Economic recessions, globalization, offshoring and demographic changes are factors that have affected and shaped business strategies, organizational structures, markets and fortunes of people and enterprises. They are hugely important and critical issues; however, digitalization is even more impactful. In fact, recent digital progress can be considered as significant as the 18th-century Industrial Revolution, affecting economy, society and culture by eliminating constraints and creating new opportunities.

Digital transformation has generated enormous potential benefits such as the chance to capture both new and traditional markets with novel services and products. However, disruptive business models and innovations are forcing organizations to quickly redesign their strategies, skills, processes and structures. The rules for business success are changing. Factors that in the past led organizations to success now need to be rethought to help them stay competitive.

Organizations must be designed to encourage collaboration and coordination across functional units and at all levels. Pure hierarchy must be overcome by structuring activities around business components.

As the Industrial Revolution is associated with the onset of the Industrial Age, the digital revolution marks the establishment of the Information Age. To the current revolution, IT is what new sources of energy were for other industrial revolutions.

Digitalization has amplified the importance of information technology. At the same time, to achieve high performance in a fast-changing world characterized by uncertainty and disruption, an interconnected organization and a diffused decision-making process are needed. Because of this, today’s IT department must cooperate proactively with the business functions to identify technological innovations and quickly turn them into marketable solutions.

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The most successful organizations that exploit digital technologies to achieve higher levels of performance, profits and productivity are based on a strong relationship between their IT department and business functions. IT systems must be efficient with respect to strategic objectives and must support business processes.

However, effective alignment between business and IT has turned out to be a great challenge. In fact, in many organizations, the IT function is still not integrated with the business departments and it is perceived as being inflexible and too bureaucratic.

Defining Demand Management

Over the years, organizations have been designing various processes and introducing teams and roles that seemed able to ensure alignment between IT and the organizational strategy. This matter can be attributed to a general misunderstanding of the IT demand concept, generated by the lack of a shared framework and definition. In fact, while the concepts of IT management and IT corporate governance have been clearly defined by the International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) ISO/IEC38500 (2008) standard, IT demand is not a uniquely definite concept yet. A deep literature review revealed six different IT-demand perspectives on IT demand:

- IT demand as the process aimed to manage relationships with the internal customers, analyzing their needs and turning them into requirements for the IT development team, and to manage the activities related to the design of development planning. IT demand is considered a single point of contact between strategy and IT, which is represented by a group of individuals who are usually part of IT development teams.
- IT demand as a set of project/program management processes, such as performance management, which aims to balance business demand and IT delivery. The IT demand team is a standalone group that reports directly to the chief information officer (CIO) and holds a seat on the executive committees of business units.
- IT demand as the process that aligns, balances and manages IT investment throughout the organization. These activities are performed by a dedicated portfolio management team that is part of the IT department.
- IT demand as a requirement engineering process or, more broadly, business analyst practices performed by IT experts. Thus, in this perspective, IT demand is considered the practices focused on making explicit business needs and evaluating what must be delivered.
- IT demand as the process that translates IT principles into a vision that is clear for the entire organization. On one hand, it is useful for the lines of business (LoBs) to understand how to
exploit IT as leverage for the business. On the other hand, it helps the organization to rethink and adjust the IT applications, processes and capabilities whenever relevant changes occur. This process is performed by the IT department.

* IT demand as a role—the CIO. CIOs are considered the person responsible for aligning IT and business by satisfying business needs, managing costs, managing relationships, overseeing enterprise architectures, etc. They are the responsible party for any process that supports the alignment between business and IT.

All these perspectives can be integrated into one single definition of IT demand (D1): IT demand is a process, a set of processes or a role, anchored in the IT department, that aims to align business and IT.

Even if the concept of IT DM has not been clarified by standards and frameworks, the literature search pointed out that IT DM has been traditionally considered as processes and roles belonging to the IT department and focused on establishing integration between IT and the business (figure 1).

For historical reasons, IT demand processes and roles have been anchored in the IT function. This approach has generated inadequate visibility for top management and a lack of business ownership that, in turn, has limited the generation and full recognition of business-oriented benefits. The same can be said also for IT, which is poorly involved with business processes. Interviews state:

* Understanding and being aware of the relevance and of the role of IT is a difficult task for Lines of Business... IT has a poor visibility and is involved belatedly on business processes... (Giovanni Fermi, Banca Fideruram)

The relationship between IT and Line of Business is complex. The IT often has poor or insufficient knowledge of business processes and needs. The LoBs too often are not aware of IT mechanisms, the complexity of IT processes and the potential risk and impact that IT can have on costs and management. —Riccardo Bergerone, Tnt

These facts prevented the diffusion of IT demand practices on a corporate scale, which is needed to ensure the alignment between IT and business. For instance, to build an effective enterprise architecture, processes performed by LoBs—such as those for ensuring the communication of the architecture model, for managing the architecture capabilities, and for defining architecture guidelines and design—are required. Moreover, leadership skills and performance measurement are necessary to ensure the generation of added value through the enterprise architecture.

Interviews with experts in IT governance and innovation and participation in focus groups conducted by consultancy organization P4I have led to the conclusion that the vision organizations have today regarding IT demand (captured earlier as definition D1) has brought a lack of innovation, a rigid and overstructured approach, and the positioning of demand strictly linked with the IT department. These consequences do not fit the fast-paced environment in which organizations are operating. In fact, organizations are asking for an
agile approach that guarantees both integration and transversality simultaneously. IT today covers a crucial role and must be considered a strategic element that must be fully integrated with corporate governance. Integrating IT with the organizational strategy is not just a role of IT managers; it must be a role shared with senior managers, executive directors and the board of directors. To embrace IT, boards and management in the LoBs and the IT department must work together and collaborate.

A new perception of IT demand that considers it as leverage for the fluid and agile organization is needed. IT demand must not be a branch of the IT department. Instead, it must be anchored in both the LoBs and the IT department. Business and IT must become inextricably linked through a continuous and close collaboration. Simply allocating some resources to bridge business and IT does not ensure an effective alignment between them. Experts involved in this research and other important research, such as work on IT portfolio management, agree on the fact that responsibilities of processes aimed at the alignment between business and IT must be assigned mainly to business functions of organizations. In fact, throughout the remainder of this article, IT demand will be called simply DM to overcome the old perspective of IT demand, which is strongly focused on IT processes and activities and places DM processes only in the IT department.

To provide a modern perspective of DM, focus groups and unstructured interviews have been performed and ISACA’s COBIT® 5 framework deeply analyzed. As a result, DM is now defined as (D2): A set of processes that are diffused throughout the entire organization, are under the responsibility of both IT and business managers, and are aimed to ensure agile responses to a changing business environment through strategic alignment between IT and LoBs.

**Demand Management Maturity**

Clearly there has been an evolution in the concept of DM, but is this evolution reflected in organizations?

After having clarified the concept of DM and its transformation, this research aims to understand how organizations have developed their own DM processes. Consequently, the research question to be examined is if organizations are moving toward the implementation of DM processes that are diffused throughout the entire organization. There will also be two subquestions: What transformation path are organizations following? What practices are organizations performing to facilitate this transformation?

While, according to the traditional perspective of DM (D1), processes that support the organization to align business and IT are anchored in the IT department, according to the new perspective (D2), these processes are diffused throughout the entire organization on both the IT and business sides. Thus, to describe the evolution of these processes, a two-axis matrix was developed. The horizontal axis reflects the maturity of DM processes on the IT side, and the vertical axis shows the maturity of DM processes on the business side (figure 2).
To position organizations on this matrix, they were evaluated on key DM practices described in COBIT 5. Additionally, according to COBIT 5, the main roles responsible for DM practices are the business executives and business process owners on the business side and the CIO on the IT side. It is to them that the research questions must be addressed.

Taking into account the complexities of engaging high-level directors such as CIOs together with the experts involved, in-person interviews were avoided and, instead, two different questionnaires were developed: one for the business roles (business executives and business process owners) and one for the IT role (CIOs or, if not possible, a manager directly reporting to the CIO). The questionnaires enable classification of the maturity of DM processes as:

- **Low**—The process is not implemented or is incomplete. Therefore, it does not fully achieve its purpose.
- **Medium**—The process is implemented and achieves its purpose, but it is not formalized. Likely, it is not planned, monitored and adjusted in a proper way.
- **High**—The process is well established and formalized. Planning, monitoring and controlling are performed; it may also be continuously improved.

Therefore, the matrix can be divided into nine sections, which can be grouped in five different groups that aggregate more quadrants, resulting in what the authors call the aliens, dinosaurs, old men, pupas and stars (ADOPS) model (figure 3).

**DM PROCESSES ARE CRUCIAL TO STAY COMPETITIVE IN THE BUSINESS ENVIRONMENT SINCE THEY GUARANTEE THAT IT CAN BE EXPLOITED AS A STRATEGIC ENabler.**

Detailed descriptions of each of the ADOPS groups follow:

- **Aliens**—According to the literature, DM processes have been traditionally anchored in the IT department. Thus, organizations whose DM processes are more mature on the business side than on the IT side should be rare. However, “alien” organizations exist and are represented by those organizations that have anchored DM processes on the business side. For example, this may include organizations that outsource IT services. This practice can generate high efficiency, since the business needs are satisfied by the external IT service provider, but it is more likely to generate low efficiency due to a misalignment between the enterprise architecture and the IT services bought. The IT applications are not integrated within the organization.

- **Dinosaurs**—Organizations belonging to this group are characterized by low maturity on both the business and the IT sides. As the literature analysis demonstrated, DM processes are crucial to stay competitive in the business environment since they guarantee that IT can be exploited as a strategic enabler. In fact, organizations that have not developed these processes are likely to be characterized by low effectiveness and efficiency. Low effectiveness results because strategic needs cannot be fully satisfied without defining requirements, aligning the IT applications to the enterprise architecture, etc. Moreover, the lack of DM processes generates difficulties for the IT department, which lacks precise specifications, thus needing a huge effort in terms of resources to produce valuable outputs and to integrate them with the organization. These factors result in low efficiency.

- **Old men**—Companies that have developed and implemented processes and roles aimed at aligning IT and business following the traditional
concept of DM (D1) are positioned in this group. The processes they developed have been anchored to the IT department, so they are characterized by medium/high maturity on the IT side and low maturity on the business side. These characteristics of DM processes cannot guarantee a high satisfaction of business needs since LoBs are not involved. Therefore, even if the IT services developed may be suited for and perfectly integrated within the organization, they are likely not to be adopted by the LoBs. Thus, despite the high efficiency, this traditional approach generates low effectiveness.

- **Pupas**—While the two previously discussed groups (dinosaurs and old men) represent stable situations, this group consists of organizations that are evolving. They have understood that, to keep LoBs and IT aligned, both of them must be involved in DM processes. Thus, pupa organizations have been spreading DM processes and responsibilities throughout the entire organization, going against the traditional approach and the alien approach. Pupas are making efforts to evolve and gather strategic benefits from IT processes. It is a temporary and dynamic situation, so organizations belonging to this group may have various characteristics and levels of efficiency and effectiveness, which should be analyzed for each specific case.

- **Stars**—These are the organizations that are located in the top right of the matrix. These organizations do not consider DM as a defined role, team or process. They fully understand the importance of having a fluid organization, in which processes are spread throughout the entire organization on both the IT and business sides. Business and IT have become inextricably linked through a continuous and close collaboration. Thus, IT applications are not only fully integrated with the organization—that is, aligned with enterprise architecture, portfolio of services, etc.—but they are also generating added value for the business and the strategy by satisfying their needs. Therefore, both high efficiency and effectiveness are achieved by star organizations.

**Findings**

By means of the model designed, the elaboration of the data gathered through a tailor-made survey and the analysis of a case study, it has been possible to analyze demand management processes and consequently answer the macro-research question.

First, the panel analysis was spread across three clusters—old men, pupas, stars—however, this fact cannot exclude the existence of organizations classified either as aliens or as dinosaurs. Organizations are located on the ADOPS model along a trend line that corresponds to a significant positive correlation between the maturity of demand management on the IT side and on the business side. Thus, there is a simultaneous growth in the maturity of demand management on the IT side and on the business side. Additionally, regardless of the sector in which organizations are operating, there is always an organization that has highly mature demand management processes, and it may represent a threat for all the organizations that still adopt traditional approaches to demand management (**figure 4**).

By analyzing the correlation between the maturity levels and the size of the organizations in terms of revenues, it was found that there is no evidence of a strong monotonic correlation between the size and the maturity levels. Therefore, there are no suggestions that organizations with larger size correspond to higher maturity levels (**figures 5 and 6**).

Another finding relates to the characteristics that differentiate stars from old men and pupas. Those characteristics are: strong formalization of demand management processes; shared responsibility combined with management by objective techniques; high frequency of training courses addressing LoBs, IT department and both jointly; and use of supporting tools for demand management practices. Additionally, the willingness of old men organizations to evolve toward an integration of LoBs and IT is demonstrated by the
Figure 4—ADOPS Model Implementation

ADOPS Model

Demand Management Maturity—Business Side

Demand Management Maturity—IT Side

Figure 5—ADOPS Model By Size

ADOPS Model

Demand Management Maturity—Business Side

Demand Management Maturity—IT Side
fact that most of them have implemented shared responsibilities and have adopted techniques to share internal business knowledge with the IT department.

Overall, the trend line and the strong correlation between the maturity of demand management processes on the IT side and on the business side, which was equal to 0.893 (Pearson coefficient), demonstrate that organizations are moving from a traditional approach of demand management, which is anchored in the IT department, to an approach where demand management is diffused throughout the entire organization. The willingness to evolve toward an integration of LoBs and IT is also demonstrated by the fact that most old men organizations have implemented shared responsibilities practices by having experts belonging to the LoBs who share responsibilities related to the development of IT solutions and the added value they generate with the IT department. Additionally, 100 percent of old men organizations have adopted practices to share internal business knowledge with the IT department. These findings, together with the information gathered through the interview, demonstrate that the typical path that organizations are following goes from the bottomleft of the matrix to the topright. Nevertheless, this path is not the only one possible. In fact, as the case study demonstrated, there may be slight variations off this path or there may also be totally different evolution paths, for instance, of organizations that start from another position, such as alien organizations. However, given that traditional demand management processes have been anchored in the IT department, the majority of organizations are likely to start from old men positions.

**Conclusions**

Despite the fact that CEOs have been increasingly asking practical questions such as "How do I compare with other organizations?" no model or framework that assesses the maturity of demand management processes has been identified. Thus, the most important managerial implication is that a maturity model can be used autonomously by any organization to assess the maturity level of their demand management processes and then understand which steps have to be undertaken to reach the desired state.

In every industry analyzed, there are organizations that have already reached a high level of maturity of demand management both on the IT and business sides. Therefore, executives of any organizations should undertake the evolution toward the modern approach of demand management. An industry that, on average, is less mature cannot be considered as an industry where demand management is not an urgent issue. Additionally, regardless of its dimension, any organizations can reach a high maturity level developing demand management processes that are diffused throughout the organization. Finally, the key characteristics of stars may affect managerial decisions, since executives of the organizations that are willing to undertake this evolution can use them as a benchmark.

The main limitations of the research reside in the characteristics of the panel of organizations that have been involved in the research. First, the number of companies that has been reached is relatively low and, consequently, the data collected have no statistical relevance. Second, results may suffer from biases caused by the nature of the organizations belonging to the panel. In fact, even though many of them operate globally, their characteristics and evolutions may be affected by their origin, which in most cases is Italian. To overcome these limitations and generalize the results of the study, the survey may be distributed to a larger and more heterogeneous sample of organizations.
Moreover, from the research emerged the finding that some organizations implemented or are interested in implementing Agile practices to facilitate and support the establishment of more mature demand management. Therefore, future research may be focused on analyzing the benefits and consequences that Agile practices have on demand management processes. An additional investigation that has not been addressed in this research and would be interesting is the analysis of the relationship between demand management processes and the innovation level of organizations.

Overall, the research has provided both academics and practitioners with valid contributions, clarifying the concept of demand management, showing how this evolution is occurring and determining a maturity model that can be applied both for future studies and for companies’ self-assessment.

Endnotes

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