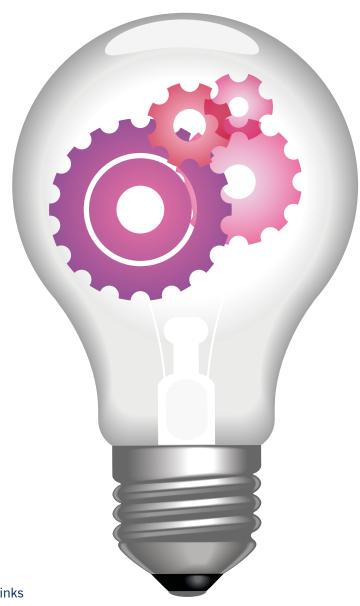## ROTTERDAM SCHOOL OF MANAGEMENT, ERASMUS UNIVERSITY

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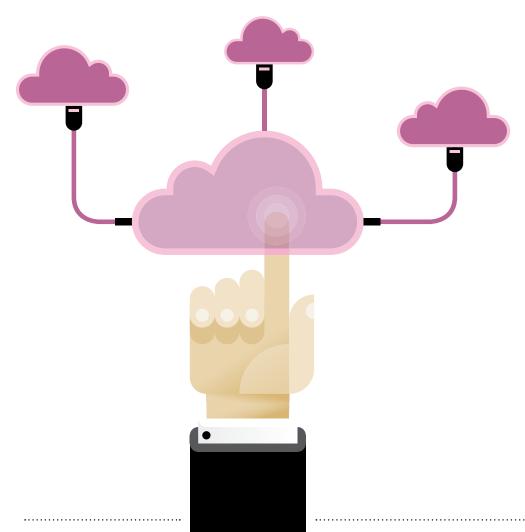*By Saeed Khanagha*

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Cloud computing: pushing the right managerial buttons

*By **Saeed Khanagha***

Despite the obvious organisational advantages offered by cloud computing, not all firms have adopted and adapted to the rapid changes that this new form of remote data storage represents. Recent research and practice have focused on the issue from the perspective of firms as a whole, whilst overlooking the potential contribution of individual managerial practice and behaviour towards addressing the situation.

In the world of Information Computer Technology, it is an understandable misconception that all problems are of a technical nature. If a product does not function as expected, then the blame is generally laid at the feet of those responsible for developing the software in the first place.

Organisational theory has attempted to dig deeper into the issue by attempting to establish a link between the business and environmental conditions in which IT firms operate – responding to consumer needs is one thing but how should such projects be structured in the first place, before getting down to the technical nitty-gritty?

This has been a valid line of inquiry for some time. However, somewhere within the process the individual role of managers has been lost. Above all, in such a rapidly changing environment as ICT, involving proactive managers within flexible organisational set-ups has never been more important.

Current challenges

The current challenge faced by ICT firms is to integrate individual capabilities into an overall organisational process. This takes two forms – management innovation (the introduction of new processes, practices, and structures) and more wholesale business model innovation (the overhaul of methods for capturing and creating value). The extra challenge posed by the ICT industry lies in the speed of change and the extent to which firms may find themselves forced to adopt and adapt to major technical and non-technical developments.

Emerging cutting-edge technology can have implications not just for the industry itself but also market patterns. A network of partners is often required to work in tandem in the face of competition and for which the long-term payoff may require stumping up significant investment in the early stages in order to anticipate and subsequently meet user requirements.

It is for this reason that many ICT firms shy away from such ventures. The ability to accurately predict the success of a new product or platform, coupled with the volatile nature of the ICT business environment, doubles the stakes. Uncertainty is both an opportunity and a risk. It is at this point that the dynamic manager's ability to sense emerging technologies, seize opportunities, and align the overall operations of the firm becomes crucial.

Missing link

Until now, research has mainly concentrated upon the organisation and failed to link it with the cognitive abilities of individual managers. Whilst the adoption of emerging technologies is indeed an overall process, people are integral to the adoption and application of such processes and the potential impact on an overarching business model. It is by re-aligning managers within a more dynamic organisational structure that the link between customer orientation and innovation can be successfully made.

By re-centring innovative management within the overall firm approach, opportunities are created to incentivise venturing into new areas, apply experimental processes, encourage learning from failure, and even allocate resources in potentially risky areas. A recent four-part, four-year study into a selection of Dutch companies has helped shed light on this crucial window of opportunity.

Via a series of case studies and questionnaire-based surveys, up to 130 firms were tested and examined as to the methods employed in adopting innovation, the frequency with which they renewed their business model, the extent to which they exploited new ICT avenues, and their ability to sense and seize emerging technologies within the context of Cloud ICT.

The findings were mediated by such factors as process and routine, strategic intent, and managerial attention and innovation. The overall intention of the study? To establish the missing link between an organisation's desire and ability to integrate ICT innovation and the defining role played by individuals to make such a strategic intention a reality.

Dealing with complexity

The most revealing findings of the study are the micro-foundations of business capabilities, meaning from individual management above. What emerges most patently is the interrelationship of organisational characteristics and individual managerial capabilities and their potential to enable an effective response to environmental change. In short, practices, procedures and structures within the ICT industry are little or nothing without capable individuals to adopt and apply them. Moreover, such measures need to be applied underneath an overall strategic umbrella.

However, such organisational and strategic changes cannot be feasibly applied without a complete grasp of the in-house workings of the organisation. It is for this reason that ICT firms need to review the non-technical aspects of their trade before preceding towards the attainment of technical success. Involving managers within a flexible structure, where organisational design becomes a dynamic phenomenon in support of innovation (as opposed to a rigid obstacle to it), is key.

Another key finding to emerge is that of customer consultation. Whilst exploring initiatives may initially come from within an ICT firm, in such a rapidly changing, user-oriented field, it would be foolish to ignore the "word ▶

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Cloud computing: pushing the right managerial buttons *(continued)*

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on the street". Careful and considered integration of customer expectations is therefore not to be neglected if ICT firms wish to achieve genuine technical breakthroughs with the expected market success that such achievements should bring.

Investing in innovation

The recent study highlights a major avenue for exploration and exploitation. ICT firms must learn to juggle the management of existing practices with the adoption of new ones – applying existing routines is no longer an option, nor is switching strategy in a knee-jerk reaction to the latest craze. Co-managing the not-very-old with the brand new represents a major challenge, one for which the most flexible and highly cognitive managers are required.

Be it listening to customers or involving dynamic managers in a more flexible process and structure, ICT

The main message is loud and clear – despite the very technical nature of ICT, firms operating within must be prepared to dedicate just as much time, energy and money to non-technical aspects such as management innovation and managerial cognition in order to increase the chances of success of the final result.

Heavy investment in technology and R&D is one thing, but if managers are not allowed to innovate and find themselves bound by the same old routines and organisational structures, then the chance to come up with genuinely new, ground-breaking technical solutions and products will be stifled.

Implications and directions

For today's ICT manager, the most attractive option is to be empowered to balance exploration with integration. Whilst the trial-and-error approach

technological initiatives within larger organisations where the temptation to stick with tried-and-tested solutions may be even greater. In all cases, the overall recommendation remains the same – rely upon your managers to support you in combining existing approaches with new ones and do not be afraid to experiment with different organisational set-ups in pursuit of an overall strategic direction.

From a research perspective, the issue requires deeper consideration per management level. The level of IT awareness must understandably differ from one hierarchical level to another, and therefore the contribution that each managerial level can make to the overall process. However, the overall theoretical and practical breakthrough is clear – no longer can ICT firms seek to branch out into remote fields such as cloud computing from a purely "group perspective". Each firm is only as good as the sum of its managerial parts and the structure(s) into which those parts fit. ∎

"Co-managing the not-very-old with the brand new represents a major challenge, one for which the most flexible and highly cognitive managers are required."

firms should not be shy to adopt a trial and error approach to operations, in the interest of long-term gain. Termed the "soft side of innovation", this nevertheless represents an important investment in support of the eventual end product.

may generate short-term budgetary headaches for the firm, the opportunity it provides to test technical and non-technical ICT solutions can reap long-term benefits.

The aforementioned study insists upon the importance of exploring new

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