

# catalog-driven Order Management

Boosting agility  
and responsiveness  
for telcos

# Executive Summary

All successful telcos are shifting from their established roles as Communication Service Providers to new positions as extended Digital Service Providers.

In this new role, they not only need to develop and market compelling new communication and data services to both consumer and business customers. They also need to respond to their clients with unprecedented agility – and with increasing levels of personalization.

Catalog-driven orchestration makes an essential contribution. It helps minimize the time-to-market for new offers, brings focus to product launches, and rapidly process and track customer orders.

This white paper takes a closer look at catalog-driven orchestration with a special focus on process-simplification; on the creation and management of a centralized catalog; and on the Atos digital transformation methodology.

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## About the Atos Scientific Community

Publically launched by Thierry Breton, Chairman and CEO of Atos, and sponsored by Hubert Tardieu, the Scientific Community has 135 members from all geographies where Atos operates, representing a rich mix of skills and backgrounds. Its aim is to help Atos anticipate and craft its vision of upcoming technology disruptions and the future business challenges that will be faced by the markets it serves. By making this vision available to its clients, and by investing in areas related to the findings, Atos intends to help its clients make informed decisions regarding the future of their Business Technology solutions.

## Follow the Atos Scientific Community

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## About the author



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## Acknowledgements

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# Simplification

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## is a priority

Every telecom operator is in a state of continual evolution. Just look at the rapid progress from pure fixed-line voice services, to mobile and messaging, and on to today's highly articulated mix of communications and data services. Telcos must continually embrace new technologies, networks and processes. They are also subject to new competitive pressures from, for example, over-the-top (OTT) entrants and internet-based competitors. Every telco needs to look again at both their business vision and operating model if they are to turn network investments into profit and differentiating advantage.

An already complex telco landscape is made even more complicated by ongoing mergers and acquisitions, each of which requires new levels of integration: product offerings, management systems, customer bases and network assets must all be integrated and rationalized.

The diversity of growing product and service portfolios with highly-articulated pricing mechanisms is made even more challenging by those customers who are happy to stick with legacy products.

And all this is happening in a business landscape in which entirely new revenue streams emerge for those players who are culturally and technologically prepared to seize the opportunities. This is especially evident in the new digital and converged services. These span the Internet-of-Things, cloud provisioning, the integration of new OTT services and the provision of network services to OTT players.

Sales channels, customer engagement and order-management all reflect this explosion in complexity. Markets are fluid and the ability to retain existing clients and win new ones is a constant battle.

Telcos need customer insight and this can only be gained if they have a coherent 360° view of client behavior - often realtime - across all sales channels.

### **So, what is the business impact of these growing levels of complexity?**

Most importantly, customer experience suffers. Complexity results directly in customer confusion and complaints. Propositions which should be clear and easy to purchase, preferably with personalized packages, become tough to negotiate and manage. Smooth engagement is a pre-requisite for continued customer loyalty.

The proliferation of products and services, sales channels, marketing campaigns, networking and business processes has become difficult to support for most operators.

Simplification becomes a business priority: streamlining and simplification are key to cost reduction, greater flexibility, shorter time-to-market and increased customer satisfaction.

For success, simplification must be considered as a global program and must actively engage stakeholders. It must also clearly identify all transformation drivers: the business view and strategy; impact and risk analysis; and the definition of the drivers themselves. These will include customer segmentation, the offer portfolio and the sales channels.

Simplifying the product offering and portfolio is central to all transformation initiatives. It is key to ensuring that customers understand what is on offer, how those offers benefit them, and when those offers are updated.

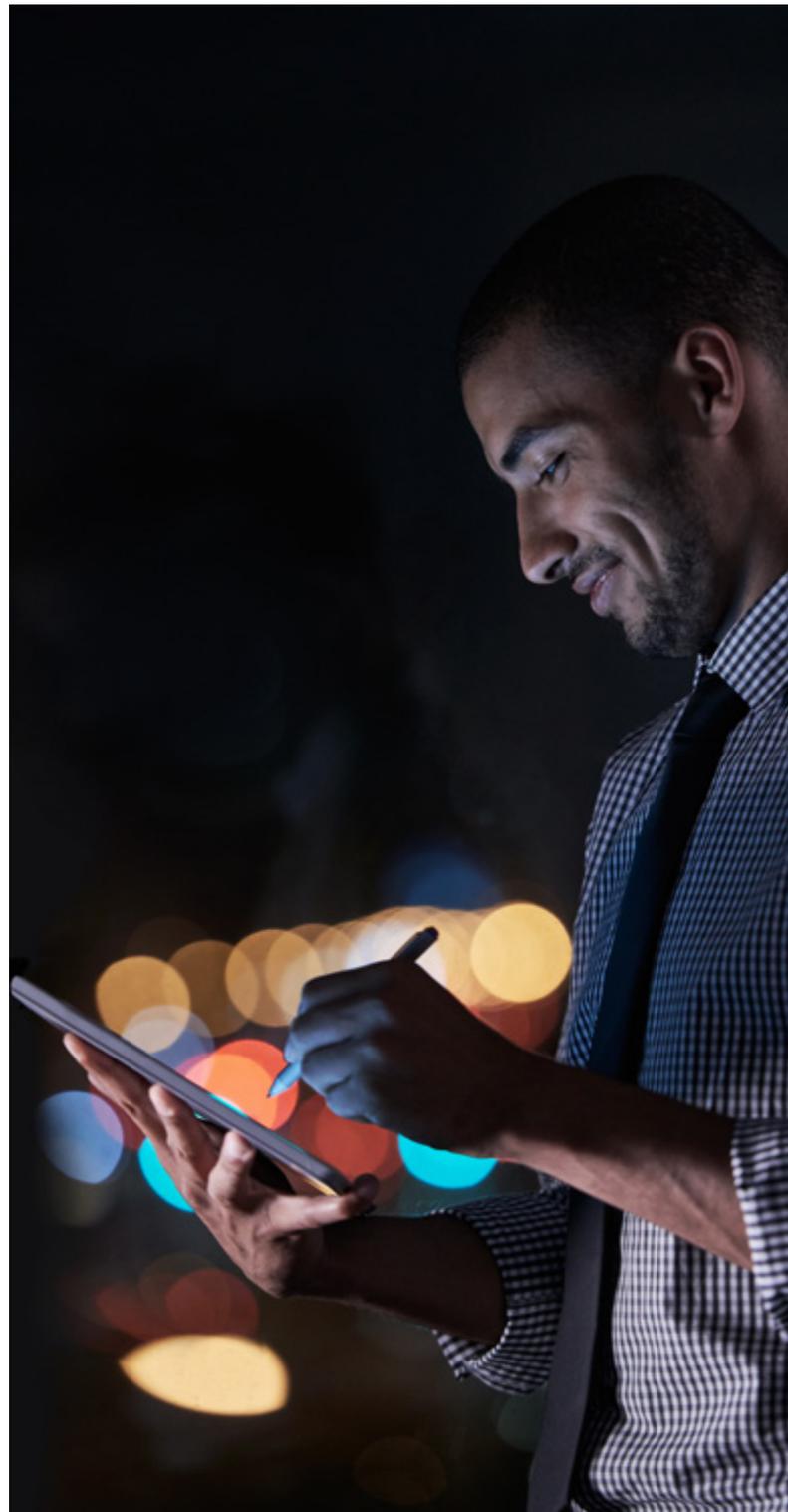
“Simplifying the product offering and portfolio is central to all transformation initiatives.”

# The Centralized Product Catalog

Most telcos still rely on multiple product catalogs to service different organizational or technology silos. Individual product catalogs may be used across numerous contact channels. This gives only a partial view of which products their customers have purchased. This must change.

As telcos shift to their new role of Digital Service Provider, success depends on the speed and focus with which they can design, launch and deliver compelling new products. The pressure to minimize time-to-market creates tough challenges, especially regarding maintenance and IT integration.

A centralized product catalog now becomes a pre-requisite. Not only is a centralized product catalog essential in delivering marketing and product teams a unified, comprehensive and consistent view of product performance and take up. It also helps simplify and accelerate product design, in part by integrating the definition of the fulfillment process. It also allows telco stakeholders to track the entire product lifecycle, from launch right through to decommissioning. Analysis of the catalog also makes an important contribution to understanding customer behavior and, as a result, minimizing time-to-market for new products.





## A catalog-driven approach

The centralized product catalog contains both product specifications and their associated business rules. It shows, for example, all compatibility and inter-dependence conditions. During order capture, the catalog provides a comprehensive Configure, Price and Quote (CPQ) function.

In addition, the catalog contains all information required to automate the product fulfillment process. A dynamically generated orchestration plan is made available for each instance of each product. This is called “catalog-driven orchestration”.

In combination, these functions enable the highest degree of automated order management.

Pre-configured services can be easily reused and re-combined, helping shrink time-to-market for new product offerings.

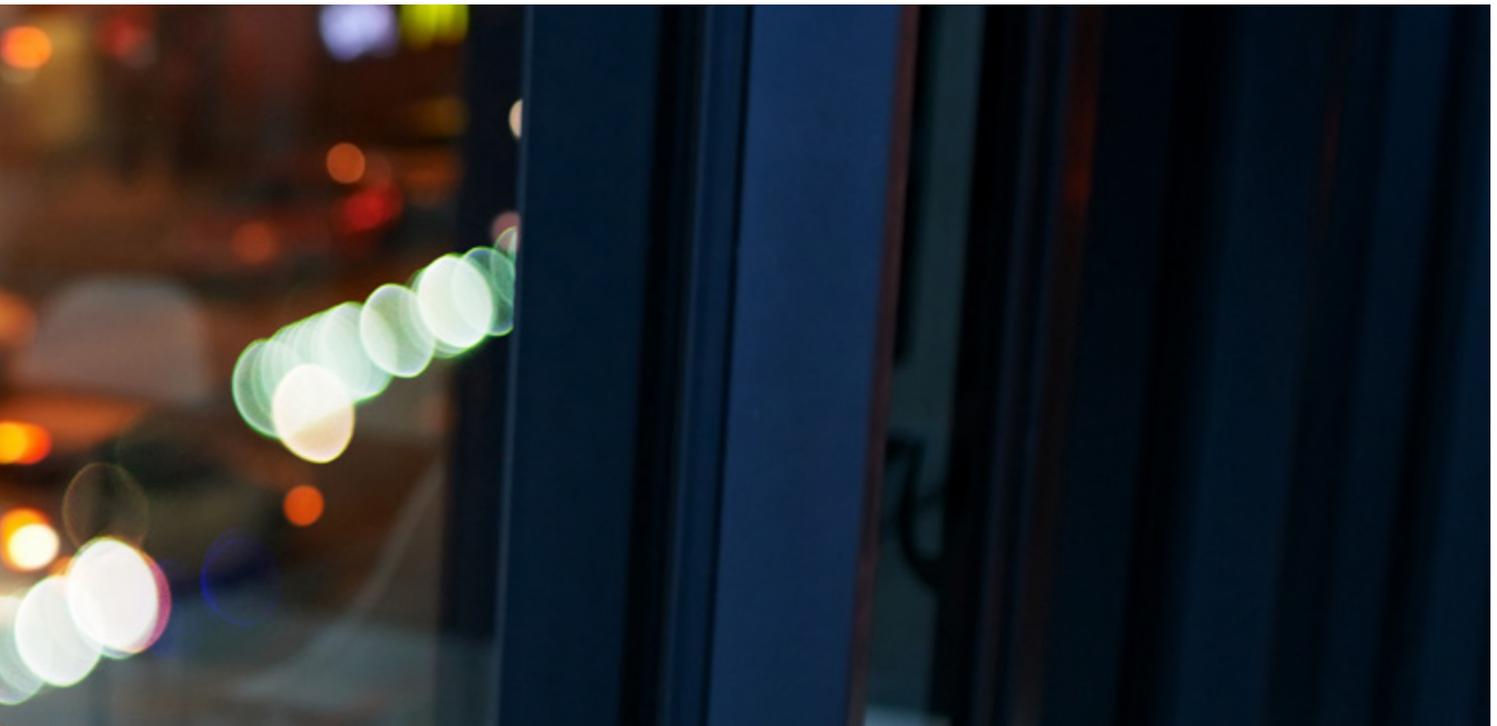
The centralized product catalog works in tandem with external systems during order fulfillment to deliver:

- Quote calculation
- Order capture
- Order validation
- Order tracking and management
- Billing and rating activation
- Shipping
- Network provisioning and activation

The centralized product catalog contains the building blocks for product definition and order management. These determine the way in which the different steps in the order fulfillment process are configured and executed.

Order management orchestration has different roles. At customer level, it manages the end-to-end lifecycle of every customer product request, from order capture and delivery through to eventual withdrawal. This includes:

- Order establishment - step-by-step request, data collection and validation
- Order publication
- Order orchestration and lifecycle management



Customer order management serves all customer channels, including retail, self-service and dealers.

With the catalog-driven approach, orders can be initiated over any channel, always remaining visible across other channels as required.

A customer order does not only involve new products. It is also used to manage changes to existing product choices. These may include requests to suspend, resume or change ownership, to amend, add, change or discontinue.

Another key function of the end-to-end order management is to provide service orchestration. This launches and tracks service tasks and combines workflows for manual interventions and automated task execution. Areas covered include:

- Appointment scheduling for intervention by technicians
- Billing provisioning for onetime fees, subscriptions, rate-plan charges, etc.
- Deployment orders, specifying access technologies, line capacity, etc.
- Provisioning and service activations including add voice mail; delete MMS; add call forward; etc

## Minimizing Order Fallout

The centralized product catalog also helps minimize order fallout by synchronizing all external systems. It provides a streamlined ordering process, ensuring that orders are coherent during the complete order fulfillment process.

During design, the catalog also manages Product Lifecycle Management (PLM) processes. All information relating to design, validation, support, maintenance and decommissioning of products and all associated fulfillment information is managed through the catalog.

This is especially valuable for marketing teams who can create new services directly through the catalog without having to understand the underlying technologies. Further efficiencies are gained through rigorous re-use of basic product and service components.

The centralized product catalog provides:

- A collaboration environment in which business and IT teams can establish product definitions.
- Product Lifecycle Management (PLM) processes to support:
  - Project definition and tracking
  - Configurable and automated workflows to validation tasks between teams
  - Change process management with task lists, impact statements and notification reports.

# Product, Service and Resource Catalog

A centralized product catalog ensures coherence between which products are sold and which services are activated. Supporting both business and operational processes, the catalog is key to the overall pursuit of simplification: service fulfillment is automated and pre-configured services can be re-used and re-combined to accelerate new product development and launch.

When telcos adopt a catalog-driven approach, they gain a master catalog from which to design and deploy products. With each product, they can embed the business rules needed for effective sales and articulate the order according to customer-facing representations of services.

The product definition and its decomposition into services will include product delivery, sequencing and service dependencies. The master catalog also covers all aspects of operational support, notably network provisioning, activation and resource inventory management.

In brief, the centralized catalog comprises:



## Commercial product specification

Product definition; business rules covering product compatibility, customer and product compatibility, and service level definitions; product dependencies; effective duration; sales availability; versioning; pricing, including discounting and tariff detail; and contract information.



## Customer-facing service specification

Providing specification and service decomposition; rules for dependencies and orchestration; definition of dialog with external systems including technical operational support systems, billing and rating systems, and shipping.



## Resource-facing service specification

Dependency and orchestration rules for all operational support systems.

**Together, these specifications cover the full commercial, functional, technical, logical and physical characteristics of each product.**

## Calculating the Dynamic Orchestration Plan

The centralized product catalog allows the telco to simplify and automate.

Each order is created during order-capture, and includes the product offering, which represents a marketing view of services.

Each order is broken down into a series of composite customer-facing services associated with actions and conditions.

Each order is enriched using “catalog-driven orchestration”. Every registered order dynamically generates an orchestration plan based on the catalog configuration for the products involved. This high degree of automation delivers a vastly simplified execution process.

Both telco and customers benefit. The telco gains the agility needed to manage and maintain complex offerings. These offers are built by using combinations of existing product components and as the new offer is developed, so the associated business processes are tuned for speed and consistency in delivery.

## Product Catalog and OM

- Easily manage and maintain complex offerings built on a limited number of basic products
- For the quick re-use of basic products
- The complete data model for sales, service and network products

## Generation of a Dynamic Orchestration Plan

- Decomposition of basic products into CFS/RFS
- Associated actions: shipping, provisioning, etc.
- Sequencing



# Use Case

## value-added services

The telco product development team see an opportunity to sell a “hotel supervision bundle” as a value-added service to hospitality providers. The bundle provides a fiber link from the DSP network to the hotel, together with alarm sensors for installation and security services for on-demand activation.

The product team begin by creating the new “hotel supervision bundle” in the centralized product catalog. The bundle is built up using existing product modules, say, fiber-line, supervision services and alarm sensors.

Each basic product, in turn, can be broken down into one or more Customer-facing-Services” (CFS) and these are then used by the orchestrator to automate the service fulfillment process.

Each CFS can in turn be broken down into constituent sub-CFS elements and Resource-Facing Services (RFS). Each CFS action will trigger a corresponding RFS operation.

So, in the case of the “hotel supervision bundle”, a hospitality provider can propose high-speed communications and specific security services to their guests.

As soon as the hospitality provider confirms selection, the product components generate the orchestration plan and initiate the provisioning and acquisition sequence for the installation of lines and sensors and activation of communication services.

Notification of DSP Sales compensation is issued on completion. The product order itself can easily be changed either during configuration or whilst in use, according to customer preference.

When a guest requests a specific security service from the hospitality provider, the product components generate the appropriate orchestration plan for supervision activation on demand.

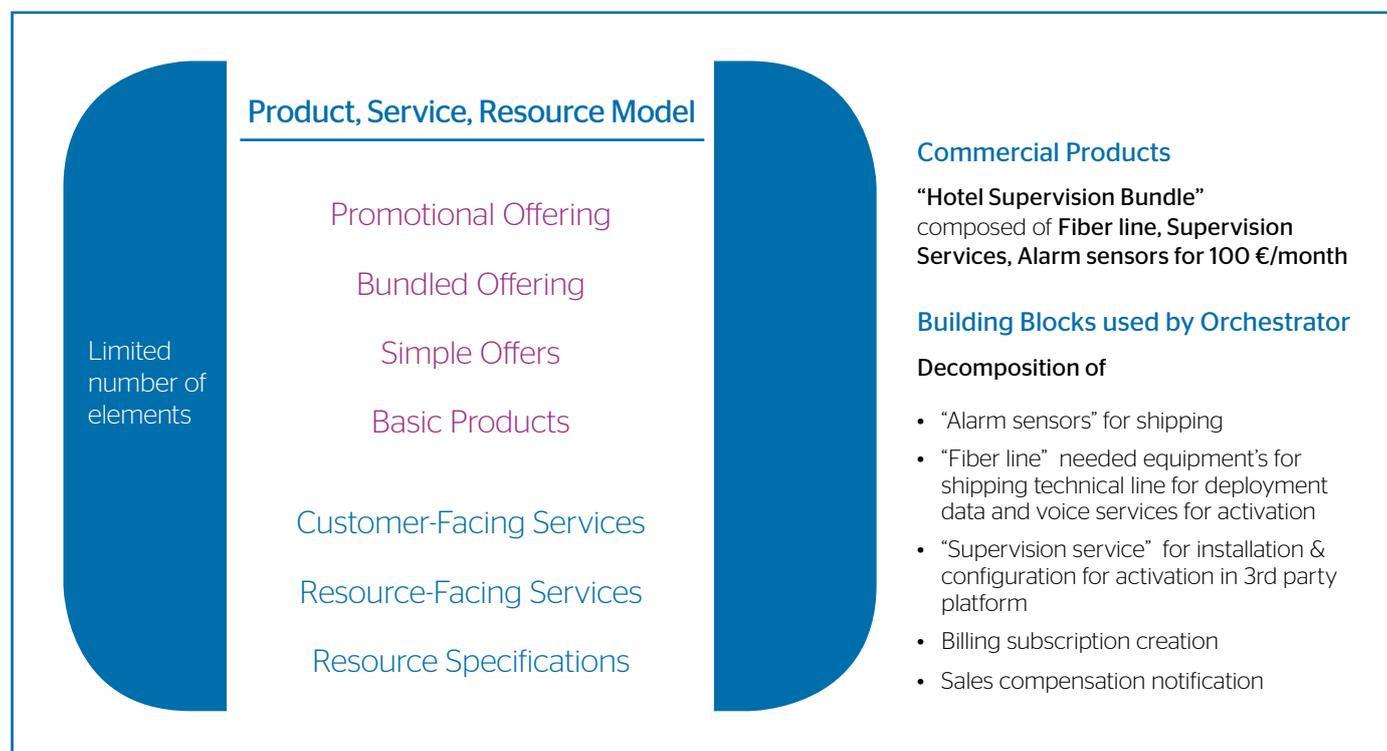


Figure 1: Example of a Product Catalog Model

# Atos Methodology for catalog-driven Orchestration

Atos has a practical and robust approach to supporting telcos interested in adopting Catalog-driven Orchestration. Our emphasis, as always, is on the speed and quality of delivery in this transformational business choice.

Once in place, the catalog-driven order management platform delivers benefit at multiple levels. It supports complex order orchestration; it simplifies order decomposition; shows all dependencies; and helps optimize staffed workflow while introducing widespread automation.

The Atos methodology for catalog-driven orchestration is built on TM-Forum recommendations. These specify:

- How to transform a non-centralized product view into a centralized definition enabling product re-use
- How to redefine, rethink and simplify sales and order management processes through automated orchestration
- How to manage and supervise the business processes associated with new product definition, delivery and ongoing management.

Atos telco clients benefit from orchestration process templates defined using Business Process Modelling Notation (BPMN). Templates are readily adapted to meet the profiles and specific requirements of the individual telco.

Atos has paid particular attention to analytics and performance metrics. This is to ensure that telcos can evaluate performance gained by adopting catalog-driven orchestration and a centralized product catalog. Analytics are keenly focused on:

- Gains in time-to-market for new products, services and bundles
- Monitoring the end-to-end order process
- Making each customer order and profile clear, accurate and visible
- Streamlining existing business processes
- Delivering consistent customer experience across all channels
- Introducing and supporting new channels and revenue streams

In parallel, the Atos business metrics focus on:

- Revenue growth and cost reduction
- Operational efficiency gained through automation
- Customer experience

The GB988 TM Forum Metrics Definitions [2] provide a good baseline set of business KPIs.

When developing catalog-driven orchestration and centralized product catalogs, Atos works with its customers to transition rapidly between ideation, proof-of-concept, and industrial-scale adoption. Templates and use-cases feature prominently, allowing us to rapidly develop realistic working models and test them with imported real-world data.

Adoption scenarios, modelling and implementation are carefully phased to minimize cost and risk. Key phases will typically include:

- Define the initial catalog model and orchestration plan
- On-board mobile products and their associated management processes
- On-board fixed-line products
- Define and manage convergence for end-to-end product bundles

With this phased approach, a telco can move through the each step of the program in around eight months, including all transitioning, testing and training activities.

As an experienced System Integrator with deep knowledge of telco business and operational systems, Atos will naturally take care of the wider integration and platform issues. In a recent engagement, for example, the catalog required integration of data and functions from over 25 legacy applications.

The associated IT infrastructure projects now frequently demand extensive cloud transitioning, and here too Atos is well-positioned with both consultancy and, if required, hosting and management services.

At both the Atos Business Technology and Innovation Centers and at our specialist telecommunications solution labs, we are fully resourced to support telcos in both their initial business analysis of catalog-driven orchestration and centralized product catalogs; in the ongoing development of use-cases and proofs-of-concept; and in industrial-scale adoption across the telecommunications enterprise.

<sup>[1]</sup> GB921 Business Process Framework (eTOM) R17.0.1

<sup>[2]</sup> GB988 TM Forum Metrics Definitions R16.5.1

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# About Atos

Atos is a global leader in digital transformation with approximately 100,000 employees in 73 countries and annual revenue of around € 12 billion. European number one in Big Data, Cybersecurity, High Performance Computing and Digital Workplace, the Group provides Cloud services, Infrastructure & Data Management, Business & Platform solutions, as well as transactional services through Worldline, the European leader in the payment industry. With its cutting-edge technologies, digital expertise and industry knowledge, Atos supports the digital transformation of its clients across various business sectors: Defense, Financial Services, Health, Manufacturing, Media, Energy & Utilities, Public sector, Retail, Telecommunications and Transportation. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and operates under the brands Atos, Atos Consulting, Atos Worldgrid, Bull, Canopy, Unify and Worldline. Atos SE (Societas Europaea) is listed on the CAC40 Paris stock index.

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