qvantel

DIGITAL EXPRESS
Solution Overview

THE FAST TRACK TO PURE DIGITAL BUSINESS

Qvantel Digital Express
Your Express Lane to Pure Digital Business

Digital Express is a software solution that provides Telcos with a fast track to digitalization. Setting up a parallel brand or greenfield business for the digital era is easier than ever - letting you launch a pure digital business line in less than 4 months that includes digital self-service touchpoints optimized for web and mobile.

With Digital Express, Communication Service Providers can transform themselves faster into true Digital Service Providers, and start excelling in digital experiences for their customers, while also reaching a new level of business efficiency with a high level of automation and compelling digital self-services. Qvantel delivers results from your transformation faster with an outstanding combination of customer experience excellence and cost-efficiency to run your business.

Navigating Digitalization Disruption

The shift in consumer behavior to use (and increasingly prefer) fully web-based digital services for discovering, buying, and consuming various types of services and goods has been overwhelming. Over the years, industries from travel and finance to retail and health care have all been disrupted by this trend.

This disruption has changed the ways consumers behave for good, and it has forced industries to seek fresh, radically more efficient methods of doing business to serve customers according to their new needs, and expectations.

Telecom operators will be using best practices from the same playbook as those other industries, blending outstanding digital experiences coupled with intelligent and automated operations. While also recognizing the unique challenges and opportunities available for agile players to win market share and build a stronger position in the market against their competition.

What is Your Digitalization Strategy?

Now, it's more important than ever for operators to have a solid digitalization strategy. The all-encompassing full transformation to become a Digital Service Provider (DSP) is traditionally slow and painful with a high industry failure rate. It's not easy to keep your established business running while simultaneously trying to change it to be digital enough to make a noticable difference.

The transformation of an existing business with both digital and assisted touch-points, including all business lines and operational legacy of point-of-sales and contact centers, is highly complex - with major challenges in legacy processes, legacy IT systems, legacy product portfolios as well as with the business and human aspects of leading and managing the change.

So, operators are now seeking alternate ways of getting the benefits of digitalization faster with less risk.
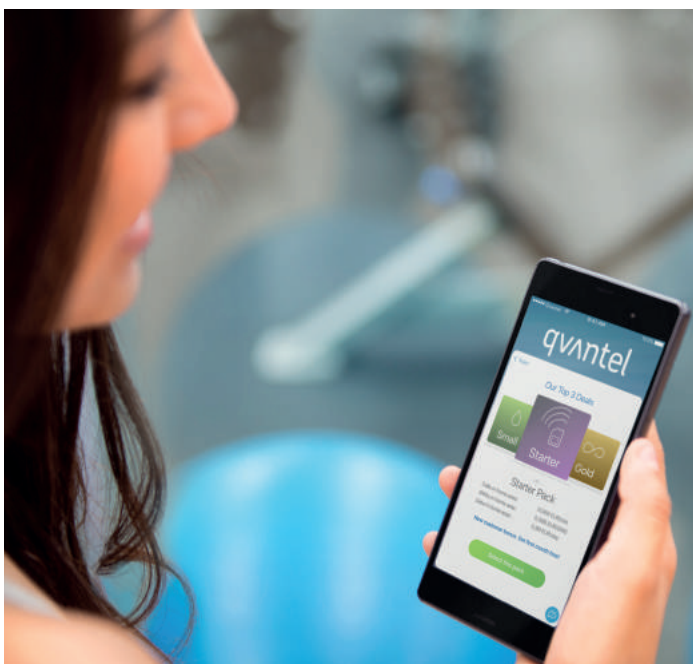
Launching a Pure Digital Business

As a way to make the leap into the digital era, Operators can create fully digital brands and business lines parallel to their established business. The services are marketed, sold and serviced primarily through digital channels such as web, mobile, messaging, and social media with very little or no assisted (human) interactions. This lets Telcos take advantage of the benefits of digitalization and get cost-efficiency in their operations faster, while also delivering a modern digital customer experience with significantly better user experience for their subscribers.

With this paradigm, operators can simplify their business, and dramatically improve customer experiences without the limitations and costs stemming from legacy systems. And a successful greenfield or parallel brand launch provides a strong backbone for continuing to a full digital transformation at the pace best suited for the operator.

Benefits Of Going Pure Digital

- **Lower entry barrier - Simplified transformation**
  Operators can take the important first step to quickly launch a pure digital business without requiring a full transformation. This low-risk solution makes business decisions easier and delivers tangible results faster.

- **Launch in less than 4 months**
  Delivering a new digital business line set-up is quick and efficient with an out-of-the-box ready solution.

  Operators can avoid getting stuck with optimizing and transforming existing business with large-scale operations in Point of Sales (POS) and Contact Centers.

- **Maximize Digitalization to minimize cost of interaction**
  A fully digital solution with enhanced user experiences enables customers to self-manage their services throughout their customer life-cycle. This, combined with the effectiveness of operating the underlying BSS solution takes cost-efficiency to a new level.

- **Prepare for the digital era experiences and a hyper-competitive market**
  With a pure digital business approach, operators take decisive steps to offer and evolve digital services expected by consumers of the digital era.

  The change also prepares operators for the near future when e-SIMs become standard and are set to disrupt the market dynamics. The Operators with best digital processes and customer-centric business models can grow fastest and compete best.

- **Paves the way for transforming legacy business**
  Starting with a pure digital solution provides concrete business results while also paving the way for expansion possibilities to migrate all legacy business.

Designed For Digital Business

Qvantel Digital Express is designed to enable a quick ramp-up of pure digital business for Digital Service Providers. The Digital Express is designed to drive digitalization and business performance for DSPs in multiple ways:

- **Customer engagement is designed to happen fully in digital channels**.
  Digital Express is designed to enable pure digital business lines. It enables all key customer interactions to happen in digital sales and self-care. This is done by careful customer journey design with pure-digital mindset, combining Internet-era ease-of-use with understanding on the key telecom customer needs. The customer is provided a with empowering, and personalized self-service experience.

- **Dynamic, catalog driven business for efficiency and fast time-to-market**.
  Qvantel Digital Express is built to be catalog driven for faster time-to-market and lower costs. The channels take full advantage of catalog driven architecture and back-end intelligence for ensuring offerings are introduced fast to the channels.

- **eShop and eCare – unified self-service experience for sales and care**.
  The Qvantel eShop and eCare solution design unifies sales and self-service customer journeys and brings the management of one's personal Digital Life to one, simple-to-use interface.

- **Personalized, predictive journeys – for building loyalty and driving sales**.
  A data driven, personalized experience lets customers feel that DSP understands their needs and offers meaningful responses to their needs. This is enabled by leveraging data driven recommendation engines, and underlying analytics platform.

- **Omni-channel experience**.
  The Digital Express provides an omni-channel experience across device types customer might be using (supporting e.g. switching from mobile devices to a desktop web experience).

- **Flexibility for basket management and handovers in purchasing flows**.
  The solution enables smart hand-overs and sharing of basket between owner-user-payer roles to accommodate situations where basket might be created by another person than who actually pays for the order.

- **Simplification of offer browsing, order tracking, and product configuration**.
  The eShop experience allows customers to choose between quick basket creation or more advanced guided sales functionality that helps them to find the most suitable products and allows order making with simplified, minimal product configurations.

- **Designed for fast deployment with out-of-the-box readiness**.
  The solution is designed for quick roll-out, leveraging ready made and tested process flows as well as Qvantel reference product models for the most typical service offerings.

- **Fast transactions, while building deep relationships and loyalty**.
  The service maintains a personalised and meaningful dialogue and relationship with the customer. Simple and continuous customer profiling helps to understand needs, experiences, service usage, and digital lifestyle of the customer.

- **Expandable Mobile App experience**.
  The Digital Express provides a ready-made Mobile App which boasts a smooth digital onboarding journey, and **eShop** and **eCare** experiences directly from the app.

  Dynamic, catalog-driven content is updated on the fly for faster time-to-time market of new offerings. The widget-like component structure enable flexible expansion of the customer experience. A native mobile app on iPhone and Android devices provides fast and smooth user experience.
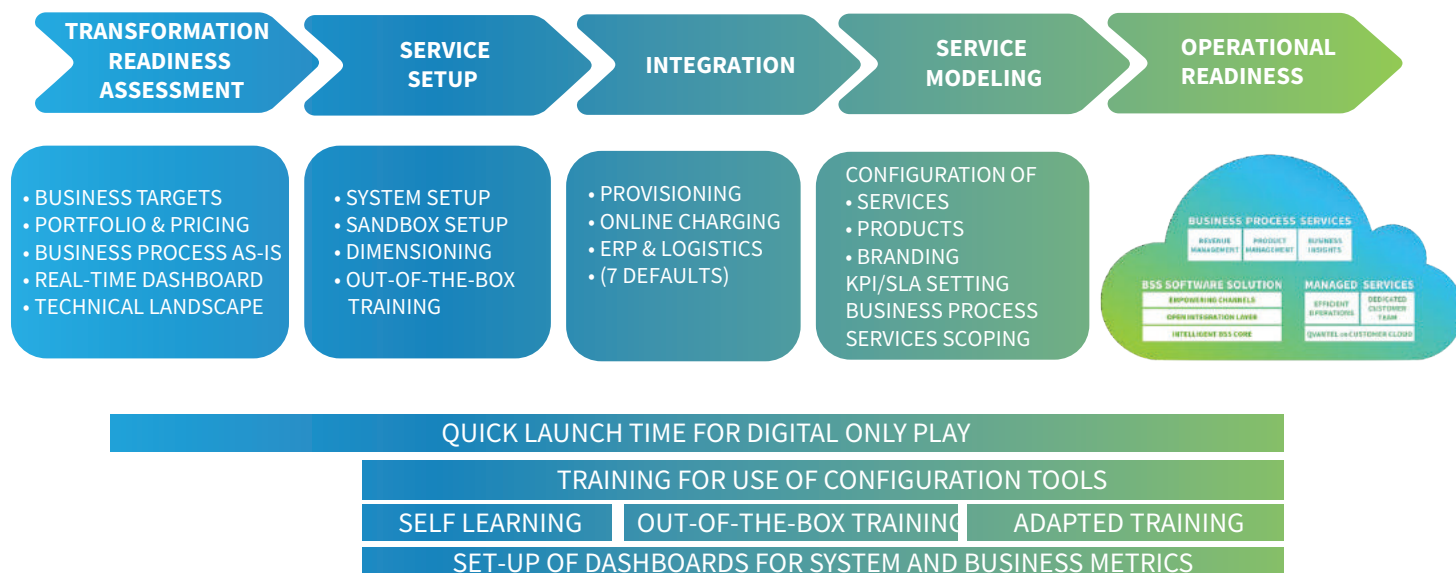
  Compared to web based mobile experiences, the native mobile app approach opens an array of opportunities for DSPs future service innovation with better access to device capabilities and data.

- **Enabling expansion to multi-play and retail business**.
  Whereas initial steps in Digital Express are recommended to be taken for mobile B2C services, the Qvantel solution roadmap enables further expansion of the business in later stages to Retail and Enterprise (B2B) business areas, as well as to multi-play offerings (*Subject to purchase of corresponding software value packs).

Quick Roll-out And Efficient Operations

The Qvantel Digital Express provides an out-of-the-box solution for launching a Pure Digital business line in very aggressive schedule (in optimal conditions in less than 4 months from project start to launch of the new business). The quick roll-out methodology relies on use of ready-made software, process and product modelling and a rigid roll-out project methodology.

TRANSFORMATION READINESS ASSESSMENT	SERVICE SETUP	INTEGRATION	SERVICE MODELING	OPERATIONAL READINESS
• BUSINESS TARGETS • PORTFOLIO & PRICING • BUSINESS PROCESS AS-IS • REAL-TIME DASHBOARD • TECHNICAL LANDSCAPE	• SYSTEM SETUP • SANDBOX SETUP • DIMENSIONING • OUT-OF-THE-BOX TRAINING	• PROVISIONING • ONLINE CHARGING • ERP & LOGISTICS • (7 DEFAULTS)	CONFIGURATION OF • SERVICES • PRODUCTS • BRANDING KPI/SLA SETTING BUSINESS PROCESS SERVICES SCOPING	

QUICK LAUNCH TIME FOR DIGITAL ONLY PLAY

TRAINING FOR USE OF CONFIGURATION TOOLS

SELF LEARNING	OUT-OF-THE-BOX TRAINING	ADAPTED TRAINING

SET-UP OF DASHBOARDS FOR SYSTEM AND BUSINESS METRICS

Key roll-out phases for service creation:

BUSINESS ASSESSMENT

Steps to set the business targets and capture key aspects of target landscape:
- Business volumes and targets
- Target portfolio structure and pricing
- Business process success and error rates, and durations (as is)
- Bi-weekly key metrics dashboard visibility design
- Technical landscape assessment: integration, 3rd party connections and systems identification

INTEGRATIONS SETUP

The following main integrations are default set for the Digital Express deployment:
- Provisioning
- EDR collection
- ERP and logistics
- Online charging
- Messaging
- Data warehouse
- Payment Gateway
- Qvantel AAA

SERVICE SETUP

System deployment (out of the box deployment), creation of sandbox for customer own self-learning.

Customer journey, processes, use cases training (out of the box training, before adapting and configuring the customer services).

Dimensioning of the system for the expected business volumes.

SERVICES MODELLING

Customer business line services and key service characteristics are modeled to the solution:
- Configuration of products and services
- Configuration of branding
- Set up of business process services (product lifecycle management, revenue management, IT managed services)
- Agreeing SLA/KPI measures
- Launching operative governance practises

Qvantel transformation methodology includes monitoring and verifying business performance/value improvements in later phases during the service life-cycle, based on the KPIs established in the first phase of the service deployment.
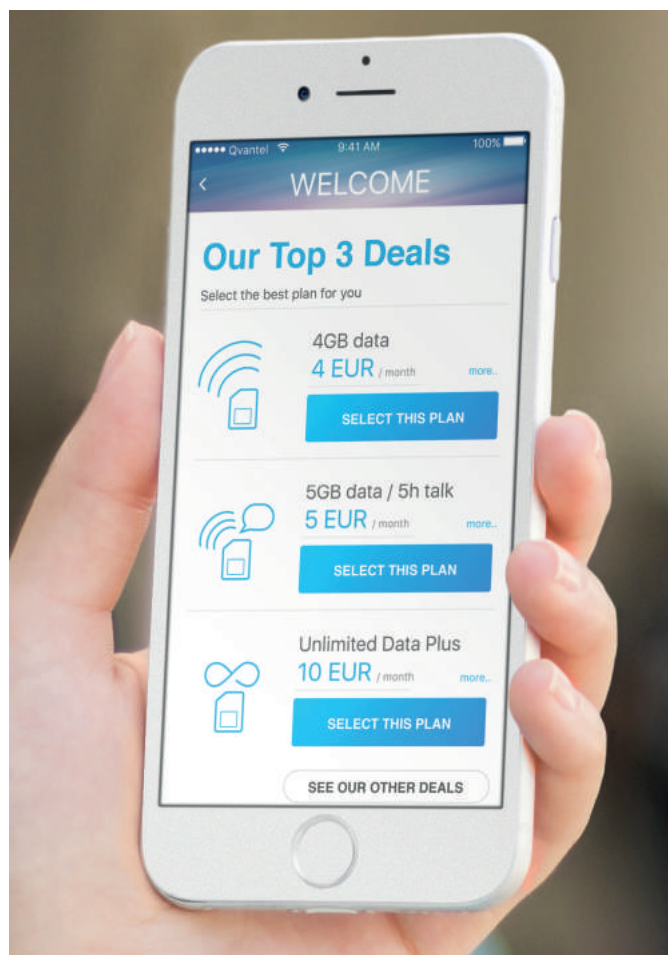
Pure Digital Customer Journey

Qvantel Digital Express is designed to enable a fully digital customer journey.
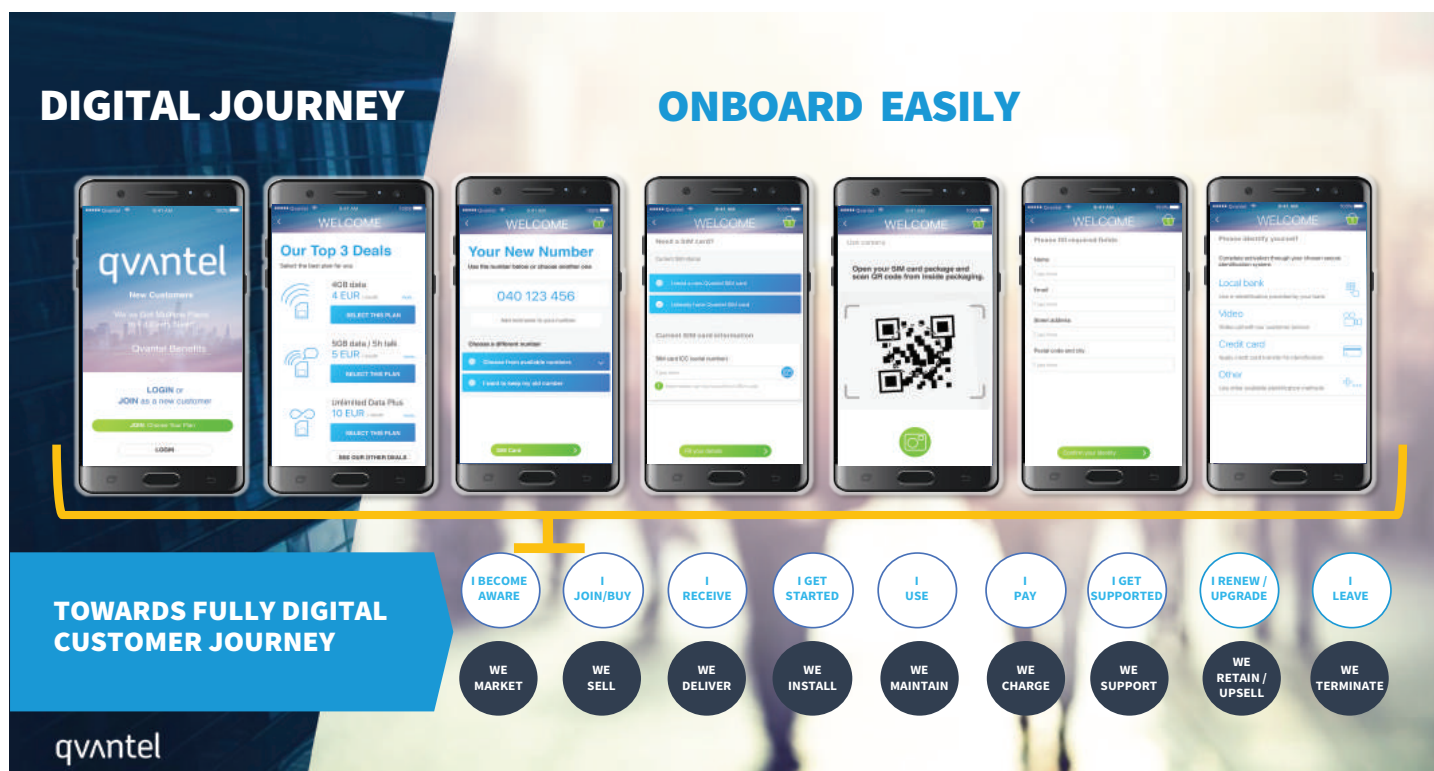
DIGITAL ONBOARDING

The digital onboarding and digital customer journeys in Qvantel Digital Express have been designed and are evolving with the following principles:

- Quick and intuitive design that provides effortless and pleasant usage

- Flexibility for business model innovation (e.g. distribution of unregistered SIMs)

- Designing for increased level of automation and self-service for business efficiency

- Personalization of experiences in web and mobile using data driven insights

- Providing one seamless experience for finding new services and digital care

- Enabling flexibility for tapping into market specific needs, for example for strong identification

- Using relevant supporting Internet services, where relevant (for example, filling in user data for convenience)

Pure Digital Customer Journey Steps Explained

Qvantel's **Customer Journey Framework** simultaneously looks at the customer and the business journeys to best satisfy the needs of both. The starting point is understanding and focusing on the needs of the customer, and the end result is using that knowledge to empower businesses to be more efficient and to deliver more effective and relevant interactions for the end-user.

I BECOME AWARE

Digital Express lets customers start engagement from a variety of digital and physical media.

For example, the customer can:
- Connect through an ad in social media
- Get a link from a friend
- Get URL or QR code from physical media (Newspaper, Flyer, Magazine advertisement)
- Receive a promotional card with physical SIM
- Internet search

Digital onboarding is made easy via a mobile app download from iOS and Android App Stores.

I JOIN / BUY

The digital onboarding journey provides an intuitive and quick way to:
- Pre-fill customer info
- Select the best plan for their needs
- Select MNP port-in or a new number
- Authenticate using local strong authentication solutions
- Allow use of pre-distributed SIM (for immediate registration online) or order a new SIM via fast mail delivery

I RECEIVE

For fastest digital onboarding using pre-distributed SIMs and new numbers, the user is ready to use the service in minutes. For onboarding with ordering a SIM to home, the customer has order status information easily traceable via mobile application.

I GET STARTED

The mobile application guides the user through activating the new SIM (pre-distributed) or helps them take a shipped SIM into use.

Adding automated, scheduled top-ups is easy and convenient. Top-ups can be based on time-intervals or set thresholds.

I USE

The mobile application shows the user's balance in real time. Users get personalized recommendations based on the data-driven insights on their needs and context (i.e., balance is approaching a set limit). Users can top-up or buy additional services directly from the app.

I PAY

The customer is offered alternate ways to pay for the use of services either by credit card, existing balance on the account, or with selected third-party payment methods as jointly designed and integrated with the Digital Service Provider for the needs in the local market.

I GET SUPPORTED

The digital service experience is optimised for customer self-service: the eCare in web and mobile provides fast and easy access to all key tasks typically needed by pre-paid customers during the customer's lifecycle.

The eCare service experience is tailored and personalised using data-driven recommendation engines and knowledge base.

I RENEW / UPGRADE

The digital service experience monitors the customers' service lifecycle and service balance and makes personalised recommendations in the eCare touch-points.

The data from the system can also be leveraged for segmentation, campaign planning and execution solutions of choice.
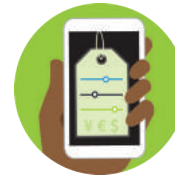
I TERMINATE / LEAVE

Possible termination experience of subscriptions is designed so that no negative emotions are created.

The customer can be provided with small positive gestures such as donating any remaining balance to a friend.

Capabilities for Pure Digital Business

The **Qvantel Digital Express** contains the key capabilities for running an efficient digital business with digital customer touch-points and intelligent business logic for the best possible business performance and superior customer experiences. The capabilities include the following key elements:

- **Digital, mobile first on-boarding** for quick and easy on-boarding of new customers

- **Digital customer touch-points** for efficient self service (web and mobile)

- **Data driven intelligence** with configurable recommendation engines and advanced analytics for data driven, personalized experiences

- **Easy to use power tools** for business managers (Product and Content Management)

- **Open, expandable architecture** for adding own and third-party innovations

- **Web-scale architecture** with micro-services designed and based on Cassandra clustering

- **Cloud native design** for enabling service execution from public or private clouds

- **Always On Architecture** – designed for maintenance without downtime
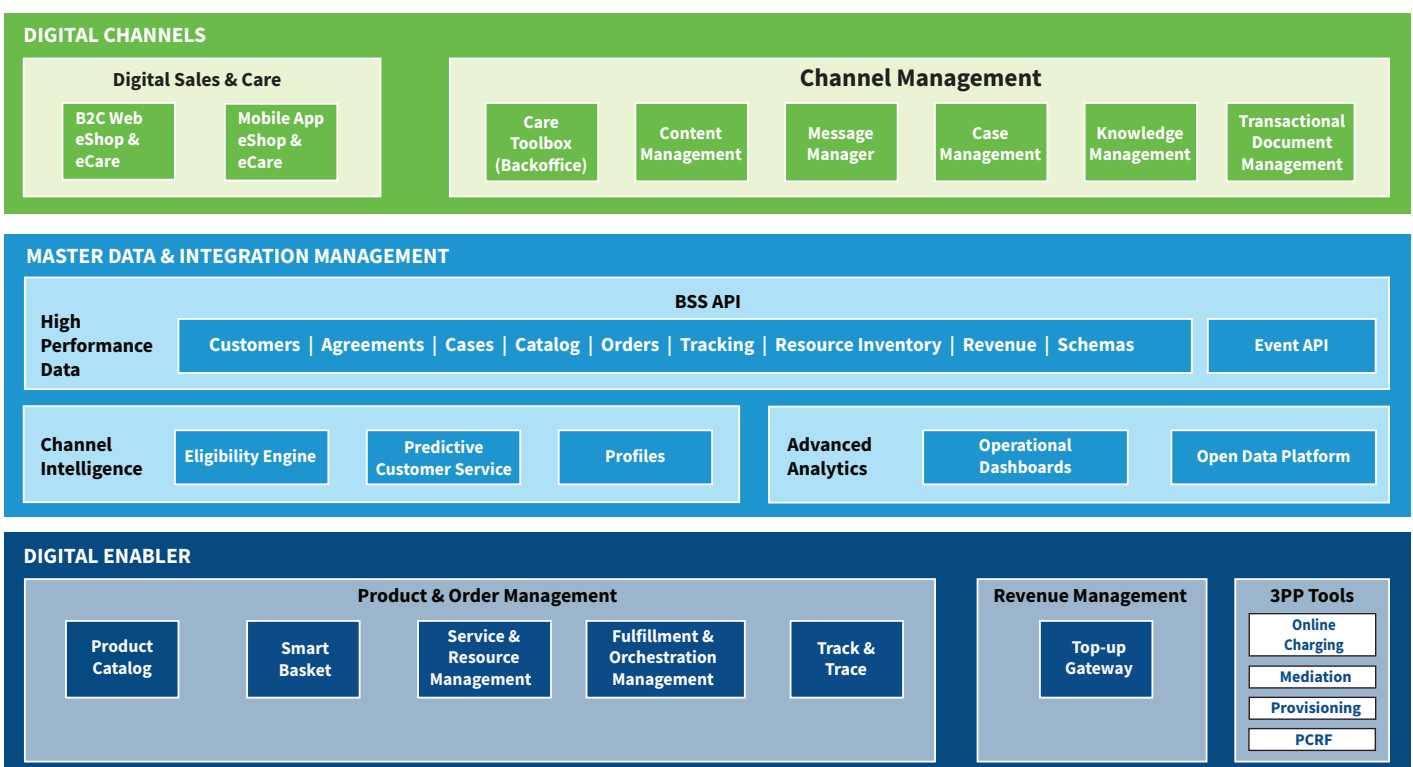
Differential pricing: Increase profit margins, Customer satisfaction, Competitive advantage

Higher degree of flexibility due to decoupling of the monetary and technical aspects of the products

- **Efficient, catalog driven business**. Order and fulfillment management is catalog-driven, making it easier to create new bundles and offerings from existing products. Channels are also catalog-driven, getting up-to-date product information from the catalog.

- **Product-based evolution**. The Digital Solution is created, maintained and further developed based on Qvantel products. Through the product approach, the elements of the solution will be evolving based on the multitude of market requirement sources, thus incorporating innovation from the market and end-customer experiences.

- **Flexible customization and innovation**. While the Digital Express will evolve based on the roadmap maintained by Qvantel, the customer solution can be extended on top of the open APIs, and customized based on the customization points that will provide efficient and controllable way to customize the solution without branching the software assets.

DIGITAL CHANNELS

Digital Sales & Care		Channel Management					
B2C Web eShop & eCare	Mobile App eShop & eCare	Care Toolbox (Backoffice)	Content Management	Message Manager	Case Management	Knowledge Management	Transactional Document Management

MASTER DATA & INTEGRATION MANAGEMENT

High Performance Data	BSS API		
	Customers | Agreements | Cases | Catalog | Orders | Tracking | Resource Inventory | Revenue | Schemas		Event API

Channel Intelligence	Eligibility Engine	Predictive Customer Service	Profiles		Advanced Analytics	Operational Dashboards	Open Data Platform

DIGITAL ENABLER

Product & Order Management					Revenue Management	3PP Tools
Product Catalog	Smart Basket	Service & Resource Management	Fulfillment & Orchestration Management	Track & Trace	Top-up Gateway	Online Charging / Mediation / Provisioning / PCRF

Qvantel Digital Express Capabilities

B2C Web eShop & eCare	The eShop & eCare approach unifies sales and self-service customer journeys by allowing end-customers to choose their own way of shopping and managing their services in an anytime-anywhere fashion.
Mobile App eShop & eCare	The Mobile App enables a simple digital on-boarding and allows the users to choose their own way of shopping and managing their services, all in one place.
Care Toolbox (Back Office)	The Care Toolbox provides CSP's back-office teams with easy to use tool to manage customer information and perform needed tasks, in the cases a customer contacts the CSP on matters that need the back-office team's care.
Content Management	Content Management provides easy yet powerful means for managing the layer of digital channels, such as eShop, eCare and mobile applications.
Message Manager	The Message Manager application integrates all customer email and SMS editing, testing and sending needs in one configurable service.
Case Management	The Case Management enables handling customer issues and recording their reasons and resolution paths based on defined business interaction logic.
Knowledge Management	Knowledge Management is a tool for operator back-office team for creating and managing knowledge, such as FAQ and knowledge base.
Transactional Document Management	Transactional Document Management is a solution for creating, handling and managing documents such as bills, invoices, contracts according to business processes of the CSP.
BSS API with High Performance Data (HPD)	The BSS API defines the common public API for both external use and system level integrations, forming a unified information layer powered by high-performance data.
Eligibility Engine	Eligibility Engine is a configurable rule engine framework which enables automated, high- speed, high-quality business decision.

Predictive Customer Service	Predictive Customer Service consumes customer information from multiple sources to provide channel specific interactions and offerings.
Profiles	Profiles stores for CSPs real-time 360 view of their customers. Profiles are used by rule engines, channel components and notification components.
Operational Dashboards	Operational Dashboards provides views and visualizations, showing up to date data of selected key metrics gathered from the system and business processes.
Open Data Platform	Open Data Platform (ODP) enables multidimensional reporting and advanced analytics. ODP is a data exploration ecosystem enabling to take full control of data analytics.
Product Catalog	The Product catalog enables catalog driven BSS capabilities by acting as the commercial and fulfillment catalog of the digital BSS solution. It contains easy to use catalog designer for creation and maintenance of catalog resources, services, products and offerings.
Smart Basket	The Smart Basket provides channel management features including price, tax and discount calculation, basket validation and basket persistence for enabling omni channel experience.
Service & Resource Management	Service & Resource Management manages resources that are related to a mobile/fixed network operator such as MSISDNs, SIM cards and devices.
Fulfillment & Orchestration Management	Enables activating the digital services needed for the order or sending fulfillment requests to other systems.
Track &Trace	Track&Trace allows tracking and tracing of the customer orders for Digital Service Providers back-office teams.
Top-Up Gateway	Top-Up Gateway is a software service which manages top-up recharges, cancellations, adjustments and enquiries in the BSS side.

* CSP = Communication Service Provider

* Qvantel is continuously improving the Digital Express capabilities. Please request the latest information from your Qvantel sales representative.

Technology for the Digital Era

OPENNESS VIA BSS API

Digital Express is built to be open for innovation for Service Providers and their partners. The open BSS API provides an efficient and powerful framework for extending the solution with additional innovations.

DESIGNED FOR CLOUD

Digital Express is optimized for the BSS as a Service model, where the solution operations are done by Managed Services from Qvantel (or a selected SI partner), and infrastructure to run the services is either based on public cloud or the customer's data center of choice.

DATA-DRIVEN CHANNEL INTELLIGENCE

A suite of channel intelligence engines and advanced analytics included to Digital Express enables intelligent offer management and customer journey personalization. Customer business teams are provided with the easy-to-use, yet powerful tools for managing the personalization, with targeting rules applied in the digital customer journeys.

MICRO-SERVICES ARCHITECTURE

Digital Express is designed to be executed on top of modern Computing Platform running business services as micro-services, enabling the following benefits:

- **Scalability** - System scales instances up and down on need basis
- **Expandability** - New services can be added without downtime
- **Manageability** - Unified logging, reporting, and management

WEB SCALE PERFORMANCE

Digital Express is built on master data management and an integration layer that leverages best-of-breed technologies for high performance/ high scalability solutions. **Apache Cassandra,** for example, is technology used and trusted by numerous well-known Internet players in the market.

MASTER DATA MANAGEMENT

Master data management is implemented by using HPD (High Performance Data) Framework together with BSS API. HPD is a modular, highly scalable and high-performance data management system based on the open-source distributed Apache Cassandra* database management system. HPD can handle thousands of requests every second, with high availability and handling deployments without downtime. It has a unified information model inspired by **TM Forum SID**.

HPD consists of several software components which serve BSS client systems (channel layer applications or BSS internal components) which need to either create data, access the data, or provide changes to the data.

DESIGNED FOR OMNI-CHANNEL EXPERIENCE

Although Digital Express is designed for purely digital business, the foundation of the Digital Express Solution provides capabilities to expand the business with additional digital touchpoints and journeys with omni-channel experience. All user applications - customer- and business-user side - tap into a unified digital core and back-end driven processes and data models.

When the Service Provider is ready to expand from the pure digital approach to include Retail business, the omni-channel capability allows flexible customer journey design and execution, where offer promotion and shopping initiation can be triggered in one type of channel (e.g. Online eShop and eCare), basket building continued in/with assistance of a second touchpoint, order checkout executed in a third (e.g. POS), and order delivery fine-tuned through a fourth (e.g. Customer Care). The same applies for support journeys.

Note: Expansion to Retail business is subject to purchase of additional retail business related solution elements from Qvantel.

Flexible Integration Architecture

The open **Qvantel BSS API** defines a common information layer - a common model, language and terminology - which is used by different channel applications/business processes to integrate into the BSS framework of the Digital Express. It also facilitates communication between the core components of the solution. The BSS API definitions acts as an "umbrella" of compatible domain API versions, which are implemented by underlying core components.

BSS API Framework is comprised of domains which expose their functionality through the interfaces shown in the figure below. There are no limitations to what kind of clients can interact with BSS API. From the business and user interfacing applications' perspective, the BSS API provides a solid interface which remains consistent regardless of core or system level changes.

PROVEN DEPLOYMENT METHODS

Qvantel has developed Digital Express hand-in-hand with deployment methods that define the integration and the transformation methods, tools and practices that enable fast and cost-efficient deployments.

The deployment methods incorporate learning solutions, deployment methods, and tools created in earlier transformation and delivery projects Qvantel has done during past years. They cover tools and methods for both core integrations and customer specific integrations.

Core integrations handle standard based integrations with charging systems, provisioning gateways, messaging systems (e.g. SMSc, email server) and network management systems. Customer specific integrations include integration e.g. with payment Gateway systems, ID validation and number portability.

Qvantel Digital Express solution provides a real-time replication subsystem - a loader infrastructure, which is used to retrieve data from an underlying subsystem to a relevant Qvantel BSS subsystem. The Loader infrastructure includes data event loading adapters, which receive events from 3rd party subsystems and normalize them to Qvantel BSS information model. Based on the target system the loaders transforms incoming data to Qvantel BSS Information Model and use the target system protocol adapters to store the data to High Performance Data layer. Event adapters are implemented as microservices.

Qvantel BSS API Framework provides several microservices that can implement integrations with different 3rd party systems. For example, the revenue read micro-service allows channel applications to retrieve things like current balance, usage history and recharge history for a specific subscriber from a 3rd party charging system. When the Revenue Micro-service receives a query, it fetches the relevant information from replicated storage that has been designed for heavy loads, combines all necessary sources and returns right response. And if needed, the micro-service orchestrates events across charging and internal BSS components.
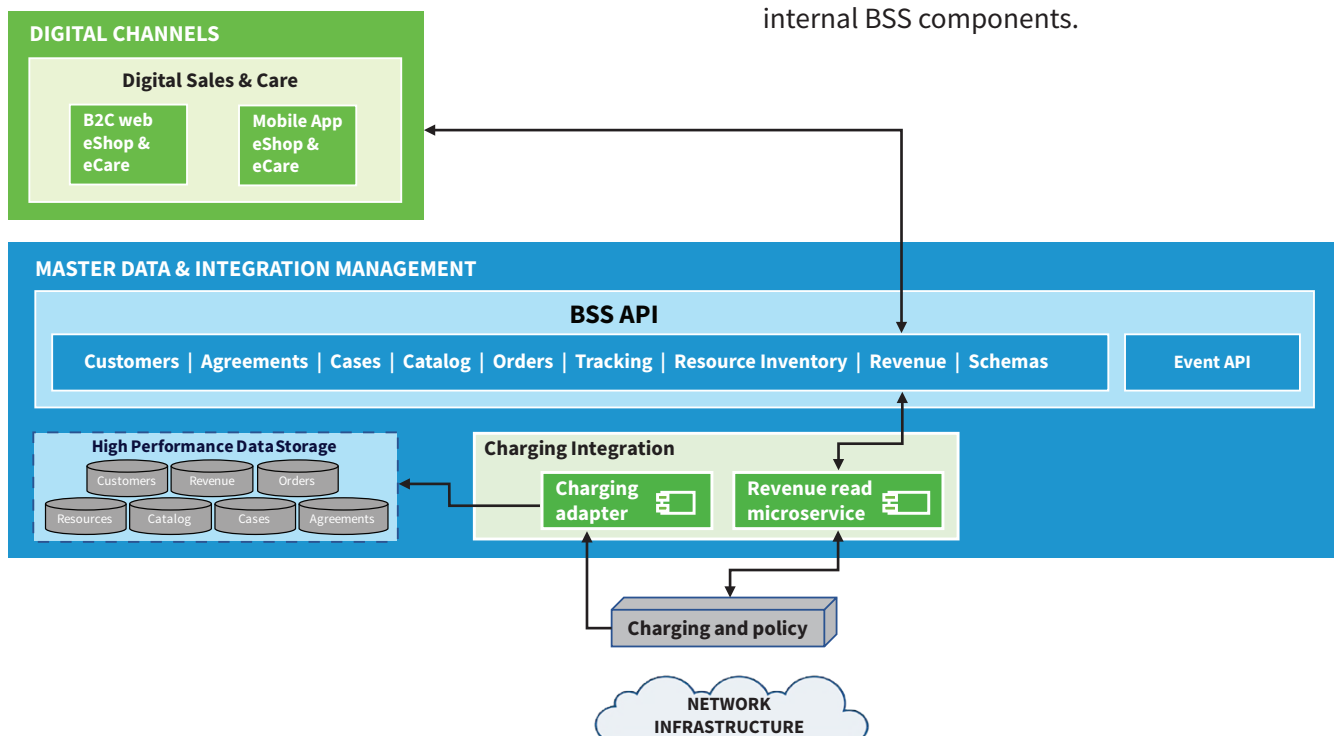
Why Qvantel Digital Express ?

Qvantel Digital Express is a solution that allows operators to create a new digitally-focused service business or to bring a new brand to the market in as little as four months. The software provides digital service touchpoints for both web and mobile, with quick and easy onboarding of customers, and allows them to select the most compelling services to enrich their digital life.

Accelerated Digitalization for Fast Time to Market

- Quick results with out-of-the box BSS software capability for running the fully digital business without requiring a full transformation
- Catalog-driven business enables faster delivery of new offerings to digital channels

Business Efficiency + Cost Efficiency

- Qvantel Digital Express is built from best of breed open source technologies optimized for future opportunities
- Open BSS API provides operators with freedom to tap into additional innovation for future digital touchpoints and service solutions
- Service delivery can be done using optimal infrastructure choices: Public Cloud or your choice of Data Center

Increased Customer Satisfaction and Loyalty

- Quick and simple digital onboarding with mobile app
- Pleasingly personalized experiences, driven by next best actions and the most relevant offerings
- Empower users with meaningful discovery, intiutive user journeys, and simple management of their Digital Life

Maximize New Sales

- Logging of decisions and interactions enable analysis and rule tuning for best possible results to boost up-sell
- Predictive Customer-specific notifications across multiple channels with call to action (The right offers at the right time from the right channel)

Reduce Churn

- Predictive Customer Service: Intelligent service experience solves customer's needs faster
- Easy-to-use self-service solutions with smart and predictive automation increases satisfaction and cuts costs

About Qvantel

"For the past 10 years, Qvantel has pioneered the cloud-based approach for successful accelerated introduction of greenfield businesses and parallel brands.

Now, packaging the key elements of pure digital business to **Qvantel Digital Express** enables operators take decisive actions to rapidly set-up digital business without the constraints of legacy business lines and systems,"
Jaco Fourie, Qvantel Head of Product

Our service and software offerings accommodate multiple paths to digitalization:
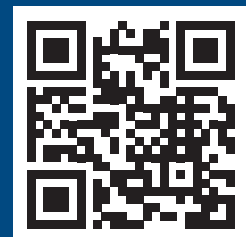
| Qvantel Digital BSS as a Service

| Qvantel Digital Express

| Qvantel Digital Channels

| Qvantel Digital Accelerator

Qvantel is a privately held company with over 1000 employees in offices across Finland, Colombia, Estonia, India, Italy, Singapore, Spain, Sweden, Ukraine, and USA.

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For more information on Qvantel and its products and services please visit www.qvantel.com or email to marketing@qvantel.com