

Making sense of the IT/IS industry to enable better business enablement and competitiveness: A case-study of the Western Cape in South Africa

Kosheek Sewchurran
and Gwamaka Mwalemba
Department of Information Systems
University of Cape Town
South Africa

Andre de la Harpe
Department of Information Technology
Cape Peninsula University of Technology
South Africa

Jenny McKinnell
Cape IT Initiative (CITi)
City of Cape Town
South Africa

Abstract—Generally in South Africa the commentary about our competitiveness in the retail, financial services, banking and other industries reveals that we are not growing our businesses into the African continent as fast as other countries despite our presence and cultural proximity on the continent. In an attempt to yield an explanation this research explores the IT/IS industry structure in SA looking at both suppliers of services and consumers of IT/IS services along the vectors of productivity, value proposition, design of value proposition and strategic positioning. An IT/IS focus is chosen because this is the main way of enabling business competitiveness in the age we are in. 12 in-depth interviews were conducted with Executives leading businesses which provide IT/IS solutions. Through an abductive process a systemic view of these issues is presented and explained in phenomenal terms using Roger Martins ideas around the design of business because of the resonance between the findings here and his ideas on “design thinking”.

I. BACKGROUND

Fundamentally, with this research study, we are grappling with the problem of how to address the systemic problem that IT is not driving the necessary levels of innovation and value creation that we need as a region (western-cape) and as a country (South Africa) in order for our businesses (both IT and IT-enabled) to grow and prosper and as a result employ and train more people; and, thus, contribute more in taxes to support a more equitable rebalancing of wealth in our society. Though there is a noticeable shortage of research on the role of the overall IT industry, the problem that lead to this study has been well documented in the little published research outputs currently available [14].

The initial intention of this qualitative research was that the findings would inform and provide direction for further research and the development of reasonable propositions for interventions that could be created to drive IT-led innovation and economic growth in the Western Cape over the next ten years.

II. STUDY AND FINDINGS

This study comprised 12 face-to-face interviews conducted during January, February and March 2012 among senior executives from external solution providers and in-house solutions

providers. Each interview lasted approximately 1.5 to 2 hours. The sample is made up of companies working out of the Western Cape. In this sample, there were 4 SMMEs who are suppliers of IT/IS services, 6 large corporates and 2 large government departments. The interviews were semi-structured, recorded and transcribed.

The respondents' views on the regions competitive strengths were as follows:

- i. From 5 of the respondents it seems the Indians have more bench capacity but South African SMMEs are able to make more valuable and needed “things” (e.g. software solutions) at higher quality levels.
- ii. Three of the respondents argue that as South Africans we have a cultural strength in making needed and useful things. One of these respondents runs an export business exporting to Europe and North America using 110 developers. He argues, from experience of using Indian companies, that South African companies are better at quality and delivery. He is considering setting up a business in Zimbabwe. He also advised that we educate really competent analyst developers or people who can span a number of roles simultaneously.
- iii. One executive asks that we look systemically at cost. He advises that costs in the context of software solutions delivery must be seen from the perspectives of contribution to business goals and the flexibility of the design and architecture to cater for emergent needs. This requires a longer-term view of costs and seeing solutions delivery as an emergent process.

According to all service providers interviewed the “analyst developer” is crucial to demand generation and identifying future business and new opportunities. This is a strategic point to consider if we recognize that South African businesses are not winning the race with expanding businesses into Africa because they have not been competitive and innovative enough. Alternatively, it is worth asking: do we have the correct ability among those stimulating demand and/or do the conditions in business allow for these ideas to emerge?

According to all 4 external service providers interviewed, none of them have; or will consider adopting CMMI, arguing that it adds cost overhead and bureaucracy without providing any explicit advantage. All service providers claim to have competitive advantage embedded in their delivery processes and the blind adoption of a process framework will erode their competitive advantage. This correlates with perspectives published in respected international journals [5]–[8].

All service providers claim they have the capacity to take on large projects and grow their staff complement in parallel without compromising delivery. This seems reasonable given the emergent space of software projects. All service providers do, however, caution that there is declining quality level and size of the skills pool to hire from. The in-house service providers advise that IT Governance is becoming a key focus area, but it is highlighted from the respondents that this “IT Governance” game can be played for the sake of the game itself or for broader business benefit realization or be more “outcome” focused. From the sample we interacted with, it seems that none of the popular frameworks (COBIT and ITIL for example) themselves deliver good governance and the opportunity for the IT/IS industry is to define more appropriate governance frameworks and practices that enable on-going improvements in efficiency, effectiveness and relating responsibilities [9]–[11].

Another issue that was highlighted was that of software development costs. According to 3 of the respondents the reasons for cost being the red-herring is that, there are substantial resources required to specify and imagine the business needs and explain them to development teams. However, it appears that in most cases these needs are not taken into consideration sufficiently. If this “meaning making” and mediating of understanding typical Business Analysis work is sufficiently considered, it will become apparent that software needs are emergent and fragile. We are of the belief that if such a reality is embraced, there would be greater successes and opportunities. Moreover, it will become better appreciated that this input seems to require an intrinsic understanding of the principles of both the problem and the technical solution – both of which tend to evolve all the time. The growth in the practice of agile approaches to development seems to explain this, yet the governance and business case considerations do not show consideration of these realities.

This also applies when looking at sourcing software services from either India or South Africa. Here too one needs to be careful not subject software development costs as the primary principle that must be used to understand competitiveness. The assumption that gets made when cost is used as a primary measure is that software projects can be fully specified upfront and that the needs and project conditions remain stable throughout the project.

Research seems to indicate that projects are late and over-budget and a broader focus on benefits realization and product success is needed instead of a pedantic focus on the iron-triangle and project process success. However, according to the findings from our study as well as those of several other

researchers, business still does not factor this in when thinking of new IT/IS projects [1]–[4].

III. DISCUSSION AND SYNTHESIS

As part of second phase of this research, we attempted to describe salient issues in this problem space and put these into causal relationships or plausible working hypothesis to explore the dynamic complexity in the space in order to achieve the goal of establishing a systemic view about how to create conditions for a booming IT/IS sector that can support businesses to thrive and, consequently, enable the government to achieve its development goals. This process that we engaged in was causal-loop modeling and the process was both abductive and hermeneutic [13]. Our heuristics about the structural conditions that are shaping the industry are as follows:

Skills development cannot be undertaken outside effort to generate more strategic, innovative and creative demand. Businesses are not necessarily aware of the new opportunities to pursue to drive competitiveness using IT/IS. Moreover, new opportunities are parasitically linked to an on-going discourse which allows for them to be imagined. To nurture and harvest these opportunities, we need people to facilitate conversations about what is possible and feasible. This process is mostly around problem setting, sense making, mediating meaning and coordinating stakeholders from various professional backgrounds.

The governance of IT/IS needs to be re-imagined to ensure that the true nature of IT/IS project work informs the measures of efficiency, effectiveness and how relating responsibility should be defined. If this is not done, it is very likely governance will be a compliance game dictated primarily by frameworks such a COBIT or ITIL which do not see IT/IS project phenomena as they are experienced. If we do not rethink IT/IS governance we will continue to see cost pressures in a narrow manner. If this happens we run the risk of entangling the IT/IS functions into adhering and aligning to processes that restrict the enablement and competitive edge it can give business.

The equilibrium in the skills pipeline between demand, necessary ability and sourcing can only happen through a coordinated and research-led process. We cannot assume this 3-way match will emerge magically. There are bound to be technology interests and/or ready-made regimes of training, and various fashions which do not take our context into consideration or our long-term aspirations.

IV. CONCLUSION

The research points to the artificial understanding both business and IT have about the software process and how this is affecting the overall value emerging from this relationship. It seems that Business wants to see and manage this process like an industrial process yet, the phenomenal experience seems to align closer with what is often called creative or innovative work. The Dean of the Rotman school argues that this points to a tension between “reliability thinking” and “validity thinking”

which requires that business engage more in “design thinking” [12].

Practically this points to the need to see software development as a creative and emergent process and then think about the IT governance space so that it does not suffocate the real value creation activity being engaged in. This would mean moving away from “gaming” compliance to making governance relevant for driving improved competitiveness. We need to design governance processes based on how our software development companies are really working in practice and we need to do this in a way that acknowledges that software development is an emergent creative process involving iterative cycles and requires customer co-creation in the development of the products. This is asking for an excavation and re-imagining of the professional and conceptual landscape which defines the practice of IT/IS solutions provision.

REFERENCES

- [1] C. Sauer and B. H. Reich, “Rethinking IT project management: Evidence of a new mindset and its implications,” *International Journal of Project Management*, vol. 27, no. 2, pp. 182–193, 2009.
- [2] B. H. Reich, C. Sauer, and S. Y. Wee, “Innovative Practices for IT Projects,” *Information Systems Management*, vol. 25, no. 3, pp. 266–272, 2008.
- [3] K. Sewchurran and E. Scott, “Learning and making sense of project phenomena in information systems education,” in *Proceedings of the 2nd International Conference on Interaction Sciences Information Technology Culture and Human*, pp. 1–8, 2009.
- [4] K. Sewchurran and M. Barron, “An Investigation Into Successfully Managing and Sustaining the Project Sponsor-Project Manager Relationship Using Soft Systems Methodology,” *Project Management Journal*, vol. 39, (supplement), pp. S56–S68, 2008.
- [5] L. Mathiassen and O. Ngwenyama, “Managing Change in Software Process Improvement,” *IEEE Software Engineering*, Nov-Dec 2005, pp. 84–91.
- [6] O. Ngwenyama and P. A. Nielsen, “Competing Values in Software Process Improvement: An Assumption Analysis of CMM From an Organizational Culture Perspective,” *IEEE Transactions on Engineering Management*, vol. 1, no. 50, 2003.
- [7] O. Ngwenyama and J. Norbjerg, “Software process improvement with weak management support: an analysis of the dynamics of intra-organizational alliances in IS change initiatives,” *European Journal of Information Systems*, vol. 19, no. 3, pp. 303–319, 2010.
- [8] J. Iversen and O. Ngwenyama, “Problems in measuring effectiveness in software process improvement: A longitudinal study of organizational change at Danske Data,” *International Journal of Information Management*, no. 26, pp. 30–43, 2006.
- [9] D. Pultorak, “IT Governance: Toward a Unified Framework Linked to and Driven by Corporate Governance,” in *CIO Wisdom II*, Prentice Hall, 2008, pp. 283–320.
- [10] ISACA, “COBIT 5: Process Reference Guide Exposure Draft,” *International IS Auditing and Control Standards*, 2011.
- [11] ISACA, “COBIT 5: The Framework Exposure Draft,” *International IS Auditing and Control Standards*, 2011.
- [12] R. Martin, *The Design of Business: Why Design Thinking is the Next Competitive Advantage*, USA: Harvard Business Review Press, 2009.
- [13] E. Patokorpi, and M. Ahvenainen, “Developing an abduction-based method for futures research,” *Futures*, vol. 41, pp. 126–139, 2009.
- [14] O. Adegboyega, J. Tomasz, B. Rilwan and R. Mike, “Developing and Harnessing Software Technology in the South: The Roles of China, India, Brazil, and South Africa,” *World Institute for Development Economic Research (UNU-WIDER)*, Working Papers RP2008/89, 2008.