

Vanilla+

# CEM

Can CSPs avoid a race to the bottom on price?

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## Introduction

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**T**he telecoms markets in mature regions have long been saturated and those in emerging markets are fast becoming so. To avoid a race to the bottom by forever cutting costs, CSPs have, in recent years, begun to pay more attention to the customer experience. Heavy Reading's research reveals that CSPs are starting to appreciate how customer experience management (CEM) can help reduce churn, provide opportunities to sell additional services and reap the benefits of having customers advocate on their behalf

Early adopters – those CSPs that have been practicing CEM for four years or more – are demonstrating that they are outperforming their competitors and that CEM does yield results. Challengers with me-too networks have been particularly interested and active here as a means of strongly differentiating themselves from established competition. However, incumbents in particularly competitive markets have also seen CEM as a means of responding to price pressure from new market entrants, enabling them to preserve a reputation for premium value.

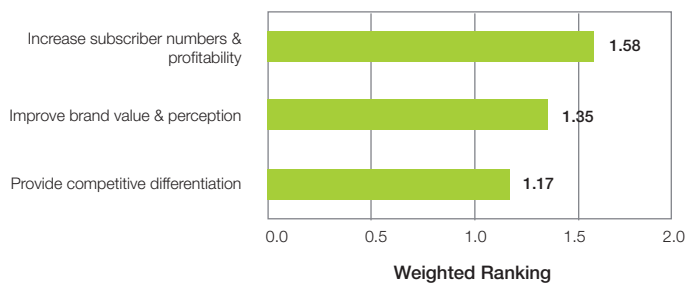
Fast followers have been hard on the early adopters' heels, but Heavy Reading research finds

that even mainstream adopters are now developing strategies for CEM. Their efforts may not yet be as pervasive across the organisation or supported with as mature CEM technology solutions as those of early adopters, but they are addressing CEM at a good time. Market understanding of this management discipline and how to measure customer experience (CE) is well established, so they can learn from the best practices identified by early adopters and benefit from the useful tools emerging from the TM Forum (TMF) CEM programme.

Our research reveals that the drivers for adopting CEM vary depending on a CSP's level of maturity:



Figure 1: **Top three factors influencing investment in CEM**



Source: Heavy Reading Survey of 118 CEM decision makers and influencers

- **Early adopters** are driven by the need to establish themselves as the leading brands in their market (outperformers), putting clear blue water between themselves and their competition where CE is concerned. Incumbents saw CE differentiation as a response to price pressure from new market entrants, enabling them to preserve a reputation for premium value. Challengers with me-too networks saw an opportunity to win market share by offering a highly differentiated CE not available from competitors.
- **Fast followers** realise that they need to catch up with the leading benchmark for CE in their market to improve subscriber numbers and profitability. Fast followers often have very similar key performance indicators (KPIs) to early adopters, but customer perception – voice of the customer – does not reflect this. They need to invest in CE to present themselves as a real alternative to the market leader, maximising their business potential.
- **Mainstream adopters** are gradually responding to the CEM strategies of leading competitors in order to maintain their business on a sound financial footing. They are mainly driven by the need to improve customer retention – churn

prevention – and to use CE data to refine how and what they sell to existing customers.

Some of the other drivers cited include:

- Churn reduction/increased subscriber loyalty
- Subscriber growth prediction and trend analysis
- Customer intelligence acquisition
- Net Promoter Score (NPS) adoption
- Customer service improvement, including self-service support
- Product rationalisation and consolidation

## Defining CEM

The academic sphere defines CEM as the means of creating advocates for an organisation's brand/product/service: turning customers from the merely satisfied to loyal and then, in today's social media-aware age, from merely loyal to active advocate. CEM is all about building an emotionally-weighted relationship with each customer. The more positive that relationship, the more trusted the CSP becomes and the more successful it is likely to be at keeping the customer's business, selling the customer further services over time and encouraging customers to promote the CSP and its products to friends and associates.

Heavy Reading defines a CEM system as one that collects data related to CE from multiple sources, models and analyses CE data and recommends actions on the basis of CE analytics. A handful of vendors are building telecoms CEM systems that span domains within the CSP organisation and attempt to provide an end-to-end picture of CE encapsulated in a single CE indicator (CEI). Others offer targeted solutions can help CSPs improve the customer experience without necessarily measuring the customer experience explicitly.

What has been crucial in the increasing adoption of CEM within the telecoms market is a growing awareness that CEM:



- **Is a management discipline** that applies across the organisation, including to both front- and back-office staff and processes. Everyone and every activity must be harnessed to the goal of serving the customer.
- **Requires senior level leadership** because of its cross-organisational remit and impact on the culture of the CSP.
- **Involves improving internal processes** with customer needs in mind. At a minimum, this means ensuring that each of the processes that customers touch during their lifetime with a CSP, referred to as touchpoints, provide best-practice CE. But CEM also affects support processes, such as human resources and IT.
- **Mandates listening to the voice of the customer.** The key factor that differentiates CEM from earlier process improvement programmes, such as Lean Six Sigma, is its incorporation of the customer view of organisational behaviour at touchpoints. CEM explicitly uses the customer's emotional perception of the service to target operational improvements, such as a better billing experience, capex investment in the network and employee training requirements.
- **Includes managing a high-quality network.** The network is the foundation of customer experience in a CSP context, and insights from the network are critically important to its management, at a predictable level of quality that customers will pay for.

### Keys to making CEM a success

Because of its broad scope, implementing CEM is a long-term project and its cross-organisational nature can make it difficult to carry out. Changing a culture by overcoming inertia, convincing the skeptics and demonstrating a measurable CEM impact can take years. CSPs cite the difficulty of securing cross-organisational cooperation as the largest barrier to implementing CEM. Some CSPs try to reduce CEM into a single indicator – which may not provide enough insight to act upon – while others can be so overwhelmed with data and functionality that their CEM projects become too large to successfully implement.

Heavy Reading sees the following factors as being critical in getting the most out of CEM:

- **Inspirational leadership.** Visible CEO and senior level management support for a CEM programme is critical to its success. Some CSPs insist that senior executives spend time on a regular basis with front line staff so that they experience customer interactions first hand. They publicise this commitment to underline to employees and customers the importance of CEM.
- **Putting CEM in the right place for maximum impact within the organisation.** This is a fascinating topic as it varies so widely across CSPs. Early adopters have seen CEM evolve out of customer care or network operations departments into a business function in its own right. Mainstream adopters are often highly unsure where to place CEM, typically attaching it to marketing departments or business intelligence projects.
- **Tying CEM improvements together with cost reduction projects to strengthen the business case.** The CSP's challenge is to secure trade-offs between the requirement to improve CE and the need to reduce cost. It therefore focuses on projects where both are possible for a win-win outcome – and points out that it has yet to reach an inflexion point where it has driven out cost and can focus only on improving CE. This is likely to be the case for any CSP.

### Factoring in the customer voice

Heavy Reading research confirms that most CSPs collect basic 'inside out' metrics such as network and service availability data, service usage data, first call resolution metrics, average call handling time and time/cost to resolve customer issue metrics. The collection of such metrics pre-dates any emphasis on CEM since they are equally applicable to cost reduction programmes and investment decision-making. Such metrics are often closely associated with CSPs' business intelligence and big data programmes.

But many CSPs score badly on capturing the 'outside in' view – the customer perception of their experience and how this affects perception of brand and willingness to recommend their



experience to others. Lack of measurement makes it difficult for CSPs to manage and influence the voice of the customer.

Most CSPs Heavy Reading has surveyed say they want to increase the frequency with which they measure customer satisfaction, and there is strong CSP interest in understanding and implementing NPS. Many recognise that improving NPS is a significant market opportunity for CSPs that get CEM right, given the low base the industry is starting from.

CSPs see the number, type and frequency of metrics capture as key to providing a better and more differentiated CE. They believe customer-specific metrics are particularly important, as Figure 2 shows.

Figure 2: **Top improvements needed to provide a differentiated customer experience**



Source: Heavy Reading Survey of 118 CEM Decision Makers and Influencers

## Creating a metric for customer experience

CEM practitioners advocate the collection of appropriate metrics and are producing methodologies for implementing them. The TMF's CEM Metrics Framework gives a small taste of just how many measures the TMF CEM programme participants think need to be tracked – a significant number at near-real-time intervals. Drill down into

individual service assurance areas, such as HD video, and vendors have created multiple measurement universes crying out to be factored into the overall CE. The race is on among CSP and vendor CEM practitioners to identify the critical measures, correlations of measures and causes that really matter to CE.

While CEM data is not big data – many CEM practitioners argue that it needs to be extracted from big data and processed separately – it is still extensive enough that CSPs need a manageable way to visualise it. As part of its metrics discovery/algorithm development race, the CEM industry is looking for a single, per-customer proxy for the sum of the customer's experience of a particular organisation. This is known as a CE indicator or index (CEI), depending on whether it is a single measurement or the sum of multiple metrics.

There are several reasons why a single CEI is important:

- **Organisation-wide visibility:** A single indicator/index can easily be understood by anyone in the organisation so it changes the prism through which the CSP views what it does, according to one CSP. A single indicator is a powerful expression of the state of an individual customer's engagement with the CSP. Because the whole organisation can understand and buy into it, it can be used to drive the employee incentives and salary reviews that align all staff with CEM goals.
- **Neutrality:** a CE indicator/index is seen as neutral. Although metrics from different CSP departments may contribute to the index, it is not aligned with any particular department. It is as applicable to someone from network operations as it is to employees in sales and marketing. This means it is likely to be accepted across the organisation.



- **Support for benchmarking:** A single indicator/index can be the basis for benchmarking across all the operating companies in a CSP group, enabling both the parent company and each operating company to understand the state of CEM in different countries and local differentiators that need to be taken into account.
- **Customer-driven root cause analysis:** The CEI is the starting point for drilling down into constituent metrics to discover root causes of poor experience wherever these occur within the organisation. Customer knowledge can then be used to prioritise which causes are investigated and addressed first.
- **Proactive improvement:** Once root cause(s) are understood, the CEI can be linked to pre-emptive ways of avoiding problems in the future: for example, if the index slips below a certain threshold for a certain customer/customer segment, it could trigger device management, SON or policy control systems to remediate a poor user experience dynamically. The CE indicator can also be used to drive longer-term business cases for people, process or technology improvements. One CSP has proved statistically that making an extraordinary effort to fix a problem makes minimal difference to an antagonistic customer's likelihood to churn. It recognises that the best approach is to identify and stop the fault affecting other customers or to avoid it in the first place.

## Contenders in the single indicator race

There are multiple contenders for the role of a single metric that summarises customer quality of experience (QoE).

The TMF and a number of BSS/OSS vendors are lining up behind a Customer Experience Index (CEI – or CEMI according to the TMF): a single overarching CE score for each customer. This score is the sum (index) of the CE across all touchpoints and the customer's outside-in perspective, at any given time. In other words, the CEI combines the subjective voice of the customer and objective operational metrics in a highly visual way.

Some CSPs argue that NPS, rather than a constructed CEI, can act as the 'single vehicle' the entire business can rally around.

NPS practitioners are building up an extensive knowledge base of outside in views that they are making available to their entire organisation and have gained empirical evidence of NPS's link with customer churn, revenue generation and/or product and service uptake.

Other companies are also developing service quality algorithms based on loss and delay. These are often limited to particular types of application. They may also be based on multiple average single-point measures rather than a rigorously composed and predictable metric. Certain SDN and network operating system vendors are working on autonomic network resource scheduling algorithms that aim to remove network contention and the delay it causes when they establish new virtualised network paths.

CSPs are beginning formally to model application performance across different network paths so that they can deliver differentiated application experience to enterprise customers at different price points. In the hybrid networks that Orange Business Services (OBS) creates, for example, enterprises can choose whether applications with different performance characteristics are delivered over the internet or its private MPLS/Ethernet network.

All these developments are giving rise to the hope that network performance management will become a science rather than an art, using algorithms to predict and control service quality in the first place – and by proxy, the user experience – rather than compensating for/fixing user experience failures once they have occurred.

## Which approach will prevail?

Studies have shown that users' experience of the network is by far the single largest contributor to their perception of a CSP and their decision to remain loyal to it. CSPs are prioritising network and service quality improvements within their CEM programmes because CSPs realise nothing much matters if network quality isn't there. A single network QoE index that can drive network optimisation is highly valuable but many CSPs find it difficult to create or use because of the siloed nature of their network/service delivery organisations.

But what of CE factors that a CSP can't control, such as



experience of devices? Some argue that it is important for CEM reasons for a CSP to detect that devices are, for example, freezing video frames, even if it can't do anything about them. The fact that such issues are brought into a CEI means that CSPs can take action, if only to exonerate their networks.

This is a further argument for broadening the scope of a CEI, although an index that tries to model and reflect the universe of potential factors influencing customer perception may well be unachievable. Hence the TMF's CEMI validation programme and vendor assertions that their indices are the result of long experience of what really matters. Hence, too, some CSPs' adoption of NPS alone as a guide to CEM, avoiding the messiness of inside out metrics. Both of these approaches are

in their infancy and have a long way to go.

While the customer's voice is important and most CSPs measure it, there is skepticism regarding its suitability as a single indicator. "It's not clear how the customer voice moves and what drives it," according to one Tier 1 European incumbent CSP. "We can survey our customers over and over again, but this doesn't necessarily deliver a statistically meaningful result." Another CSP remarks, "You can provide the most reliable service ever, but if a customer is willing to take a hit for \$5 less, you can't do much about it." Interestingly, the European incumbent claims that its outside in scores lag the inside-out metrics, and that the business feels the impact first when it gets CE wrong.

## Conclusion

CSPs recognise that CEM is a management discipline that: applies across their organisations; requires senior management buy-in because of the cultural change it brings; involves an internal process improvement programme that in part needs to be driven by listening to the customer voice; and is underpinned, in a CSP context, by strong network management, since the network is the primary contributor to CSP CE. Technologies and services such as VoLTE, 4G/5G, streaming video and mobile data/OTT will put additional strain on the network. This makes it even more critical for CSPs to keep a close eye on network quality so as not to jeopardise these emerging revenue streams.

CSPs have traditionally been poor at listening to the voice of the customer and using it to drive internal improvement. Adoption of an indicator such as NPS is a good step forward but can be misleading as the only metric guiding CEM. CSPs are also evaluating the merits of broader CE indices and new formalised (modelled) approaches to network performance management. The latter use algorithms to predict and control service quality in the first place – and by proxy, the user experience – rather than compensating for/fixing CE failures once they have occurred.

It is still early days for the CEM-driven CSP, although we expect their levels of understanding to continue to grow. The amount of data being generated by a plethora of devices will only increase, supporting demand for automated CEM solutions that can help them collect, process, and act upon it. The signs are, however, that early adopters will be taking the next steps toward process automation and CE analytics-driven customer service to maintain their market leadership and simultaneously drive costs down and customer satisfaction up.

## About Heavy Reading

Heavy Reading, the research division of Light Reading, offers deep analysis of emerging telecoms trends to network operators, technology suppliers, and investors. Its product portfolio includes in-depth reports that address critical next-generation technology and service issues, market trackers that focus on the telecom industry's most critical technology sectors, exclusive worldwide surveys of network operator decision-makers that identify future purchasing and deployment plans, and a rich array of custom and consulting services that give clients the market intelligence needed to compete successfully in the global telecom industry.

[www.heavyreading.com](http://www.heavyreading.com)







## Company summary

Accanto Systems provides advanced analytics solutions to CSPs in order to optimise the network and customer experience. Accanto's iCEM product suite analyses customer, network and handset-based data, turning network-centric monitoring into customer-centric operations and creating a single view of the customer across all departments. Accanto is headquartered in Finland and has more than 20 customers worldwide.

## CEM credentials

Accanto focuses on the quality of experience of the subscribers. Its iCEM solution integrates data from a wide variety of sources across network technologies and vendors, and is able to monitor the quality of experience of every single subscriber's voice and data services. When combined with information about the customer and their expectation, iCEM is able to provide a detailed ranking of the customers and issues based on business value, and can therefore optimise the network and customer experience based on prioritisation of business value. Accanto helps CSPs move from traditional network monitoring to a more customer-centric approach by enabling them to follow every area, subscriber, corporate account and service in real-time. This gives them visibility of where their most important customers are suffering bad quality, and enables them make more informed investment and operational decisions. Accanto says its iCEM customers have seen reductions in churn and support call costs.

## Key differentiators

Having originally been a network probe supplier, Accanto has a deep understanding of network protocols and operations. It is able to correlate network activity with other information including data from CRM systems and handsets to allow CSPs to see the subscriber experience and understand which KPIs have the biggest impact on customer happiness. It takes disparate types of data from multiple vendors' equipment and systems and integrates it into a single view on a common platform. It has defined and deployed a whole range of ready-made CSP use cases that enable the CSPs to immediately benefit from the knowledge, analytics, and optimisation recommendations that are in-built in to its platform. The Accanto iCEM platform is able to handle a huge amount of real-time and non-real-time information to monitor the quality of every subscriber for voice and data services. Its solution is able to dynamically segment the subscribers and can rank all customers based on correlated quality indicators, customer expectation, and customer value information.

## Company summary

Empirix specialises in end-to-end network performance visibility with the ability to analyse customer behaviours by application in real-time. Empirix helps service providers, mobile operators, contact centres and businesses optimise processes to reduce operational costs, maximise customer retention and grow top line revenue.

## CEM credentials

Empirix collects information on how individual subscribers are interacting with both the network and the services. Its solution sits with the technical support team to provide better insight into their customers. It aims to reduce the amount of time spent between a tech support agent and the customers, as well as provide the intelligence to allow a less-experienced technician handle most issues. Its solutions allow an agent to see the device, services and network resources a customer is consuming, and compare to the peer group to determine if it is a subscriber issue or a larger one. It can support customer-based alarms in real-time. It also helps reduce costs by being able to verify claims of poor service, avoiding situations where it compensates a subscriber when no compensation is due.

## Key differentiators

Empirix's solution is able to support every subscriber in a network – scaling to hundreds of millions – at a granular level, rather than infer the experience based on a limited number of data points. Similarly, it scales horizontally so that 100-200 individuals can use the platform at the same time. Empirix has designed its solution to provide high performance, updating dashboards in five minute intervals, and 20 second response rates to customer queries. Because of its history with service assurance, probes and DPI (deep packet inspection), Empirix has visibility up and down the stack. It is able to see and collect applications and usage at the subscriber level. It can also drill down to get a technical view of the subscriber to help reduce MTTR (mean time to repair). It offers near-real-time dashboards that allow its customer to support short term SLAs which is particularly important in saturated markets where CSPs are competing on quality rather than price. It provides the visibility to enable CSPs to focus on its highest value customers, and prioritise issues accordingly.





## Company summary

EXFO is a provider of next-generation test, service assurance and end-to-end service experience solutions for mobile and fixed network operators and equipment manufacturers in the global telecoms industry. EXFO's intelligent solutions with contextually relevant analytics improve end-user quality of experience, enhance network performance and drive operational efficiencies throughout the network and service delivery lifecycle. EXFO has a staff of approximately 1,600 people in 25 countries, supporting more than 2,000 telecoms customers worldwide.

## CEM credentials

EXFO's Xtract solution focuses on providing comprehensive, end-to-end visibility of service experience to the network operations, planning and customer care organisations. This entails continuously collecting, correlating, analysing and visualising information from radio, core, backhaul and fibre networks, as well as from the devices themselves. Xtract contains three main analytical applications: service, subscriber and network analytics, which allow CSPs to operate and manage service quality and network performance, troubleshoot, plan capacity increases, confirm service activation, more quickly identify and respond to network issues, and suggest changes and new offers.

## Key differentiators

Because of its long history working with Tier 1 CSPs around the world, EXFO has a deep understanding of network technologies and operations. It has built upon its expertise in fibre to now include 2G/3G/4G/LTE and Ethernet and has packaged this expertise as comprehensive portfolio of services included into its turn-key solutions. EXFO's Xtract analytics platform is able to process massive volumes of data from devices and radio, core, backhaul and fibre networks in real-time, providing a comprehensive end-to-end view into service experience. This is increasingly important for new services such as VoLTE, where Xtract is able to analyse control and user plane traffic as well as call quality information from IMS systems in real-time to fully understand the service experience.

EXFO provides predictable and transparent TCO with its open analytics platform, which allows CSPs or other third parties the ability to customise EXFO Xtract to better suit their needs, including adding dashboards and changing algorithms, without having to go back to EXFO.

## Company summary

MDS is a UK-based provider of convergent real-time charging, billing and customer management products and private cloud managed services to the CSPs and wider digital services provider (DSP) industry. Its Customer Management Platform (CMP), helps DSPs launch new products and services quickly, bill for them accurately, and unlock new revenue streams to support business growth. CMP has been in production for almost 20 years and is used in 21 countries around the world.

## CEM credentials

With CMP, MDS has moved decision-making to the customer, giving them visibility and control of their usage online and on-demand. Using an intuitive interface, users can select which services and payment methods best suit them. With easy to use real-time account management, they can purchase any service, day pass or package. Subscribers can decide and use the services on their terms. Using CMP, customers have reduced their operational costs, improved standards of customer care and helped grow their subscriber base and profits. MDS' managed service provides a cost efficient, fully assured alternative to in-house management. This also brings down the total cost of ownership, with one view of the customers that enhances their experience.

## Key differentiators

MDS offers its platform via a scalable and effective managed services business or as a product licence, which is a unique approach to CEM. It has continually invested across its entire portfolio to offer real-time analytics, M2M, managed services, and multi-tenant solutions that customers needed to gain more insight and compete effectively. MDS has built its own tools, including executive dashboards which show usage, churn rates, update of new services for a deeper understanding of customer behaviour. It can also feed usage data to CRM tools such as salesforce.com and other external tools. CMP can also be used to present offers based on customer behaviour – an area MDS is increasingly focusing on with its customers. MDS has expanded its addressable market from its predominantly B2B, mobile-only origins to support consumer and multi-product offerings such as home phone and broadband services. Its managed service is underpinned by more than 50 SLAs that monitor over 200 pre-defined business processes, giving DSPs the confidence that their billing is taken care of.



### Company summary

Nakina offers a suite of Network Integrity applications for managing, securing, and optimising physical and virtual networks. Nakina's applications are built upon its Network Integrity Framework – an open and modular software platform that abstracts network complexity, normalises multi-vendor management, and bridges the physical and virtual worlds for management and orchestration systems.

### CEM credentials

Nakina's solutions assure network data accuracy and timely access to critical network data so that CEM systems can provide correct, data-driven insights. It enhances customer experience by improving network quality by preventing, detecting and correcting network and service configuration errors. CEM systems can correlate real-time performance analytics with the network configuration analytics Nakina provides to present a holistic view of the customer experience by incorporating a view from the network. When combined as part of a holistic solution, Nakina helps CEM solutions predict and refine network configurations to drive maximum network stability and performance at the lowest possible cost, reduce customer churn, preserve revenue and dramatically improve diagnosis and remediation times.

### Key differentiators

Nakina's roots are in multi-vendor, multi-technology network management. All of Nakina's software solutions are built on top of the company's network integrity framework, an open orchestration enablement platform. The platform enables Nakina's solutions to scale across the largest service provider networks. All Nakina's network integrity applications including those that discover, audit, analyse network configuration accuracy and provide privileged identity access management, are built on top of this software platform. These solutions audit network configuration accuracy end-to-end along the service path, spanning physical and virtual networks. When paired with CEM solutions, service providers can isolate network configuration issues wherever they may be in the service chain, and rapidly identify the impact to specific customer experience. The solutions dramatically improve problem isolation, diagnosis and resolution response times. Nakina detects network security configuration vulnerabilities, and automatically applies privileged user access policies. Its systems augment the capabilities of performance management systems. By correlating real-time service performance, network configuration changes, and network access events, CSPs can determine not only which configurations may have changed, but when, by whom, understand potential associated network performance impacts and associated impacts to customer experience.

### Company summary

Founded in 1999 and based in Dublin, Ireland, Openet is a leading independent supplier of real-time BSS (business support systems) to CSPs. Its software supports 600 million mobile telecoms users around the world and enables CSPs to monetise data use in real-time.

### CEM credentials

Openet comes from a background of policy and charging, so is geared around the real-time consumption of services. It approaches CEM by focusing on increasing and improving customer engagement. Its solutions help CSPs offer its customers personalised offers that take into account the full range of understanding about network and subscriber behaviour. The aim is to enable CSPs to make offers relevant by considering the context, thereby demonstrating how well the CSP understands the customer's needs.

Openet's CSP customers have found that by tailoring personalised offers more quickly, they are achieving higher take-up rates.

### Key differentiators

Because Openet is able to provide information in real-time, it gives its CSP customers the ability to create more personalised offers, rather than generalised blasts. Openet also understands the underlying network, so it can ensure that the offer is capable of being delivered at a particular point in time. Its solution handles access to the service, as well as the charging for it, providing a comprehensive view that makes it seamless across multiple organisations. It believes its long-term industry experience gives it an advantage over general IT solution suppliers who may not fully understand the complexity and culture of telecom network operations and customer care.



## Company summary

Polystar helps CSPs simplify their CEM strategies and drive operational efficiency through real-time network analytics. Polystar's real-time network and customer insights uncover the data that yields valuable analytics and insights to CSPs. Founded in Stockholm in 1983, it has evolved to a global presence, serving customers in over 50 countries.

## CEM credentials

Polystar's primary focus is to provide objective insights about subscriber experience during the usage phase of the customer lifecycle. Through real-time passive probes, its solutions capture all signaling related to subscriber activity and convert this to objective quality of experience data that can be analysed in Polystar's own tools or forwarded to third party systems. Polystar's own tools deliver real-time quality of experience data to network and service operations centres and customer care. In large CEM initiatives targeting the entire customer lifecycle, Polystar's solutions often supply enriched real-time and objective quality of experience data to third party systems, while its own tools are primarily used for in depth troubleshooting in second or third line engineering. The information collected spans all activities from connecting to the network, moving between cells, using OTT applications and the CSP's own applications, such as VoLTE and other voice and data services. Using Polystar's solutions, CSPs have found that support calls are resolved more quickly, and that there are fewer repetitive calls on the same complaint. In addition, CSPs have also seen improvements in network availability and service quality, including a reduction in the number of dropped calls and data sessions. Polystar's solutions may be used both to resolve and isolate problems and to guide the CSP to complementary tools. As a result, CSPs can become more proactive by identifying service degradation before failures occur.

## Key differentiators

Polystar's solutions have the capability to collect billions of events, analyse them and present end-to-end insights in real-time, or forward them to other systems. It has built its entire solution in-house, rather than through the acquisition of external technology, leading to very tight integration of system components. Compared to other solution providers, Polystar believes its solution is more flexible in terms of being more easily modified and tailored to CSP requirements. The systems have, since inception, been built on standard hardware and software, making it easy to adapt to new technology shifts such as the introduction of network functions virtualisation (NFV). Expertise in signaling is an increasingly scarce resource and Polystar's in-house knowledge is much valued by its CSP customers. Polystar has invested heavily in its professional services team, which is designed to provide additional expertise to CSPs and help them capitalise more effectively on real-time insights.



## Company summary

SysMech is a provider of software solutions for the telecoms industry. In 2010, it launched Zen, an application which enables CSP's to successfully optimise their networks and deliver true business value from big data. It has Tier 1 CSP customers across Europe and the Middle East.

## CEM credentials

SysMech's Zen solution enables CSPs to look at CEM in line with the rest of their business by correlating CEM data with network and billing information. Zen allows customers to define scenarios and action that needs to be taken under those conditions. By using just one centralised tool for both network and customer data, visibility is increased, and standardised views, processes and reports can be achieved. The solution can manage across multiple domains, giving the CSP the ability to look at a particular service with certain customers at a certain point in time. Its customers have been able to correlate their network data with customer experience data, enabling them to see what changes are actually affecting the customer experience and perception.

## Key differentiators

SysMech's main IP is around the ability to deal with data quickly, correlate it and provide actionable intelligence. It has designed Zen so people with little to no experience with big data can effectively use the tool. It has also partnered with Tableau to bring user-friendly visualisation, which, combined with its customised user interface, means users can build and manipulate their own reports and scenarios. Zen can take in data feeds from any domain, any vendor and any technology, giving CSPs an end-to-end view of the network, services and customers in a single application that can be used by people in multiple departments. It uses a patented correlation engine that enables proactive automation methodologies to support CEM, as well as other domains like fault and performance management. Zen was designed to reduce the number of clicks needed to accomplish a task, as well as be self-healing/managing.