Growth and Transformation of the South African Defence Industry: A State Owned Enterprise Perspective

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Apex State Shareholder Mandate Context

Ensure commercially viable defence materiel (Defence Review Policy), providing stable electricity supply, national transport infrastructure and industrial research aligned to national security requirements and key international markets.

Critical contribution towards building a dynamic industrial cluster and to act as a catalyst for the proliferation of advanced industrial and manufacturing capabilities. Facilitate growth and wealth creation in private business sector.

Contribute to socio-economic objectives including transformation, skills development, job creation and environmental sustainability in line with the National Development Plan.

Legislative Framework: Public Finance Management Act (PFMA). Compliance with local and international policies, regulations and treaties as well as regulations and laws of the jurisdictions of where SOE’s conduct business.
Defence Policy Review 2015: Defence Sector Charter

National Development Plan [NDP] – 2030: 10 Year Innovation Plan Objectives:
• Development of Human Capital.
• Developing self sustaining SMMEs and Transformation.

National Industrial Policy Framework [NIPF] Objectives:
• Intensification of Industrial Processes.
• Movement to a ‘Knowledge Economy’.
• Contributing to ‘Industrial development in Africa’
• Strong emphasis on building ‘regional productive capabilities’.

Industrial Contribution
• Strong export orientation - more than R5bn export revenue
• More than 75% localisation
• R&D and intellectual property development investment of R550m to R800m annually
• 62% of our employees are black and about 30% of our local procurement spend were to black suppliers.
• Knowledge-based value added advanced manufacturing A400M
• Partnerships with global OEM’s
• Rejuvenating space capability via Spaceteq
• Diversification: Cyber and Maritime
• Contribution through Rooivalk in peacekeeping initiatives
• Africa Truck and SARA

Entrench Transformation as a Key Policy Objective in your Business
South Africa requires all its Human Resources to grow our country
Introduction: Innovative Growth through Partnerships – Changing Environment

Impact on SOE’s Role and Positioning
Impact Of Disruptive Technologies On Product Portfolio And Future Focus Areas

Source: Center for a New American Security Creative Disruption Survey - 2014
Shift in Defence Investments & Smart Layer Add-ons

IN 2030, WILL GLOBAL DEFENSE INVESTMENTS IN THE FOLLOWING AREAS BE LOWER OR HIGHER THAN IN 2014, ADJUSTING FOR INFLATION?

- **Critical Focus Area**: Cyber (80)
- **Smart Defence Products**: 78
- **Smart Layer / Add-ons**: 59
- **Unmanned Vehicles (Air/Naval/Ground)**: 52
- **Submarines**: 45
- **Manned Aircraft**: 40
- **Surface Naval Platforms**: 38
- **Ground Vehicles**: 40

### Good Progress
- Focus on **Secure** Up-smarting of Products

### On-going SECURE Up-smarting of Products

- **Shift in R&D Investments** towards Disruptive Technologies
- **Deployment of “up-smarting” potential** for future Product competitiveness and differentiation?
Change Means Defence-related Innovation

Key Defence Sector Issues:

- Cyber Crime / Cyber Warfare / Cyber Terrorism
- Internet as Radical Proliferator
- Asymmetric Command, Control and Delivery
- Fast pace of R&D and Innovation

The next industrial (r)evolution: What implications for the security and defence sector?

Change ahead for defence innovation

Innovate or risk disappearing
National Development Plan [NDP] – 2030:
• Aims to eliminate poverty and reduce inequality by 2030.
• Growth and jobs, education and skills.
• The economy is unsustainably resource intensive.

Denel operates in a high tech and heavy engineering manufacturing sector with more than 3 300 engineers, Scientists and technicians.

New industries - the developmental opportunities are great.
Invest in establishment of highly trained cyber engineering resource pool for the country - young bright people.
State owned Enterprises – Potential for greater South African beneficiation?

SA Industrial Policy and strategic objectives

State owned Enterprises including Denel individually

Fundamental Goals:

- Job Creation
- Economic Growth
- BBBEE
- Sector Development

Overall SoE Perspective

- CSIR
- Armscor
- Denel
- Transnet
- Other

Areas of collective Improvement Potential

1. National Security
2. Developmental Programmes
3. Improved Return on all Investments
4. Exports and competitiveness
5. Economic Beneficiation
6. Capacity and Capability expansion
7. Innovation and transition towards 4th Industrial Revolution
State owned Enterprises – Proposed Improvement Assessment Framework

Collective SoE Improvement Opportunity Framework

<table>
<thead>
<tr>
<th>Supply / Enablement</th>
<th>Execution Capabilities</th>
<th>Demand / Exports and Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Policy Growth Sector Alignment</td>
<td>Large-Project Programme Management Capability</td>
<td>Country-to-Country and Business Trade agreements for off-take boost and continuity</td>
</tr>
<tr>
<td>Supplier &amp; Development Alignment</td>
<td>Industry 4.0 capable PLM* / Digital Platforms</td>
<td>Partnerships with other SoEs for Supply Chain Demand</td>
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<tr>
<td></td>
<td>Demand / Export-driven Alignment of Responsibilities and actions relating to Innovation, Industrialization, Production and Business Development</td>
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*PLM = Product Life-cycle Management

**Exports** are critical for the necessary Business scale, sustainability and viability. Key to success is to leverage *SA SoE investments* to achieve export volumes. This requires strong functional **industry alignment**.
1. Leverage Scale for…:
   1. Economic Growth;
   2. Competitiveness;
   3. Export requirement fulfilment;
   4. Leveraging of Investments &
   5. Transformation

2. Opportunity for development of world-class Role-players

Consolidated SoE Perspective

- CSIR
- Armscor
- Other
- Denel
- Transnet
Execution Capabilities –
Strengthen of Product Life-cycle Management

Commonality:
1. Large-scale Projects based on Systems-Engineering Principles
2. Hi-volume Investments
3. Need for specialised expertise across full Product Life-cycle
4. On going Supplier Interaction
5. Goal of securing high local content and Solution inclusion of local R&D or Innovation

Ability to collectively strengthen Execution Capabilities for Product Life-cycle Management

Large-Project Programme Management Capability
- Alignment of Systems Engineering approach and Training
- Development of Engineering Talent and inter-operability of resources
- Inter-compatibility of PLM Systems e.g. viz. ability to transmit files

Industry 4.0 capable PLM / Digital Platforms
- Alignment of digital Integration of Suppliers to systematically evolve Industry 4.0 interaction capabilities
- Supporting Supplier base in growing Systems Engineering capabilities and Talent
# Product Lifecycle Management (PLM)

**CAPABILITY is a function of QUALIFICATION, EXPERIENCE and OPPORTUNITY**

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<tr>
<th>LOW</th>
<th>Broad Spectrum System Task Experience</th>
<th>HIGH</th>
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- **“Focussed Learning at Task Level”**
  - Quick entry into competency-based task environment
  - Focus is on process tools
  - Task definition not in place at present

- **“Systems Learning”**
  - Highly structured systems approach
  - Good for cross divisional skills application
  - Lacks multi-skill strength

- **“Disillusioned”**
  - High Barrier to entry
  - Complex to engage productively due to complex and unstructured task environment
  - Requires multi-skilling upfront

- **“Experienced Hands”**
  - Quick to Prototype stage
  - High level of Reworks
  - Certification Challenges
  - IP in the minds of people

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Industry needs to migrate its systems engineering processes towards a more structured and coordinated life-cycle environment without losing innovative multi-skilling dimension.
Execution Capabilities –
Alignment and Governance for Sustainability

Non-optimal Process into Sustainability

- Local Demand and Requirement e.g. Recapitalisation Investment
- SoE as fulfillment party for satisfaction of local demand (only)
- R&D and Industrialization driven by local demand and often volumes that limit global competitiveness
- Delivery of local demand by SoE
- Consideration of the need to export or expand volume-base
- Re-engineering of Products System and Value Chain for (after-the-fact) export consideration
- Exports not sustainable

Optimized Sustainability Process (e.g. Defence Sector)

- Local Demand and Requirement e.g. Product Systems Recapitalisation
- Definition of Requirements for satisfaction of SA and global market
- R&D and Industrialization driven by global demand requirements and sustainable total volume
- Delivery of local demand by SoE as Phase 1; in parallel Business Dev.
- Exports as additional boost for volumes with global partnerships
- Improvement of Products System and Value Chain for ongoing competitiveness enhancement
- Local supply and exports complementary

DOD
Armscor & Denel
Denel & CSIR
Denel & CSIR
Denel
Denel & CSIR
Demand / Exports and Partnerships – Alignment for optimal Value Creation

Tier Selection

- Tier 0 / OEM
- Tier 1
- Tier 2
- Tier 3 - n

Value Creation Alignment

- Selection of Value Chain element(s) to focus on
- Selection of Tier level to focus on
- Selection of Partnerships
- Ensuring Demand either directly or indirectly
State owned Enterprises – Summary

Significant Alignment Potential is believed to exist across certain SoEs

1. National Security
2. Developmental Programmes
3. Improved Return on all Investments
4. Exports and competitiveness
5. Economic Beneficiation
6. Capacity and Capability expansion
7. Innovation and transition towards 4th Industrial Revolution

Possible Next Steps

Further Assessment / validation of Potential and confirmation by stakeholders
Selection and prioritisation of Improvement interventions in terms of criteria such as alignment cost, complexity etc. versus Return / Savings
Definition of a solution Framework and mechanism to drive Alignment activities and allow for benefits to be achieved