

Aerospace & Defence

transforming manufacturing embracing digital

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Introduction

A combination of operational and commercial challenges are creating an uncertain environment for Aerospace and Defence (A&D) companies. To be successful, A&D companies will need to integrate core operating capabilities with new digital technologies to drive greater efficiency and flexibility. Today A&D companies face three main transformation challenges which are shaping the way they work: Complexity, Business Reinvention and Trust and Compliance.



The Complexity Challenge

The Defence and the Commercial Aerospace sectors have different customer bases, buying behaviours, product requirements and demand cycles. Most A&D companies have a foot in both sectors and have created business models to service these very different markets at the same time. In addition, most A&D companies - driven by a need for growth and a history of organic and acquisitive expansion - now operate globally, often through semi-autonomous business units, managing multiple complex programmes in very different regulatory regimes for an expanding range of new customers.

The Business Reinvention Challenge

Many A&D companies - especially integrators - are combining asset and infrastructure intensiveness with knowledge exploitation to create new value propositions and products. At the same time they are starting to make inroads into "adjacent" market sectors, such as energy, security, transport and financial services, to leverage their technical and management tools and processes. Supply chain evolution means OEMs and Integrators rely on an international supply base that is now required to take on more risk, investment cost and R&D responsibility in return for securing long term positions on key programmes.

The Trust and Compliance Challenge

A&D companies operate under ever more stringent and widespread regulatory and compliance requirements as legislation worldwide becomes increasingly directive and complex. Many companies assume that the systems and processes they have in place will suffice, without realising that they aren't fully compliant with legal directives. This hugely increases the risk of negative publicity and can trigger fines and audits by external bodies.

Aerospace Imperatives

To be successful in this environment and deal with the three challenges, A&D manufacturers are having to look for solutions and services to help them address the following imperatives:

- ▶ **Quality, Cost and Delivery.** Optimising these manufacturing measures are critical as competition increases and programme “head-room” decreases
- ▶ **Programme management.** With multiple, overlapping programmes at different stages of the design/build/support lifecycle, highly effective Programme Management and Decision support systems are key capabilities in A&D manufacturing
- ▶ **Through-value-chain efficiency.** The value chain for A&D extends over an “enterprise” comprising core manufacturing, internal company functions, programme partnerships, the supply chain and the customer base. The creation of value therefore depends on efficient management and co-ordination of numerous contributors over the typical 30 year life-span of a major A&D programme
- ▶ **Integration of product and services over the programme life.** Increasingly, customers are demanding post-delivery services ranging from aftermarket support to leasing-type models to capability-only models such as “Power by the Hour”. These require new commercial, maintenance and production models
- ▶ **Security and protection of IPR.** All A&D companies are under threat and need to take measures to protect their IPR whilst complying with regulatory and national directives.

Taken cumulatively, these imperatives are driving A&D companies to address key success factors such as:

- ▶ **Greater operational flexibility**
- ▶ **Co-ordination across the extended global enterprise**
- ▶ **Supply chain harmonisation to avoid costly programme derailment**
- ▶ **Increasing automation for right-first-time results**
- ▶ **Creating a “through-life focus”**
- ▶ **Ensuring effective decision making at all levels**

The common factor in all these is improved access to, and effective exploitation of, data and information. Doing this consistently well is becoming the key to business success, resulting in the Information Management and Technology (IM&T) function taking on greater responsibilities within the business to drive Digital Transformation.

Digital Transformation

IM&T at the heart

Historically, IM&T has often been considered a 'necessary evil' and an operating cost, with decisions taken mainly on the basis of switching risk. However, as A&D businesses have expanded and become more operationally complex in scale and scope, many are demanding from IM&T new ways of working and new technologies to help drive innovation. Decisions to switch IM&T suppliers are increasingly taken on the basis of existing systems IT response time, IT efficiency, usability, technology features, maintenance cost of legacy systems, and users' experience of "at-home" IT.

The implication for the IM&T function is clear: customers want real time responsiveness, access to useful information, and the ability to take decisions and manage the business productively. By providing this, IM&T becomes an enabler for lower business costs and greater efficiency through digital transformation programmes. Today, Digital Transformation is a reality and is helping A&D manufacturers achieve the following results:

- ▶ IM&T is being brought closer to the heart of business. Senior IM&T executives are becoming more involved at a strategic level, whilst IM&T resources are incorporated into Programme Teams to ensure alignment of business need and IM&T support
- ▶ Better segregation of data and information into secure, critical and non-critical categories to protect the former better and reduce data handling bottle necks.
- ▶ Getting-to-grips with the often significant legacy technology footprint following 20 years of consolidation, acquisition, and scope-and-scale changes
- ▶ Recognition that new technologies such as big data and cloud have reached a robust level of maturity and can now satisfy compliance
- ▶ A mix of IT suppliers supporting the organisation on the basis of "best for the job", managed through an IT systems integrator
- ▶ A through-value-chain approach in which IM&T capabilities are overlaid and integrated onto the through-life (Design/Build/ Support) phases of A&D programmes. The diagram opposite indicates some of the critical technologies being adopted in these phases.

High Cost

High Yield



- ▶ Product Life Cycle Mngt
- ▶ PDM & Engineering
- ▶ Predictive Analytics and Test
- ▶ Business Intelligence

- ▶ PLM
- ▶ ERP design, build, upgrade
- ▶ MES and MRP Systems
- ▶ Complex Programme Management
- ▶ Optimised Supply Chain Management

- ▶ PLM
- ▶ CRM
- ▶ Predictive Maintenance
- ▶ Asset Tracking

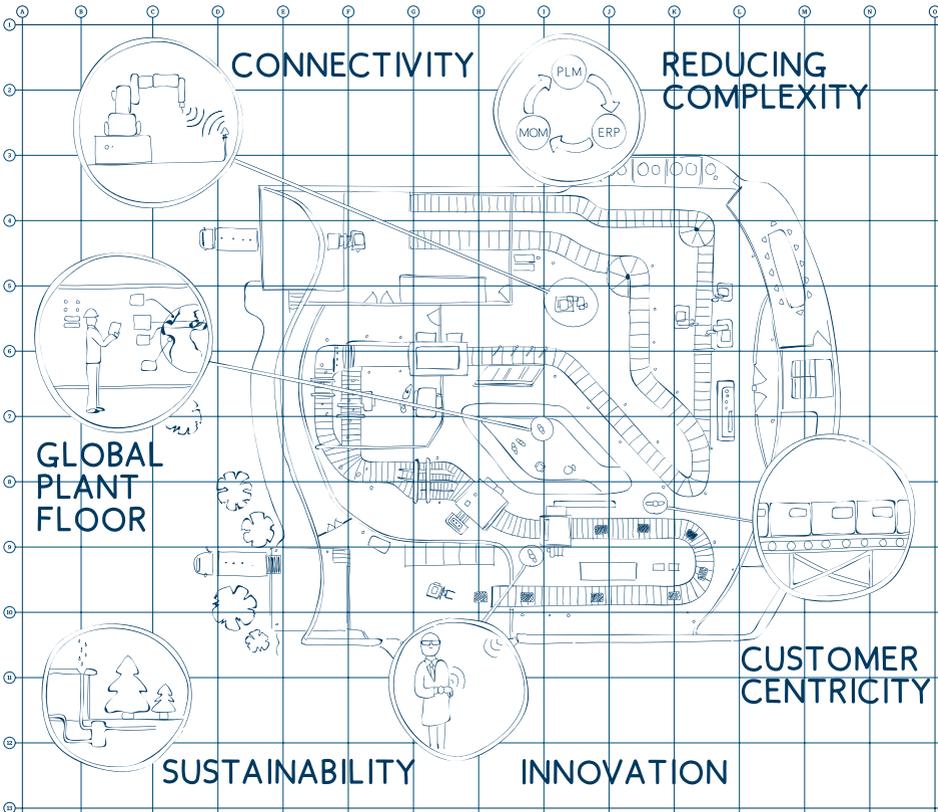
- ▶ Systems Integration
- ▶ Applications rationalisation and Modernisation
- ▶ Cost out/business optimisation
- ▶ Virtualisation, Cloud and Private Cloud
- ▶ Business

Factory of the Future

At Atos, a focus on the 'Factory of the Future' underpins every engagement with our manufacturing clients. The Factory of the Future is an initiative, backed up by a suite of solutions that enable our clients to optimise and future-proof their current operations.

The Factory of the Future solutions enable our clients to meet their challenges head on and focus on key digital initiatives such as improving connectivity, reducing complexity, harnessing innovation, increasing sustainability, building customer centricity and operating a truly global plant floor.

We've already enabled manufacturers such as: Nestle, Audi AG, Akzo Nobel, Princes, John Deere, JB, Warner Group and Cassidian, as well as other globally recognised and respected brands, to deliver their own Factory of the Future through a mix of MES, PLM, C&H and AM solutions specific to their needs.



MES

Manufacturing Execution System (MES) services from Atos will help you to drive connectivity and establish common standards and best practice across multiple plants and sites to minimise cost, lead-times, WIP and inventory.

Our MES solutions also improve tracking and tracing, and significantly increase the quality of compliance reporting. In fact, it is possible to establish meaningful and actionable dashboards which deliver essential intelligence to production, operations, and business functions across the enterprise, as we have already done for Princes.

PLM

Benefiting from a complete end-to-end consulting and implementation approach, Atos Product Lifecycle Management (PLM) solutions create efficient new product introduction strategies that deliver on time and budget. We also focus on creating seamless collaboration across R&D, manufacturing, marketing, sales and engineering.

We regard all PLM engagements as business, rather than IT, projects. As a showcase for PLM and change management best practice, Atos is firmly software-agnostic and we work in parallel with technology leaders including Aras, Dassault Systèmes, Oracle, PTC, Siemens and SAP.

C&H

Atos Consolidation and Harmonisation (C&H) is a full-cycle solution, spanning consulting, integration and management. Conventional approaches either waste time and money by targeting new processes, or generate fresh complexity by forcing new infrastructure. Atos, however, focus on pragmatic, economical and systematic analysis to see how your business really uses IT. Taking the risk, expense and time out of traditional consolidation projects, we help you identify the best process for each function across your infrastructure, enabling you to cut complexity and roll out existing best practice.

AD&M

Application Development and Management (AD&M) from Atos puts meeting business KPI's, increasing service efficiency, improving IT agility and adding value at its heart. We link our business model to the attainment of agreed KPIs and ensure that IT delivery is linked directly to client success.

Atos AD&M delivers business process monitoring through the mapping of crucial business KPIs to our operations management bridge, enabling you to perform pre-emptive maintenance and make the shift from a responsive to a proactive business model, focused on driving efficiency and performance.

For further insight on Atos and the Factory of the Future, you can download our position paper from ukatos.net

Conclusion

The A&D industry has undergone twenty years of change in which it has re-shaped itself through consolidation, market extension, acquisition, supply chain re-organisation and ever increasing product innovation. This pace of change is unlikely to decrease, and all parts of the organisation are being challenged to bring the best they have to support business success.

New markets and revenue sources require flexibility and agility to create and sustain new processes and relationships. Business initiatives need real-time response from IM&T, without delays in providing the applications and information needed to optimise business decisions.

IM&T is increasingly a key enabler to business productivity and efficiency, and as part of the Digital Transformation agenda is charged with integrating its resources and technologies into the heart of the business.

Integrated approaches such as Atos' "Factory of the Future" can help A&D manufacturers understand this and organise themselves to embrace digital and transform their manufacturing.

Atos in A&D

Atos is a global IT leader with 73,000 employees and €8.6Bn revenues, offering the full scope of Digital Transformation services through 38 global delivery centres.

We help clients across sectors and geographies with strategy and roadmapping, and with technology implementation and support, to significantly reduce the complexity of the IT landscape and improve the responsiveness and agility of IT - all with a sustainable approach that drives and supports future growth.

Atos supports many of the world's leading A&D and manufacturing organisations. Our client list includes the MoD, Airbus, Cassidian, Global Aerospace, Rolls-Royce Power Systems and Thales. Our proven A&D experience comes with an extended team of security-cleared professionals, referenceable clients, and European aerospace centres of excellence.

We'd be happy to share more with you about what we've done in A&D and how we can help you drive meaningful Digital Transformation for your company.

**For further information on
Atos in A&D please contact:**

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About Atos

Atos SE (Societas Europaea) is a leader in digital services with 2014 pro forma annual revenue of circa €11 billion and 93,000 employees in 72 countries. Serving a global client base, the Group provides Consulting & Systems Integration services, Managed Services & BPO, Cloud operations, Big Data & Cyber-security solutions, as well as transactional services through Worldline, the European leader in the payments and transactional services industry. With its deep technology expertise and industry knowledge, the Group works with clients across different business sectors: Defense, Financial Services, Health, Manufacturing, Media, Utilities, Public sector, Retail, Telecommunications, and Transportation.

Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and is listed on the Euronext Paris market. Atos operates under the brands Atos, Atos Consulting, Atos Worldgrid, Bull, Canopy, and Worldline.

For more information, visit: atos.net

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