IT GOVERNANCE UNDER THE SPOT-LIGHT

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ABSTRACT

Information Technology is a strategic component of modern economy and its effective management has become a critical business challenge. Therefore, effective IT governance should ensure that IT projects and operations are aligned to corporate objectives and that IT expenditure is appropriate for the business requirements.

The research work presented in this paper outlines that companies with a strong corporate governance design, also enforced by specific rules and regulations in their industry sector, tend to implement formal frameworks for IT Governance. This paper introduces first the major aspects of IT governance as they are conceived nowadays, both inside that part of the academic community which is researching in the field and by institutional entities that deal specifically with these topics. Then a framework for IT governance is presented which has been used to conduct a multiple case study on a sample of financial institutions, in order to provide insights on how IT governance principles are put in practice in live environments. The multiplicity of banking and financial services in the analyzed sample determines the adoption of federal archetypes that, in some cases, becomes also hybrids like the duopoly model. The strategic alignment approach between business and IT contributes to the design of complex IT Governance frameworks as well.

Keywords: IT Governance, IT Organization, Organizational Frameworks, Banking Systems, Financial Service Systems.
INTRODUCTION

Information Technology is a strategic component of modern economy and its effective management has become a critical business challenge. Companies depend on information and a significant part of their market value is made up of intangible assets. Organizations invest significant resources in information technology as an enabler to achieve strategic goals [Broadbent, Weill 1997]. Therefore, effective IT governance should ensure that IT projects and operations are aligned to corporate objectives and that IT expenditure is appropriate for the business requirements. Therefore it is crucial for business to define and implement IT governance structures that fit the organizations and engage key stakeholders in productive dialogue and decision making regarding IT.

It has been outlined by many authors that successful enterprises which exploit the benefits of IT and understand the risks related to it are finding ways to deal with the alignment of IT strategy with business strategy and to propagate IT strategy and goals into the enterprise [Henderson, Venkatraman 1992; Weill, Ross 2004-1]. This means also that these enterprises are creating constructive relationships between business, IT and external partners, together with implementing IT control frameworks and IT performance measurements. A research conducted by Weill and Woodham suggests that an effective IT governance structure is the single most important predictor of getting value from IT [Weill, Woodham 2002].

This paper aims at contributing to that part of the IT governance body of knowledge that deals with the way in which IT governance models can be implemented within an enterprise through a combination of organizational structures, processes and relational mechanisms.

RESEARCH QUESTION AND METHODOLOGY

The research question is how the adoption of an IT governance framework can enable management teams to make better decisions about securing their critical information and IT infrastructure and also protect their intellectual capital. The question encompasses also how IT project governance can ensure that complex IT projects deliver the value expected of them.
The first part of this paper provides a theoretical framework that introduces the major aspects of IT governance as they are conceived nowadays, both inside that part of the academic community which is researching in the field and by institutional entities that deal specifically with these topics.

The second part of this paper aims at describing a framework for IT governance which has been used to conduct a multiple case study on a sample of financial institutions, in order to provide insights on how IT governance principles are put in practice in live environments.

Organizations in the financial sector are peculiar because they have to comply with the operational risk management guidance provided by the Basel Committee [BIS 2006] and the principles set out on the management and supervision of the operational risks appear to be well addressed within an IT governance framework that could ensure that measures taken to access, control and monitor operational risk are integrated with the firm’s overall risk and information management strategy. Similar principles can be found in the IT control objectives that need to be reached to comply with SOX\(^1\) [Vlahakis 2004; IT Governance Institute 2004].

Moreover, as financial institutions are technology intensive contexts, the enabling factor of IT in respect to new business scenarios is crucial and progresses in IT imply a synergic redesign of the internal processes and of their correlations with the external environment.

Implementing end-to-end solutions that enable straight-through processing [Swift 2006], or introducing workflow management applications that optimize business processes [Pyke 2006], rather than increasing multi-channel capabilities to improve customer satisfaction [CRM 2006] are only a few of the paradigms that are on the table. It is worth noting that these aspects influence not only the architecture of the information systems, which has to be flexible and scalable enough to support frequent changes, but also the way in which information systems are developed, operated, maintained and allowed to grow [Dillon 2002]. This implies that the structural design for IT governance needs to be one that can react quickly to competitive opportunities and efficiently utilize all the available resources.

\(^1\) SOX is the acronym for the Sarbanes-Oxley Act published in the United States in 2002.
The research has been pursued via a multiple case study [Benbasat et al. 1987; Cavaye 1996]. Data has been collected in a period of three years of direct observation and study of the organization within a sample of six companies. Although this may seem a relatively small sample from which generalize findings, this number fits within the guidelines of Eisenhardt, who recommend a sample of four to ten entities for in-depth qualitative case studies [Eisenhardt 1989], which is the case of the research reported in this paper.

THEORETICAL FRAMEWORK

IT Governance is the way that leadership and management of IT in a firm are organized and how they operate in practice.

For the purpose of this paper, it has been adopted the Weill’s definition of IT governance that states “IT governance represents the framework for decisions rights and accountabilities to encourage desirable behavior in the use of IT”. This means also that IT governance “is about systematically determining who makes each type of decision (a decision right), who has input to a decision (an input right) and how this people (or groups) are held accountable for their role” [Weill 2004]. Therefore, good IT governance draws on corporate governance principles to manage and use IT to achieve specific performance goals.

The above definition can be enriched with an earlier explanation by Boynton who suggested that IT governance is not merely concerned with the “location and distribution of IT resources themselves, but rather with the location, distribution and pattern of managerial responsibilities and control that ultimately affect how resources are applied and then implemented” [Boynton, Jacobs, Zmud 1992].

One key issue facing researchers and practitioners in the field of IT governance has been the definition of patterns of authorities for key IT activities, including IT infrastructure management, IT use and project management. Early research in this area dealt with the basic forms of centralized or decentralized pattern of IT decision making, with subsequent research providing a more sophisticated understanding of these baseline frameworks.
A centralized governance design places all decision making authority in a central organizational entity, while a pure decentralized governance design places all decision making authority within the boundaries of the individual business units [Olson, Chervany 1980; Brown, Magill 1994; Schwarz, Hirshheim 2003].

A great debate has been developed around the advantages and disadvantages of the two models [Norton 1973] and most authors agreed that the centralized form allows for a greater control over IT standards and provides a greater opportunity for realizing economies of scale, while a decentralized form allows an increase in customization of business specific solutions and it improves the responsiveness to business unit needs [Von Simson 1990; Kayworth, Sambamurthy 2000; Lewis 2004]. Moreover, the concept that the governance structure of IT organizations is simply either centralized or decentralized tends to be superseded by more flexible approaches that treat the rigid dichotomous classification as scalar, allowing for either multiple degrees of centralized and decentralized structures [Ein-Dor, Segev 1978; King 1983] or a continuum between the two extremes [Olson, Chervany 1980; Tavakolian 1987].

Aside these kind of classifications, other authors proposed a tri-partite taxonomy to account for organization that tend to balance the advantages of both centralized and decentralized models [Zmud, Boynton, Jacobs 1986]. This was called the “federal governance framework”, in parallel to the way federal governments operate by giving centralized directives in terms of policies and guidelines, allowing subdivisions in states and provinces with a certain degree of autonomy. In the federal IT governance design a centralized IS group is established which provides core IT services while still allowing business units to control portions of the IS functions [Boynton, Zmud 1987; Hodgkinson 1996; Rockart, Earl, Ross 1996]. Studies were also performed on synergies between IT governance forms and IT decisions, developing also the idea that organization can adopt a centralized or decentralized technology irrespective of the IT governance framework [Allen, Boynton 1991] and also examining the centralization or decentralization of certain IT decisions [Sambamurthy, Zmud 1999].

Thus organizational structures implement a particular archetype of decision making structure and, according to Weill and Ross, IT governance encompasses five major decisions related to the management and use of IT in a firm, including
“IT principles”, “IT architecture”, “IT infrastructure”, “business application needs”, “prioritization and investments” [Weill, Ross 2004-2]. The way in which these decisions can be made depends on how their rights and accountabilities are allocated within a firm. But being IT governance much about decisions, there is the need to introduce specific management techniques by implementing alignment processes that bring key people on board to secure a widespread involvement in effective management and use of IT [Nolan, McFarlan 2005].

According to the IT Governance Institute, IT alignment is one of the five key domain of IT governance, together with “value delivery”, “risk management”, “performance management” and “resource management” [IT Governance Institute 2005], as shown in Figure 1 below.

![Fig. 1 – The five domains of IT Governance according to the IT Governance Institute](image)

The issue with alignment between IT actions and performance goals is outlined by Weill and Ross also [Weill, Ross 2004-2], who defined a framework that links the key decision domains with organizational archetypes for IT Governance:

- Business Monarchy, in which decisions are made by individual or groups of senior business executives (including sometimes the CIO\(^2\));
- IT Monarchy, in which decisions are made by individual or groups of IT executives;
- Federal, in which decisions are made by C-level executives together with business representatives of all the operating groups (including IT);
- IT duopoly, in which there is a two party decision making involving IT executive and one group of business leaders;
- Feudal, in which business units make separate decisions according to their needs;

\(^2\) CIO – Chief Information Officer, e.g. the head of IT Dep.
- Anarchy, each individual or group of users takes its own decision.

The work of Weill and Ross represents the contemporary research stream of IT Governance, which combines structural elements with contingency drivers. They came to their theory distilling the lessons from a wide sample of leading companies that they studied together with a systematic analysis within the academic scenario.

Ten principles can summarize their findings regarding successful IT governance [Weill, Ross 2004-1] which have been also found in the IT governance design of the companies analyzed in this research work. They are as follows:

- Actively design governance;
- Know when to redesign;
- Involve senior managers;
- Make choices;
- Clarify the exception handling process;
- Provide the right incentives;
- Assign ownership and accountability for IT governance;
- Design governance at multiple organizational levels;
- Provide transparency and education;
- Implement common mechanisms across the six key assets of the company (relationship assets, product assets, human assets, information/IT assets, physical assets, financial assets).

There are also other area of research that deal in particular with the reasons why a governance mode is preferable in respect to another. As argued by Sambamurthy and Zmud, the choice of a specific governance form is influenced by the pulls and pressures of multiple contingency factors that can reinforce, conflict or dominate over a particular mode[Sambamurthy, Zmud 1999].

Concluding this section, it is worth mentioning the aspects regarding three widely-recognized, vendor neutral, third party frameworks which have the purpose of providing guidance on IT Governance issues, each having a significant strength:

- ITIL, or IT Infrastructure Library, which was developed by the UK’s Office of Government Commerce as a library of best practice processes for service management. Widely adopted around the world, ITIL is now
supported by BS15000 (becoming ISO20000), against which independent certification can be achieved [ITIL 2006];

- CobiT, or Control Objectives for Information and related Technology, which was adopted by the IT Governance Institute is USA. It is increasingly accepted as good practice for control over information, IT and related risks. It guidance helps organizations implement effective governance over enterprise-wide IT [ISACA 2006];

- ISO17799, now supported by ISO27001 and both issued by the International Standards Organization in Geneva, which provides global best practice for information security management in organization. Although not specifically designed for IT Governance in general it treats many aspects that require a formal IT Governance design within a firm [ISO 2006].

**DESCRIPTION OF CASE STUDIES IN FINANCIAL SERVICES**

This section presents the case studies that have been used to conduct the mentioned research in the Financial Services industry. Six organizations grouped in three clusters form the sample for analysis. The letters A through F are used as pseudonyms for the companies involved. Each cluster represents a banking group, ideally associated to Company A, B and C respectively, while company D, E and F are subsidiaries of A, B and C respectively. The structure of the sample has been conceived in a way that “global” IT governance principles and practices can be analyzed in combination with “local” implementations and propagation dynamics can be addressed as well.

The companies in the sample have been taken out from the major banking group both at an international level (C1) and at a domestic one (C2, C2). The company profiles are described in table 1. In the remaining part of this section it is provided a brief insight on the Corporate Governance principles adopted by the companies in the sample. This is because, as outlined by the IT Governance Institute, IT Governance is not an isolated discipline and it is an integral part of overall enterprise governance [IT Governance Institute 2003].
<table>
<thead>
<tr>
<th>Cluster</th>
<th>Company</th>
<th>Business Area</th>
<th>Head Quarter</th>
<th>Company Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Company A</td>
<td>Banking and Financial Services</td>
<td>Non domestic</td>
<td>It is a market leader in retail and commercial banking and it is present in all major financial centres worldwide with a market leadership in wealth management, investment banking and global asset management. It operates with a parent bank and branches or subsidiaries worldwide.</td>
</tr>
<tr>
<td>C2</td>
<td>Company B</td>
<td>Banking and Financial Services</td>
<td>Domestic</td>
<td>It is a banking group with a leading position both in Italy and in Europe which has been gained through an acquisition strategy. It offers diversified solutions for retail and corporate clients and a broad range of products and financial services. With its branches and subsidiaries it is present worldwide.</td>
</tr>
<tr>
<td>C3</td>
<td>Company C</td>
<td>Banking and Financial Services</td>
<td>Domestic</td>
<td>It is a banking group with a solid domestic and regional tradition. It offers a diversified range of products and services to private clients and to corporate ones as well. It operates also abroad with branches, subsidiaries and correspondent banks.</td>
</tr>
<tr>
<td>C1</td>
<td>Company D</td>
<td>Wealth Management</td>
<td>Domestic</td>
<td>It provides financial services for wealthy clients. Through its client advisors it combines strong personal relationships with the resources available at a corporate level to provide a full range of wealth management services.</td>
</tr>
<tr>
<td>C2</td>
<td>Company E</td>
<td>Asset Management</td>
<td>Domestic</td>
<td>It plays the role of leading asset management services providing a full offering that can be tailored to a wide spectrum of investors. This is achieved through a broad range of products.</td>
</tr>
<tr>
<td>C3</td>
<td>Company F</td>
<td>Asset Management</td>
<td>Domestic</td>
<td>It has a leading role in asset management provision which is mainly developed at a domestic level. It offers a wide range of fund products even the more sophisticated with a good market share.</td>
</tr>
</tbody>
</table>

*Table 1 – Company profiles of the sample used for the case studies in Financial Services*
Company A has implemented a strong Corporate Governance framework with principles, practices and structures that propagate all over the branches and subsidiaries worldwide that are seen as units within a wide operational structure. It is committed to meet the highest international standards of Corporate Governance and it fully complies with the standards established by the regulations of its country and meets also the majority of the corporate governance standards of the New York Stock Exchange and the US Sarbanes-Oxley Act. It operates under a strict “dual board” structure, thus providing separation of powers and institutional independence of the Board of Directors from the day-to-day management of the firm, for which responsibility is conferred on the Group Executive Board. This principle is applied within Cluster C1 at a global, regional and national level, originating a complex structure and a highly sophisticated system of policies, regulations, standards, operating committees, directive on information, controls, reporting and rewards.

Company B has adopted a Corporate Governance system that operates through a traditional administration system, based on two independent bodies appointed by the shareholders’ meeting: one is the Board of Directors which represents the administrative body and the second is the board of statutory auditors with functions of control over company administration. This is because, by domestic law, accounting audit is assigned to an independent auditor or auditing firm, which are external to the company. Moreover its Corporate Governance structure provides the possibility to adopt two alternative systems: the so called dualistic system, which provides for a supervisory committee appointed by the shareholders’ meeting and a management committee appointed by the supervisory committee; the monistic system, in which administration and control are carried out, respectively, by the Board of Directors and by a management control committee created within the board.

Company C has adopted an organizational structure which complies with the guidelines set forth in the Italian Self-Discipline Code for Quoted Companies. This structure ensures also an adequate system of corporate governance which includes the bank statutory that disciplines, among the other things, the government bodies and the separation of powers between the board of directors and the executive committee. This is complemented by consulting committees that
contribute to the governance exploitation within Cluster C3. Then there is a complex set of company functions and procedures which includes: the organizational structure that provides the operational framework for governance, the discipline for external relationships, the internal code of behavior, the internal control systems and the function that take care of investor relations.

**RESEARCH OUTCOMES**

The outcome of the research that is presented in this paper is an insight on IT governance regarding how it has as been designed by the successful companies in the sample. The collected information has been declined against two approaches that form the basic key drivers of the research:

- the “matrixed” approach that juxtaposes the five decision areas (principles, application needs, investments, architecture, infrastructure) against six IT Governance archetypes (business monarchy, IT monarchy, feudal, federal, duopoly, anarchy) [Weill, Ross 2005];
- the “strategic alignment” approach that focuses on aligning IT with the business and on giving rise to collaborative solutions [IT Governance Institute 2003; Henderson, Venkatraman 1992].

In general terms, all the companies in the sample have adopted an IT Governance model defined internally, instead of adopting a “ready to use” one, although they are aware of the existence of well known standard frameworks. This confirms the trends illustrated in a recent research by the IT Governance Institute in which more then one-third of companies in the world use or are considering to use internally developed frameworks [IT Governance Institute 2006]³. It has been found that companies D, E and F, which are subsidiaries within their cluster, benefit of the global principles, directives and best practices defined by their head quarter (Cluster C2 and C3) or by the business group to which they belong (Cluster C1).

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³ As referred in the IT Governance Global Status Report 2006 on a sample of 695 surveyed companies [IT Governance Institute 2006], a possible explanation for this finding could be that standard framework – such as CobiT – often act as a baseline, in partial or complete form, to further elaborate an internally developed framework.
In all cases, the IT Governance archetype reflects the operational structure rather than the legal entity structure (leading bank, branches, subsidiaries). This suggests that IT Governance is designed in order to be aligned with the business strategy and needs, which is the ultimate driver of the organizational design.

For each company input and decision rights have been analyzed as per Weill’s “matrixed” approach in order to go into the dynamics of each cluster and the results are reported in synthesis in table 2 [Weill 2004; Weill, Ross 2005].

<table>
<thead>
<tr>
<th>Governance Archetype</th>
<th>IT Principles</th>
<th>Business Application Needs</th>
<th>IT Investments</th>
<th>IT Architecture</th>
<th>IT Infrastructure Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C1</td>
<td>C2</td>
<td>C3</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Business Monarchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Monarchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C3</td>
</tr>
<tr>
<td>Feudal</td>
<td></td>
<td></td>
<td></td>
<td>C1, C2, C3</td>
<td>A, B</td>
</tr>
<tr>
<td>Federal</td>
<td></td>
<td>C1, C2, C3</td>
<td>A, B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duopoly</td>
<td></td>
<td>C1, C2, C3</td>
<td>D, E, F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anarchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2 – IT Governance archetypes against decision domains in the research sample**

It is worth noting that in most cases input rights follow the federal model, meaning that there exists a central unit that provides guidelines within the clusters. An IT Monarchy is present in the cluster with lesser international dimension (C3).

For the Business Application Needs a federal model is followed in all cases, because enterprise objectives are taken into account when deploying local applications. Decision on IT investments and priorities are still a business domain: input rights are intended to be federal but the ultimate decision is in the hands of business executives which can allow the participation of CIOs. This behavior changes into the duopoly archetype if we look at the subsidiaries A, B and C, where business and IT tend to seat together in the decisional process. IT Monarchy appears in the more “technical” decision domains, this confirming that also in highly regulated environments IT managers are given a certain degree of autonomy within the components of strategic context [Broadbent, Weill 1997].
As an integral part of the research method, an IS Banking framework has been used in order to systemize observations about IT governance modes within cluster C1, C2 and C3. This framework, as shown in figure 2, includes the main building blocks that form the heart of the IS that sustain the interrelationships between the customers, the ultimate target of the products and services, the counterparties, the participants in the provision of product and services and the banking core organization, the front-end interface to the customers.

![Figure 2: IS Banking Framework](image)

Company A, for example, has established specific domain boards for the governance of each component in the framework. Representatives of both business and IT seat in the boards in a duopoly mode. Moreover, representatives of business and IT of company D have a membership in the domain boards at a global level of cluster C1 to which it belongs. A similar behavior can be envisaged in the other two clusters, where the blocks at the boundaries (namely the Customers and the Counterparties) are governed mainly by business representatives, with particular reference to the active role played in the working groups within the domestic regulatory bodies.
In almost all the companies in the sample, it has been observed that the capabilities of the individuals around information systems are changing as well the role of the key users is becoming more and more important. In other words, while innovation in IT is bringing about advantages, diversification and improved efficiency, thus eventually leading to better products and services for the customers, it is also true that more information-oriented financial services and networking is giving rise to greater and more complex interactions within the organization and among the counterparties, both domestic and cross-border.

To achieve all of the above, a comprehensive coordination and cooperation have been established within the financial institutions, the government and regulatory bodies and the service providers and best practices have been derived for the countries. On the other hand, the need for greater coordination and cooperation among the businesses implies then that strong coordination and cooperation take place also among the users, the external entities involved and the traditional IT specialists. Therefore, the community of stakeholders that moves around the information system of a financial institution is increasing in complexity and a multi-disciplinary approach is required to manage projects, to run the systems or let them evolve.

The issue regarding the alignment between business and IT strategies is facilitated by the IT governance framework that each company in the sample has adopted, this because it lets specifying the decision rights and accountability framework to sustain, as said by Weill, the desirable behavior in the use of IT within the organization [Weill 2004].

The research work has also analyzed a model [Henderson, Venkatraman 1992] that applies to rapidly changing business environments that require a highly integrated strategic management process. This model is based on the relationship between strategic fit and functional integration, an interplay between business strategy and organizational infrastructure and processes. Therefore, the IT strategy involve many choices, including scope of IT in terms of range and typologies critical to the organization, systemic competencies that enable the organization to create or extend the business strategy, IT governance in terms of ownership and management of the systems and technologies. The alignment concept suggests
combinations of leader-follower relationships that let business ideas develop new IT solutions and IT ideas create new business opportunities.

Due to these typical behaviors, it happens that in the development, management and operation of banking information systems there is even much more involvement of the business in respect to traditional IT people and also a different arrangement in the roles and responsibilities.

![Diagram of authorities in development and maintenance of IS in cluster C1](image)

**Figure 3: Pattern of authorities in the development and maintenance of IS in cluster C1**

The organization chart for the vast majority of the banks and financial institution, including the ones in the analyzed sample, is still showing distinct boxes for IT and business, because the criteria for employees within IT are typically based on knowledge of specific technologies or the ability to perform a specific type of IT role. Business expertise, strategic planning, trending and forecasting are not typical core competencies of IT people, therefore business representatives are becoming to play more important roles in IT governance. This behavior has been systematically found in cluster C1 and in companies D, E and F towards their functional reporting line to the head quarters. Figure 3 shows a recurrent pattern of authorities in the development and maintenance of the information systems in
cluster C1. There are IT processes [SWEBOK 2004; PMBOK 2004] whose responsibility is uniquely assigned either to the IT owners or to the Business owners, resulting in a typical scenario as follows:

- Business owners, who are accountable for Business Requirements or Business Process Specification, User Acceptance Test (UAT) and User Training;
- IT owners, who are accountable for Functional Specification, Prototyping, Design, Build, Test (up to System Test level), System Operation and System Maintenance.

On the other hand, there are processes where there could be either a responsibility assigned to the businesses – which is a relatively new trend in IT organization and practices – or a joint responsibility. This is resulting in an hybrid pattern of accountability which is an even more frequent way in which organizations tend to develop and manage their information systems, resulting in IT governance mode in the form of duopoly.

**CONCLUSION AND FUTURE RESEARCH**

The outcome of the research that is presented in this paper has to be intended as an insight on IT Governance showing that successful banking groups that have implemented strong Corporate Governance framework have also in place formal IT Governance systems. In all cases, these systems have been designed internally to reflect the organizational structures that lead and manage these firms.

This insight could be further explored in a future work following these research directions:

- enlarge the analysis sample in order to populate the Weill’s matrix with further scenarios;
- develop a process view based on the strategic alignment principles;
- collect cases that could provide also insights on contingency factors, such as infrastructure, knowledge, strategy, innovation, utilities and e-business capabilities.
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