Welcome to the second edition of Forum, the TCS Retail bi-monthly thought leadership journal. Our last edition discussed how you can leverage Big Data for better customer engagement.

Customers today don’t see channels, they see brands! They expect consistency in assortment, pricing, messaging, and service across channels. The retail outlook has consequently transitioned from “Should I sell through multiple channels?” to “How can I deliver a holistic experience to my customers across channels?”.

Providing a consistent brand experience requires a well thought-out strategy on delivering a seamless experience across channels and touch points. Keeping with this trend, we’ve directed the focus of this issue to omni-channel merchandising.

Modernizing foundational systems such as Merchandising ranked as the second most important IT priority for providing a true omni-channel experience in the NRF’s Retail CIO mid-December 2012 council survey. CIOs stated that they firmly believe optimization of assortment, pricing, inventory, and fulfillment processes will be made possible with modernization. My interactions with several global retailers reinforce this finding and also reveal that they are at different levels of progression in adopting this approach.

In this issue, we share our perspectives on the emerging trends in space planning, pricing, assortment, and item management in the current context of channel proliferation and customer-centricity. We also present our recommendations on the approach retailers can adopt to realign the basic building blocks of the merchandising process to succeed in their omni-channel journey.

I hope you enjoy reading this edition!

Do share your suggestions and feedback. Write to us at tcsretail.forum@tcs.com

Warm regards,

Pratik Pal
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Macro Space Planning: Get More **Out of the Box**
Macro Space Planning: Get More Out of the Box

Global ecommerce sales increased by 20% in 2012 and are touted to reach the 1 trillion euro mark in 2013.1 These numbers are forcing retailers to rethink their strategy to maximize the return on their largest investment—real estate. Physical stores continue to remain the largest customer experience window and contribute more than 80% to overall sales numbers today.2

Given the spurt in ecommerce sales and the growing convergence of new channels, retailers need to explore options to resurrect physical store sales. This task, however, is extremely daunting for retailers, given the proliferation of Stock Keeping Units (SKUs), shorter product lifecycles, constantly changing customer preferences, and aggressive competition.

Macro Space Optimization: The New Imperative

Globally, macro space optimization is playing an increasingly important role in meeting retailers’ revenue objectives. Retailers, however, still use ad-hoc approaches driven by gut feel or multiple manual revisions for macro space optimization. These models, based on the traditional foundation of sales and margins data, fail to take into account customer-centric parameters such as opinions expressed through social media and demographic segment behavior. And the result of this approach is that most retailers do not see any significant increment in returns.

Effective macro space optimization builds on information that goes beyond just sales numbers. Retailers need to keep a check on what shoppers buy, how they buy, when they buy, and why they buy, as these patterns evolve even within the span of a day. In the same vein, they also need to know the role categories play for those customers. This is crucial to know clusters, categories, and more importantly, customers better. Figure 1 illustrates how macro

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2Gartner Industry research, 'Multichannel Retailing: The Store Remains the Hub of Retailing' – Industry research id G00227187, accessed April 2013
space optimization needs to be proactive, taking into account critical factors—customer behavior, store characteristics, competitors, category role, and more—to predict the ideal layouts that will positively influence store revenue.

Steps and Strategies for Space Optimization

With the critical data in place, retailers need to set a structure for the macro space optimization plan, outlining specific priorities and actionable insights at each stage of execution. A typical plan should comprise five essential steps, each including several key activities and outcomes, as presented in Figure 2.

Drivers of Change

As retailers utilize critical data and facilitate optimization, they also need to focus on the number of variables in this process. Firstly, large volumes of data will be churned from different streams, necessitating capability development to handle this data. Secondly, an algorithm mature enough to represent the dynamic relationship of space with sales, and a process to provide a basis for space change recommendations are needed. A solution based on the three connected pillars of science, process, and technology that can provide scalable analytics and measurable results as well as slice and dice vital data at granular level will address these needs comprehensively.

Figure 2: Essential steps for macro space optimization
Capability augmentation necessary for each pillar to drive an effective space optimization solution includes:

- **Bringing science to instinct**: The algorithm used for space change modeling must manage the entire range of critical data. Equally crucial is the algorithm’s ability to incorporate more data streams from both structured and unstructured sources as and when their impact on sales reaches a significant level. The algorithm should also work towards minimizing the ad-hoc analysis carried out in standalone spreadsheets, and providing a single window to execute all space optimization strategies.

- **Extending process to include heuristic optimization**: Merchandise managers’ vast experiences are a key asset and should be leveraged in the overall space planning exercise. A solution environment that provides ‘what-if’ capabilities to run scenarios that closely approximate the nature of the category and the retailer’s expectations from that category helps maximize gains while maintaining brand integrity. Another key component is historical organizational information which needs to be exploited.

- **Rendering scales through investment in right technology**: The primary change agent in space optimization is critical data and its correlation to sales. Retailers need to invest in technologies such as Big Data to derive significantly faster and more scalable analytics. Retailers are increasingly exploring open source tools and technologies that minimize the cost of change and reduce Total Cost of Ownership (TCO).

**Conclusion**

Modern retailers are striving to improve their macro space utilization to deliver high levels of availability and variety to their customers, while creating superior in-store shopping experiences. Even as they experiment with different store sizes and layouts, it is highly critical that customer and store-centric factors drive the financial objectives. These factors must be included in traditional models that drive decisions solely on performance data. The ideal solution for retailers is one that blends an optimal amount of science in the form of a mathematical model with cutting edge cost optimized technology, resulting in a simpler space allocation process.

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What’s Your Bet on Omni-Channel Pricing?
What’s Your Bet on Omni-Channel Pricing?

Edgell Knowledge Network (EKN) and eBay’s recent joint survey reveals that 80% of retailers foresee an average 5% decline in sales because of uncompetitive pricing. This percentage is expected to increase with 82% of customers estimated to be ‘showroomers’ (shoppers using their smartphones to compare in-store and online prices).

Customers are channel agnostic and gravitate towards the channel that offers the most value.

Today, customers vote with their feet; shoppers have become increasingly channel agnostic and gravitate towards the channel that offers most value—with pricing becoming a game changer. Most often, retailers tend to adopt a ‘reactive’ approach to pricing; playing ‘not to lose’. To survive, it is an imperative that retailers transform this mindset from ‘play not to lose’ to ‘play to win’.

What is Driving the Renewed Pricing Focus?

Modern web-only retailers are presenting lucrative propositions such as free shipping, registered mail, and portal-based discounts for specific customer groups such as students and mothers, and subscription-based supply of daily utilities such as paper towels and diapers with special discounts based on volume and loyalty programs.

During the 2012 Thanksgiving sale, Amazon.com stunned competition with multiple price changes in a single day. A few players opted out of the competition (mostly because of inefficient processes and lack of technological maturity) and let the others stock out. Yet others tried to match these price changes, thereby straining their in-store workforce, and grappling with time to validate the impact of the price change on their top and bottom line items (revenue from sales of goods and services, and net profit).

Both strategies had their own pitfalls. In the case of the former, planned sales went askew as these retailers were at the mercy of others’ supply capacity. The latter strategy did not have the required analytics to validate changes and their impact; with added limitations on how many times these retailers could execute price changes. Irrespective of the setbacks, Amazon’s 2012 Thanksgiving sale reveals

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a fact that is difficult to ignore: multichannel retailers face stiff competition from web-only retailers, especially with regards to pricing.

Apart from pricing challenges, retailers have to contend with demanding consumers. Consumers are demanding more for less—more options at a minimum price and top quality service levels irrespective of where they are shopping. The retail market place is becoming increasingly bullish, with retailers attempting to offer the best price as well as a superior customer experience.

With different channels having different operating dynamics, multichannel retailers are struggling to adopt a customer-centric strategy as against the traditional product-centric approach to pricing. As customers grow savvier, retailers need to provide the best in-channel experience while dealing with price inconsistencies and fulfillment issues specific to each channel.

Figure 1 demonstrates how various factors have transformed the market as well as customer perspectives, and the shift required in the pricing strategy.

### Barriers to Agile Pricing

Online retailers such as Amazon.com invest about 6% of their revenue in technology and innovation to help them stay ahead of competition.

Although there is a need for agility, traditional brick-and-mortar stores are saddled with legacy processes and applications that limit their ability to compete with online stores.
Some of the challenges faced by retailers in their pursuit for agility include:

- **Maintaining cross-channel consistency**: Legacy architecture, ill-equipped Point of Sale (POS) systems, and limited in-store labor bandwidth are potential bottlenecks.

- **Dealing with a competitive landscape**: While gathering and analyzing competitive intelligence is a prerequisite to remaining relevant to the customer, retailers must harness this intelligence to gain meaningful insights.

- **Limited computing capability of price optimization systems**: The inability to aggregate, disburse, and analyze information from all existing and emerging sources to facilitate mass experimentation through real-time analytics limits the ability to consume new metrics such as customer elasticity and shipping cost elasticity.

- **Managing complexity**: Insufficient technology to support going beyond key value items and match items across and within channels in the absence of a robust Item Master with rich attributes.

- **Availability and integrity of data**: Inability to use price point history, competitive intelligence data, and procurement data for pricing decisions.

- **Organizational structure challenges**: The silo approach to store and online pricing needs to be replaced with an integrated approach to leverage the unique benefits of each channel.

**Building Next Gen Pricing Capabilities**

While retailers gear up to transform themselves from being product-centric to customer-centric, they should also focus on individual point capabilities that a next generation pricing regime must have. This includes:

- Omni-channel price consistency & transparency
- Enhanced competitive intelligence
- Dynamic price changes
- Price localization
- Price personalization

In order to achieve these capabilities, retailers need to first cross other milestones such as an intelligent POS system for intraday refresh, agile shelf labeling, channel-specific competitive shopping, and the ability to comprehend and react to channel-specific customer price elasticity. Figure 2 presents a complexity analysis for individual implementations.
Some of these changes can be attained easily while others might require complex execution around multiple systems.

**Conclusion**

Retailers are grappling with increasing complexity in their business operations due to the onslaught of technology, socio-economic situations, and the global spread of the supply chain. The industry requires pricing systems and end-to-end process transformation in order to lead the change and accommodate:

- Real-time reporting and analysis on prices.
- Execution of real time price changes.
- Increased competitive intelligence.
- Preemptive capabilities.

Organizational synergies must be directed towards customer centricity to realize the full potential of the implementation of the point capabilities stated in the complexity benefits graph. Accommodating the new rules of retail necessitates an investment in scalable technology, re-engineering of traditional processes, and strategic realignment.

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Devising Your Online Assortment Game Plan
Devising Your Online Assortment Game Plan

With ecommerce sales touching USD 1 trillion globally,¹ and US digital commerce growing at 13% CAGR and poised to touch USD 230 billion,² major retailers are fast moving to the online space. According to a recent Gartner report, an overwhelming 76% of shoppers desire consistency in price, promotions, services, and assortments across all retail touch-points.³ Assortment planning has expanded way beyond creating merchandise mixes for brick-and-mortar stores to stocking the endless aisles offered by digital channels. Retailers that fail to actively manage assortments across retail channels run the risk of customer dissatisfaction. Remaining competitive yet profitable in the long run requires a robust omni-channel assortment strategy across web-enabled retail.

Figure 1 presents an overview of the key differentiators of online assortment planning with a focus on the overall performance improvement of the top and bottom line.

**Looking Beyond Stacking Up**

Merely uploading products online without sufficient focus on the best fulfillment alternatives in terms of time and money is a sure-fire way to margin leakage.

Rather than focusing on procurement alone, retailers must define an integrated omni-channel approach that also covers inventory handling and fulfillment strategies across channels. Some of the key factors that retailers must consider are:

- **Customer fatigue vs. endless aisle:** With endless aisles, there is a temptation to ‘stack up’. Retailers need to optimize the search to display limited but highly relevant choices to avoid overwhelming customers.

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³Gartner, ‘Transform the merchandising’ (G00236115), 6 Dec 2012
· ‘Searchandising’: With conversion rates hovering between 2–5% on an average for most retailers, aligning merchandizing to the item discovery process is important. Many ecommerce sites have implemented ‘searchandising’ to allow customers to navigate through search results by using a set of product characteristics such as the brand, color, or size. Retailers can generate near real-time analytics on attributes such as review/rating or the overall navigation path from search to payment. This data can be used to redefine the ‘searchandising’ taxonomy to display products based on the customer’s profile and preferences.

· Drop-ship vs. In-house fulfillment: Although drop-ship vendors help retailers expand their product lines without the overhead of stocking inventory, margins are relatively lower. Stocking vs. drop-shipping decisions must take into consideration the impact on margin leakage, availability, service levels, and the brand promise.

· Item profitability: While digital channels are growing in double digits, the contribution of digital sales to larger brick-and-mortar retailers is still a small fraction. Retailers must understand the profitability of the items being sold online and make assortment decisions based on the risk involved. All the cost components involved, right from setting up an item for sale to the last mile, become crucial to ensuring a sustainable business model.
Play Smart, Win Big

While retailers need to maintain consistency in their identity and business promise, analytics will help them to quickly experiment with possibilities and measure results in real time.

Given below are a few imperatives for retailers to be successful in their omni-channel pursuits:

- **Keep the brand promise**: Retailers must deliver on brand promise and image—be it variety, quality, value, or convenience—irrespective of the channel. The customer experience for the brand must be seamless. Drop-ship vs. in-house fulfillment decisions should be aligned to the brand promise.

- **Break the operational silos**: Retailers need to leverage synergies across all channels to prevent margin leakage. While deciding on store assortments, retailers should consider the online performance of products and vice-versa, when determining online product assortments. Item performance in terms of sales, profitability, and margin across channels will provide crucial inputs for more optimal cross-channel assortment planning.

- **Complete the shopping basket**: The goal of assortment planning should be to complete the shoppers’ basket irrespective of the channel—by understanding shopping behavior, channel preference, and the ‘why’ behind the choices made. Retailers worldwide have invested in platforms to capture customer data that can be leveraged to gain a 360° degree view of the customer and support assortment decisions.

- **Leverage insights to drive assortments**: Here is how retailers can derive actionable insights to adjust their own product mix and pricing with accuracy:

  - **Understand the category/item role**: Categories/items play different roles across channels. For example, diapers can be traffic builders in the brick-and-mortar context but a one-off sale online. Retailers need to consider shoppers’ sentiments and the role of in-store and online items when analyzing sales margins.

  - **Perform item diagnostics**: Most often, low item performance is because of seemingly innocuous aspects such as poor searchability, missing images, or poor product ratings, rather than product features. Tracing the right cause and addressing the issue requires very granular analysis in real time. This calls for investment in Big Data-based analytics engines.

  - **Identify hot items**: Increasing the market share and keeping the channel exciting requires intelligence that allows retailers to identify new items for roll-out and retirement of non-performing items. It can be done based on market rating, social media buzz, and the past performance of items with similar attributes.

  - **Drive item enrichment**: Item attributes emphasizing product details such as reviews, ratings, images, videos on product usage, and content description gain precedence for an online shopper as compared to traditional store-only attributes such as size and style. To break the shackles of siloed operations, the modern item management system needs to evolve to host new attributes and support dynamic additions. A unified and enriched item master can lay the foundation to conduct integrated analytics around similar products, perform click stream analysis, and determine
the contribution of abstract attributes such as image and content to the sale.

- **Identify choice sets:** Knowing the shopper navigation path and the item choice sets for both in-store and online assortments is crucial for identifying which items need to be displayed and how customers can easily find them. This can be determined by leveraging shopper browse tree analysis for digital channels, and video and basket analytics for stores.

Focused analytics with renewed and holistic rigor is the key to omni-channel assortment planning. It is also important to incorporate granular-level data and be able to react in real time.

Information proliferation owing to smart devices and granular details about customers, competition, products, and business rules bring in the need for scalability through platforms like Big Data, especially in the pursuit of agile, smart, and highly localized assortments.

**Conclusion**

As retailers go full throttle to maximize gains through investments in multiple channels, they need to break the operational silos across channels and adopt an integrated product management, business planning, and analysis regime. This will help elicit standardized rules for unique analytics such as item diagnostics and item presentation, apart from singling out potential sources of margin leakage due to operational inefficiencies. In addition, it is important for retailers to abide by the core values and brand promise when adopting an integrated approach.

To summarize, the pillars driving omni-channel assortment decisions include:

- A holistic customer repository beyond traditional information about past purchases.
- A defined set of rules to run standard analytics.
- A scalable technology platform.
- A unified vision.
- Agile underlying systems such as a common Item Master.

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Graph Database for Item Management: A Hands Down Winner
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for Item Management: A Hands Down Winner

The retail landscape is undergoing significant changes with the proliferation of new retail channels, connected consumers, and the growing complexity of business networks (vendor to consumer). These changes necessitate the availability of consistent, accurate, and enriched product information to improve business processes, support decision making, and help retailers maintain a competitive edge.

In order to achieve these business objectives, retailers strive to integrate, analyze, and optimize data from various operational sources. However, capturing quality information with consistent accuracy remains a challenge, especially in the case of Item Management.

Time for a Reality Check

Technology savvy customers with easy access to information and a complex supply chain ecosystem (in Collaborative Planning Forecasting and Replenishment models) have affected a paradigm shift in the role of Item Management. This shift is further compounded by factors such as:

- Constant product information updates by the manufacturer.
- Mergers and Acquisitions (M&A) across both the retailers’ and the vendors’ ecosystems.
- Critical need for different levels of details for specific new channels. In the online channel, product affinities calculated from item attributes need to be derived based on click stream history, customer master, and the overall performance.

With these complexities in place, let’s review Item Management in today’s context:

- **Growing dimensions of item attributes**: Social and mobile have introduced a new range of item attributes, including derived attributes—images, reviews, videos, product ratings, and so on—increasing the total attribute count to over 1,000. Retailers are struggling not only to capture new and evolving data attributes but also to optimally leverage these attributes for other merchandising areas such as promotions and pricing.

- **Inflexible and high maintenance legacy systems**: Customers today expect rich and relevant product information. Failure to meet this expectation can result in missed sales. The lack of design foresight in legacy database systems, often acts as a bottleneck in capturing new must-have dimensions of a product. The incremental structural database changes and quick fixes to adapt to new information imperatives are proving to be very expensive, compromising on robustness in the long term.

In addition, item attribute details, often entered manually, are prone to transposition, replication, and typographical errors—a source of revenue leakage every year. Retailers need quick and effective alternatives for tracing and rectifying such wrong entries.
Costly insights: The era of analytics driven business excellence requires retailers to pose reciprocal queries which are costly to process. For example, in a Relational Database Management System (RDBMS), the query, "What is the rating of a product?" is relatively economical to process as compared to the reciprocal query, "Which products are rated 5?".

Although an index can help with simple reciprocal query processing, queries that require a slightly higher degree of recursion, such as "List the products that are rated 5 with more than 3 review comments and specific product specification" become prohibitively expensive.

Meeting these challenges requires remodeling the conventional Item Master into an adaptive one that is capable of managing new streams of data and customizing product configurations in line with shopper behavior and channel preferences.

Custom development challenges in RDBMS, the overall Return on Investment (ROI), ease of integration and compatibility, and increased performance expectations even with explosive data growth rates are some factors that are driving retailers to explore alternate data handling approaches.

Is RDBMS Losing Out to NoSQL?

The conventional data handling techniques of RDBMS cannot address the needs for fast response, bulk data handling, and ease of data management. In such scenarios, data retrieval and updates for a particular item with specific attributes could take a toll on time, cost, and quality. This is because of database structure complexities and the subsequent joins required to achieve the desired results.

Retailers are therefore exploring newer techniques to support item attribute enrichment in real time.

Next generation data handling techniques such as NoSQL, which have evolved over the years, show promise in helping retailers to leverage the big pool of available data. NoSQL comprises a family of databases that include:

- **Key Value Stores**—stores data in schema-less key-value pairs
- **Column Family Stores**—stores data by columns rather than by rows
- **Document Databases**—used for large, unstructured or semi-structured records
- **Graph Databases**—work on the node-relationship-property model

Is Graph Schema Here to Stay?

The traditional approach to a data structure definition relied on the RDBMS concepts of context and entity relations. NoSQL databases provide a new dimension to data structures—each database approaches data structure definition in a unique way (referred to as ‘schema-less modeling’), opening up opportunities with a range of benefits. Social networking companies such as Facebook and Twitter are already leveraging NoSQL to support the exponential wealth of content already created. Graph databases, characterized by their maturity and robustness in representing data in the form of a network of related nodes, are gaining traction in the NoSQL domain. The data hierarchies in graph schemas use graph structures with nodes, edges, and properties to represent and store data.
By definition, a graph database is any storage system that provides ‘index-free adjacency’. In the context of retailing, one might not know the item data upfront at each point in time. In addition, the intricacies of data may not be fully established when it is created; for example, users adding dynamic content in the form of reviews, tags, and so on. Graph databases address this need perfectly. As they are naturally additive, they enable the addition of new kinds of relationships, nodes, and attributes to an existing structure without disturbing existing queries and application functionality. This renders them ideal for representing connected data. Retailers employing graph databases will have the flexibility to add or remove attributes for any item, at any time in the item’s lifecycle. Graph databases present a strong case for Master Data Management (MDM) and can assist in addressing some of the key challenges that retailers face in Item Management, especially with increasing attributes.
Typical Implementation: An Illustration

In a traditional RDBMS, a Product Master uses ‘joins’ to understand/obtain the relationship between an item and its attributes (refer Figure 1). However, this compromises the performance every time a drill down layer is added. This is where graph databases show promise.

**Case 1:** Return of an item that has an ‘active’ status and a two star rating.

This requires four tables to be joined in an RDBMS implementation, which is relatively acceptable.

**Case 2:** Return of a brand and items that are ‘active’, where the vendor is ‘RB’ and the item has a rating of more than three stars.

This requires joining of all the seven tables, which is expensive and deteriorates performance. As the number of attribute tables grows, the joins required can significantly impede retrieval. This can be better executed when Vendor, Status, and Rating attributes are used as starting points (indices) while traversing a graph schema. In this case, to shorten the route, the graph database will consider the nodes which have three stars and are from ‘RB’, and in ‘active’ status as a starting point (refer green nodes in Figure 2) for traversing the graph. This will minimize the impact on performance.

**Figure 1: Traditional Item Master**

**Figure 2: Graph Item Master**
Graph Databases: The Road Ahead

The early adoption of graph databases by organizations such as Cisco and Pitney Bowes to manage their product and organization data lends credibility to graph database’s promise of superior access to complex data.¹

Organizations are evaluating the usage of graph databases to interpret customer opinions in social media and gather meaningful insights into customer preferences. There are several players from the open source community competing with each other to build better versions of graph databases, with Titan and Neo4j showing potential to lead the pack.

The opening up of new channels and extension of the marketplace are forcing retailers to seek smarter ways to manage items and retain the right attributes consistently throughout the item lifecycle.

With an increase in the number of entities in the supply chain, a new Item Master capable of capturing new attributes of different types with auto-evolving support (in terms of extending the item structure) becomes crucial. NoSQL approaches show promise in reworking the approach to data structures, offering a possibility of revamping Item Management, specifically through graph schemas.

Although graph schemas have had limited penetration, the developer community is working hard to come up with Application Programming Interfaces (APIs) to enhance the scope. This should lead to frictionless development of new systems with simplified maintainability while providing complete control.

Retail-specific use cases of graph databases include:

- Social media traversals for opinion mining.
- Recommendations engines with network structure modeling around ‘item’ and ‘user’ nodes.
- Geospatial mapping on graph schemas to boost store intelligence.
- Shopping basket pattern analysis to bundle and co-market products together.

Conclusion

Neo Technology’s scientist, Jim Webber, believes that as awareness of Graph databases grows, adoption will follow. According to Webber, “Once it becomes well known that graphs are easier, more convenient, and faster, we will reach a tipping point with more and more people embracing them, outside of blue chip companies.”

In the journey ahead, graph databases will be embraced in areas beyond Item Management. They will extend to other MDM elements including customers, suppliers, departments, geographies, sites, cost centers, and business units, given their ability to support better adjacency-based traversals and configurable lookups.

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In Focus

TCS named in Forbes’ World’s Most Innovative Companies List

TCS has been recognized by Forbes as one of the World’s Most Innovative companies. On the overall list of companies to be awarded, TCS stood at number 40, making it not only the highest ranked IT services company to make it to the list but also the top Indian company.

TCS ranked 40th overall, making it not only the highest ranked IT services company to make it to the list but also the top Indian company.

TCS has a long-standing history of delivering innovative solutions to its customers. The company set up its first R&D lab in 1981, when the technology industry in India was just taking shape. There is a strong culture of innovation with multiple innovation labs for every industry that TCS works with. The company has multiple academic partnerships and a global network of Innovation Labs that provide an environment for sophisticated research in leading-edge technologies, and various domains ranging from life sciences and insurance to retail and financial services.

Furthermore, TCS’ Co-Innovation Network (COIN™) provides value to its customers across the entire technology and business landscape, forging and nurturing bonds with academic institutions, start-ups, venture capitalists, strategic alliance partners, multilateral organizations, and TCS’ customers.

Click here to know more.

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Events

TCS Keynote Presentation at INRetail Summit, Dubai

Rajashree R, Global Head, TCS Retail Solutions Group, was the keynote presenter at the ‘Technology Driven Innovation’ event at the INRetail Summit. At the event, TCS released the ‘Deciphering Multichannel Retailing in the UAE’ white paper. The panel discussion on ‘Is the Time Opportune for Multichannel Retailing in the UAE?’, moderated by TCS, brought together industry leaders and eminent analysts to deliver insights on this subject.

TCS Participates in the World Retail Congress, Paris

TCS participated in the World Retail Congress 2013 as a key partner. Shankar Narayanan, Country Head, TCS, UK & Ireland, participated in a panel discussion on ‘Mobile Commerce: the disruptive impact of mobile: Can retailers keep up with their smart consumers?’ Several distinguished panelists, including Sales Director of Google, UK; VP of eBay for EMEA; and CSO of eKomi, the UK based developer of intelligent feedback systems, participated in the discussion.

TCS Co-innovation Network Update

TCS Co-Innovation Network (COIN™) is a rich and diverse ecosystem that connects us, our customers, and entities including venture capitalists, trade bodies, start-up companies, strategic alliance partners, and academic and research institutions. The common goal binding all the entities is to build and nurture collaborative innovation that enables you to stay ahead of the curve.

In this issue, we present two of TCS’ COIN partners—TestPlant and Cicero—engaged in delivering innovative solutions that address real world business challenges.

TestPlant: Technology agnostic GUI Test automation tool

TestPlant is an international software business that develops eggPlant—a range of software testing tools, from functional to load and performance. eggPlant is capable of automating tasks on any operating system; it is technology agnostic and non-invasive. eggPlant supports data driven testing techniques and the creation of application specific virtual user types that can significantly reduce the maintenance overhead of testing highly dynamic websites. It can manage content sets or integrate with a content management system for managing dynamic content and rich media testing.

**eggPlant Performance** can replicate an unlimited number of simulated users executing different scenarios and using different types of devices. It lets you combine protocol based scripts generating high traffic volumes with GUI based scripts driving real web browsers and mobile devices for user experience validation.
**eggPlant Functional** provides technology agnostic GUI test automation through its patented image based approach.

eggPlant can eliminate dependencies on third party services such as payment gateways, news streams, and delivery trackers while testing in a realistic manner. The tools support Agile methodologies and can be integrated with Continuous Integration systems such as Jenkins.

**Cicero: Business Performance Software**

Cicero provides business performance software that enables companies to monitor and improve their existing technologies to deliver smart, integrated, and secure solutions to employees’ desktops and mobile devices.

**Cicero EDGE** addresses the challenges of the BYOD (Bring Your Own Device) and COPE ( Corporately Owned Personally Enabled) company policies by delivering a secure enterprise mobility solution.

**Cicero XM** delivers an agile smart desktop solution for contact center and back office employees. XM integrates applications, automates workflows, guides the employee (presentation, scripts, and others), and provides control and adaptability over the desktop.

**Cicero Discovery** delivers desktop analytics and reporting for the enterprise. It collects activity and application performance data, and tracks business objects across time and across multiple users, as well as measures against a predefined expected business process flow.
TCS’ Retail Industry Solutions Unit

The Rules of Retail have changed. These New Rules bring new opportunities for the retail industry—opportunities that might themselves become game changers. More and more, innovative retailers—using brilliant strategies, advanced technologies, best practices, and operational excellence—grow revenue by delivering satisfying buying experiences wherever their customers are and whenever they want to buy. Tata Consultancy Services has partnered with eight of the top 10 US and five of the top 10 UK retailers in this journey. Our innovative business solutions and comprehensive portfolio of offerings, help retailers use these rules to guide them and build deeper and stronger customer relationships, reduce cost and increase efficiency through our integrated IT, BPO, and Infrastructure services and proprietary Retail Industry Solutions.

New Rules.
New Game.

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