White Paper – Telecom Expense Management.

Telecom Expense Management strikes the balance between optimal service and costs.

New era of mobility needs professional management to obtain full range of benefits.

Life is for sharing.

Management summary.

Mobility has reached a higher stage of sophistication and customization, which in turn opens the door to a multitude of benefits. Mobile workers who wirelessly connect to advanced applications with their own devices – such as smart phones or tablet PCs – generate exponentially expanding data volumes. The increasing complexity with which multinational corporations (MNCs) are faced on an international scale needs to be handled in a professional manner. Only so can advanced capabilities be properly deployed in a way that benefits are not outweighed by costs of service and telecom management. Crucial are lean telecom management processes as well as transparency regarding profiles, assets, usage and cost. Thus, Telecom Expense Management (TEM) is a key enabler in gaining a competitive edge for the core business. However, this will be achieved only if TEM also addresses resource optimization and not merely cost issues.

In order to allow significant improvement in TEM proficiency within a reasonable time frame, two approaches can be taken: software-as-a-service (SaaS) or business process outsourcing (BPO). To avoid risks and barriers associated with the move to BPO, many companies decide for a SaaS model, which includes training and advice from third party consultants. This provides the opportunity to reach best-in-class TEM proficiency within the customer organization. It offers the advantage of involving a third party, while the customer stays in control of telecom management processes. SaaS also has the benefit of a “start small, grow big” approach, as it can be introduced into a few organizational units first and expanded upon successful implementation. Even for companies considering a mid to long-term move to BPO, embarking initially on a SaaS model provides a much better basis for evaluating whether the move to BPO would be valuable and acceptable.

Key issues.

Shift to Mobility 2.0, increase in mobile workforce, explosion of mobile data volume, drive for LTE, trend toward BYOD, necessity of transparency, challenges for multinational corporations (MNCs), savings on telecom services and management, TEM proficiency levels, TEM delivery models, sensitivity to data privacy, TEM benefits vs. TEM cost, TEM provider selection criteria.

Who should read.

CIOs and CTOs; global, regional, as well as national IT and telecom managers; procurement executives.

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1. Mobility is already an indispensable fact of life and is moving to the next stage of development .

Shift to Mobility 2.0 and gain competitive advantage.

Mobility has been redefined by user needs and evolving technological capabilities. With mobility becoming mainstream, differentiated user clusters have emerged: people working in changing locations but mainly in a broadly defined geographic area, business people who frequently travel abroad, employees working flexibly on company premises, as well as those operating from remote locations.

Advances in mobile data technologies, services, and applications have enabled wireless access to machines and applications. Person-to-person communication complemented by mobile machine-to-machine communication has opened opportunities for an unprecedented redesign of various business processes. This applies to both external processes geared toward customers and suppliers, and internal processes such as back-office, design and production.

People working remotely today expect to have a similar work environment as those working at a stationary location. In parallel, the number of devices will continue to increase substantially, due to the utilization of multiple devices per user as well as specialized devices for M2M applications. In order to create the user experience required for new usage scenarios and applications, a realm of innovative and powerful terminal devices has emerged. These include smart phones, dedicated terminals and tablet PCs.

This shift to Mobility 2.0 has two major consequences:

- A massive, exponential growth of mobile data volumes, with growth rates of over 50 percent p.a. This drives the need for leading edge technologies like LTE, with adequate coverage for both public and closed-group access. Appropriate infrastructure deployment will only be economically feasible via a variety of wireless technologies, frequently in combination with fixed networks. It will also necessitate the participation of large, national public operators, local premise providers and enterprises.
- An increasingly blurred border between work life and private life. This leads to changes in management styles regarding performance management and company policies, especially concerning the shared use of devices and services for business and private use. The shared use of devices can have two forms: using company equipment for private purposes as well as using employee devices for business purposes, dubbed lately as “Bring Your Own Device”. Both cases require clear and committed policies as well as robust security concepts and sophisticated remote management tools.

MNCs are faced with these developments on a global scale, as they act in various countries around the world, deploying and shifting resources dynamically between geographical locations. Business processes need to be flexibly replicated in new environments, with new operators and partners. Management and international team members who travel abroad heavily, depend on reliable, continually available means of communication.

Overall, mobility is a powerful means for gaining competitive advantage by allowing fast and informed decision-making, efficient processes, and flexible work time windows. Therefore, implementing mobility should follow a comprehensive approach, geared to realizing the full range of benefits, not only cost savings.

2. Advanced mobility has become complex and needs professional management.

Create transparency to enable optimization.

Sourcing, implementing, and operating advanced international mobility environments, often combined with fixed and IT services, is inherently complex. Multiple providers in different countries offer various tailored tariffs for voice and data (pay-as-you-go, bundles, pooling, flat, etc.), aimed at user clusters with different types of needs and roles. A rapidly increasing portfolio of powerful devices is flooding the market, with ever-shortened contract durations and lifecycles.

Within a MNC organizational measures must be taken in each of its companies where an advanced mobility environment is to be introduced. Policies need to be implemented that foster effective and efficient work styles and a desired level of business versus private usage. They should simultaneously take national specifications and regulations into account, particularly work and data legislations regarding privacy, which are significantly different between countries.

Managing such a complex mobile, fixed and IT ecosystem on an international scale is increasingly difficult, both from the sheer amount of resources required and the highly specialized skills involved. Accordingly, “Mobility Initiatives” are at the top of the communication priorities of CIOs. Not surprisingly, telecom consultants and service providers have been overwhelmed lately with customer inquiries from telecom and IT professional on topics related to mobility. However, despite being critical for overall business, telecommunications management belongs to support functions, not to the core business of the MNCs.

The fundamental first step for overcoming the challenges of mobile complexity consists of gaining visibility and transparency on services, usage, costs, and assets across the international footprint of the MNC organization. However, according to customer feedback, most MNCs lack sufficient transparency to effectively manage their mobile and wireless spending.

Telecom Expense Management supports by optimizing the service and device range as well as managing intricate process and IT issues. A central approach ensures that within an appropriate budget, a TEM solution with a suitable level of sophistication and robustness is applied and that an adequate amount of skilled resources is dedicated to this essential task.

3. Leading edge TEM solutions optimize service and manage complexity.

Allow for intelligent cost savings and simplify user experience.

TEM encompasses all the policies, processes and tools required for sourcing and in-life management of telecom equipment and services, including the related support needed by business customers. It enables MNCs to centralize management of wireless devices and tariffs. They gain insight into their wireless usage, so that more adequate wireless communication policies can be developed and more effective negotiations with carriers are enabled. Users enjoy world-class support for everything from ordering a new phone to troubleshooting technical problems.

Best-in-class TEM approaches have come to realize that while cost savings are an important goal, they should not be at the expense of appropriate telecommunication and IT services that enable core business processes. Therefore, sound cost saving starts from optimally matching user needs with services and devices offering the best value for money.

This requires close interaction between telecom, functional, and purchasing managers in order to develop a common understanding of the benefits received from mobilizing key business processes in the broader context of the core business. The benefits differ from business to business, but on a general level they are highly dependent on innovative, high quality services provided with lean and reliable processes.

3.1 Cost blocks.

Turning to costs, it has been shown through customer analysis, findings from industry associations, and consultant studies that Total Cost of Ownership (TCO – Chart 1) of telecom services consists of two major blocks:

- Cost of telecom services, representing roughly 90 percent of TCO
- Cost of managing the telecom environment, amounting to up to roughly 10 percent of TCO

There is, however, a third, additional block that consists of hidden costs, which are hard to quantify. These are caused by lost user time or missed business opportunities due to sub-optimal services and support.

TEM addresses all three cost blocks with several actions:

- Creating transparency by obtaining relevant, comprehensive, detailed and reliable insights into the telecommunication set-up and its associated costs
- Formalizing, standardizing and bundling activities through streamlined and centralized processes
- Improving sourcing by ascertaining adequate and cost-effective services as well as enhanced provider support

Total Cost of Ownership: Cost Blocks, Drivers, Levers and Savings.

The maximum savings potentials will differ with the proficiency level of each MNC.

		Drivers	Levers	Savings
100%	Hidden Costs	▪ Poor service ▪ Lack of support	▪ Best-in-class SLAs ▪ Dedicated service team	10% or more
	Telecom Management Cost 10%	▪ Sourcing Management ▪ Ordering and Delivery ▪ Inventory Management ▪ Invoice and Contract Management ▪ Dispute Management ▪ Reporting ▪ Business Intelligence	▪ Streamlined Processes ▪ Optimized Tools	50% or more
	Telecom Service Cost 90%	▪ Usage ▪ Business/Private ▪ Volume	▪ Adequate Services, including Safeguards	up to 10%
			▪ Raise Cost Consciousness	up to 15%
		▪ Tariffs ▪ Pricing Elements ▪ Credits ▪ Discounts	▪ Avoid Unnecessary Costs	up to 5%
			▪ Undertake Informed Negotiation	up to 10%

Chart 1

The three actions build a virtuous circle (Chart 2): improved transparency and better understanding of processes results in targeted and clear sourcing requirements. Better sourcing brings about more appropriate services, enhanced transparency, and leaner processes, which in turn leads to more refined insights for optimizing the telecom environment.

3.2. Savings on costs of telecom services.

In order to achieve savings for the largest TCO cost block (Chart 1), which is costs of telecom services, TEM provides information for numerous levers, which have significant impact beyond the usual price reductions:

- **Thoroughly define the combination of services and devices that are suitable to the use cases and applications** needed by various user clusters. The challenge is to strike a balance between serving specific needs and defining a manageable portfolio. This stage should give a clear view on approved vs. non-approved devices and applications.
- **Select appropriate tariff structures** from the numerous options offered in today's market (pay-as-you-go, bundles, pooling, flat, fair flat, etc.). An informed view of traffic structures and volumes for various tariffs gives an indication for appropriate discount schemes.
- **Include safeguard options**. With knowledge of big spending risks, service options with appropriate safeguarding mechanisms – against intentional and unintentional excessive usage – should be chosen. Safeguards include limiting data speed, or even discontinuation of service.

In combination, the three levers mentioned above can add up to 10 percent in savings.

- **Raise cost consciousness both with management and users.** The first step consists of formulating purposeful and clear policies, which ensure that employees have access to services appropriate to their tasks and work patterns. An important element is to formulate clear rules on private usage. Creating the right policies is a crucial motivational lever. An equally important next step, however, is tracking the policies by providing users and managers with usage and cost information that reflect the provisions stipulated in the policies. This is the major lever, generating alone up to 15 percent savings.
- **Avoid unnecessary costs.** Effective handling of unused devices and subscriptions, e.g. due to over-dimensioned safety buffers or personnel turnover can bring about significant savings. Such overpayments alone are estimated at more than five percent and could easily exceed 10 percent, especially with the rapid evolution of applications, services, and devices. Currently, up to five percent in savings can be realistically delivered through this lever.
- **Carry out informed negotiations**. Accurate and structured insight regarding appropriate services, tariffs, and devices supply the provider with appropriate information for submitting their best offers. For instance, data showing volumes by different traffic types enable them to select or define suitable tariffs and spot areas where discounts are most beneficial to both parties. With this lever, estimated savings of up to ten percent can be reached.

Summing up all the levers addressed above, total savings of up to 40 percent can theoretically be achieved. The actual amount of savings will obviously depend on how advanced the individual enterprise is in applying TEM. First time implementations of advanced and comprehensive TEM solutions at companies where TEM is treated rudimentarily can easily produce savings in a range of 15 to 25 percent. Once implemented and proactively used, TEM will be the basis for performing further optimization and will ensure that costs are kept in line with benefits.

3.3 Savings on costs of telecommunication management.

The aim of telecom management is to provide mobile users with an easy, user-friendly experience, and telecom managers with efficient means to fulfill their duties.

Tools such as self-service portals provide users with an easy way to place initial procurement orders, to ensure that they receive a fully functioning wireless phone or data device, and to access on-going support for problem resolution, service changes and new equipment. From the telecom manager standpoint, self-service portals help achieve quicker turnaround on requests or changes while maintaining complete control over the process and approvals.

However, users should not be abandoned to fully automated web sites. Continued human involvement and contact are key success factors for the acceptance and efficiency of the service. Technology is rather a valuable tool to gain efficiency.

For reducing the second block of TCO (Chart 1), which is the cost of telecommunication management, TEM addresses each of the telecom management processes starting with sourcing and continuing with in-life telecom management modules. Leading-edge TEM concepts structure key activities along the following modules:

- **Sourcing management** encompasses all activities required to purchase telecommunication services and assets on an international scale. Requirements are gathered and consolidated; market offerings are scouted; requests are compiled, sent and reiterated to a narrowed down set of suppliers; clarifications are undertaken; incoming responses are evaluated; the final best offer is selected and implementation is followed-up.

"Virtuous Cycle" of TEM Optimization.

Advanced transparency is the absolute prerequisite for any optimization approach.

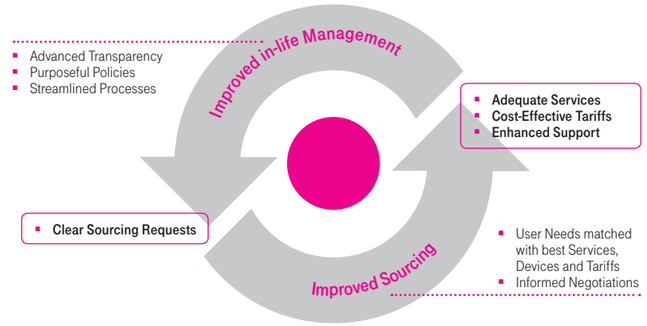

Chart 2

Effective sourcing starts with a comprehensive review of the existing telecommunication environment and the current cost baseline. This is followed by a thorough analysis of use cases for different employee groups, with insights into telecommunication solutions in the specific industry of the customer. It gives a comprehensive but targeted view of the most suitable and innovative offerings on an international scale and swiftly narrows down choices based on experience with the best suppliers. Sourcing management follows the process to completion and thoroughly documents the lessons learned.

As sourcing lays the foundation for the cost level of a complete purchasing cycle, it needs to be performed with a high degree of professionalism. This is only possible with information, analyses, and insights that are gathered on an ongoing basis from the in-life processes addressed below.

- **Ordering and delivery** enables telecom mangers and users to place and track orders for services and devices. Customer profiles are created that take into account the applicable policies. Product catalogues are also made available. Orders are generated, approved, and passed electronically to the suppliers. The status of orders is tracked and handled. Upon delivery, service subscriptions and devices are linked with user profiles and information is passed to the inventory and invoice management systems.

Key characteristics of advanced ordering and delivery modules include: tailored and comprehensive end-to-end workflows with easy to use self-service interfaces and automatically updated catalogues. These are targeted at specific user groups. The modules are able to interface via multiple standards with the internal applications of suppliers as well as customers. Additional features are accurate and real-time tracking and reporting within defined SLAs, as well as alerting for backlogs.

- **Inventory management** handles registration of all telecom related assets, i.e. hardware and service subscriptions. These can be fixed or mobile, purchased or leased. Disposal of hardware is also managed. The module links into the enterprise's accounting systems used for official reporting.

  State-of-the-art inventory management modules consist of a unique, exhaustive inventory database. It provides capabilities for performing asset portfolio analysis as well as identifying obsolete, unused and lost devices. All this enables proactive portfolio management.

- **Invoice and contract management** monitors contract provisions. Invoices are checked against the latest contract information on an ongoing basis. They are validated by de facto rerating the call data records with appropriate tariffs, applying negotiated discounts, and reporting discrepancies to be handled within dispute management. For internal cost allocation and re-invoicing, invoices are linked to cost centers according to predefined hierarchies. Invoices can be split for business and private use as determined by set policies.

Unique features of leading-edge invoice and contract management modules include complete and up-to-date contract databases with automatic alerts, such as upcoming renewal reminders. It additionally consists of powerful rerating machines encompassing all applicable tariffs of various structures as well as multiple policies. Such modules provide detailed reports on differences and usage patterns and may need involvement of the users. The reports are differentiated according to the roles of the recipients and provide actionable insights.

- **Dispute management** aims at settling discrepancies concerning the fulfillment of contracts between the MNC and various operators. Input comes from the comprehensive contract database, invoice validation, as well as SLA monitoring.

  High performing dispute management relies on structured, accurate, and up-to-date contract information. It depends on crisp and precise analyses of the discrepancies. Further important elements are well-established relationships with relevant points of contact within each operator across the international footprint, and lean and effective settlement processes.

- **Reporting** creates visibility and transparency over all telecommunication assets as well as their usage and cost. Data from various telecom management modules is structured in order to funnel relevant information to different responsible parties in the organization, like telecom and cost center managers as well as users. Such reports give mangers and users a basis for controlling the usage of telecommunication assets and services. For MNCs, reports at the national level as well as aggregated reports at the international level are made available.

  Customized reports combine all dimensions of collected data such as: type of device, service or traffic, geographical zones, and time intervals. They have the flexibility of mapping the specific organizational set-up. Dashboards of different aggregation levels are targeted at specific functional addressees. These reports provide an unprecedented centralized view of telecommunication assets that also cover usage and costs across the international organization. They highlight areas of improvement and track policy compliance. Together, these factors are differentiators for intelligent, actionable reporting modules.

- **Business intelligence** goes far beyond reporting: It performs advanced analysis, allows for drill-downs on any dimension, shows trends of and relationships between various parameters, draws comparisons between actual figures and budgets, and builds scenarios.

  Sophisticated business intelligence modules are instrumental in selecting the right services and tariffs for each user cluster. They evaluate cost scenarios with a multitude of tariff alternatives and options, benchmark the performance of different operators, provide forecasts on usage and costs needed for accurate planning, and give input for setting and adjusting the telecommunication policies.

Efficient in-life telecommunication management based on leading edge IT solutions can realize savings of 50 percent or more of the telecommunication management cost block.

Most importantly, it is the motor of the virtuous cycle mentioned above because it provides all the information needed to optimize the major cost block, which is the cost of telecom services. The amount of these cost savings depends heavily on the quality of output of the telecom management modules.

3.4 Savings on hidden cost block.

Reducing the third, hidden cost block (Chart 1), which is caused by inefficiencies in service provision and support, is possible by partnering with best-in-class operators. These operators provide high quality, stable services with proactive service management and comprehensive support. They dedicate account managers and service teams to individual MNCs. Win-win partnerships are created, based on commonly defined SLAs that are available for the full set of services, across all operators in the international footprint.

Comprehensive TEM approaches play an important role here. As part of a broad range of international SLAs, they contribute KPIs and process SLAs, e.g. for ordering and delivery. TEM helps to expand the range of such SLAs and harmonize them across the footprint. Ongoing SLA monitoring, plus regular analysis and performance reviews, allows operators and enterprises to pinpoint areas of improvement. This reduces resolution cycles and service down times. Additionally, it ensures that performance improvements remain stable over time.

Simple scenarios show that by saving the user several minutes per month in dealing with poor and inefficient services, savings of at least 10 percent can be achieved. Reducing the amount of business opportunities that are lost due to ineffective service and a lack of appropriate technology adds additional benefits.

4. Customer needs and current practices determine the TEM delivery model.

Take advantage of third parties skills without losing control.

4.1 TEM Proficiency Levels.

Particularly large enterprises already have some approaches for monitoring and controlling telecom expenses within their telecom management activities, but the degree of proficiency may vary widely. Four broad TEM proficiency levels can typically be identified when considering the responsibility for, and the functionalities of the observed TEM approaches (Chart 3).

- **Ad hoc** – This level is characterized by a fragmented responsibility for telecom services, with each organizational unit caring for its own telecom needs. Accordingly, each unit performs sourcing, ordering, and provisioning. Inventory, invoice, and contract management are done manually. Policies are not well defined and not implemented uniformly across organizational units. Usage management is hardly undertaken, as there is no significant usage overview. Dispute management is done sporadically and only when large differences are encountered. Reporting and business intelligence is rudimentary, drawing on local data, and is only available on a very aggregated level.
- **Incipient** – At this level, enterprises group the responsibility for telecom services for all organizations within a country. Sourcing is done in a loosely coordinated manner, whereby countries exchange some relevant information, while ordering and provisioning are performed at the country level. Inventory, invoice and contract management continue to be performed manually. Basic policies are defined and implemented more consistently. Usage management is not differentiated, as only some aggregated usage overview is available, without the relevant level of detail. Dispute management continues to be undertaken only when gross discrepancies are uncovered. Reporting and business intelligence is limited to the country level. It provides more detail, but is not harmonized across the international footprint.
- **Advanced** – This level is reached when country responsibility for telecom services is complemented with active central involvement. Sourcing is undertaken through a centrally coordinated process, with the ultimate decisions taken or confirmed at the country level. Ordering and provisioning is done via centrally available tools by telecom managers. Inventory management is supported by IT tools. Invoice and contract management are automated, which allows some degree of analysis to be performed. Well-defined policies are implemented throughout the organization. Usage management can draw on detailed usage analysis, which is shared with the users. Dispute management is performed systematically, based on specific documentation. Reporting and business intelligence provide an internationally consistent overview on an aggregate level, with a relevant level of detail at the country level.

TEM Proficiency Levels.

Responsibility for and the functionalities of the observed TEM approaches determine the TEM proficiency level.

	Ad hoc	Incipient	Advanced	Best-In-Class
Responsibility	Fragmented, by unit	Grouped by country	Centrally driven internationally	Centralized internationally
Sourcing Management	Independent in each unit, local decisions	Loosely coordinated internationally, local decisions	Centrally coordinated process, local decisions	Centralized process, centralized decision
Ordering and Delivery	Independent in each unit	Independent in each unit	Centralized, by telco manager	Self-service by user with centralized support
Inventory Management	Manual	Manual	Separate IT tool	IT tool with link to accounting modules
Invoice and Contract Management	Manual	Manual	Automated, with some analysis	Automated, with cost allocation and detailed analysis for disputes
Usage Management	No uniform policies, no usage overview	Basic policies, no detailed usage overview	Organization-wide policies, detailed usage analysis, information to the user	Organization-wide, targeted policies; detailed usage analysis and benchmarking; involvement of the user
Dispute Management	Sporadic	Sporadic	Specific documentation	Detailed documentation, set process
Reporting Business Intelligence	At local level, very aggregated; not harmonized	At local level, more detailed;not harmonized	At intl. level, aggregated; at local level, more detailed; largely harmonized	Detailed and sophisticated at intl. level and local level; Completely harmonized

Chart 3

Different TEM Delivery Models allow for different TEM Proficiency Levels.

To reach the best-in-class level, a SaaS or BPO approach needs to be taken. SaaS offers the advantages of involving a third party, while leaving the customer in control of the telecom management processes.

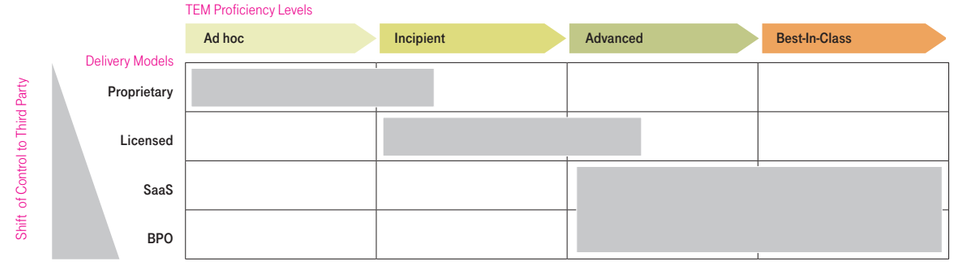

Chart 4

- **Best-in-Class** – To achieve this level, enterprises fully centralize the responsibility for telecom services. Sourcing is performed and decided centrally for the entire footprint. Ordering and provisioning is available to the user on a self-service basis, with centralized support from telecom managers. IT tools for inventory management are linked to the relevant accounting systems of the enterprise. Invoice and contract management is undertaken automatically, allowing for cost allocation, special analysis, and alerts. Policies are designed to care for different user clusters and are implemented across the entire organization. Usage management is very differentiated, based on detailed usage analysis and benchmarks, with involvement of the users. Dispute management is an established process, drawing on targeted breakdowns. Reporting and business intelligence, with a deep and homogeneous level of detail for each organization, allows for complete transparency at the international level.

With ongoing business process innovation and sustained savings efforts, driven by a tougher economical environment, most companies are actively striving to reach a high level of proficiency in managing their telecom activities.

4.2 Selecting a TEM delivery model.

A major decision faced by managers is choosing a TEM delivery model best suited to their company (Chart 4). Depending on the make-or-buy options in three key areas – people, tools and operation – four main operational models have been established in the market:

- **Own** – Own experts, own tools, own operations
- **Licensed** – Own experts, third party tools, own operations
- **SaaS** – Own experts trained and advised by third party consultants, third party tools, third party operations
- **BPO** – Third party experts, third party tools, third party operations

On the **generic level**, involving third parties in the key areas addressed has several **advantages**, which include:

- **Better service** – TEM providers have specialized knowledge and can allocate sufficient resources with the required skills to design powerful, feature-rich solutions, which cannot be economically developed by a single customer.
- **Increased efficiency** – Permanent exposure to processes with different customers and telecom operators, as well as continuous improvement efforts, position TEM providers much further down the learning curve. Therefore they are able to run extremely efficient processes and highly reliable IT operations.
- **Speed of implementation** – Adding a new customer to existing operations is easily achieved by the TEM provider, whether it is a shared system or a customer specific instance. Thus TEM can be introduced to individual units or entire organizations, taking into account the particular circumstances of the customer. This allows for a swift move to a higher level of TEM proficiency.
- **Focus** – The adoption of SaaS or BPO will free up resources for reallocation within the customer organization. Both situations will allow the company to concentrate on adding value by focusing on the core business, with adequate resources. Adoption of BPO might imply that most of the TEM related resources will be transferred to the TEM provider, which will still contribute to an enhanced focus.

However, there are some **caveats** that should be considered when involving third parties:

- **Dependency** – With an increasing degree of involvement by third parties, comprehensive and clear SLAs must be committed in order to ensure the same level of comfort as with the enterprise's own operations.
- **Remaining TEM activities** – Even when going as far as BPO, there are still TEM activities to be performed by the customer. These include provisioning of the relevant TEM data (e.g. invoices), information on organizational structure and cost centers, evaluating reports and recommendations, initiating actions, and monitoring the performance of the TEM provider.

  In cases where special service levels for mission critical activities may be required, some activities might need to be kept in-house. An example of this is when replacement of devices has to be performed in a very short time, for instance within an hour. Here, a first level support might have to stay with the customer.
- **Data protection** – Since data of very fine granularity (for example those contained by CDRs) can be tracked back to the level of an individual user, tailored data protection agreements and review processes must be implemented when involving third parties for TEM. Various levels of sensitivity shown in different countries (for example USA vs. Germany) toward data privacy and security issues must be taken into account.
- **Personnel issues** – In order to reach acceptance and support for BPO, it is necessary to develop clear, convincing personnel concepts. These should take into account a possible reallocation within the customer organization and a potential transfer to the third party. They have to be discussed and agreed upon at an early planning stage.

On the **company specific level**, choosing the appropriate operational model largely depends on two factors: the gap in telecom management proficiency levels that a company aims to bridge, and the time pressure the company is facing. This requires the company to perform a thorough analysis, which TEM providers offer to support.

Nevertheless, a clear trend is recognized upfront: Reaching the best-in-class level within a reasonable time frame can best be achieved by adopting the SaaS or BPO operating models. To avoid risks and barriers associated with the move to BPO, many companies decide for a SaaS model. This gives the opportunity to reach best-in-class TEM proficiency within the customer organization. It offers the advantages of involving a third party, while leaving the customer in control of telecom management processes.

SaaS also has the advantage of a "start small, grow big" approach, as it can be introduced in a few organizational units first and expanded upon successful implementation. Even for companies considering a mid to long-term move to BPO, embarking initially on a SaaS model provides a much better basis for evaluating whether the move to BPO would be valuable and acceptable.

Implementing TEM is always a journey. Prudent companies "start small" by launching TEM implementation first in one or a small number of units or countries, often with only a limited set of data and a core set of TEM elements. Once having achieved convincing results, they "grow big", deploying TEM across the entire footprint, with a high level of data granularity and an extended set of TEM elements.

4.3 Cost considerations.

Uncertainty about cost is one of the major reasons why companies hesitate to embark on an operating model with significant involvement of a third party, e.g. the SaaS or the BPO model. Telecommunication service contracts often include some basic reporting in the overall pricing, but with data of different levels of granularity already available by country.

Advanced TEM solutions that provide a comprehensive range of TEM elements based on optimized processes and high quality, harmonized data of suitable granularity require significant resources and specialized skills. As compensation for such efforts, several pricing alternatives are offered by TEM providers:

- **Per user** – a fixed amount for each user, e.g. per month
- **Flat** – a fixed amount for the whole user fleet, e.g. per year
- **Shared** – a percentage of the realized savings

When considering a long-term partnership, competent TEM providers draw up a business case to set the cost baseline and evaluate the expected savings. These are then mirrored toward the expected TEM cost. Based on ROI considerations, proficient companies evaluate the whole context of mobility, of which TEM is a central part, capturing both benefits and TCO. The underlying business cases involve detailed analysis and efforts from both the TEM provider and the company.

Before undertaking such an exercise, a rough estimation can give some indication of the cost vs. benefit relationship. As an example, an MNC with 20,000 mobile users and an ARPU of EUR 45 per-user-per-month could have an average 20 percent savings potential. It would be typically charged EUR 3 per-user-per-month according to a "per user" pricing for a SaaS model.

In this scenario, the company would realize yearly net savings of EUR 1,44 million on a total telecommunication cost of EUR 10,80 million. Sensitivity shows a break even at 6.7 percent, i.e. at one third of the assumed average savings rate. TEM costs charged by SaaS providers usually range between EUR 2 and EUR 4 per-user-per-month, depending on the fleet size, functionality of the solution and geographical scope.

While the scenario illustrates that a SaaS model bears potential for substantial net savings, it also gives a fair view of the BPO model. While BPO costs might be somewhat higher, they can be offset by benefits from additional process efficiencies and industry specific knowledge.

5. Selecting the appropriate TEM provider requires foresight and knowledgeable analysis.

Focus on real delivery capabilities and benefit from provider advice.

5.1 TEM players.

Within the highly fragmented TEM market, three categories of TEM providers with various target customers, competencies, capabilities, track records, and geographical reach can be identified:

- **TEM focused providers** – Due to the high complexity, particularly in the areas of data and mobile communication, numerous TEM providers emerged early in the market and today a highly fragmented landscape has formed. They typically started from a specialized service area, such as TEM for fixed-line voice and data services or TEM for mobile services. Today, however, they need to cover the full range of telecommunication services in order to meet customer expectations. Several TEM providers have diversified into other applications like device management, thus capitalizing on their existing customer relationship.
- **System integrators** – Mostly as part of large outsourcing deals, system integrators have been driven to offer TEM services. While the scale of the deals has allowed them to develop their own TEM services, many system integrators increasingly offer "vendor agnostic" TEM services. They integrate services from various TEM focused suppliers for two main reasons. The first is to draw on an extended and differentiated portfolio of specialized TEM services. The second is to comply with requests from customers who have built a track record with services from certain TEM focused providers, which they want to keep when going the extra mile toward the BPO model.
- **Telecom operators** – Increasingly, telecom operators have entered the TEM arena, out of their natural position of generators of the data needed for TEM. In contrast, other TEM providers and system integrators rely on data they receive from customers or from telecom operators. Based on data provided from network entities and rating machines, telecom operators can run the most detailed analysis needed. Like system integrators, telecom operators can offer both self-designed TEM services and services incorporated from several TEM providers.

Leading operators have realized that by comprehensively advising their customers, a win-win situation is formed. At the same time, customers realize savings and operators build up trust with their customers and retain the contracts. In those cases where a telecom operator happens to be selected both as the service provider and the TEM BPO provider in a specific country, a strict separation of the activities needs to be ensured. "Chinese walls" have to be implemented, TEM services might be offered via a separate entity, or a third party might be involved in critical processes like sourcing, invoice validation and dispute management. In this way any conflicts of interest toward the customer, as well as unfair competition toward other operators, will be avoided.

5.2 Outlook.

Before considering the selection of a TEM provider, farsighted managers should take into account some main evolutions in the TEM market:

- **Increased customer focus on TEM** – With the relentless growth in importance of telecommunications across business, especially for the mobilization of processes and applications on an international scale, TEM is advancing to become the top priority of CIOs.
- **Sophistication of solutions** – The high priority for TEM is matched by high demands regarding the capabilities and the impact of TEM. Customers not only expect a rich set of relevant features in horizontal solutions, but also in vertical solutions targeted at specific industries.
- **Consolidation of the markets** – To fulfill customer requirements for advanced solutions and wide international presence, smaller players will need to merge in order to finance R&D and increase capacities. System integrators and telecom operators wanting to swiftly become significant players in the TEM market will aim at acquiring smaller players with specific expertise. Additionally, larger and smaller players will tend to cooperate, allowing the former to offer a broader portfolio and opening sales channels to the latter that will leverage them internationally.

5.3 Selection criteria.

As already indicated, internationally acting enterprises increasingly consider the SaaS and BPO models. These are companies with large fleets in numerous countries and various user clusters in terms of service and applications as well as usage patterns. Pursuing these models successfully implies building a long-standing relationship with a skilled and reliable TEM partner. In identifying such a partner, the following capabilities need to be evaluated:

- **Targeted functionality** – Including user-friendly ordering and provisioning with inventory tracking linked to enterprise systems; detailed and efficient data collection; accurate invoice validation and flexible post-processing; relevant and sophisticated business intelligence providing benchmarks, trends and alerts; recommendations for and facilitation of immediate actions by telecom managers, users, line managers, and providers.
- **Safe design** – Based on established standards and secure platforms. It should be able to integrate different services in addition to TEM.
- **Comprehensive support** – Both in fast, final result oriented implementation and dedicated operational support with a single point of contact, backed by a team of experts who are available 24/7, and committed to specific SLAs.
- **Wide reach** – In terms of regional presence with the required skills and manpower, as well as having the international and local industry knowledge to deal with operators and suppliers.
- **Broad experience** – Capable of working closely with the MNC on translating business needs into mobility requirements; undertaking Proofs of Concepts and showing a proven track record in implementing numerous TEM solutions with various or specialized requirements; as well as a stable, long-standing customer base.
- **Sound stability** – Relying on committed and trustworthy stakeholders on the owner, expert, and management side, and drawing on profitable business and adequate financing.

The criteria mentioned above are useful for performing an educated screening of the numerous providers in the TEM market. A final selection process will need to analyze in detail an enterprise's future telecommunication needs and the required telecom management activities. These have to be compared to the individual capabilities of a selected set of TEM providers.

Key steps of the final selection process are:

- Formulate the future telecommunication needs.
- Evaluate the current TEM proficiency status of the company.
- Set the TEM proficiency ambition level.
- Select a TEM delivery model.
- Establish a short-list of potential TEM providers.
- Perform detailed analysis to establish a sound cost and service level baseline.
- Determine the TEM provider of choice.

For in-depth advice that would allow joint development of a sample TEM RfP, please get in touch with your Deutsche Telekom MNC GAM or contact us at MNC:
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