

6 CHAPTER 6: EVALUATION OF RESEARCH METHODOLOGY, RECOMMENDATIONS AND CONCLUSIONS

6.1 EVALUATION OF RESEARCH METHODOLOGY

As presented by Denzin and Lincoln (2000)³⁹⁹ the ability to determine a single deviation from existing theory as a result of action-based praxis is a characteristic of action research. The verification of these research findings in relation to these specific circumstances when compared to existing theory as described by Flyvbjerg (2001)⁴⁰⁰ when referring to authors such as for example Popper (2000)⁴⁰¹ regarding the activity of falsification, confirms what Denzin and Lincoln (2000) *op. cit.* say when indicating that even a single instance of deviation from existing scientific knowledge can be an indication of generalisability as described by Lincoln and Guba (1985)⁴⁰² and Stake (1982)⁴⁰³. The emphasis is therefore clearly on the pragmatism of the research and its findings and not on the generalisation or transferability thereof.

Given the nature of the research undertaken and the appropriateness of the relevant foci for this research it can be confirmed that the establishment of an appropriate strategic ICT process for the DOD affects perspectives such as presented by Baskerville and Wood-Harper (1998)⁴⁰⁴ regarding the following was applied and realised:

- Social and Organizational Science
- Organizational Learning
- Process Consultation
- System Science

³⁹⁹ Denzin, N.K. & Lincoln, Y.S. 2000. *Handbook of Qualitative Research*. New York: Sage Publications.

⁴⁰⁰ Flyvbjerg, B. 2001. *Making social science matter: Why social enquiry fails and how it can succeed again*. Translated by S. Sampson. Cambridge, UK: Cambridge University Press.

⁴⁰¹ Popper, K. 2000. *The logic of scientific discovery*. 6th ed. London: Routledge.

⁴⁰² Lincoln, Y. & Guba, E. 1985. *Naturalistic inquiry*. Newbury Park, CA: Sage.

⁴⁰³ Stake, R. 1982. Naturalistic generalisation. *Review Journal of Philosophy and Social Science*, 1982, vol.7, p.1-12.

⁴⁰⁴ Baskerville, R & Wood-Harper, A.T 1998. Diversity ion information systems action research methods. *European Journal of Information Systems*, 1998, vol.7, p.90-107.

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About the requirement for this research to be scientific whilst conforming to the requirements for pragmatism, the research can be evaluated against the interpretation presented by Baskerville and Myers (2004)⁴⁰⁵ regarding the following.

- Peirce's tenet (1905)⁴⁰⁶ that indicates that all human concepts are defined by their consequences.
- James's tenet (1890)⁴⁰⁷ that indicates that truth is embodied in practical outcome.
- Dewey's Logic of Controlled Enquiry (1938)⁴⁰⁸ where rational thought is interspersed with action.
- Mead's tenet (1913)⁴⁰⁹ that human action is contextualised socially and human conception is also social reflection.

To this end the following can be concluded:

Research Premises	Research Findings
Pierce's Tenet	<u>All human concepts are defined by their consequences:</u> Throughout this research the approach of cause and effect was evident when considering the fact that the cycle that was followed consisted of an interpretation of existing theory or practice given the nature of the intention. To this end the dynamically iterative process of continuous review and improvement contributed towards the understanding that was created and expanded upon to the point of institutionalisation of the strategic ICT planning process in the DOD.
James's Tenet	<u>Truth is embodied in practical outcome:</u> This premise is confirmed by the fact that the strategic ICT planning approach as developed and utilised / implemented resulted in approved strategic direction for the management of the Defence Enterprise Information Systems. The establishment of an appropriate strategic ICT planning process and its alignment with business was further enhanced by the definition and implementation of appropriate structural arrangements and mechanisms appropriate to the DEIS management function as approved by the DOD plenary strategic workshop conducted in June 2006. The

⁴⁰⁵ Baskerville, R & Myers, M.D. 2004. Special Issue on Action Research in Information Systems: Making IS Relevant to Practice – *Foreword: MIS Quarterly*, September 2004, vol.28(3), p.329-335.

⁴⁰⁶ Peirce, C.S. c1905. "*The Architectonic Construction of Pragmatism.*" Collected Papers of Charles Sanders Peirce, Vol. V, Edited by A.W. Burks. Cambridge, MA: Harvard University Press, p.3-6.

⁴⁰⁷ James, W. 1890. *The Principles of Psychology, Vol. 1*, New York: Henry Holt & Co.

⁴⁰⁸ Dewey, J. 1938. *Logic: The Theory of Enquiry*. New York: Henry Holt & Co.

⁴⁰⁹ Mead, G.H. 1913. The Social Self, *Journal of Philosophy, Psychology and Scientific Methods*, 1913, vol.10, p.374-380.

Research Premises	Research Findings
	fact that all of these aspects are now represented in approved DEIS related policy that is appropriate to the whole DOD further confirms this premise. The strategic direction as managed in terms of the approved management arrangements and mechanisms is actually being used to ensure the delivery, utilisation and support of Command ICT solutions to the DOD.
Dewey's Logic of Controlled Enquiry	<u>Rational thought is interspersed with action:</u> As taken from the research timeline that guides this report it is clear that the process was heavily dependent upon not only conscious thought, but formal and informal collaboration of a number of internal and external role players that interspersed the actions taken. To this end the ability was found to generalise the findings and conclusions of this research and the qualifications of such findings. The fact that the initial scope for strategic ICT planning for the DOD revolved around the ability to provide strategic direction for ICT in the DOD had to be expanded to include the ability to manage such a process through appropriate management arrangements and mechanism further confirm this premise.
Mead's Tenet	<u>Human action is contextualised socially and human conception is also social reflection:</u> This research was heavily dependent upon the ability to facilitate two way interaction between the strategic ICT planners and all role players and stakeholders to the point that a common context was established, a strategic ICT planning process developed over time, the process actually utilised to the point where strategic direction was formulated and approved and is actually being utilised throughout the DOD for ICT solutions management. This was done with full understanding of the varying levels of structural maturity within the DOD and the nature of diversified organizational culture. The ability to establish a vocabulary that allowed the organization to associate itself with the intentions, the process and the results of the strategic ICT planning process bears testimony to the realisation of this premise. There was acceptance through social contextualisation and alignment / association with the strategic ICT planning process was enhanced by the fact that the DOD involved itself to such an extent that corporate focus was provided during the DOD strategic planning workshop to guide the prioritisation and delivery of ICT solutions. The establishment of this type of involvement was the result of continuous communication to effect conscious and unconscious change that can only be realised through reflection on the part of all parties concerned.

Table 6.1: Review of Research as Appropriate to the Research Approach

Given the confirmation provided above in terms of the underlying premises that are appropriate to this research it is considered appropriate to provide some validation of the research methodology that enabled this research. To this end it was considered appropriate that for purposes of review the following can be confirmed regarding the research given the format presented above.

6.2 TRANSFERABILITY OF RESEARCH FINDINGS

Given the necessity for the hermeneutic or contextual interpretation of the strategic ICT planning process as appropriate to the DOD and the intention to provide insight into its

appropriateness to other environments the application thereof resides in the fact that it should be considered from the perspective of being context dependent. Simply stated it should be applied to environments that are similar in context as it would be virtually impossible to apply to organizations with totally different circumstances or characteristics.

Given the arguments that were presented for the utilisation of a single case study as being appropriate to this research in Chapter 4, some comments need to be made regarding generalisation as discussed by Lee and Baskerville (2003)⁴¹⁰. The intention is to round off the argument finally to ensure that this research can be utilised as a reference to assist with further research. The research undertaken in this instance has addressed both the “population characteristics” and the “experimental findings” of the research in practice as well as the interpretation thereof in terms of theory as commensurate with the “level-1 inferences” and “level-2 inferences” as presented by Yin (1984⁴¹¹, 1994⁴¹²). The question that remains to be answered relates to the necessity to “generalise” or rather to being able to “transfer” such findings as indicated by Lincoln and Guba (2000)⁴¹³, to similar environments where according to Stake (1982) *op. cit.* the relationship between theory and practice becomes important once again. According to Lee and Baskerville (2003) *op. cit.* the problems encountered revolve around the acceptance – or non-acceptance – of Hume’s truism that “*induction or generalisation is never fully justified logically*” when considering that a large portion of ‘generalisability’ is dependent upon extrapolation’. With the opinion expressed by this researcher in Chapter 4 and the requirement to confirm or disprove generalised theory as appropriate to a single set of circumstances the ability to generalise by whichever means is not an imperative for this research to be considered scientific of a contributing nature. This is further confirmed when considering the opinion of Lee and Baskerville (2003) *op. cit.* that interpretivism acknowledges the existence of specific phenomena that can be likened to the existence of specific context

⁴¹⁰ Lee, A.S. & Baskerville, R.L. 2003. Generalizing Generalizability in Information Systems Research, *Information Systems Research*. September 2003, vol.14, no.3.

⁴¹¹ Yin, R. 1984. *Case Study Research: Design and Methods*. Beverly Hills, CA: Sage Publications.

⁴¹² Yin, R. 1994. *Case Study Research: Design and Methods*. 2nd ed. Thousand Oaks, CA: Sage Publications.

⁴¹³ Lincoln, Y. & Guba, E. 2000. The only generalisation is: There is no generalisation. *In R.Comm (Ed.) Case Study Method*, 2000, London, Sage, p.27-44.

for specific research. This does not exclude the possibility of later generalisations of these research findings as for example a statistical exercise to provide a more positivist perspective.

6.3 ASSESSMENT OF CONTRIBUTION OF RESEARCH

With due consideration of the requirements to institutionalise an appropriate strategic ICT planning process in the DOD that is based on sound theory and practice, the findings and conclusions are presented in Chapter 5. It should, however, be stated that the process as taken from existing theory was enhanced significantly in its institutionalisation in the DOD. This is demonstrated by the fact that the process in itself was not the issue to be contended with, but that there were more structural issues that influenced the process than effort related to defining the process. To this end more emphasis was required on the “how” to do things than on what needed to be done. This was clearly demonstrated in the functional research findings and the fact that these findings have now been incorporated into the policy framework of the DOD.

The frameworks as presented in the findings therefore serve to add to the existing theory as well as the very deliberate finding as demonstrated that alignment is a function of continuous collaboration between all role players and stakeholders within the organization related to the planning function. Roles and responsibilities within the function need to be clarified, formalised and institutionalised as part of institutionalising the strategic ICT planning process in the organization/enterprise with a clear understanding and definition of the characteristics of corporate strategic ICT planning as opposed to strategic ICT planning at business unit level.

6.4 RECOMMENDATIONS FOLLOWING FROM RESEARCH WITH A VIEW TO FURTHER RESEARCH

As indicated above the findings of this research can be utilised to initiate further study or research as interpreted from Hume’s truism and presented by for instance Campbell and

Stanley (1963)⁴¹⁴, as well as Rosenberg (1993, p.75)⁴¹⁵ as well as the considerations related to the five misunderstandings of case study research as presented by Flyvbjerg (2000) and the hermeneutic principle of Klein and Myers (1999)⁴¹⁶. With due consideration of these implications the following specific recommendations on further research can be made:

- The findings of this research resultant from its level-2 inferences regarding existing theory could be generalised as part of an empirical study to determine its generalisability or appropriateness to a single set of circumstances.
- The strategic ICT planning process could be augmented with research on the implications thereof throughout the rest of the life cycle to determine whether the same management arrangements and mechanisms would be appropriate to managing the solutions phase and maintenance phase of the ICT system life cycle.
- A determination of a model that could potentially distinguish between corporate solutions and unique ICT solutions as appropriate to the nature of the corporate value chain with due consideration of the ICT management model within the diversified organization. This would provide some insight into the nature of product/service differentiation required to manage corporate solutions in close collaboration and integration with unique business unit orientated solutions.

6.5 CONCLUSION

In final conclusion of this research it can be stated that the research actually contributes towards an improved understanding of the theory to the point where it could be appropriately applied in practice. As such it serves to guide the practical implications of institutionalising an appropriate strategic ICT planning process for the DOD that is actually being used and will now be expanded to other government departments via the

⁴¹⁴ Campbell, D. & Stanley, J. 1963. *Experimental and Quasi-Experimental Designs for Research*. Boston, MA: Houghton Mifflin.

⁴¹⁵ Rosenberg, A. 1993. *Hume and the philosophy of science*. (Edited by D. Norton). *The Cambridge Companion to Hume*. New York: Cambridge University Press.

⁴¹⁶ Klein, H.K, & Myers, M.D. 1999. A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 1999, vol.23, no.1, p.67-94.

national coordinating mechanisms for ICT management in the Republic of South Africa. To this end, change has been effected to both the strategic ICT planning process in the DOD as a process that was aligned and integrated with the normal strategic business management function and the ability to manage the appropriate ICT planning function in a structured and coordinated manner. The final result is that the strategic ICT planning process and the way in which it is managed is now an institutionalised component of corporate/strategic management in the DOD.

From an academic perspective this research serves to enhance existing theory to the point where greater clarity is provided based on pragmatism of not only what should be done regarding strategic ICT planning and management as a function of business, but also on how it should be done. As such it serves as research towards enhancing existing theory based on pragmatism with due consideration of the specific characteristics and requirements for such a process, given the specific context.