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Catalog Management – At the Heart of Telco IT and the Core of Customer Engagement



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Summary

Omdia view

Catalog management is an area of growth within business support systems (BSS). It is driven by the increasing complexity of product offerings and the need for telcos to adapt rapidly to changing market demands.

Within BSS, catalog management is a component of customer engagement, sitting alongside customer service management, order management, and systems for managing sales and marketing. The catalog is the data repository for all product and service information. It plays a central role in the communication service provider's (CSP's) IT stack, interfacing with other customer engagement systems, monetization systems (e.g., billing), and operational support systems (e.g., service activation).

As telecom operators strive to become digital service providers, they must grow their product offerings beyond connectivity. Their catalog systems must be able to support a variety of services, new pricing models (usage-based, tiered, etc.), promotions (e.g., loyalty rewards and time-based offers), and bundles (e.g., content and other digital services).

In June and July 2024, Omdia interviewed key providers of catalog solutions. Characteristics they identified as important included cloud native, TM Forum Open API compliance, no-/low-code configuration, and generative AI (GenAI) assistants. Most of the vendors claimed their solutions have these features; hence, they are not differentiators. What sets one solution apart from another is how well it incorporates these capabilities.

All the vendors claimed to be embedding AI into their solutions. One commonly cited use case was AI assistants to simplify product development for non-technical business users. The assistant can help configure offers, check consistency, and automate parts of the product development cycle.

AI assistants and no-/low-code tools are key to the democratization of product creation. They empower business users and decrease reliance on the IT department to make changes. The technical or IT user defines low-level network parameters, business rules, and dependencies so that the business user can configure the offerings at a simpler, more abstract level. The technical users will still be required to configure the catalog solution. Requests for the vendor to customize the solution to a particular operator's environment should be avoided.

As telcos modernize their IT stacks, they should ensure their catalog solutions are not a weak link. Done right, the catalog should provide a unified single source of truth for product and service data for other BSS/OSS components. As telcos strive to become digital service providers, a catalog-driven BSS/OSS is a key enabler for their sales and marketing functions.

Key messages

- Omdia estimates that the worldwide telecom industry revenue for catalog software (and associated services) will grow at a CAGR of 4% from 2023 to 2029, reaching \$1.4bn. The increasing complexity of product offerings (e.g., for consumers and enterprises) and the need for CSPs to launch new products faster will drive this growth.
- As a central repository for product and service information, the catalog plays a vital role in the CSP’s IT stack. It provides a single source of truth for other systems, from order management to billing.
- As telecom operators strive to become digital service providers, they must grow their product offerings beyond consumer and enterprise connectivity. A robust catalog is required to support new pricing models, promotions, and bundles.
- AI assistants and no-/low-code tools empower business users to launch new products without IT support. This is key to enabling organizational efficiency and agility.

Recommendations for CSPs

- **Simplify and rationalize your product offerings:** Operators often have a legacy of outdated products clogging up their catalogs. Outdated products should be retired, even if this means a “buyout” for the stragglers.
- **Explore GenAI:** Copilots can accelerate new product development, simplify catalog management, and enhance campaign and promotion analytics. They could even assist with the sunset of legacy products.
- **Avoid software customization:** Catalogs should be highly configurable using no-/low-code tools. If one is reliant on IT (or, worse, the vendor) to make changes, it is time to explore new catalog solutions.

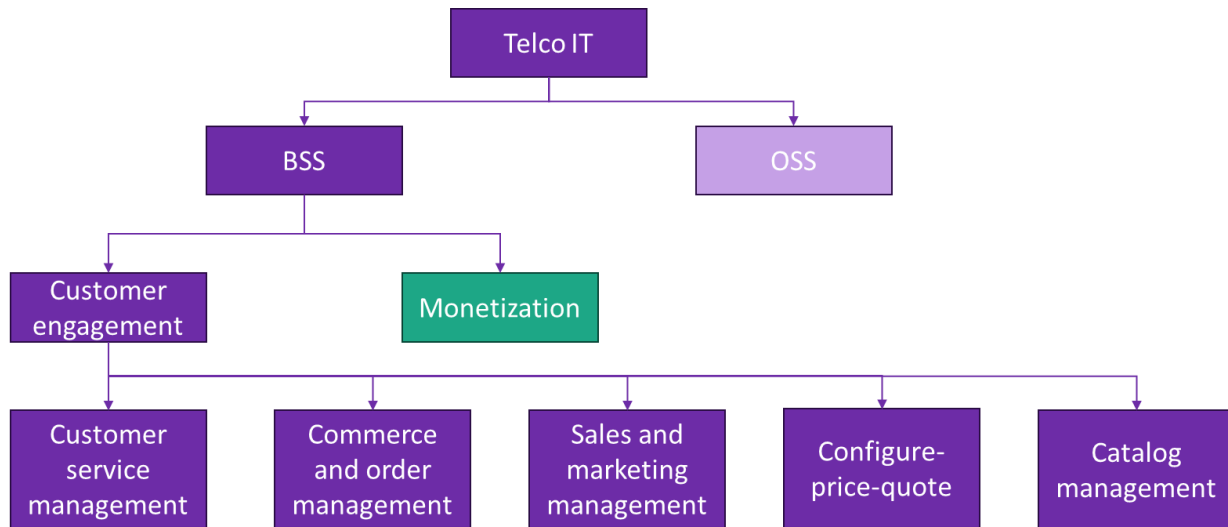
Recommendations for vendors

- **Support catalog federation:** CSPs may need to maintain some products in legacy catalogs for budget or risk management reasons. The catalog can be positioned as a single point of truth across the organization as long as it can federate catalog data from third party systems.
- **Incorporate AI in solutions:** The initial use cases relate to the human interface aspects of product development (text-based copilots and image recognition of whiteboard designs). Another use case is to model and predict the success of new product offerings. Catalog solutions should also support third-party AI tools, which the customer may prefer.
- **Ensure interoperability with third-party BSS functions:** TM Forum Open API conformance is table stakes. At the same time, establishing a beachhead with a catalog solution can provide an opportunity to offer other elements of the BSS stack from your portfolio, such as swapping out legacy systems.
- **Know yourself:** Vendors must be clearer about the true differentiators of their catalog solutions. Upon asking, Omdia received similar responses from most of the suppliers.

Catalog definition

Within Omdia’s telco IT taxonomy, catalog management is a component of customer engagement alongside customer service management, commerce and order management, configure-price-quote (CPQ), and systems for managing sales and marketing, as shown in **Figure 1**.

Figure 1: Omdia telco IT taxonomy



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Source: Omdia

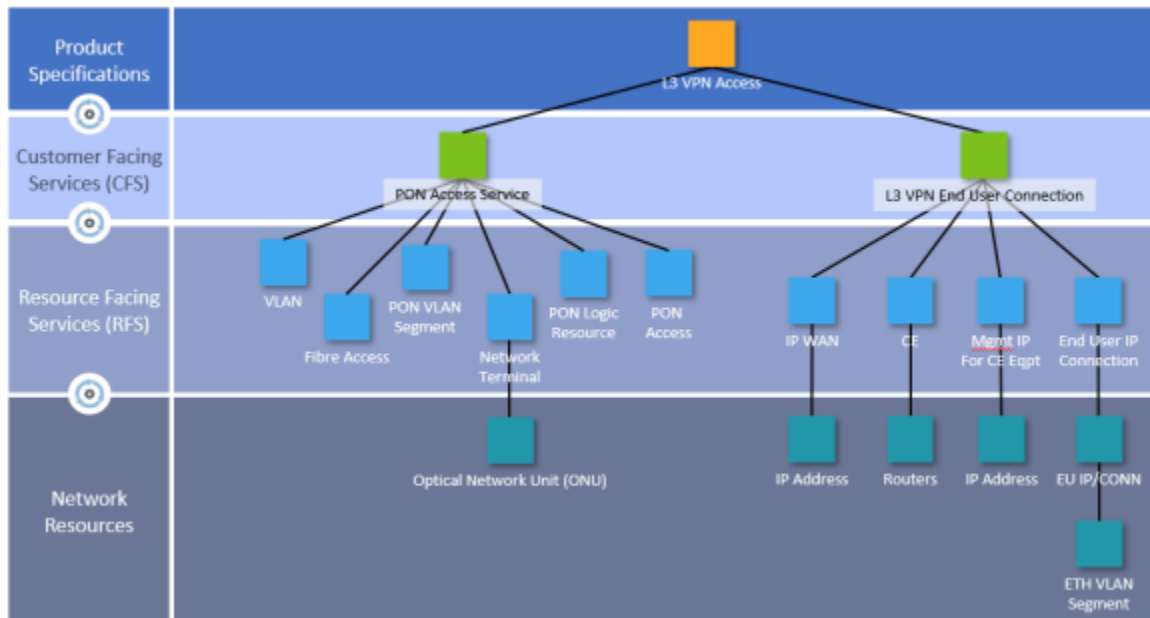
The catalog is the data repository in which all product and service information is stored and made available to the rest of the CSPs’ IT systems. Catalog software was developed to replace spreadsheets to help customers and customer service representatives find and order a wider variety of services as telecom operators expanded into video, broadband, consumer electronics, and other services and products. The catalog became the foundation for online ordering and enabled product managers to identify and offer product bundles and create targeted marketing campaigns more quickly.

Figure 2 shows the TM Forum’s taxonomy for how telecom products comprise services that rely on network resources. The top three layers in the diagram correspond to different types of catalogs according to TM Forum’s specifications: product catalog (defined in TMFC001), customer-facing service catalog (defined in TMFC006), and resource-facing service catalog (defined in TMFC010).

- The **product catalog** presents a customer-facing view that enables users to search and select products. In the TM Forum terminology, a product is something that an end customer can order. The product catalog enables product lifecycle management, from the creation of a new product offering to its deprecation. It describes the relationships between product specifications (how the product is built) and product offerings (how the product is sold [pricing, terms and conditions, etc.]). It provides reports on product offering specification changes and facilitates the product order capture and delivery orchestration processes.
- The **service catalog** contains the customer-facing service specifications. In the TM Forum terminology, a service is the underlying implementation of a product in the service provider’s network. A single product may involve one or more services. The end user is unaware of these service-level components.

- The **resource catalog** contains network-facing resource specifications. In the TM Forum terminology, services are split into customer-facing and resource-facing.

1. **Figure 2: Products, customer-facing services, and resource-facing services**

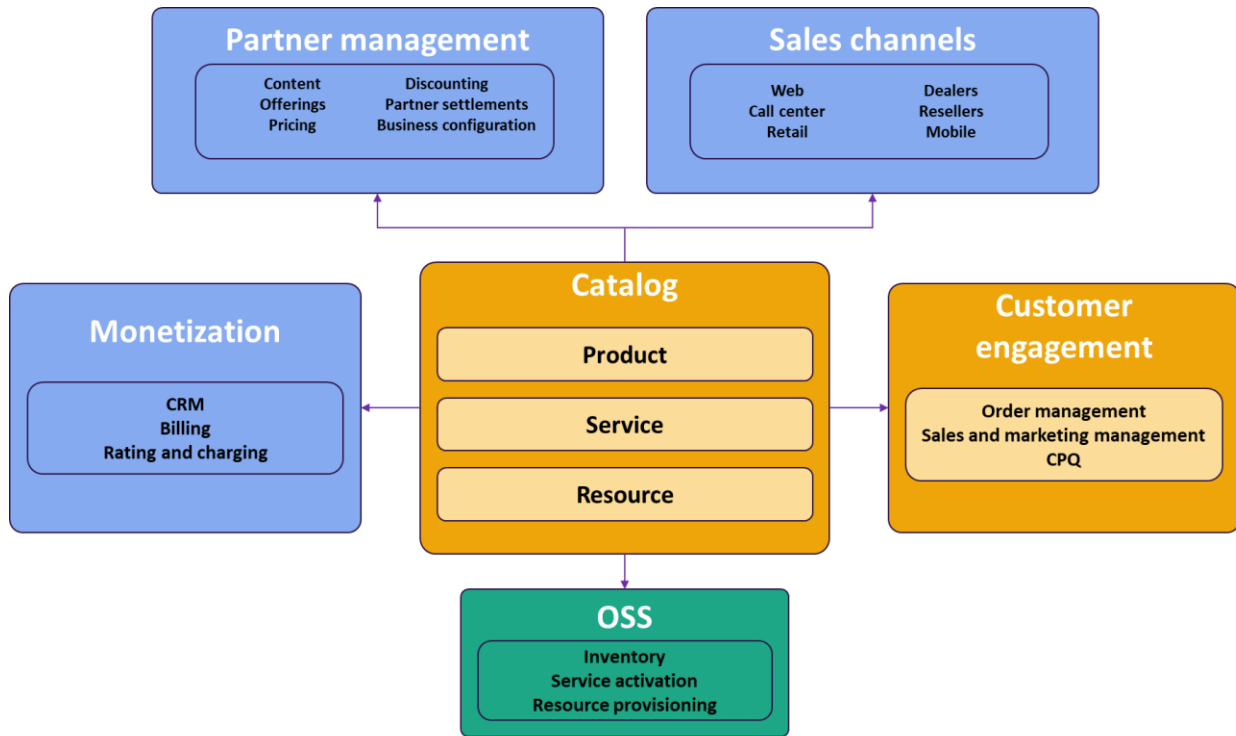


Source: Passionate About OSS

The three catalogs are often fulfilled by one system, which is usually referred to simply as the product catalog for brevity. In some cases, there are two systems: a commercial catalog (for products) and a technical catalog (for services and resources). Some vendors argue that separating the catalog into two systems allows them to be scaled independently. On the other hand, having a single system ensures data consistency. Moreover, if applications are truly cloud native, then individual microservices can be scaled, which should lead to better resource utilization than a monolithic application simply split into two modules.

As shown in **Figure 3**, the catalog plays a central role in the CSP’s IT stack, interfacing with other customer engagement systems, monetization systems, and OSS.

2. Figure 3: Catalog at the heart of the telco IT stack



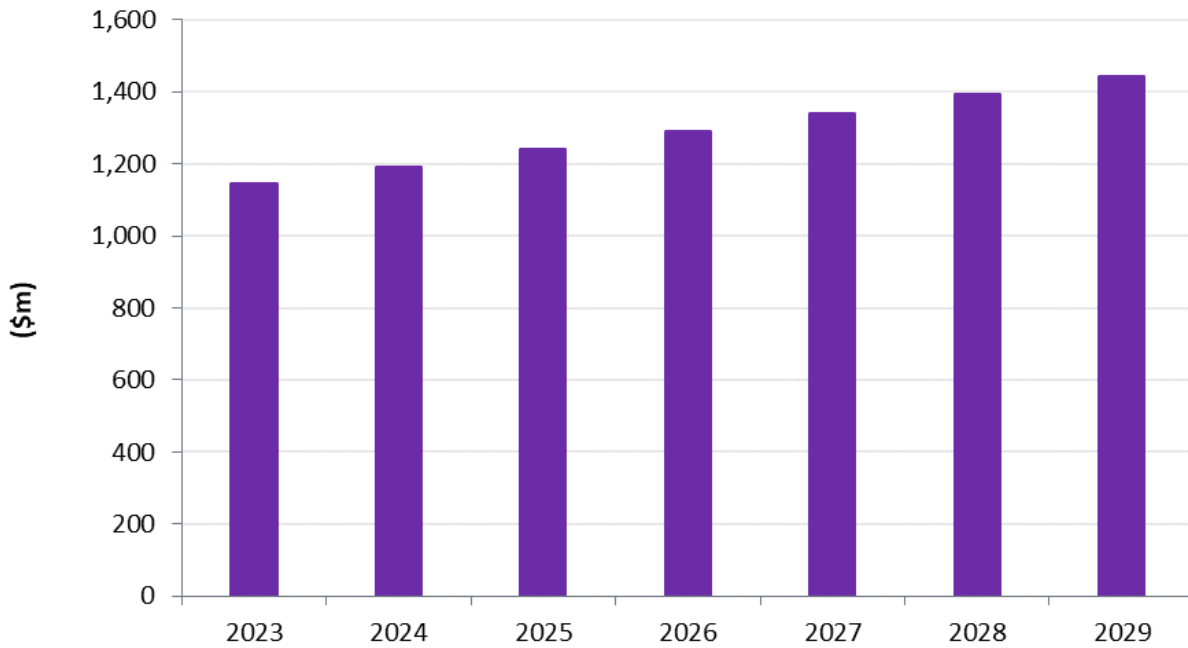
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Catalog market forecast

Omdia estimates that the worldwide telecom industry revenue for catalog software (and associated services such as integration) will grow at a CAGR of 4% from 2023 to 2029, reaching \$1.4bn. Omdia believes that catalog growth will be driven by the increasing complexity of product offerings (e.g., bundling of fixed, mobile, and entertainment services) and the need for businesses to reduce their time to market.

Figure 4: Telecom catalog management system revenue (\$m), 2023–29



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Source: Omdia

The vendors Omdia surveyed for this report were uniformly optimistic about the growth prospects of the telecom catalog market. The key reasons CSPs are looking to invest in new catalog solutions include the following:

- Supporting more complex offers and pricing
- Incorporating new digital services into the offering
- Reducing the time to market for new products
- Reducing opex through automation and AI
- Increasing the flexibility and scalability of catalogs
- Improving interoperability with other BSS
- Assuring product data integrity and consistency
- Improving product lifecycle management

Catalog vendor survey

In June and July 2024, Omdia interviewed key providers of catalog solutions.

Survey participants

While there are additional solutions in the market, Omdia believes our sample of vendors included in this study to be a representative sample of the broader landscape.

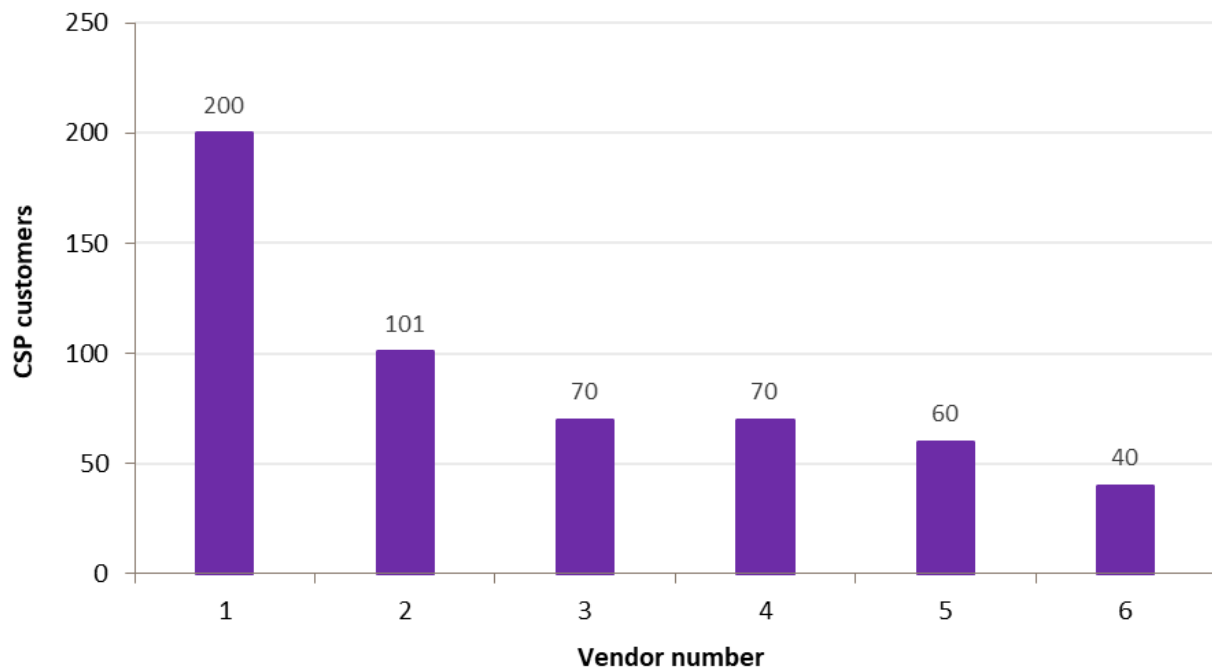
Installed customer base

Omdia asked vendors, “How many CSP customers do you currently have for your catalog solution?”

Six of the nine participating vendors shared the number of CSP clients they have for their catalogs. Collectively, they serve 541 CSPs. There will undoubtedly be some double-counting in this total because telecom operators may use catalogs from different vendors for different lines of business (e.g., mobile and fixed).

The network equipment–centric providers (Ericsson and Huawei) account for half of the reported CSPs, while the remainder is divided among the OSS/BSS and IT vendors. As **Figure 5** shows, one of the vendors claims a much larger number of customers than its peers.

3. Figure 5: Number of telecom catalog customers by vendor (anonymized)



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Source: Omdia

Key differentiators

Omdia asked vendors, “How is your catalog differentiated from the competition?”

As **Figure 6** shows, the vendors cited numerous things as differentiators. However, many vendors cited the same things as differentiators (e.g., cloud native, TM Forum Open API compliance, no-/low-code configuration, and GenAI assistants). Meanwhile, those that did not mention a particular differentiator probably did so through omission; after checking with several of them, they claim their catalog has pretty much the entire list of differentiators.

A differentiator that one of the vendors mentioned was that its BSS suite (including catalog) was developed internally, while some of its competitors had grown through acquisition. In its view, this led to a more seamless solution with lower integration challenges. Vendors that had grown through acquisition countered that they had a meticulous approach to onboarding and merging new companies into their broader BSS stack.

Another area of difference between suppliers was support for SaaS. Some vendors only offer catalogs as a SaaS solution hosted in a public cloud. Others recommend deployment on-premises by the telco, though, they are open to different payment methods (i.e., perpetual licenses or recurring subscriptions).

4. Figure 6: Catalog differentiators by vendor (anonymized)

Differentiator	Vendor								
	Amdocs								
Cloud native, modular, microservices, CI/CD	x	x	x	x	x	x	x	x	x
APIs, TMF Open API	x	x	x	x	x	x	x	x	x
Integrated Suite	x	x	x	x	x	x	x	x	x
No/Low Code configuration	x	x	x	x	x	x	x	x	x
Gen AI Assistants	x	x	x	x	x	x	x	x	x
E2E product lifecycle management	x	x	x	x	x	x	x	x	
Collaboration & role based	x	x	x	x	x	x	x	x	
Real-time rules	x	x	x	x	x	x	x	x	
TMF SID model	x	x	x	x	x	x	x	x	
Ready for ODA	x	x	x	x		x	x	x	
Templates and patterns	x	x	x	x	x	x		x	
GUI	x	x	x	x	x	x			x
Publish to multiple entities	x	x	x	x	x	x	x		
Third party AI/LLM	x	x	x		x	x		x	x
Product, Service, Resource	x	x	x	x	x		x		x
Product/service agnostic	x	x	x	x	x		x		
Federate other catalogs	x	x	x	x		x	x		
Independent commercial and technical catalog	x	x	x	x	x			x	
Independent Design AND runtime	x	x	x	x			x		
Consulting Services	x	x	x	x	x				
Can be hosted in vendor’s datacenter	x	x	x		x	x			x
Version Control	x			x	x			x	
Image input				x	x				

Source: Omdia

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Source: Omdia

Complex pricing, promotions, and bundles

Omdia asked vendors, “How does your catalog handle complex pricing models, promotions, and bundling options?”

As telecom operators strive to become digital service providers, they must grow their product offerings beyond consumer and enterprise connectivity. Catalog systems must be able to support the increased

variety of services and combinations thereof. They must support new pricing models, promotions, and bundles, including those from partners.

New pricing models include subscription-based, usage-based, tiered, and multidimensional rules-based. Catalogs must support formula-based discounts, allowances, and dynamic (real-time) pricing based on the time of day or location (for example, venues such as sporting stadiums and tourist attractions).

Catalogs should support promotions, including discounting options, loyalty rewards, and time-based offers. Promotions could be based on customer information, location, and sales channel criteria. Analytics tooling should provide real-time insights into promotion performance to optimize and respond to changing market conditions.

The catalog must support bundling. A notable innovation for bundling is contextual inheritance, in which the catalog automatically instantiates dependencies for creating the bundled offer, sometimes with AI assistants that create and manage the dynamic, real-time generated bundles. These dependencies include mandatory and optional components, customer configuration choices, bundling hierarchies, and lifecycle management.

A no-/low-code development environment and user-friendly GUIs should enable complex offerings to be built via drag-and-drop. Templates can also be used to accelerate the product development process. Updates and revisions should propagate throughout the system, ensuring all products and offers are current and consistent.

Use of AI

Omdia asked vendors, “How does your catalog leverage AI?”

All the vendors claimed to be incorporating AI into their solutions. One commonly cited use case was AI assistants to simplify product development for non-technical business users. The assistant can help configure offers, check consistency, and automate parts of the product development cycle. One vendor noted that its AI assistant helped operators rationalize and eliminate 75% of legacy products.

In addition to using AI in their products, the vendors support external AI and analytics engines. The unified catalog provides clean, consistent product data, attributes, and configurations for analysis. One vendor noted support for TM Forum 921 Intent Management API for exporting network and business intent models to external AI systems.

Catalog use cases for AI include the following:

- Natural language input to accelerate product development
- Interactive/smart FAQ assistant to guide users through knowledge bases
- Simplification of offer design, development, and operation to shorten the time to revenue
- Offer personalization (next-best offer, recommendations, and insights based on customer data)
- Identification of upsell opportunities based on product consumption and performance data
- Rationalization of product offerings
- Price and promotion optimization; analysis of offer performance

Integration with third-party systems

Omdia asked vendors, “How does your catalog integrate with third-party BSS components, and what examples of customer implementations have been multi-vendor?”

As shown in **Figure 3**, the catalog sits at the heart of telco IT. Hence, integration with third-party BSS components and other systems, such as analytics, is paramount. All the vendors Omdia surveyed adhere to TM Forum’s open APIs. In addition, vendors mentioned XML, graph exports, and SQL extraction as ways to share data with other systems.

One vendor noted a particularly complex deployment in which its product catalog was integrated with six different vendors for billing, charging, rating, service catalog, resource catalog, CPQ, sales channel, and CRM. The same vendor cited another example of its product catalog integrating third-party billing and charging, quoting, and order management systems while federating three subsidiary catalogs spanning different business lines.

Financial impact of product catalog

Omdia asked vendors, “Are there any examples of customers who were able to increase revenue or reduce costs owing to a new catalog?”

Examples shared by vendors in which the product catalog reduced costs or increased revenue include the following:

- **System consolidation:**
 - The CSP consolidated multiple catalogs into a unified system, streamlining operations and enhancing efficiency
 - New partners and bundled offerings raised ARPU
- **Product rationalization:**
 - B2C product offers reduced from 12,000 to 3,000 and up to 98% reduction in time to market
 - The CSP simplified its catalog by up to 98% using the catalog template, reducing complexity and operational overhead
- **Product personalization:**
 - Hyper-personalization and microsegmentation for personalized offers that enhance customer satisfaction and enable quick market adaptation
- **Bundling:**
 - The CSP broadened into additional verticals like fintech and healthcare, streamlined partner onboarding, and provided flexible bundling options
 - It now offers a portfolio of over 30 global and regional partner products and services with increased revenues

- **Simplified onboarding and configuration:**
 - The CSP used a GenAI solution with the vendor’s catalog and BSS suite for partner onboarding and catalog configuration, with up to 90% of the onboarding process being offloaded to GenAI
 - Catalog entry was reduced to minutes (from days), contract review to 2 hours (from 5–10 days), and catalog changes to 30 minutes (from 1–3 days)
 - Overall, the vendor estimates 97% in time savings through this process

Product catalog profiles

Amdocs Catalog

Amdocs Catalog is a core component of the Amdocs BSS solution, the Customer Experience Suite (CES), designed to meet the needs of CSPs and other vertical industries. Amdocs Catalog is also available as a standalone catalog that integrates and supplies the other components in a suite with a single reference point for its product and service data. It boasts a modern, cloud native, and microservices-based architecture that can deploy on any public, private, on-premises, and hybrid cloud. CSPs of all sizes can benefit from the scalability of cloud solutions, and Amdocs notes a user capacity from a few hundred to 100 million subscribers. Amdocs Catalog supports centralized and federated (distributed access spread across multiple systems) deployments. Amdocs Catalog is a unified catalog built to manage a main brand and multiple sub-brands, with multiregional and multidepartmental/business unit offerings on a single catalog.

Amdocs Catalog support spans the CSP’s products and services, serving B2C for mobile devices, home services such as fiber, B2B services (e.g., VPNs), and new telecom applications. The catalog covers charging and billing policies (for example, dynamic and personalized) and subscription marketplaces. It also aligns with TM Forum standards (e.g., TMF 620).

Amdocs made a catalog with usability in mind to enable non-technical business users to use a drop-and-drag GUI and intuitive navigation that accelerates the creation of new products and services. Eliminating the need for IT technical expertise establishes a working environment that encourages rapid ideation and experimentation. Likewise, the no-code approach leans into product configuration (rather than customization) and keeps innovation under the control of business users, enabling the configuration of business rules (such as eligibility and entitlements). It also allows admin users to define workflows and approval processes with full flexibility. By empowering non-technical users, Amdocs Catalog implements role- and attribute-based access controls, establishing segmented security for internal and partner users and ensuring only authorized users can view or modify specific catalog parts.

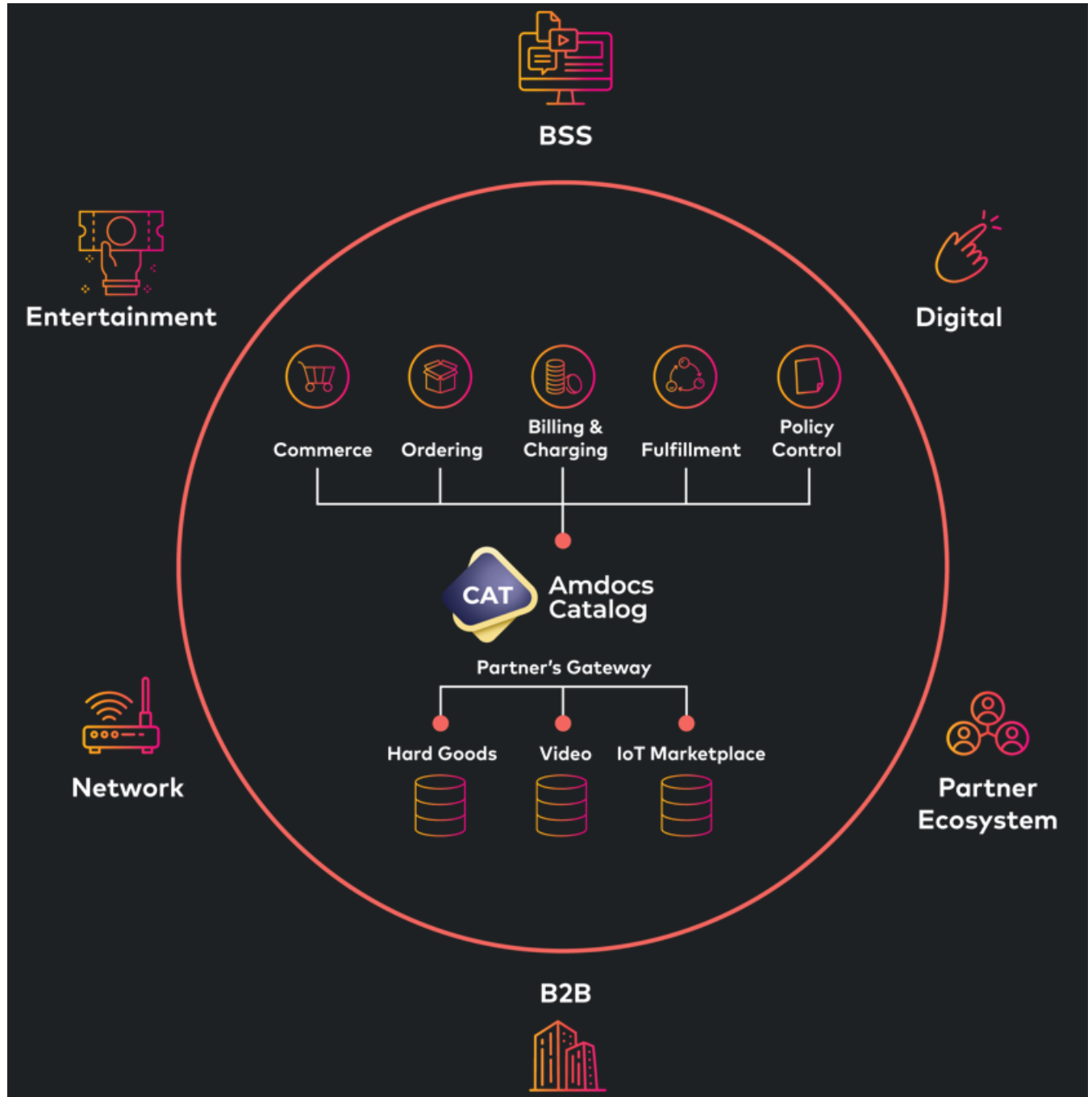
Amdocs Catalog provides templates for product offers and services that can be used as is, out of the box. However, it also provides a starting point for local customization and adaptation to market needs, business policies, and more complex offerings, so no one has to start with a blank page. A GenAI catalog assistant (copilot) accelerates new product development with its natural language capability. For example, users can use simple text queries to find and manage catalog items, set up bundles, and adjust pricing promotions. The catalog copilot provides offer comparisons and summaries, gives suggestions, and can automate repetitive tasks.

The catalog supports a wide variety of promotions and analytics, including discounts, vouchers, and cross-product offers, all configurable and deployable in real time. The embedded analytics engine provides

detailed reports for product performance, customer engagement, and promotional effectiveness, helping users make informed decisions and rapidly adapt to changing market conditions.

Amdocs Catalog is a collaborative platform that serves all organizational stakeholders, from marketing to IT to finance, according to their roles and permissions. This enables an automated and synchronized approval and launch process that aligns with company policy, with secured account attribute-based and role-based access control standards.

Figure 7: Amdocs Catalog, a business-driven, unified catalog



Source: Amdocs

Appendix

Further reading

[*Corralling the Catalogs to Deliver Dynamic Order Management*](#) (April 2023)

[*Partner Ecosystems for 5G and IoT: 10 BSS Essentials*](#) (August 2022)

[*Telecoms IT Market Forecast Report: 2023–28*](#) (August 2023)

[*World Information Series - Service Provider - Converged \(Mobile, TV, and Broadband\) Data Dashboard*](#)
(August 2024)

Ryan, “[Differences between CFS and RFS](#),” Passionate About OSS (retrieved August 2024)

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