The development of a single logistics process for the SANDF

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INTRODUCTION

The South African National Defence Force (SANDF) contracted the CSIR to investigate and propose methods to improve its logistics and inventory accounting capabilities. The CSIR proposed that a supply chain management approach should be followed using the Supply Chain Operations Reference (SCOR) model. Based on extensive field work, which included a visit to the SANDF stationed in Burundi, the augmented SCOR model as shown in **Figure 1** was developed.

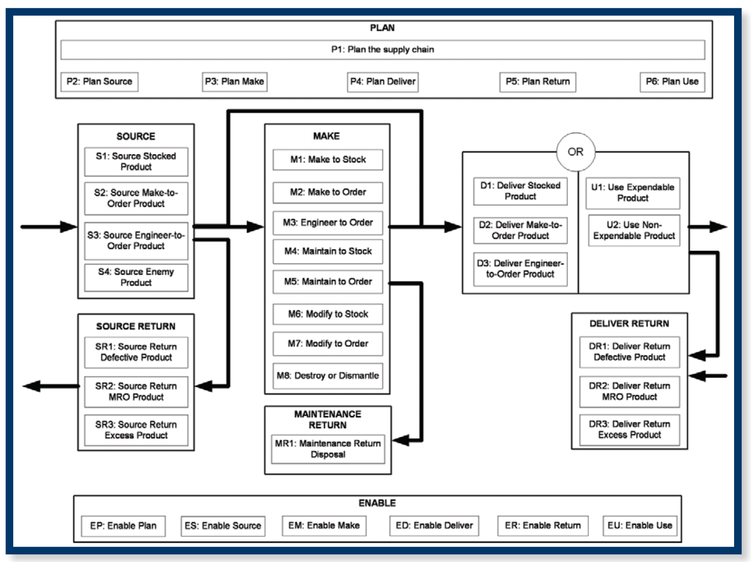

Figure 1: The augmented SCOR model for the SANDF (Figure 4.3 in Schmitz et al, 2010:34)

The SANDF indicated that the augmented SCOR model (Bean, Schmitz and Engelbrecht, 2009) should be extended into a single logistics process which should include a life-cycle perspective as prescribed by ISO-15288:2008 (SANS, 2008).

SIX PERSPECTIVES

The South African Department of Defence developed a Logistics Strategy to determine the requirements for a logistic process. Analysing the Logistics Strategy Map, six perspectives were identified, namely:

SYSTEM

Systems in the South African Department of Defence are managed at different levels as reflected in **Table 1**. Systems are in general integrated using a bottom-up approach. Product system managers are responsible for the products and the integration of these in Levels 1 to 5, whereas the logistics process must enable the integration of weapon systems from Level 6 up.

Table 1: System Hierarchy (Table 4.1. in Schmitz *et al.*, 2010:27)

Level	Designation	Example
8	Operational Force	Joint National Force
7	Combat Grouping	Joint Task Force
6	User System	AA Battalion
5	Product System	Radar
4	Product	Power Supply
3	Product Sub-system	Modulator
2	Component	Resistor
1	Material	Silicon

PROCESS

A process is seen in this context as a functional layout in which products move from one function or process to the next function or process. The function or process describes the required product inputs, the transformation of the product and the output that is the input for the next function or process. Since products move from one function or process to the next, the process perspective can be seen in this context as the transfer function of the system (Schmitz *et al.*, 2010).

QUALITY IMPROVEMENT

With regard to the quality improvement perspective, the philosophy of Total Quality Management (TQM) is followed to reduce military logistic risks and to improve the quality of service rendered (Bounds, Dobbins and Fowler, 1995).

ASSET MANAGEMENT

The South African National Treasury has clear guidelines on the management of the state's assets. The management and accounting of assets are included in the single logistic process where applicable (Schmitz *et al.*, 2010).

SUPPLY CHAIN PERSPECTIVE

The supply chain perspective is the augmented Supply-Chain Operations Reference (SCOR) model as developed for the SANDF (Bean, Schmitz and Engelbrecht, 2009). **Figure 1** illustrates the augmented SCOR model for the SANDF.

LIFE-CYCLE PERSPECTIVE

ISO-15288 provides a common framework for establishing and implementing agreements between an entity acquiring a system and the system or sub-system suppliers with respect to developing, using and managing a system within its defined life cycle. The life cycle of the system spans from its conception of ideas through to the retirement of the system at the end of its life cycle.

The life cycle consists of several stages or phases. Each stage or phase consists of one or more processes, which in turn has one or more activities. Each activity may consist of one or more tasks to support the process outcomes. **Figure 2** gives the system life-cycle processes as defined in IS0-15288.

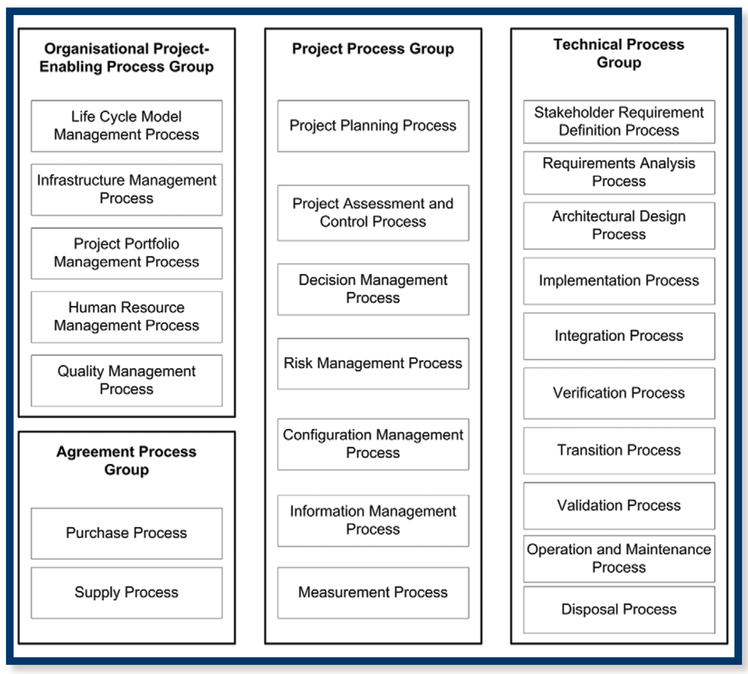

Figure 2:System life cycle processes (Figure 4.7 in Schmitz *et al.*, 2010:64)

CSIR supply chain expertise has contributed to the SANDF having a single logistics process that will enable quantum improvements to logistics service delivery.

The first five perspectives were adequately addressed in the augmented SCOR model for the SANDF (Bean, Schmitz and Engelbrecht, 2009). The augmented SCOR model for the SANDF did not make provision for the life cycle of logistics products, that is, matériel, logistic services and facilities. However, the life cycle perspective needed to be integrated with the augmented SCOR model. This integration of the life-cycle perspective as prescribed by ISO 15288:2008 into the augmented SCOR model constituted a single, comprehensive, rigorous and tailorable logistics process within the SANDF that allows the SANDF to make quantum improvements to its logistics service delivery.

THE SINGLE LOGISTIC PROCESS

To derive a single logistics process allowing for the optimal functioning of the relevant supply chain while simultaneously enabling the management of the products' life cycles in the chain, an integrated logistics process framework was proposed and accepted by the client. This model is shown in **Figure 3**. The purchase or alternatively the acquisition process of the ISO 15288 life cycle process shown in **Figure 2** is integrated into the SOURCE management process of the SCOR and augmented SCOR model.

The supply process has been integrated with the DELIVERY management process. The processes listed in the technical process group of the ISO 15288 life cycle process as shown in **Figure 2** have been integrated into the logistics process framework in **Figure 3** as follows: Stakeholder requirement definition process through to validation process have been included in the SOURCE management process to enable the sourcing of complex matériel such as frigates and aircrafts; the operation and maintenance process has been integrated into the USE and MAKE management process respectively; the disposal process in MAKE and RETURN management processes. The remaining two process groups as shown in **Figure 2** have been incorporated into the ENABLE processes as shown in **Figure 3.**

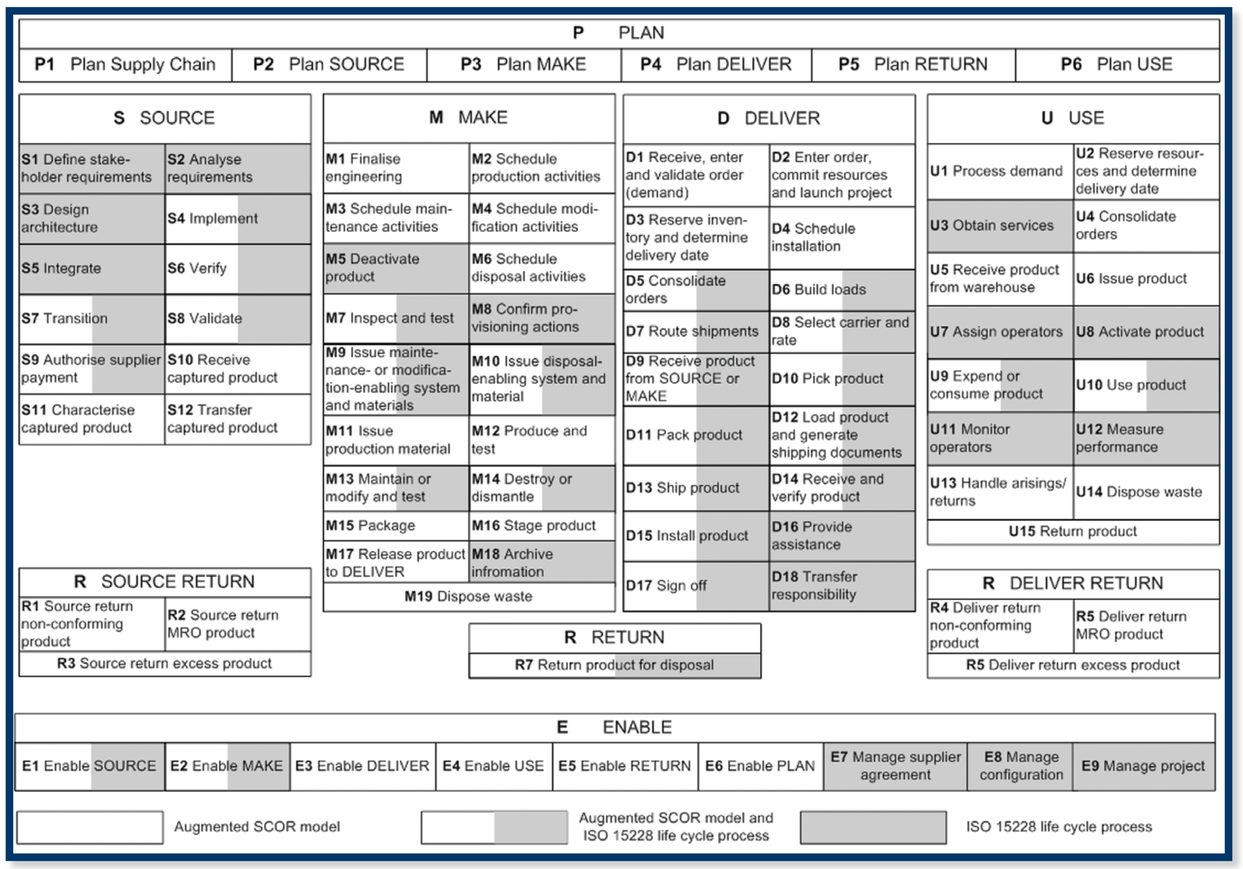

Figure 3: The SANDF Logistics Process Framework. The augmented SCOR model was derived from the SCOR v.9 model.

The main deviation from the SCOR model and the augmented SCOR model is that the numbering system does not allow for different sourcing, making, delivering, returning and using process categories as proposed by the Supply-Chain Council. Thus S1 in the logistics process framework is the first sourcing process and S1.1 refers to the first sub-process of S1. Not all the processes in the logistics process framework as shown in **Figure 3** have sub-processes.

However, the logistics process framework adheres to the Supply-Chain Council's philosophy of selecting only those processes that are applicable to a specific supply chain, thus making it a tailorable process framework. The logistics process framework is a single process framework since it can be used for matériel, services and facilities.

CONCLUSION

The project's research impact lies in the fact that a new way of looking at supply chains has been formulated. This will contribute to solving the military's problem of having to deal with seemingly different logistic objectives in an integrated manner. The practical impact constitutes a single, comprehensive, rigorous and tailorable logistics process within the SANDF that allows quantum improvements to logistics service delivery.

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