HiTech Insights

CUSTOMER EXPERIENCE 4.0
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The single most exciting opportunity today for high tech companies is to translate technology innovations into value for their customers. There is great emphasis on delivering the right customer experience and managing the customer’s journey, which are important differentiators in today’s competitive business landscape. In today’s digital era, where customer experience is the core driver, enterprises embarking on Business 4.0™ transformation need to root their growth strategies in customer-centricity.

With companies leveraging digital technologies to capitalize on new opportunities and meet customer requirements, the challenge lies in identifying the right strategy. In this journal, we bring you insights on how companies can address this challenge. Technologies such as the Internet of Things (IoT) and analytics offer great potential in this regard, by gathering product usage insights that can eventually lead to reinventing existing business models and delivering differentiated value proposition to customers. They are also instrumental in managing the customer journey by tracking customers’ experience across the various sales channels, in real time. Enterprises today can use technology to garner insights from a range of categories, including demography and behavioral patterns, which will eventually enable extensive customization of their offerings.

The goal of every business is to convert their customers into loyal advocates, and the key to doing this is hyper-personalization.

Great experiences ensure better recall by customers, paving the path for a long-term engagement.

Hope you find 'HiTech Insights Vol 2: Customer Experience 4.0’ interesting and thought-provoking.

Best regards,
Nagaraj Ijari
IDC PERSPECTIVE

Is Customer Experience Now the Driving Force for the Supply Chain?

This IDC Perspective examines the key role that customer experience is poised to play in the future of the supply chain. It discusses TCS HiTech’s approach with some of its key SCM offerings and how Customer Experience drives the development of Supply Chain Offerings at TCS HiTech.

“Companies need to raise their supply chain game to meet increasing customer and consumer expectations. Customer Experience (CX) is fast becoming the core of the future supply chain. TCS has demonstrated a strong approach in connecting CX with SCM, especially for the High Tech industry domain. This would help their customers to realize business benefits from TCS’ technology investments.” – Simon Ellis, Program Vice President, IDC.

As per IDC, 90% of industry growth will be captured by companies that successfully engage directly with consumers. Many of the experiential capabilities that supply chain must have are possible only with the modern digital capabilities. IDC acknowledges TCS’ view that Supply Chain efforts must connect with Customer Experience (CX) imperatives. TCS HiTech’s supply chain capabilities are geared to the consumer and provide a strong linkage between SCM and CX. TCS perceives CX as being reliable (living up to commitments), convenient (choice, consistency, and timely), responsive (listening and responding), and relevant (personalized and meaningful).

“TCS has demonstrated a strong approach in connecting CX with SCM, especially for the High Tech industry domain. This would help their customers to realize business benefits from TCS’ technology investments.”

Simon Ellis, Program Vice President, IDC.

Read the full report [here](#).
Synthesizing Customer Experience for a Winning Edge

Abstract

In 2016, 89% of businesses are expected to focus on customer experience as a key differentiator as compared to just 36% in 2010\(^1\). Companies, particularly in the high tech sector, which deliver an integrated and holistic approach to Customer Experience Management (CEM), from pre-sales to purchase and after-sales support, are likely to be more successful.
The Need for an Integrated Approach

Rapid technology changes and their commoditization, dynamic market forces, and complex supply chains with short product lifecycles have increased the criticality of delivering a differentiated customer experience. Many businesses focus on specific touch points, which miss out on the interplay between user personas, the customer journey, and the entire ecosystem.

Mapping the Customer's Journey

While there are differences in B2B and B2C marketing, there are several similarities too. For instance, managing complex and lengthy sales cycles with demand fluctuations and economic factors is a major challenge in the B2B segment, whereas creating consistent brand experiences with high technology investments and lack of skilled resources is the primary concern in the B2C segment. For both individuals and enterprises, however, integrated CEM is an ongoing process that involves creating, managing, delivering, and supporting customer perceptions.

“You’ve got to start with customer experience and work back toward the technology - not the other way around.”
- Steve Jobs
Digital connectivity and social networking have greatly empowered customers, increasing their ability to influence others, and consequently their expectations, manifold. High tech companies need to create differentiated experiences at all stages both prior to and post purchase which warrants the creation of customer journey maps. Customer journey maps help manage, optimize, and prioritize touch points and assess the suitability of digital tools and technologies that are available to enhance the customer experience. Creating buyer personas is also crucial for an in-depth understanding of customers' characteristics, motivations, needs, and goals.

**Understanding customer needs**

In the initial awareness and consideration stages of the engagement lifecycle, customers identify a problem and seek a solution. In the high tech space, legacy products, support issues, return on investment, system security, and interoperability are recurring concerns. By pinpointing specific problem areas, sales teams can better address and resolve the major challenges of concerned stakeholders.

**Delivering on promises**

Companies also need to enhance the customer experience during the purchase, retention, and advocacy stages. Pricing, contracts, licensing, support, and maintenance are areas that can be targeted during the sale. Even after the purchase, companies need to take steps such as incorporating customer-focused metrics in service level agreements (SLAs) with contact centers, and training support personnel to diagnose and manage issues accordingly. Integrating frontend customer-facing, middle-office, and back-end service fulfillment operations is also vital to designing effective outreach programs. Service fulfillment, parts management, warranties, and product return management are other focus areas that can enhance the customer lifetime value and increase the service-to-sales revenue.
Leveraging Technology for CEM

Technology plays a pivotal role in deploying an integrated CEM strategy. Using digital technologies, businesses can drive innovation and acquire actionable intelligence on customer preferences to provide a seamless, Omni-channel experience. It also helps brands to be present on the same channels as their customers, enabling them to provide information, answer questions, or address issues in near real time. Social media and business analytics are two critical technologies that can spur greater customer engagement.

Providing personalized experiences using social media

Social media communities are growing rapidly, changing the way businesses interact with customers. Instantaneous responses to queries on online forums are increasingly becoming the norm. Crowdsourcing to address customer concerns is now a viable alternative to full-time service support.

Gaining actionable insights through analytics

High tech businesses need to keep pace with dynamic customer demands, manage shrinking product lifecycles, and ensure rapid innovation and faster time-to-market. At the same time, Big Data, cloud computing, social media, and mobility are impacting the way customers consume information. This makes data an integral part of the CEM strategy. By leveraging predictive analytics, high tech companies can make faster and more accurate decisions to improve the overall customer experience.

Qualitative and quantitative customer data generated across various touch points can be analyzed to provide a complete picture of the engagement experience. Companies can build cross-channel intelligence for channel optimization and create more effective cross-sell and up-sell strategies. Today, most customer interactions such as feedback, complaints,
and service requests are being conducted online. By automatically processing textual data from online forums and customer service portals, companies can identify key patterns, behavior, and potential issues that negatively impact the online customer experience. An analytics platform, backed by predictive modeling, machine learning, and statistical natural language processing (NLP) techniques, can offer quick and actionable insights. The ability to drill down and focus on a specific day, or evaluate sessions over days, weeks, or even months, can help sales and support personnel identify trends and address customer issues quickly.

**Conclusion**

Since purchase behavior for technology products is complex, high tech companies today need to manage customer experience strategically and provide an integrated, consistent experience across all touch points of the customer journey for better communication and collaboration. By moving to a customer-centric approach, they can readily identify risks and opportunities, provide contextual and personalized care, and drive customer advocacy.

In a competitive market with fragile customer loyalties, implementing integrated customer experience management will enable high tech companies to differentiate themselves by driving unique and contextual experiences.

**About The Author**

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Vijay Muttur is the Head of Enterprise Transformation Group within the HiTech business unit at Tata Consultancy Services (TCS). With more than 28 years of experience across industries, he has a deep understanding of the customer experience space and anchors consulting engagements and technology implementation projects for high tech companies the world over.
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Reinventing Customer Experience in the High Tech Industry through IoT and Analytics

Abstract

Digital technologies are rapidly reshaping businesses across multiple dimensions, including customer experience. High tech companies can obtain a competitive advantage by leveraging technologies such as the Internet of Things (IoT) and analytics to engage with customers better. In fact, as early adopters of new technologies, high tech companies are perfectly placed to leverage these technologies to transform core business processes and stay ahead of the competition.

This paper identifies areas where IoT and analytics can be applied to fill existing gaps in business processes and create new opportunities. It also highlights some of the ways in which high tech companies can leverage product usage insights to serve customers better and drive profitability.
Harnessing the potential of IoT and analytics

The number of devices connected to the internet is increasing at a remarkable rate, and is estimated to reach 50 billion by 2020, with a potential business opportunity valued at nearly USD 14.4 trillion. Electronic components obeying Moore’s law, and lower cost of technology will make IoT technology affordable, which will facilitate its adoption by customer appliance companies. To make the most of the opportunities offered by IoT, high tech companies will need to rethink existing business models, channel partner strategies, and delivery of services to end customers. They must leverage analytics to deepen operational, customer, and product insights. This will enable high tech companies to simplify processes, optimize costs, accelerate innovation, and increase sales by delivering more personalized offerings.

Strategies to differentiate high tech customer experience

In this section, we explore seven potential IoT and analytics applications that can help industry players increase revenue, reduce costs, and create a differentiated value proposition for enhanced customer experience:

1. Improve demand forecast accuracy: Inaccurate demand forecasting at high tech companies can result in large amounts of working capital and inaccurate inventory. The insights generated from IoT devices and analytics provide demand planners significant input to understand short-term demand, and plan resource requirements and investments accordingly. Data generated by IoT sensors can be analyzed to identify when a component or the product itself requires repair or replacement.

Leveraging sensor data, an input obtained directly from customer equipment, helps deepen the insights from the forecasting model. Demand planners can rely on both definite demand and historic forecasts to improve the accuracy of demand forecasting. As shown in Figure 1, this has a
ripple effect on various aspects of the supply chain such as inventory management and logistics, simultaneously reducing supply chain costs and increasing customer satisfaction.

With an additional demand input, traditional time series exponential smoothing forecast model can be modified as follows:

New forecast = max \{F_t, k F_t + P_i * Q\}

F_t = α * (actual demand, t) + (1- α) * (forecast, t-1)

F_t: time series forecast for period ‘t’

k: factor for reduction of reliance on historic data

P_i: factor of conversion of quantities given by IoT sensors

Q: quantity analyzed inputs from IoT devices

α: smoothing constant

When this formula was tested, with assumptions k = 0.6 and P_i = 0.5, the forecast was more closely aligned to the demand, decreasing the deviation from actual demand by a staggering 39.82%.
2. Drill down to identify cause of component or product failure: Data about product and component status obtained periodically from connected devices can help companies understand when a product or a component is likely to fail or will need to be repaired. These status signals can be aggregated to identify the components responsible for the defects in the device, and help diagnose the root cause of those failures. It is also easy to track these devices backwards across the supply chain network (as shown in Figure 2) to identify processes that need to be improved to prevent disruptions in usage.

The sensors embedded in the components are capable of sampling the status signals. A periodic average of these samples indicates the number of times the status has crossed the predetermined control levels. By leveraging classification algorithms, an analytical engine can be used to analyze multiple signals from various sensors to understand the behavior of the particular component or the entire product. Time series data can also be analyzed to forecast the future behavior of the component or product.

*Figure 2: Drilling down of component and product failure across the supply chain*
3. Customize marketing efforts: Insights obtained from IoT-enabled product or device usage can be leveraged to create targeted marketing strategies. Understanding customer preferences helps create more opportunities, using the existing customer base. For example, a customer may use a laptop or mobile device predominantly for gaming. By analyzing signals such as temperature, display colors, and frequency of audio signals, the device manufacturer can market various other gaming-related products to the customer, thereby augmenting the revenue stream.

4. Collaborate with partners: Sharing product usage data helps companies enhance collaboration with partners, to create additional demand and serve the right customers. For example, a camera manufacturer may gain insights obtained from exposure data of the customer’s camera lens. This data when shared with resellers, will help them provide discounts on related products or market other related offerings — which benefits both customers and companies. The data can be used to partner with manufacturers and suppliers for improving design of products.

5. Enhance new product development: Obtaining real time insights on product usage and user interaction has the potential to transform the traditional product development process, bringing in greater transparency into usage. Accelerated product development process can improve customer satisfaction.

Sensor data helps predict common problems with existing products to plan the design and development of the next set of products better. Manufacturers may even use this type of data to classify customers based on feature usage patterns, and develop the product with limited features customized for each customer segment. In the above camera example, an OEM will be able to classify the consumers based on their photography habits. Additional services can be made available based on the need, thereby providing greater pricing flexibility.
6. Reduce service center costs: Most high tech companies have a large number of service personnel and service centers, resulting in significant costs. Many companies prefer not to reduce the number of service centers or personnel in order to maintain their customer reach. IoT and analytics enable companies to predict what type of service would be required, and at what time in the future. This means only essential personnel need to be employed at the appropriate place and time.

7. Prevent counterfeits: The growing presence of counterfeit components and products is a mounting problem for high tech companies. Spurious and counterfeit products in areas such as home automation and medical technologies raise performance and security issues. IoT-enabled products allow OEMs to access information about components that go into the final product based on the digital identities of these products. These identities help downstream partners validate the authenticity at each stage of the distribution network. Any spurious product or component injected in the supply chain at a particular stage, can trigger alerts to the manufacturer for corrective action.

Taking Customer Experience to the Next Level

For a leap towards IoT-enabled digitization, companies should first form a vision for future processes, understand what could be improved, determine the kind of sensors required, and contextualize sensor data with business data. These basic things will address major concerns surrounding investments in new architecture, broadcasting of data, selection of the right analytical model, and streamlining of other processes. Organizations will find it increasingly challenging to process data amassed from a large number of sensors. Therefore, organizations must leverage technologies such as cloud computing and edge computing to address such concerns. SMEs and technical architects must come up with an infrastructure which could support multiple communication protocols, along with integration of data.
from multiple in house and third party sources for building a unique ecosystem of solutions and services.

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A Layered Approach to Building Next-Gen Customer Experience Management Platform

Abstract

As consumer preferences, interactions, and expectations evolve, enterprises are shifting their focus from customer relationship management (CRM) solutions toward building holistic customer experience management (CEM) platforms. For some time now, CRM has acted as a repository for customer interactions data, and as a tool for sales enablement and service management. However, companies must also be able to draw insights from customer demography, behavioral patterns, and relationship profiles. This will allow them to extensively customize offerings and position these in a manner that meaningfully aligns to individual lifestyles.
This paper highlights the various aspects that must be considered for conceptualizing and building such a platform, and chalks out a roadmap for integrating CEM—depending on the enterprise’s maturity level.

As CEM becomes almost a necessity across industries, enterprises must leverage real-time analytics to track and manage not just the customer’s journey but also their experience across myriad sales channels. Ideally, the modern CEM platform must include - an engagement platform comprising a customer portal and digital marketing platform, a CRM solution, master data management, analytics capabilities, and integration with social media, computer telephony integration (CTI) and line of business (LoB) applications. With this, enterprises can gain a single view of the customer, unify engagement and operations, reduce OPEX, ensure effective customer lifecycle management (CLM), deliver tailored products, and gain real-time insights across channels.

Realizing the full potential of such a platform will require enterprises to transform their processes through comprehensive operational change management.
Envisioning the Platform Architecture

As the first step, enterprises need to conceptualize an integrated platform that cover all aspects of the customer experience (see Figure 1).

Such a platform should be able to:

- Create enterprise-wide view of the customer—aggregating data from across channels and products
- Target segments with the right products in their preferred delivery channels
- Calculate customer lifetime value by analyzing household and individual behavior, allowing enterprises to gain a thorough understanding of the entire customer family and develop crosssell strategies
- Personalize engagement by offering focussed and tailored services
- Monitor, measure, and maximize customer profitability
- Manage retention strategies based on models that identify critical customer segments
- Formulate incentives and performance metrics to reward customer-focused behavior

Figure 1: Customer Experience Management Platform – Conceptual Architecture
- Build and execute effective campaigns that improve marketing ROI
- Leverage social media to comprehend and meet customer expectations effectively
- Analyze authentic and clean customer data to proactively position specific products and services

**Layering the CEM Roadmap**

This platform must be built in a manner wherein each layer will provide a distinct set of capabilities:

**Customer Engagement Layer** - consisting of a digital management platform that offers content and marketing delivery services. In addition, business applications (such as customer and partner portals) will be integrated with this platform, enabling users to carry out business transactions and self-service functions. While the decision to build such a platform over buying a commercial off-the-shelf version depends on organizational needs and priorities, a digital management platform will accelerate the customer experience management platform implementation process.

**Interactions Layer** - tracking customer interactions across various channels, such as social, web, and mobile, and not just limited to the traditional ones, using CEM's advanced sales and marketing capabilities. With this layer's unified collaboration and communication capabilities, enterprises can establish peer-to-peer communications and enable cross-channel collaboration among employees, customers, and vendors. This can be done through emails, text and video chat, SMS, collaboration and content sites, and so on.

**CRM Layer** - providing sales, customer service, and marketing capabilities. As this layer stores customer interaction history, enterprises will be able to gain a 360-degree view of the customer. In turn, the sales team can identify and evaluate leads, converting them into opportunities. The platform also provides workflows for assigning and addressing of customer
service requests and includes a clear escalation matrix within the pre-defined SLAs. It can even define and orchestrate marketing campaigns and track ROI metrics.

**Insights Layer** - helping enterprises glean through the data stored in the CRM, and other internal and external data sources to understand and address customer needs proactively. This not only enhances customer experience but builds a positive brand perception.

**Analytics Engine Layer** - providing descriptive, predictive, and prescriptive analytics capabilities. Descriptive helps enterprises gain insights into sales, services, and marketing activities. Predictive provides the models for churn, product propensity, and customer segmentation. Prescriptive recommends an optimum action plan per customer segment for the sales and service agents. Enterprises can therefore build:

- Product propensity models to predict which customers are likely to purchase
- Classification models to segment transactional behavior as well as estimated and current customer value
- Rule-based models to recommend the next course of action for sales and support

**Customer Journey Map Layer** - putting the customer at the center and depicting every interaction with the enterprise (from initial contact till date), and including critical, life-changing events in the form of a time series. This helps analyze how customer sentiments change in response to an interaction, as illustrated through an example from the insurance domain in Figure 2.
Master Data Management (MDM) Layer - aggregating customer data from various sources and creating a single version of truth. This helps enterprise understand customer needs better, improve customer experience, and optimize customer-facing processes across marketing, sales, and servicing channels. Ultimately, this will lead to increased productivity, better response time, and an individualized customer service approach. With built-in data quality, data governance processes, this layer enhances the value of CRM implementation, helping companies build the most accurate 360-degree view of the customer. MDM also ensures reduced costs through minimized data quality issues, and more revenue through efficient sales processes, and improved customer retention. In terms of reporting too, enterprises will experience improved risk management and compliance. Besides reacting to new opportunities quickly, companies will be far more flexible in handling process, model, and data changes both internally and in cases of mergers and acquisitions (M&As).

Cloud Services Layer—simplifying the infrastructure, cost, and complexity associated with setting up Big Data analytics and digital marketing platforms by partnering with leading service providers. Not only are these services continuously updated, they enable enterprises to consolidate data from different sources and perform analytics, integrate with a complimentary Software as a Service (SaaS) offering—creating a robust foundation for implementing the customer experience management platform. It also effectively reduces the risk, operational complexity, and cost typically associated with on-premise deployment of advanced analytics solutions.
Figure 2 showcases what implementing CEM platform will look like:

Assessing Maturity

Figure 3 highlights a maturity model that can be leveraged to assess the current state of a CEM platform, and plan a future roadmap accordingly. For instance, if your enterprise is currently at Level 4, there will be a number of CEM process improvement initiatives running across multiple business units. As you progress to the next level, these initiatives will have an enterprise-wide impact and can be continuously measured. To reach Level 5, however, CEM, CRM, MDM, and customer analytics need to be leveraged effectively, and CEM metrics must be periodically reviewed to create plans for future improvements.
The Road Ahead for Customer Experience

As CEM’s implementation is part of a larger, enterprise-wide transformation initiative, it’s necessary to support and augment this with change management, business process improvement, loyalty management, branding, and strong governance. For this, employees must rethink customer service, thoroughly reviewing the existing sales and marketing processes. This would typically entail reorganizing product portfolios, incentives and compensation structures, and adapting to evolving market needs in an agile manner. For instance, loyal customers could be incentivized based on the value of the portfolio and length of relationship. Enterprises must also measure the impact of their engagement initiatives with continuous governance, making adjustments as and when necessary.
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References:

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