

The background of the slide features a vibrant green aurora borealis (Northern Lights) dancing across a dark, starry night sky. Below the sky, a wide, flat landscape is covered in a thick layer of white snow, with a few small, dark shrubs visible in the distance. The overall scene is serene and futuristic.

qvantel

# **DIGITAL BSS CORE**

## **Solution Overview**

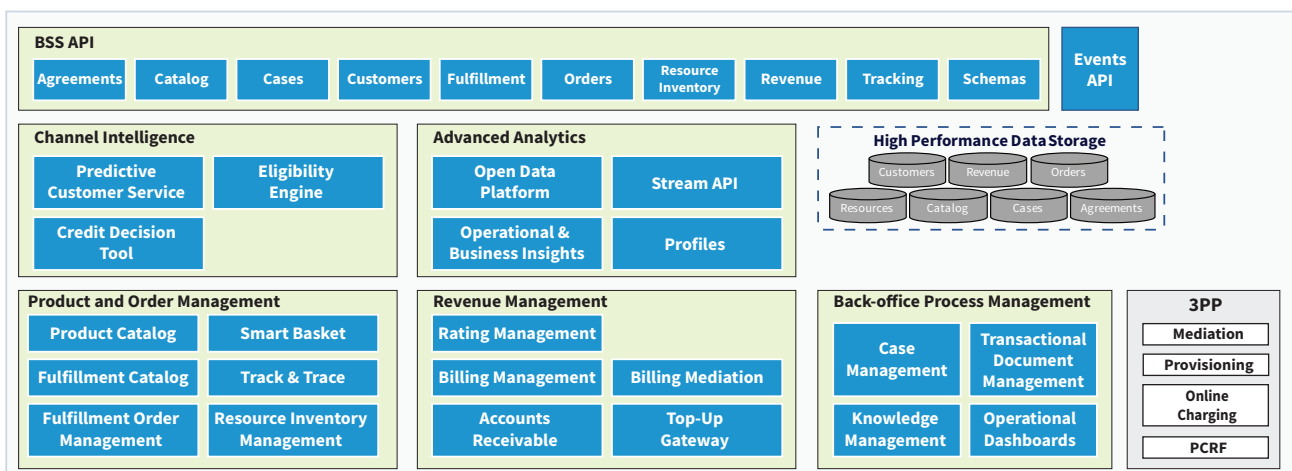
**Open & Intelligent Foundation  
for Monetization of the Digital Era**

# Qvantel Digital BSS Core

## Open and Intelligent for the Monetization Needs of the Digital Era

Qvantel helps Communication Service Providers (CSPs) transform into truly Digital Service Providers (DSPs) - enabling them to provide superior customer experience and value to their customers. Qvantel provides multiple paths to digital transformation with solutions for refreshing digital channels, consolidating legacy back-end systems, and replacing their full BSS landscape.

The **Qvantel Digital BSS Core** is the solution for those CSPs who have already selected a strategy and solution plan for digital channels, but have a need to transform and consolidate their back-end solutions. The Digital BSS Core holds the main business-relevant data and process logic for all core business domains. Among the capabilities it offers are dynamic offering management, open BSS API and predictive intelligence towards channel layer, flexible and proven revenue management as well as state-of-the-art analytics.



### Solution Overview

The Digital BSS Core solution from Qvantel offers an intelligent and efficient foundation for transforming the back-end to serve channels designed for the digital era.

The Digital BSS Core solution is based on Qvantel products that are built and tested for optimized interoperability so that our customers experience no incompatibility issues.

The Digital BSS Core solution includes the main business-relevant data and process logic for all core business domains, including Master Data and Integration Management, Product and Order Management, Advanced Analytics, Channel Intelligence, Revenue Management and Back-office Process Management. The illustration above shows the modules of the solution.

### Master Data and Integration Management

Master Data and Integration Management domain includes **BSS API Framework** and **HPD Framework and Tools**.

BSS API and HPD (High Performance Data) together constitute a modular, highly scalable and highperformance data solution, which provides qualitative data storage based on the Cassandra database and fast process handling. The BSS API stack powered by HPD handles thousands of requests every second, with high availability and handling deployments without downtime. BSS API is the single point of contact for all integrated channel applications. It has a unified information model inspired by TM Forum SID.

The **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 Core framework. 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.





**Differential Pricing:** Increase profit margins, customer satisfaction, competitive advantage



**Reduce cost of maintaining multiple product catalogs across disparate systems**



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

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.

BSS API Framework is comprised of domains which expose their functionality through the following interfaces shown in the figure below

- | **Public API:** Interface for channel applications and external processes to access BSS features and resources
- | **Private API:** Used by BSS core components for integration and data exchange purposes between each other
- | **Events API:** Used by BSS components to inform their audience of their internal state changes using message queues
- | **Import API:** Data loading interface, enabling e.g. data replication to BSS components when being slave to an external data master

High Performance Data (HPD) is the common data management component of Qvantel BSS Stack providing unified data storage and fast process handling. HPD is a modular, highly scalable and high performance data management solution based on the open-source distributed Apache Cassandra database management system.

HPD consists of several software components which serve BSS client systems (channel layer applications or BSS internal components) which need either to create data, access the data or provide changes to the data in Cassandra DB. HPD has heavy dependency with BSS API. Core components implement the domain functionality specified in BSS API, retaining compatibility with its definitions and exposing it via different interfaces.

## Product and Order Management

CSPs must continuously innovate to provide products and services to consumers and businesses. Qvantel product and order management subsystem enables catalog driven business innovation and provides the means to model and manage product offers from both the commercial and technical perspectives. Operational engines then enforce these definitions to drive offer configuration, price, validation, and order management.

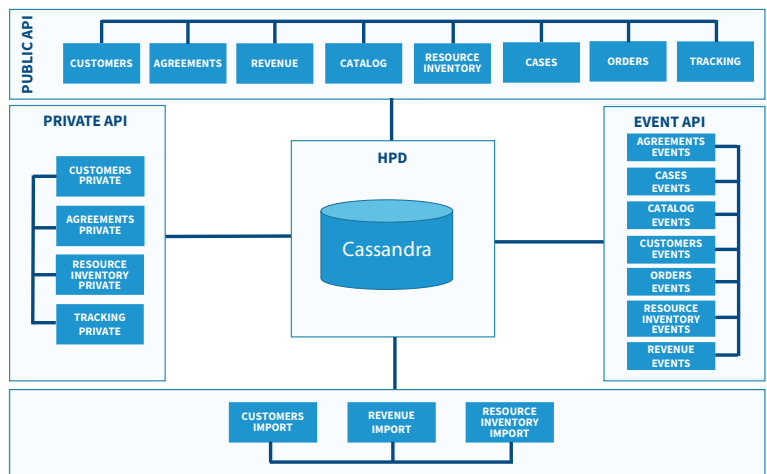
The Qvantel product and order management solution includes the following three key subsystems:

- | **Commercial Catalog**
- | **Fulfillment Catalog**
- | **Fulfillment Order Management**

The Product Catalog enables catalog driven BSS capabilities acting as focus point for product and offering configurations considering commercial, fulfillment and rating & billing configuration aspects.

Fulfillment Order Management provides an agile and a complete order fulfillment engine which enables operators and service providers to launch new products and service offerings at a fast pace to ensure competitive advantage. Order Management is integrated to Fulfillment Catalog from where it reads offers, products and services.

The Resource Inventory Management module along with Qvantel Fulfillment accelerates service fulfillment by providing all the physical and logical resources needed for a customer order.



BSS API FRAMEWORK DOMAINS

## Advanced Analytics

CSPs need access to their BSS data to make correct business decisions. Therefore, the operational BSS stack should be enriched with an advanced analytics stack which enables data-driven decision making.

- | Identifying trends through coherent, flexible and custom visualizations
- | Uncovering unknown patterns via cross-correlating data from different business domains

Qvantel Advanced Analytics includes the Open Data Platform, Operational & Business Insights, Stream API and Profiles subsystems.

### Open Data Platform

Enables multidimensional reporting and advanced analytics for CSPs. It serves as a data lake with standard integrations for both structured (including BSS) and unstructured data.

### Operational & Business Insights

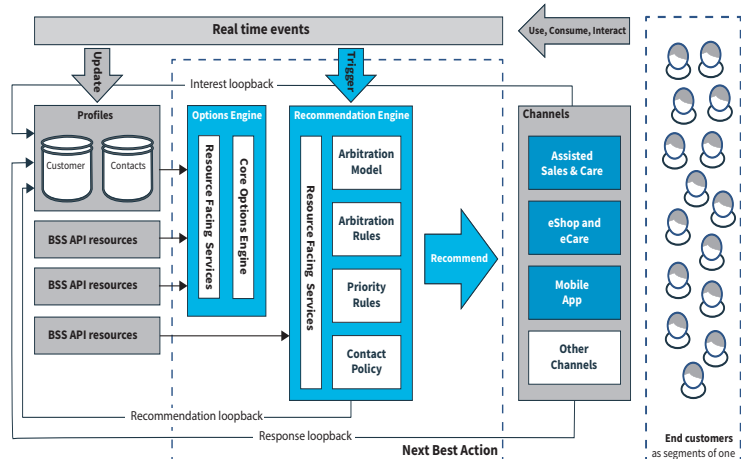
Gives CSPs visibility to their core business processes (i.e. CRM, Billing, Fulfillment, Channels) via a set of predefined, customizable dashboards. Used for informed business decisions.

### Stream API

Enables the real-time flow of BSS data to external DWH / Big Data systems.

### Profiles

Gives CSPs a 360 view of their customers. Profiles can be used by channel applications to send personalized, contextual and time-sensitive offers and messaging to end customers.



## Channel Intelligence

Channel Intelligence includes the Predictive Customer Service, Credit Decision Tool and Eligibility Engine.

Predictive Customer Service (PCS) enables the CSP to interact with their customers in various business processes. PCS uses customer information from multiple sources and proposes instant, tailored response options supporting a broad array of self-service channels.

When the PCS is consulted by different channels, it reacts on requests based on pre-configured rule sets. Depending on the context, PCS provides messages and other customer care related information to the customer channels. With the help of PCS, most of the problems of customers can be solved in self-service channels, enabling CSRs to focus more on the difficult cases and sales.

### Credit Decision Tool (CDT)

A configurable credit scoring decision engine which enables automated, high-speed, high-quality credit decisions and customer screenings for B2C and B2B sales processes. It connects to Customer, Order, and Revenue Management and integrates with a variety of external credit scoring services. CDT also enables manual credit decisions through an internal ticketing system.

### Eligibility Engine (EE)

A configurable rule engine framework which enables automated, high-speed, high-quality business decisions for channel applications. The Eligibility Engine is a generic product that needs to be customized for eligibility checking for various business interactions based on customer specific rules. It includes Decision Engine and Options Engine services. The Decision Engine runs customer specific rules to check the eligibility of various kind of business interactions. The Options Engine runs customer specific rules to get a list of eligible options (e.g. upgrade or downgrade options).

In creating the most meaningful **Next Best Actions (NBA)** for the customer, the Qvantel Digital BSS Core applies advanced analytics (extending to AI technologies), to offer a high level of personalization and relevant recommendations. Utilizing the Next Best Action together with a real-time event flow and customer profiles (whether by using Qvantel Analytics or the CSP's existing solutions) allows combining historical and fast data for highly targeted customer engagements. The Qvantel Digital BSS Core is constantly learning from previous recommendations.

## Revenue Management

Qvantel Revenue Management enables billing of any service type and facilitates developing new business models in cooperation with partners. Revenue Management can be used by the service providers to monetize services ranging from traditional telecommunications to MVNO and IoT to modern digital services. (The Revenue Management landscape is shown in the illustration below.)

Qvantel Revenue Management has increased the business efficiency of several leading CSPs by offering a flexible and accurate tool for billing, rating, invoicing and collection regardless of customer, market or service types.

- Efficiency, control and flexibility: transform the way you run your monetization processes with charging and billing as a service
- Centralized revenue stream control across fixed, mobile, prepaid, and postpaid offerings
- Enhanced business agility: modular solution increases your architecture options and lets you choose best-of-breed partners and technology
- Leverage existing assets: monetize on partnerships and leverage existing network assets to support partner models

### Top-Up Gateway (TUG)

enables a rich integration of top-up provider channels and the prepaid charging system. TUG functions as a middleware component that listens to top-up recharges, cancellations, adjustments and inquiries with all necessary interfaces.

## Back-Office Process Management

Qvantel Back-office Process Management includes the Case Management, Knowledge Management, Transactional Document Management and Operational Dashboards subsystems.

### Case Management

Deals with cases, that is, issues which need to be handled in a way that leaves a record. Case Management users (e.g. CSRs) can write problem descriptions, comments related to solving actions, and the resolution of the case. Users can assign cases to teams and individuals. Problem lifecycles and categorization are configurable.

### Knowledge Management

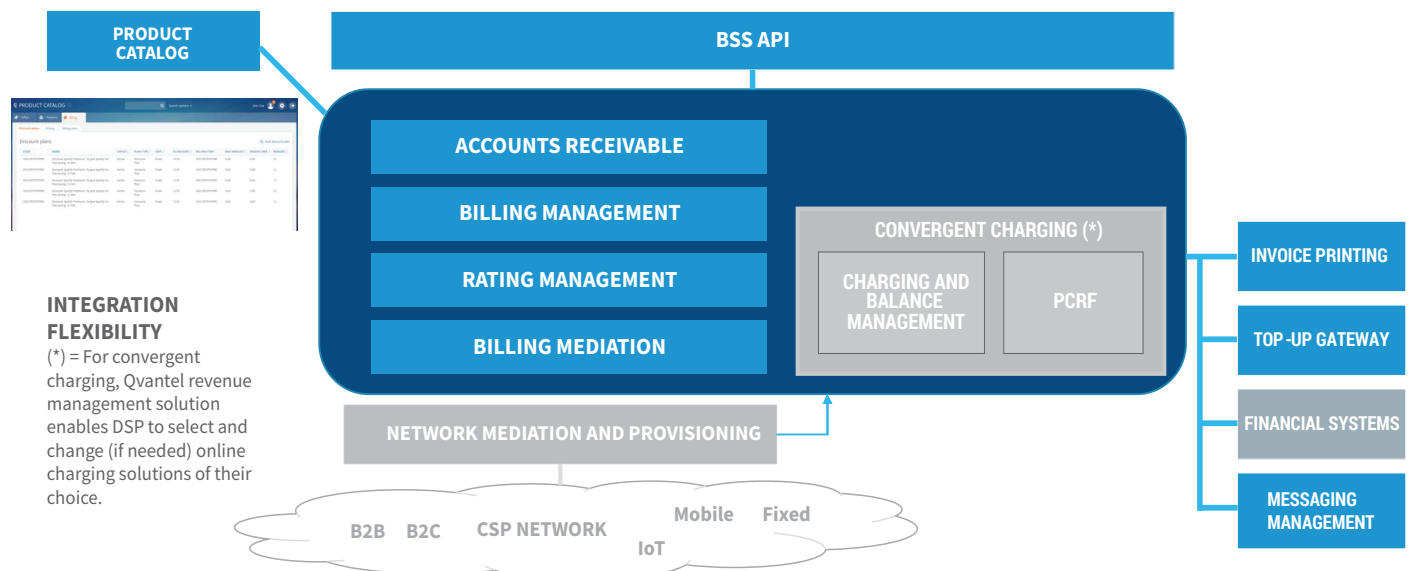
Provides users with easy-to-use tools to create, manage, and publish knowledge efficiently. The supported knowledge types are frequently asked questions (FAQs) and knowledge base articles. Knowledge Management provides users with easy-to-use tools to efficiently create, manage, and publish internal or public knowledge in multiple languages.

### Transactional Document Management System

A solution for telecommunications activities to create, handle and manage documents such as bills, invoices and contract according to CSP business processes. TDMS consolidates formatting and storing of all customer documents into one configurable service. It optimizes business processes by providing automatic document generation and document template design.

### Operational Dashboards

Provides views and visualizations, showing (near) real-time and historical data of selected key metrics gathered from the system and business processes in operation. Critical metrics and reports will be available at a glance both on technical and business levels.



# Qvantel Digital BSS Core – Why Change?

Transforming from legacy BSS to Qvantel Digital BSS Core offers multiple benefits.

## Solid Base for Evolution

Move from multiple, hard to maintain legacy BSS silos into one BSS Core solution with a solid base for future evolution.

## Cost Efficiency

Via consolidation, avoid overlapping operational and further development investments.

## Unique Business Model

Unique service model governed with SLAs and KPIs. Convenience and efficiency of private cloud based managed services, including business process services.

## Intelligent Offer Management

Introduce new offerings fast, with easy to use tools, and to all channels. Benefit from interplay of offering management and automated intelligence.

## Open and Flexible

With open APIs, the data and insights in the Digital BSS Core solution can be leveraged for channel innovation.

## New Level of Intelligence

Advanced analytics and predictive intelligence enable more meaningful customer experiences, real-time business insights and result in increased revenue and efficiency.

## Catalog Driven Business

Time-to-market and cost efficiency benefits from catalog driven architecture (e.g. introduction of bundles without coding).

## Back-office Tools for Agility

Easy to use tools for CSPs own business and IT teams to perform tasks related to customers, agreements, and revenue management.

## Optimized for Telecom

Designed with focus on telecom market. Telecom optimized use cases for customer in-life management.

## Adaptive

Architecture is flexible for adapting to customer landscape enables the re-use of selected pre-existing modules.

## About Qvantel

Qvantel is a pioneer in the field of BSS with over 20 years of experience in digital solutions for Communication Service Providers (CSPs).

We help CSPs with successful digital transformations to maximize their business efficiency, provide exceptional customer experience, and reduce operational costs with results of up to 80% reductions in BSS OPEX.

Our service and software offerings accommodate multiple paths to digitalization:

- | Qvantel Digital BSS as a Service
- | Qvantel Digital Channels
- | Qvantel Digital BSS Core
- | 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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