

# Decoding South African National Defence Force Logistics: Innovative Joint Logistics and Supply Chain Solutions

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## Abstract

The study on which this article is based, examined the challenges of providing interdependent and joint sustainment capabilities to joint and expeditionary forces operating in the African battle space. It is argued that reforms to the prevailing sustainment concept are needed to address these challenges, focussing on operationalising interdependent and joint sustainment capabilities with a responsive logistical infrastructure, simultaneous deployment, employment and sustainment capabilities, and a single, integrated, responsive end-to-end distribution system. The article commences by reflecting a conceptual framework, defining logistics, providing a historical reflection on logistics in the South African military, and examining the nature of the African battle space. It considers the influence of the Border War, the post-apartheid evolution of the South African National Defence Force, and its involvement in peace support operations. The unique and complex demands of the African battle space are also highlighted. Ultimately, two strategic options for optimising joint sustainment and supply chain management in the South African National Defence Force are suggested: centralised functional authority with decentralised execution, or complete decentralisation of logistics functions. Phased quick wins to enhance operational autonomy, efficiency and interoperability, including developing first-line capabilities, standardising commodities, and implementing an integrated, automated and digitised supply chain management system, are proposed. The strategy integrates lean supply chain principles, performance-based logistics, and velocity management to ensure long-term sustainability and effectiveness.

**Keywords:** Military Sustainment; Military Logistics; Military Supply Chain Management; Integrated, Automated and Digitised Supply Chain Management; Lean Supply Chain; Performance-Based Logistics; Logistic Management Development Concepts and Velocity Management

## Introduction

The challenges in the African battle space (ABS)<sup>1</sup> require military forces with joint and expeditionary capabilities. Forces will however require interdependent and joint sustainment capabilities to support the full spectrum of military operations at the strategic, operational and tactical level of war, consistent with joint operational concepts.<sup>2</sup> Furthermore, integrating joint, inter-agency, interdepartmental and multinational capabilities (JI2M)<sup>3</sup> with interdependent and joint sustainment capabilities in multi-domain operations remains a challenge. This needs to be addressed in order to enhance

the efficiency and effectiveness of military operations. The need for interdependent and joint sustainment capabilities to sustain joint and expeditionary forces in the ABS guided the current study. The research focussed on identifying the necessary reforms to establish interdependent and joint sustainment capabilities, supported by a unified, responsive end-to-end distribution system that enables simultaneous deployment, employment, and sustainment through robust logistical infrastructure.

This main argument of the current study addressed the sustainment challenges of joint and expeditionary forces in the ABS, and suggested reforms to the prevailing sustainment concept. The article is structured to illustrate the development of the argument, commencing with a conceptual framework by defining logistics, providing a historical reflection and elaborating on the nature of the ABS. It includes the involvement in peace support operations (PSOs) and factors that impede the development of logistics capacity. The article thus:

- Sets the scene for the proposed future approach;
- Discusses the concept of military supply chain management (MSCM);
- Sets the scene with the “as-is” scenario, operational level logistical intelligence, performance-based logistics (PBL), and the defence industry;
- Optimises joint sustainment and supply chain management in the South African National Defence Force (SANDF); and
- Ends with suggested quick wins for joint logistics.

## Theoretical and Conceptual Framework

The terms “logistics” and “logistics systems” are often used, but the literature agrees that no definition can satisfy all perspectives. This section offers theoretical perspectives and explains how the current research used these terms. The term “logistics”, which is linked with administration, is a crucial component of military operational orders. It originates from the Greek adjective *logistikos*, meaning ‘skilled in calculating’.<sup>4</sup> The term dates back to the Roman and Byzantine empires, where a military administrative official was known as a *logista*.<sup>5</sup> It was however Baron Antoine-Henri de Jomini<sup>6</sup> who first applied the term ‘logistics’ to military administration in his *Précis de l’art de la guerre ou nouveau tableau analytique des principales combinaisons de la stratégie, de la grande tactique et de la politique militaire*.<sup>1</sup> He emphasised the critical role of logistics in military operations, elevating it to a central component of his theory of war. Jomini defined logistics as ‘the art of moving armies’,<sup>7</sup> encompassing all activities related to transportation, supply, accommodation and sustainment of armed forces. He thus integrated strategy, grand tactics, logistics, engineering and tactics to form a holistic approach that redefined logistics as a science of generals and general staff, moving beyond its traditional association with administrative tasks. Jomini’s insights laid the foundation for modern military thought

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<sup>1</sup> AH de Jomini, *The Art of War* (Philadelphia: J B Lippincott & Co, 1862), 69. Translated from the French by Captain GH Mendell, Corps of Topographical Engineers, US Army and Lieutenant WP Craighill, Corps of Engineers, US Army.

on logistics as a vital element in achieving operational success.

In the SANDF context, logistical systems have been influenced by the British<sup>8</sup> and the United States of America (USA)<sup>9</sup> military logistical systems. Logistics in a military setting is often referred to as combat service support (CSS). Logistical appreciations frequently include highly uncertain conditions, i.e. enemy or threat assessment, transport nodes, medical infrastructure, and religious restrictions, requiring South African (SA) logistical staff officers and commanders to make informed decisions based on assessments of strategy, finance, intelligence, personnel management, PSO and international relations by liaising with their respective counterparts in organisations, such as the Southern African Development Community (SADC), African Union (AU) and the United Nations (UN).

Kruys (2008)<sup>10</sup> indicates that the definition of logistics used by the US Department of Defense is similar to that in the *South African Military Dictionary*, emphasising the planning and execution of force movement and maintenance. This includes *matériel* management, personnel movement, facility management and service acquisition. This is reflected in the SANDF staff system, itself adopted from the US military general staff system in the 1970s. The US military general staff system is composed of multiple distinct staff sections, each with specific roles that support the commander and the overall mission.<sup>11</sup> The general staff system includes a logistical staff division responsible for supply, maintenance, transportation, construction, evacuation and hospitalisation tasks. This division plays a key role in equipment acquisition, maintenance, and disposal at national military headquarters, alongside other staff divisions, such as operations and finance. This structure highlights the integral role of logistics in supporting military operations, underscoring its importance in strategic planning and execution.<sup>12</sup>

The South African Border War, also known as the “Namibian War of Independence” and sometimes referred to as the “Angolan Bush War”, comprised a complex and asymmetric conflict from 26 August 1966 to 21 March 1990. It involved the South African Defence Force (SADF) and the People’s Liberation Army of Namibia (PLAN), the armed wing of the South West African People’s Organisation (SWAPO), with operations stretching across northern Namibia (then South West Africa), southern Angola and into Zambia. This conflict was deeply intertwined with the Angolan Civil War, creating a multifaceted scenario that blurred the lines between conventional warfare and insurgency.<sup>13</sup>

Historically, the Border War served as a catalyst for significant changes in military logistics. It necessitated a shift from traditional to unconventional logistic support systems, as forces were deployed over vast distances without the benefit of established doctrine. The nature of the conflict itself defied traditional definitions of war.<sup>14</sup> While not fitting the classic mould of conventional state-on-state war, it was characterised by a prolonged insurgency in South West Africa (later Namibia) and periodic involvement in the Angolan Civil War. These two conflicts were inextricably linked, which made it challenging to distinguish between them. This nuanced understanding highlighted the complexity and adaptability required by military forces during the conflict as they navigated internal insurgency and external engagements in neighbouring countries.

The Cold War was instrumental in promoting Marxist ideology and expanding Soviet influence across Africa. According to Daniel,<sup>15</sup> the collapse of the Soviet Union in 1989 marked a pivotal moment in global politics, culminating in the end of the Cold War and the cessation of Soviet operations in Africa.<sup>16</sup> Closer to home, this shift led to the end of SADF deployments in Namibia, and the independence of Namibia on 21 March 1990.<sup>17</sup> This period also paved the way for the South African transition to democracy, culminating in its first democratic elections on 27 April 1994.<sup>18</sup> After the Border War, the reorganisation of the SANDF by Deloitte & Touche in the late 1990s was based on a business model that led to the dismantling of the domestic command system that allowed for logistical repositioning.<sup>19</sup> The new system eroded the generic support functions of the SANDF, changing it to a centralised acquisition and procurement system.<sup>20</sup>

On 27 April 1994, the SANDF emerged as the successor to the apartheid-era military, reflecting the transition of the country towards democracy.<sup>21</sup> According to Neethling,<sup>22</sup> the role of the SANDF evolved significantly, with PSO deployments extending beyond regional borders to countries, such as Burundi and the Democratic Republic of the Congo (DRC). This expansion highlighted the growing commitment by the SANDF to international peacekeeping efforts.

In the post-Cold War era, African states have become increasingly involved in PSOs. Whether regional peacekeeping efforts are driven by self-interest to prevent conflict from spreading to their homelands or to strengthen regional relationships, is open for debate.<sup>23</sup> The UN Under-Secretary-General for Peace Operations commended South Africa for its significant contributions to UN peacekeeping missions since 1999, particularly in the DRC. South Africa ranks as the fifteenth most significant contributor to UN peacekeeping forces globally and the sixth largest contributor of women peacekeepers. Additionally, South Africa endorses the UN Action for Peacekeeping initiative for more effective and safer missions.<sup>24</sup> According to Udoaka,<sup>25</sup> despite African countries being substantial troop contributors to UN and African-led operations, most African countries remain heavily reliant on external partners for mobilisation and logistical sustainment. This dependency persists despite decades of international assistance and the evident desire among African leaders to develop their own logistical capabilities.

Esterhuysen and Jordaan<sup>26</sup> conclude that these long-range PSO deployments posed significant logistical challenges. The need to project force over vast distances made it increasingly difficult and costly to maintain strategic, operational, and tactical support reserves on the ground. This issue highlighted the complexities of providing adequate logistical support to military forces engaged in distant operations. The experiences of the SANDF in these deployments emphasised the importance of adapting military logistics to meet the demands of modern PSO missions.

The approach to force projection adopted by modern militaries has significantly enhanced the connection between the supply chain of a force and its home base. This development makes it feasible to implement contracted logistical support for military operations

– domestically and in the countries where operations are conducted – to the extent practicable and without surrendering own sovereignty and capabilities.<sup>27</sup>

The ABS presents unique challenges due to its vast size, low force densities and extensive distances, which complicate rapid responses to evolving situations. This environment poses significant protection challenges for logistic columns and movement. Furthermore, a focus on high-mobility or high-tempo operations necessitates logistical support that is equally flexible, prompt and quick in execution despite the hurdles posed by vast distances and limited transport networks.<sup>28</sup>

Several key factors have hindered the development of robust logistics capabilities on the African continent. Udoaka<sup>29</sup> states that a primary obstacle is the lack of political will to invest in military logistics as an integral part of the total military system. For too long, governments have failed to prioritise these investments, partly due to the challenge of developing a compelling narrative to justify the expenditure. It is often easier to secure funding for new equipment purchases than for building standardised systems, procedures and institutions that can support military forces effectively, efficiently and transparently.

The Stockholm International Peace Research Institute<sup>30</sup> concluded that significant impediments are the prevalence of corruption and a lack of military professionalism. In environments where cronyism and nepotism are widespread, single-source contracts awarded through personal connections are standard. These contracts frequently result in overpayments and subpar outcomes. Corruption not only affects the procurement of equipment and weapons but also affects the pay of frontline units. By diverting funds away from logistical improvements, corruption erodes the willingness of donors and taxpayers to support military initiatives.

Furthermore, the scarcity of reliable infrastructure across much of Africa poses a significant challenge. The continent lacks adequate roads, railways, airports, seaports, telecommunications, electricity, water and sanitation facilities. Road transportation, which accounts for about 90 per cent of intra-continental transport between urban areas, is hampered by poor road conditions and delays at border posts. This unreliable ground support impedes responsive logistics for private and public entities as well as security forces. Consequently, when military logistics depends on such infrastructure, the availability of essential *matériel* for force commanders is jeopardised, ultimately threatening mission success.<sup>31</sup>

The defence analyst, Helmoed-Römer Heitman,<sup>32</sup> warned in 2014 that deploying SANDF forces across Africa poses significant logistical challenges, primarily in terms of supply and support. While South Africa maintains good diplomatic relations with many African countries, the lack of reliable road and rail infrastructure in these regions necessitates the development of alternative solutions. Consequently, both aircraft and ships play a crucial role in supporting these forces, often traversing international airspace and waters to deliver essential supplies and personnel. By developing logistics capacity further,<sup>33</sup> the effectiveness and reach of these vital operations can be significantly enhanced.

The magnitude of this logistical task should not be underestimated. The reliance on air and sea transport highlights the complexity and scale of operations necessary to maintain a robust and sustained military presence in these regions. The absence of robust ground transportation networks means that air support is not only a preference but paramount, underlining the importance of strategic airlift capabilities in sustaining these missions. This reliance on air power emphasises the critical role of aviation in ensuring the success, sustainment and safety of SANDF deployments in Africa.

Although the African geography and infrastructural limitations – such as underdeveloped and congested ports, poor intermodal transport connectivity, and security and regulatory issues, including piracy, smuggling, and corruption – pose significant challenges to shipborne sustainment, these obstacles do not diminish the critical operational need for strategic sealift capability. Moreover, strategic sealift capabilities serve as a vital force multiplier, enabling the projection of military power and the swift transportation of heavy equipment and relief materials across vast distances where other transportation modes are insufficient or unavailable. Addressing African port and transport challenges through infrastructure development and improved security measures is therefore crucial, but it does not negate the indispensable role of strategic sealift in supporting the security and operational needs of the continent.<sup>34</sup>

The defence force is challenged to maintain operational deployments successfully.<sup>35</sup> While the media occasionally highlights poor logistical support, the military has adapted its logistical system to meet operational needs. Effective military logistics relies on a deep understanding of supply and movement factors, and the SANDF has gained valuable experience supporting peace mission deployments in Africa. Additionally, retired Brigadier General (Brig. Gen.) George Kruys<sup>36</sup> emphasised that the SA logistical culture and planning systems have been critical in supporting PSO deployments, even under severe resource constraints. This reflects the experience and strategic focus of the SANDF on logistics as a core component of operational success. Contrary to the view expressed in 2008, Brig. Gen. (ret.) Coetzee,<sup>37</sup> Col (ret.) Serfontein<sup>38</sup> and Eeben Barlow<sup>39</sup> expressed the view that the SADC deployment in the DRC tarnished the reputation of the defence force regarding expeditionary logistics. The mission was not fully appreciated in terms of the threat, as the enemy was underestimated; consequently, the contingency plans were not thoroughly assessed or tested. It may be argued that the entire deployment was an exercise in false optimism and that the capacity of the SANDF either to reinforce or to withdraw was inadequate.<sup>40</sup>

It is however surprising that the logistical procedures of the SANDF have not been well documented, given the extensive experience of the military in peace operations since 1999. Despite sustaining external operations for an extended period and over protracted distances, the overall logistical system and command and control structures are not functioning optimally. This is partly due to the restructuring of the military in the 1990s, which was based on business principles not well suited to a military environment.<sup>41</sup> Key issues include the lack of inter-corps training in the Army, which Vision 2020 and 2045 of the SA Army aimed to address, as well as an overly complex logistical system

with significant deficiencies.<sup>42</sup> Furthermore, Esterhuysen and Jordaan<sup>43</sup> highlight that the logistical challenges of the SANDF stem from centralisation, a disconnect between operational doctrine and logistics, and inadequate contingency planning. These issues have hindered the optimisation of logistics for expeditionary operations in Africa.

Notably, the South African Department of Defence (DOD)<sup>44</sup> has openly acknowledged its logistical weaknesses, highlighting maintenance and repair risks, personnel skills, and experience gaps. Moreover, many military facilities and logistical infrastructure are in poor condition, failing to meet essential health and safety standards. This transparency highlights the need for systemic improvements to enhance the logistical capabilities of the military and lays the groundwork for a proposed futuristic approach – an approach that requires an urgent investigation into adequate levels of stock and reserves.<sup>45</sup>

To strengthen the theoretical foundation, the SA Military Strategy 2055,<sup>46</sup> as strategic roadmap, contextualises the established military logistics frameworks. The conceptual framework integrates principles from the North Atlantic Treaty Organization (NATO) Joint Logistics Support Group (JLSG),<sup>47</sup> which prioritises interoperability and agile resource allocation in multinational operations, and the Supply Chain Operations Reference (SCOR) Model<sup>48</sup> – a globally recognised standard for optimising end-to-end supply chain performance. These are further aligned with integrated defence logistics frameworks, such as those employed by the US Department of Defense<sup>49</sup> and the Indian Defence Logistics Agency,<sup>50</sup> which emphasise centralised coordination and lifecycle sustainment. Within this structure, lean logistics is positioned as a driver of waste reduction and process efficiency. Performance-based logistics (PBL) is used as a contractual mechanism to align stakeholder incentives with long-term operational outcomes. Velocity management (VM) is justified as a systematic tool for balancing cost-effectiveness with mission-critical requirements. Together, these concepts address specific SANDF challenges by fostering joint interoperability through standardised processes, enhancing scalability via the modular design of the SCOR model, and advancing sustainability due to VM focussing on lifecycle resource optimisation. This theoretical alignment ensures the relevance of the roadmap to both contemporary military logistics discourse and practical implementation. Together, these theories form an integrated conceptual framework for modern military logistics, supporting joint interoperability, operational efficiency and sustainability. For South Africa to project military power is essentially the projection of hard power.<sup>51</sup> This article outlines the requirements for projecting hard power from a logistics perspective.

## **Setting the Scene for the Proposed Future Approach**

The North Atlantic Treaty Organization (NATO) supports the view that military logistics is the backbone of combat operations. It is crucial to move forces to hotspots, provide for their needs during deployment, and ensure their safe return as tensions subside.<sup>52</sup> This complex process is pivotal in Africa, particularly in countries where the SANDF operates. The defence force will require a substantial and flexible logistics capability to meet future challenges in the coming decades.<sup>53</sup> This capability must differ significantly from past models, as current and future military needs demand forces with a smaller logistics

footprint – often referred to as ‘more teeth, less tail’.<sup>54,55</sup> The logistics supply chain must be agile and capable of rapid deployment to meet these evolving needs.<sup>56</sup>

Enhanced logistics processes, such as integrating digital tools, automation and data analysis, can significantly boost the SANDF combat capability. These advancements can provide real-time information<sup>57</sup> on supply availability, enable quick equipment replenishment, and offer strategic advantages over adversaries.<sup>58</sup> The successful implementation of these changes is essential. It will profoundly affect the people, business processes and technology infrastructure of the SANDF, its allies and military-related industry partners. These proposed enhancements are however all based on the premise that the SANDF will be adequately sourced with the required capabilities.<sup>59</sup>

Military logistics is inherently expensive due to the cost of moving personnel and *matériel*. Additionally, uncertainty about future requirements affects readiness, leading military planners to budget for stockpiles, war reserve materials, and reserve transportation capacity.<sup>60</sup> These reserves enable combat commanders to respond swiftly to unexpected events that might otherwise overwhelm standard logistics support.<sup>61</sup> This intelligence deficit prevents logisticians from contributing to the tempo, momentum, and sustainability of combat operations. Ultimately, logisticians should be informed of all intelligence matters and therefore be able to advise commanders on whether an operation is feasible or not. Bridging the intelligence deficit will make it possible for logisticians to anticipate the needs and the delivery to forces.<sup>62</sup>

The SANDF is significantly transforming its supply chain management, aligning its requirements with the 2015 Defence Review.<sup>63</sup> This strategic realignment aims to enhance the ability of the military to respond effectively to its supply chain needs.<sup>64</sup> The goal is to create a military supply chain that is more effective, efficient, economical, robust and cost-effective than in its current state.<sup>65</sup>

In various sectors, including financial markets, currency trading, supply chain management, and manufacturing, hedges against uncertainty are commonly employed. Military readiness, as a hedge against uncertain threats, parallels the broader concept of risk management through preparation and resource allocation. The general principle of stockpiling supplies to mitigate uncertainty aligns with operational risk management practices.<sup>66</sup> Historically, risk management in military logistics relied on rules of thumb, where logisticians would stockpile supplies based on predetermined guidelines for commodities, such as munitions, fuel and spare parts. Until recently, these methods were the best available due to the data-intensive and computationally demanding nature of sophisticated planning tools.<sup>67</sup>

## **Introduction to the Military Supply Chain Management**

Supply chain management (SCM) is a pivotal practice developed in the private sector over the past two decades, marking a significant shift away from traditional, fragmented logistics practices and systems. The older systems often focussed solely on the movement

and storage of goods, lacking the integrated approach that SCM provides. Supply chain management represents a systemic, strategic coordination of traditional business functions and tactics across entities within a supply chain, aimed at enhancing long-term performance for individual entities and the entire supply chain.<sup>68</sup>

Supply chain management involves substantial process changes that can significantly improve military logistics support. For instance, the SANDF implementing SCM would include transitioning from a mass model of logistics, which relies on stockpiling large quantities of supplies, to a lean, agile and sustainable delivery system.<sup>69</sup> In essence, SCM is the transition from a “just-in-case” (JIC) model to a “just-in-time” (JIT) model for logistics. This new approach would focus on soldiers’ needs while maintaining contingency reserves.<sup>70</sup> Specifically, SCM in the defence force would require reforms, such as adopting a JIT<sup>71</sup> inventory system instead of holding extensive inventories, which is only possible with a fully functioning military industry and quality-approved supplier base.<sup>72</sup>

The JIT system will minimise storage costs, and ensure supplies can be delivered as needed, although this must be balanced with the military need for reliability and contingency reserves.<sup>73</sup> Lacroix<sup>74</sup> suggests that implementing advanced technologies, such as predictive analytics and real-time tracking, will enhance supply chain visibility and responsiveness. Additionally, there is a need to streamline the procurement process from traditional procurement methods to more agile and responsive systems that can quickly adapt to evolving operational needs.<sup>75</sup> Furthermore, the SANDF should also consider other key changes, such as:

- Enhancing supply chain visibility by real-time tracking and monitoring of supplies to ensure timely delivery and reduce logistical bottlenecks;
- Fostering collaborative partnerships by building strong relationships with suppliers and other stakeholders to provide reliable and efficient supply chains; and
- Developing flexible logistics capabilities by creating logistics systems that can quickly adapt to different operational scenarios, from peacekeeping to combat operations.<sup>76</sup>

While the JIT concept cannot be fully implemented and certain strategic resources need to be kept at an immediate readiness level, such readiness can be justified by considering multi-role application of these items, for example in the support of other departments during natural disasters.<sup>77</sup>

Implementing SCM in the SANDF is driven by several factors, including globalisation and the need for faster, and more reliable delivery systems. As customers, including military personnel, demand products that are delivered quickly and on time and in good condition, the SANDF must integrate commercial best practices with modern technologies while respecting the unique logistical challenges faced by the military.<sup>78</sup> The integration

of commercial best practices with modern technologies arises from the need to deliver supplies quickly, reliably, and in optimal condition, as required by soldiers. Adopting commercial best practices enhances operational efficiency, resilience, and technological advancement, which are essential for supporting modern missions, while addressing the unique logistical challenges faced by the military. Furthermore, exploiting commercial innovations, such as advanced tracking systems and data-driven supply chain management, enable the military to maintain readiness, reduce costs, and respond rapidly to dynamic operational requirements, all while ensuring that solutions are tailored to the distinctive demands of military environments.<sup>79</sup>

## Setting the Scene with the “As-is” Scenario

Effectively realising manoeuvre warfare concepts and enhancing the effectiveness, efficiency and economy of joint forces, is crucial to integrate modern supply chain principles.<sup>80</sup> The prevailing trend in many modern defence forces is towards lighter, more mobile expeditionary forces, often called the “teeth” of military operations.<sup>81</sup>

This evolution in military force composition will inevitably influence the size, nature, capabilities, and capacity of the supply chain system, often metaphorically referred to as the “tail”. Modernising the supply chain is essential for supporting these agile forces by ensuring the timely and efficient delivery of supplies and equipment. This involves employing digital technologies, enhancing logistics resilience, and fostering collaborative relationships with suppliers to maintain operational effectiveness.<sup>82</sup> By integrating these elements, military forces can optimise their logistics to support manoeuvre warfare effectively, ensuring that the “tail” supports the “teeth” in achieving strategic objectives. Although the focus of the current study was on small and agile forces, the realities in Africa dictate that most operations degenerate into semi-permanent deployments with their own unique logistics requirements and wide dispersal of forces.<sup>83</sup> This, however, does not negate the importance of an accurate appreciation of threats and a coherent, realistic campaign strategy.<sup>84</sup> Ultimately, intelligence drives strategy, which in turn determines the allocation of resources and the actions taken to achieve organisational objectives, just as the terrain and enemy influence doctrine.<sup>85</sup>

## Operational Level Logistics Intelligence

The effective integration of logistics intelligence into operational planning remains a critical determinant of success in sustaining modern military campaigns. At the operational level of war, logistics planners require specialised intelligence frameworks that extend beyond conventional operational intelligence to address multifaceted theatre-specific variables. Such analysis establishes a doctrinal foundation for operational logistics intelligence, identifies its core requirements, and demonstrates its practical application through a contemporary lens.<sup>86</sup> Moore (1990) defines operational logistics intelligence as the aggregation and analysis of data necessary to plan force deployment, sustainment base establishment, and resource allocation during campaigns in a theatre of operations.<sup>87</sup> Unlike tactical logistics, which focusses on immediate supply chain execution, operational logistics intelligence synthesises five operational considerations depicted in Table 1 below.

<b>Operational considerations</b>	<b>Specific requirements</b>
Theatre infrastructure capacity	Ports, transportation networks and storage facilities
Host-nation support dynamics	Economic output, labour skills and cultural constraints
Environmental constraints	Topography, climate and endemic diseases
Adversary logistics systems	Supply routes, fuel depots and repair capabilities
Sustainability thresholds	Minimum environmental standards, and scalable resource models

*Table 1: Operational logistics intelligence synthesises operational considerations<sup>88</sup>*

Good logistic reconnaissance will identify significant shortfalls and influence planning. Readiness is improved through foresight and maximum preparation.<sup>89</sup> The Commander's Critical Intelligence Requirements (CCIR) for sustainment planning logistics must prioritise the critical intelligence requirements reflected in Table 2 below with equal urgency to operational military intelligence.

<b>Intelligence category</b>	<b>Operational Impact</b>
Indigenous economic capacity	Determines local contracting potential for fuel and food
Transportation node viability	Influences convoy routing and bridge reinforcement needs
Medical infrastructure mapping	Guides casualty evacuation network design
Cultural or religious restrictions	Affects supply distribution schedules and methods
Enemy or threat assessment	Creating vulnerabilities and risks, while degrading logistical networks. Enemy interference necessitates anticipation and adaptation of sustainment plans, while maximising preparation and foresight

*Table 2: The intelligence category for the required operational impact<sup>90</sup>*

Even under the most austere conditions, there are minimum standards for protecting the environment.<sup>91</sup> As the operation stabilises, and resources become more available, the ability to comply with protective standards will increase in steps, resulting in an overall increase in environmental stewardship. A scalable approach to environmental considerations is crucial in developing flexible courses of action that promote environmental sustainability while maintaining minimum environmental standards.<sup>92</sup>

Operational logistics intelligence constitutes both an analytical discipline and a force multiplier. The systematic implementation of operational logistics enables proactive risk mitigation across the deployment–sustainment continuum, from forecasting host-nation fuel shortages to pre-positioning disease vector control teams. As the complexities of expeditionary forces increase, integrating real-time environmental sensors and

artificial intelligence (AI)-driven logistics simulations will further close the capability gaps identified. This evolution underscores Moore's assertion that logistics intelligence frameworks require continuous doctrinal refinement to keep pace with emerging operational realities.<sup>93</sup>

## **Performance-Based Logistics and the Defence Industry**

Performance-based logistics (PBL) is an outcomes-based product support strategy that plans and delivers an integrated, affordable performance solution that optimises operational capability and readiness, while reducing operating and support (O&S) costs. When dealing with industry, product support outcomes are acquired through performance-based arrangements that deliver military requirements and incentivise product support providers to reduce costs through innovation.<sup>94</sup>

Performance-based logistics shifts the focus to outcomes where the SANDF contracts suppliers to deliver agreed-upon results (such as maintaining equipment at a certain operational level or ensuring a rapid repair turnaround) instead of paying for individual parts, repairs, or services. This aligns incentives by encouraging suppliers to meet or exceed performance targets, often through long-term contracts.<sup>95</sup> Their compensation is tied to these outcomes, motivating them to innovate, improve reliability, and minimise downtime. Furthermore, PBL optimises system readiness by focussing on system availability and reliability, thus ensuring that critical equipment is ready for use when needed, improving mission effectiveness.<sup>96</sup> Performance-based logistics also reduces costs and risks by aiming to lower total ownership and maintenance costs by encouraging suppliers to find efficiencies and prevent failures, rather than simply reacting to defects. Finally, PBL encourages collaboration, fostering long-term, collaborative relationships between suppliers and customers that share risks and rewards, rather than the transactional nature of traditional logistics contracts.<sup>97</sup>

Performance-based logistics offers significant benefits by enhancing operational readiness and availability through a focus on measurable performance outcomes, rather than providing transactional support. This approach reduces life cycle and maintenance costs by incentivising suppliers to optimise maintenance schedules, extend asset lifespan, and minimise downtime.<sup>98</sup> Performance-based logistics enhances supply chain efficiency by integrating logistics planning and exploiting data-driven decision-making and predictive analytics to streamline inventory management and distribution. Additionally, PBL fosters increased collaboration and innovation by aligning supplier and customer interests through long-term contracts and performance incentives, encouraging continuous improvement and the adoption of innovative sustainment solutions.<sup>99</sup> These advantages collectively ensure mission-critical assets remain operational and cost-effective, ultimately delivering superior value and reliability to organisations.<sup>100</sup>

Performance-based logistics faces several significant pitfalls and challenges despite its benefits. Funding restrictions and inflexibility often constrain the ability of programme managers to manage operations effectively due to rigid appropriation rules and limited

control over resources. Cultural and organisational resistance is common, as traditional transactional logistics mindsets and bureaucratic “stovepipes” hinder adoption. This is compounded by short leadership tenures that disrupt continuity.<sup>101</sup> Statutory and regulatory barriers, including specific service policies and acquisition rules, limit the flexibility needed for effective PBL contracts. Many failures stem from a lack of awareness and insufficient training in terms of PBL concepts among personnel. Complex contracting and business planning pose difficulties in defining clear performance metrics, roles, and risk assessments.<sup>102</sup> Suppliers may struggle to transition from cost-plus models to performance-driven approaches, as they often lack the necessary incentives or infrastructure to invest in reliability improvements. Performance-based logistics is not suitable for all systems, especially legacy ones nearing retirement or those that are unsupported by either the organic or commercial sectors. Additionally, the absence of a culture that fosters continuous improvement undermines sustained performance gains. Finally, establishing integrated, accurate performance metrics and ensuring timely availability of data remain challenging, affecting contract management and outcome measurement.<sup>103</sup>

Performance-based logistics presents a transformative opportunity for the SANDF to enhance operational readiness while addressing fiscal constraints.<sup>104</sup> Performance-based logistics is theoretically based on outcomes-oriented contracting and systems lifecycle management. It shifts the focus from transactional procurement to performance outcomes, incentivising suppliers and contractors to meet specific reliability, availability, and maintainability targets over the long term. Performance-based logistics integrates principles from total cost of ownership and systems engineering theories, emphasising risk-sharing, collaboration, and continuous improvement to optimise weapon system support, products, services and sustainment. This approach aligns supplier incentives with military operational goals, fostering accountability and cost-effectiveness.<sup>105</sup> By adopting outcomes-driven supply chain models and fostering strategic alliances with the defence industry, South Africa can mitigate external dependencies and strengthen its position in the ABS. There is strong potential for the continued growth and sustainability of the SA defence industry.<sup>106</sup> With increased understanding by and support from the government, especially regarding the strategic value of intellectual property (IP), the SANDF can enhance its partnerships with international allies. By embracing collaboration and modernising IP management, South Africa can unlock new opportunities that will strengthen the global competitiveness of its industry and ensure long-term success. This approach will significantly improve the prospects for both the SANDF and the broader defence sector.<sup>107</sup> The approach will also align with global defence trends while addressing region-specific challenges.<sup>108</sup> Operational sovereignty in Africa and cost-effective readiness are strategic imperatives for the adoption of PBL.<sup>109</sup>

The unique operational requirements of the SANDF in asymmetric African conflicts necessitate tailored logistical solutions.<sup>110</sup> The emphasis by PBL on system-level sustainment enables force projection capabilities critical for PSO. Unlike conventional off-the-shelf procurement strategies,<sup>111</sup> which risk equipment incompatibility and supply chain vulnerabilities during contingencies, PBL contracts<sup>112</sup> bind original equipment manufacturers (OEMs)<sup>113</sup> to availability guarantees, promoting operational sovereignty

in the African context.<sup>114</sup> Contracts with OEMs situated in foreign countries can however not be fully depended upon, as reliance on external suppliers introduces additional risks to equipment availability and operational continuity, especially during crisis scenarios when international supply chains may be disrupted.<sup>115</sup> Fully acknowledging that crisis response and peace enforcement operations place different demands on logistics support is vital. The former requires short-notice, prompt, and swift initial execution followed by sustained follow-up; the latter involves extensive use of all supply types and increased risk to logistic elements.<sup>116</sup> The SANDF budget constraints demand:

- Innovative solutions to maintain platform availability rates for core combat systems;<sup>117</sup>
- Reduced inventory carrying costs through just-enough (JE) and JIT logistics;<sup>118</sup> and
- Lifecycle cost savings via predictive maintenance analytics.<sup>119</sup>

Cost-effective readiness necessitates defence industry participation (DIP), which require placing certain minimum orders on the defence industry to ensure their sustainability as viable businesses, thereby maintaining a stable and capable local industrial base essential for ongoing support and supply.<sup>120</sup> A phased collaboration framework could yield dual benefits for both civil and military sectors, as depicted in Table 3 below.

Partnership tier	Military benefit	Industrial benefit
Tier 1: Critical munitions	Guaranteed domestic production capacity for artillery shells, infantry small arms ammunition	Stable demand for local defence contractors
Tier 2: High-rate consumables	Onshore manufacturing of aircraft parts, vehicle and weapon spares	Technology transfer to aerospace SMEs*
Tier 3: Systems integration	Indigenous C <sup>4</sup> ISR** system upgrades	Development of sovereign encryption standards

*Note: \* SMEs = small and medium-sized enterprises; \*\* C<sup>4</sup>ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance*

*Table 3: The dual civil–military benefits in the three participation tiers<sup>121</sup>*

Table 3 depicted three defence industry participation tiers pertaining respectively to critical munitions, high-rate consumables and systems integration – with reference to the benefits in the military and industrial–civilian spheres.<sup>122</sup> The table highlighted the military benefits of maintaining domestic production capacity of munitions, parts, and local C<sup>4</sup>ISR system upgrades, while supporting the local industry with a sustainable demand for defence contractors, providing technology transfers, and developing sovereign encryption standards. This model aligns with the DIP<sup>123</sup> principles and skilled manufacturing jobs in defence industrial parks.<sup>124</sup> Reinvesting PBL-derived savings into next-generation capabilities creates a virtuous cycle by reducing sustainment costs through condition-

based maintenance and the economic multiplier effect from local defence manufacturing clusters. The approach counters budget sequestration risks by directly linking efficiency gains to capability investments rather than treasury clawbacks.<sup>125</sup>

These measures would position South Africa as the continental leader in mission-tailored logistics while reducing foreign currency exposure from arms imports. The SANDF adoption of PBL represents both a strategic necessity and an economic opportunity. By anchoring logistical partnerships in operational outcomes rather than transactional procurement, South Africa can achieve sustainable military readiness while stimulating high-tech industrial growth.<sup>126</sup> This dual-use approach ensures the force remains combat-effective in the ABS without compromising fiscal responsibility. Strategic partnerships between the military, the defence industry, and public sector industries will have a direct effect on SA society, politically, socially, and economically. These partnerships will indirectly strengthen the international role and position of the SANDF. Additionally, the partnerships will contribute to deterrence against potential adversaries and promote a more stable African continent overall.<sup>127</sup>

## Logistic Management Development and Concepts

The following logistics management concepts should be developed progressively to establish the baseline for the SANDF SCM framework.

*Velocity management (VM)* – emphasises enhancing the speed and accuracy of material and information flow from providers to users.<sup>128</sup> Velocity management (VM) draws on decision theory and value engineering, focussing on maximising the functional value of logistics and defence systems about their cost. Velocity management provides a structured methodology to evaluate trade-offs between price, performance, and risk, ensuring resources are allocated to deliver the most significant mission value. In military contexts, VM supports lifecycle sustainability by balancing immediate operational needs with long-term maintenance and upgrade considerations, thereby enhancing the overall effectiveness and efficiency of defence logistics.<sup>129</sup> The optimal approach combines JIT and JIC<sup>130</sup> principles to deliver JE, tailored to the realities of the ABS and the SA industrial base.<sup>131</sup> Furthermore, a lighter logistical footprint should be developed where standardised equipment with higher quality, improved serviceability, and better reliability are essential.<sup>132</sup> These systems require less maintenance, consume fewer resources, and feature self-reporting diagnostics.<sup>133</sup> Supply support activities will be minimised by reducing demand and improving reliability and maintainability. The in-theatre logistics footprint must be reduced through structural, physical and procurement agility. A lighter logistical footprint embraces the concept of “lean logistics”, which involves interconnected initiatives aimed at minimising the logistical footprint of the SANDF while reducing infrastructure. This approach enhances combat capability and sustains warfighting operations.<sup>134</sup> Lean logistics is grounded in the lean management theory, focussing on maximising value by minimising waste and enhancing process flow.<sup>135</sup> In military logistics, lean logistics principles emphasise reducing non-value-adding activities, such as excess inventory, delays, and redundant handling, thereby improving responsiveness

and efficiency in supply chains that must operate under complex, resource-constrained conditions. This approach aligns with the military need for agility and readiness, promoting streamlined workflows, visual controls, and workforce flexibility to meet mission-critical demands efficiently.<sup>136</sup>

Another aspect that should be addressed to improve logistic management development is *total asset visibility (TAV)*. Total asset visibility or TAV entails effective control and coordination of support, which requires commanders to have comprehensive visibility of in-theatre assets, stocks, supplies and services.<sup>137</sup> Technologies, such as barcoding, radio-frequency response tags, miniature global positioning systems (GPSs) and position-reporting transmitters should be implemented to ensure real-time asset visibility. By improving TAV, logistical needs can be anticipated.<sup>138</sup> Anticipatory logistics employs technologies as well as information systems and procedures to predict and prioritise requirements, ensuring logistics readiness before the battle begins. Decision support software will optimise asset utilisation.<sup>139</sup> Real-time data on quantities, locations, and asset conditions will enable automated replenishment requests or support reassignment during operations. This system ensures end-to-end tracking of materials from pick-up to delivery via automatic reporting mechanisms.<sup>140</sup> Caution should however be taken against interception that can compromise operational security and communications jamming that could render these non-functional, and countermeasures should be part of the system.<sup>141</sup> A possible solution is digital ledger technologies (“blockchain”) that enhances PBL by providing a secure, transparent, and efficient digital infrastructure. Blockchain supports real-time performance tracking, automates contract execution via smart contracts, prevents fraud, and fosters collaboration among supply chain partners. Collectively, these capabilities improve the reliability and cost-effectiveness of logistics operations under PBL models, enabling better outcomes and accountability.<sup>142</sup>

*Expeditionary logistics* is a concept that should be implemented to enhance logistics management development. Expeditionary logistics refers to flexible sustainment provided by task-organised elements tailored to manoeuvre units with multi-echelon support in a single package.<sup>143</sup> This approach eliminates conventional constraints tied to equipment specifications or organisational structures. It represents a transformative effort to enhance logistics effectiveness while reducing costs.<sup>144</sup> Expeditionary logistics cuts across traditional silos, streamlining processes and replacing outdated systems.<sup>145</sup>

*Logistics engineering* ensures essential infrastructure is maintained to sustain the components of deployed land, air, and naval forces effectively. This includes maintaining or improving logistic routes, camps, engineer services (e.g. power or water supply) and general engineering support.<sup>146</sup> Equipment support (ES) encompasses preparing equipment for battle as well as recovering and repairing damaged or unserviceable equipment. Equipment support staff are critical in monitoring key equipment serviceability within formations to maintain combat power.<sup>147</sup>

Civilian resources enable commanders to establish relationships with civil organisations, non-governmental organisations (NGOs), international bodies and local populations

through civil–military cooperation (CIMIC), facilitating mission completion.<sup>148</sup> Management information systems (MISs) should culminate in a joint command, control and consultation information exchange data model (JC<sup>3</sup>IEDM). Networked interchange is increasingly integral to electronic commerce.<sup>149</sup> This involves computer-to-computer exchange of business documents, such as forecasts, planning schedules, contracts, shipping details, invoices and payments. Integrated communications networks will provide real-time common sustainment pictures (CSPs) for supporters and commanders at all levels.<sup>150</sup> Developing an integrated joint management system will support joint sustainment concepts while enabling interoperability with external systems, such as the UN, AU or SADC, through programmes such as the multinational interoperability programme (MIP).<sup>151</sup>

## Options for Optimising Joint Sustainment and Supply Chain Management in the SANDF

In alignment with the current operational intent and the future requirements of the SANDF, the joint sustainment, supply chain, and logistics management support framework necessary to sustain the required force design effectively presents two options.<sup>152</sup>

### *Option 1: Centralised functional authority with decentralised execution*

The inherent logistical capabilities of the individual Services and Divisions within the SANDF remain intact.<sup>153</sup> Functional authority and overarching logistics control are however centralised within the Logistics Division of the SANDF. The execution of logistics functions, however, remains vested within the respective Services and Divisions in the SANDF. As the functional authority, the Logistics Division would assume responsibility at the military strategic level for oversight, process management, supply chain and lifecycle management, systems design and architecture, accounting and asset management, and general logistics training. This centralised functional model seeks to enhance logistical efficiency, standardise policies and procedures, and ensure strategic alignment across all military components while allowing for decentralised execution tailored to operational needs. The advantages and disadvantages of Option 1 are summarised in Table 4 below.

Advantages	Disadvantages
Promotes a joint approach to logistics	Potential duplication of processes and structures
Ensures centralised control of logistics policies and processes	Reduced flexibility and slower response times in local decision-making, affecting customer service
Facilitates economies of scale and reduces overhead costs	Increased bureaucracy due to additional hierarchical layers
Enhances coordination and centralised control	Potential duplication of processes and structures
Allows for greater specialisation within logistics functions	Reduced flexibility and slower response times in local decision-making, affecting customer service

*Table 4: Retaining current inherent capabilities within the Logistics Division, Services and Divisions*

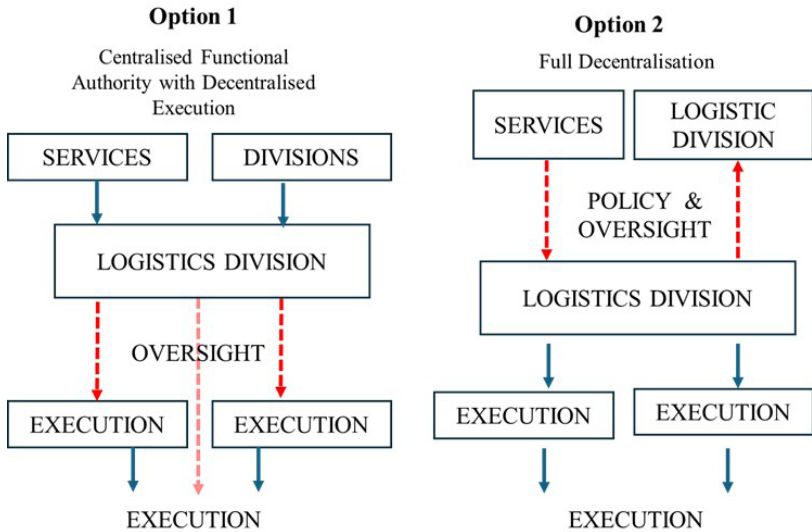
## *Option 2: Full decentralisation of the logistic functions*

All logistics functions should be fully decentralised to the respective Services and Divisions, with the Logistics Division serving only as the governing body responsible for policy development, determining strategic reserve levels<sup>154</sup> and procedural oversight on behalf of the Chief of the SANDF. Each Service and Division would independently design and execute its logistical operations. The problem is that all operations are conducted under the auspices of the Joint Operations Division, which lacks inherent logistics capabilities and must rely on the Services. The Services however now see themselves solely as force providers and therefore do not fund operational requirements.<sup>155</sup> The key elements of this approach include enhanced logistics competencies, service-specific procurement entities, implementation of the integrated, automatised, digitised (IAD) system, and advanced procurement training. This option aims to enhance logistical responsiveness and adaptability by empowering Services and Divisions to control their logistics functions completely.<sup>156</sup> At the same time, the Logistics Division retains strategic oversight to ensure alignment with broader SANDF policies and objectives. The advantages and disadvantages of Option 2 are summarised in Table 5, below.

<b>Advantages</b>	<b>Disadvantages</b>
More excellent responsiveness to local operational needs	Risk of fragmented decision-making across different Services and Divisions
Enhanced customer service due to localised control	It is challenging to maintain strict financial oversight and budgetary control
	Increased difficulty in ensuring uniform military logistics practices and policies, potentially leading to inconsistencies across Services and Divisions within the SANDF

*Table 5: Full decentralisation (design and execution to Services and Divisions)*

Figure 1 below summarises both options for optimising joint sustainment and supply chain management in the SANDF, as discussed previously.



*Figure 1: Comparison of logistics management models*

A phased approach to logistics development is essential to ensure the logistical effectiveness of the SANDF and long-term sustainability. This approach to implementation focusses on achieving quick wins through short-term, medium-term, and long-term objectives, each aimed at enhancing operational autonomy, efficiency, and interoperability.

## Joint Logistics Quick Wins

A phased approach should be followed in terms of the short, medium, long and extended long term to effect joint logistics quick wins.<sup>157</sup> A phased approach positively influences joint logistics quick wins by enabling structured, manageable implementation that delivers immediate, tangible benefits while building momentum for more complex initiatives. This approach breaks down logistics improvements into clear phases with specific objectives, allowing focussed resource allocation and easy progress tracking. Quick wins – small, achievable improvements with rapid effect – can be identified and prioritised within each phase to demonstrate value early, build stakeholder confidence, and secure ongoing support.<sup>158</sup> In joint logistics, where integration across services and agencies is critical, a phased approach helps optimise readiness and operational support by focussing on achievable improvements that enhance supply chain reliability, visibility, and efficiency. By implementing quick wins in phases, such as automating key processes or improving data visibility, joint logistics can reduce inefficiencies and improve responsiveness without overwhelming resources or requiring large upfront investments. Applying a phased approach to joint logistics yields quick wins that deliver immediate, practical results while optimising resources by focussing on high-impact areas. Early successes

build stakeholder confidence and momentum, enabling the smooth implementation of subsequent phases. Continuous monitoring allows for flexibility in adjustments, ultimately enhancing operational readiness through incremental improvements.<sup>159</sup>

### *Short-Term Objectives*

In the immediate term, strengthening first-line logistics capabilities is crucial to reducing dependency on higher-tier logistical structures and enabling greater operational self-sufficiency. A fully capacitated first-line logistics capability must be developed to enhance operational autonomy, comprising A<sup>160</sup> (A1 & A2), B,<sup>161</sup> and F<sup>162</sup> echelons.<sup>163</sup> The defunct maintenance units and base workshops of the SANDF are an example of the uncertainty in the system as to who is responsible for operational support.<sup>164</sup> Operational maintenance units and base workshops will reduce reliance on second- and third-line logistical structures and systems, ensuring greater self-sufficiency in line with SANDF doctrine. Implementing lean supply chain systems, incorporating PBL and VM principles, is essential to achieving efficiency and effectiveness in determining the potential strategic level reserves.<sup>165</sup>

### *Medium-Term Objectives*

Building upon initial short-term improvements, the medium-term focus is reinforcing reserve logistics capacity and enhancing second-line logistics to ensure greater sustainability and resilience. A fully capacitated first-line reserve capability must be established – aligned with the requirement, personnel, organisation, sustainment, training, equipment, doctrine, facilities, information, leadership, technology, budget (RePOSTEDFILTB) planning framework and SANDF doctrine. This will enhance the ability of forces to operate independently, minimising reliance on second- and third-line logistics. Additionally, prioritising an investigation into strengthening the second-line logistics capability is crucial to ensuring sustainable and resilient support structures. The continued integration of lean supply chain systems, incorporating PBL and VM principles, will be fundamental to this process.

Standardising commodities across military systems is essential for long-term logistical efficiency and interoperability, reducing complexity and improving coordination within national and multinational operational frameworks. The standardisation of commodities must be prioritised to establish a standard interface across all military systems. Utilising aviation fuel across aircraft, naval vessels, ground vehicles, and other power packs would, for instance, enhance interoperability within the SANDF. Furthermore, standardisation would facilitate seamless cooperation with external partners, such as the UN, the AU, and the SADC. This approach would also reduce the logistical footprint of the military, streamline sustainment operations, and simplify supply chain requirements. The continued application of lean sustainment and supply chain systems, incorporating PBL and VM principles, remains essential for efficiency and sustainability.

## Extended Long-Term Objectives

Benefitting from technological advancements, the extended long-term strategy envisions an IAD Supply Chain Management System to optimise logistical efficiency and resource management across all military domains. A fully IAD supply chain must be developed to enhance logistical efficiency and operational effectiveness. This system should incorporate intelligent, automated accounting and other information and communication technology (ICT) solutions, ensuring real-time tracking and resource management. Enterprise resource planning (ERP) is a software system that helps organisations streamline their core business processes – including finance, human resource (HR), manufacturing, supply chain, sales, and procurement – with a unified view of activity, and provides a single source of truth.<sup>166</sup> The IAD system must be designed with a modular interface, ensuring compatibility and seamless integration across the landward, air, seaborne and medical forces. As with all sustainment strategies, adopting lean supply chain systems, underpinned by PBL and VM principles, will be fundamental to optimising long-term logistics management.<sup>167</sup> The short, medium and long term of the RePOSTEDFILTB network are summarised in Figure 2 below.

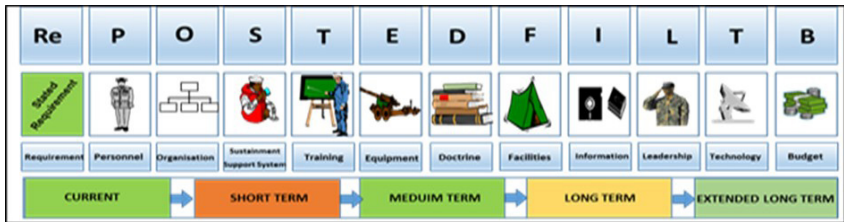


Figure 2: RePOSTEDFILTB framework over the current, short, medium, and extended long term<sup>168</sup>

A phased logistical capability “road map” is graphically depicted in Figure 3, indicating the milestones that should be reached in the short, medium, long, and extended long term.

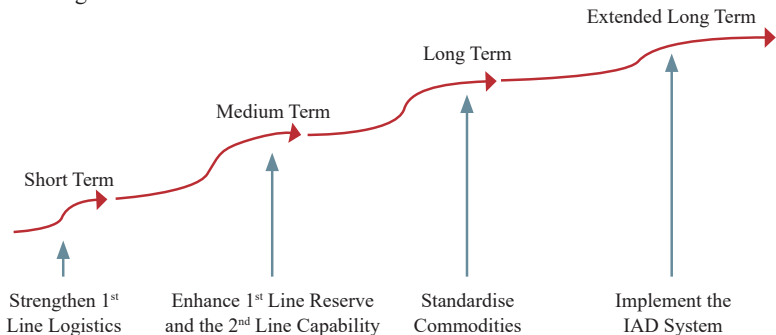


Figure 3: Phased logistical capability roadmap<sup>169</sup>

Figure 4 below illustrates a consolidated integrated, automatised, digitised SCM system.

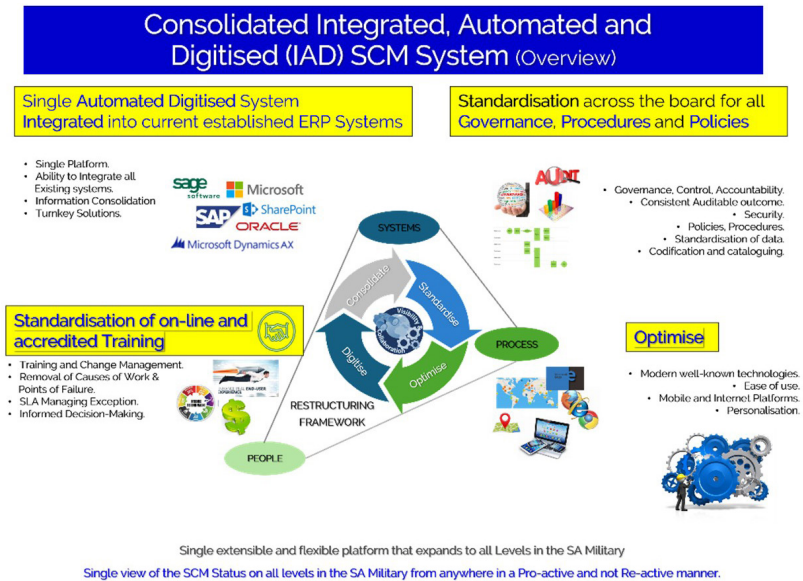


Figure 4: Consolidated integrated, automated digitised SCM system<sup>170</sup>

Governance and tendering (procurement) guidelines are crucial for joint logistics quick wins as extended long-term objectives because they ensure transparency, accountability, and compliance with established standards across all partners involved. Clear governance frameworks and standardised procurement procedures help mitigate risks, promote fair competition, and optimise resource use, which are essential for sustaining efficiency and trust in joint logistics operations. Moreover, well-defined tendering guidelines facilitate collaboration, enable consistent decision-making, and support scalable, sustainable improvements over time.<sup>171</sup>

## Conclusion

Sustaining joint and expeditionary forces in the African battle space (ABS) presents a complex web of challenges, ranging from vast distances and unreliable infrastructure to political and institutional obstacles. While the South African National Defence Force (SANDF) has demonstrated commendable adaptability in supporting peacekeeping deployments, its logistical system is hampered by historical restructuring decisions, centralisation, and a disconnect between doctrine and practical application. It has been acknowledged within SANDF circles that these weaknesses emphasise the urgency for systemic reform. Addressing these challenges requires a multi-faceted approach, including increased political will to invest in military logistics, robust measures to combat

corruption, and strategic improvements to infrastructure. Furthermore, optimisation of logistical command and control structures, inter-corps training, and contingency planning will be critical. By embracing a forward-looking approach that integrates military supply chain management (MSCM) principles, fosters joint, inter-agency, interdepartmental and multinational capabilities (JI2M) capabilities, and prioritises interdependent and joint sustainment. The SANDF can thereby enhance its ability to project force effectively, support operations across the full spectrum of military operations, and ultimately ensure mission success in the demanding environment of the ABS. The future of effective military operations in Africa hinges on transforming logistical challenges into strategic advantages.

Optimising joint sustainment and SCM within the SANDF requires a strategic and phased approach, guided by the dual options of centralised authority with decentralised execution or complete decentralisation. Both options offer distinct advantages and challenges, each tailored to address the operational needs and future requirements of the force. The phased objectives outlined in this strategy – from short-term quick wins to long-term technological advancements – focus on strengthening operational autonomy, enhancing efficiency, and ensuring the sustainability of logistics capabilities across all military domains. By pursuing these objectives, the defence force will not only enhance its logistical capabilities but also ensure that it remains agile, efficient, and sustainable in meeting the demands of both current and future operations. Incorporating lean supply chain principles and PBL and improving logistical management development by applying concepts such as VM, TAV, expeditionary logistics and logistics engineering will be the foundation for achieving these goals, ensuring logistics management is aligned with modern operational requirements. Ultimately, these strategic initiatives will enhance the ability of the SANDF to operate autonomously, efficiently, and harmoniously with multinational partners, solidifying its role in expeditionary operations. Finally, the decision-making framework should empower logistic capacity and contingency planning with a right of veto in decision-making whether to approve an operation or not, as Maj. Gen. Lawrence Smith, who served as the Deputy Chief of the SA Army from 2015 to 2018, rightly points out, to ensure operational approval is both feasible and resilient.<sup>172</sup>

## Endnotes

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- \* Colonel (Col.) Roy Marais (ret.) is a defence logistics expert whose work focusses on the critical intersection of logistics and military operations, particularly in the complex landscape of the ABS. His insights, drawn from practical experience and academic research, contribute significantly to understanding the challenges and potential reforms necessary for effective joint and expeditionary force sustainment. Marais's analysis emphasises the need for integrated, responsive, forward-thinking logistical strategies to ensure mission success in demanding operational environments. Marais holds a National Diploma in Procurement Management from the Pretoria Technicon and a BTech in Strategic Logistic Management from Technicon South Africa.
- \* Col. Wouther de Bruin was appointed Senior Staff Officer: Special Operations at Joint Operations Division. He has a keen interest in logistics at the operational level of war. Although he is not a trained logistician, he realises the importance of logistics for sustained operations. His academic credentials further enhance his military expertise: he holds an MMil (Security and Africa Studies) and a BMil (Natural Sciences) from Stellenbosch University, as well as a Postgraduate Diploma in Defence and Security Management from the University of the Witwatersrand. He completed university certificate courses in management – general, senior, project and logistics at the University of Pretoria.
- <sup>1</sup> The ABS is geographically demarcated as the whole of the African continent as well as its six island countries.
- <sup>2</sup> US Department of the Army, 'ADP 4-0: Sustainment', 2019. <[https://irp.fas.org/doddir/army/adp4\\_0.pdf](https://irp.fas.org/doddir/army/adp4_0.pdf)> [Accessed on 20 August 2025].
- <sup>3</sup> Department of Defence (DOD), *South African Defence Review 2015* (Pretoria, 2015), 10-3 states that joint, inter-agency, interdepartmental and multinational (JI2M) operations refer to the increased collaboration with and between Defence, government departments, international organisations, multinational partners, non-governmental organisations (NGOs) and volunteer organisations, and addressing both internal and external matters of security. Joint operations integrate and synchronise the capabilities to exploit the combined potential to generate joint combat power. Inter-agency and interdepartmental operations forge a link between Defence and other organs of state, as well as between various NGOs, private voluntary organisations and international organisations. The objectives are improved civil–military relations and integration and unity of effort. The JI2M operations will therefore integrate military and non-military operations, exploiting each participant's strength into unified actions to address multidimensional security challenges. The JI2M operations refer to joint activities among services and divisions (Joint Operations Division, South African Army, South African Air Force, South African Navy and South African Military Health Service), interdepartmental coordination among government departments and agencies (National Joint Operations and Intelligence Structure and multinational efforts involving multiple countries or regional arrangements (African Union).
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