The Future of Applications in Retail
Three Strategies for Winning the Digital Battle
EXECUTIVE SUMMARY

Can retailers’ applications deal with today’s digital challenge?

Traditional retailers are under multiple pressures in the digital era.

Innovations from aggressive competitors across channels are driving lower sales and margins for some companies. The consumer shopping experience has changed more in the past ten years than it ever has before. Digital channels proliferate and consumers are becoming extremely savvy about working different channels—mobile, online and in-store—to get the best deal. They have more knowledge, more options and more ability to shop competitively. Retailers who cannot align to this dynamic consumer experience across all channels, physical and digital, will find it difficult to thrive—or even just to survive.

These marketplace and consumer developments have significant impacts on retailers’ IT capabilities and their applications in particular. Historically application development in retail has been large, monolithic applications designed with a specific functionality in mind (warehouse management systems, pricing, etc.) These systems are traditionally interconnected through a complex web of point-to-point interfaces. Such a non-elastic infrastructure configuration constrains retailers from responding rapidly in a dynamic, digital-physical environment.

Three sets of activities are especially challenging:

- Adding/Changing capabilities and quickly deploying them across the chain.
- Leveraging information from one channel seamlessly in response to a demand in another channel.
- Responding to dynamic volumes typical of the new digital economy.

To win the digital battle, retailers need to fundamentally rethink how applications should be built and deployed.

Three strategies are especially important:

**LIQUID**
Developing applications that are more modular or component based and API driven, enabling quick composition of functional applications.

**INTELLIGENT**
Embedding software intelligence in applications to manage growing volume, velocity and complexity, and to maximize the business value of internal and external data—including that from the physical world.

**CONNECTED**
Creating applications capable of connecting with other applications both inside and outside the enterprise boundary of the retailer.
To compete with agility and speed, companies can no longer focus only on complex, lengthy and expensive coding of applications, or monolithic systems built from the ground up. What’s needed is a new way to build software—one that is faster, flexible and more liquid. No longer can applications be “built” as one distinct activity and “maintained” as another. Liquid applications will be assembled leveraging modular architectures and platforms, next-generation integration techniques and a cloud-first, mobile-first mindset. These elements, combined with engineering approaches such as Agile and DevOps, mean that software can be continuously delivered and evolve as business needs change.

In the digital economy, where retailers are constantly evolving and aspiring for leadership, the value of liquid applications is considerable. Traditional methods of software development cannot keep up with the pace of business change. Companies need to make big investments of time and resources to build the capabilities the business requires.

Modular architectures have been around for a while but the need is now more urgent because of today's digital, omni-channel environment. Retailers’ legacy systems are not liquid, though perhaps developers have bolted on some modular solutions over the years—ecommerce websites and perhaps mobile capabilities. More is needed. To truly differentiate in the digital economy, retailers need to create modular enterprise systems that can seamlessly cater to different channels and can be reused across functional areas like stores and supply chain.

A key enabler of liquid applications is Agile, which represents a fundamental shift in software development. Rooted in iterative development and employing frequent inspection and adaptation procedures, Agile enables greater collaboration between the business and IT sides of an organization while simultaneously accelerating time-to-market performance.

Companies that adopt an Agile approach are typically also positioned to capture many new opportunities. With frequent measurement, feedback and adjustment activities taking place throughout the development process, it enables teams to achieve greater project alignment with expectations.

Liquid development delivers many benefits:

- Products can be developed and released at a faster pace.
- Operations costs can be tailored “by the drink” versus a large lump-sum payment.
- Robust out-of-the-box capabilities can be deployed rather than having to work through a long initial maturity curve.
- Retailers can proactively and nimbly change technologies and vendors to maintain market leadership.
- Applications are loosely coupled with legacy systems, reducing dependency.

Consider the example of a US-based grocery retailer that recently implemented a comprehensive system assembled from three SaaS applications. Unlike the traditional multi-year approach to development, the project moved from design to production pilot in only four months. Capabilities included:

- Customer data management
- Points-based loyalty program
- Rewards mall
- Customer personalization
- Personalized interaction: Mobile and Web front-end
- Segment-based or 1:1 offers and communication
- Purchase and product-driven offers
- Customer analytics
- Extended customer service

A major benefit of this liquid development program was the ability to leapfrog the competition. With traditional development, the retailer would have taken years to develop this list of capabilities—by which time the competition would already have moved on to new things. Through rapid, modular delivery, the retailer was able to develop world-class capabilities in just a few months.

Another example of liquid development comes from a major UK general merchandise retailer. The company has adopted liquid applications in a number of areas as a means to trial new capabilities quickly and take them to market, rather than investing significant and scarce upfront CapEx. Initiatives have included integrating a pricing service offsite to provide pricing analytics and recommendations, and new customer-facing propositions including an eReceipts application at checkout using a SaaS provider. This has enabled the capture of customer data and the ability to provide new capabilities.

A second initiative was a parcel collection service from stores that leveraged technologies from leading parcel distribution companies rather than developing capabilities in-house. Both of these solutions were deployed successfully to large UK store estates in a matter of months.
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To manage growing volume, velocity and complexity, and to maximize the business value of internal and external data, companies need to embed software intelligence everywhere. Software intelligence is made possible by increased processing power, advances in data science, and innovations in natural language processing, machine learning and cognitive computing. Thanks to these advancements, software can be taught to automate decision making through rule-based algorithms, and evolve and innovate on its own through advanced learning techniques.

Intelligent applications offer three critical capabilities—intelligent automation, integrated analytics and even self-governance. That is, intelligent applications can be taught to act as digital agents and to learn and govern themselves autonomously—revolutionizing customer service, IT management and business innovation.

Consider a large US retailer that developed sophisticated intelligent recommendation capabilities that capture clicks and browsing history across multiple channels—online, mobile and call centers. Leveraging Big Data capabilities, the system recommends products based on the consumer’s past buying pattern as well as similar buying decisions made by other consumers. The system is dynamic. It will present one set of recommendations early in a browsing session but, as shoppers go on to refine what they are looking for, the product recommendations increase in relevance.

The system is configured to handle dynamic variables and look at results over time. Things like seasonality, demography and time of day can be put into the mix. The system can process complex events in real time to optimize recommendations; it also has machine learning capabilities. The intelligent system has delivered significant results. Based on the cart conversion analysis, twice the number of customers who interacted with the recommendation services bought products compared to customers who did not interact.
To manage growing volume, velocity and complexity, and to maximize the business value of internal and external data, companies need to embed software intelligence everywhere.
Connectivity in the age of the software-driven business is about more than application integration. It’s about creating new competitive frontiers using software. To grow revenue and defend their market position, businesses must open new dimensions of application connectivity—within the enterprise, with business partners and customer ecosystems, and with the rapidly growing Internet of Things.

Connected applications are one key to succeeding in the hybrid digital-physical environment. Traditional retailers with a primary focus on brick-and-mortar stores are often challenged to make the most of their network of stores and distribution centers to offer products to customers faster and more conveniently. This is difficult because most traditional retailers have a multitude of different legacy systems across their distribution center, online and store network, making it difficult to produce accurate information about real-time availability to customers.

One UK retailer that has faced this challenge has redesigned its distribution network to leverage larger stores as “mini distribution centers,” enabling it to offer a greater range of products to smaller stores for collection the same day. By re-architecting its existing systems to centralize stock positions into an order management system, the retailer is now able to offer more of its range of products to customers with a more accurate view of stock and lead times to deliver to stores. This has also enabled the company to grow its store estate as it has facilitated the opening of additional small stores, something that would previously not have been viable.

Another compelling example of the value of connected applications comes from a US-based big box retailer that needed to create new internal and customer-facing help capabilities. Leveraging a leading SaaS solution integrated with key transactional systems, the company created custom portals used by more than 100,000 retail store members, several thousand partners and contact center agents, as well as end consumers to self-serve and manage requests for support.

The system presents customized inquiries—different support options depending on the role of the person making the inquiry—but ultimately a single knowledge article or record behind the scenes is managed and shown to all the different users. The connected system has dramatically increased self-service capabilities for both stores and consumers and has, in fact, reduced by approximately two standard deviations of volume the number of calls coming into the consumer contact center.

Enterprises need multiphase strategies to build and nurture an application ecosystem. Start—and learn—with your internal developers and business functions, and then create a broader ecosystem that includes external entities such as business partners and customers. Drugstore retailer Walgreens has developed a health ecosystem around its Prescription Refill API that companies like CloudMetRx use to offer mobile refill capabilities within their solutions. As a result of its health ecosystem strategy, Walgreens now refills a prescription every second on average.¹
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CONCLUSION

Becoming a software-driven business

Retailers can no longer afford to be laggards in adopting new technologies or in how software applications are implemented. They have to start looking at applications as the game changer for the future by way of creating new services and offerings. This implies that retailers take another look at their operating model for software development and fundamentally shift their approach to how to design, build and implement software.

Liquid applications, for example, require retailers to be more nimble and agile, and to rethink the basics of software design. The concept of the enterprise boundary is now becoming a loosely coupled ecosystem of things. In this context, connected applications will drive retailers to communicate more frequently and effectively with partners in the value chain and with consumers.

And building intelligent applications means retailers should fundamentally relook at how data is managed and how information can be gleaned from it. It also requires investing in software that can be taught to learn automatically and apply the learning efficiently and effectively at the point of relevance for the consumer.

Leaders from both IT and the business must understand what it means to be a software-driven enterprise. They need to understand how software can spur growth, shape new markets and reach new customers. And they must work together closely to orchestrate new business solutions to help win the digital battle and drive competitive advantage.

NOTE

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