperity, but also an opportunity for differentiation and achieving competitive advantage1. This should undoubtedly be achieved by putting in place a management of IT that is service oriented (ITSM) and by establishing an IT Governance capable of aligning IT with the Enterprise Governance objectives.

### 3. Corporate Governance and IT Business Value – literature review

In order to understand the concept of IT governance a detailed insight into the principles of corporate governance and its constituents is needed. In their publications on measuring the performance of corporate boards, M.J. Epstein and M.J. Roy state that “governance concerns relate to practices of both corporate boards and senior managers” and “the question being asked is whether the decision-making process and the decisions themselves are made in the interest of shareholders, employees, and other stakeholders or whether they are primarily in the interests of the executives.” The corporate governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as nearly as possible the interests of individuals, corporations and society3.

IT governance concerns relate to IT practices of boards and senior managers. The question is whether IT

structures, processes, relational mechanisms and IT decisions are made in the interest of shareholders and other stakeholders, or primarily in the executives’ interests. IT governance closely relates to corporate governance, the structure of the IT organization and its objectives and alignment to the business objectives.

IT Governance is the process for controlling an organization’s IT resources, including information and communication systems and technology [8]. According to the IT Governance Institute [10], IT governance is the responsibility of executives and board of directors, and consists of leadership, organizational structures and processes that ensure that enterprise’s IT sustain and extends the organization’s strategies and objectives. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization’s IT sustains and extends the organization’s strategies and objectives.

Van Grembergen [21] stands on that point and defined IT Governance as the organizational capacity exercised by the Board, executive management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT. The primary focus of IT governance is on the responsibility of the board and executive management to control formulation and the implementation of IT strategy, to ensure the alignment of IT and business, to identify metrics for measuring business value of IT and to manage IT risks in an effective way. Nolan and McFarlan [14] recently pointed out that ‘a lack of board oversight for IT activities is dangerous; it puts the firm at risk in the same way that failing to audit its books would’. There are several ways of looking at the similarities between corporate governance and IT governance, as described in literature ([21],[22],[14]). Van Grembergen et al. use Shleifer and Vishny’s work ([6]) and stress three key questions that the management should address to display the connectivity between corporate governance and IT governance (table 2.).

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<tr>
<th>Corporate Governance Questions:</th>
<th>IT Governance Questions:</th>
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<tr>
<td>How do suppliers of finance get managers to return some of the profits to them?</td>
<td>How does management get their CIO and IT organization to return some business value to them?</td>
</tr>
<tr>
<td>How do suppliers of finance make sure that managers do not steal the capital they supply or invest it in bad projects?</td>
<td>How does management make sure that their CIO and IT organization does not steal the capital they supply or invest in bad projects?</td>
</tr>
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4. Key IT Governance Components

As we previously introduced, one of the IT Governance goals is to align IT initiatives with the business objectives defined by the Corporate Governance. These high-level organizational goals and objectives are used as input to derive goals, objectives and performance metrics needed to manage IT effectively.

At the same time, the IT auditing processes are put in place in order to measure and analyze the performance of the organization. Conceptually, the process can be seen as an IT results flow depicted below.

Figure 2: From corporate strategy to IT Business value

Having defined IT Governance, it is necessary to understand its most important elements. The IT Governance Institute suggests that fundamentally, IT Governance is concerned about two things [4]:
- IT should deliver value to the business and
- IT risks need to be mitigated.
IT Governance Institute also defines five IT governance focuses areas [10]:
- Business/IT strategic alignment
- IT value creation and delivery
- Risk management (value preservation)
- IT resource management
- Performance measurement.

This leads to the four main focus areas of the IT Governance, all driven by stakeholder value. Two of them are outcomes: value delivery and risk mitigation. Two of them are drivers: strategic alignment and performance measurements. While value delivery is focused on the creation of business value, risk management is focused on the preservation of business value [8].

Gartner similarly stands on that point by proposing that IT Governance should consist of four different components namely [7]:
1. IT value and IT/Business Alignment,
2. IT Control Framework and Management Accountability for IT
3. IT Performance Measurement framework
4. IT Risk Management models.

As shown in Figure 3., IT Governance represent the necessary ‘connections’ of strategic visions (IT Strategy and IT/Business Alignment initiatives) and the results of their implementation by performing periodic IT Audits with which IT performances could be measured, IT risk identified and IT controls put in place.

Figure 3: IT Governance Components [7]

5. Information System Audit and measuring IT Business Value

Managing business value represent a cornerstone of IT governance (IT Business Value Management), ensuring that an enterprise’s strategic objectives are not jeopardized by IT failures. On the other hand, performance measurement phase intensively include audit and assessment activities which can create the opportunity to take time corrective measures, if needed. The primary goal of the information system audit (IT audit) is to identify the key business processes that depend on IT, to systematically and carefully examine their IT controls efficiency, to identify key risk areas and constantly measure the risk level, to warn about possible failures, as well as to offer suggestions to the executive management how to improve current IT risk management practices [17].

This in particular mean that by engaging in IT auditing process companies can periodically measure the IT performances using the well-proved, world-wide frameworks or methods such as CobiT, ITIL, ISO 27001, etc. Such tendencies are mostly motivated by specific regulatory pressures (for example, Sarbanes-Oxley act, Basel II framework, etc.), rather than by IT value-added initiatives.

In addition to the term of information systems auditing, the term such as information technology auditing (IT Audit) is often used. Regardless of different terms being used, the goal of the information systems audit is to systematically, thoroughly, and carefully examine the controls within the information system, to measure the IT performance, to warn about possible omissions and risks, and thus examine the quality of the company's information system.

In recent years various groups have developed world-wide known IT Governance and IT Audit frameworks and guidelines to assist management and auditors in developing optimal performance and controls systems. Contemporary frameworks are:
- CobiT (Control Objectives of Information and related Technology),
- ISO 27000 ‘family’ (ISO 27001:2005, ISO 27002:2005), and
- ITIL (IT Infrastructure Library)
- VAL IT framework.

5.1. CobiT - a generic methodology for measuring IT Business Value

Developed by ISACA (Information System Audit and Control Association, www.isaca.org) and ITGI (IT Governance Institute, www.itgi.org), CobiT (Control Objective for Information and related Technology) is the widely accepted IT governance framework organized by key IT control objectives, which are broken into detailed IT controls. Current version 4.1 of CobiT divides IT into four domains (Plan and Organise, Acquire and Implement, Deliver and Support, and Monitor and Evaluate), which are broken into 34 key IT processes, and then further divided into more than 300 detailed IT control objectives. For each of the 34 IT processes CobiT defines:
- performance goals and metrics (for example, RPO, RTO, availability time),
- KRI (Key Risk Indicator), KPI (Key Performance Indicator)
- maturity models (0-5 scale) to assist in benchmarking and decision-making for process improvements,
- a RACI chart identifying who is Responsible, Accountable, Consulted, and/or Informed for specific IT process.

CobiT processes of particular interest for managing a IT business value may be PO 1 (Define Strategic IT Plan), PO 5 (Manage IT Investment), PO 9 (Assess and Manage Risks), ME 1 (Monitor and Evaluate IT Performance) and ME 4 (Provide IT Governance). CobiT represent an ‘umbrella’ framework for implementing IT Governance policies and procedures. It is a broad and comprehensive de-facto standard which comprises all activities, processes and services an IT organization need to manage (or rather govern). Therefore, when engaging in IT Governance activities it is inevitable to use CobiT framework to in details analyse the alignment of current IS and supporting IT infrastructure and business requirements towards it.

If CobiT-based information system audit or any further ‘due diligence’ come up with the conclusion that an IT organization underperforms in a specific area, an additional project may be opened to assure the compliance and alignment with business requirements. For example:
- ITIL framework may be used to assure better service delivery and service management,
- Val IT framework may be used to assure efficient management of IT investments which may result with additional business value,
- ISO 27000 norm may be used to manage the level of IT security risks,
- Prince 2 and/or PMBOK may be used to bridge the gap in IT project management activities, etc.

5.2. ITIL – IT Infrastructure Library

While CobiT gives comprehensive approach to all IT Governance activities, some key processes, namely in IT service area may be also found in ITIL recommendation. ITIL (Information Technology Infrastructure Library) developed and published in late 1980s by Central Computer and Telecommunication Agency, now the British Office of Government Commerce, becomes widely embraced in private and public sectors as a reference framework for IT Service Management. ITIL is a series of books representing a repository of best practices in IT service management and related processes, promoting business driven approach to the management of IT and a performance driven approach in achieving business effectiveness and efficiency in the use of IS and IT. Basic ITIL process’ objectives are:
- to define service processes in IT organization,
- to define and improve the quality of IT services,
- to understand and improve IT service provision, as an integral part of an overall business requirement for high quality IS management,
- to determine what service the business requires of the provider in order to provide adequate support to the business users, and
- to ensure that the customer has access to the appropriate services to support the business functions.

Since the 1980s there were 3 major revisions of ITIL best practices. New version 3 of ITIL brings evolutionary improvements to the IT Service Management concept, consisting of 5 key categories (Service Strategy, Service Design, Service Transition, Service Operation, Continual Service Improvement), but the supported processes remains the same in its core as in ITIL v2.

6. Conclusion

Although, traditionally, only the IT departments were responsible for managing IT initiatives, their importance affects the fact that the number of companies starting to systematically deal with such problems is ever increasing. As the organizations are becoming increasingly dependent upon IT in order to achieve their corporate objectives and meet their business needs, the necessity for implementing widely applicable IT best practices standards and methodologies, offering high quality services is evident. The issue of managing the IT becomes less and less a technical problem, and more and more the problem of the whole organization i.e. a ‘business problem’ and many companies nowadays formally nominate executive directors for such activities.

In prior years, information technology (IT) had been viewed only as supporting player within overall company’s strategy. Automation was, for example, limited to existing organizational function. But opinions have changed with the successful implementation of IT innovations and massive IT investments. Information system (IS), as well as IT in general, becomes extremely important asset that can strongly influence company market position, and which must be carefully monitored, controlled and planned. Improving the
planning process for information systems is one of the key concerns for corporate management.

In this paper we argued about IT Governance concept and its similarities with IT Business Value Management. CobiT as a generic methodology for measuring IT Business Value was shown and explained. Apart from CobiT as a ‘umbrella’ methodology for IT Governance, a number of world-wide frameworks and methodologies used for measuring the performance of IT was explained (ITIL, Val IT, ISO 27001). Such tendencies, under the IT Audit ‘umbrella’, may help to measure the quality of IT Services and the performance of IT Governance initiatives.

References:


