



Whitepaper

Digital Commerce

**Reimagining commerce for
telecommunications: Personalizing
journeys, transforming experiences**

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Executive summary

Any organization that sells goods or services needs a commerce system that allows customers to review and purchase their offerings, either online or in a bricks-and-mortar physical location.

The digital revolution that has occurred over the last decade or so has increased customer expectations of easy and seamless online purchase and delivery – a phenomenon brought into focus even further by the COVID-19 pandemic. This trend has encouraged the development of new general-purpose commerce engines that support sales of a bewildering variety of products.

Unlike general commerce applications that deal with one-time purchases, the communications & media industry presents unique aspects, requiring specialized knowledge and capabilities from an industry-grade commerce solution. Examples include the dependency of services on the customer's location, concepts of commitment terms, promotions, stepped and tiered pricing, managing customers' existing products and lifecycle changes, multiple entities playing a part in the interaction (customer, user, home), and dependencies between products.

Traditionally, commerce systems in this industry were developed in-house, or purchased piecemeal from vendors. Furthermore, they typically revolved around silos specific to lines of business (LoB), thereby restricting the ability to market and sell offerings that bundle offerings from multiple LoBs.

As communications & media services become commoditized in terms of revenues (ARPU), operators are increasingly looking to broaden their mass-market offerings. This includes establishing partnerships with over-the-top (OTT) providers, or bundling offerings with businesses from other verticals such as home security, home health, connected car, and more. Combined with customer expectations for single, simplified touchpoints, this trend requires commerce systems that support flexible pricing models, support zero-touch onboarding of partner products, and offer a streamlined sales and ordering experience.

In this paper, we will show how key elements of an advanced commerce software system can assist communications service providers (CSPs) in addressing their needs for the residential/mass market. Such a system provides an end-to-end solution for commerce activities, from the design and creation of offers, through the end-user shopping experience across multiple channels, to delivery and fulfillment. We will indicate how the system enables attracting new customers, acquisition and delivery of products, handling promotions, using AI to recommend best offerings, bundling offerings with partners' products, increasing customer retention, and more.

Evolution of commerce systems

Let's begin with a short summary of how commerce systems for the communications & media industry have evolved over recent decades.

When software systems for ordering and customer care were first introduced, they tended to be tightly coupled to the underlying network services. There would be a silo for PSTN, another silo for dial-up internet, and so forth. This became more complex as communications service providers (CSPs) acquired new lines of business to grow their business. In many cases, the silos were end-to-end, whereby each silo had its own customer management, care, and billing. Silos were generally hard-coded, often on legacy mainframes, making it difficult to adjust to new business conditions in a timely manner, or to sell bundles across lines of business.

More recently, independent software vendors (ISVs) developed ordering systems based around configurable product catalogs, business rules, and process engines. These applications provided capabilities for defining products and prices dynamically, and bundling across lines of business (LoB).

However, such advances in ordering capabilities are not sufficient for the industry's current and evolving needs, as we will see in the following sections.

Service provider challenges in an era of change

Focusing on the communication & media industry, we can identify several challenges faced by CSPs, such as increased competition, changing customer demands, regulatory pressures, and technological disruptions. These challenges require them to adapt their strategies, invest in innovation, and improve their operational efficiency. Let's explore some key challenges.

Decreasing basic communication revenues

It's widely believed, even if not officially confirmed, that the value and revenues from basic communications services (like Average Revenue Per User – ARPU) are on the decline. For example, in 2022 [Omdia predicted that ARPU would decline globally in the period 2022-2027](#). Additionally, mobile service providers need to monetize the large investments that they have made in 5G. As a result, companies are seeking to expand their markets and revenues from additional sources, providing more value and avoiding 'price wars'. There is a wide variety of addressable markets, including:

- Partnerships with over-the-top (OTT) providers, such as Netflix, Spotify, Microsoft, Google, etc.
- Partnerships with specialty lines-of-business providers, such as home security, gaming, home health, connected car, etc.

This [TM Forum research report](#) provides more details on potential new revenue streams.

Rapid technological changes

The communications & media industry, possibly more than other verticals, is undergoing significant changes due to the advancement of technology. The emergence of new services, such as cloud computing, Internet of Things, artificial intelligence, 5G networks, and low-code/no-code frameworks has increased the demand for high-speed, reliable, and secure connectivity. These technologies enable greater agility and shorter time to market, helping CSPs to move more quickly and capture market share.

Additionally, market perceptions and drives for efficiency are causing CSPs to increase their emphasis on opex as opposed to capex. Furthermore, increasing opex can allow these players to develop additional solutions for sale, as opposed to (for example) capex on new network rollout.

Such a transition is often referred to as "Telco to Techco", reflecting the fact that CSPs are looking to offer technology solutions that go beyond communications, such as cloud storage, security protection, and more. These can then be bundled with communications offerings, giving the CSP a unique advantage over third-party technological offerings.

Some advancements require CSPs to adapt their business models, invest in new infrastructure, and enhance their digital customer experience. In addition, these advancements have contributed to growing competition, since new entrants, such as over-the-top players, offer customers low-cost and more innovative solutions.

To survive and thrive in this dynamic environment, CSPs need to leverage technology as a strategic asset, as well as a source of competitive advantage.

Customers and partners expect connected simplicity in real time

While customers have long expected simplicity in their interactions with CSPs, the same holds true for partners. A partner will likely choose to work with operators who offer zero-touch onboarding and settlement. As a result, commerce applications need to cater to partnerships as well as offering end-customers a seamless experience when ordering and consuming products. These days, we all come to expect the systems to do the heavy lifting for us through automated streamlined flows.

Note: Since the focus of this paper is on the mass-market and residential segments, we will not consider the revenue potential from the business/corporate/government sectors.

Service provider uniqueness for commerce systems

After reviewing advancements in the commerce domain and establishing the specific forces challenging and shaping the communication & media industry – let's examine how digital communication service providers differ from their peers in other industries, especially in the area of commerce. We can characterize unique aspects of this industry as:

- Dependency of products and services on the customer's location. For example:
 - Fast internet cannot be offered in a location not covered by fiber-to-the-home; however,
 - If we have a strong 5G network, we may offer internet services over wireless as an alternative
 - Technical and business dependencies between products, including characteristics of the product. For example:
 - If the customer chooses broadband with 15Mbps bandwidth, we can likely offer HD TV, but not 4K TV
 - Different types of customer journeys. For example:
 - Initial purchase, updating a product, service suspension due to vacation, moving to a new address, service suspension due to collection (dunning), upgrade, and more (collectively known as MACD actions – Move, Add, Change, and Disconnect)
- Multifaceted Ecosystem integration
 - Partial list of systems with which a CSP commerce application must integrate: network provisioning, logistics, workforce management, billing and charging, identity management, customer care, and more
 - Commitment terms that govern the relationship between the customer and the CSP (for example, a reduced recurring price if the customer commits to staying with the provider for 2 years)
 - Flexible bundling, including partnerships. For example:
 - Bundling broadband with over-the-top TV streaming supplied by a partner
 - Promotions based on what the customer is ordering and what they already have. (Note how this differs from bundled offerings, where the discount is already included in the bundle special rate, or promotion for a specific point of sale.) For example:
 - A customer buys or already has the latest iPhone and purchases a second one for 50% off within a given window of time for which the promotion is active
 - A customer who purchases a mobile platinum plan in Walmart receives a \$10 discount
 - Stepped and tiered pricing, based on quantities that the customer is ordering now and already owns. For example:
 - A family offering with a mix-and-match of plans; buy more, pay less

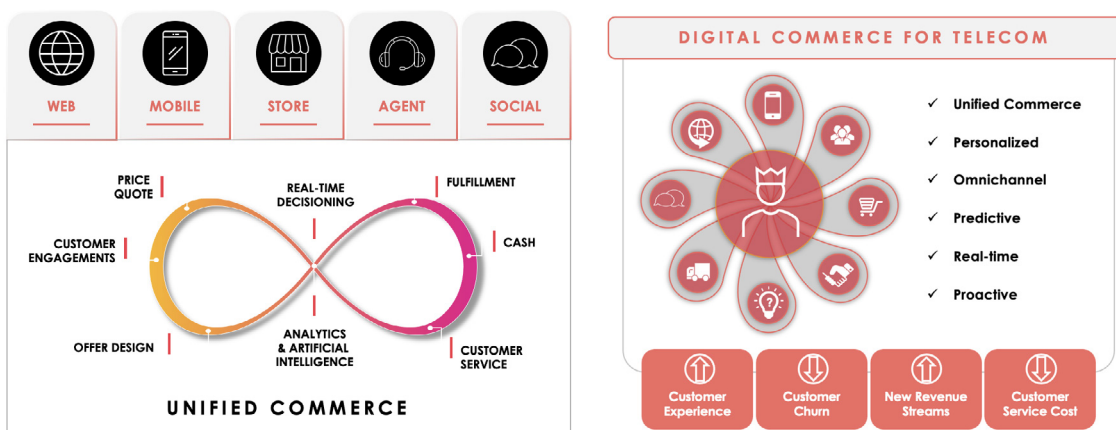
Let's now contrast these aspects with commerce requirements for the retail market (such as groceries, furniture, electricals, electronics, etc.) and OTT services (such as video streaming, music, cloud storage, etc.):

Aspect	Industry	Communications	Retail Goods	OTT
Long-term relationship with customers		Inherent in the business model	No, can be artificially created by membership programs	Inherent in the business model
Sophistication of products and services		High	Generally low	Low to medium
Interaction frequency		High	Medium	Medium
Customer journeys		Buying goods and services, changing services, suspending or resuming, inquiries, complaints, port in/port out porting services, change address	Buying goods, occasionally returning them, complaints	Initiating or terminating service, suspending or resuming, inquiries, complaints
Purchase model		One-time and recurring Usage based	Mostly one-time	Mostly recurring
Promotions		Apply to one-off purchases and to ongoing products	Typically one-off, buy item A and get item B reduced	No obvious scope
Dependencies		Inherent in the business model	Not generally relevant	Not generally relevant
Commitment Terms		Inherent in the business model	Not generally relevant	Potentially applicable
Stepped/Tiered pricing		Apply to one-off purchases and to ongoing products	Typically one-off, buy 4 items A at lower unit cost	Potentially applicable
Partnerships		Essential in today's market, service providers enable the integration of add-in products	Purely commercial with no enablement	With underlying service provider
Ecosystems		Many complex integrations to upstream and downstream systems from multiple vendors	Fewer and simpler integrations	Fewer and simpler integrations

The table above illustrates that although communications & media shares some characteristics with other industries, the confluence of all factors taken together represents a unique challenge for systems that support commerce. In the next section, we'll see how these can be addressed.

Flexible commerce offering for service providers

Enabling CSPs to address the challenges of their unique market, demands a flexible and configurable commerce solution. Let's explore the requisite toolset by revisiting some of the examples, and demonstrating how these can be handled with an advanced commerce application, tailored for CSPs.



Dependency of products on customer location

Products supplied over a wireline network will be dependent on the exact capabilities of the underlying network services. For example, an operator can only offer fast internet broadband if the customer resides in an area that has fiber access rolled out.

We don't want to offer customers products that we cannot fulfill. For this reason, the commerce system needs to be aware of these capabilities, such as by performing a serviceability check based on customer location. This requires integration with provisioning (OSS) systems and catalog mapping between product and service – features that are less likely to be available in generalized commerce applications.

Dependencies between products and services

Product interdependency is a common phenomenon in the communications & media industry. For example, any customer who wants 4K TV streaming, will have to choose a higher bandwidth for underlying broadband than if they wanted HD TV.

A flexible commerce system tailored for CSPs allows marketers to reflect these dependencies in different ways, such as:

- Explicitly bundling internet and TV services in dedicated offerings, ensuring that TV capabilities match the bundled internet
- Restricting the choice of standalone TV offerings based on the customer's existing internet offering
- Offering upsell of internet bandwidth to support the higher quality TV

Generalized commerce systems may indeed support commercial bundling, but are less likely to be aware of product interdependencies.

Customer eligibility

The CSP will typically want to ensure that the correct products are made available to eligible customers by defining qualification criteria. For example:

- Display only pre-paid offerings to customers with a low credit rating
- Hide business offerings from customers in the mass/residential market

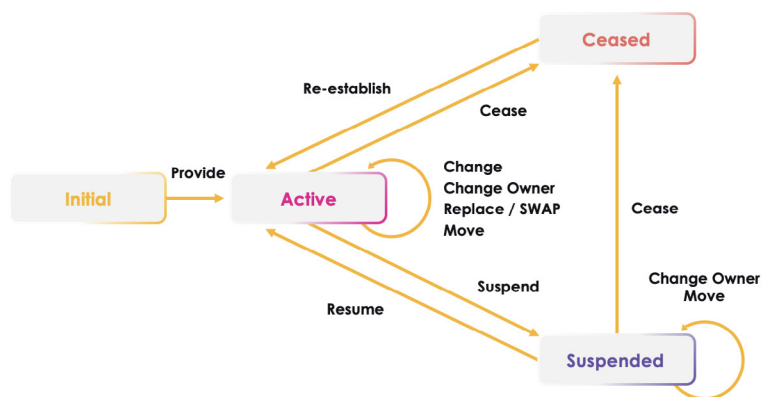
In a commerce application optimized for CSPs, marketing can define qualification rules that utilize data about customers, their products, and more, to filter out ineligible offerings.

Sales journeys and customer lifecycle management

As mentioned previously, CSPs must manage a variety of sales journeys to cater to the diverse and shifting customer preferences. This includes accommodating scenarios such as new customer acquisitions, service upgrades, changes in service consumption locations, and ownership changes, as well as lifecycle events like service cancellations, suspensions, and renewals.

Each of the steps in the journey may have a commercial impact that needs to be handled by the operator. For example, if a customer is replacing an offer, it could impact promotion eligibilities and benefits, or in contrast, carry it over to the new offer without impacting the expiration date. Another example relates to price and promotion changes that take effect when services are suspended, differentiating between voluntary and involuntary suspension.

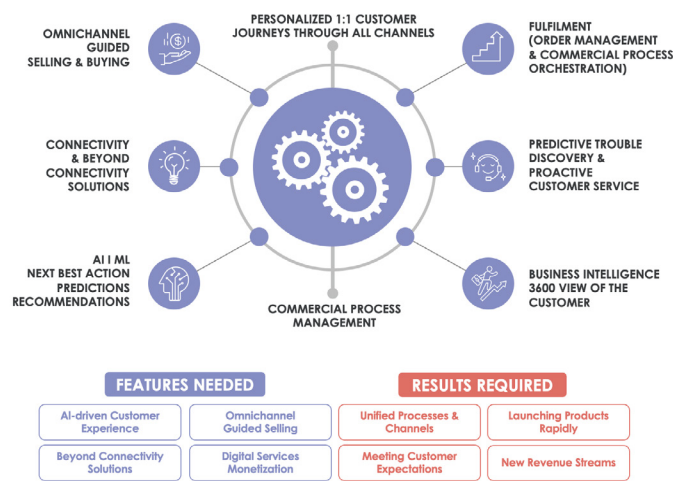
Provide (Add)	Activate new product to a customer
Change	Change existing service configuration
Cease (Terminate)	Disconnect a service
Re-Establish	Re-establish ceased service
Suspend	Suspend whole service
Resume	Resume suspended service
Replace Offer	Replace commercial offer
Move	Physical address move of services (Provide-part and Cease-part)
Change Ownership	Transfer ownership of a service from one customer to another
Port-In / Port-Out	Capture and validate logical resource allocation and release
Swap SIM	Replace SIM (lost, broken, due to replace device)
Swap Device	Replace / upgrade existing device / equipment
Return Device	Capture and validate device grace period and condition for return



Commerce Journeys for CSPs and other verticals

Integration and expansion

A critical challenge for CSPs lies in integrating commerce solutions with various existing systems like billing, care, network provisioning, logistics, and more. A industry-specific commerce solution should provide a centralized platform for harmonizing product data and facilitate the order process across systems, ensuring consistency and precision.



Commitment terms

A common objective for CSPs is to increase customer “stickiness”. One common approach is to offer price reductions in return for a commitment term. For example, offering a reduced recurring fee of \$60/month for home internet, if the customer agrees to commit for two years.

Clearly, the requirement to encourage customer loyalty is relevant to many service industries. However, outside communications & media, it is not always so easy, practically, for customers to move from one service provider to another. Our industry therefore is an outlier in this respect, making the ability to offer and to enforce commitment terms particularly relevant to CSP commerce applications.

Flexible bundling for digital marketplace

CSPs are expanding into new digital media and tech-service offerings and building partnerships with service providers from adjacent industries. This creates the need to bundle communications & media services. For example:

- Bundling broadband together with TV provided by an OTT partner, including waiving the price paid for data usage during OTT consumption
- Bundling communications products with the hardware devices needed to use them
- Offering discounts on accessories when purchased together with core communications products

With flexible bundling, CSPs can combine offerings spanning many fields and domains. Flexible offering and bundling is a powerful tool for marketers and business people, and is a key capability in markets where digital content and services are becoming increasingly significant. This enables business people and marketers to harness their evolving product portfolio to ensure maximum growth, customer satisfaction, and loyalty.

- Prepackaged bundle: predefined packages of products and services that are sold as a single unit, usually at a discounted price
- Soft prepackaged bundle: packages that allow customers to choose from a set of options within a product category, such as selecting a specific plan and add-on services like OTT
- Freestyle cart experience: enables customers to create their own combination of products and services from different categories, such as mixing and matching devices, plans, accessories, and media services

Commercial bundling as a strategic tool and its options are especially relevant for CSPs that provide multiple product lines such as wireless, TV, broadband, and voice. If the business allows it, customers can change a set of products over time. This may include merging existing products into a single bundle, moving from one bundle to another, or splitting a pre-packaged bundle into standalone offers. These operations can typically involve special handling of fees and penalties for breaching bundling terms.

Such flexibility for customers to manage their product portfolio over time can increase customer satisfaction and stickiness.

Sophisticated price (step/tier) and promotion strategies

Communications & media commerce solutions should support flexible pricing and promotion strategies – like tier/step price, discounts, and free offer promotions according to specific customer context. For example:

- VIP customers receive a special discount on their mobile plan
- According to the customer lifecycle journey, a new purchase, upgrade, or replace offer activity triggers a discount
- Free trial of one month for a specific service when purchased online

Furthermore, promotional campaigns can be adapted to various customer types, regions, and purchasing behaviors. For these reasons, promotion engines must be versatile, whereby discounts and offers are applied across different customer journeys and touchpoints.

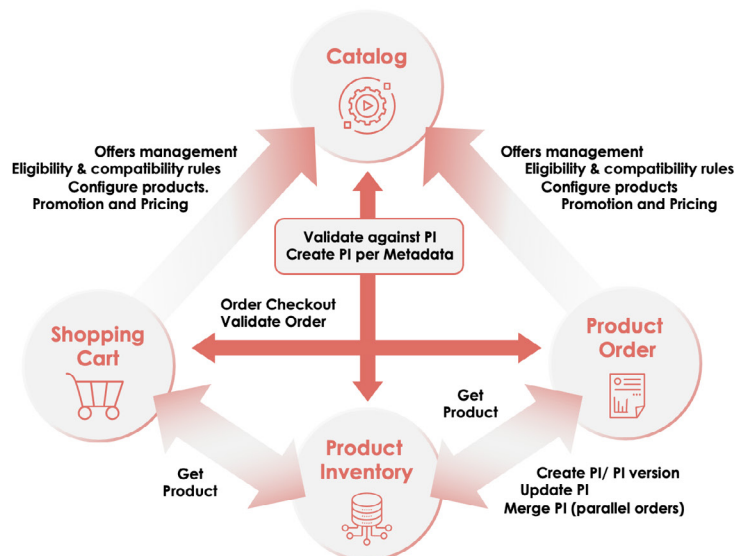


Required Promotion and Discount capabilities

Communications & media commerce evolution

Let's summarize our assertion. Facing emerging trends and modern technologies, the communications & media industry must adopt commerce systems capable of supporting a variety of complex business scenarios. CSPs who combine advanced technology and focus on component-level reuse across catalog and commerce domains will increase operational efficiency, increase performance, and reduce siloed systems. As a result, it will empower them to deliver innovative, customer-centric solutions at speed, thereby creating new value, enhancing customer loyalty, and securing a competitive advantage.

- Access **500+ certified flows** from Day 1 and through continuous updates
- **Cart and Order business logic is driven by Catalog Services**
- Enhanced **API performance** optimizing responsiveness for channel applications
- Streamlined end-to-end processes from configuration to order placement, **minimizing order fallout**s
- Faster product launches and **quicker time-to-production**
- **Cost savings** by avoiding the need for extensive custom integration efforts



Modular Commerce and Catalog Solution Benefits that assist global operators.

The specialized nature of the communications & media industry presents significant challenges in managing product catalogs, pricing strategies, sales processes, system integration, and analytics. This sets its commerce experience and demands apart from engines in other industries such as retail, consumer goods, utilities, or hospitality.



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