The Digital Enterprise and the Changing Role of IT

Digital Transformation — involving the four pillars of technological disruption, namely Big Data and Analytics, Cloud Computing, Mobility and Social Networks – can provide major benefits to the enterprise, including easier customer reach, personalized customer care, improved productivity, and better collaboration and innovation, leading to increased revenue and reduced cost. While each of these pillars is powerful by itself, their collective use can provide strong synergies and endless possibilities for innovation. However, investing in these without a well-thought out digital strategy will lead to ineffective implementation and an ad-hoc and skewed adoption. With the blurring of boundaries between business and technology, the IT department and the CIO today have a pivotal role to play in ensuring the effectiveness of a Digital Enterprise. This paper highlights the various factors and considerations that drive this change in the role of IT, as well as the cultural and mindset change that must occur at all levels of the enterprise.
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Introduction

The consumerization of technology, marked by the invasion of employee-owned smartphones and tablet devices into the workplace, has changed the roles of the IT department and the CIO. No longer limited to technology, these roles have evolved and grown, making ‘people’ the key consideration and focusing on their empowerment and collaboration needs. The key benefits of Digital Transformation, built on the four pillars of Big Data and Analytics, Cloud Computing, Mobility and Social Networking, are numerous. Cloud computing with its anything-as-a-service paradigm shift offers new scalability and economy. Mobility with its anytime-anywhere culture is enabling easier customer reach, better supplier interaction and improving employee productivity. Social media is shifting the balance of power from businesses to consumers and offers powerful two-way communication between consumers and businesses. Social media can change the partner ecosystem dramatically, building sharing and crowdsourcing solutions. Big data expansion means there is more and more data about the customers, and with effective analytics, personalized customer care has become a reality. By effectively embracing these four pillars of a Digital Enterprise, CIOs today can lead their organizations to a state where information technology redefines business.

The New Digital Technologies – Their Impact is All Pervasive

Digital disruption is not limited to the boundaries of the enterprise; it has something to offer everyone – customers, employees, partners, service providers, CXOs, top management, entrepreneurs as well as shareholders. As the influence of these technologies and the corresponding customer demands are not under the control of any entity, ignoring these, or even worse, letting the individual components grow unharnessed is surely a recipe for disaster.

Customers voice their grievances on social networks, use peer reviews for product selection, and increasingly expect personalized products and services and near-instant solutions. Mobile devices today are almost equivalent to computers and function as instant access, anytime-anywhere devices. Employees bring their own devices, business users work on projects using easily available cloud services, and IT personnel explore newer technologies with no initial investment. The availability of cost-effective analytics and big data can provide organizations with real-time business intelligence, making it possible to take decisions on each individual case, based on a clear understanding of past data — a possibility that did not exist earlier.

Social media is fast becoming the standard, or default channel for communication – between customers, employees, partners, and even within the organization. Customers speaking to a customer service representative to get their queries answered and problems solved has become the norm. There is a close correlation between customers’ loyalty and their level of comfort in their digital interactions with the organization.

Social media investments today can have business objectives such as reducing costs on traditional customer research, paid media, and third-party customer surveys as well as pre-empting negative influence spread. Enterprises are currently in the experimental stage of social media usage, and it is
expected that in a few years, organizations will use social media to achieve targeted objectives with clearly defined business results — both in the customer space as well as in employee collaboration.

Big data today is bringing in the most benefits for companies that conduct a lot of their business on Internet — in the area of logistics and sales, in improving customers’ offline experience, and marketing to consumers based on their physical location. And in customer service, monitoring how customers use their products to detect product and design flaws is seen as a critical application for big data with great potential benefits.

The Synergy between the Four Pillars

Individually, each of the above mentioned four pillars is powerful by itself; leveraging them collectively however, produces synergy and provides possibilities for innovation. Research firm Gartner rightly calls this the ‘Nexus of Forces.’ Take for example, a high valued customer on business travel across the globe, who raises a complaint on a social network. This triggers a message to the customer service representative, who connects to the analytics system, deployed cost-effectively on a public cloud, to get the complete customer history. He then uses a mobile application to get approval for the additional expenses required to solve the problem without delay, fixes the problem, and informs the customer on the same social network. The outcome is that customer is not just satisfied, but delighted as his problem has been resolved within minutes, even though he is almost half a world away from his home country.

As the number of mobile connected devices grows exponentially, there will be more connected mobile devices than people in the near future. Social and mobile client interactions are by nature ad-hoc and their volumes are not predictable. The elastic nature of the cloud — that can cater to wide load fluctuations — makes it the ideal platform for social and mobile interactions. Enterprises with an independent cloud infrastructure for non-transactional applications are also assured that the performance and security of the underlying applications and infrastructure (that are transactional and still the foundation for any business) are not adversely affected.

IT can help enterprises get value from the 'Nexus of Forces'

The IT department’s role in ensuring that these four pillars operate in an effective and seamless manner cannot be overstated. It is imperative that the users, be they customers, business users or external partners, are provided with a simple, straightforward and intuitive experience. IT has to absorb all the backend complexities on which innovative solutions are built. In this way, IT can regain its glory days and become the ‘business game changer’ in the new Digital Enterprise.

Going digital gives enterprises the opportunity to extract value from their service orientation investments. The better the underlying applications adhere to the service-oriented architecture (SOA) concept, the easier it is to try out new ideas on social and mobile interactions. Agility is the key to success, and the underlying IT systems must be made more open and flexible with adequate instrumentation, service orientation and Application Programming Interface (API) management.
Cloud computing has evolved over the past few years, and today ‘anything-as-a-service’ no longer means only commodity services. Cloud computing can now cater to custom requirements, making it possible to have the best of both worlds: the IT best practice of using a layered approach to application development enables the twin achievement of these seemingly conflicting objectives – differentiated solutions coupled with maximum cost benefit due to commoditization and economies of scale, such as a completely customized solution at the top layer (business process or workflow), with highly commoditized underlying applications, software and hardware.

The rapid pace of development in these four pillars makes it impossible for IT to retain end-to-end accountability and responsibility for all the initiatives related to these areas. Co-creation of solutions, with active involvement from business, customers, suppliers and partners, is the key to the growth and continued relevance of IT. IT has to take on the role of the enabler in creating an eco-system that nurtures idea generation, innovation and experimentation, all aimed at making the best use of technology to deliver business results.

The Digital Enterprise thrives on Innovation

While customer experience is driving new initiatives in most organizations, appropriate instrumentation and automation in these four pillars can also be used to solve a variety of real-life problems. Examples include real-time parking (i.e. making it easier to find a place to park), real-time tracking of vehicles and inventory, and taking instant decisions and corrective actions to handle unexpected situations (for example, during natural disasters).

Innovation is not necessarily about only conceiving a completely new idea; it can also mean adapting an idea to a different context to solve real-life problems. Enterprises that look beyond their own domains to identify potential ideas that can benefit their business are the ones forging ahead. It is not an exaggeration to say that now is when enterprises are facing the ‘Perfect Storm of Innovation’.

Business users and IT have to work together to develop new ideas that exploit technology, customers can be co-creators, employees have to be empowered to cut across department boundaries to make decisions, and suppliers have to be co-innovators and partners.

The pace of technology change and the speed at which competitors emulate any innovative differentiator, makes it necessary for organizations to continuously innovate. In today’s context, innovation is really about bringing in new approaches from both the customer space and from other domains, into the organization. Creating an environment that nourishes an innovative culture across the organization is the key for sustaining value. Hence most enterprises today are investing in internal social and collaboration platforms and encouraging employees to participate, contribute and collaborate.

The Digital Enterprise - Challenges to Overcome

Unquestionably, there are many success stories on how organizations have used one or more of the four pillars of the Digital Enterprise to turn around their failing fortunes, and more stories on how successful
companies have further fueled their own growth. However, there are also a few cases where organizations have failed to achieve value from their investments. In the Big Data Study conducted by TCS, which surveyed 1,217 companies in eight countries across North America, Europe, Asia-Pacific and Latin America in December 2012 and January 2013, a little over half (643) said they had undertaken Big Data initiatives in 2012 and 43% of them predicted an ROI of 25% or above while about 24% had negative or no return. The same study showed that, while sales receives around 30% of the budget, and logistics and finance together get only 14%, on the potential returns, logistics ranked as high as sales.

Some organizations have ended up wasting resources and increasing the complexity of their eco-system and worse still, leaving customers and employees disillusioned.

As with all breakthrough ideas, these new initiatives have associated risks and pitfalls. Some of the issues include:

- Impact on employee productivity and exposure to legal implications due to increased use of social networking
- Increase in IT complexity resulting from the need to manage multiple mobile platforms and ensuring compatibility across channels
- Overuse of analytics, thereby possibly flooding users with information and making it difficult for them to separate the wheat from the chaff
- Ineffective use of cloud that may result in increased financial outlay
- Increase in security risks and difficulty in protection of IP due to social and mobile interactions

**Digital Strategy**

**Need for a well thought-out Digital Strategy**

A big bang approach or an attempt to overhaul the entire organization with the power of these four pillars poses a major risk. Implementing such initiatives without a well-thought out digital strategy will result in an ad-hoc and skewed adoption, thereby posing a serious financial threat as well as damaging the organization’s image.

Enterprise Architecture (EA) with its guideline-based and big picture approach is ideal for use in developing an appropriate digital strategy. However, instead of the IT department anchoring the creation of EA with inputs from others as has been traditionally the case, in the new Digital Enterprise, EA should go hand-in-hand with collaboration, innovation and empowerment. Ideally, the digital strategy should be driven by the business with active involvement from customers, suppliers and partners, enabled and ably supported by IT. The digital strategy should be a guiding force in setting high level policies, business priorities, investment limits and long term goals, rather than being prescriptive and thereby curtailing innovation.
Digital Strategy - Considerations

To support the new initiatives effectively, the IT department must develop new technology skills related to mobile computing, enable multi-channels, application integration, and analytics that focus on unstructured data (which typically constitutes 80% of the data), develop NoSQL databases that are appropriate for cloud, exploit open-source tools and use mash-ups and scripting languages.

The vast amount of data available and the innumerable possibilities of exploiting this data can be a daunting task and can overwhelm the organization’s analytics efforts. By using cloud computing, huge initial investments on big data and analytics can be avoided. The simple approach of using stubs can ensure that ideas are piloted and refined before full-fledged deployment is pursued.

Though there are several models of cloud pricing available, the true spirit of cloud computing, where IT is treated as any other utility, can be actualized only in the pay-per-use model. The downside is the possibility of cloud usage-based payments overshooting expectations or fluctuating wildly. However, these are usually just teething issues that can be corrected by having proper checks and balances – alerts when the usage is expected to exceed the limits (that can be set approximately) and also tracing back the expense to the source (application or department). Once sufficiently mature, the departments can be given ‘pre-paid’ limits for their cloud usage – giving them autonomy and encouraging innovation while keeping spend in control.

Digital initiatives invariably present new security risks – for example, big data may also be critical data which can be exposed to business, customers and IT. Again, while encouraging employees to bring-your-own-device (BYOD) definitely saves costs and improves employee productivity, it can increase security risks. Lastly, data stored in the cloud adds another layer of complexity. It is therefore imperative that a significant percentage (say 20-30%) of the cost savings and the increased revenue from these initiatives be reinvested in improving information security and reducing enterprise risks.

A Cultural and Mindset Change is Required

A key cultural change that is sweeping many organizations today is that the IT department is no longer expected to simply receive business requirements and business rules as input and religiously deliver on this input. While so far IT has been measuring its success in building the systems correctly, it should now focus on building the right systems.

Unlike traditional IT application development, development in a Digital Enterprise cannot follow the familiar build-deploy-maintain lifecycle. The new initiatives cannot afford to take the Waterfall development approach, taking months to develop, test and deploy full functionality to the user; instead they can benefit from the focused use of Agile methodology as the best way to collaboratively develop and deploy functionalities for the user.

The cultural change in mindset for the business user community is that they must take on greater responsibility in these initiatives, accept that IT will now be supplying systems and functions that are
constantly evolving, and that their feedback will drive improvement and enrichment of these applications. As individual consumers, we all are quite accepting of this new IT world with changing functions, interfaces and the seemingly perpetual 'beta' phases. The next step, therefore, is taking it to the enterprise level.

To be really effective, Digital Enterprises should also empower the business users, especially the ones in direct contact with customers, to make decisions, as the customers do not want to just connect to chat and discuss, but want their queries answered and problems solved.

**Conclusion**

The evolution of the Digital Enterprise is another milestone for the CIO, signaling a change from heading the IT department to helping the organization tap into its most valuable asset —information — using cutting edge technology. It is very difficult to use ROI to measure the success of these digital investments as it is mostly about innovation. The challenge for the CIO is to arrive at a pragmatic vision of the Digital Enterprise, prioritize initiatives in line with expected business benefits, keep expectations under control, and strive for long term results. Since this is a path-breaking advancement, for the Digital Enterprise to be truly successful, the CIO must inculcate the required change in mindset and culture at all levels — IT, business user as well as top management.

**References**


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