Responding to drivers of change: preparing for the "unthinkable" before it happens – A case study

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Abstract.

The Council for Scientific and Industrial Research (CSIR) was requested by the Department of Correctional Services (DCS) to develop a Master Information Systems and Security Technology Plan (MISSTP). The MISSTP was developed as a "roadmap" that highlighted the strategic considerations for design and transformation of the enterprise considering the financial constraints on Government departments due in part to the COVID-19 pandemic. This article presents the methodology used to develop this plan, findings and the key insights along three themes: strategic thinking, responsive implementation of strategy and increasing productivity. These themes have broader applicability to organisations in preparing for the "unthinkable" before it happens by developing organizational mechanisms for adaptation. We show how it is important not to focus on technology in a narrow sense but consider the business requirements, how they lead to capabilities and how the required technology can be adopted sustainably within the organisation.

INTRODUCTION

The Council for Scientific and Industrial Research (CSIR) was requested by the Department of Correctional Services (DCS) to develop a Master Information Systems and Security Technology Plan (MISSTP) in support of the DCS Vision 2068 (DCS, 2020). The MISSTP was developed as a "roadmap" that highlighted the strategic considerations for design and evaluation of the enterprise (Gonçalves, D, 2021a). This was important to create a defendable design and a basis for decision-making without being overtaken by emotion, which are usually present in strategic efforts. The enterprise is seen as an interconnected set of capabilities and needs to balance processes, ICT, facilities, structure, cost, and other factors such the organisational culture, narratives and motivation.

The CSIR, being part of government but outside of DCS, was ideally positioned to provide a fresh and independent assessment of the DCS dynamics and peripheral issues. At first glance, the ideal approach would have been to perform a top-down design of the DCS enterprise and present it as recommendations. Engineering the new normal in the context of change requires adaptive capabilities as we show in this article. However, what to design for is the key focus of this article, and the approach to take that will identify the strategic elements for which systemic interventions need to be initiated.

In reviewing DCS documents, we noted that there have been previous attempts to address DCS organisational issues. More than a decade later, many of the same issues remain unresolved. Since each failed intervention builds resistance, we had to be circumspect in our approach. There may be several reasons why the issues remain unresolved: i) the client is not implementing the solutions; ii) the client is implementing the wrong solutions; or iii) some of the issues require solutions at systemic or deeper levels.

The case study is introduced and the methodology used is presented. We will highlight important observations sourced from the case study and theoretical insights related to theory being developed elsewhere. This paper will not attempt to cover all the issues addressed in the MISSTP because this is outside the scope of a conference article and some issues are of a sensitive nature.

Case study background

DCS plays a significant role in the country's ability to establish a safe and secure environment for their citizens. The core DCS business is defined by the Correctional Services Act (CSA), namely to enforcing court sentences (CSA, 1998, Section 2(a)) and to ensure security of Inmates, DCS Officials, DCS, communities, society (CSA, 1998, Section 2(b) and (c) and The Constitution, Section 2). The department is continuously faced with new business requirements because of Government policy shifts, strategic imperatives, socio-economic and technology factors that can be challenging and disruptive if not managed properly. Increasing numbers of internal and external drivers have prompted DCS to seek more efficient technology use in correctional facilities. An understanding of prevailing and future trends, business strategies and technological threats and opportunities are essential for DCS to develop the cognition and responsiveness to the impact of digital technologies and further enable DCS' transition to the 4th Industrial Revolution.

The CSIR was contracted to develop the MISSTP for DCS. The MISSTP was a funded initiative with the intent of aligning DCS business and its operations with IT, and bridging the gap between the department's current state, driven by the prevailing and potential future threats and its desired future state. The MISSTP identifies needs to be addressed in the Annual Performance Plan (APP) relating to applicable ICT capacity, capabilities and its related human and financial resource requirements. The MISSTP required the development of a roadmap and plan that will materialise the DCS's vision defined in the Revised 2020-2025 Strategic Plan (DCS 2020), providing a progressive vision that requires a harmonised approach to future trends and operational realities. Aligning the roadmapping approach with DCS innovations and strategy processes was essential to ensure business relevance. The MISSTP roadmap was used as a mechanism to communicate the strategy within the organization.

Case study methodology

A consultative and multi-pronged methodology was applied in the development of the MISSTP. The first element of the methodology (Figure 1) was to define the MISSTP **framework** to direct what should be addressed. Information was collated from existing reports and policy documents such as the DCS Strategy (DCS, 2020), DCS Service Delivery Model (DCS, 2019) process information, and other internal documents and **analysed** accordingly. This information, formally approved within the organization, served as DCS context and input to DCS workshops facilitated by the CSIR. The **workshops** provided insights that could not be, or are not written in formal documents, including aspects of organizational politics and culture. The CSIR conducted workshops to understand the areas across DCS business that influence the MISSTP (Gonçalves, 2020):

- Security; Incarceration and Corrections; Remand Detention; Health Care; and Community Corrections, and the support areas:

- Human Resources; Finances and Supply Chain Management; Strategic management; Legal Support; Information Management; Intergovernmental Relations; Policy; and ICT.

A series of five-hour workshops for each of the areas listed above were conducted between 14 July and 29 September 2020. Two workshop methodologies were used for the security workshop and for all the other workshops. The security workshop focus was DCS wide not centre or region specific.

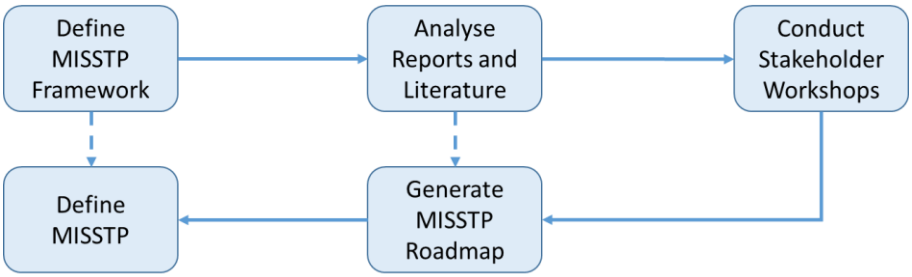

Figure 1: MISSTP method

From the workshops, a list of recommendations was formulated that informed the development of the **roadmap.** The roadmap creates a shared understanding between stakeholders as to what the change drivers are that need to be addressed. This determines what capabilities and various technologies are required to mitigate the changing context. Roadmapping used as a communication tool for vertical integration (Gonçalves, 2021b), helps to reveal gaps and uncertainties in socio-technical interactions, capabilities and technologies, which then leads to identifying additional strategic issues.

The framework for road mapping comprises various "levels" outlined illustrated in Figure 2. Our roadmap was not a roadmap as contemplated by Möhrle, Isenmann, and Phaal (2013) because it does not include time on the horizontal axis. Rather it was intended to communicate vertical integration (Gonçalves, 2021b). The roadmap lanes chosen for the DCS project were at various systems levels ranging from: strategic drivers; business requirements; capabilities and operational concepts (at a capability level) and the capability elements. The roadmap lanes are described briefly:

1. **Drivers of Change**: The DCS drivers of change identified were grouped according to external and internal drivers, depending on the source of influence. The main drivers listed provide the changing environment under which the DCS mandate must be executed and form the anchors for the business requirements.
2. **Business Requirements**: Business Requirements in this level represent additional or new requirements, derived from drivers, legislation or identified in stakeholder workshops. Some of the core legal requirements were added where they formed a vital reference requirement.
3. **Operational Concepts and Capabilities**: The Operational Concept for a capability is a concept for how a future DCS will be employed or characteristics that it must have. Only the tasks of an operational concept are listed. The detailed operational concept would need to be developed for each capability in conjunction with DCS to gather additional information for its design, ensure buy-in and that the proposed system will solve the problem. Capabilities or Operational Concepts were identified based on the business requirements.

   Capability is the "ability to do something" at a level that includes people. The "ability to" requires possession of the means. The "do something" is the task or function. A capability consists of the correctly selected personnel, with the appropriate training and organisation, suitable processes, technical systems and tools, facilities and organisational behaviours arising from culture, leadership and management.

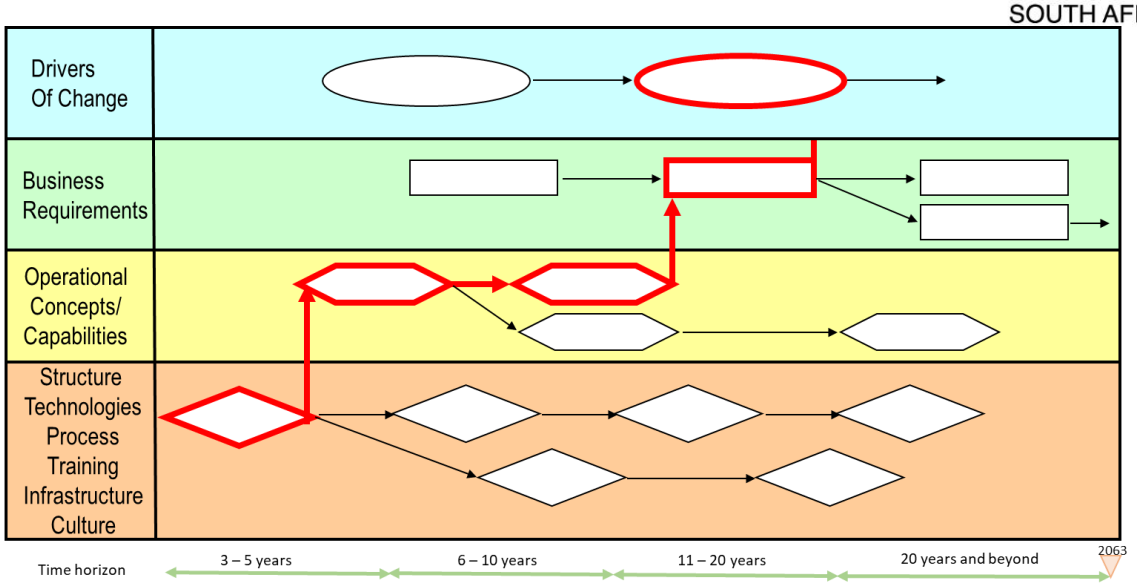

Figure 2: The Roadmap Concept (adapted from Möhrle, Isenmann, Phaal 2013)

4. **Capability Elements**: For each of the Operational Concepts, the necessary capability elements that form the capability are:
   a. **Structure and people**: The organisation, and number of posts in support of the DCS Mandate.
   b. **Technology**: Options and designs for information systems, sensors, and other tools and infrastructure that once selected for a particular purpose become the DCS technical systems.
   c. **Process**: What must be done to achieve the DCS mandate in a way that satisfies the requirements of a variety of stakeholders.
   d. **Training**: The training required to able to implement the process and use the technical systems safely and securely.
   e. **Infrastructure**: Buildings, workshops and other facilities required to achieve the DCS mandate.
   f. **Culture**: Important organisational narratives, language, symbols and practices that constitute "how things are done" at DCS. It should, however, be noted that culture is an emerging organisational characteristic and is not designed in a "rational" way.

The prioritization and positioning of the roadmap elements gave rise to a plan that was formulated within the MISSTP. It dealt with immediate implementation actions, in addition to other capability elements fundamental for implementation and other ongoing technology-independent activities. The planning criteria used to sequence the capabilities and capability elements leading to the MISSTP plan included:

1. Effective warrant implementation;
2. Increased security;
3. Increased integration and responsiveness; and
4. Increase in resilience.

Additional prioritization criteria for automation included:

5. Security risk reduction;
6. Increase in staff productivity;
7. Reduction in errors;
8. Increase in compliance with legislation, regulation and policies; and

9. Programme cost and duration.

Based on these criteria, capabilities and the capability elements, including technologies, were sequenced by the client. MISSTP provided a prioritised and sequenced plan according to dependencies to implement the capability elements suggested in the roadmap. Sequencing of the activities was performed in line with prioritised technology elements, while also considering the impact on the operational capabilities. The priorities and plan are important for DCS, but not discussed further in this paper.

The final step was presenting the findings, recommendations, the roadmap and conclusions for review by the DCS executive. The MISSTP was approved by the DCS National Commissioner in February 2021. The following section discusses the case study findings, recommendations and conclusions using the methodology presented.

Selected case study findings, recommendations and conclusions

A summary of the workshop findings leading to the key recommendations which were captured as a "roadmap" are presented. The conclusions and recommendations were made based on information from DCS workshop participants, established principles in a number of relevant disciplines and systems thinking. The roadmap provided a mechanism for describing and communicating the required vertical and horizontal integration of DCS in a visual way. Because of the size of the roadmap and the sensitivity of certain security related issues, this article is limited to three main themes (illustrated as a roadmap excerpt in Figure 3) that contribute the key points of the article (and the conference theme): strategic thinking, responsive implementation of strategy and increasing productivity.

Strategic Thinking

DCS legislation, regulation and governance creates a sense of certainty and stability, which does not hold for the external environment. There is also an increasing burden of legislation, governance and compliance on DCS. This combined with a rapidly changing external environment requires a different approach within DCS. Several external and internal drivers of change were identified during the workshops relating to:

- The global financial crash, related to the potential collapse of the US Dollar as a currency while an economic depression could possibly follow the COVID-19 pandemic and the current economic recession (Lairson, 2013). As a result, government, industry, and corporations face budget cuts in the short-term and potentially resulting in bottlenecks in the medium term.
- Cyber-attacks, with a notable recent example being "Blueleaks" in the US where 251 US law enforcement websites were hacked to expose the personal data of 700,000 police members (Lee, 2020).
- Disaster events such as flooding, fires and droughts as perennial risks. Zoonotic transmission of viruses, anti-biotic resistant bacteria and parasites, such as mosquitos are also risks. Pests could ruin crops and threaten food supply.
- Climate Change increase in temperature in southern Africa is higher than in other parts of the world. This means that crops that used to be grown here may no longer grow resulting in crop failures impacting food security. Furthermore, approaches to infrastructure planning must adapt to meet new climate requirements.
- Declining availability of utilities could lead to an inability to provide meals for offenders or a lack of water leading to riots and a failure to comply with Standard Minimum Rules for the Treatment of Prisoners (United Nations, 1977).

- Accumulating legislation, policy, and standards constrain operations, add a compliance burden, are not always consistent, and add cost and complexity to operations.
- Diseases including viruses, bacteria and parasites and pests such as locusts and wasps.
- Some DCS staff not following process/ procedures;
- Lack of staff in proportion to the number of offenders, referred to as the "Staff ratio"; and
- Lack of maintenance arising from capability, management and culture issues.

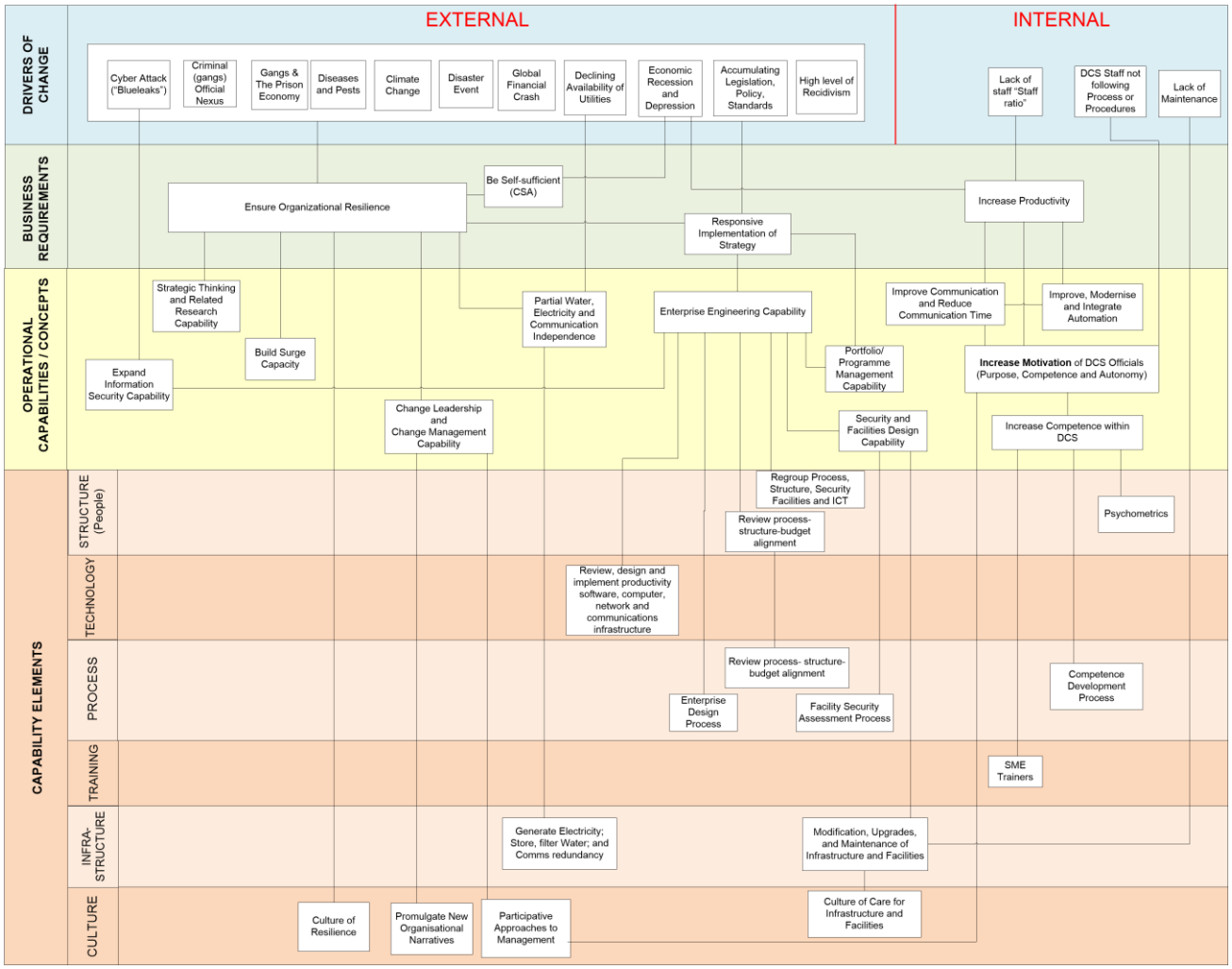

Figure 3 MISSTP Roadmap excerpt for illustration (adapted from Gonçalves and Auret, 2020b)

Due to the sensitive nature of some drivers, not all were listed in this article, but some are equally applicable to the majority of industries in the South African context. The key point is that drivers of change need to be interpreted for DCS, i.e. What does this mean for DCS?

Modern strategic studies distinguishes between strategic thinking (understanding the context, anticipating, surfacing assumptions and learning) and strategic planning (allocation of targets and budgets, schedules and resources) as illustrated in Figure 4 (Liedtka, 1998). Strategic thinking considers what might happen, using such tools as scenarios. Strategic thinking disrupts current organisational alignment between the way it operates and thinks allowing a new future. On the other hand, strategic planning creates alignment between the means and future. Strategic Planning without strategic thinking leaves many organisational assumptions untested and hence interventions which could fundamentally improve the organisation are not considered.

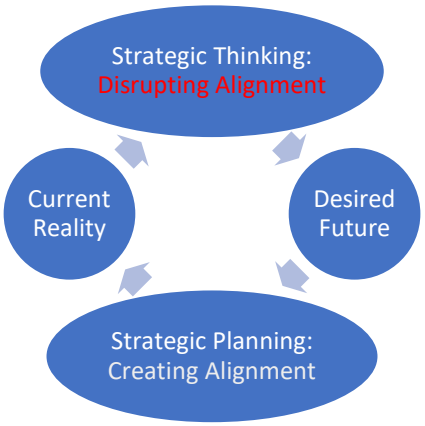

Figure 4: The cycle of strategic thinking and strategic planning (Liedtka, 1998)

There is evidence of DCS level strategic planning and some strategic thinking methods are being applied at the organisational level. However, there was limited evidence of strategic thinking in the specialist areas. For example, workshop participants agreed that a subordinate level of strategy for the specialist areas of Security, Health Care, Rehabilitation, Social Reintegration, Human Resource Management, and ICT was required. The same could be true for other areas although this was not expressed by workshop participants. These specialist area strategies would be informed by research into:

- Offender profile relating to disease, crime, demographics;
- Security risks;
- Offender reintegration requirements (arising from changing socio-economic conditions); and
- Stakeholder perceptions of DCS.

This research leads to redefining organisational capabilities and redesigning offender programme content to adapt to changing conditions. Some research into evaluating DCS strategic effectiveness was identified, for example recidivism rate. However, *research must be coupled with anticipation in a strategic learning process*.

Several interrelated and interdependent DCS business requirements arise from the drivers of change, although only a selected list is reported in this article, expanded in subsequent themes.

The first requirement was to formalise strategic thinking within DCS as a capability. The purpose of strategic thinking is researching and anticipating inmate profiles relating to disease, crime, demographics, security risks, and offender reintegration requirements (arising from changing socio-economic conditions), surfacing assumptions and learning about the context in general. A futures workshop was proposed as a way of initiating this. This is supported by a requirement for responsive implementation of strategy, topic of the next section. Finally, a requirement to improve change leadership and change management especially in relation to internal drivers of change was identified.

A second requirement is to increase organisational resilience. Legislation, regulation and governance create a sense of certainty and stability, which does not hold for the external environment. The COVID-19 pandemic has stretched DCS as an organisation. Adapting to the external environment requires anticipation, an aspect of strategic thinking. Even with anticipation, there is always uncertainty and incomplete information so that not all scenarios can be anticipated at planning time, requiring resilience. Resilience is about being able to anticipate, avoid, reconstruct or otherwise minimise the effects and duration of a disruption caused by a threat or hazard (Hollnagel and Woods, 2006).

Resilience is also driven in part by the CSA, Section 3(2) which requires DCS to be more self-sufficient as far as practicable while the COVID-19 situation further emphasises the need for resilience due to lockdown restrictions and impact on staff and inmates. Resilience requires interrelated and interconnected capabilities (selected examples from the roadmap):

- Building surge capacity, considering amongst others and within the context of a Business Continuity Plan, the following: People; Organisation (reorganise between hierarchical and network); Facilities; Finances; and Supply chains; and
- Partial Water, Electricity and Communication Independence to deal with the combination of declining utilities, the possibility of disasters and security incidents, water, electricity and communications independence are required. The level of independence is a trade-off between risk and cost, and hence at least partial independence of utilities is required.
- A reshaping of DCS culture introducing new narratives relating to security, resilience and maintenance are critical.

While strategic thinking will improve strategy, strategy is of little use in a changing environment, without responsive implementation. Sadly, even if good strategic decisions are made, indications are that the chance of successful implementation is around 10% (Mintzberg, 1994). Implementation of strategy and the need for integration set the stage for a discussion on enterprise engineering.

Responsive Implementation of Strategy

The lack of integration within DCS was a recurring theme both in the workshops and DCS documents. Integration refers to integration between: DCS and other organisations in the Justice Cluster, such as the South African Police Service; Various business functions within DCS; Capability elements; and then vertical integration between the three horizontal levels above. The integration within the Justice Cluster was outside the scope of this study.

Currently, process design performed by Strategic Management, organisational structure design by HR and ICT design is under the Government Information Technology Officer (GITO), resulting in "structural secrecy"[1]. International practice is to integrate these, with enterprise governance, because of high task coupling between the three areas (Hoogevorst, 2009). Findings included high levels of hierarchical control, characterised by top-down planning processes combined with a lack of operational integration. This combination is known to contribute to organisational inertia, a further reason for poor adaptation to the environment (Hoogevorst, 2009).

This integration will increase DCS agility and prepare the organisation for technology roll-out although not all DCS issues can be solved by technology (specifically, technical systems). Any integration starts with integrative, systemic metaphors (Thibodeau, Winneg, and Flusberg, 2015). During workshops technology was proposed without considering the capability as a whole. A specific area requiring integration is capability design within DCS. Capability design must balance people and technology (amongst other elements). Shifting the balance of a capability (more people or more technical systems) changes selection and training or the requirements for the technical system and impacts the capability's cost.

It was recommended that the existing capability in process, organisational structure and technology (including sensors, ICT and facility design) design be integrated with Enterprise Governance and

[1] A term coined by the sociologist Diane Vaughn.

Enterprise Engineering capability. Enterprise engineering is the coordinated design of the enterprise as a whole and is broader than ICT. Such an Enterprise Engineering capability would align the DCS enterprise design and DCS strategy. This capability would integrate with portfolio and programme management for implementing projects. This is critical for the development and implementation of new processes, organisational structures and technologies (information systems including specification of technology, facilities and staffing) in an integrated way within DCS.

An enterprise is an intentionally created entity of human endeavour with a specific purpose and hence DCS is an enterprise. Several developments are leading to improved technologies for achieving integration of enterprises (Hoogevorst, 2009). The 1970's saw a shift from a data-centric view of the world to an information-centric one (Figure 5). This resulted in enterprises being shaped and held together by information technology (IT). But the emerging paradigm is intention based and held together by collaboration and cooperation (referred to as a participative approach). The area of enterprise engineering is built on information systems and drawing on organisational sciences. In enterprise engineering, the behaviour that the enterprise exhibits depends not only on the technical systems, but also on management and leadership practices and organisational culture (Hoogevorst, 2009; Schneider, Brief, and Guzzo, 1996).

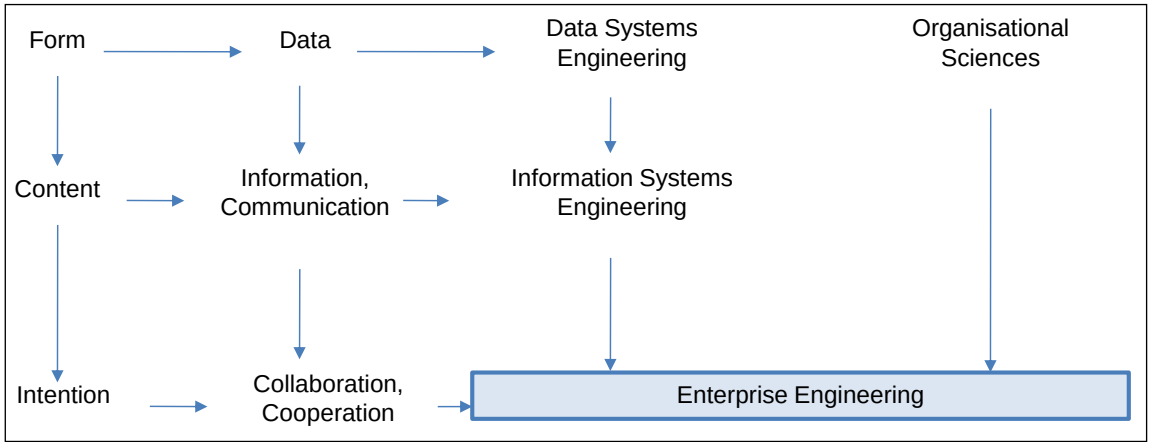

Figure 5: Enterprise engineering family tree (Hoogevorst, 2009)

Enterprise Governance is required to achieve unity and integration (Hoogevorst, 2009). There are at least two important developments in the area of governance. Firstly, corporate governance is moving away from just financial compliance and internal control to include effectiveness and sustainability, which involves strategy implementation. Secondly, there is a trend to consolidate and integrate corporate governance, IT governance and initiatives that transform the enterprise into an integrated whole. IT systems designed primarily to support enterprise purpose and objectives are relevant from a compliance point of view as well. Technical systems (not only IT) that are designed to integrate with the organisation have a better chance of being accepted (Schneider, Brief, and Guzzo, 1996). To ensure compliance, the tasks need to be understood, along with the required authority and responsibility. Thus, compliance is tightly linked to the design of the enterprise. Enterprise governance is an integrative organisational competence for continuously exercising guiding authority over enterprise strategy and architecture development, and the subsequent design, implementation, and operation of the enterprise (Figure 6).

Programme management is the management of a group of projects whose execution must be coordinated to achieve an overarching goal. Project portfolio management is the totality of activities for ensuring that the project portfolio is accurate and up to date, such that project management and pertinent evaluation and decision making is facilitated. Portfolio management is about getting the big

picture, for example about resources needed, project execution priorities and risks, and project progress.

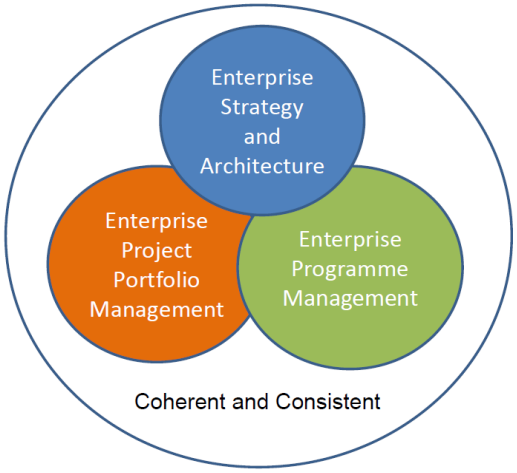

Figure 6: Enterprise Governance Core Competencies (Hoogevorst, 2009)

There are many reasons for integrating the three competencies shown in Figure 6. Firstly, internal control cannot be separated from the processes and their execution since the tasks that make up these processes require responsibility and authorisation, which impacts the design of the enterprise. Avoiding failure of strategic initiatives requires focusing on the enterprise as a whole to ensure adequate unity and integration. The enterprise acquires new capabilities incrementally as the enterprise strategy changes. While there has been some discussion on integration, this does not mean that differentiation (for example, in the form of functional areas) is not essential. A balance between integration and differentiation is required, as was pointed out in 1967 by Lawrence and Lorsch (Lawrence and Lorsch, 1967).

Enterprise Architecture is not a new concept, having been widely used in the IT context. However, it is necessary to discuss it beyond IT. Why do we need architecture? There is always a tendency to focus on the physical solution. But we need to also focus on what needs to be done then consider how it will be done. This is described using concepts of process or tasks in terms of people and functions for technical systems. Without processes and functions there is a tendency to jump to the physical solution. This denies the possibility of other innovative solutions, but also short-circuits the understanding of the problem.

Such an Enterprise Engineering capability would align the DCS enterprise design and DCS strategy. Portfolio and Programme management is a critical capability to ensure strategic initiatives (amongst others) are conducted in a structured and controlled manner to implement the enterprise design and to validate the implementation. This is critical for the development (including specification of technology, facilities and staffing) and implementation of new technologies in DCS. To assist in the short term, fix the structure (even if it is an interim structure), aligned with budgets to achieve organisational purpose. Portfolio/Program management capability must be staffed, mandated and authorised.

Integrated enterprise architecture in the context of DCS, requires that enterprise engineering be augmented with two specialist areas: security systems and a facilities capability because these areas are strongly interconnected. For example, building a new facility has structure (personnel), security and ICT implications.

Given that DCS is understaffed in certain areas, stretched with the burden of increased compliance and reporting, and pushed to the limit by COVID-19, there is no time to implement new initiatives. This creates a contradiction: increasing productivity requires an intervention.

Increasing productivity

The workshops indicated that the nature of work at DCS places stress on employees. Staff are not all motivated. Furthermore, the increasing burden of compliance and the "staff ratio" requires an increase in productivity or motivation. Hence one of the business requirements was to increase productivity (Figure 3). The current economic recession and impending economic depression will probably reduce budgets for staff and technology. Increasing productivity is a way of recovering labour hours not only for the shortfall in staff, but to implement new initiatives. Productivity increases were recommended via three main paths: Increasing motivation, improve communication (including a shift from hierarchical to participative approaches), and improve, modernise and integrate automation.

Increasing motivation requires employees have a clear purpose, competence and autonomy (the latter achieved in part by moving away from hierarchical control) (Pink, 2011). Building depth of skills, and increasing competence, was identified as a particular need during DCS workshops. Increasing mastery or competence will also lead to a direct increase in productivity and has a positive effect on trust. The filling of posts, whether through promotion or recruitment, should make use of competence-based assessment and psychometric assessment. Increasing autonomy leads to an increase in employee initiative and creativity. Making these improvements would increase morale, which is important not only for the normal services, but also to facilitate the introduction of new technologies.

Productivity could be increased by improving communication, reducing communication time and using a participative management approach (which also helps to create purpose). A participative approach is coupled with a temporary shift from a hierarchical (as most government departments are deemed being) to a networked organisation supported by various information systems and automation. Networked (as opposed to hierarchical structures) are important for responsive communication, learning and organisational integration and reduced security costs (Goncalves, 2021b). Flattening the hierarchy under certain conditions will allow information to flow faster through the organisation (Weick, 2001). Communication time will also be reduced with appropriate information systems and ICT infrastructure.

Sharing information on purpose (why), not just what or how, is part of an important shift from purely hierarchical control to a more participative management approach that is also important for DCS to deal with complex environments (links to responsive implementation of strategy). The rebuilding of trust is required for such a participative approach supported by temporary structures for specific tasks. This is central to adaptation and resilience. One way to rebuilding trust is taking turns to lead, based on expertise. Another is using temporary structures for specific tasks, using a participative approach, are central to adaptation and resilience. Flattening the hierarchy will allow information to flow faster through the organisation, which was a recurring issue raised by workshop participants.

The final recommendation to improve productivity was to improve, modernise and integrate automation. Requests were received during workshops for "automation", tools and information systems in the following interconnected areas:

- Remand detainee, custodial and non-custodial offender and released **offender sentence lifecycle management** (this integrates across DCS core business processes);
- Security management;

- Strategic reporting and operations management (including human resources) - monitoring and evaluation is important to assess how organizations are performing as a whole and for learning. However, reporting is a challenge in terms of level of effort, reporting time and the ability to fix errors, particularly concerning strategic reporting; and
- ICT and infrastructure management.

It was noted that not everything can be automated despite many requests for automation, tools and information systems, and certainly not all at once. Automation must include workflow modernisation and is not simply the automation of a paper-based system. Criteria for automation were developed as a basis for prioritising incremental roll-out. Also, these information systems together form an integrated system to be rolled out incrementally to avoid risky ICT "megaprojects". However, there is some challenging work to be done in aligning the process, structure and budget.

Several other recommendations and capabilities are identified in the MISSTP Roadmap Report (Gonçalves, 2021a). However, the three themes of strategic thinking, responsive implementation of strategy and increasing productivity were selected because of their broader relevance and the implications for a post-COVID world.

CONCLUSIONS AND IMPLICATIONS

"*Not everything that is faced can be changed; but nothing can be changed until it is faced.*"
- James Baldwin (1924–1987).

For DCS, the unthinkable has already happened: COVID-19 as the current disaster combined with judgements against DCS in the context of overcrowded facilities provided the needed impetus for change in DCS. One approach to building a business strategy it to build on what is stable. In our client's case this was CSA. However, legislation can offer only limited stability with the rate of change of today's environment and the drivers of change identified suggest the need for organizational mechanisms for adaptation. Key business requirements that were identified included implementing strategic thinking for the DCS specialities, building resilience, responsive implementation of strategy, and productivity. These were moved to "front of stage" because of a disaster in a complex and uncertain world.

There are many DCS issues that can be solved with management interventions of a systemic nature without incurring additional cost. This is important because the economic recession and impending economic depression will further reduce budgets for technology and these interventions are required anyway to prepare the organisation for the implementation of new technology. In fact, DCS faces a contradiction that it has a shortage of skills, with posts to be filled, yet because of budget cuts, some posts will have to be shed. What is important is achieving DCS' mandate and strategic objectives by feasible fiscal means subject to national security considerations.

We proposed using complexity approaches for implementing the plan, not an immediate top-down organisation-wide rollout. Initially, DCS officials who have an interest in particular interventions should be selected as frontrunners to conduct experiments, learn and resolve issues, before a broader DCS roll out (Rotmans, & Loorbach, 2009). Also, we propose that any radical changes be implemented using small increments (Rotmans, & Loorbach, 2009). This slowly breaks existing patterns of interaction in DCS allowing change to occur. It was also proposed that the roadmap implementation be scaled based on funding. This means that some programmes will move into the future when there are insufficient funds. However, the duration of a particular task may not be fully known until requirements for various capabilities and technical systems are known.

This article illustrates how vertical and horizontal integration was applied using a roadmap across a client organisation to develop the MISSTP (Goncalves, 2021a). The proposed roadmap represented a systemic intervention at multiple DCS levels to achieve the business objectives sustainably using technology where required. From the workshops, we realized that we were dealing with complex situations which require systemic interventions at multiple levels as defined in the roadmap. This is important because the anticipated economic recession and impending economic depression will further reduce budgets for technology and these interventions are required to prepare the organisation for the implementation of new technology. These multi-level, multi-disciplinary interventions include: leadership, management, culture, structure, process, ICT, facilities, security and governance interventions of a systemic nature. It is important not to focus on technology in a narrow sense but consider the business requirements and how they lead to operational concepts. In fact, to properly address the brief for a security and technology plan required broadening the lens to ensure that technology can be adopted sustainably within DCS. This was not always the case in the past.

The case study methodology focused on individual DCS value chain processes (parts). This case study did consider integration across departments, or more broadly a whole-of-society approach as contemplated by Goncalves (2021b). This is certainly important from a Criminal Justice perspective, but also from the perspective of reducing crime. However, it is recommended, as further work, that DCS be designed and positioned as a whole, into the future. This was out of scope of the contracted work, although the need for multidimensional interoperability was identified. As we facilitated additional workshops with the client it was concluded that a whole-of-society approach was required to achieve government outcomes given tighter budgets in a post-COVID world.

A futures workshop is recommended which aims to disrupt established patterns of behaviour within an organisation (culture), especially those patterns that no longer serve, through facilitated and participative approaches. The future is a resource that helps organisations stop spinning their wheels by operating at a level deeper than the list of problem root causes or predicting the future. Based on this and alternative future scenarios, DCS can choose its values, ethics, and narratives and by living out these today, they can create a better future. A futures workshop is critical for breaking the current alignment and starting the transformation.

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BIOGRAPHY

Duarte Gonçalves is currently employed by the CSIR as a Principal Engineer where he currently leads the on-going development and application of a whole-of-society approach to security in the areas of disaster management, infrastructure security and wildlife crime. He has contributed to national strategies in wildlife crime and the development of whole-of-government and whole-of-society approaches nationally. In this capacity, he works with a variety of government departments, social scientists, engineers and other experts and has developed experience using transdisciplinary research methods in security for "dealing" with complexity. He has facilitated stakeholder workshops for developing futures and interventions.

Duarte Gonçalves is a registered professional engineer with a PhD in Engineering Development and Management.

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