Digital Transformation Platforms: Competitive Landscape Assessment

John Byrne

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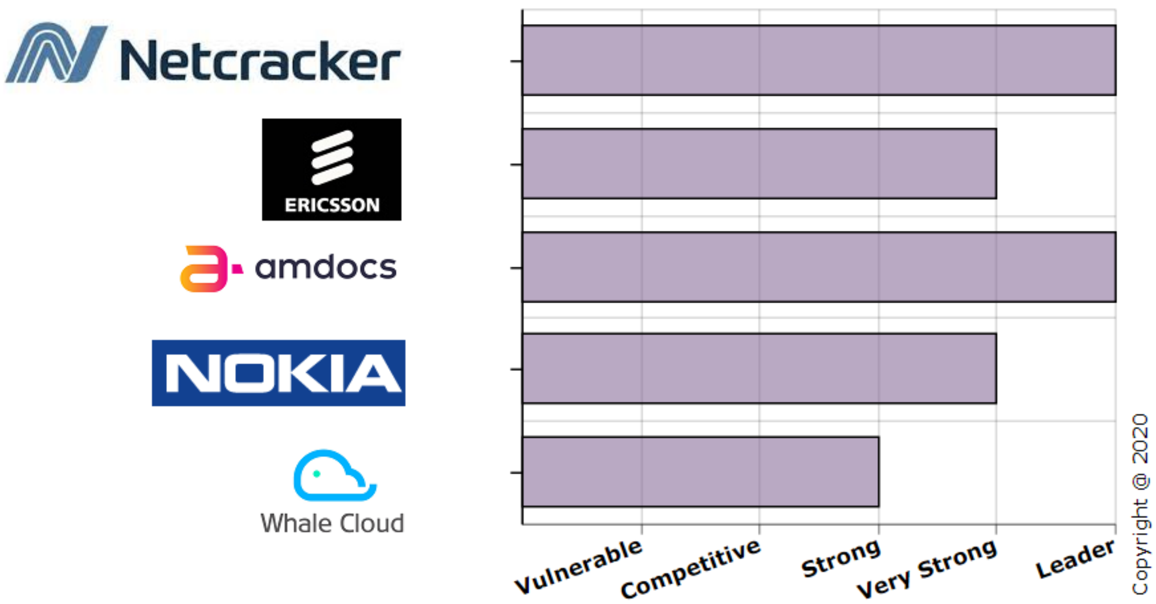
COMPETITIVE LANDSCAPE ASSESSMENT - DIGITAL TRANSFORMATION PLATFORMS

REPORT SUMMARY

Digital transformation platforms have sharpened their focus on embracing cloud-native technologies and public cloud options in order to enable operators to monetize 5G capabilities.

PRODUCT CLASS SCORECARD



MARKET OVERVIEW

Product Class	**Digital Transformation Platforms**
Market Definition	The digital transformation market comprises technology and services that can help the operator substantially improve agility, efficiency, and customer experience. Often digital transformation engagements will also help telcos enter new markets. Because digital transformation affects the entire organization, primary digital transformation partners are usually large organizations with not only broad IT portfolios, but also extensive professional services capabilities including systems integration, consulting, and training. While no vendor offers a 'digital transformation platform' portfolio per se, all of the vendors in this assessment offer a combination of operational and customer-facing software platforms, and related services, to address the multitude of challenges CSPs face in embracing the sometimes amorphous concept of digital transformation. The key digital transformation suppliers have developed their portfolios to accommodate telcos' emerging operational and business models, across both legacy and modern technology platforms. Increasingly these platforms must support a combination of on-prem, private cloud, and public cloud environments; support for the latter is quickly becoming a primary component in digital transformation, requiring operators to adapt not just to virtualized operating environments, but increasingly to cloud-native, containerized operations and management. The products in this class deliver the essential components of digital transformation including 5G microservices, omni-channel customer management, integrated revenue management, partner enablement, digital service delivery, infrastructure management, and advanced analytics integration. Through digital transformation, operators achieve the agility required to deliver digital services according to customer demands in a real-time, interactive manner and compete against the digital offerings of Webscale, over-the-top (OTT), and other digital service provider competitors. TM Forum standards initiatives, such as the Digital Maturity Model (DMM), play an influential role in providing the tools operators use to assess their digital maturity and plan their digital transformation organization-wide. The digital transformation vendor landscape consists primarily of top-tier IT suppliers whose product portfolios are capable of meeting the end-to-end transformation demands of operators. While there are a number of software vendors offering some element of digital transformation, the vendor products included in this assessment represent the most comprehensive vendors in the current CSP-focused digital transformation market landscape.
Rated Competitors	• Amdocs • Ericsson • Netcracker • Nokia • Whale Cloud

Additional Competitors	• Oracle • Huawei
Changes Since Last Update	• **September 2020:** GlobalData expanded digital transformation platform metrics to reflect the most relevant buying ratings across internal and customer-facing portfolio elements. • **July 2020:** Amdocs announced it would acquire Openet, enhancing its cloud-native 5G charging and policy capabilities. • **July 2020:** Whale Cloud signed TM Forum's "Open API and Open Digital Architecture Manifesto." CTO Zhengchang Xiao said that it would enable Whale Cloud's customers to adopt a "try and buy, fast and cheap" approach. • **June 2020:** Netcracker introduced Netcracker 2020, the latest version of its telco IT portfolio. It comprises a streamlined OSS/BSS suite built around security, ecosystem management, 5G monetization, and CI/CD. • **June 2020:** Nokia launched its Digital Operation Center to encourage 5G monetization, including from network slicing and network-as-a-service offerings. • **March 2020:** Nokia added 5G and edge computing capabilities to its WING IoT managed services ecosystem, enhancing WING's strategy of providing global IoT connectivity and services to its carrier partners. • **March 2020:** Nokia launched AVA 5G Cognitive Operations, an AI-empowered services suite that assists operators with network slice design and operations. Hosted on Microsoft Azure, it is offered as a service. • **March 2020:** Amdocs introduced 5G Slice Manager, designed to enable CSPs to adopt a multi-phased approach to network slicing. • **March 2020:** Whale Cloud announced its ZSmart 5G Master solution, an end-to-end portfolio comprising network slicing orchestration, a 5G marketplace for B2C, B2B and B2B2x customers; and AI-driven network assurance. • **February 2020:** Amdocs introduced 5G Slice Manager, designed to enable CSPs to adopt a multi-phased approach to network slicing. • **February 2020:** Amdocs launched CES20, its cloud-native software platform comprising DigitalONE (omnichannel), CatalogONE (service packaging), and RevenueONE (monetization), supported by full service lifecycle management. • **January 2020:** Ericsson launched the Ericsson Operations Engine, a new services platform using artificial intelligence to generate predictive insights and address business outcomes.

MARKET ASSESSMENT

Operators are focused on implementing DevOps-enabled agile software development, automation, and advanced analytics to accelerate their digital transformation plans. This enables end-to-end orchestration and control over hybrid physical and virtual network environments, including cloud, SDN/NFV, and microservices capabilities. The digital transformation trend augments the overall operator push to achieve agility in both their business processes and network operations.

In addition, major digital transformation solution providers must deliver the end-to-end digital enablement portfolios and multi-cloud platform capabilities required to power organization-wide transformation. Top-tier vendors have responded with pre-integration and bundling of full-stack OSS and BSS products with orchestration and management platforms to ease and streamline the complex transformation process. Moreover, network virtualization and cloudification pose digital transformation challenges for operators, including emerging service layer complexity, analytics/artificial intelligence integration, and automation of traditional OSS/BSS processes without disruption. This entails a learning ramp and additional training with suppliers now offering NFV-specific assurance tools to ensure the service quality of NFV-enabled capabilities such as NFV MANO and VNF service chains.

Furthermore, operators have increased their demand for customer journey management to better understand the entire customer experience. To address this requirement, vendors are incorporating digital interactivity tools, contextual decisioning insights, and channel personalization profiles into their digital transformation solutions to deliver a consistent, accurate service experience to customers across the entire range of customer touchpoints including third-party sites, online, retail stores, social media, email, and mobile devices.

Accordingly, top-tier OSS/BSS suppliers with broad portfolios have flourished in driving operator adoption of digital transformation solutions. In addition to cloud management and advanced analytics, major suppliers have successfully developed digital customer enablement, digital business enablement, digital operations enablement, and cloud infrastructure solutions to meet the specific network-wide and business model demands of operators.

Overall the largest digital transformation market opportunities are related to accelerating operator strategies. Through digital transformation, operators are ramping up their business-to-business (B2B), business-to-consumer (B2C), and business-to-business-to-customer (B2B2X) commerce models, requiring the scaling of massive volumes of online transactions and the build-out of digital storefronts. Digital transformation platforms allow operators to gain new digital business revenues by offering real-time partner/customer management and user-selected channel interactions. Many operators have struggled to implement digital capabilities; as a result, adopting pre-integrated, full-stack digital transformation platforms stand out as essential in jump starting the first wave of operator digital journeys.

MARKET DRIVERS

- **Digital Services Build-out:** Operators are looking to introduce new digital services for consumers and enterprises, particularly to help monetize investments in 5G infrastructure. This requires using digital transformation platforms that deliver consistent customer experiences, including holistic customer journey management and personalized channel profiles across all screens to meet the digital interactive and personalization demands of customers.
- **Ensuring Omni-channel Experience:** Growing operator commitment to deliver real-time omni-channel experiences, which include self-care portals, smartbot customer support, and personalized service plans, centers on competitive survival. The digital management of the customer omni-channel experience counters enables new services and can provide a level of service that enables operators to compete more effectively against Webscale digital brands like Amazon, Google, and Facebook.

- **Organizational Collaboration:** Operator decision makers are enabling their organizations to embrace digital transformation. Executive teams are expanding their collaboration and increasing investment toward inter-organizational platforms, such as low-code platforms (which telcos have been using in one early form or another for a while) or end-to-end dashboards in order to reduce cultural resistance and promote organization-wide support for digital transformation.
- **DevOps, Containers, and Cloud-Native Apps Are Key:** Digital transformation requires management of complex SDN/NFV implementations, making the use of cloud-native applications running in container-based execution environments as critical to scaling 5G microservices. Operators are prioritizing their DevOps collaboration frameworks to accelerate microservices capabilities in 5G-IoT environments.
- **Intent-based Networking Rising:** Key to operator digital transformation goals is using intent-based networking to enable the rapid provisioning of services, executing automated fixes to network breakdowns, and zero tolerance for breaks anywhere that degrade quality of service and experience. By using artificial intelligence (AI) and cloud-native platforms, operators are implementing intent-based capabilities like predictive analytics and open APIs to accurately read user intentions and identify and prevent security threats, proactively optimize performance, and predict faults.

BUYING CRITERIA

- **Portfolio Breadth:** In order to assess true portfolio richness, GlobalData assesses each vendor's focus across three main areas: OSS/orchestration, BSS, and customer-facing channels. For each area, we analyzed the major functional areas of focus. In addition, we consider the vendor's level and degree of support for various public cloud platforms, notably Amazon Web Services, Microsoft Azure, Google Cloud Platform, and Alibaba Cloud. Other factors considered include prime systems integrator capabilities; support for operations outsourcing; testing and certification outsourcing services; and degree of support for passthrough/B2B2X services offered to consumers and/or enterprises.
- **Capabilities and Expertise:** Within this area, GlobalData examines the vendor's total workforce devoted to digital transformation, including for various functions such as consulting and systems integration, user experience/design, and training. We also assess vendor support for relevant certifications, including those related to customer care, network, and retail. Additional criteria include analysis of the most relevant digital transformation partnerships; digital transformation-related R&D and intellectual property assets; and any cutting-edge technologies such as blockchain being put to use.
- **Tools and Methodologies:** GlobalData assesses vendors' utilization of AI and analytical tools and methodologies to enhance their digital transformation capabilities. We also consider any tools being offered to assist CSPs in managing third-party ecosystems in support of digital transformation goals. Finally, we assess the degree to which agile development and other relevant tools or methodologies were being used to provide unique value to customers.
- **Delivery and Commercial Flexibility:** Our analysis focuses on flexibility of business models being enabled by vendors, including support for "as a Service" or "pay as you go" delivery models; support for risk/reward and outcome-based delivery models; and joint innovation models in cooperating with CSPs. We also analyze flexibility in terms of being able to offer modular support in order to cater to customers not ready or willing to embrace the vendors' full stack of digital transformation software platforms or functionalities.
- **Stability and Momentum:** Vendor stability was assessed by analyzing recent financial performance, including revenue and margin performance, debt profile, and other factors indicating corporate stability. Momentum was analyzed by referencing total digital transformation customer base; recent momentum with "showcase" customers; and new badges as well as expanded customer relationships in the past year.

VENDOR RECOMMENDATIONS

- **Meet E2E Orchestration Demands:** All digital transformation platform suppliers need to develop and market automated OSS/BSS processes that support E2E orchestration of hybrid physical/virtual services and enable 5G network slicing.
- **Flexible Licensing:** Digital transformation vendors need to show their portfolio development enables the software licensing models required to drive digital service deployment innovations like flexible pricing of virtual networking implementations using VNF instance pay-per-use metrics, and blockchain applications.
- **Target Organizational Transformation:** All digital transformation suppliers must develop and deliver platforms that meet operator demands for business outcomes. This focus should also extend to outcome-based engagements, which require the vendor to have strong discipline and delivery methodologies.

BUYER RECOMMENDATIONS

- **Evaluate Full Stack Options:** Operators need to explore the implementation benefits of full-stack digital transformation solutions, including integration of digital platforms with advanced analytics, converged revenue management, and service orchestration assets to improve time-to-market launch of new digital services and reduce integration costs.
- **Broad Portfolio Benefits:** Operators pursuing digital transformation strategies must consider the breadth and comprehensiveness of vendor digital transformation portfolio offerings. Of particular importance are their orchestration, analytics, and OSS/BSS products, i.e., in accelerating and easing the integration and scaling of the 5G-IoT, microservices, and multi-cloud aspects of digital commerce models.
- **Keep an Eye on Digital Business Enablement:** Operators need to validate the digital transformation platform's capacity to deliver digital business enablement benefits such as correlating and managing SDN-based overlay services and IP networks that blend the customer management, partner management, catalog, and revenue management components required to streamline digital business processes.

RATED COMPETITORS

Product Name	**Amdocs DigitalOne / RevenueONE / CatalogONE / OSS**
Buying Criteria Rating	• Portfolio Breadth: Leader • Capabilities & Expertise: Leader • Tools & Methodologies: Leader • Delivery & Commercial Flexibility: Leader • Stability & Momentum: Leader
Product Scores	**Leader**

Strengths	• Comprehensive CES20 portfolio addresses all major customer engagement, business enablement, service enablement, and monetization requirements • Years of focus on cloud-native enablement and microservices development pervades entire digital transformation focus • Centralized database and software development model • Programmatic approach to project scoping guides complex, multi-year digital transformation projects • Israeli base provides strong basis for innovation and ecosystem development • Openet acquisition enhances real-time policy and charging capabilities and expands addressable market inside key accounts
Limitations	• Amdocs continues to largely cater to large operators, particularly AT&T and other U.S. operators. Smaller operators may be more interested in point solutions from smaller vendors. • Some operators will prefer pure software solutions instead of the managed service approach offered by Amdocs.
Product Name	**Ericsson Digital Services/Digital Monetization Platform**
Buying Criteria Rating	• Portfolio Breadth: Strong • Capabilities & Expertise: Very Strong • Tools & Methodologies: Very Strong • Delivery & Commercial Flexibility: Very Strong • Stability & Momentum: Very Strong
Product Scores	**Very Strong**
Strengths	• Monetization and digital experience platforms create comprehensive focus • Significant investment in BSS and OSS headcount to continue to flesh out digital transformation focus • Expanding focus on analytics and AI to enhance customer intelligence and user experience • Strong professional services help operators meet digital transformation objectives
Limitations	• Laggard in supporting increasingly popular public cloud deployment options for digital transformation-related platforms • Limited focus on helping CSPs develop third-party ecosystem to build new revenue generation opportunities • Still playing catch-up following revenue management platform missteps

Product Name	**Netcracker 2020**
Buying Criteria Rating	• Portfolio Breadth: Very Strong • Capabilities & Expertise: Leader • Tools & Methodologies: Leader • Delivery & Commercial Flexibility: Very Strong • Stability & Momentum: Leader
Product Scores	**Leader**
Strengths	• Netcracker 2020 portfolio targets multiple pain points for operators embracing cloud-native digital transformation initiatives • Greatly enhanced focus for multi-cloud adoption and leading position on fostering low code platform development. • Nimble focus on "out-of-the-box" platform adoption in addition to full-stack capabilities • Enhanced focus on professional services to enhance platform value • Strong focus on "minimum viable product" (MVP) approach to help CSPs realize business benefits early and often • Ancillary assets such as Business Cloud and Digital Marketplace foster third-party monetization ecosystem
Limitations	• Having established partnerships with AWS, Microsoft, and Google, should take stronger industry leadership role in helping CSPs choose the "right cloud" for various workflows • Modularized approach may not resonate with customers seeking "out-of-the-box" solutions
Product Name	**Nokia Software Suite**
Buying Criteria Rating	• Portfolio Breadth: Very Strong • Capabilities & Expertise: Very Strong • Tools & Methodologies: Very Strong • Delivery & Commercial Flexibility: Very Strong • Stability & Momentum: Strong
Product Scores	**Very Strong**

Strengths	• Strong focus on important software assets across BSS, customer care, device management and business/customer analytics • Digital Operations Center smartly packages multi-vendor, multi-domain, and multi-technology CSP operations to bridge existing service offerings with emerging 5G imperatives • Comprehensive roster of supporting systems integrators • Target Operating Model (TOM) assessment program identifies and quantifies digital transformation benefits for CSPs • Multinational IoT ecosystem WING is one of the most mature multi-company, B2B2X ecosystems in the telco market
Limitations	• Reliance on partnerships for certain digital transformation capabilities potentially limits Nokia's ability to claim a comprehensive digital transformation portfolio • Digital transformation assets reside in multiple siloes, hampering ability to convey single, unified digital transformation message
Product Name	**Whale Cloud Digital Business Enablement Suite**
Buying Criteria Rating	• Portfolio Breadth: Strong • Capabilities & Expertise: Strong • Tools & Methodologies: Very Strong • Delivery & Commercial Flexibility: Strong • Stability & Momentum: Strong
Product Scores	**Strong**
Strengths	• Pre-integrated architecture enables flexible and modular deployment of platform • Digital Telco Maturity Map and other digital transformation toolkits help assess CSP digital transformation goals and priorities • Whale Cloud devotes significant focus to enabling CSPs to cater to specific vertical opportunities, including e-commerce, automotive, and smart city • Innovation in offerings such as blockchain provides potential for differentiation • Collaboration with Alibaba has resulted in several CSP deployments in Asia and Europe
Limitations	• Many Western operators will be reluctant to engage with Whale Cloud or Alibaba Cloud due to geopolitical concerns