IT Governance and Enterprise Architecture - Impact of IT cost reduction on innovation power

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Abstract

The connection between Enterprise Architecture and IT Governance has been promoted regularly in recent times: by manufacturers, analysts, advisers, and also by users. Users bring to the discussion their experiences from the integration of architecture, portfolio, programs, projects and services under the roof of IT strategy and IT Governance. But what is the essence of the much quoted IT Governance Framework, in which the troika of Enterprise Architecture management, portfolio management and program and service management (see figure 7) operates? What is its raison d'être, what value does it provide, what meaning and importance does it offer for timely IT management?

Corporate Governance

Searching for definitions of the term Corporate Governance we find, in Germany, for example, in the Corporate Governance code (DGI2003), that Corporate Governance "contains essential legal directives to the direction and supervision of German listed companies [...] and defines international and national standards of good and responsible business management." Further, it is stated there that: "the board of directors develops the strategic alignment of the business and provides for its implementation. [...] The board of directors is responsible for the appropriate risk management of the enterprise."

Good and responsible business management, strategic alignment of the business and its performance and appropriate risk management - these principles are therefore the obligations of the top management of our businesses. What IT manager would not react with great enthusiasm if he was asked to contribute to the implementation of these principles. And he would almost certainly point out that information provides the key for the success of the Corporate Governance program, that business management requires transparency and that every implementation of strategy depends on clearly defined goals and access to all relevant information. He might emphasise that risk management and
programme direction are not effective without timely access to information from all parts of the enterprise. And he would conclude his discourse with the notion that IT, through its information systems, produces exactly this illumination, without which every control, every navigation, every inspection and course correction would be impossible.

Adherence to Governance principles means making informed decisions. Governance is dependent on planning, organization, inspection and control, or, in short, on management on the basis of comprehensive information.

What does the IT division do now in order to support planning, control and steering processes of the business departments, to help in reorganisation and alignment and to assist with the implementation of Corporate Governance principles? It delivers exactly this comprehensive information with data warehouse systems, with business intelligence suites, with management and executive information systems. The management of the business departments primarily use these systems to facilitate the optimization of the business, to save costs, to open new markets, to develop or to place new products. It is these systems that support good and responsible business practices, strategic alignment of the business and its performance, and appropriate risk management along with the information they provide to the leadership.

Let's consider the following example: based on its financial indicators, the board of directors recognizes that a business unit does not function profitably. The directive for the management of the business unit is to reduce costs and expand revenue. What does the manager of this business unit do to implement this directive? At the beginning of each action, an analysis of the current situation will probably be in order, to list for example the cost distribution across the departments of the business unit or in order to understand precisely the revenue variance across the distribution channels. The factual basis for this analysis is gained from the information systems of the business. Also, IT systems will probably play an important role in managing the strategy based on the analysis.

Thus, IT plays an important role in Corporate Governance. This is also shown repeatedly by legal specifications, e.g. the Sarbanes Oxley Act, Section 404, or Solvency II, which place increased demands on businesses’ internal control systems and IT. However, what about Governance of the IT domain itself?

**IT Governance**

Let’s look at another example: the board of directors decrees costs savings that result in a reduction of around 15% in the IT budget. Now our CIO is in a similar situation to his business department colleague in the above mentioned example. But what information system does the CIO have to generate an initial analysis for the preparation of his strategy? Where do we find an information basis that shows us IT applications, IT infrastructure components, their relationships to the business (in terms of both organization units and business processes) and in addition costs, risks, running projects and available IT staff resources? How do we make all this information available for further analysis? Do we have a case here of the shoemaker once again having the worst shoes? Does the IT
division deliver the critical information for an implementation of the Corporate Governance for all company divisions but not have the tools to develop and steer its own IT Governance processes?

Where do we find the management information system for the CIO? Where is the model that documents the IT assets with all their dependencies, effects and relationships in a way that they become transparent, analysable and manageable? We find the answer for these questions in an Enterprise Architecture. It is this model that documents the IT assets and their relationship in the required format. It delivers the analysis and planning support that is indispensable for effective IT Governance.

The IT Governance Institute (www.itgi.org) defines IT Governance as follows: "IT governance is the responsibility of the board of directors and executive management. 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."

IT Governance ensures that:

- IT delivery expectations are fulfilled;
- IT resources deployment is continuously planned, steered and optimized;
- IT performance is measurable;
- and that the risks are minimised.

In essence it is about effectiveness, efficiency and reliability: do the right things at the right time in the right way. An Enterprise Architecture delivers us the necessary overview and understanding of the interconnections of business goals, business processes, projects, IT uses, IT platform and IT infrastructure. It connects these elements together, shows effects and dependencies, documents costs, risks, availability, stability and many other attributes.

And yet Enterprise Architecture can deliver much more. Not only can it document the current situation, it also delivers the procedures for the analysis of weaknesses in the status quo. Where do the cost drivers in the application landscape sit? Where do redundant development technologies exist? Where is the level of support of business processes unsatisfactory? Where are redundancies? This "as-is" analysis is the basis of an effective IT Governance-process. It is a key component of Corporate Governance and therefore indispensable.

This analysis leads to planning of the measures and their implementation. The Enterprise Architecture helps us during the planning phase; it is the basis for the development of plan scenarios, in which alternative paths of the IT development are assessed. Accordingly, an Enterprise Architecture is a central instrument of every Governance program. How should we lead, direct and steer if we do not know where we stand, what the path looks like and where it should go?
Enterprise Architecture

An Enterprise Architecture (Figure 1) is a structured and balanced collection of plans for the development of the IT landscape in an enterprise.

Figure 1: Enterprise Architecture

The Enterprise Architecture:

- is arranged in various levels of detail and views;
- is specifically designed for certain stakeholders (e.g. Manager, Architect, Owner, Designer);
- and illustrates different aspects of IT systems (e.g. data, functions, interfaces, platforms, networks) and their alignment with the business (e.g. objectives, strategies, business processes) in historical, current and future scenarios.

From this definition it is clear that Enterprise Architecture can answer questions about where we come from, how far we have progressed, what the current state is and what the goal of our journey is.

This analogy helps us to understand what the essential steps are in the construction and utilization of Enterprise Architecture. As for a journey, we require first of all a map, or in other words, documentation of the territory to be travelled in. That documentation is the Enterprise Architecture, consisting of elements of many available models - business process models, organization models, IT product list, IT infrastructure catalogues among others - assembled together. That requires semantic and syntactic alignment of the available models so that the references can be constructed correctly between all the model's levels.

As soon as we have the map for our travel destination, our interest turns to information about the sights, hotels and road conditions. We read travel guides, surf the Internet and consult our automobile club. Finally we analyze all the material gathered. Likewise, an Enterprise Architecture provides actual value once it is seen not only as a static picture,
but, rather, is used actively for analysis. Many businesses only really start to grasp the value of the Enterprise Architecture if the CIO is actually using it to manage his domain.

Following the analysis of our maps, guides and street information, the planning of the route follows. We will probably have to make several attempts at connecting all the worthwhile destinations together in a meaningful way. Finally we end up with a route plan (including the usual vacation checklist for the contents of the suitcases) that becomes the starting point for our trip. To relate this back to Enterprise Architecture: the analysis of the Enterprise Architecture must find its continuation in the development of plan scenarios that address the identified weaknesses and outline possible solutions. These plan scenarios must be evaluated and assessed as part of developing a picture of the desired state and lead to generation of a roadmap that flows into the project portfolio and program management so that the strategic plan can become reality.

If our trip takes place, with hopefully many interesting experiences and worthwhile visits, the culmination of the trip will be showing our vacation videos to friends and family. For the Enterprise Architecture, execution of the strategic plan, will culminate in an implementation phase and a successful ongoing Governance program.

An Enterprise Architecture that is designed so we can use it directly in the context of an IT Governance program develops from the cycle of documentation, analysis, planning, implementation and inspection (Figure 2).

![Figure 2: The Enterprise Architecture Cycle (Niemann, 2005)](image)

**IT Governance and Enterprise Architecture**

What relationships are there between IT Governance and Enterprise Architecture? What does making informed governance decisions really mean? To answer these questions let's have another look at the abovementioned example of a 15% cost reduction in the IT area.

What normally happens when a CIO finds such a directive on the table? Generally, the search for potential savings begins. Figure 3 shows a common distribution of costs in large IT departments according to a Gartner Survey of 2001.
There was a significant reduction in new development versus maintenance over recent years, so for our example we assume 50% for corrective maintenance and 50% for development and adaptive maintenance.

Approximately 18% of the IT budget is spent on innovation as part of the development budget. In the operational area we assume a portion of 10% for innovation which is being invested in technology projects. Thus, in our base scenario we only have about 23% in total for real innovation that can increase the value of IT for the business.

So what will our CIO do, in this example, to implement the 15% budget cut? It is difficult to reduce operational costs in the corrective maintenance area because of the long lead time needed to plan for such costs saving programs. This is why the obvious road to short-term savings is usually taken: the investment budget for new application development and technology projects is cut. Once we have recalculated the total budget to the new baseline of 85% of the original budget we arrive at the following revised relative distribution of funding (see Figure 4).

1 e.g. cost savings typically obtained by consolidating the infrastructure, systems optimisations, outsourcing, optimizing the organization.
27% for development (including 6% for new development and adaptive maintenance and 21% for corrective maintenance, which cannot be reduced easily);

16% for the organization (no short-term saving here, in fact a relative increase);

And 57% for operations (with the innovation budget reduced to 4%).

Thus, the portion of the IT budget that is available for real innovation sinks to 10%.

Since at least the presentation of Stephen Norman, CIO of Merrill Lynch, to the MIT CIO Summit on the 22nd May 2003, we know that many businesses regard their IT division as a "magic orange" that can be pressed out n times to win new juice again and again (Lutchen, 2004). We can therefore assume that the situation constructed in our example will repeat itself in economically bad times year after year with each year demanding yet more savings.

The result shown in Figure 5 indicates that reducing IT expenditure correlates with reduced "innovation power" - a dangerous situation for the IT division and the enterprise as a whole. If this "magic orange" approach happens in your enterprise, then you must actively and strategically manage it in order to break a lasting downward spiral of innovation power in your IT department. This is a great example of a Governance task that requires the support of an Enterprise Architecture.

How does one approach such a challenge? It is important to be able to identify optimization potentials in operations and infrastructure, in the organisational structure and in corrective maintenance and to initiate the corresponding cost saving measures in those areas. The implementation process needs to be closely managed and metrics and control processes established. After all, this is about the very survival and re-structuring of the IT portfolio so, clearly, Governance is essential.

In our example, and its assumed IT budget abridgment of around 15% (column 1 and 2 in figure 6), we are left with a share of 21% for maintenance, 16% for organization and 53% for business and infrastructure. In order to create capacity for innovation, innovation that is urgently required for the improvement of the position of the IT division, it is advisable to
search the three areas of operations, infrastructure and maintenance for possible optimizations (column 3 in figure 6). The goal at the same time must be to bring the available innovation budget back to at least the base level as shown in figure 3 above, in order to be ready for future challenges (column 4 and 5 in Figure 6).

For the optimization of operations, infrastructure and maintenance, an overview, a documentation of the application and technology infrastructure landscape of the enterprise, is necessary. In small organizations, you can keep the overview in the back of your mind, but large organizations need something more: a list, a plan, a model, an information system or, simply put, an Enterprise Architecture. If we think of that "magic orange", and remind ourselves that what we are dealing with here is in no way a unique situation but an always recurring task, this reinforces the need for an Enterprise Architecture that is regularly maintained as part of a continuous process (document, analyze, plan, act, check). The "management information system" of the CIO is then available and up-to-date, helps to identify dependencies and risks, gaps and redundancies, complexities and interfaces, heterogeneity, lack of conformity, cost drivers and usability "brakes". The Enterprise Architecture makes the IT portfolio analyzable, supports the strategic planning process through "as is" and "to be" models, contains "key performance indicators" and is therefore a powerful instrument in the Governance process.

An Enterprise Architecture highlights the connections between business processes, organizational units, application systems, platforms and technology infrastructure. Without documentation of these connections, the optimization of operations, infrastructure and maintenance becomes a journey in the dark, an adventurous excursion without a road map, equipment or provisions. Often enough one starts with the objective of "pragmatic action" and optimizes where the weaknesses are obvious. Usually this is in the infrastructure area where cost drivers can quickly be identified. And just as quickly the optimization...
process runs off the rails because the dependencies on the application landscape and the business are not seen.

Are you aware of that "lamppost problem"?

On a dark night, a man is on his hands and knees under a lamppost searching inch by inch for a lost object. A policeman comes along and asks what he is doing. "Looking for my house keys", he answers. "And where did you drop them?" "Over there by the bushes", he answers. "Then why are you looking here?" "Because the light is better."

Thus in our attempt to enable our IT division to address new challenges by breaking the downward spiral of its capacity for innovation, we should also look into some dark corners, where, though it may be cold and uncomfortable, we find dependencies which may perhaps also necessitate uncomfortable negotiations with the business side. These dependencies, business relationships and other overarching factors must always be considered if a really comprehensive optimization is required- be it out of a situation like our example of a massive budget cut, or for some other cause such as post-merger rationalisation. In such cases the optimization must begin at the top, in the business and in the application landscape. Heterogeneity, duplication, inefficiency and redundancy of the infrastructure are usually a result of suboptimal formation of the application landscape. Complex interfaces, heterogeneous and redundant development technologies, unrealised re-use potentials, redundant systems, unfinished migrations, poor integration of the application landscape - these are frequently the true causes of complexity, inefficiency and high costs in the infrastructure landscape. Diagnosing these causes demands a holistic analysis driven by the Enterprise Architecture.

For the Enterprise Architect this means that he should direct his work toward these requirements and promote the use of Enterprise Architecture as a tool for IT Governance. An Enterprise Architecture must, in this context:

- **Document!** - create transparency, use language meaningful to business management, and act as a management information system - the radar for the CIO;

- **Analyze!** - be amenable to analysis and derivation of new information from existing, be able to answer new questions, be flexible, and, better still, be agile and ready to deal with change;

- **Plan!** - provide a view to the future, not only providing a static picture of the as-is condition, but also forming the basis for planning the to-be;

- **Act!** - be implementable and actionable, supporting the transformation of strategy into operational reality with the methods, organisational structures and tools of the architecture management processes;

- **Check!** - and be measurable and binding, forming a sustainable basis for steering and management of strategic IT measures.
If one creates an Enterprise Architecture in accordance with these principles then it becomes a useful instrument which, in the hands of IT Management, supports Governance and strategy and plays an important role in the creation of a threefold harmony with portfolio and program management (see Figure 7). This allows discipline of Enterprise Architecture to feature more highly and more favourably on the business agenda of the enterprise.

Figure 7: IT Strategy Framework

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