



TREND REPORT

Composable IT & ecosystems

future BSS:

building new customer-focused strategies

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We hope you enjoy the report and, most importantly, find ways to use the ideas, concepts and recommendations detailed within. You can send your feedback to the editorial team at TM Forum via editor@tmforum.org







Business support systems (BSS) – which handle the management of products, orders, revenue and customers – are the functional lifeblood of communications service providers (CSPs). Nearly all customer interactions are carried out via a telco's BSS, so customer experience success relies on their effectiveness.

The next decade of new telecoms business opportunities will also hinge on these systems being able to adapt to provide new revenue opportunities in complex multivendor and increasingly automated ecosystems. The coming age of hyper-automation in telco operations demands that multiple systems function as a single, cohesive BSS whole.

In this report we look at the changing capabilities of the distinct application areas within BSS and the business impact that evolution creates. And we explore the linkages being made in open IT architectures and networks – such as BSS fulfillment under service orchestration linked in a closed loop with assurance in OSS – which will enable CSPs to optimize processes and IT investments.

At TM Forum we are seeing mass-market approaches to establishing these linkages through our work with Open APIs and the Open Digital Architecture (ODA). But the way in which individual telcos build their own specific BSS architectures from that common base may well prove to be the key to differentiation, competitive advantage and ultimately new growth.

As part of our research into this changing market we have conducted a new survey garnering 200 responses from CSP decision-makers, ranging from CIOs to systems engineers. In addition, we spoke to BSS budget holders about their aspirations and strategies. These conversations revealed that there is genuine change in the BSS space being mandated from the most senior management levels within telcos. In this report we examine the specifics of that change, both at a systems level and in terms of business impact.

Historically and currently BSS covers a wide range of application areas including:

- Revenue management billing, charging, rating, partner settlements, mediation
- Customer management order management, customer care, customer relationship management (CRM), configure price quote (CPQ)
- Product management product catalog, product lifecycle management
- Sales enablement lead and opportunity management, sales automation
- **Partner management -** partner portals.



The next decade will hinge on BSS being able to adapt to provide revenues in complex multivendor and increasingly automated ecosystems.



In addition, over the past 2-3 years several characteristics have moved from nice-to-have to essential, driving investment in the BSS space. Telcos are telling us that they need future BSS to be:

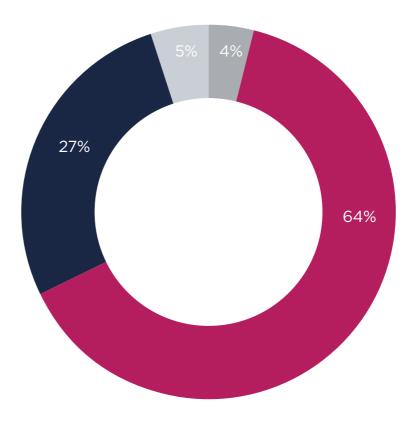
- Partner ecosystem ready
- 5G monetization ready
- Able to provide personalized experiences
- Capable of real-time data processing
- Cloud native
- A modular suite of highly interoperable systems
- Open API compliant.

What is clear from our survey is that operators are already starting to make these changes – but at varying speeds. Some 91% of respondents to our survey said their approach to legacy BSS is either to transform it into something great (64%), or to improve it but use a more gradual approach (see pie chart opposite).

Read this report to understand:

- What characteristics telcos consider to be must-have features of modern BSS, and why
- Where progressive telcos intend to invest in the BSS space
- How BSS is enabling platform business models and partner ecosystem plays
- The importance of BSS to fulfilling a fully-automated service operations strategy
- How telcos are looking to BSS vendors to help them drive return on investment (RoI) after a decade of heavy 5G deployment.

What best describes your approach to legacy BSS?



If it's not broken, don't fix it; if it breaks, fix it fast and cheap
 Let's transform it into something great
 Let's make it better, but very carefully
 Shut them down and start again

TM Forum, 2025



section 1

what's at stake? - drivers for BSS transformation



The benefits to telcos of upgrading their BSS within an overarching transformation strategy are extensive. Our survey shows that there is currently a heavy focus on customer experience management (CEM) as the main driver for investment (see graphic on page 8), but beyond that there is a broader focus on customer-facing systems.

Much of this investment capital is being diverted from shrinking network capex budgets as 5G and fiber cycles start to slow for the first time in a decade.

Modern CEM systems encourage a more customer-centric approach by providing contextual intelligence to customer interactions. This is done by integrating complex customer data and operations data with sales strategies.

As such a telco's BSS ecosystem should allow it to deliver highly tailored experiences, improve customer satisfaction metrics, and increase retention by offering services and value-adds relevant to specific customers, at the appropriate time. Al is driving change in this area by enabling digital twins that can simulate complex operations and business model changes and predict customer experience outcomes.

Telefónica's BSS transformation strategy, for example, has been driven by the need to provide a more personalized experience for its 5G customers. By integrating advanced analytics and AI into its BSS, the Spanish operator can offer targeted plans based on individual usage patterns, such as high-data plans for mobile gamers or premium, low-latency options for remote workers.

Agility and innovation

A modernized BSS will allow telcos to quickly adapt to market changes, roll out new services and experiment with innovative business models such as subscription bundles or new ad-hoc offerings. This is particularly true of B2B service offerings and products such as ICT and security.

A key driver for Vodafone Germany to transform its BSS has been to support real-time billing and charging for its 5G services. This transformation has allowed the company to implement highly customizable pricing structures that meet the demands of different 5G-specific customer segments. As a result, Vodafone can offer service-based pricing to enterprise clients which need ultra-reliable, low-latency connectivity for critical operations, such as in the automotive, healthcare or emergency service sectors.

In an <u>interview with TM Forum Inform</u> in 2023, Ulrich Irnich, CIO of Vodafone Germany, explained how the company transformed and consolidated its BSS assets resulting from several acquisitions. "We had four different BSS systems supporting the needs of our customers, but our customers don't care which kind of stack they are in," said Irnich. So the operator worked with vendors to create a flexible, agile, cloud-native BSS to serve all its channels.



There is currently a heavy focus on customer experience management as the main driver for BSS investment.



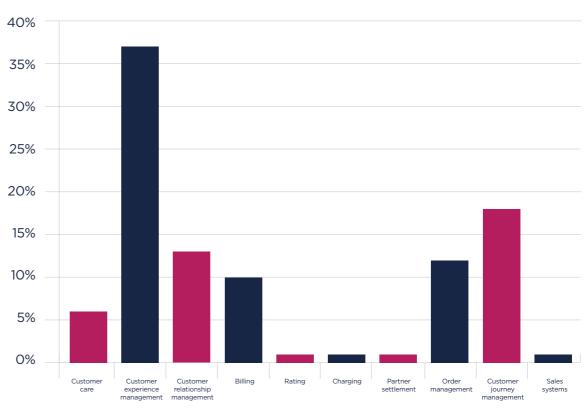
Vodafone Germany relies on standardization and cloudnative software to help its IT teams swiftly deploy new solutions. "When you get to the tipping point, it becomes more of a challenge to IT to deliver features faster," says Irnich.

And underpinning the technology is TM Forum's Open Digital Architecture (ODA). "We are addicted to the Open Digital Architecture and...we [use] a lot of out-of-the-box TM Forum Open APIs. That's number one," said Irnich. "And number two is we want to have a cloud-native platform to help us deploy our software in the future much faster."

Standards play a key role in future-proofing the systems it is developing. "The times of big transformations are over," said Irnich. "We are in a constant modernization journey. And we need future readiness in an ecosystem which evolves over time."

In addition to such platforms providing the flexibility needed to create differentiated connectivity solutions, pricing and upsell opportunities, the right customer intelligence is key to building optimal service delivery strategies. But this is not something that telcos are currently getting from their legacy BSS. A simple but effective first indicator of customer insight starting to pay dividends will occur when telcos start to see a much faster time to market for 5G services, enabling them to capture high-value enterprise customers.

If you had to choose one BSS area for heavy investment this year, what would it be?



TM Forum, 2025



MTN Group in Africa, for example, has <u>implemented a scalable BSS platform</u> that supports its growth ambitions. The system's flexibility has enabled MTN to introduce services like mobile money and IoT solutions across its footprint, driving revenue growth while maintaining operational efficiency.

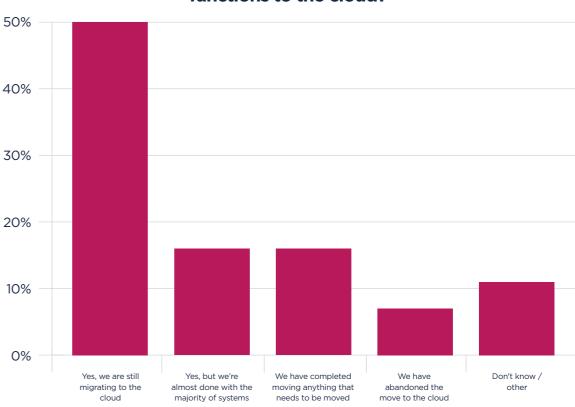
Efficiency and greater standards

One key transformational strategy over the past decade has been the migration to the cloud for business-critical systems – something we will look at in more detail in section 2 of this report. Moving critical systems to the cloud should have a huge positive impact on operational efficiency. Cloud-native BSS platforms, for example, reduce operational complexity and costs by automating processes and minimizing inefficiencies, which in turn leads to leaner operations and better resource utilization across the organization.

Within the Vodafone Group, for example, using cloudnative systems to create streamlined customer journeys makes it simpler for national operators to share tools and approaches, according to Irnich. "We delayer BSS tech into reusable modular layers...and get applications...cloud ready," he explained. "We are also working on our own open source, digital BSS system, with components which we can easily reuse.

In our survey, half of all respondents said they are still moving OSS/BSS functions to the cloud, while one third said they have already completed or had nearly finished moving systems (see graphic opposite).

Are you still moving OSS/BSS functions to the cloud?



TM Forum, 2025



Another major factor in increasing BSS operational efficiency is the adoption of standardized open APIs and architectures, which we also expand on in section 2. In Indonesia, IOH has moved from legacy BSS towards a more standardized architecture. "I think the legacy mindset will not work," Vikram Sinha, President Director and CEO of IOH, told TM Forum. "The problem is... what you don't know is much bigger than what you know. So, I keep telling my leadership team that there is a lot happening when it comes to AI and the pace of change is incredible."

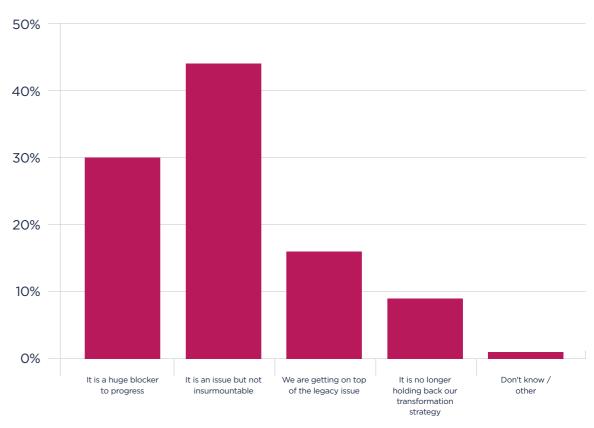
The new system brings together charging, billing, order care, catalog manager, mediation and digital experience functions with TM Forum-aligned Open APIs to deliver a BSS solution that provides the cost efficiency, flexibility and speed necessary to monetize digital services.

Risks of not transforming

While the benefits of BSS transformation are well understood, the pitfalls of not acting are significant and often not discussed. Telcos with legacy BSS systems struggle to match the agility of competitors which can launch services faster and respond dynamically to customer needs. This is particularly problematic in markets where digital-native players, such as over-the-top (OTT) service providers, are capturing market share.

Legacy BSS platforms often lack the capabilities to support advanced modern services such as 5G network slicing, IoT solutions or Al-driven customer interactions, leaving telcos unable to monetize new growth areas effectively. BSS conceived in a different era cannot be expected to provide excellent delivery on services which are new and highly complex.

How critical is the issue of legacy software and processes when thinking about diversifying towards new services?



TM Forum, 2025



In addition to missing out on these revenue opportunities, maintaining and upgrading legacy systems can be more expensive than transitioning to cloud-native BSS. The reliance on outdated technology also makes scalability challenging and increases the likelihood of outages or inefficiencies

In our survey we asked about the impact of legacy software and processes on service diversification.

Almost one third of respondents said it is a big blocker to progress, while 44% said it is an issue but not insurmountable (see graphic on previous page).

What's more, telcos with outdated systems struggle to provide the seamless, real-time services that customers expect today. This can lead to customer churn and reputational damage. For example, customers frustrated by billing errors or delayed service activations may switch to more agile competitors.

Legacy systems are also often incompatible with APIs and third-party integrations, making it harder for telcos to build ecosystems with partners and monetize content partnerships or enterprise collaborations.

In the next section we look at what our survey participants consider to be the essential characteristics of modern BSS deployments.



In addition to missing out on revenue opportunities, maintaining and upgrading legacy systems can be more expensive than transitioning to cloudnative BSS.



section 2

the must-have features of modern BSS



In the process of constructing a future BSS strategy, telcos need to focus on ten key attributes in order to fulfill business and operations ambitions. Many of these characteristics have been proven by enterprise businesses outside of telecoms to be worth the transformation investment. Indeed, best practice often comes from digital-native organizations in industries such as retail, utilities and financial services.

CSPs clearly see the need to spend on upgrading BSS technologies. In our survey almost half of all respondents said they are increasing OSS/BSS investments this year, (see chart on next page).

But where should they focus that investment? The ten must-have characteristics of future BSS, as commonly cited by TM Forum telco members, are:

- 1. A cloud-native and microservices architecture
- 2. Real-time capabilities
- 3. Automation and efficiency
- 4. Personalization through AI and analytics
- 5. Omnichannel customer experience
- 6. 5G monetization features
- 7. Open APIs and ecosystem enablement
- 8. Compliance and security
- 9. Scalability and future readiness
- 10. New service innovation.

This section of the report looks at these capabilities and explains their significance.



1. A cloud-native and microservices architecture

Telco request for proposals (RFPs) nowadays routinely specify that any new systems procured are developed to be cloud-native platforms built on microservices architecture to enable flexibility, scalability and resilience. These systems should interoperate seamlessly with other applications, reduce operational costs, and support faster time-to-market for new services.

Our most recent <u>Digital Transformation Tracker</u> report looked at the ongoing move to cloudnative applications. The graphic on page 15, taken from that report, shows that cloud adoption for telco IT continues apace and that cloud-native software solutions are now dominant when it comes to new BSS implementations.

This shift has been hugely disruptive for BSS vendors, which need to rebuild products from the ground up. But the past decade shows that it is paying dividends for CSPs which originally requested such changes.



Cloud-native BSS should reduce operational costs and support faster timeto-market for new services.

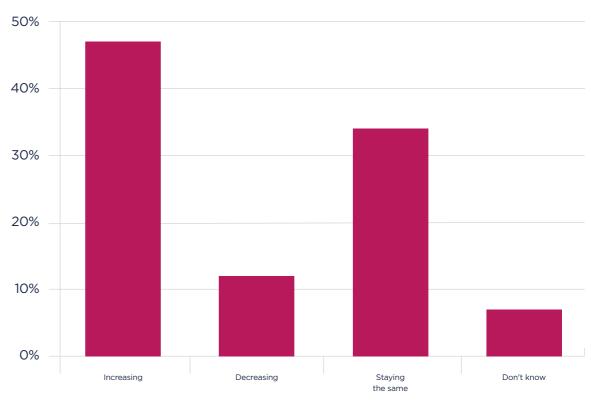


Microservice-based architectures

Microservice-based architectures have multiple benefits for telco operations, and the concept is now broadly accepted as a de facto tenet of software architecting. Among these benefits are:

- **DevOps and CI/CD integration.** Microservices are well-suited for DevOps methodologies and continuous integration/continuous delivery (CI/CD) pipelines, which streamline software development and operations.
- **Service evolution.** With microservices, telcos can introduce new features or modify existing ones without overhauling the entire system, supporting rapid adaptation to market changes.
- Parallel development. Microservices enable different teams to work on separate services concurrently, reducing development cycles and speeding up the deployment of new features.
- Independent updates. With microservices-based architectures, updates can be made to a single service without impacting others, reducing downtime and enabling frequent releases.
- Containment of failures. If one microservice fails, it doesn't necessarily bring down the entire system. This is crucial for ensuring high availability and reliability in critical telecoms operations like billing or network management.
- **Automatic recovery.** Microservices often integrate with container orchestration tools like Kubernetes, which can automatically restart failed services.

Are you actively increasing or decreasing your OSS/BSS investments this year?



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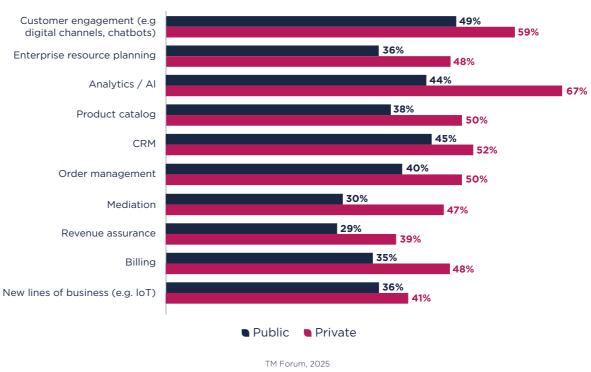


- **API-first approach.** Microservices often expose their own APIs, making it easier to integrate with third-party tools and provide seamless experiences across different platforms.
- Demand fluctuations. Telecoms services often face varying demand, especially for features like billing, customer management or content streaming. Microservices allow individual components to scale independently, enabling efficient resource usage during periods of peak loads.
- **Lower maintenance costs.** Microservices reduce the costs of maintaining and upgrading legacy systems by breaking them into manageable components.

At its flagship event DTW24-Ignite, TM Forum announced the <u>ODA reference Canvas</u>, a cloud-native execution environment for telecoms IT and network components. That platform is now available and being used by telcos and hyperscalers, and the goal for many CSPs is to make it easier to experiment with ODA components and move workloads from one cloud to another.

The ODA Canvas itself is designed to drastically simplify the integration into and management of new software components in telcos' IT environments. Telcos can use the ODA Canvas to automate the integration and operation of BSS systems as modular, cloud-native components on a Kubernetes-based platform.

Which BSS workloads have already moved to public or private clouds





This allows CSPs to move away from an experience of upgrading legacy BSS/OSS which Dr. Lester Thomas, Head of New Technologies and Innovation at Vodafone, compares to a "lung and heart transplant". Instead, they will be able to automatically plug in and use new cloudnative software features that are ODA-compliant.

"It's very important, because how we procure and then deploy software today is too hard," explained Thomas, speaking to TM Forum at the Innovate Asia event. "Every single vendor solution we have is architected in a slightly different way and they make slightly different choices when building their software." This makes upgrading or replacing software costly and complex at best, even though systems from different vendors are "very similar in that they tend to be microservice software based on Kubernetes", says Thomas.



2. Real-time capability

Future telco operations will demand real-time responsiveness in customer service. Real-time capabilities allow telcos to provide seamless and dynamic experiences, especially as service consumption patterns become increasingly ondemand.

Telcos have been working to move customer interactions towards digital touchpoints. This means that those systems must be able to produce a result in real time in the same way a human customer service representative might use their own knowledge and training to answer a customer query.

A good example of this is AT&T's BSS transformation, which has leveraged real-time capabilities to implement dynamic, usage-based pricing for its enterprise 5G customers. By enabling real-time adjustments to pricing and service parameters, AT&T said in its recent 2024 earnings call that it is able to unlock new revenue streams while improving on customer satisfaction metrics. Enterprises, for example, benefit from tailored solutions such as bandwidth allocation based on peak usage, said the operator.



3. Automation and efficiency

As telecoms operations become more complex, automation is crucial for streamlining processes and reducing operational costs. Modern BSS architectures promise machine learning, orchestrated workflows and, in some cases, robotic process automation to handle tasks such as billing, order management and customer support efficiently in a "hands free" manner.

But our survey shows the industry thinks we are still some way away from that reality at scale. One third of respondents cite a three-year timeframe for fully automated service operations, with a further 38% saying it will be five years or more (see graphic on the next page).



Modern BSS architectures promise orchestrated workflows to handle tasks such as billing and customer support efficiently.



Telefónica is one of the telcos ahead of the curve, having implemented high levels of automation within its BSS to handle billing queries and service provisioning. This, the operator says, has resulted in faster response times, reduced errors and significant cost savings. For instance, the company says that more than 80% of customer billing issues are now resolved without human intervention.

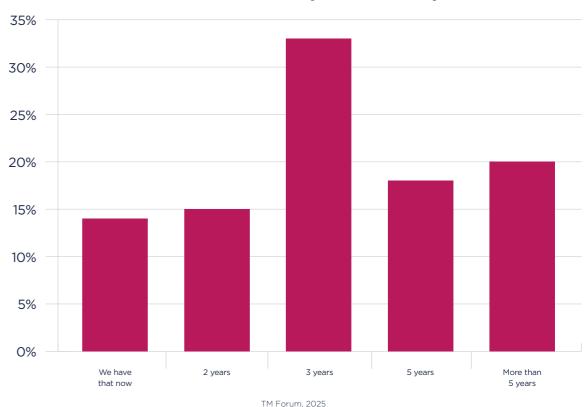
Certainly, automation is the holy grail for many operators. "Automation is key to everything we want to achieve in the next decade," says the Head of BSS Solutions at one European CSP. "It underpins our efficiency goals and it allows us to take human error out of the loop. We need to be able to be in a position where we are not fighting our own software and processes and that those assets are the things which drive success for us and incredible experiences for our customers."



4. Personalization through AI and analytics

In a briefing with TM Forum CTO George Glass, Vikram Sinha, President, Director and CEO of Indosat Ooredoo Hutchison (IOH), said the operator had to move away from legacy BSS to make the most of future technology and services. He cited AI as a key driver for the increased rate of change in BSS transformation and telco customer service outcomes.

How many years will it be until you have a fully automated service operations setup?



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In an era where customers expect hyperpersonalized experiences, modern BSS must integrate AI and advanced analytics to deliver contextual offers, real-time recommendations and proactive problem-solving. These capabilities not only enhance customer satisfaction but can also potentially improve revenue generation through targeted upselling and cross-selling.

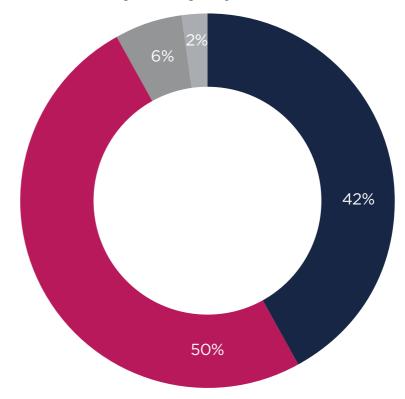
IOH's strategy is for its platform to underpin a partner ecosystem that delivers hyperpersonalized services. "We want to make sure that [our] Digital Monetization Platform opens up for APIs... [enabling] innovators to work together on making sure what we give is what customers want," Sinha told TM Forum.

IOH is experiencing solid take-up of new service lines. The company's multimedia, internet and data business area increased 30.2% year-on-year and now accounts for 14.1% of its total revenues, according to its results for the nine-month period to the end of September 2024.

Those services are underpinned by its growing use of Al. IOH says it wants to "revolutionize the financial services industry" in a market where 25% of Indonesians do not have a bank account.

In our survey, 92% of respondents said native AI is important for new OSS/BSS systems, with 42% considering it essential (see pie chart opposite).

How important is native AI in any new OSS/BSS systems you procure?



■ Essential, all systems should now use AI ■ Important but not essential for all systems
■ There is a lot of hype around AI; we don't see it as essential ■ Don't know / other

TM Forum, 2025





5. Omnichannel customer experience

Customers interact with telcos across multiple touchpoints, including mobile apps, web portals, retail stores and call centers, so a unified and seamless omnichannel experience is now deemed essential to maintaining consistency and reducing friction in customer interactions. Future BSS must integrate these channels to provide a 360-degree view of the customer.

T-Mobile US has focused on implementing a modern BSS platform that enables <u>seamless</u> <u>transitions across channels</u>. For example, customers can now begin a transaction on the operator's app, continue it in-store and complete it through customer support – all without repeating information.



6. 5G monetization features

5G technology brings a great deal of untapped potential for revenue growth, but only if operators can monetize its capabilities effectively. Future BSS platforms must support advanced 5G use cases such as network slicing, ultra-low latency services and IoT billing. Flexible charging and rating systems are essential to capitalize on these opportunities.

There are many examples of BSS transformation contributing to return on 5G investments. In the previous section we referenced Telefónica transforming its BSS to provide more personalized experiences for customers.

Other examples include:

- SK Telecom in South Korea has leveraged BSS transformation to manage network slices for different applications. By upgrading its BSS, the operator can differentiate its service offerings, allowing it to cater to sectors such as automotive, gaming and smart cities. This flexibility has enabled SK Telecom open up new revenue opportunities. For example, it has partnered with auto manufacturers to provide specialized network slices for autonomous vehicles, which require ultra-low latency to ensure safe operation. The ability to manage and charge for these slices in real time, made possible through advanced BSS, represents a significant monetization pathway for SK Telecom's 5G investment.
- China Mobile has invested heavily in modernizing its BSS to support 5G monetization. Its new platform enables complex billing scenarios such as network slicing for enterprise customers and latencybased pricing for applications such as autonomous vehicles. China Mobile says among the benefits have been double-digit growth and more than 30% ARPU lift in converged services.

Read our in-depth report to find out more about using AI to put people at the heart of customer experience:







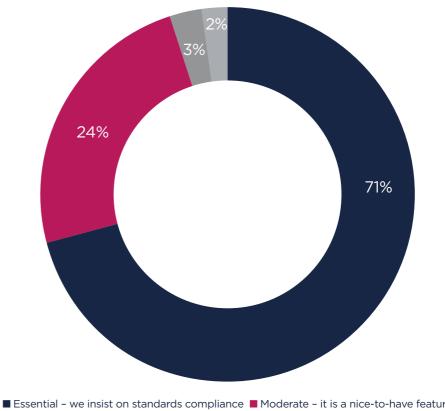
7. Open APIs and ecosystem enablement

Future BSS must be able to facilitate seamless integration with third-party systems and applications through open APIs. This will allow telcos to build cohesive ecosystems with partners, enabling new services such as over-the-top (OTT) service bundles, gaming platforms and smart home solutions. Ecosystem enablement is a key driver of differentiation and revenue diversification

In France, Orange is using its modern BSS with TM Forum Open APIs to integrate OTT services into its offerings. By partnering with streaming platforms and app providers, Orange has created compelling bundles that appeal to customers, increasing both ARPU and customer loyalty. The flexibility of open APIs has also enabled it to quickly onboard new partners and to leverage differentiated connectivity to play a key role in B2B2X value chains.

In our survey, 71% of respondents said it is essential that future OSS/BSS comply with standards such as TM Forum's Open APIs. We discuss ecosystem enablement in more detail in section 3.

How important is compliance to standards like TM Forum's **Open APIs in OSS/BSS procurement?**



■ Essential - we insist on standards compliance ■ Moderate - it is a nice-to-have feature ■ Not at all important ■ Don't know / other

TM Forum, 2025





8. Compliance and security

Future BSS platforms must ensure compliance with complex regulatory requirements such as GDPR, local taxation rules and industry standards, ensuring better alignment with evolving laws and reducing the risk of penalties. Security is also a growing concern as telcos handle vast amounts of sensitive customer data. Because of this, built-in compliance tools and robust security measures are non-negotiable features.

Deutsche Telekom, for example, has revamped its BSS to meet stringent GDPR requirements while enhancing data security. Its BSS platform's built-in compliance tools enable the CSP to automate reporting and auditing, reducing the risk of penalties. Additionally, advanced encryption methods ensure customer data remains secure.

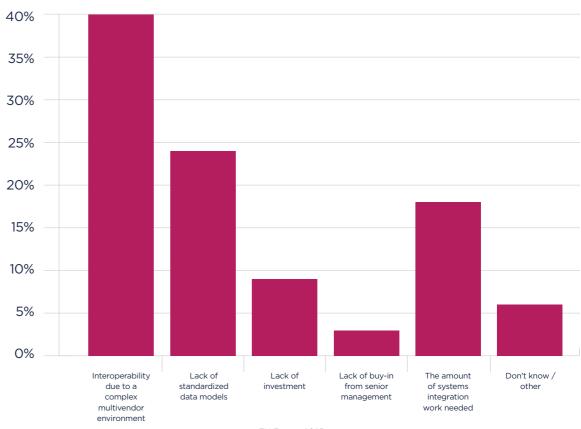


9. Scalability and future readiness

Telecoms operators need BSS systems that can scale seamlessly as customer bases grow and new technologies emerge. Future-ready platforms can ensure long-term ROI and reduce the need for frequent overhauls.

Ultimately that will lead to end-to-end automation of service operations, but to achieve that CSPs will need to overcome several challenges. In our survey, we asked what are the main pain points in implementing orchestration for end-to-end automation of service operations.

What are the main pain points in implementing service orchestration for end-to-end automation of service operations?



TM Forum, 2025

One quarter of respondents cited lack of standardized data models, while 40% said the biggest challenge is interoperability due to complex multivendor environments (see graphic).





10. New service innovation

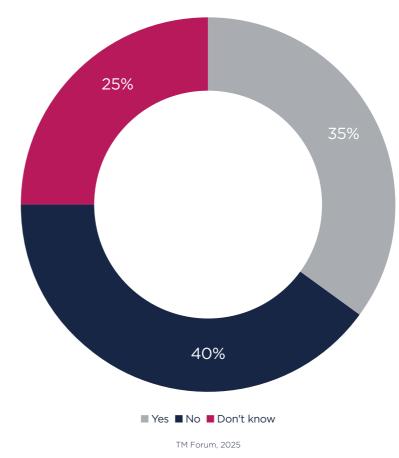
Future BSS should have the ability to enable innovation in the telco service and product space in several different ways:

- By facilitating usage-based pricing and monetization models
- Helping to launch digital and non-telco services
- Enabling partner ecosystem B2B2X service models
- Supporting 5G and edge computing products
- Using customer intelligence to drive customercentric service models
- Speeding up product development.

Our survey shows a mixed response to a question asking participants whether the billing components of their BSS are ready to enable service innovation over the next 10 years (see pie chart). Because billing systems often have the longest lifecycle of any BSS components, this suggests that transformation has some way to go in this sub-segment.

Openserve, the wholesale subsidiary of South Africa's Telkom Group, is a good example of BSS giving a telco new product development capabilities. In October 2023 Openserve switched off the last of its 30-year-old, homegrown BSS applications. Its new BSS platform, implemented over the past two years, has transformed operations across the organization.

Are your current billing systems adequate to deliver your service innovation ambitions for the next decade?





"It has an impact on every customer and every person [and] every department within the value chain," Pushkar Gokhale, Chief Digital & Strategy Officer at Openserve, told TM Forum Inform.

The new BSS has enabled faster product development, particularly in areas such as white-label prepaid services and the operator's ability to drive innovative pricing models. The system features automated billing verification, which has proven particularly valuable for value-added services, along with enhanced customer relationship management (CRM) capabilities for ISP service personalization.

The focus on operational efficiency has yielded positive results. "You need a very clear understanding of your fixed costs versus variable costs," says Gokhale. "Our connectivity rate is now touching around 50% [of homes passed], and through our transformation of our BSS and digital landscape we are improving our cost to serve there by driving business value."

In the final section we look at what some industry executives, as well as our survey respondents, think about CSPs' aspirations towards partner ecosystems and platform models.



Openserve's new BSS has enabled faster product development and the ability to drive innovative pricing models.



section 3

partner ecosystems and platform models



Telcos have traditionally operated as vertically integrated entities, offering a fixed set of services within tightly controlled operational silos. However, demand for new models centered around highly specialized digital services continues to grow, particularly in B2B lines of business.

Service providers are unable to innovate fast enough on their own to meet these diverse demands, so success lies in leveraging external partners which can co-create and deliver value-added services. As such, partner ecosystems are seen by many senior telco executives as the best path to new revenues and economic growth.

Partner ecosystems enable telcos to:



Expand market reach - partnerships with companies in industry verticals (such as healthcare, manufacturing and automotive) enable CSPs to enter new markets with tailored solutions



Accelerate innovation - by collaborating with third-party developers and enterprises, operators can introduce new digital services faster than through in-house development alone



Drive business diversification – new services, such as network slicing, IoT connectivity and private 5G networks create new monetization opportunities beyond traditional voice and data



Enhance customer experience - bundled services from various partners can deliver more comprehensive and compelling customer solutions, increasing retention rates and satisfaction levels.

Telcos have traditionally found it difficult to become the primary service provider in B2B2X value chains or to fully leverage the business-critical value of their connectivity offerings in these collaborative business models. But CSPs' operational capabilities can still play a significant role. Consequently, operators are reviewing their BSS transformation strategies to include awareness of ecosystem enablement.

Our survey for this report shows that 42% of respondents think their OSS/BSS procurement strategy will be entirely influenced by systems' ability to enable a platform business model and partner ecosystems in future. A further 46% said it is a consideration (see graphic on the next page).

Read our report to learn more about telco partner ecosystems:





What industry leaders say

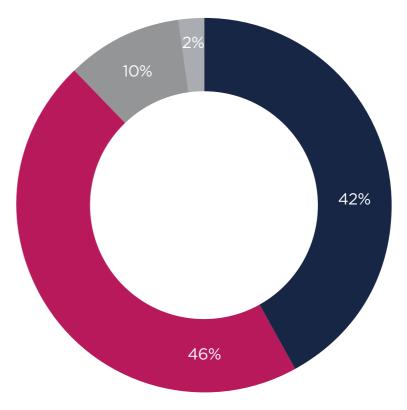
The value of success in new partner ecosystem models should not be underestimated. TM Forum's TEN100 (The Executive Network 100) is a new year-round program designed to unite influential leaders from across the telco and tech sectors in order to drive change. Bringing together executives and experts, TEN100 creates a platform for private strategic discussions that drive the Forum's industry agenda and shape the future of connectivity business.

In those TEN100 conversations, leading industry executives have made it clear that going it alone is no longer an option. Here we look at some of those opinions - which as part of the Ten100 agreement remain anonymous - on what is at stake and how platform models open up new possibilities.

One CIO from a North American tier-one operator told us: "The benefits of a platform player approach is that it significantly improves your options to create value for stakeholders. It opens up new possibilities for the propositions you can offer, the partners you can work with, and how you service new and existing customers. It also multiplies the information you have, so that you can make better, performance-influencing decisions and identify new opportunities and risks. And it does all this at scale and at pace."

A VP from a hyperscaler company emphasized the need for differentiation and platform scalability in the context of a lot of platform noise. "Every company on the planet wants to become a platform. But a platform [only] becomes successful when they get it right," he said.

Platform business models will rely on partner ecosystems for new B2B opportunities. How much does this inform OSS/BSS procurement strategy?



■ Entirely, all new systems must further our ecosystem capabilities
 ■ It is a consideration, but not a major one
 ■ Partner ecosystems have nothing to do with OSS/BSS
 ■ Don't know / other

TM Forum, 2025



"It comes down to what is that unique set of capabilities that you are bringing, and how scalable is that platform? That's the lens through which any company wanting to become a platform needs to think about it."

Many of the executives we spoke to for this report were convinced of the value of moving to a platform business model to better interact with a broader ecosystem of partners. Indeed, many are pinning their hopes for netnew revenues on that operating model.

But current telco IT capabilities in general are not set up to enable that move, as one TEN100 participant explained.

"Network, IT and data needs to be treated as software. The network, IT and data teams need to think like a platform business and expose NaaS [network-as-aservice], ITaaS [IT-as-a-service] and DaaS [data-as-aservice] APIs and have a roadmap of capabilities," said one Technology Group Executive from an Asia-Pacific operator. "The network, IT and data teams need to evolve from traditional engineering delivery to product engineering, developing and exposing capabilities."

Towards BSS simplicity

So what needs to happen in terms of BSS to drive change towards platform business models? One of the key aspects, according to many of the people we talked to, is increased streamlining. BT's ongoing platform transformation is leading to new developments such as EE ID, which enables consumers to order products and services such as TV, gaming, insurance, security and devices without needing a subscription. Harmeen Mehta, former Chief Digital and Innovation Officer at BT, told TM Forum at DTW Ignite 2024: "It's really a story of platform thinking. We're opening up our own platform to actually sell a lot more, creating common platforms and exposing them in a way that you could build through an amazing product catalog, any kind of product, and sell it in a consistent manner using the power of those platforms."

The BSS requirement to operate in a business model like this is much lighter. It is a very simple way to deliver services, leading to maximum reuse and the lowest possible total cost of ownership. Consequently, the platform approach is allowing BT to shut down most of its legacy systems, using the same platform to serve consumer and enterprise customers.

"It will take 10% of the systems that the team has today in order to run fully on a platform model," explained Mehta, speaking to TM Forum Chief Analyst Mark Newman. "We're shutting down 90% of our legacy. It is dramatic simplification. We've built our entire platform much more like a commerce platform. It's not 50-plus sales tools that we have – it's one... Not 50-plus ways of fulfilling any of the products for our customers – there's only one fulfillment."

Read our report to find out more about platform models in the Open API economy:





BT's strategy is evidence that digital native companies and techcos are having an influence on CSPs' IT strategies. And as we have seen throughout this report, this is driving operators towards simplifying, modernizing and automating their BSS lines of business to better serve customers' demands for flexible, targeted services.

To achieve those aims, partnerships remain key. As one executive, responding to our survey question on whether partner settlement is a focus area for future BSS investment, said: "We believe that as a telco we will not be able to deliver effectively without partners in the digital era, so partner management and settlement is key."



Operators are simplifying, modernizing and automating their BSS lines of business to better serve customers' demands for flexible, targeted services.

Revolutionizing BSS: How to unleash the power of AI to drive personalization and enhance efficiency



To remain competitive in a rapidly evolving digital environment, communications service providers (CSPs) must focus on customer centricity and hyperpersonalization. Integrating advanced AI capabilities and digital twin technology into business support systems (BSS) can be a game-changer when it comes to improving customer satisfaction, cutting operational costs and finding new revenue.

McKinsey & Company has found that companies excelling at personalization generate 40% more revenue than average players in their respective industry sectors. In telecoms specifically, the consultancy estimates that CSPs prioritizing customer experience (CX) can expect an 8% revenue increase annually (driven by higher average revenue per user, or ARPU), a reduction of 10% to 15% in the cost to serve, and significant improvement of 20 to 40 points in customer satisfaction scores.

"The value of personalization lies in the incremental 'contribution margin' (revenues minus direct cost minus cost to serve). This goes beyond traditional KPIs such as customer base, gross adds, churn, and ARPU," McKinsey explains. "A telco could improve its ability to convert and extract value for every microsegment through a robust personalization model, which depends on employees being sufficiently trained and empowered for every customer interaction."

Indeed, CSPs are well aware of the importance of improving customer centricity and empowering employees. When TM Forum asked operators what part of BSS they would invest in if they could choose only one area for heavy investment this year, their top three answers all focused on customers: customer experience management (37%), customer journey management (18%) and customer relationship management (13%) – see page 8.

The telecom industry has long embraced AI, leveraging their vast amount of data to enhance service delivery and customer experience. In recent years, CX optimization has been the largest investment category for AI, with operators integrating it into their BSS.

Al-driven BSS solutions support a large variety of use cases such as enabling personalized marketing, dynamic pricing and churn prevention, while also streamlining processes like billing, subscription management and order fulfillment. Emerging technologies like digital twins predict subscriber behavior, further enhancing engagement. Al capabilities in a digital BSS platform deliver intelligent, contextualized interactions and push automation. These capabilities boost operational efficiency and drive revenue growth and retention, cementing Al's transformative role in telecom.



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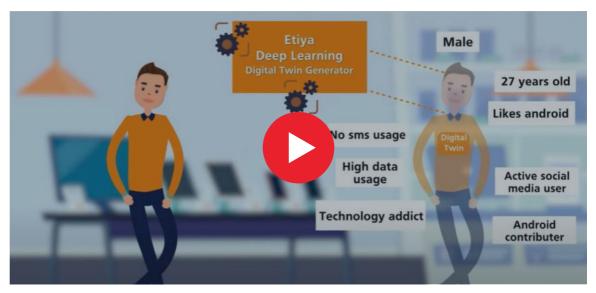
Personalization at a new level with Al-driven BSS

Generative AI (GenAI) and other subsets of AI such as machine learning and deep learning integrated into BSS are giving CSPs an opportunity to supercharge CX with personalization of products and services. By using AI tools, they can analyze vast amounts of data within a very short period of time, which simply is not possible when relying solely on human efforts.

Based on real-time analysis of data, CSPs can develop deep insights about their customers. By identifying patterns and behaviors that are difficult to recognize with traditional analytics methods, for example, Al offers an extremely powerful capability in anticipating customers' needs and desires. Actionable insights from such analytics enable proactive customer engagement and can prevent costly churn by addressing issues before they arise.

Etiya's Digital Twin engine, <u>integrated into Digital BSS</u> helps CSPs personalize CX. By definition, a digital twin is a virtual representation of a physical object, system or process, (or in our use case it can be that of customers) used by CSPs to improve network engineering, operations and CX by providing a data-driven simulation of real-world scenarios. It enables better decision-making across the organization through analysis and predictions.

The Etiya Digital Twin of Customer allows CSPs to model, monitor, analyze and update their BSS with new data in real time. It visualizes, groups and manages customer behavior, thus helping CSPs to understand their customers better. The video below shows how the digital twin technology works.



Each customer has a digital twin model representing their history and performance over their lifetime. These models are continuously updated with new data, interactions and actions. And a digital twin model that is tracking a single customer can learn from models of similar customers.

By providing high-value analytical insights, the Digital Twin of Customer model allows sales, marketing and customer care teams to service customers, create offers and campaigns in a more tailored way. CSPs can also offer enhanced personalization on their self-service portals

The digital twin functionality can be integrated seamlessly into the self-care journey. It will simulate various scenarios and determine the most suitable offer that provides best value both to the user and to the operator.

Read this e-book to learn more about the use of digital twins in CX:



Revolutionizing BSS: How to unleash the power of AI to drive personalization and enhance efficiency



Digital twin functionality can also be integrated with an LLM-based virtual assistant to provide advanced support to sales and customer care agents within the BSS platform applications. Besides generating the most suitable product recommendations, the algorithm also predicts potential customer uptake, and it forecasts revenue that such offers could generate for the company. As a result of such hyper-personalization, the increased relevance of the offer leads to improved customer acquisition and/or retention, campaign cost efficiencies, and enhanced customer satisfaction.

Al-driven BSS enhances agents' productivity and empowering customers

Sales and customer service representatives (CSRs) serve dozens of customers daily, either in person or on the phone. To be efficient they must be prepared, which means knowing who they are talking to and what their needs are. Al plays a crucial role in assisted service channels and self-care.

Routine service flows can be automated via chatbots and online self-care interfaces, providing 24/7 access to customer care with quick case resolution. This approach is cost-efficient and allows agents to focus on complex cases.

The self-care portal lets customers manage their accounts, troubleshoot issues and perform installations independently. When agent assistance is needed, customers can connect with CSRs who have a matching area of expertise for faster and smoother case resolution or complaint handling.

During calls, an intelligent agent dashboard provides CSRs with a quick summary of customer profiles, which includes customer lifetime value (CLV), previous interactions and detailed history. Al-driven predictions anticipate the reasons for customers' calls and assess callers' expectations.

The dashboard enhances agents' efficiency by providing all relevant customer details and tailored recommendations at a glance. It also enables agents to focus on quality customer service.

Summing it up

The future of BSS is rooted in customer centricity, with Al and automation at its core. Advanced Al technologies offer a point of differentiation for CSPs by delivering hyper-personalized experiences that drive loyalty and revenue

By empowering both agents and customers with intelligent tools and automating processes, CSPs can improve efficiency and scalability. As operators embrace these innovations, they position themselves as leaders in the digital ecosystem, redefining what it means to deliver exceptional customer value in the connected world

Prioritizing personalization, automation and proactive support ensures that the BSS of the future will not only meet but exceed customers' expectations, ensuring sustained growth for the operator.

About Etiya

Etiya is a leading software company providing customer experience-focused and Al-driven Digital Transformation with its award-winning portfolio. It enables rapid transformation, immediate revenue growth, and competitive advantage to companies with its Al-supported products, and microservice-based architecture by bringing agility and flexibility into their business.

Etiya exists to move agilely beyond accepted industry standards in its relationships with the customers and in innovation with its unique corporate culture and expertise.

For more information, please visit us at **www.etiya.com**



tm forum open digital architecture



TM Forum Open Digital Architecture - A blueprint for intelligent operations

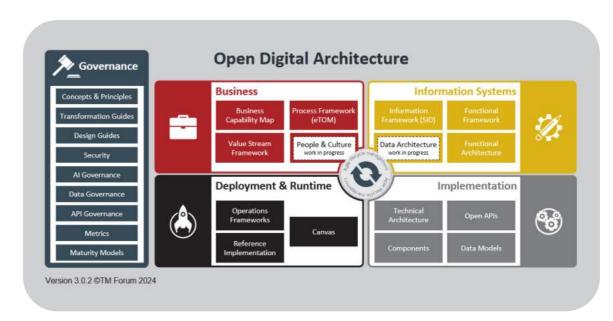
The <u>TM Forum Open Digital Architecture (ODA)</u> provides a migration path from legacy IT systems and processes to modular, cloud-native software orchestrated using Al.

ODA comprises tools, code, knowledge and standards (machine-readable assets, not just documents). It is delivering business value for TM Forum members today, accelerating concept-to-cash, eliminating IT & network costs, and enhancing digital customer experience.

Developed by TM Forum member organizations through our <u>Collaboration Community</u> and <u>Catalyst proofs</u> of <u>concept</u>, ODA is being used by leading service providers and software companies worldwide.

ODA includes:

- An architecture framework, common language, and design principles
- Open APIs exposing business services
- Standardized software components
- A reference implementation
- Guides to navigate digital transformation
- Tools to support the migration from legacy architecture to ODA
- Maturity models and readiness checks to baseline digital capabilities.



Goals of the Open Digital Architecture

The aim is to transform business agility (accelerating concept-to-cash), enable simpler IT solutions that are easier and cheaper to deploy, integrate and upgrade, and to establish a standardized software model and market which benefits all parties (service providers, their suppliers and systems integrators).

Learn more about collaboration

If you would like to learn more about the project or how to get involved in the TM Forum Collaboration Community, please contact George Glass.

































































meet the research & media team

Meet the Research & Media team



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