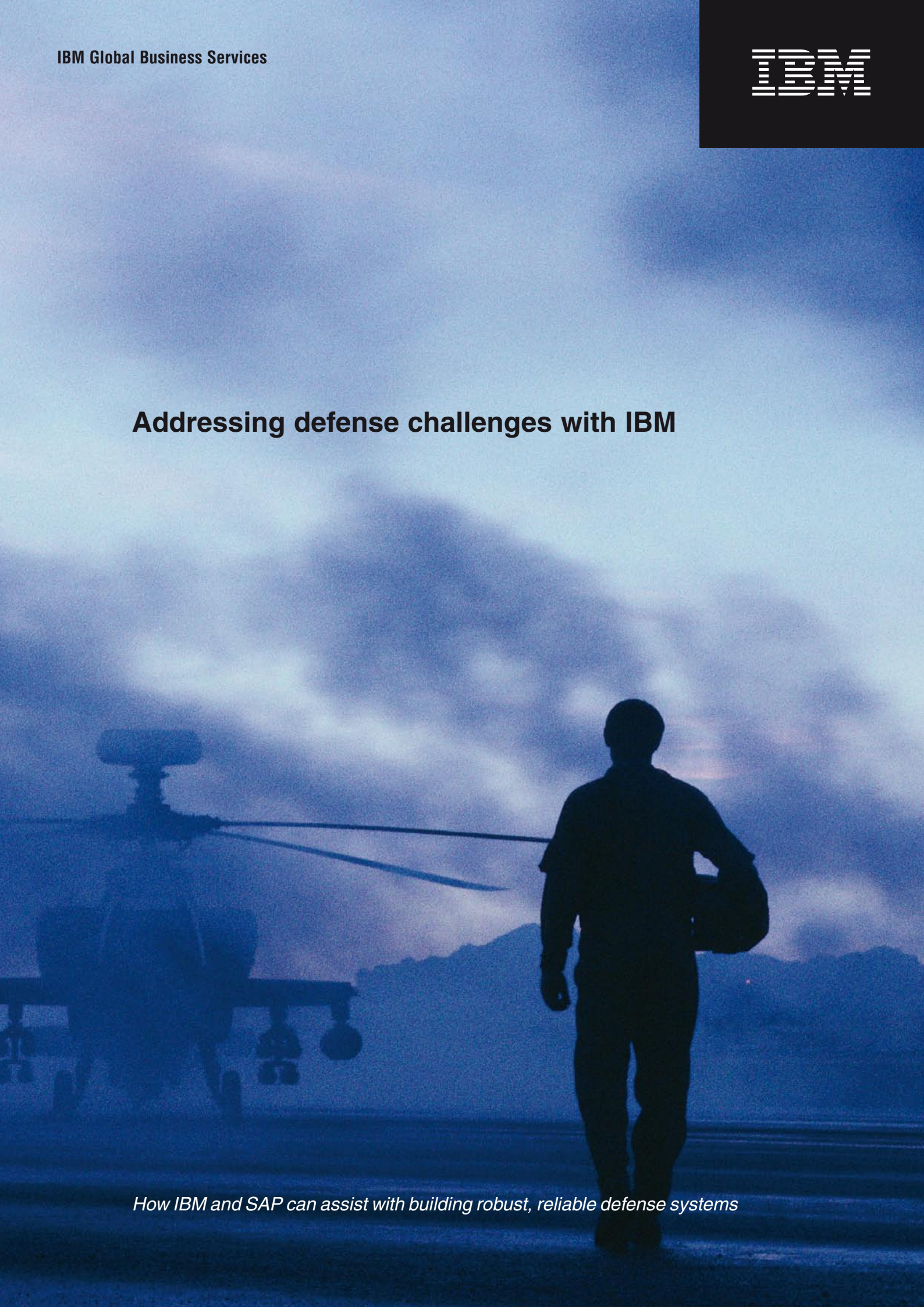
IBM Global Business Services



# Addressing defense challenges with IBM

*How IBM and SAP can assist with building robust, reliable defense systems*

Constant change at every level brings unique challenges to system design for defense and public security organizations. While sharing many functional areas – such as personnel management, financial control and logistics – with other government and even commercial operations, the IT systems designed for defense and public security organizations must meet fundamentally different objectives.

IBM possesses deep understanding of the challenges facing defense and public security organizations. Practical experience of a wide range of military system design and implementation projects enables IBM to offer:

**Innovation**

- *New approaches and technology built on experience and trust*
- *State-of-the-art integration, project management and transition to new systems*
- *Proven business modeling that moves strategic thought into practical action*

**Faster execution**

- *Fast-track implementation based on existing, successful solution design templates*
- *Skilled defense personnel to help achieve change management and cost reduction*
- *Integrated solution development that retains the ability to adapt during implementation*

**Accountability for results**

- *Full project responsibility to ensure a results-focused approach*
- *Integrated joint delivery teams under IBM management to reduce administrative workload*
- *Delivered systems measured on Key Performance Indicators*

**Turning strategy into action**

IBM has developed advanced methodologies designed to turn statements of strategic intent into real-world action plans that deliver excellent IT systems for defense and public security organizations.

Using the Component Business Model (CBM) and Model-Based Solution Development (MBSD) (see panels), IBM maps the organization requirements to business processes, and identifies the enabling services, software and infrastructure.

IBM considers system design as a single, integrated proposition that encompasses the transformation of working practices, includes retraining of personnel, and comprises complete system implementation. Services, software and hardware form part of a larger whole, the purpose of which is to deliver operational efficiencies while remaining capable of managing constant change.

With IBM and SAP, the emphasis is on practical experience guiding the selection of the best technologies, designed to deliver:

- *Ability to respond faster and more effectively to military events, even with reduced manpower*
- *Transformation of processes to achieve substantial cost savings*
- *Holistic solutions that cover integrated modern defense and security organizations*
- *Improved asset and personnel management with lower costs*
- *High levels of external security combined with trusted relationships with allies*
- *Robust, reliable, resilient systems design and implementation for the defense environment*

**Selecting the means to the end**

The IBM offerings are centered on deep understanding of the constraints faced by defense and public security organizations. From managing remote battlefield logistics and communications through to detailed financial management, IBM has the proven experience and global capabilities to design, implement and operate successful IT systems.

**Battle-tested experience**

IBM is able to demonstrate a wide catalog of high-performance defense systems, offering military personnel reliable, robust and resilient support both in headquarters and arduous field conditions.

The Component Business Model (CBM) helps design systems by process (such as logistics), military type (such as airborne) and solution area (e.g. procurement), fully integrated across each discipline. Put in the most direct terms, soldiers being dispatched to remote operations will be transported, paid and provisioned correctly, using a single IT system that is reliable and effective.

IBM delivers the full-service design, architecture, implementation and operational services required to make the transition to new IT systems a rapid, cost-effective process.

| | Global Security/ Defense Environment | Develop Material Capabilities | Develop Personnel Capabilities | Acquisition | Operations | Sustainment | Enablement |
|---|---|---|---|---|---|---|---|
| Direct | Coalition/Combined Capabilities planning | Scenario Planning and Outcome Based Strategy | | Trade and Collaboration Control Strategy | Strategic Planning | Lifecycle Planning | Corporate Planning |
| | National Security/ Defense Strategy | Advanced Technical Research Planning | Personnel Capability Planning | Acquisition Strategy | Force Posture Planning | Integrated Demand and Supply Planning | Budget and Cost Management |
| | Coalition/Combined Forces Course Of Actions & Doctrine | Force Package Material Capability Requirements | Force Package Personnel Capability Requirements | | Operational Planning | Supply Chain Strategy | Human Capital Policy and Workforce Planning |
| | Intelligence Synthesis and Forecasting | | | | Deliberate Planning | | Policy Development |
| Control | Situational awareness/ OOTW | Prioritization and Evaluation of Capability Opportunities (ROI) | Personnel Performance Management | Monitoring and Management of Acquisition Performance | Operational Readiness Performance Management | Sustainment Management and Performance Monitoring | Regulatory and Statutory Agreements |
| | Monitor Security Assistance Agreements | Manage Industrial Collaboration (Defense Integrators and Contractors) | Education, Training and Development Management | | Operational Performance Management | Configuration Management | Legislative and Public Affairs |
| | Monitor Coalition and Spectrum Agreements | Technology Innovation Infusion and Control | | | Common Operational Picture Maintenance | Demand and Supply Analysis | Corporate Performance Management |
| | | | | | | Vendor Management | |
| Execute | Establish Coherent Coalition Network Environment | Advanced Research and Development | Personnel Recruitment | Contract Management | Integrated Command and Control | Demand and Supply Management | Human Resource Management and Administration |
| | Establish Coalition Spectrum Agreements | Quality Requirements Assessment and Control | Personnel Education, Training and Development | Program Management | Force Preparation | Inventory Management | Financial accounting and GL |
| | | Life Cycle Tradeoff Analysis | | Acquisition and Deployment into service of Material Assets | Force Deployment | Purchasing | Facilities and Infrastructure Management |
| | | Modeling and Simulation | | | ISR Tasking and Collection | Asset Visibility and Management | Cost Controlling |
| | | Test and Evaluate Concepts and Prototypes | | | Integrated Mission Execution | In Service Maintenance Planning and Execution | Base Management |
| | | Program Specification and Design | | | Maintain Secure Battle space Networks | Out of Service Maintenance Planning and Execution | Manage Sales |
| | | | | | Force Re-Deployment | Transportation Distributions and Disposition | Manage Health, Environment and Safety |

**Business Component** – a part of an enterprise that has the potential to operate independently

**Business Competencies,** large business areas with characteristic skills and capabilities, for example, product development or supply chain.

**Accountability Level** – the scope and intent of activity and decision-making.

*Component Business Model (CBM) for a Defense Organisation*

**IBM Defense Reference Architecture**

IBM has developed the IBM Defense Reference Architecture, which marries the application environment and IT infrastructure with off-the-shelf software such as SAP DFPS.

This architecture offers defined methodologies that enable defense and public security organizations to take advantage of commercial software while meeting the needs of the high-integrity military environment.

The Defense Reference Architecture ensures that the result is a proven design that provides robust, resilient systems, delivering greater flexibility and lower operational costs.

**Integrated operations**

The IBM and SAP approach is based on the significant advantages to be gained by exploiting an integrated combination of the SAP ERP environment, specialized applications, and advanced IBM technologies.

IBM and SAP have the ability to create complete solutions that meet the unique challenges of defense and public security organizations, offering greater flexibility, more effective use of resources, and lower operational costs.

**Component Business Model**

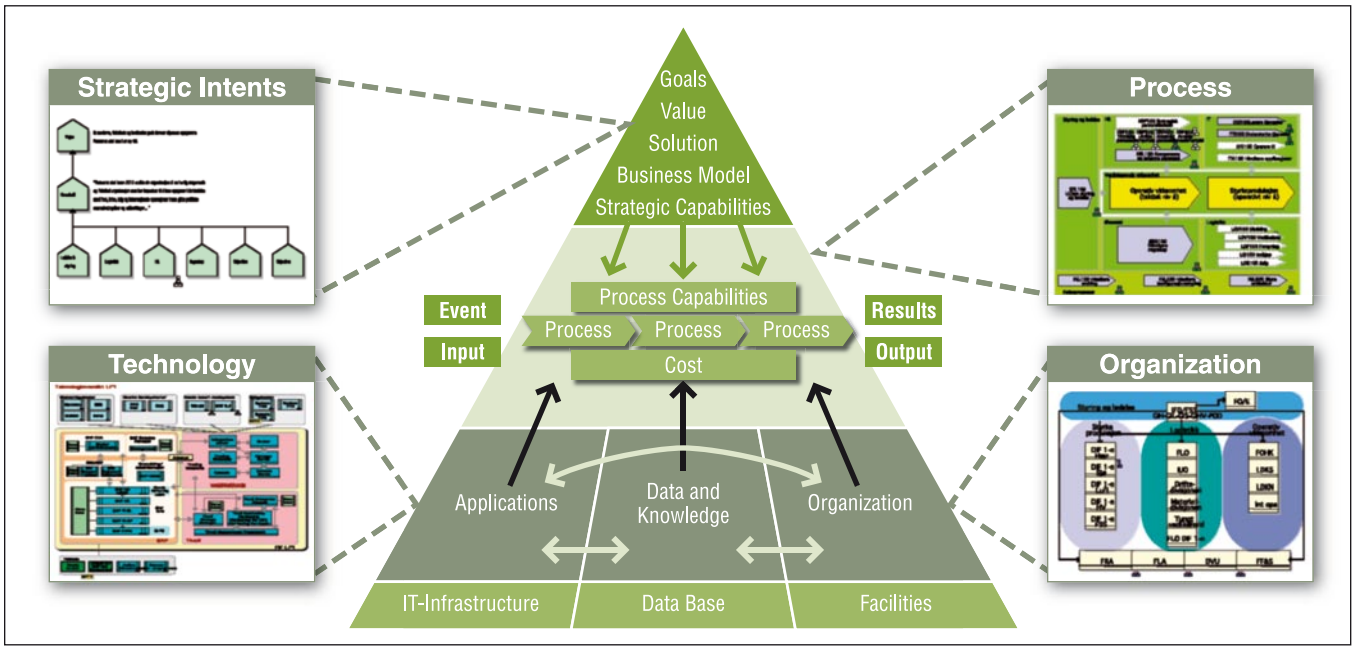
IBM has defined Component Business Models (CBM) for many industries to capture the critical requirements in a standardized manner. This technique identifies opportunities for innovation and improvement by describing the organization as a set of networked business components. The CBM forms a logical view of the enterprise that includes the resources, people, technology and know-how necessary to fulfill the organization's objectives.

The CBM for defense and public security organizations (see diagram) draws on best-practice project experience from more than a dozen IBM-managed defense transformation projects. This approach builds on integration of mobile forces, general logistics and financial optimization. IBM provides different options ranging from an evolutionary approach (such as implementing SAP ERP software where integrated processes are needed, while maintaining legacy applications where it makes tactical sense), to a complete restructuring of organization and IT.

From experience, most defense and public security organizations prefer evolution to revolution, as it is easier to align such an approach with the 5- to 10-year planning cycles of defense agencies and the political environment.

IBM offers the opportunity to gain from this best-practice experience, and can help organizations in this sector to rapidly and cost-effectively deploy integrated systems that allow defense and public security organizations to meet their commitments.

*IBM Defense Reference Architecture*



**SAP software and defense**

The SAP Defense Forces and Public Security (DFPS) application has substantial coverage of the core processes of military operations, specifically in terms of their financial, human resources and logistics aspects.

As governance requirements gain ground in the defense sector, compliance with standard accounting and inventory management guidelines is increasingly required. SAP software can help to improve quality in this area, with applications tailored for the sensitive political and military environment.

In combination with industry best practices and the SAP DFPS applications, IBM can deliver an integrated accelerator for efficient operation transformation. Defense departments can adjust organizations, processes and infrastructure more quickly, reducing spending and project duration significantly.

The DFPS application extends core SAP software (see diagram) with tools, processes and functionality that have been specifically tailored for defense and public security organizations:

- *Organizational flexibility*
- *Accounting and funds management*
- *Materials management*
- *Flight operations support*
- *Maintenance programs*

**Remote operations**

SAP DFPS software enables the dispatch of systems for the support of remote mobile force operations. A defined set of financial, logistics and human resources data is deployed on an isolated SAP system, becoming the central operation hub in a remote military operation. For tactical reasons, data in the dispatched system typically has a higher level of security than standard operation.

Underlying the DFPS solution is the secure infrastructure required to control access and protect data. IBM has the capabilities to design, implement and enable the robust architectures needed to support military command solutions, including appropriate IBM software and third-party products. IBM provides secured mobile services to certain defense organizations, worldwide, and a number of these implementations have been running successfully for many years.

The DFPS software also comprises additional functions for the operation of a distributed system landscape. The particular strengths of this application are:

- *End-to-end mapping of the organizational structures for the local base, operations and exercises*
- *Complete process chains from planning through implementation and execution to the conclusion of operations and exercises*
- *Provision of information and evaluation options*
- *Integration of personnel and material information and resource management*
- *Organizational flexibility during day-to-day operation is taken into account and implemented immediately in downstream processes.*
- *Offline capabilities to allow functions to be used even if individual organizational units' communications with a central system are broken temporarily. (Specific mobile applications for armed forces, police, and aid organizations are provided with the Mobile Defense Solution.)*
- *Integration with the standard processes of the SAP software (accounting, human resources, logistics, and more)*
- *New object types within the SAP software for the specific mapping of the business elements of armed forces, police, security and aid organizations*

**Provable high-performance results: Bundeswehr**

IBM has developed high-performance systems for the Bundeswehr, with secure, robust remote access supporting advanced business intelligence and warehousing applications.

The Bundeswehr uses SAP NetWeaver Business Intelligence to analyze complex data sets for controlling, balanced scorecards, logistics and HR planning/reporting. To meet the very high performance demands of such a large organization, the SAP NetWeaver BI software runs on IBM System p5-570 servers under IBM AIX 5.3 with IBM DB2 data server.

To further optimize performance and gain greater query flexibility, the Bundeswehr implemented the IBM Systems solution for BI accelerator from SAP, using the application to accelerate 100 InfoCubes from the SAP NetWeaver BI system. These cubes have on average 10 KeyFigures and up to 80 million Rows, together totalling around 1.5TB in the database.

The BI accelerator cluster has compressed these cubes by a factor of 20 (original GB size/indexes in memory). The entire indexing process took only around 30 minutes per 100 million rows to complete.

Lieutenant Colonel Jörg Steinhorst reports, "IBM provided an easy to install solution that was quick to implement, accelerating our SAP NetWeaver BI performance. The advantage of the BI accelerator is that it can optimize speed and concurrent queries at the same time."

"Fifty concurrent users can now complete a query in just 30 seconds that previously took 60 seconds for a single user and 90 seconds during concurrent execution. For ad-hoc queries, we've improved performance by a factor of 116."

For further information, IBM has published a more detailed description, IBM Systems solution for BI accelerator from SAP: Extending Your Business Insights.

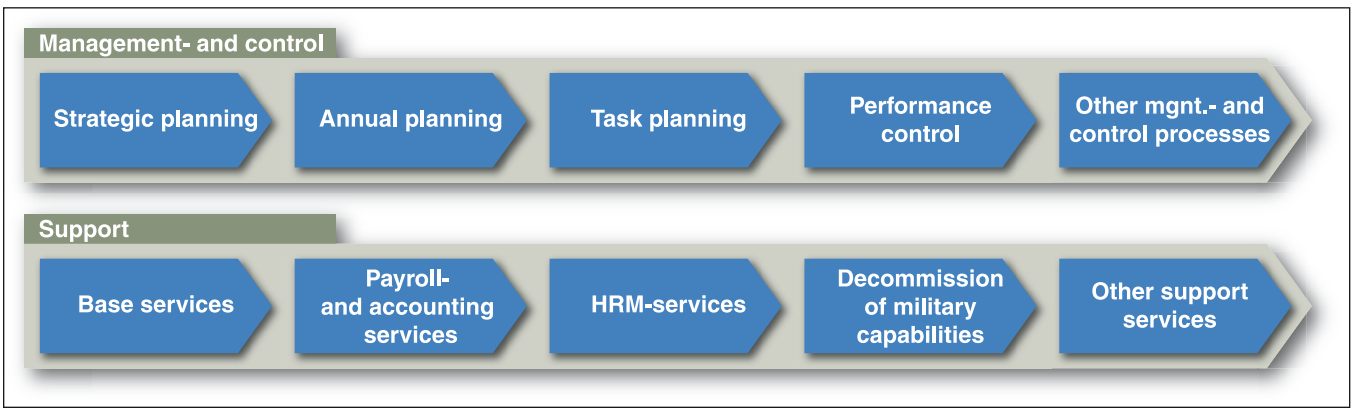
**Classified environments**

Handling classified data in remote or mobile operations must meet the highest security standards, and it may not be possible or desirable to re-integrate data centrally after the conclusion of the mission.

To meet these needs, IBM exploits industry best practices based on an enterprise service-based architecture to establish a model for multi-level data security.

The SAP DFPS applications are embedded in the overall business framework delivered by the IBM Component Business Model and the Defense Point of View, as well as the IBM WebSphere-based infrastructure framework for the integration of non-commercial applications.

In partnership with SAP, IBM offers complete solution implementation services, meeting the precise needs of defense and public security organizations.




*Project Elements for Success*

**Raising the standard**

IBM and SAP have a long list of joint defense references, where the combination of SAP software and IBM design, architecture and infrastructure has delivered lower costs and improved military flexibility:

- *Bundeswehr: Project Hercules*
- *Canada Department of National Defense*
- *Danish Defense*
- *Israel Army*
- *Israel Multinational Force Observers*
- *Ministry of Defense Mexico*
- *Netherlands Ministry of Defense*
- *New Zealand Defense Force*
- *Ministry of Defense Norway*
- *Singapore Ministry of Defense*
- *Slovenia Ministry of Defense*

- *United States Department of Defense, including*
  *- Navy NAVSEA*
  *- Navy NAVAIR*
  *- Army LMP/LOGMOD*
  *- NAVY*
  *- CONVERGENCE*
  *- Army USAMMA*
  *- Navy SPAWAR*
  *- Army GCSS*

**The best form of defense**

The integration of real-time and pervasive operation components with commercial off-the-shelf software, such as SAP applications, is a must-have element in this transformation process. IBM and SAP are able to deliver a best-of-breed transformation approach and network-centric operation solution, primarily based on proven industry insight, the IBM Selected Business Solution for Defense, and the SAP Defense Forces and Public Security application.

Together, IBM and SAP can help to dramatically accelerate the much-needed overhaul of defense processes, structures, applications and IT infrastructure, while reflecting the security needs and standards of the sensitive defense environment

To engage with IBM, contact your nearest IBM office.

*IBM provided an easy to install solution that was quick to implement, accelerating our SAP NetWeaver BI performance. The advantage of the BI accelerator is that it can optimize speed and concurrent queries at the same time.*

Lieutenant Colonel Jörg Steinhorst

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