

CHAPTER 7

INFORMATION MANAGEMENT AND TECHNOLOGY IN THE PUBLIC POLICY MAKING AND IMPLEMENTATION IN SOUTH AFRICA: CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

The structure of the value assessment was done in accordance with the thesis layout. An in-depth evaluation of arguments was presented in order to clarify the reasoning and value added by the thesis and approaches followed in the thesis. In conclusion proposed further fields of study was postulated and evaluated.

Initiating this study and thesis was a perceived lack of information management and technology in the public sector for policy formulation and implementation. This perceived lack as mentioned, in turn, contributes to the lack of service delivery improvement by government and the various departments functioning within the public sector. In all instances this perceived lack is not due to the lack of data but rather the application thereof. This in turn focussed the attention on the application of the technology required, to not only house the information but to retrieve information.

From the foregoing chapter (*Supra*. Chapter 6), it becomes imperative that the thesis be evaluated in terms of a value assessment of the findings. This value assessment of the thesis was done against the backdrop of the magnitude of data and information available in the Republic of South Africa's public sector and specifically the government

departments, in technology repositories for the purpose of transactional management. These masses of data do, however, not cater for executive management information thus inhibiting informed decision-making and policy formulation and implementation based on inferred data.

7.2 Reason for and background to the thesis

The statements made by various governmental officials during the recent past, all focus on the issue of service delivery. Yet, if consideration is given to whether service delivery has indeed improved, one has to state that this not the case. Service delivery is a product of the competency of the public servant applying information within his or her domain. However, to support the public services information management requirement, there is a requirement for technology and interconnectivity. Shortcomings exist in the field of infrastructure and communication networks. In terms of the South African context these although addressed by the Government Communication and Infrastructure System and the international application and identification of infrastructure development, the South African scenario still requires development before improved electronic governance and government is attainable. In the run-up to this, however, improved managerial capability must be established.

Information, be it transactional (information required to execute the functional tasks), content (information contained in documents, policies and procedures) or knowledge (information reflecting on internal scripts, records and processes), used in isolation or independently, does not lead to good decision-making, potential policy formulation or improved service delivery no matter how good the database or system being employed, functions. Used independently or in isolation only the functional or line application will be affected. For improved and

informed decision-making, data from all three sources need to be manipulated or statistically inferred within their own or a common database, as per the management requirement, of the various levels of a department and within the unique requirements of the various spheres of government. Data manipulated or statistically inferred this way and applied for specific decision-making now becomes executive information management at a level or within a sphere. In order to execute statistical inferences and data manipulation, technology is required.

The integration and manipulation of transactional, content and knowledge information result in executive management information. Executive management information and applied technology is a cognitive decision and requires an implementation plan and execution thereof. The lack of improved service delivery in the South African public sector is found, amongst other, in the lack of executive management information and applied technology. In turn, this results in shortcomings in the field of policy formulation, hence the research.

7.3 Expected outcomes of the thesis

An outcome expected from the research done for this thesis, was the determination of the lack of information management, and specifically executive information management which results in turn in a lack of appropriate policy formulation and implementation. Added to this outcome was the requirement for an integrated infrastructure (connectivity) for the communication of information.

Based on the theoretical analysis and the interviews conducted, it was expected that the following requirements for the implementation of information management through technology, would have emerged from the empirical analysis (*Supra*. Chapter 1, par. 1.3.2):

- a. That although data is available little if any is applied in the role of enhancing decision-making executive management through the application of statistical inferences, data manipulations.
- b. That although initially the development of a technology infrastructure might be expensive, the long-term benefit is improved effectiveness and efficiency together with improved productivity.
- c. That due consideration was given prior to going the route of information technology with the aim of improving effectiveness and efficiency.
- d. That performance measure/measurement was realised purely from the perspective of transactional/functional activities.
- e. That information management was purely localised to the transactional level.
- f. That improved control over information and management has not been realised due to the absence of correct management tools and application as well as communication.
- g. That insufficient attention was generally given to the existing work force or the transversal impact on the organisation.
- h. That the departmental culture was not taken cognisance of prior to implementation.
- i. That departmental design was not process analysed or restructured.
- j. That little if any, training programmes or skills upliftment programs to facilitate a change in the management approach was implemented.

Another expected outcome of the thesis was to postulate a solution for improved information management in the South African public sector. Designing for management purposes is no new concept but designing for an improved management capability within a new solution, should render new results. Improving the public sectors' management capability, inclusive of policy formulation, however, is dependent on the availability of data, infrastructure and connectivity.

7.4 Approach followed to achieve the outcomes

This thesis approached the need for improved public service information management and technology from the perspective of improved governance and government in order to achieve improved service delivery. The point of departure for this thesis was the definition and description of key concepts. The definitions and description are supported by current international and national examples with regards to the infrastructure and connectivity requirements as well as the management application of existing systems. Research parameters derived from the existing situation were measured against empirical research. The research parameters were based on fifteen elements subdivided into drivers, forces and denominators (*Supra*. Chapter 1, par. 1.3.2).

The drivers are:

- a. Availability. Having availability of both the information and the technology, the degree cognisance is taken of this driver and that there is actual improvement in availability and application of executive management information after implementation.
- b. Cost Reduction/avoidance. The influence cost reduction/cost avoidance have on the implementation of information management and technology for the establishment of electronic

government and governance and the realistic expectations of this driver on the functioning of the public service after implementation.

- c. Effectiveness and Efficiency. That effectiveness and efficiency of an organisation have an influence on the concept of applied information management and technology for the establishment of electronic government and governance after implementation. Furthermore that this need must be considered when the decision to apply the methodology of managing with information and technology, is made.
- d. Performance Measure and Measurement. That all participants in the applied information management and technology environment, for the establishment of electronic government and governance, recognise the others' performance measures and measurements both prior to and after implementing information management and technology solutions. Also, that new or modified performance parameters will be required.
- e. Management. That management should be involved when the decision to implement information management and technology for the establishment of electronic government and governance, is made. Also, how must management of the organisation be adapted for the information management and technology environment for the establishment of electronic government and governance and the impacts that should be considered or expected.

The forces can be stated as:

- a. Human Resources. That role of the human resources element, plays be considered when the decision to apply information management and technology for the establishment of electronic

- b. government and governance, is made. The degree of cognisance that is to be taken of this element during the phasing in of applied information management and technology for the establishment of electronic government and governance, is also be ascertained.
- b. Culture. That the cultural impact on the organisation, when the decision to apply information management and technology for the establishment of electronic government and governance has been made, be considered.
- c. Training. That the application of applied information management and technology for the establishment of electronic government and governance necessitates a new training curriculum at all levels and, has an effect on the knowledge base of the existing public servants.
- d. Control. That control at all levels is gained when implementing applied information management and technology for the establishment of electronic government and governance.
- e. Departmental Adaptation. That organisations should adapt after the implementation of applied information management and technology for the establishment of electronic government and governance. This will also imply that current procedures should be adapted to facilitate the new concept if it truly is unique.

The denominators (or transversal elements) are the following:

- a. Research. That research in to the application of applied information management and technology for the establishment of electronic government and governance prior to implementation should be done.

- b. Economical Viability. That the decision to implement information management and technology be based on an economical viability study.
- c. Maturity Levels. That due consideration be given to maturity levels prior to the application of information management and technology for the establishment of electronic government and governance that a growth in maturity has occurred.
- d. Information Technology. That the extent of our current information technology, can accommodate a concept so reliant on accurate data and real time information to management in order to make the implementation thereof a success.
- e. Communication. That the extent of the application of information management and technology for the establishment of electronic government and governance was communicated horizontally and vertically in the public service for the successful acceptance and utilisation.

A theoretical framework of the existing information management and technology scenario in South Africa, which had set the background to the thesis, was established by utilising the theoretical research. In this, the theoretical requirement of information management and technology for the improvement of service delivery in the public service, with specific reference to the South African scenario, was established (*Supra*. Chapter 3).

Applying international and national trends, the current status of the information management and technology environment in the public service was explored. This was to establish the as-is scenario (*Supra*. Chapter 4).

The empirical research validated the drivers, forces and denominators as elements that needed to be addressed when the decision to

implement information management and technology was taken. Empirical studies and interviews were used to execute the validation process (*Supra*. Chapter 5).

The validation process was followed by an analysis of the theoretical and empirical research. The analysis was executed by achieving a synthesis of the theoretical framework and the empirical research done for the thesis. Resultant from the synthesis, a model was proposed for the improvement of information management and technology, for improved service delivery, in the public sector (*Supra*. Chapter 6).

7.5 Validation and deductions

The terms of reference (*Supra*. Chapter 1) were to be validated by the literature and empirical research. Thus the stated primary drivers, secondary forces and denominators, which form an essential part of the information management and technology concept, were to be proved or disproved. The primary drivers as well as the general research findings deducted from the qualitative research analysis and pertaining to these drivers were:

- a. That management was purely localised to the transactional level and virtually all systems designed ignored its role in the process. That virtually in all situations additional tools had to be used to manipulate data or do statistical inferences as these aspects were not incorporated into the system design.
- b. In the case of the availability of information, it was found that although data is available little if any was applied in the role of enhancing decision-making executive management through the application of statistical inferences, data manipulations. On the other hand functional management that is, managing the functional or line/task environment was to a great extent catered

- for. Both are, however, required to optimise and improve effectiveness and efficiency in the public service as a whole.
- c. With regard to cost (reduction and avoidance), it was found that although initially the development of a technology infrastructure might be expensive, and was a consideration, the long-term benefit would be improved effectiveness and efficiency together with improved productivity. Consideration of long term cost reductions was not always an issue. Improved productivity could do more to improve cost savings in the long run and thus reduce operating cost. Also, that with a solid high technology infrastructure, maintenance and upkeep over time is more cost effective, as upgrades due to technology enhancements become cheaper. It became apparent that implementation cost should be spread across the life cycle of the project, thereby reducing the once-off cost.
- d. With regard to effectiveness and efficiency, it was proven that due consideration was given prior to going the route of information technology to the aim of improving effectiveness and efficiency. It was also apparent that in many instances this was the primary driving force for implementing some form of information technology. What lacks in this approach was that the required due consideration to management information at executive level was not given. It was also proven that the actual implementation plan for achieving effectiveness and efficiency was not executed. This due to the fact that partial accomplishment was attained through improved efficiency by optimisation of transactional/functional tasks (line function) and little attention being given to true executive management information.

- e. With regard to performance measure/measurement, this element was realised purely from the perspective of transactional/functional activities. Again, little if any, attention was given to the optimisation of the managerial function in the sense of statistical inferences and data manipulation for the improvement of the department or organisation as an integrated whole. This would have resulted in greater effectiveness and efficiency, which would have induced improved productivity with the resultant decrease in operating costs.

With regard to the forces the following was found:

- a. With regard to human resources, that attention was generally given to the existing work force or the transversal impact on the organisation. However, that the impact of the information technology implementation was not always understood. That the human resources at various levels, especially at executive management level, are usually ill-equipped to handle the migration to an information management and technology environment. This was in most instances applicable to the implementation of transactional/functional systems as well.
- b. With regard to departmental culture, that departmental culture was to a large degree not taken into consideration prior to implementation and that little or no action to prevent culture shock was taken.
- c. With regard to training and skills development, those training or skills upliftment programs to facilitate a change in the management approach were implemented. This was only applicable to the transactional level and does not pertain to the executive management levels.

- d. With regard to control, that improved control over information and management with specific reference to executive management has not been realised at the executive management level due to the absence of correct management interpretation tools. However, at the transactional management level these controls were improved.
- e. With regard to departmental design, that departmental design was seldom addressed prior to implementation but rather at later implementation stages.

With regard the denominators, the following was found:

- a. With regard to research, that considering the cost component of information technology, the theoretical and practical examples reflected that research was done to determine the type of application of information management and technology for the establishment of electronic government and governance. This occurred prior to implementation and continued after implementation. It was sufficient to facilitate implementation in a complex service oriented environment.
- b. With regard to economically viability, that the determination of this element was of fundamental importance as it would be of no use that information technology would be deployed for any purpose that cannot be sustained in terms of a financial ability. This could be in a self-maintained or outsourced capacity.
- c. With regard to maturity levels, that the maturity or immaturity level of the users as well as the contractors implementing or developing the information technology need to be investigated in order to determine successful implementation possibilities.
- d. With regard to information technology, that confirmation needs to be obtained that organisations are in a situation to facilitate a

7.6 V total upgrade or have an infrastructure in place to facilitate
and technology implementation of information technology management.

e. With regard to communication, that communication of the new
The th concepts for electronic government and governance was
at a lo addressed both horizontally and vertically in the public service,
technol as this was considered a necessity for successful acceptance
needs and utilisation.

In order to attain this integrated solution, two issues were identified.
They are firstly the requirements to successfully implement an
integrated information management solution in the public service and
secondly the lack of executive management information for strategic
decision-making within the organisation.

The thesis firstly did a value assessment of the existing public service
interdependent, as the one cannot exist without the other. A proposed
In order to address the first issue, it is therefore recommended that
when the decision to implement an information management and
technology solution is taken in any public service department, attention
must be given to the drivers, forces and denominators identified and
researched. These driving-forces and denominators are the primary
aspects that, if applied, will ensure the successful implementation of an
information technology solution.

and maintaining such needs over time. The aspects of improved
management capability and technology
In order to address the second issue, management must identify needs
and requirements related to their level of management preferably prior
to the implementation decision in order to have these accommodated
within the design of the information management and technology
solution.

forces and denominators identified, reflected on the departmental
needs for both improved management capability and technology
decision-making for policy formulation and implementation.

The thesis highlighted the aspects of factors influencing management
and the decision to implement information management and technology
for policy formulation and implementation. These factors were
explained and tested against the research parameters, which ultimately

7.6 Value assessment of information management and technology

The thesis addressed the aspect of information management, which is at a low in the public sector at this time, and the aspect of the required technology in order to sustain both the transactional and executive needs of an organisation or department in the public sector. Both are interdependent, as the one cannot exist without the other. A proposed solution (model) to address the delta that exists between existing needs and the solution thereto was postulated.

7.6.1 Requirements for information management

The thesis firstly did a value assessment of the existing public service management information. It extrapolated normal management concepts, required to maintain transactional management needs and requirements, beyond the accepted norms into the realm of the executive management needs to management for strategic decision-making and policy formulating purposes. Secondly, the study did a value assessment into the realm of the requirements not only for management needs, but also for the technology required in sustaining and maintaining such needs over time. The aspects of improved management, effectiveness and efficiency, cost reduction, availability and measurement, are indicators, which must be adhered to, in order to implement the information management and technology decision. The forces and denominators identified, reflected on the departmental needs for both improved management capability and technology decision-making for policy formulation and implementation.

The thesis highlighted the aspects of factors influencing management and the decision to implement information management and technology for policy formulation and implementation. These factors were explained and tested against the research parameters, which ultimately

led to a model being proposed. The model is generic in nature in that it is applicable to all spheres of management in the public sector, its departments, and related organisations. In terms of the differentiation between transactional and executive information management needs, the public sector specifically lacks the resources to execute statistical inferences and obtain executive information. From the thesis the outcome of the value assessment was that the requirement for information management, especially at executive level, was a requirement. In terms of the technology required, the need to identify not only the computerisation of existing manual systems but to implement a system whereby executive decision-making as well as transactional activities are possible through the application of existing and available data and the manipulation thereof, was identified. The thesis contributes to the field of the public administration in terms of its contribution of, not only, the model but also in the approach to management within the public sector. This, by definition incorporates the need for accurate data and accurate data inferences for management purposes at all levels as well as the added capability to formulate policies based on this information.

7.6.2 Information management and technology requirements

The model applied, in conjunction with the drivers, forces and The value assessment of the thesis indicates that the decision to implement information management and technology as a solution to a departments management needs, are based on the application of the drivers, forces and denominators as stated (*Supra*. Chapter 1, par. 1.2.3). Information management, in turn, should be based on the requirement for data from the transactional, content and knowledge management environments. Integrating these environments and manipulating the data, results in executive information as required at various levels of the organisation. The manipulation or statistical inferences of data results in improved management capability and,

hence, improved service delivery through improved policy formulation and implementation.

In terms of the value assessment a further requirement for the improvement of service delivery, was the implementation of infrastructure in order to communicate the (executive) management information. Connectivity results in all levels of the organisation (department) having access to either transactional or executive management information.

7.6.3 Model

The postulated model furthers the value assessment in that it proposes a solution in terms of what should be considered by a public service department or organisation, to successfully implement an information management and technological solution. This model, applied generically, will enhance departmental or departmental capability to successfully identify the need for, and implementation of, an information management and technology solution for the successful management at both the transactional and executive level of a department. This executive management information will also assist the department in policy formulation and implementation.

The model applied, in conjunction with the drivers, forces and denominators, during the design phase of the proposed solution for information management and technology, will ensure the successful implementation of such a solution. The twelve elements of the model will lead the department to address its requirements in a multifunctional yet integrative manner when the requirement and need for policy formulation and implementation arises.

7.7 Recommendations

In terms of the value assessment, the following recommendations are made:

- a. Address the drivers, forces and denominators identified and researched. The drivers, forces and denominators are the primary components that, if applied, will ensure the successful implementation of an information management and technology solution.
- b. Management must identify needs and requirements related to their level of management with specific reference to policy formulation and implementation and, preferably, prior to the implementation decision in order to have these needs accommodated within the design of the information management and technology solution.
- c. Departmental management at all levels should at this time implement the proposed model addressing and integrating the twelve elements, in order to resolve the management requirement for information for purposes such as decision-making and policy formulation and implementation.
- d. Determine and define the requirements for the implementation of an integrated information management solution in the department and determine and formulate the executive management information required for strategic decision-making and policy formulation and implementation within the department.
- e. Formulate and implement policies in order to obtain the successful potential from the model and existing as well as new information.

Addressing the drivers, forces and denominators, will ensure that attention is given to the requirement for the successful implementation of information management and technology. By addressing the model it will ensure that an integrative management solution is implemented. In order to implement executive information management and technology an integrative approach to the elements and model need to be followed.

7.8 Conclusion

This thesis had set out to prove that information management and technology implemented in the public service does not comply with the requirements of the day. It further had set out to prove that if a model for implementation was followed, this implementation, and selected solution such as a designed policy, might be successfully implemented. This research evaluated the research objectives, to wit the fifteen elements that need to be considered to successfully implement information management and technology in an organisation or public service department. These were tested against the research objectives with regards to the successful implementation of information management and technology in the public service.

Considering the thesis as to its contribution to the overall problem statement, the research duly noted the absence of the requirements for the successful implementation of information management and technology for policy formulation and implementation in the public sector. This thesis then proposed a model for the implementation of information management and technology, to be applied in the formulation of policy. The thesis also substantiated and determined the relevance of the driving forces underlying the basic requirements for the successful implementation of an all-level management solution in terms of information management and technology for policy formulation and implementation in the public sector. In the final analysis, the thesis

then made recommendations with regards to resolving some of the information management and technology problems being experienced by public sector departments in the decision-making and policy formulation and implementation arena.

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