



IT for crisis

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To find a sustainable solution to struggle against the current crisis, a strategic issue that is not sufficiently studied must be taken into account. This is the ability of organizations to keep the complexity of their information systems under control.

The force of the crisis lies in structural causes but also in the opacity of organizations and business processes. For both micro- and macroeconomics, the huge complexity of organizations, business exchanges and business regulations provides companies with increasing difficulties for traceability and control of their business operations.

It must be admitted, this complexity will increase over time. Organizations evolve, innovate, set up new manufacturing processes, new retailer networks, new partnerships, etc. These changes generate more information, more exchanges, more organizational and business rules. The information system follows a complexity curve that is correlated with one that describes the level of innovation and change.

The companies that work resolutely to master their complexity will be the first to emerge from the crisis.

Without a strategy that fosters innovation and change, the company will generate little additional complexity. Unfortunately at the same time, the company will lose its competitiveness because of a lack of added-value.

With a strategy that fosters innovation and change, the company will face an additional level of complexity. A strong management to keep this complexity under control is mandatory because otherwise the company's viability could be in danger. Innovation and change are required while mastering the additional complexity.

What is the meaning of 'keeping complexity under control'? This complexity lies in real-time information flows, decision-making and operations that are executed quickly depending on business processes. Furthermore, these processes often change in order to remain competitive. This dynamic information system needs to be supported by IT tools that provide a higher traceability of business operations, a unified and true vision of data, a strong ability to generate key performance indicators and business alerts without forcing heavy and risky IT software developments. Today, this IT infrastructure dedicated to dynamic information systems doesn't exist. Flawed decision-making and lack of control in the management of companies, highlighted recently in the financial industry, concern all the economic sectors that suffer from the same drawbacks of heavy and unadapted IT solutions to meet modern requirements.

The improvement of existing IT, which is unable to manage the additional complexity due to innovation and change, is a strategic issue for the competitiveness of companies. This improvement is a key condition for supporting growth at both micro- and macroeconomic levels.

Unfortunately, the issue studied in this paper is more important than the usual suffering due to the lack of alignment between IT and business. More precisely, existing IT solutions have become a time bomb that will prime when the absorbable level of complexity is exceeded. Once the bomb is ready to explode, the reaction time to regain control of complexity could be too long and the effort too expensive to stop damage.

What are the key points of our observation in the current period of crisis? To emerge from this crisis, companies must innovate, conduct changes to gain new market shares. Companies must also work on a better alignment with increasingly complex business regulations. By managing these changes more quickly than its competitors, companies will generate supplemental complexity even if an optimization effort is ensured. Only a well-adapted IT solution to this modern context - a 'dynamic information system' as already said above - will allow companies to absorb this new level of complexity without losing control of their IS. Without a sufficient quality of IT solutions, actors in organizations could take bad decisions due to a lack of supporting tools for managing complexity. Moreover, decisions of top-management will be executed with delay, key performance indicators and business alerts will be flawed, etc.

Complexity is the hidden side of the current crisis. Companies must be well equipped to master this new level of complexity inside their organizations and outside regarding their partnerships and constraints due to business regulations. To succeed in managing this complexity, a new approach of the IS and underlying IT solutions is mandatory. The objective is to improve the level of traceability and reduce the level of opacity inside the IS. This approach requires strong changes in the manner of managing the IS and IT. Only upper-management of companies can demand these changes and promote them.

IT is no longer strategic when considering it as a production tool. This is its basic feature. If your IT manager says 'Since our IT production key indicators are green, everything is fine' then your IT is just a commodity (supplied without qualitative differentiation) and not a strategic weapon. IT becomes strategic when managers understand that it is a tool for managing the complexity that increases with the level of innovation and change. To attain a more strategic approach in the context of dynamic information systems, a skilled IT strategist must be appointed. He will explain how it is possible to transform the existing IS in a progressive manner so as to manage additional level of complexity: how much could this transformation cost? What are the risks? Etc.

Who is this skilled IT strategist in organizations? Most of the time this should be the CIO. But during these last years, CIOs have worked on day-to-day production and operational management. They also have been increasingly interested in business strategy. Their goals are to support business in order to maximize the use of IT potential. But what does this IT potential become when IT is too heavy and is unable to easily manage additional levels of business complexity? The capability of existing IT is often so limited that the strategic business support brought by the CIO is transformed into a weak and costly implementation. In parallel, modern IS methodologies and technologies have become mature but most CIOs have enormous difficulty in understanding them. They don't master the key principles so they are not able to deploy them while controlling the risks. This lack of vision on concrete possible actions to transform existing IS becomes an awful problem.

Rather than reinforcing the ability to manage complexity, IT specialists reproduce obsolete IS evolution models by stacking up software layers over existing IS. Unfortunately, this approach reinforces the inability of IS to face supplemental business complexity.

However, the improvement of capability to manage additional complexity is possible. CIO must appoint a skilled IT strategist who will explain how it is possible to succeed.

Indeed, the crisis of complexity of IS can be reduced with help from **'the automation of business referentials'**.

These referentials allow companies to extract from existing IT, without restructuring it:

- Master data, reference data, functional and technical parameters (Master Data Management) such as Customer, Product, Organization, Chart Account, Real-estate, etc.
- Key business rules (Business Rules Management System),
- And key business processes (Business Process Management).

This extraction, relying on a good method and well-adapted tools, will enhance the level of business management and remove the opacity of IT. By deploying in a right manner and order these three referentials (first MDM, second BRMS and third BPM), the traceability and ability to manage additional business complexity is improved.

The detail of this approach around the three key referentials can't be described here, but it is vitally important that upper managers know that it exists. For more information about our vision regarding the progressive restructuring of IS, please visit our website: <http://www.sustainableitarchitecture.com>.

One of this paper's main findings is that current crisis will have a huge impact to the level of complexity inside organizations and outside regarding partnerships and alignment with business regulations. To survive, companies are forced to innovate and change more and more quickly and strongly. Without an IT tool adapted to dynamic information systems, the additional complexity generated by innovation and change will not be managed and will not sustain growth.

Today, IT is in crisis because it is unable to manage a supplemental level of business complexity. Too many companies suffer from the lack of data quality, the lack of traceability of their business operations, the flawed reporting, the bad alignment with business regulations, etc.

The crisis of IT mixed with the economic crisis brings a new strategic issue for the upper-management. To face this problem, a new IS approach is required. This is an 'IT FOR CRISIS'. In other words, this is not only the crisis of IT and economic. Obviously, the objective is not to restructure in one step the existing IS. Companies can't do it in one go. To succeed in this progressive overhauling of IS, we highlight the need to regain strategic referentials that are formed of MDM, BRMS and BPM. These referentials are vitally important, they constitute the key IS assets. However, only a suited method will allow companies to succeed in managing complexity.

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