Do we know enough?

Hello, and welcome to the first edition of The Infonomics Letter for 2010.

Just ten years ago, we all breathed a sigh of relief. As the clock ticked over to 1 January 2000, remarkably, the world did not end. Aircraft did not fall out of the sky. Banks did not suddenly stop processing transactions. Nor did those same banks deliver to the fanciful hopes of some that they would fill every account with tens of millions of dollars, for free. The dread Y2K bug had not hit us after all. The vast investment in fixing systems had saved us – or had it? Many sceptics, including more than a few company directors, still insist that Y2K was a waste of money driven by hysterical IT practitioners who had reached the ultimate pinnacle of spending money to achieve no business benefit.

That sort of wrong-headed thinking is incredibly dangerous, and on January 1, 2010, some Australian banks demonstrated just how so, when a latent remnant of the Y2K problem resulted in EftPos transactions being rejected. "Test the Future" explores the situation further.

Far too frequently, we hear of major IT projects stalling because of a lack of knowledge of how the old IT systems operate. And as more and more of the business becomes buried inside information technology, the risks of losing essential knowledge begin to become more substantial. In "How does it work again", we begin exploring the need for organisations to take positive action to ensure that they retain their essential corporate knowledge.

Many who have attended one of my briefings or educational events will recall that I illustrate the importance of governing IT by citing cases from all over the world where major IT failures have caused damage to the organisation. One such case is that of British Sky Broadcasting, which engaged a major international firm to deliver a Customer Relationship Management system. When the project failed, the mess ended up in court, and just a few days ago, the Judge handed down his decision. "An Interesting Decision" opens discussion on this very significant ruling.

The new international working group responsible for ISO 38500 and related standards is building a head of steam, and work is commencing on several fronts. "Advancing the Standard" provides a snapshot of what is happening in this arena.

Kind regards,
Mark Toomey

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Test the Future

On 1 January 1997, the ATM's operated by one of the major banks in New Zealand began confiscating cards. Not for the first time, the Y2K bug had bitten an unprepared organization. Immediately, many could say: *"That was three years before the millennium change – how could it have been the Y2K bug"?*

The problem was simple. All banks issue new ATM cards on a regular cycle, and some do so every three years. The bank had in the preceding few weeks issued the first batches of cards that would expire in the new millennium – in January 2000. The ATMs didn't understand and behaved as if the new cards had expired in 1900 – confiscating the lot.

Roll forward to January 1, 2010, and EftPos machines operated by at least one bank in Australia began refusing transactions, reporting that cards had expired. It seems that the machines had advanced their date from 31 December 2009 to 1 January 2016, and since almost all cards on issue have expiry dates between January 2010 and December 2013, the machines thought that all cards were expired. The machines would not operate and the bank, and its customers who use the EftPos machines, began losing revenue!

The exact technical cause of the problem is unimportant. Most likely, it is the product of the technological trickery used to eke out extra life from software that would otherwise have died in the leadup to 2000. What is critically important for directors, business executives and technology executives to remember is that many of the techniques used to overcome the Y2K bug ten years ago did involve technical trickery. There was neither time nor money nor expertise to replace or rewrite every piece of software so that it would never again encounter a problem understanding dates. The trickery means that, over time, the problem WILL RETURN!

A single incident for an Australian bank made global news, caused considerable disruption and anxiety, and will cost those responsible dearly as they work out and deploy a correction. Imagine what might have happened if this problem had not been restricted to a few hundred EftPos devices, but instead had "popped up" in the world's airline check-in systems. Nowadays, to a much greater extent than in 2000, organisations depend on information technology for day to day operations at the point of customer interaction, as well as for the routine tasks like accounting, stock control and production management. That dependence amplifies the importance of being certain about the forward viability of the key IT systems.

To provide such certainty, organisations should consider:

- Routinely testing systems with dates in the future, to prove conclusively whether or not they operate correctly. This testing goes beyond merely entering future dates for transactions – it requires a test environment in which the actual operating dates for the computers are set in the future – as it is these dates that often control the internal logic of your business systems. Putting the clock two to five years ahead should give a fair warning of impending problems, and time to fix them.
- Maintaining a catalogue of all software systems in use, highlighting for each system whether or not it uses "technical trickery" to produce correct results while storing only two digits of the year in key dates. Most such "technical trickery" has an expiry date of its own, and after more than ten years, some of the expiry dates may be frighteningly close.
- Researching older software to determine whether it has any other Y2K-like problems that might bite in the future. As a programmer from the 1970's, I distinctly recall, for example, a date storage technique that worked perfectly until the end of 2002, and then went completely haywire.

To ensure that they are fulfilling their obligations with regard to the ongoing operational viability of their organisations, directors should ask questions to confirm that appropriate steps have been taken to ensure that the risk of problems associated with dates has been appropriately recognised and managed.

For those who wonder how this situation could arise, may I explain by means of an analogy comparing the evolution of computer technology to that of the motor car? The computer equipment upon which we built key business systems in the 1970's and 80's was far from primitive. But if we regard the first computers as the equivalent of those first lumbering automobiles of Benz, de Dion and others, the computers of the 1970's and 80's were more the equivalent of the Model T Ford and the vast range of marques that emerged during the first three decades of the last century. By comparison with modern motor cars, those second generation carriages had very limited capability, were remarkably different from one manufacturer to another, complex to operate, unreliable and very expensive. When building complex business systems on that generation of computer hardware, it was essential that we made the most efficient possible use of the scarce and expensive resources. That is why we did things that seem crazy today – like only storing two digits of the date. Of course, few of us really expected the systems we crafted to remain operational thirty or more years later – but that is the reality we have inherited from the relentless business demand for ever-more capability that has in some cases overridden the common sense decisions that should have seen many old systems replaced years ago!

How does it work again?

About thirteen years ago, while managing the Y2K repairs for a front line management system at a major telecommunications company, I discovered that the outsourced software developer had lost the source code to approximately 30% of the system. Ordinarily, this would not have been a problem. The part of the system affected was functionally very stable – no changes had been needed for quite a long time. But it did have a lot of date-related functionality that would not work properly after 2000, and it was essential to repair it. With no source code, the only possible avenue of repair was to rewrite it. Then the next problem emerged – the system was old enough that few people remained with an understanding of how that part of the business operated. There were fraught times while we experimented and brainstormed to rediscover what had been core knowledge to a previous generation of workers.

Loss of corporate memory relating to the function of computerised business systems is not a new problem. It is highlighted in many situations where organisations decide to replace a software system developed years earlier, and was one of the issues documented by the Australian National Audit Office in its 2006 review of the Australian Customs Service Cargo Management System. Many organisations have lacked the discipline to produce detailed and accurate records of the business rules and specifications in their rush to produce results and their misguided efforts to save money. Many more have produced adequate documentation at the beginning, but have failed to keep it up to date as the business and its environment change. Buried at the heart of software systems in many large organisations is cryptic and complex code from the early generations of computerisation that is unfathomable to virtually everybody. Fear of breaking it causes organisations to avoid changing it, and even to avoid replacing it. New systems, instead of moving the old software aside, are instead wrapped around it, inheriting its constraints and fragility, and building an ever deepening core of mystery for those in the future who must implement change.

In earlier generations, organisations held a natural insurance against such loss – with many people having life-long careers in the one organization. Those people absorbed the ways of the organisation, and held it together when things went wrong. When those with long term knowledge go away, it's often the case that things start going wrong. I recall the tale of a building services and engineering firm sold by its founders to an investor. The investor appointed a new management team with fresh MBA's, and the first thing that was done was an efficiency audit – a natural step for those seeking to maximise the return on funds invested. The audit identified a small group of "gentlemen" who appeared to have no role, and so they were made redundant. These were the "lifers"

who knew how the entire company worked, who could spot an impending problem a mile away, and who could step into the breech at a moment's notice to keep the business rolling, regardless of what was going wrong. Without them, small problems quickly became major catastrophes, and minor failures became costly breakdowns. The cost-saving measure backfired, and the company faded into oblivion.

Now this is not intended to be an argument for keeping long term personnel, or for avoiding change. Rather, it is an argument for investing in building and preserving knowledge of how the business operates – especially on its core value chain.

Nowadays, much of that knowledge is buried inside computer systems, and there are few who have a clear understanding of the detail. This shortage of embedded knowledge is now being compounded by the trend toward short job tenure often associated with younger generations. With more and more job roles being outsourced and subcontracted, and with individuals pursuing economic, social and status goals that have them stepping out of a job almost before they enter it, there is an increasing risk that core operations of some organisations will become a complete mystery. When such mysteries develop, the organisation may be at risk of unexpected operational failures and of increased cost, delay and suboptimal outcomes in implementing change.

Other actions that organisations take seem to reinforce the perception, if not the reality that organisations are losing the ability to understand how they work. Consider your dealings with a bank. A generation ago, you would take a problem to the bank manager, and it would be resolved – not necessarily in your favour, but at least with clarity of understanding on what the resolution comprised. Nowadays, bank problems involve endless back-and-forth discussions with call centre staff, supervisors and others, many of whom patently know less about how a bank operates than do you, the customer. It's not hard to imagine that in many cases of dealing with problems, some of those we deal with not only do not know the business and its rules – they are making it up as they go.

Running an efficient and effective organisation carries an inherent demand that we know how the organisation works. Improving an organisation so that it is more effective and more efficient extends that demand, so that we can plan and implement change in a way that does not create unexpected consequences. It's becoming clear that, in order to understand, manage and improve the way that an organisation operates, we need to have a means of keeping a complete and accurate picture that puts all of the elements of operation into context – that allows us to understand the design of the organisation.

The discipline that provides that knowledge is known as Enterprise Architecture.

Back in October 2009, The Infonomics Letter was primarily focused on the topic of Enterprise Architecture. I mentioned a discussion that had developed on the international business networking site, LinkedIn, where hundreds of points had been made in a discussion of the purpose of Enterprise Architecture. That discussion continues unabated, and is now near 1000 posts. It's become clear to me that many of those involved in the debate are coming from the practitioner's viewpoint. Few are addressing the viewpoint of the customer.

The discussion in this article points to the problem being the increased risk and reality of organisations losing important corporate knowledge of how the organization works. It suggests that Enterprise Architecture is a discipline that maintains and provides the relevant knowledge. But now, it poses a question: who are the users, or customers, for the services provided by Enterprise Architecture?

It should be intuitively obvious that the customers of Enterprise Architecture are those who have responsibility for maintaining and developing the business. Ultimately, this is the executive management team and the board of directors. As the ones responsible for directing and controlling and improving the organisation, they need access to accurate knowledge about how the organisation works, with sufficient detail and clarity to ensure that they can maintain stability and make change as and when required, at a reasonable cost and without unacceptable risk of unintended consequences.

Just as information technology is a tool of business, so too is enterprise architecture a tool of business leaders. Where IT enables business to operate in new, different and more effective ways, EA enables business leaders to understand, adapt, refine and improve the way that the business operates. In effect, Enterprise Architecture provides the blueprint for the business. A complete Enterprise Architecture will clearly position the organisation in its business context, enabling external factors and constraints to be understood whenever change is contemplated.

In a small organisation, it may be possible for the knowledge that would be described in an Enterprise Architecture to remain in the head of an individual or a small group. But, even in this context, it is likely that planning change will result in at least some of that knowledge being expressed as diagrams and lists using some medium that supports visualisation and longer term retention. How can larger organisations maintain and communicate such knowledge?

Directors and executives of medium and large organisations should ask whether they have sufficient, accurate knowledge of how their organisation operates, and should satisfy themselves that the knowledge can be used effectively in support of planning and implementing change, and that it will remain accurate and relevant as change proceeds.

An interesting decision

It's an unfortunate reality that litigation has become a routine companion to major IT initiatives. There are many cases where problems with a project have resulted in the organisation that commissioned the project slugging it out in court with one or more vendors of equipment, software and services.

One high profile case of interest has just reached a climax in the British courts. British Sky Broadcasting (BskyB) sued EDS over the failure of a Customer Relationship Management project that commenced in 2000. BskyB ended the contract in 2002, and launched legal action in 2004. Hearings in the case opened in 2007, and the judgement was handed down just a few days ago, on 26 January 2010.

The BskyB case is interesting for two reasons: first because BskyB's claim was for damages of £709m, far greater than the £48m value of the contract; and second, because the judgement is in BskyB's favour!

The claim for £709m was based on BskyB's estimate of benefits it had foregone as a result of the failure of the initiative. This is significant, as it provides a rare insight to the prospective value of investments in IT. Without delving into the detailed facts of the case, we can nonetheless see that BskyB was expecting a great deal from this investment. Commentators are now estimating that BskyB will be awarded at least £200m, still four times the cost of the abandoned project. One can infer that BskyB must have provided compelling evidence of at least that amount of return being attainable, together with evidence that it had the wherewithal to actually deliver the benefit.

According to press reports from Britain, the judgement hinges on assessment of the statements made by EDS during the pre-contract sales period. According to ComputerworldUK.com: "The Technology and Construction Court upheld [BSkyB's] claim that EDS had fraudulently misrepresented its abilities ten years ago, when pitching for a contract to deliver a £48 million customer system".

In effect, the judgement casts doubt on "Entire Agreement" clauses in contracts, and opens the door to claims of fraudulent misrepresentation by vendors.

Doubtless, there will be considerable debate on this case, as the new owners of EDS decide whether or not to appeal, and as organisations globally review the implications for their own situations.

Directors of organisations which have engaged and experienced problems with external suppliers might consider reviewing the contracts and comparing them to pre-contract dealings, to ascertain whether there are substantial and relevant differences.

Directors of firms that provide services might consider reviewing pre-sales practices and tactics, with a view to ensuring that there is congruence between the contract and the other elements of the offer.

Advancing the Standard

The international working group formed under the auspices of the Joint Technical Committee of ISO and the IEC to manage and develop standards relating to governance of IT held its second meeting in Singapore in December 2009. The meeting was graciously hosted by Singapore's national standards and accreditation body, SPRING, and the National University of Singapore.

The working group now has several projects under way to develop:
- Guidance for implementation of ISO/IEC 38500;
- A review and refresh of ISO/IEC 38500;
- A model to describe the relationship between governance and management in the context of IT;
- A business plan for the working group.

The next meeting for the working group is scheduled for Helsinki, Finland, from 3 to 5 May 2010.

Global Governance Survey

Development of a business plan for the international working group requires an understanding of market need and demand. To help the working group develop its understanding of the market, Infonomics has developed, and will shortly launch an international survey to explore the state of the art in governance of IT. Invitations to participate in the survey will be distributed widely, through numerous channels, including The Infonomics Letter's subscriber list.

Broken links

The article in the December 2009 edition discussing the Australian Government 2.0 Task Force contained comments on and links to the Australian Government Architecture Version 1.0.

These comments and links were first written in a submission to the Task Force on 16 December. Who would have thought that in the period between then and publication of The Infonomics Letter, the Australian Government Information Management Office (AGIMO) would have quietly slipped in a major new release of the Australian Government Architecture. The details can be found at http://www.finance.gov.au/e-government/strategy-and-governance/australian-government-architecture.html

A quick search reveals no announcements, press releases or press reports regarding the new version of the AGA. The only link found is in the Department's "Latest Publications" list. How are agencies and their service providers meant to know about it?

Waltzing with the Elephant

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