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The Future of Retail is 'Here' and 'Now'

To remain competitive in today's real-time world, retailers need to more effectively read and respond to consumers' digital fingerprints, or Code Halos, to anticipate their preferences and needs and deliver contextually-relevant, timely and inspiring shopping experiences.



KEEP CHALLENGING™

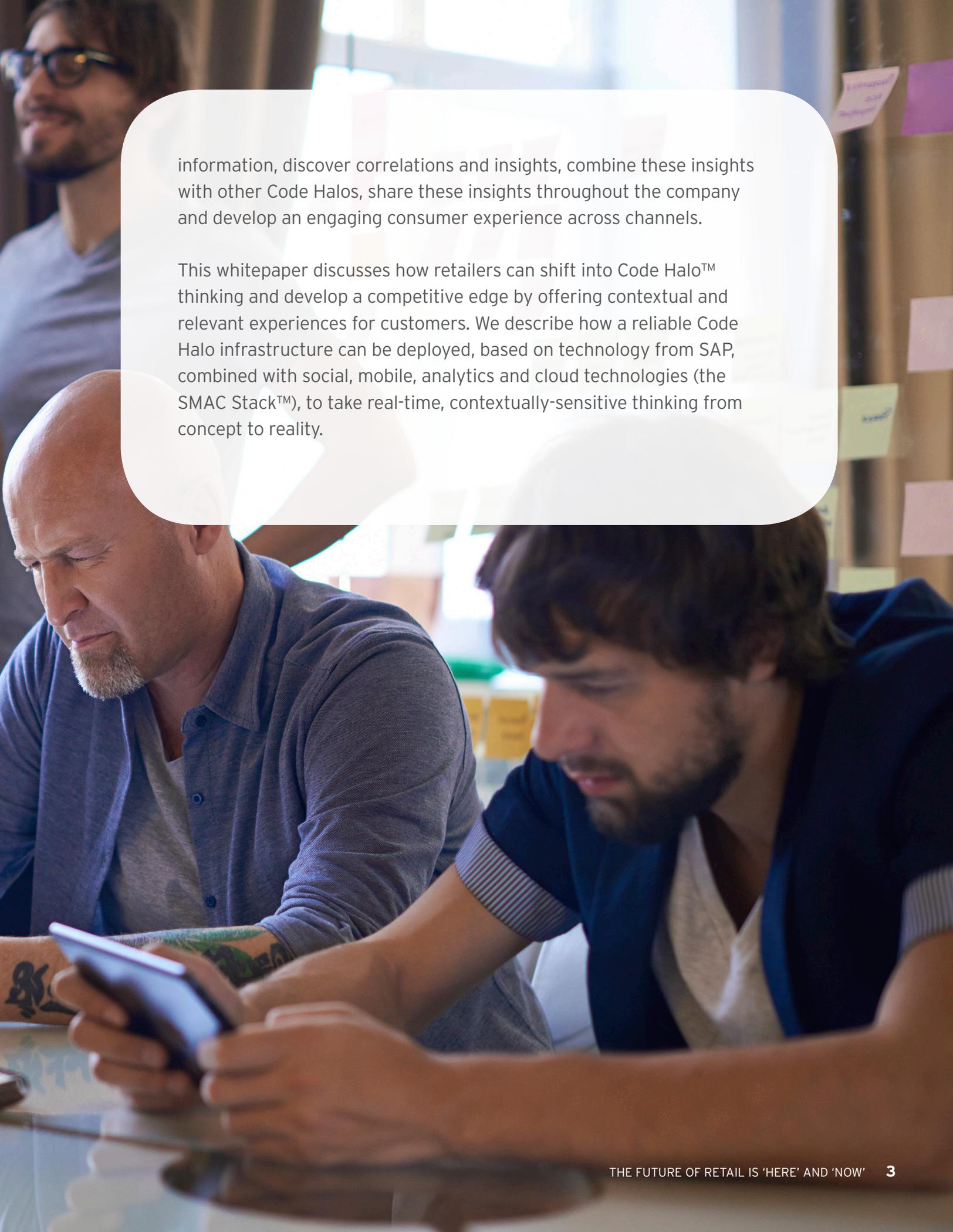
Executive Summary

In the workplace and our personal lives, many of us operate in real-time. Thanks to the proliferation of mobile devices, we don't need to make firm plans – we can notify each other of changes right up until the time we meet. As consumers, we don't have to wait for delivery – we can order an item in the morning and pick it up at lunchtime in the store. In many future-ready workplaces, we receive text alerts for key updates rather than waiting for a weekly or daily report.

What is less understood is that we also operate “contextually.” In a world of social media status updates, as well as geospatial capabilities and location apps, we tailor our communications based on where people are, what they are doing and even how they are feeling. Consumers increasingly expect their interactions to take into account their location, their current needs, their last transaction and their life situation. For instance, they might expect to receive a coupon on their mobile device because it's 9:00 a.m., and they always buy coffee at this particular café at this time. Or they might believe their music Web site should automatically select soothing music on their commute home because it can sense traffic volume rising.

While some of these scenarios might seem futuristic, the fact remains that retailers should begin now – if they haven't already – to respond to consumer expectations for real-time, relevant, omni-channel and contextual experiences.

To do that, retailers need to extend their understanding of how to use the digital information that's available to them from not only consumers, but also products, processes, employees, “things” and the enterprise. These digital footprints – or Code Halos – are increasingly critical to gaining the insights needed to create differentiated value for customers and remain competitive in the digital economy.¹ This is a full-company effort in which businesses need to collect and analyze customer



information, discover correlations and insights, combine these insights with other Code Halos, share these insights throughout the company and develop an engaging consumer experience across channels.

This whitepaper discusses how retailers can shift into Code Halo™ thinking and develop a competitive edge by offering contextual and relevant experiences for customers. We describe how a reliable Code Halo infrastructure can be deployed, based on technology from SAP, combined with social, mobile, analytics and cloud technologies (the SMAC Stack™), to take real-time, contextually-sensitive thinking from concept to reality.

Customer Code Halos: The New Baseline for Customer Relationships

Every action that individuals make online – product selections, Web site clicks, “likes” or “shares” on social media, etc. – produces volumes of information that create a unique individual identity, or Code Halo. For instance, when customers interact with iTunes or Pandora, they share their tastes and preferences in movies and music. Code Halos are enriched with every piece of data that is generated by social behaviors, transactions, geographic location, daily activities, choices of entertainment, etc. An increasing number of our everyday activities are digital, and that makes Code Halos ever changing and ever more valuable.

Leading digital native companies – such as Amazon, Apple, Netflix and others – are leapfrogging the competition by analyzing customer Code Halos and discovering patterns that enable them to create real-time, contextual experiences. Such patterns can include:

- Customer preferences, characteristics and associations.
- How customers prefer to interact, whether online, in-store or through their mobile.
- How to direct customers to what they’re looking for.
- How to anticipate and extrapolate what customers need or want.
- What it would take to improve the next interaction.

Additionally, retailers can use Code Halos to work effectively across channels by maintaining a consistent view of the customer and providing a seamless omni-channel experience. Omni-channel initiatives can encompass:

- **Brick2Click:** The customer buys something from the Web and receives customer support in-store and vice-versa.
- **Device2Web:** The customer can reach the Web store through various touchpoints.
- **eAve2Web:** The customer can connect with the retailer through various Internet avenues.

Customer Code Halos at Work

Retailers can leverage the information contained in Code Halos to turn customer interactions into memorable and valuable engagements. As an example, imagine John, who is a long-time customer of retailer “Xmart.” Traditionally, retailers capture basic and static information on customers that is inadequate for creating relevant and contextual experiences. However, by collecting and analyzing the information contained in John’s Code Halo, Xmart can develop deeper insights into John’s values and preferences (see Figure 1).

Based on John’s purchase patterns, social networking activity, entertainment selections, daily schedule, travel behaviors and more, Xmart knows that John is health-conscious, loves binge-viewing, is socially outgoing and spends a lot of time online. By collecting this information, analyzing it and combining it with its product, employee and process Code Halos, Xmart can enable relevant engagements.

For instance, imagine John walking into Xmart in search of a wearable heart rate monitor, after having spent an hour reading the latest review comments on the various models available. John’s browsing history on the retailer’s Web site is captured by the e-commerce application and passed to the retailer’s integrated CRM and loyalty applications. This data is then replicated to a real-time, high-performance in-memory database, such as SAP HANA, in which John is already segmented as a high-value customer, based on his historical purchase behavior and demographics, using sophisticated analytics algorithms.

As soon as John walks into the store, a proximity-sensing device, or beacon, recognizes him through his mobile, triggering an alert to the store manager that a high-value customer is in

John's Code Halo

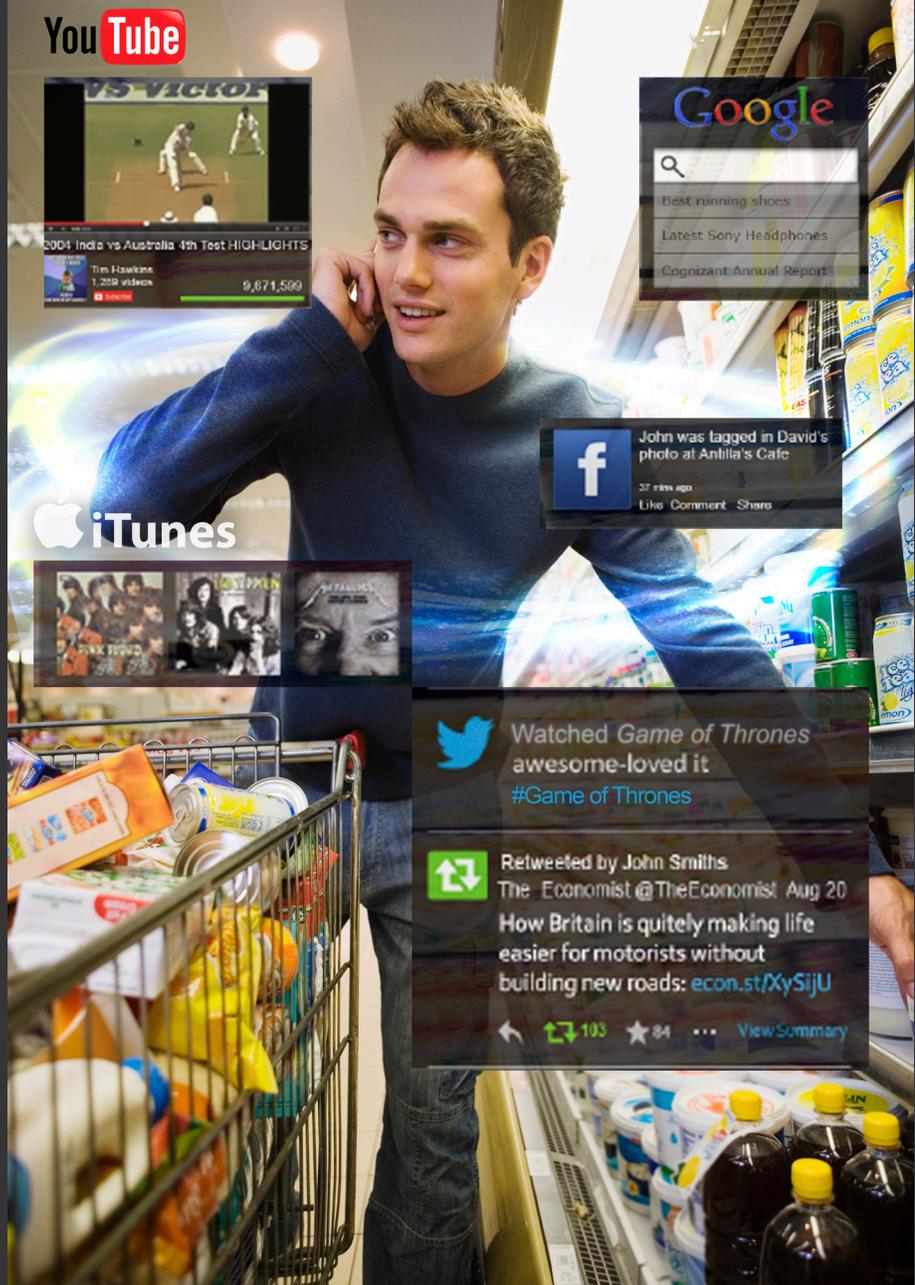
A traditional retailer will have the following information about John:

- Age: 35 years
- Gender: Male
- Hometown: Teaneck, N.J.
- Contact details (e-mail, phone)
- Transaction pattern: Often shops first week of the month
- Product and brand preferences

Using John's Code Halo, "Xmart" can develop the following insights:

- Originally from Sydney, Australia.
- Loves rugby and cricket.
- Enjoys traveling to tropical locations.
- Avid runner.
- Likes rock music.
- Recently tweeted about how he felt watching *Game of Thrones*.
- Dines out with friends on the weekend.
- Has a mobile phone, tablet and laptop –spends six or more hours online per day using these devices.

Figure 1



the store for the second time this week and that on the previous occasion, he had bought a pair of high-performance running shoes. This information is pulled in real-time from the database and displayed on the store manager's mobile dashboard. It also sets off analytics algorithms for association analysis to recommend affinity items for the running shoes and a promotional offer on the items, based on John's customer segment.

John receives a personalized digital offer on his mobile device for numerous running accessories, such as hydration backpacks and fitness monitors, that are redeemable that day, as well as suggestions on the next marathons or road races being held near his town. Because the offers meet and even anticipate John's needs and desires for that exact time and place, this enriches his in-store shopping experience, influences his perception and buying decisions, and improves the chance that he will return for future purchases and talk about the experience with his friends. John may post or tweet about his experience on his social networks, spreading positive reviews about the retailer. Xmart can also use a social media platform to aggregate such data from multiple social media sources, and then filter, refine and store it for further analysis of customer sentiment, preferences and associations.

A Multitude of Halos

It's important to note that retailers cannot develop these capabilities through customer Code Halos alone. They need to combine deep and personalized customer insights with the ability to deliver the desired offers, products and services, at the right place and the right time. To do this, they need to combine what they learn about customers with what they know about their products, employees, partners and their own enterprise. This requires engagement with a variety of Code Halos (see Figure 2).

- **Product Code Halos**

From cars, to electronics, to healthcare devices, to appliances, products are increasingly being offered with embedded sensors that help businesses remotely track the consumer's use of the product, as well as the product's performance. Such insights enable the business to further engage with the consumer, take preventive maintenance actions, improve product design and more.

A Variety of Code Halos



* Gartner, March 24, 2014, <http://www.gartner.com/newsroom/id/2688717>.
 ** IDC, May 28, 2014, <http://www.idc.com/getdoc.jsp?containerId=prUS24857114>.
 *** Goldman Sachs, <https://www.internetretailer.com/2014/03/10/mobile-commerce-will-be-nearly-half-e-commerce-2018>.
 **** Facebook, <http://newsroom.fb.com/company-info/>.
 ***** Twitter, <https://about.twitter.com/company>.
 ***** IBM, <http://www-01.ibm.com/software/in/data/bigdata/>.

Figure 2

- **Employee Code Halos**

Code Halos can be built around individual employees, creating new models by which knowledge work is conducted. Employee halos facilitate getting the right work to the right person at the right time, all contextualized within a workstream.

- **Partner Code Halos**

Code Halos that contain information from the supply chain, including the partner ecosystem, can help with real-time decision-making. For instance, technologies such as GPS and RFID enable retailers and their partners to synchronize shipping and delivery times, adjusted with traffic conditions, to enable real-time planning and cost avoidance.

- **Enterprise Code Halos**

Enterprise Code Halos contain information on how the company is perceived, through its products, customers, partners and employees. A customer review about the product or service experience on a social media or e-commerce site can make or break the company's brand.

A Framework to Operationalize Code Halos

To get started with Code Halos, retailers need to understand what we call the Crossroads Model, which is a framework for how Code Halos emerge inside industries and how to successfully deploy them (see Figure 3).² The model can help retailers determine where they are in their journey and the appropriate next steps to take.

Viewing Retail through a Code Halo Lens

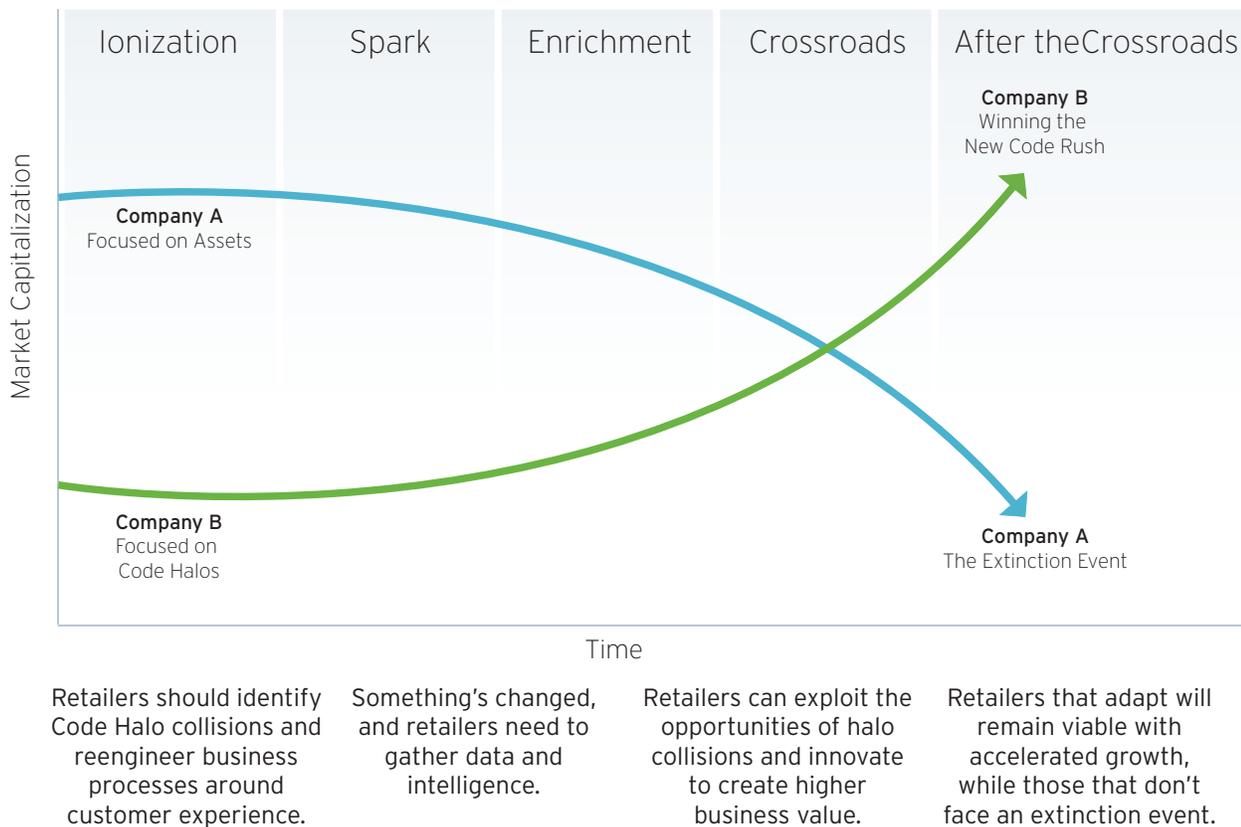


Figure 3

By applying the model's insights, retailers can take a fresh look at their back-end operations, customer experience, partner collaboration and employee engagement to create business models that outrun the competition. Figure 4 details how retailers can effectively navigate the Crossroads.

Navigating the Crossroads: Making the Business Case

| Stage | What It Means | How It Works For Retailers |
|--|--|--|
|   Ionization | <p>The confluence of changing economic pressures, enhanced customer expectations and new technologies presents a context and environment to develop Code Halos and related new business models, creating a context for innovation.</p> | <p>Retailers begin to realize that customer expectations and experiences are taking the driver's seat to push incremental revenues and profitability, and that steps must be taken now to win in the long run. An example is omni-channel behaviors. In the next two to three years, 50% of purchases made by customers will involve interactions with the company in two or more channels.³ For example, customers who make a purchase on their smartphone might expect to pick up their item in the store. Meeting these new types of expectations means the retailer needs to gather data on customer activities and behaviors across all channels, as well as develop the ability to know – in real time – where products are in its supply chain to ensure they are available when and where customers expect.</p> |
|   The Spark | <p>As Code Halos grow, new ideas and offerings are formed based on the intersection of various types of halos. Such sparks of innovation can quickly reshape enterprise processes and the customer experience. Simple ideas result in huge business advantage.</p> | <p>Knowing that the majority (84%) of shoppers use a mobile device while shopping in-store,⁴ retailers can enhance the in-store experience by decoding the information encircling both customers and store associates to ensure employees with the right knowledge are available to high-value customers (employee Code Halo meets customer Code Halo). For instance, store associates with a passion for Apple iPhones can be alerted when a customer is in the store who has frequently purchased that type of equipment.</p> <p>Alternatively, if a customer has a question, any store associate who is nearby should easily be able to determine which employee has that expertise, whether in-store or remotely, and be able to reach that person immediately to get an answer. This will not only enhance the customer experience, but it will also provide cross-selling and upselling opportunities for the retailer.</p> <p>Further, with 80% of shoppers researching online before they make a purchase, and many consumers commenting online, both negatively and positively, about the products they've bought or intend to buy, retailers have plenty of data at their disposal to ascertain consumer sentiment about their offerings. When a product becomes an immediate runaway success, retailers can combine these consumer and product Code Halos to evaluate product sentiment and the preferences of their loyal customers. This would enable retailers to optimize their assortments or liquidate merchandise that is surrounded by negative reviews.</p> |
|   Enrichment | <p>If managed correctly and enriched with metadata, the value of Code Halos grows dramatically. As algorithms are refined, more insights and foresights are generated through real-time analytics, giving rise to new products, processes and models for value creation.</p> | <p>Retailers will need to be able to predict automatically what a customer will want or need at a particular time and place. They can do this – and ensure follow-through on delivery – by decoding meaning at the intersection of the metadata of people, processes and devices. (For more on this topic, see our white paper, "Using Ontology to Capture Supply Chain Code Halos.")</p> <p>Retailers should also develop optimized order fulfillment models, enabling the business to decide on whether to fulfill the order from the store or warehouse inventory.</p> |
|   The Crossroads | <p>In this brief window – often just one to three years – massive business shifts occur. Code Halos reach critical mass, creating new customer expectations and economic models. At this point, rapid swings occur in company reputation, revenue and market value.</p> | <p>This is a time when retailers need to establish market-leading business models to meet and exceed the expectations of today's consumers, provide superior shopping experiences, and drive sales and margin growth. This will involve continuous innovation across business functions and the ability to combine these "sparks" in new ways that introduce significant transformations in how they do business.</p> |

Figure 4

Enterprise solution vendors, such as SAP, offer technology platforms that – combined with a variety of technologies, particularly the SMAC Stack, help assimilate data, combine and analyze it for meaning and turn those insights into new and profitable ways of doing business. For instance:

- **Real-time, high-performance in-memory platforms:** Both structured and unstructured data can be passed to these databases, which perform segmentation and data analytics at lightning speed, using sophisticated algorithms. Example technology: SAP HANA.
- **E-commerce applications, integrated CRM and loyalty applications:** These systems capture both transactional data, as well as interactions across all customer touchpoints, whether PC, phone, mobile, in-store or social media. Example technology: SAP CRM and Hybris.
- **Mobile technologies:** With mobile alerts and geospatial technologies, retailers can use the insights gleaned from analytics to engage with customers on a personalized, contextual basis. Example technology: SAP mobile platform, Fiori.
- **Social media analytics:** Retailers can analyze public perceptions from terabytes of social media buzz in real time, providing them with insight into current and potential consumer views, preferences, brand associations and more. Example technology: SAP Customer Activity Repository, SAP Customer Engagement Intelligence.

Looking Ahead

The work of capturing Code Halos, making meaning from them and developing an engaging consumer experience across channels is an ongoing process that involves the collaboration and participation of the entire enterprise, including marketing, sales, product development, manufacturing, supply chain, IT and beyond. As a result, introducing Code Halo thinking into traditional retail organizations often requires a change management effort that encompasses top-down culture change, as well as a rethink of the IT infrastructure and technology components.

A first step is to educate the organization on the value of making meaning from Code Halo intersections, which can be effectively done with the help of a trusted partner. Retailers also need to develop a business case, based on their own individual business model, the nature of its offerings, consumer demographics, competition and internal factors. They should then identify and shortlist Code Halo requirements that are aligned with the business's strategic objectives; identify key performance indicators; and develop a prototype of the business case to showcase a proposed solution and its tangible benefits. Benefits include better understanding of consumers, increased margins, incrementally improved revenues and better consumer engagement.

Taking the time to embrace Code Halos in this holistic way will pay dividends, as it's fast becoming the most important competitive weapon in the connected world, particularly as many industries – including healthcare, consumer goods, insurance, financial services and media/entertainment – seek to provide real-time, contextually sensitive experiences to their customers. (For more information on how these industries are adopting Code Halo thinking, see our white papers, [“Building a Code Halo Economy for Insurance,”](#) [“Exactly Who Are Your Customers,”](#) [“Connected Health: Enabling Healthier Outcomes for All”](#) and [“Travel Planning 2020: The Journey Toward Market Prosperity.”](#))

As a new digital era quickly unfolds, upstart and agile competitors are already leapfrogging traditional retailers by making meaning from explicit and implicit customer data. By developing a Code Halo mindset and revamping their business models, retailers can hone their competitive edge by providing real-time, contextual and relevant experiences to their customers, creating a win-win for both business and consumer.

Footnotes

- ¹ For more on Code Halos, read our book, *Code Halos: How the Digital Lives of People, Things, and Organizations are Changing the Rules of Business*, by Malcolm Frank, Paul Roehrig and Ben Pring, published by John Wiley & Sons, April 2014, http://www.wiley.com/WileyCDA/Section/id-WILEY2_SEARCH_RESULT.html?query=code%20halo.
- ² For more on the Crossroads Model, read "Code Rules: A Playbook for Managing at the Crossroads," Cognizant Technology Solutions, June 2013, <http://www.cognizant.com/Futureofwork/Documents/code-rules.pdf>.
- ³ "Top 5 E-Commerce Trends 2014: Fifth Place Goes to Multi-Channel," LinkedIn, April 24, 2014, <https://www.linkedin.com/today/post/article/20140424090903-26243586-top-5-e-commerce-trends-2014-5th-place-goes-to-multi-channel>.
- ⁴ "How Mobile Is Transforming the Shopping Experience in Stores," Think With Google, May 2013, <http://www.thinkwithgoogle.com/research-studies/mobile-in-store.html>.

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About Cognizant's SAP Practice

Cognizant is a global SAP services provider with end-to-end solutions and services capabilities. We help our global customers by partnering in their business and IT transformation journey to the next-generation digital enterprise. Our offerings include transformation services (business and technology consulting), managed services (hosting, AMS and upgrades) and industrialized factory-based services. Our delivery engine foundation offers a combination of onshore, near-shore and offshore delivery centers, enabling us to provide a right-shore delivery model. We also offer technology-based tools that result in maximizing effort and cost optimization for our customers, along with ongoing improvement of the landscape via value-added innovations engrained in our delivery model. Our transformation services use SMAC-enabled solutions to provide customer centricity, collaboration, operational excellence and IT excellence.

About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services, dedicated to helping the world's leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 75 development and delivery centers worldwide and approximately 199,700 employees as of September 30, 2014, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world. Visit us online at www.cognizant.com or follow us on Twitter: Cognizant.

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