Common pitfalls in telcos’ IT architecture management are all too often a serious roadblock to superior business performance. Operators can bypass these by applying learnings from their most successful peers.

Telecoms operators are among the highest IT spenders across all industries, relying heavily on IT to enable their existing business as well as to open up new revenue streams. However, the impact of IT-related factors on a telco’s business performance often remains unquantified in the breakneck race to stay ahead.

McKinsey’s annual telecoms IT benchmarking survey provides strong empirical evidence of how dramatically telcos’ IT architecture impacts their business performance (Exhibit 1). Significant performance gaps are apparent between operators with lean IT architecture and those with a highly complex and fragmented landscape. The difference in time to market, for example, is striking: two weeks versus 32 weeks for a similar product bundle. IT spend, too, is around 70 percent higher for laggards than for best-practice mobile operators.

The survey revealed three key differentiators in top performer approaches to their IT architecture:

A consolidated application landscape per domain. The number of applications per domain clearly appears to influence an operator’s ability to drive the efficiency and effectiveness of their operations. The survey showed that operators with fewer applications perform substantially better than comparable competitors with a large number of applications. Best-performing mobile telcos have 97 applications per domain on average, while laggards have 168.

Use of standard software packages. Standard package functionality enhances business agility and drives down operational cost. The IT architecture of best performers is predominantly based on standard software packages in key domains, whether billing, CRM, or ERP. Mobile best performers spend 45 percent of their total software budget on software packages, while the figure for laggards is only 20 percent. These players rely on proprietary solutions for the rest.

High level of data integration. Highly integrated architecture greatly enhances a telco’s capability to drive product innovation and successfully commercialize their new products. The higher the degree of data integration (fewer customer databases, for instance), the shorter the operator’s time to market. This translates into a greater ability to push market innovation and gain competitive advantage.

The large gap in these factors is not just found between attackers and incumbents, but also within attacker and incumbent groups. This evidence indicates that keeping IT architecture lean, leveraging standard software solutions from leading vendors, and rigorously managing data across the enterprise all seem to pay off in terms of shorter time to market, higher flexibility, and lower costs – on both the IT and the business side.

Many telcos fully recognize the downside of having a complex, fragmented IT architecture, but are trapped in
Strong evidence shows that IT architecture contributes to superior business performance

The sections that follow outline the typical hazards of IT architecture management as well as effective tools and mechanisms for its sustainable optimization to create value throughout the business.

Typical pitfalls of IT architecture management

The IT benchmarking survey mentioned earlier as well as McKinsey’s experience in numerous projects with clients have highlighted a number of common pitfalls in telcos’ management of their IT architecture. All of these result in roadblocks obstructing business performance.

**Short-term perspective.** Most telecoms operators’ IT architecture evolves driven by short-term business requirements in specific domains, with little regard for the long-term impact of this on the company’s overall IT architecture. The result is numerous sets of applications with duplicated functionality, siloed and fragmented databases, and custom point-to-point interfaces. This not only applies to incumbents that have grown a complex legacy landscape over many decades; such practices are equally widespread among mobile attackers.

**Weak link between business and IT.** While it is widely recognized that the business should take an active role in driving IT architecture evolution, CIOs and IT architects normally manage their IT architecture with little business involvement at the single application and project level. This means only limited levers are available to systematically transform the IT architecture to achieve sustainable business benefits across the enterprise.

**Mega-project approach.** The decision to engage in multi-year transformational mega projects may be influenced by the promises of large vendors and integrators to manage implementation complexity. It is naive, however, to believe that business requirements will remain stable over the lifetime of a multi-year transformation. And statistics prove this, highlighting the low success rate of mega projects. The step-by-step approach of transforming domain by domain is much more resilient to changes in business needs and tends to deliver sounder benefits. Using a service-oriented approach can serve as
39

RECALL No 13 – Leveraging Technology
Fast forward to success: Managing next-generation IT architecture

the key component to create a common basis and allow the independent replacement of components or entire domains without affecting other domains.

Deprioritized IT integration. A telco’s IT is constantly under pressure to deliver new functionality, enabling new products, channels, and processes. The integration of existing applications is often lower down on the agenda, resulting in loss of efficiency, in errors, and in extended time to market.

How can telcos take the fast track to successful architecture management, avoiding these snares? Any advice should cover incremental changes as well as major transformations, since enterprise architects have to cope with both of these factors at the same time. Numerous small improvement projects require guidance on architecture compliance, while the fewer but much larger transformation projects need full attention to develop the right concepts and lay the foundations for more radical change.

Key factors for developing sustainable, value-driven IT architecture

The IT practices of best-performing telecoms operators reveal a number of common themes underlying the management of their IT architecture to create maximum value. Maintaining the leanest possible architecture via streamlining is one. Another is the constant prioritization of business requirements. Focusing on enterprise-wide integration is important, too. And an appropriate organization is just as crucial, with the right management team in place and compelling incentives for compliance.

Streamline to ensure the least possible complexity and greatest value. A number of elements are indispensable in achieving greater architectural simplicity and value. The cornerstone is a well-defined business strategy. This should drive all other IT-related decisions and will also embed the longer-term perspective that is so often missing. Is the telco going to move into a fiber rollout, for example, and — if so — when? If key elements of the strategy are undefined, its IT architecture cannot be aligned to provide the highest value.

A domain-based approach is essential. The domain map (Exhibit 2) serves as a single structure into which all solution elements fit, providing a nomenclature for business capabilities with the fewest possible interfaces between domains. It can be used to map both applications and data. While it is sensible to have a high-level view of the target end state, more detailed planning
should be broken down by domain. This reduces planning complexity and gives domain architects the freedom to advance their landscape at their own pace.

Another practice preferred by top performers, as mentioned above, is to use standard software within each of the domains just outlined to cover most business functions in the architecture transformation. The majority of telcos has to cope with an extremely complex, home-grown application landscape. Replacing this with standard packages greatly improves business flexibility, while reducing total cost of ownership.

Prioritize business requirements over those of IT. The key to linking architecture to corporate-wide business benefits is to always ensure that business requirements are the ultimate driver. The architecture transformation needs to be kept manageable and flexible toward changes in business priorities. This can be done via managed evolution, developing a high-level target end state together with a transformation plan consisting of several smaller projects (e.g., by domain or platform).

To yield genuine value, an architecture transformation also requires a substantial shift in mindset. It is crucial to nurture the partnership between business and IT, rather than allowing IT departments to function in their default mode as delivery organizations and service providers. The designers – or enterprise architects – play an essential role in translating business language into

Kick-starting the IT architecture journey to maximize value

Gaining insight into the key factors that contribute to success is one part of the equation. The other is to assemble a team able to apply them effectively. A European mobile telecoms operator recognized its chance to reap significant business benefits by leveraging IT architecture principles on its transformation journey. The telco also understood that people matter most.

Heavy competitive pressure and unwieldy legacy systems were forcing this operator to renovate their customer domain and integrate it more tightly with their other customer-facing functions. They created an architecture group to oversee the project, and an experienced leader was selected for this function with expertise as well as excellent connections on both the business and IT sides. The team he assembled had in-depth experience in developing conceptual functional architecture models that could be realized using standard software components. Top management empowered the group to attain transparency on all aspects of implementation, from identifying business requirements at the outset to rolling out the solution. This included gathering information on all ongoing activities in the customer domain to spot interdependencies and inconsistencies between initiatives. While the local project management office had overall responsibility for the program, the architecture group was involved in all major decisions and had extensive rights to veto problematic developments, such as over-customizing the campaign management solution or taking shortcuts by connecting shared systems using point-to-point interfaces.

The architecture group that evolved from the project structure has now been implemented as a permanent enterprise architecture management unit functioning between the business side and IT delivery. The group has developed an overall target blueprint that helps guide all current and future requirements. They also oversee the existing application landscape to ensure that any change made to the architecture complies with the target blueprint. Although the journey is still just beginning, the benefits of a well-designed, integrated architecture are already evident. They have created full transparency on application redundancy levels in the different functional domains and made concrete plans to decommission systems, replacing others with standardized software packages. As a result, IT operating costs are expected to decrease, and – more importantly – development capacity will be freed up for business innovation. The consolidation of customer data shows first signs of unleashing measurable business value: the growing transparency enables improved up- and cross-selling, as well as greater customer satisfaction.
IT requirements. Successful projects create followership, in turn broadening compliance with enterprise-wide standards.

**Pursue seamless integration across the enterprise.** Integration across the company is a vital driver of time to market and hence competitive advantage, as was highlighted earlier. A well-designed and implemented integration layer ensures maximum decoupling of functional blocks. Depending on the design decision, an integration bus can either ensure unified communication standards of atomic services or provide complex (compound) services with cross-domain business logic. Either way, it will provide transparency regarding the services provided by different domains and it will enable high reusability of existing functionalities.

Integration of the data architecture across multiple domains is also key. All business activities create, modify, or influence information, making data the brain of the enterprise. Therefore, enterprise-wide information architecture management needs to be established as a self-standing discipline, yet run in close coordination with the application architecture. This is true for both master data, which is usually used by multiple domains, and transactional data, which “flows” with business processes and thus gains relevance in different domains depending on the status of the process. For example, telcos that attest to a much faster rate of growth after implementing high-performance customer lifecycle management only achieve this via state-of-the-art integration across multiple networks and database layers.

**Organize to maximize impact and compliance.** As the case study (see text box) shows, teams with the appropriate authority and incentives are essential to keep transformation on track and ensure sustainability. A strong enterprise architecture management (EAM) function underpins this, leading the effort of designing and managing the transformation. One aspect of EAM is to define standardized artifacts: documentation on the current IT architecture, a blueprint of the target IT architecture, a roadmap for the IT architecture transformation, and a set of governance tools. Others are to set up a stable process with standardized roles and responsibilities that are highly specialized. The EAM function needs to be empowered by the business and have sufficient resources and skills to monitor all of the major transformation projects. It should also be closely linked to IT delivery and operations to prevent it from developing “ivory tower” concepts and architectures.

The most advanced methodologies and toolsets will be of little use if they are not applied in a day-to-day setting. Incentives need to be installed to motivate both the business and the IT sides to work along the new guidelines. Business designers need to understand the constraints and consequences of applying business solutions to the entire capability landscape. This can be done by creating close interaction with enterprise architecture managers and by using business cases. Application architects need to be convinced of the value of enterprise-wide management of IT assets to perform holistic optimization, otherwise they will remain wedded to local solutions. Tangible value for the IT delivery organization can consist of reusing components and services developed in other domains. Beyond this, proactively managing interdependencies between projects that would otherwise be discovered when systems fail to interoperate can prevent unpleasant surprises.

Transforming a large telco’s enterprise architecture management function to deliver maximum value is a Herculean task and multi-year effort requiring full buy-in from the business side. There is no uniform panacea for success. But the impact on costs and business performance can be huge once the enterprise architecture moves toward a uniform blueprint with consistent management across domains. Tariff changes take days rather than months. Customers can be tracked across their lifecycle and targeted with optimally customized offers, while network utilization soars. As the McKinsey IT benchmarking survey has demonstrated, excellence in IT architecture is fundamental to efficiency and effectiveness, touching every aspect of a telco’s business performance. Avoiding the pitfalls and heeding the pointers outlined above can greatly enhance the success of architecture transformation.
Duarte Begonha
is a Principal in McKinsey’s Lisbon office.
duarte_begonha@mckinsey.com

Olga Sterkhova
is a Principal in McKinsey’s Moscow office.
olga_sterkhova@mckinsey.com

Matthias Roggendorf
is an Associate Principal in McKinsey’s Berlin office.
matthias_roggendorf@mckinsey.com

Klemens Hjartar
is a Director in McKinsey’s Copenhagen office.
klemens_hjartar@mckinsey.com

Olga Sterkhova
is a Principal in McKinsey’s Moscow office.
olga_sterkhova@mckinsey.com