



White Paper

The Digital Maturity Model & Metrics Accelerating Digital Transformation

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Introduction: Digital Transformation Progress for CSPs

The telecom industry knows it must change in order to meet digital customers' demand for new mobile apps and services, launch new services more quickly, co-develop services with partners, improve user experience and keep pace with Internet competition. Although digital transformation has become a buzzword, it's serious business and involves radically improving how communications service providers (CSPs) interact with customers in a digital world.

This can involve modernizing the portfolio of services offered, transforming customer experience to effectively engage customers using digital channels or overhauling legacy internal processes, such as billing, customer relationship management (CRM) or service assurance, to deliver a real-time service experience.

Aging and complex legacy IT applications are among the biggest obstacles for service providers. Such systems are typically built up over many years, dedicated to specific services and networks, and comprise a web of different IT stacks and competing technologies.

Vodafone is moving forward with its Ocean digital transformation, migrating to a virtualized network and deploying a truly cloud native operations support system (OSS) and business support system (BSS) layer. The goal is that systems will be built from the ground up to use cloud services.

Another European telecommunications company, for example, is carrying out a transformation program over the course of seven years. It is rolling out 20 discrete application projects, each with a detailed business case, and all within a common, clear architectural framework to reduce complexity. This will all be done while implementing a steady flow of new digital products and services.

The vast majority of CSPs – fixed and mobile, regional and global – are embarking on digital transformation journeys, and while the starting points may differ, the goals are the same: become more agile, be simpler to engage with, grow revenues and reduce costs.

A big challenge is that the industry as a whole has some complex issues to solve quickly and it needs to pull together, adopt common approaches for interoperability and share success stories and best practices; however, there is no rulebook or industry framework that takes into account the complexity of a service provider's business.

The risk of fragmentation can be seen in the approach to managing and orchestrating virtualized networks and services where CSPs are spending valuable time on different approaches, which can slow progress, e.g., AT&T's eComp, OpenO with China Telecom and ESTI Open Source MANO with Telefonica and others.

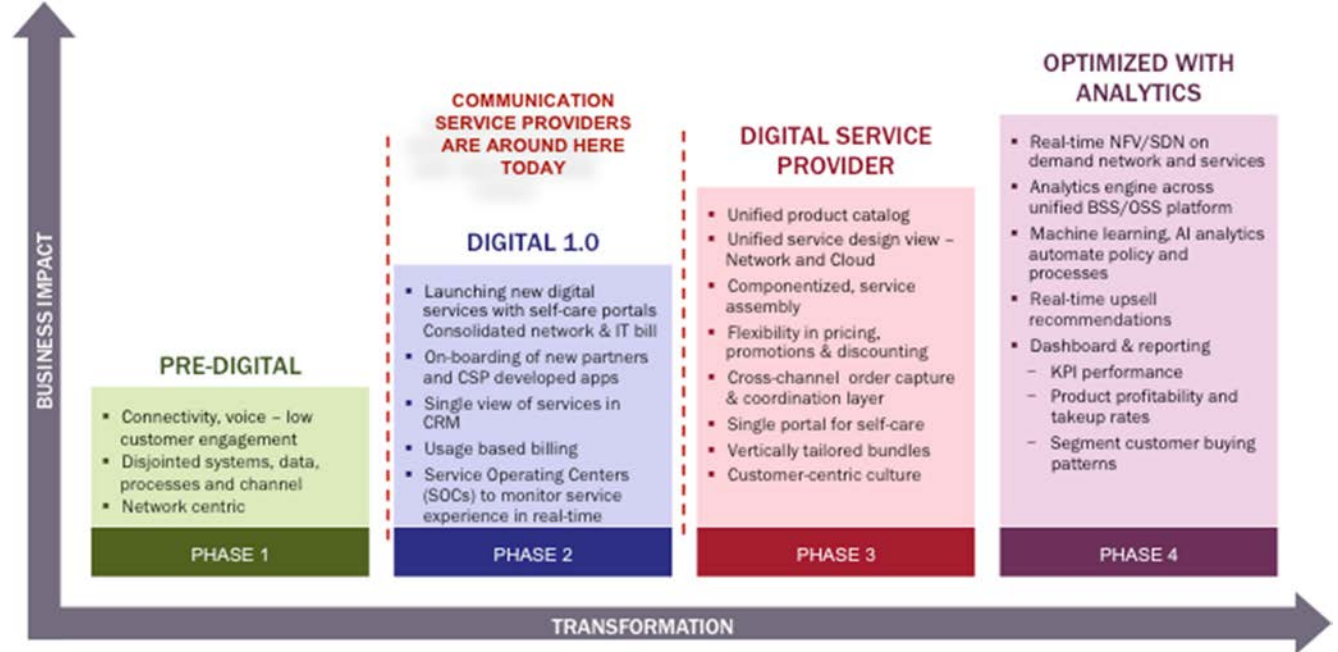
This paper examines the key pillars of digital transformation, the value and impact of transforming each, and the benefits of a multi-dimensional industry model to help CSPs to move faster with digital maturity and better align and measure digital strategy against key business objectives.

Digital Transformation Defined

Digital transformation defines how CSPs use technology and processes to improve the way they do business with today's digital consumer and business customer.

- The majority of customer interactions occur online, mediated by software
- Customers interact using the channels that they prefer
- Customers have real-time information about the status of their services and account
- Customers have real-time control of the characteristics of their service

Figure 1: CSPs Are on a Digital Transformation Journey



Success Factors in Digital Transformation

"The Five Ps to Digital Transformation"

In this section we identify five key pillars that must be effectively managed in sync in order to drive holistic service provider digital transformation: Digital Strategy; IT operations; Platforms; Digital products and services; and Digital Experience.

Figure 2: The Key Pillars of CSP Digital Transformation



Source: Huawei

1. Digital Strategy - Plan

Digital transformation on this scale is business and culture transformation that must be firmly grounded in strategy, supported by executive vision and guidance, as well as key business objectives and outcomes.

Getting digital strategy right is key to getting "buy-in" from employees and convincing the business of the need to change processes, reskill staff, etc. CSPs that are in the process of digital transformation are the first to admit that transitioning the people and culture is even more difficult than transforming the technology and IT.

A CIO of a global Tier 1 operator who is leading digital transformation of IT systems emphasizes the need for objective digital benchmarks to satisfy the board and management team on digital transformation progress and return on investment.

Figure 3: Digital Strategy

KEY BUSINESS OBJECTIVES	BENEFITS
Experience must be seamless across call centers, stores, online, mobile, social and other emerging channels.	The customer experience is consistent across all digital (and non-digital) channels and platforms.
Operations must be seamless in terms of selling to, provisioning, supporting and billing customers.	Processes are digital end to end, and there is a unified view of the customer and services across operations.
Platforms must be seamless to support mobile, social, cloud, big data and Internet of Things (IoT).	Platforms are integrated, real-time automated and analytics-driven.

Source: Heavy Reading

2. Integrated Business-Technology Operations - Processes

Efficiency, agility and simplicity are the key transformation drivers. This requires moving away from technology silos to a more integrated business IT approach with common service catalogs and components, integrated order and revenue management and omni-channel customer care.

OSS and BSS are typically built up over many years, dedicated to specific services and networks, and comprise a landscape of sometimes incompatible stacks of technologies. Decisions about what to retain and what to upgrade are complicated when IT organizations begin to map all the interdependencies among functions and systems. We see service providers moving to cloud BSS and OSS to support digital services as the business demands are so great that they cannot spend the time and money to transform or untangle the legacy IT estate.

CSPs are also moving to a DevOps culture in terms of how services are designed and developed in smaller teams with a focus on continuous development, integration and testing, and reusable software components that can be assembled into other services. This will impact future IT operations, as well as the ongoing modernization of networks into software-based cloud native virtual network functions and platforms.

Figure 4: Digital Operations

KEY BUSINESS OBJECTIVES	BENEFITS
A unified service catalog and automated provisioning and service assurance.	Faster time to market, reduced order-to-cash process, real-time view of services and bills.
A unified view of customers and their services and ability to change and bill for services in real time.	Analyze customer journey from order to fulfillment; customers control services in real time online.

Source: Heavy Reading

3. Architecture & Systems - Platforms

Platforms are the new service provider infrastructure, whether it's a 5G or fiber network or a cloud platform for big data analytics and storage in a data center. Service providers need platforms that are software-controlled, virtualized, cloud native for scalability and performance, and open – either open source or open application programming interfaces (APIs). Agility requires being able to easily plug in new software components or work with app developers and partners on new IoT entertainment, mobile banking and advertising services. Security protection and privacy of customer data is, of course, an over-riding requirement for any new platforms.

With network function virtualization (NFV), network control functions are becoming software-based, and software-defined networking (SDN) is making the network more programmable and flexible in terms of traffic management. Managing and orchestrating networks (MANO) and services or customer-facing orchestration is a critical area for service providers. A way to benchmark and monitor progress and share insights with other service providers would be valuable.

Figure 5: Digital Platforms

KEY BUSINESS OBJECTIVES	BENEFITS
Open platforms that support fast service launches and innovation, e.g., new digital services co-developed with partners.	Speed up service design to commercial launch process. Low-risk, fast innovation makes it easy to try new services and grow with partners.
Reduce operating costs (infrastructure and operations costs) with standard servers, automation and cloud-based platforms.	Scalable infrastructure for digital business models where cloud-based platforms on a usage model support growth in revenue and services.

Source: Heavy Reading

4. Services & Offerings - Products

Service providers are keen to develop new services (e.g., IoT and cloud) based on a more open partner ecosystem and data monetization. For consumers, this includes digital entertainment services, such as video, music, gaming and application services, mobile e-commerce, digital advertising and advanced communications services.

In terms of business customers, this would ensure that provisioning, monitoring, billing and digital self-care systems are in real time, scalable and capable of provisioning enterprise mobility, cloud computing, IoT, big data analytics and security services. For example, service providers are now launching SD-WAN services where enterprise networks can be configured centrally and scaled more easily to monitor and support branch offices with virtual customer premises equipment.

Analytics are at the forefront of digital service provider transformation. Service providers are sitting on a mountain of network, applications, location and customer usage data that can help build rich customer behavior profiles, e.g., better understand their most valuable customers, what are they using their smartphones for (Spotify, WhatsApp, Netflix, etc.), where and when they use their smartphones, etc. These insights are not just useful for marketing and commercial teams, but also can be used to pinpoint future network investments that will improve performance and boost customer satisfaction.

Figure 6: Digital Services

KEY BUSINESS OBJECTIVES	BENEFITS
Develop new sources of revenue from new digital services that are personalized and engaging, either CSP or partner-developed.	Personalized services with digital customer experience will drive engagement, growth and also interest from partners.
Measure margin on services and use analytics to better understand customer segments and buying behavior and increase take-up of services.	New revenue growth through big data analytics to better understand and monetize customer base, profitability of services and preferences.

Source: Heavy Reading

5. Customer Experience & Engagement - Passion

Customer experience and engagement is the foundation of digital service provider success going forward, but also the hardest to measure and deliver because it touches every single point where the customer interacts with a CSP: their device, a mobile app, a voice call, a retail store, the call center, the service level agreement, the bill. There is an urgent need to support a consistent experience across all channels or omni-channel experience.

The trend toward mobile Internet and social media is moving service providers toward "digital first" customer transactions. This requires an integrated strategy to create a personalized, real-time customer experience across all channels, touch points (Web, social, in-store) or omni-channel experience.

Understanding the customer's personal preferences and behaviors is critical, and real-time analytics is playing a key role in allowing service providers to redefine customer engagement in a positive way, e.g., texting customers immediately when they are close to exceeding their data allocation plan.

Figure 7: Digital Experience

KEY BUSINESS OBJECTIVES	BENEFITS
A unified customer experience across all channels and services that customer buys – encourage "digital first."	Increased customer satisfaction, more personalized interactions, cost savings on "digital first" self-care.
Customer experience management (CEM) and use real-time, big data analytics to influence customer behavior and outcomes.	Monitor quality of experience for high-value customers, detect possible churners and take proactive action to "fix" issues before the customer notices the issue.

Source: Heavy Reading

Assessing Digital Transformation Maturity

How to Continuously Monitor & Improve "the Five Ps"

Having the right digital strategy and executing on the strategy is critical to the future success and relevancy of CSPs. It's important that CSPs have a multi-dimensional model to assess digital transformation progress that takes into account the relationships between the digital pillars and tracks outcome-oriented metrics.

A digital maturity model that is tailored to the unique challenges of CSPs in the telcom sector with a standard taxonomy will facilitate competitive comparisons and global best practice. This ability to monitor progress from an external market perspective is needed as CSPs spend a lot of time looking inwardly, running their daily operations, while simultaneously digitally transforming their entire business. The challenge is to move quickly but also ensure success in a highly-competitive market that is open to further digital disruption.

Since digital strategy directly impacts the key business objectives around operations, products, platforms and customer experience, key transformation indicators (KTI) – business readiness, strategy execution and business outcomes – become important in assessing and improving transformation drive.

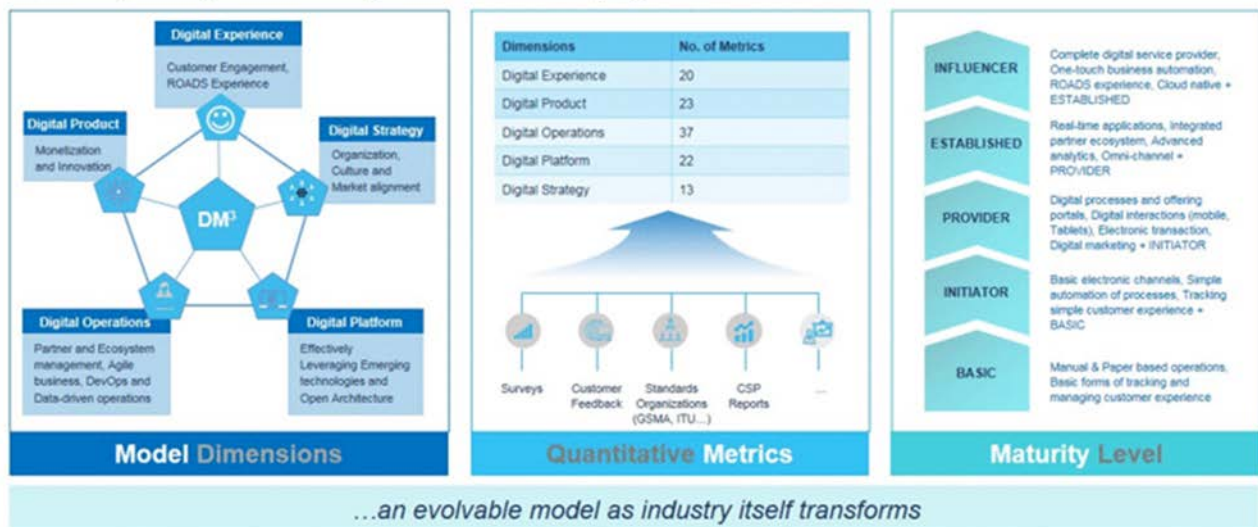
- **Readiness indicators:** Determining organizational design and alignment of processes, management structure and culture.
- **Execution indicators:** Tracking the right operational metrics, not measuring everything, enabling real-time decision making and strategy execution.
- **Outcome indicators:** Linking digital efforts to the impact on sales, cost reduction, customer experience and operations efficiency.

DM³: A new Model for Measuring Digital Maturity

Huawei is collaborating with leading CSPs, standards bodies, vendors and partners, analysts and consulting companies to develop and evolve a digital maturity framework with assessment tools and measures based on the five key pillars of digital transformation. The model and metrics is called DM³ –pronounced *dee-M-cubed* – and is designed to bring common taxonomy and standards around CSP digital transformation.

Figure 8: Huawei Digital Maturity Model & Metrics [DM³]

DM³ includes 5 top dimensions with 5 sub-dimensions. The top 5 dimensions are key pillars for CSPs to effectively manage and mold digital transformation programs and outcomes.



Source: Huawei

Today, CSPs that are embarking on digital transformation journeys are keen to measure success and review digital progress, but may either lack measurement tools, use in-house models or rely on consultant-led models that offer a uni-dimensional plan based on generic industry experience, and can lack the global picture and insight to clarify and reinforce objectives regarding digital transformation.

The advantage of an outside-in and industry-out multi-dimensional model is that CSPs seeking to become digital pioneers can use the model's algorithms, standardized methodology and benchmarking tools to evaluate and systematically improve their digital transformation maturity.

Conclusions & Recommendations

Service providers must continuously measure how effective digital strategy is in achieving key business outcomes across the business pillars. A critical factor for service providers in driving a customer-centric culture will be involving all key groups and departments in using the same data models, metrics and analytics. This data-driven approach will help drive common insight and KTI across technical and commercial teams in key strategic areas of digital products, platforms, operations and customer experience.

Objective industry models and outcome measures are useful to maintain support and funding from senior management to drive digital strategy. Support and cooperation from the business are perhaps even more important than the technology itself and is needed to drive digital strategy execution. Leading CSPs already recognize the contribution of digital transformation to business performance, but are still struggling with an effective way to link transformation to key business objectives and answer questions on how their progress compares to peers in the industry. In order to gain ongoing support and funding at the management level – and also at the employee level – a standardized CSP digital maturity model with success measures across the key pillars can help to track and communicate progress, as well as learn from best practices in other global markets.

Becoming a customer-centric digital service provider means having efficient customer-centric processes, data-driven open platforms and services that delight customers. Service providers need open platforms that are scalable and can support effective end-to-end digital processes, partner ecosystems and virtualized on-demand networks and services; but making the right decisions is also important. CSPs must determine best practices around customer analytics and data mining, especially in light of regulation and privacy concerns. This kind of data will be key to compete against digital competitors and also to move into new revenue growth areas, such as mobile advertising, entertainment, mobile commerce, etc. Open platforms must be flexible enough to support new services, such as IoT or edge computing, and open in terms of APIs. Having a single view of a customer is critical to improve the customer experience and drive engagement and a stronger relationship across digital and non-digital channels.

About Huawei

Huawei is a leading global information and communications technology (ICT) solutions provider. Driven by responsible operations, ongoing innovation and open collaboration, we have established a competitive ICT portfolio of end-to-end solutions in telecom and enterprise networks, devices and cloud computing. Our ICT solutions, products and services are used in more than 170 countries and regions, serving over one-third of the world's population. With more than 170,000 employees, Huawei is committed to enabling the future information society, and building a Better Connected World.