

# Customer Experience in the Internet of Things:

## Five Ways Brands Can Use Sensors to Build Better Customer Relationships

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# Executive Summary

The Internet of Things is not some pipe dream, Jetsons-esque future state; it is an entirely new paradigm for building relationships. Yet determining when, how, and to what extent to apply connected products and other sensor-generated data to the customer experience remains poorly understood by marketers and digital strategists. Our research finds that the unique opportunity in the Internet of Things is that it has the potential to mutually benefit both enterprise and consumer. Enterprises gain visibility; consumers gain empowerment. This report reveals five use cases illustrating how consumer-facing brands can embrace the Internet of Things to create actual value for businesses and consumers alike.

## Table of Contents

Demystifying the Internet of Things .....	3
Contextualizing IoT with Business Impact .....	4
Potential for Win-Win: IoT Enables Consumer-Brand Symbiosis .....	5
Consumer-facing Use Cases in the Internet of Things .....	5
Use Case 1: Reward .....	7
Use Case 2: Information and Decision Making .....	9
Use Case 3: Facilitation .....	11
Use Case 4: Service .....	13
Use Case 5: Innovation .....	15
Embrace Use Cases Holistically to Differentiate the Customer Experience .....	16
How Brands Can Begin Crafting Consumer-Facing IoT Strategies .....	19
I. Prioritize Use Cases .....	19
II. Make the Business Case .....	22
III. Build the Infrastructure for Interoperability .....	23
IV. Engage with Transparency .....	25
Conclusion .....	27

## DEMYSTIFYING THE INTERNET OF THINGS

In the last year alone, some 4 billion devices have come online, according to Cisco.<sup>1</sup> Intel predicts that number could reach as high as 200 billion in less than five years, and by 2020 there will be roughly 26 smart objects per human.<sup>2</sup> The devices and interfaces represent windows into a new world of capabilities that can be mutually beneficial, empowering, and contextually opportune for brand and consumer simultaneously.

Amid an increasingly connected culture and consumer base, the Internet of Things (IoT) uniquely matches the imperative for relevance—not just through connectivity in communications but in literally connecting all elements of brand experience. Data connections deliver insights; when applied, these insights inform and improve products, services, and ultimately customer experiences (CXs) and relationships. Harnessing digital connections to foster deeper human connections is the highest opportunity of IoT.

Adoption of the Internet of Things faces tremendous challenges—around power, latency, costs, industry alignment on shared standards, protocols, and infrastructure for interoperability; around data integrity, security, access, and control; and around risk aversion, trust, and privacy. Each of these merit and are subjects of upcoming reports and analysis. This report aims to help executives, brand strategists, marketers, technologists, innovators, and internal change agents make sense of the Internet of Things by understanding what it is, why it is important, what it can look like, the opportunity it presents for enhancing every step of the customer experience, and how to establish its priority.

As in the early days of social media, companies that embraced the technology head on will fare far better than those who dismiss it as a mere fad for Millennials. A recent study found that while 87% of consumers were unfamiliar with the term Internet of Things, 65% plan to adopt connected technologies in the future.<sup>3</sup> What businesses must understand is that while these are early days for IoT, there is no doubt the next era of the Internet is upon us.

## DEFINING THE INTERNET OF THINGS

One of the first challenges to applying IoT is understanding what it is and what it isn't. The digital world is converging with the physical world, and this phenomenon, known as the Internet of Things, represents the next era of computing. It is one in which just about anything can be connected, through sensors and data, to other objects, environments, people, and of course, the Internet.

Altimeter Group defines the Internet of Things as:

**The interconnection and interaction of the digital and physical worlds, wherein uniquely identifiable embedded technology connects and integrates physical 'things' to information networks via existing and emerging Internet infrastructure. IoT is a platform for connecting people, objects, and environments to inform and enable visibility, engagement, and innovation.**

Using a wearable fitness tracker to monitor your exercise is one thing. Yet the real value comes when biometric sensor data in the tracker can connect to a post-surgical recovery plan, communicate healing progress back to the surgeon in real time, show how the patient's progress compares to other (anonymous) patients', suggest more effective ways to expedite healing and mobility and avoid increases in long-term medical insurance premiums. Here, the connection between data, things, and the Internet can transform the experience—, both immediate and long term.



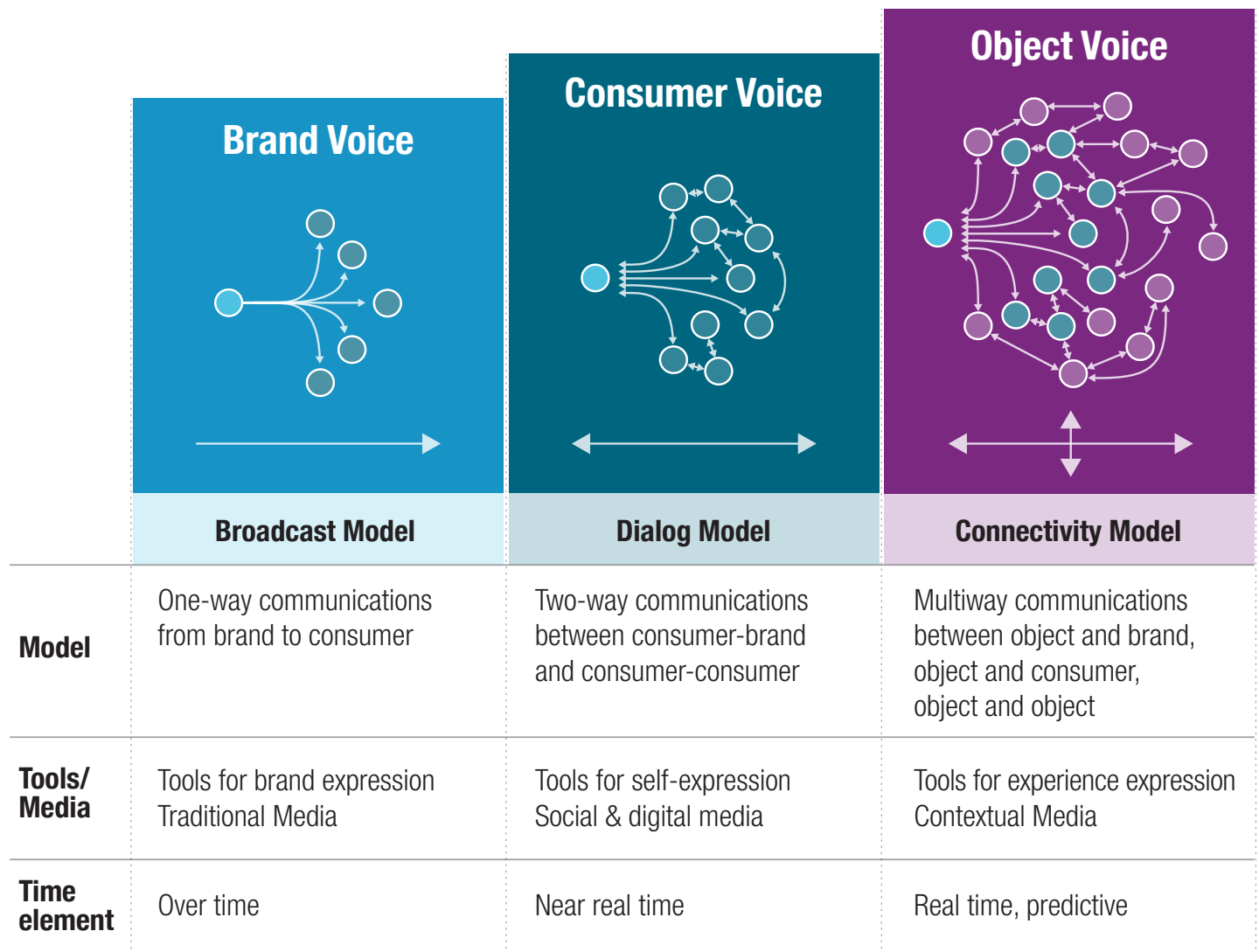
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for connecting  
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and innovation.

## CONTEXTUALIZING IoT WITH BUSINESS IMPACT

Pre-digital technology and media relied on a broadcast model—one-way, one-to-many communications— and brands set the agenda in this broadcast model. The advent of the Internet, social media, and mobile brought the impact of dialog: two-way communications between brand and consumer and consumer and consumer. Consumers now set much of the agenda.

The Internet of Things creates the opportunity for any element of the brand experience to have a voice. When we add sensors to the world around us (e.g., beings, places, objects, environments), we grant these things a voice through the data they generate simply by existing. IoT enables multiway communications between brand and consumer, brand and object, consumer and object, and object and object (see Figure 1).<sup>4</sup> The result is empowerment of each.

**FIGURE 1** HOW THE INTERNET OF THINGS FITS INTO THE CONSUMER-BRAND PARADIGM



## POTENTIAL FOR WIN-WIN: IoT ENABLES CONSUMER-BRAND SYMBIOSIS

In many ways, utilizing IoT can be a win-win for brands and consumers. From a brand standpoint, product voice helps those in consumer-facing functions (e.g., marketing, support, sales, product) achieve common goals: brand awareness, insight, contextual relevance, satisfaction, efficiency, loyalty, innovation, and conversion. IoT helps achieve these goals through the following:

- **Context, context, context.** By leveraging sensors and customer insight, IoT brings us closer than ever to the ultimate marketing objective: delivering the right content or experience in the right context. In other words, delivering the right information or service to the right person, at the right place and time via the right platform.
- **Unprecedented insight into the customer journey.** Creating and monitoring sensor-based touch points in the offline world provides brands empirical, often customer-driven, insights that bridge the historically mysterious gap between how consumers behave online and what they do in conjunction offline.
- **The world's largest focus group.** IoT enables real-time insights on actual consumer behavior, product performance, and consumer-product/service interaction, not just what people say they do and what they say the product and service do. As a result, product and service optimization can happen faster and with greater accuracy. It can also reduce friction in traditional consumer-driven communications with brands.
- **Consumer-driven optimization.** Marketers can leverage consumer interaction for ongoing optimization thanks to real-time insight into how consumers interact with connected endpoints, the ability for end users to customize preferences, machine learning, and other predictive capabilities. This means more accuracy and less guessing.

From this data collection, brands are able to better listen to, observe, and use data-generated insights to inform how they engage with customers and evolve their products and services.

From a consumer standpoint, the benefit is empowerment. The Internet and social media age brought consumers empowerment in the form of power via access to information. The Internet of Things extends this, but fundamentally facilitates consumer empowerment in the form of **doing**: controlling, allocating, conserving, monitoring, and accomplishing.

The more consumers are inspired and enabled to **do** within the context of their brand interactions, the more brand and consumer agendas can align. Realizing this symbiosis requires input (an ongoing dialog) between both sides, meaning brands must constantly prioritize utility, service, and tangible value creation. It's not that consumers don't value an emotional touch; we do. It's that services provide value and more actionability than content. As director of creative strategy at OgilvyOne's Cheryl Metzger puts it, "In a world of so much noise, emotional connection is simply achieved more tangibly through utility and services than storytelling."

Harnessing digital connections to foster deeper human connections is the highest opportunity of the Internet of Things.

## CONSUMER-FACING USE CASES IN THE INTERNET OF THINGS

How can brands actually enhance customer experience in the Internet of Things? The following is a map of Altimeter’s five primary use cases for how brands can design customer experiences in the Internet of Things. These encompass a broad spectrum of CX possibility and are derived from our research and interviews with brands, technology vendors, manufacturers, agencies, investors, and experts across a variety of industries. This map is meant to inform, instruct, and inspire digital strategists and brand innovation teams in the quest to apply IoT to their organization’s objectives.

Four characteristics distinguish these use cases from many traditional and digital marketing use cases:

- They involve the use of sensors, either embedded in products or environments or leveraged from consumers’ mobile devices (e.g., smartphones, tablets, and wearables).
- They are designed for offline engagement but apply digital techniques for activation, measurement, and optimization.
- They require new and distinct standards of engagement, transparency, and brand-consumer communications.
- They depend heavily on buy-in and systems integration with multiple business functions.

**FIGURE 2** USE CASES FOR CUSTOMER EXPERIENCE IN THE INTERNET OF THINGS



Source: Altimeter Group

## USE CASE 1: REWARD

### REWARD CONSUMERS FOR THEIR TIME, MONEY, EFFORT, AND ENGAGEMENT



**Value-add for brands:** We use an incentive (monetary, promotion, points, content, etc.) derived from data generated online and/or offline to drive customer interaction.

**Value-add for consumers:** The brand rewards me for my interaction (time, loyalty, purchase, location, product/service use, behavior, etc.).



### How Should Brands Think about Reward in IoT?

People like to be rewarded. We like to be rewarded for our time, purchases, and efforts. The Internet of Things presents a host of new ways brands can reward customers and prospects by leveraging sensors in smartphones, wearables, beacons, and other devices. “Getting customers into your store is the physical equivalent of a Google click,” says Alexis Rask, CRO of in-store loyalty Shopkick. “Consumers love to be rewarded, and retailers love foot traffic.”

Reward enabled by sensors incentivizes engagement and purchase by drawing from contextual elements. These elements combine both digital (e.g., online browsing and purchase histories) and physical (e.g., location, time, weather, product) realms. These contextual elements are what differentiate sensor-based reward (e.g., promotion, gamification, entertainment) from traditional advertising and loyalty programs. After all, reward at just the right moment is more effective than randomly broadcasting promotion.

The following are some specific types of rewards in IoT:



**Promotional rewards in the form of coupons, discounts, or deals.** IoT rewards can be promotional; indeed coupons and deals are the most common form of location-based advertising we’ve seen to date. One vendor reported that on Black Friday, 80% of a retailer client’s in-store mobile navigation (map) usage wasn’t for finding specific products but for locating the deals offered throughout the store.

Our research also finds many brands that use location-based advertising encourage downloads of their app primarily to or in conjunction with redeeming rewards. This is an important hurdle to overcome when the goal is to create secure, personalized in-store brand-customer communications, especially considering that 90% of branded apps have less than 10,000 downloads and 80% of those downloads are eventually deleted.<sup>5</sup>



**Gamification rewards customers based on contextual elements.** Sensors in real-world environments foster many new ways for brands to entertain, incentivize, and intrigue customers to inspire deeper engagement. Foursquare check-ins in exchange for coupons are one familiar example of location-based reward. Brands can also use sensor technologies to reward customers for walking down certain store aisles, submitting an in-store review, or even interacting with a connected product in a particular way.





**Brands can use sensors to reward consumers by entertaining them.** Entertainment can be purely aesthetic, such as lighting or interactive digital signage that enhance the consumer's journey through a store or theme park, for example. Or brands can entertain customers by extending content experiences to products themselves. Access to exclusive content (featuring a celebrity, for example), campaigns, or offers can inspire engagement with brands in the physical world (e.g., via QR codes), just as we have seen in the digital world. Explains Niall Murphy, CEO of IoT cloud platform EVERYTHING, "With highly consumable or impulse purchases, soda or snacks for example, entertaining content sourced through connected packaging can be similarly as bite-sized, transitory, and disposable as the product itself while being personalized based on context and consumer relationship."

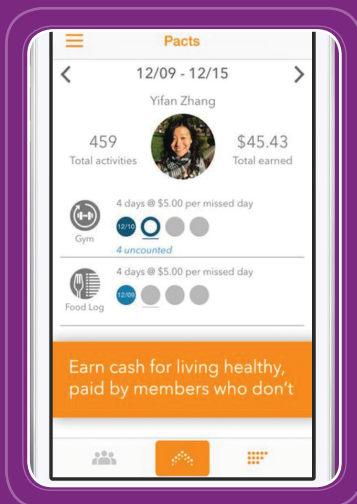
In the future, advertising will feel less like advertising and more like intelligent, subtle product placement woven in (not disruptive) to how consumers run their daily lives. Branded suggestions of recipes based on items inside a smart refrigerator, a connected drink mixer concocting branded smoothies or cocktails, in-car suggestions based on learned routes and routines—we're just getting started. The opportunity is to surprise and delight, while the risk is appearing creepy or obtrusive.

## Examples of IoT-Enabled Reward

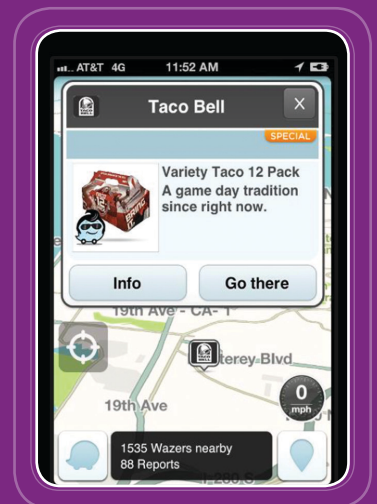
Since June 2014, Walgreens has been piloting an augmented reality mobile app that is part gamified product finder, part discount program, and part loyalty program. As shoppers walk down the aisle, they receive a notification informing them of a discount in the laundry section or loyalty points in grocery. "We're now turning the utility into an immersive game-like experience inside the store," says Nathan Pettyjohn, CEO of Aisle411, the in-store mapping technology partner, "The thought is 'Hey, we can encourage you to discover more products and build a bigger basket.'" <sup>6</sup>



PactApp provides a service to businesses in which employees enrolled in the company's health plan commit to a certain number of active days per week (hence "pact"), and are subsequently rewarded (or punished) for each day they meet their goals (or don't). Through location-based check-in (e.g., at the gym) or fitness tracker--based logging, PactApp aims to lower (or raise!) deductibles with each workout by \$5. PactApp claims active users can lower their annual deductible by as much as \$1,300.<sup>7</sup>



Taco Bell takes a location-based approach to advertising, messaging consumers across weather apps, Pandora, and Waze, among others. In Waze, drivers receive branded in-app messages (only when the car has stopped), as well as several other brand integrations: branded pins of locations, destination-specific targeting, and custom campaign messaging (if tapped).<sup>8</sup>





## USE CASE 2: INFORMATION AND DECISION MAKING

### EMPOWER CONSUMERS WITH THE ABILITY TO ACCESS AND ACT ON INTELLIGENCE



Value-add for brands: We use informational media designed to aid consumers with product and service decision making, delivered at the most convenient time, on the right platform, and at the right place.

Value-add for consumers: The brand helps me make informed decisions by providing me the most relevant information precisely when I need it.



### How Should Brands Think About Information and Decision Making in IoT?

Brands' ability to provide hyper-relevant information to increase intelligence and assist in decision-making is another critical use case for enhancing customer experience.



Evaluation

**Content that aids in product and service evaluation.** Companies can send the content that they've produced for the web directly to connected devices and in response to such triggers as location, weather, and product interaction. Examples might include checklists, comparison guides, and ratings and reviews from other customers. As retailers struggle with showrooming for competitive e-retailers, the ability to bring the access to information that shoppers have online into the offline world is key for driving purchases in-store.



Navigation

**Location-based aid, typically delivered as navigation or wayfinding.** This is information provided to customers to aid in locating products, based on the user's relative proximity to the product. Location services are one value-add many companies have already deployed in their mobile apps (e.g., "Find the nearest store"), but through other sensors, such as beacons, QR codes, and NFC and RFID tags, companies can guide consumers not just to the nearest store but directly to the products most relevant to them.



Monitoring

**Monitoring capabilities added to things people care about.** Through sensors, companies can enable monitoring (read: visibility) into just about anything, such as the number of steps taken per day, the amount of food the dog is eating, and the amount of windshield-wiper fluid remaining. Any connected object can inherently be monitored, and brands can use this insight to provide extra value by delivering more efficiency to customers, whether in the form of energy, time, insight, or money. "Interestingly for brands, this can be very personally impactful," says Charlie Isaacs, CTO of Salesforce, such as "monitoring a sick loved one or understanding the importance of monitoring those machines that are providing therapy to our sick loved ones."



News

**News or information provided by sensors for public awareness.** This can take the form of content marketing and even real-time marketing.<sup>10</sup> Device manufacturers may have data that, when aggregated, provides unique empirical insight into a situation. In the wake of the recent Napa, California, earthquake, wearable fitness tracker company Jawbone released an aggregated report of how the earthquake affected San Francisco Bay area sleep cycles, based on sleepers' proximity to the quake's epicenter.<sup>11</sup>

Just as the Internet increased access to information for brands and consumers, IoT compounds this trend for both. The ability to leverage sensors to trigger right-moment experiences offers brands new opportunities to engage with consumers in ways that, ideally and when properly executed, aren't interruptive or irrelevant. Rather, they can be contextually sensitive, even welcome.

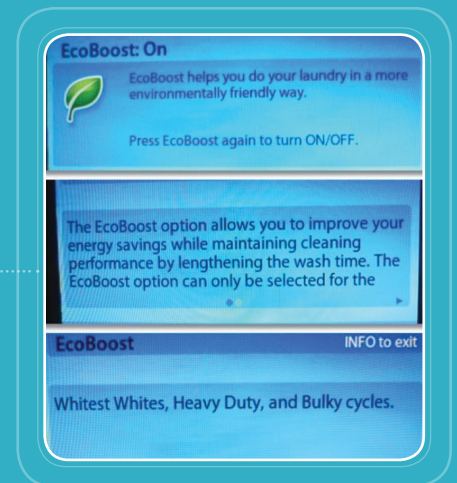
## Examples of IoT-Enabled Information & Decision Making

The Sampler mobile app from shoe brand Converse uses augmented reality (AR) to allow shoppers to try on any shoe in the mobile app virtually by simply pointing the phone's camera at their foot. Shoppers can post to social media channels to solicit their friends' opinions and even purchase directly from the app. Other retailers, including IKEA, CoverGirl, LEGO, Burberry, De Beers, and American Apparel, are also leveraging AR for this use case.<sup>12</sup>



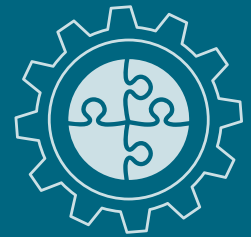
Home Depot is currently piloting intelligent integrations between customers' online shopping carts and wish lists and the retailer's in-store mobile app experience for loyalty members. Upon entering the store, customers that are part of Home Depot's Pro Rewards program will receive a notification showing them the most efficient route through the store based on the items customers shopped for online. Aware of the vast landscape that is a home supplies warehouse, the retailer also helps shoppers check the inventory by location.

Whirlpool recently unveiled connected washers and dryers that monitor product performance data to drive efficiency. The appliances are integrated with the Nest thermostat which, if set to Away, activates an EcoBoost option that switches to slightly longer drying times at a lower temperature to conserve energy.<sup>13</sup> Owners can access the appliance's status including monitoring, starting, or pausing cycles remotely via their mobile device.



## USE CASE 3: FACILITATION

### FOSTER EASIER, MORE ACCESSIBLE, AND CONVENIENT BRAND EXPERIENCES



**Value-add for brands:** We enable a specific customer action or transaction architected to streamline the brand-consumer experience within a specific environment.

**Value-add for consumers:** The brand makes it easier for me to access, acquire, or accomplish what I need, exactly when I need it.



### How Should Brands Think about Facilitation in IoT?

Facilitation in IoT is fundamentally about enabling consumers to do, accomplish an action more seamlessly through the use of connected devices. It's about streamlining transaction, authentication, or any other exchange between brand and consumer.



**IoT is shifting how brands facilitate customer experience via the payment process.** Monetary transactions can be facilitated through mobile wallet, mobile payment (smartphone or wearable), in-app transaction functions, NFC readers, identity authentication, QR codes, or any other sensor-enabled manner of digitally exchanging money for goods or services.



**Identity authentication through sensor data facilitates faster validation or admission process.** Companies are working to streamline the process of securely authenticating identity based on consumer identifiers aggregated from multiple data sources (e.g., personally identifiable information, financial data, product usage data, biometric data, social data). Just as social login can ease identity authentication across apps and websites, so too can different types of sensor data across connected objects and environments. This unification and attribution of data is critical for weaving together the various products, services, and content comprising an individual's unique context.



**IoT expands conversion capabilities.** Customer conversion is defined as any predetermined event designed to track or move consumers through the purchase funnel. Marketers are well acquainted with conversion online and its importance in measurement through events like registrations, requests for downloads, reservations, and access to content. Examples of sensor-based conversions can include, but are not limited to, location-based activities, such as entering a store, dwelling in a certain department for a certain amount of time, and redeeming a promotion and connected product-based activities, like requests for service, troubleshooting information, and integration redemption.



**IoT helps brands make their products and services more useful.** Utility in IoT is leveraging sensors in connected objects, environments, or mobile devices to accomplish an action that was historically done manually. In many ways, “utility” is a catch-all category for facilitating action. This could include actions like remotely watering the lawn, turning up the slow cooker, using a wearable or smartphone as a hotel room key, gesture-controlling heating and lighting, or any other way brands can deploy technology to help customers utilize their products and services more effectively. “Brands should really begin by focusing on utility use cases, establishing relevance, and building volume. Everything else will fall into place,” says Matt Silk, head of strategy at Waterfall Mobile.

Facilitation is less about replacing existing actions and more about simplifying them. It’s about consolidating steps and reducing friction. The opportunity is one of bettering customer experience and forging emotional connections, while the risk is one of experience or functional breakdown.

## Examples of IoT-Enabled Facilitation



Chamberlain, the garage door opener company, has connected its customer experience and increased its level of insight into how customers interact with its product by providing the ability to remotely open and close the garage door from anywhere. Embedding sensors into the door opener has revolutionized the brand’s ability to engage consumers, says Maureen Silber, senior marketing manager at the Chamberlain Group. “People use their garage door as main entry way, so in many ways it can signal a lot of other actions at the same time. Over time, we see the opportunity to increase the utility of this through integration with security, thermostat, lighting, and beyond.”

Disney’s proprietary wearable, MagicBand, serves as a wrist-worn identity portal for guests, streamlining authentication across numerous aspects of the parkgoer’s experience. Once guests register their personal information, the wearable serves as room key, building key, admissions pass, parking lot entry, store and restaurant payment mechanism, and more.<sup>14</sup>



Starbucks now makes transactions possible beyond the Starbucks app through third-party integrations (extending beyond smartphones) with wearable devices such as Microsoft Band, Samsung’s Galaxy Gear, and Pebble. By integrating with PebbleBucks, Pebble’s native payment app, for instance, Starbucks customers are able to pay for their beverages via the wearable.<sup>15</sup>

## USE CASE 4: SERVICE

### SUPPORT AND RETAIN CUSTOMERS BY PROACTIVELY IDENTIFYING OPPORTUNITIES



**Value-add for brands:** We use product, service, and customer data to inform support, sales, and other brand service opportunities in near real time, in real time, or through predictive technology.

**Value-add for consumers:** The brand identifies ways to provide me a better (more enhanced, functional, secure, compatible, or personalized) experience, sometimes before I know I need it.



### How Should Brands Think about Service in IoT?

People don't want to deal with product and service issues; they simply want products and services to work. Service in the IoT is about identifying gaps, issues, or opportunities to either react in real time or proactively suggest, service, or resolve before customers realize they have a problem. Service in IoT can be both reactive and proactive.

- **Reactive service** is an extension of support as we know it today, where consumer agency drives interaction. Customers tweeting to a brand or calling a call center are examples of such agency today. Two examples of sensor-enabled extensions of reactive support include Amazon's Mayday button and troubleshooting a smart refrigerator through live chat.
- **Proactive support** is when service converges with automatic resolution. Sometimes this is invisible to the customer. For example, a connected washing machine is not just plugged into the wall outlet; rather it constantly sends performance data to the manufacturer. When something goes wrong, the manufacturer can either deliver a software update over the air or preemptively schedule a technician visit.



**IoT also optimizes support across channels and devices, both reactively and proactively.** Consider that about half the time of typical service calls are now devoted to customers providing basic information. Eliminating this step significantly improves the support experience and time to resolution. IoT also enables greater efficiency in self-service. This is increasingly important, because some 70% of consumers today expect brands to have a self-service application available, while 40% prefer self-service to interact with a human.



**Service in IoT can extend to sales.** As devices learn customer history, purchase history and personal preferences over time, they will be able to both react to and predict opportunities for service and, in some cases, sales. Sales in the Internet of Things can become an extension of service because it's typically informed by the same data. Thus, what IoT offers salespeople is more context, that is, more information from which to tailor messaging, suggestions, and solutions. Service-related use cases in IoT are also where companies are most likely to see impact on the bottom line:

- Increased efficiency in supply chain management
- Increased efficiency in labor costs for service agents, field technicians, and the like



- Increased revenue and/or customer retention through timely upsells (e.g., preventing product/service malfunction and customer frustration)
- Identification of issues in product or service experience
- Identification of new business models (e.g., new services, data access, shared services)

The Internet of Things can impact service at every level of the customer experience, such as monitoring product performance, facilitating customer-brand communications, identifying malfunctioning issues or downtime prevention, and recognizing sales and additional service opportunities. “This whole market will be defined by how we use data from connected devices to add value.” explains Kevin Meagher, vice-president of Smart Home at Lowes. “In the future, people won’t buy devices just for their physical attributes; they’ll buy them because of the apps and services that connectivity enables.”

## Examples of IoT-Enabled Service

In January of 2014, Tesla was forced to recall 29,222 Model S cars. The wall chargers were at risk of overheating. Given Tesla cars are effectively hardware supporting a software operating system, Tesla was able to deliver a software update that eliminated the problem in all 29,222 cars. Not only did this save drivers a pesky trip to the dealership, but Tesla gave customers full control over when they preferred to receive the 45 minute update.<sup>18</sup>



Whirlpool’s latest connected washer/dryer streamlines the support process so when an issue occurs, the machine itself hosts a diagnostics tool that provides simple how-to guides and step-by-step troubleshooting assistance to help resolve common user errors in real-time.<sup>19</sup>





## USE CASE 5: INNOVATION

### LEVERAGE FEEDBACK FOR RAPID R&D, CUSTOMIZATION, AND IMPROVEMENT



**Value-add for brands:** We use real-time or rapid feedback mechanisms to inform and enable product and service development, design, or customization.

**Value-add for consumers:** The brand listens to and implements my requests for product or service improvement more rapidly.



### How Should Brands Think about Innovation in IoT?

IoT provides additional tools for brands understand, improve, and innovate on consumer-facing experiences more effectively. Here's how IoT enables this:



Feedback

**Collecting feedback and innovating products and services can happen more quickly.** IoT can help companies ascertain areas for improvement and deliver product updates more efficiently by:

- Monitoring sensors attached to connected products, environments, or customers
- Facilitating feedback directly from customers
- Leveraging iterative capabilities of a hardware-software infrastructure through software updates



Customization

**IoT enables customization and personalization to help brands stay relevant and differentiated.** IoT presents the opportunity to tailor experiences to customers' unique preferences, behaviors, and needs. Whether through direct solicitation for customer-submitted requests or with more automated mechanisms like machine learning or algorithms, connected products, devices, and environments can learn, and even predict customer desires over time. "In effect, IoT blows the door off of listening as we know it today—and it's mostly proprietary data," says Marko Mueller, digital VP group director at Edelman.

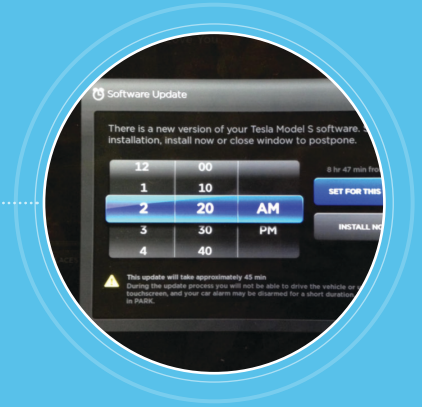
Improvements at the product/service level can happen at the consumer level or in aggregate, across an entire product fleet, service offering, or even environment. As brands apply a software component, an interface that is iterative and constantly updated, to products, which in turn become hardware, rapid innovation and customization become possible. Two examples of using automated feedback to improve or innovate how larger systems function:

- The energy habits of city-dwelling residents are monitored for areas and times of high consumption, allowing energy to be reallocated as a result.
- A brand optimizes its own supply chain and inventory management workflows.

Brands' desire to create more customized experiences isn't just a potential win for the brand but for relevance-craving consumers, too. As connectivity infuses more and more products and as companies act on the data generated from these products and customers, the exchange of value—via dialog, data, crowdsourcing, and product/service development between brands and consumers—has the potential to evolve more quickly and help agendas align more quickly.

## Examples of IoT-enabled Innovation

Tesla Motors, manufacturer of connected cars, not only provides software updates to the car's operating system (OS), but also crowdsources ways to innovate by allowing customers to submit requests for features they would like. (Implementation is, of course, at Tesla's discretion.) Recently a customer submitted a request for a crawl feature: in effect, extremely slow cruise control to ease the driving experience during heavy stop-and-go traffic. Not only did Tesla implement the crawl feature for that customer, but they rolled it out across the entire fleet via a software update.<sup>20</sup>



New England BioLabs (NEB) produces and supplies various enzyme reagents for life science research, typically in university settings. The company invested in connecting its enzyme freezers and has been leveraging content to learn and improve how they engage with scientists. They've transformed what was once a one-way soda machine for chemicals, not lending itself to feedback or support, to a connected interface where brand and user can interact and learn from each other.

Freezers are currently equipped with a tablet computer on front door, but based on feedback, NEB plans to bring customers' experience to their smartphones, providing users with a mobile app that consolidates all consumer use cases. Customers now have a wide variety of options available to them, including shopping product offerings, accessing individual product specifications, connect with support staff, and (soon be able to) use the phone to unlock and scan items. NEB continues to optimize its freezers, inventory, and customer experience by leveraging the data inspired by the connected product's interface and dynamic content.



Consumers are more familiar with IoT-enabled innovation than they may think. Any smartphone owner already receives periodic software updates via the same handset hardware. These updates are a function of collecting implicit and explicit user feedback and are designed to provide a better mobile experience at both the individual level and across the product line.<sup>21</sup>

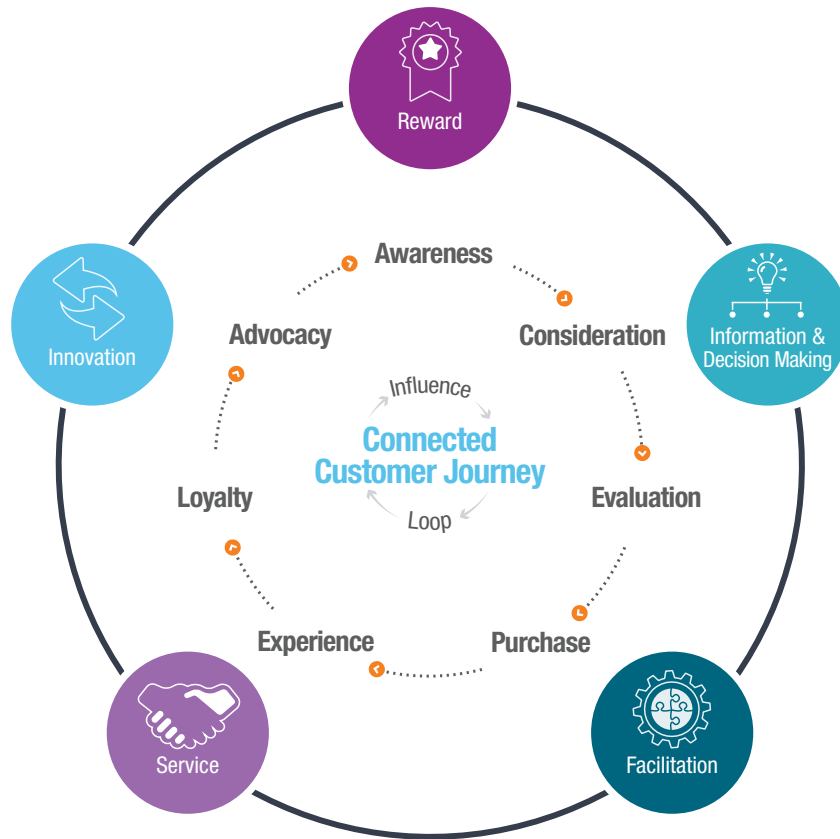


## EMBRACE USE CASES HOLISTICALLY TO DIFFERENTIATE THE CUSTOMER EXPERIENCE

While understanding individual use cases and sub-use cases helps brands ideate on the possibilities of consumer-facing IoT, the real potential, differentiation, and richness in the customer experience results from combining multiple use cases. The more advanced applications of IoT in the consumer world reflect this holistic approach.

The point is not to focus on tactical objectives such as sending more ads to more people, but to place the brand usefully, intuitively, sensitively, and centrally to how customers expect to interact with and experience your brand. Combining these use cases helps brands better wield context in order to serve customers at each stage of their journey, be it awareness, consideration, purchase, experience, support, or loyalty (see Figure 3).

**FIGURE 3** CUSTOMER EXPERIENCE USE CASES IN INTERNET OF THINGS ENCOMPASS THE ENTIRE CUSTOMER JOURNEY



Source: Altimeter Group

Altimeter Group developed the map in Figure 3 in our research of the connected customer journey. The center represents the influence loop, the conduit for shared experience, which today is generated by consumer voices through things like ratings and reviews, blogs, YouTube, Yelp, and online influencers.

The influence loop in the Internet of Things incorporates product and device voice as well. Data serves as the input, which influence the output: how the brand applies insights to improve and innovate on its products, services, and the customer journey itself. Thus, a single use case can span multiple phases of the journey, (e.g. information & decision-making during evaluation or support), or multiple use cases can serve a single phase (e.g. facilitation and innovation enhancing post-purchase experience).

More advanced brands embrace the framework of context to develop IoT-enabled customer experiences, where the lines between use cases blur and elements of each are drawn based on contextual triggers. “The nature of the proposition and the concept of the experience provided must take into account who customers are, where they are, and what the relationship is,” says EVERYTHING’s Niall Murphy. Brands must chart these scenarios and align with models and technologies that are able to dynamically respond to context.

### McDonald’s Beacon-Mobile Pilot Rewards, Facilitates, and Offers Feedback Loop while Driving Sales and Intelligence

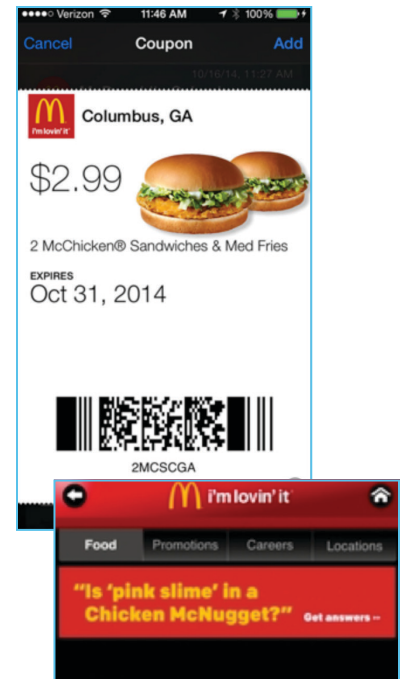
McDonald’s recently partnered with Piper, a Bluetooth low-energy (BLE) beacon solution provider, to send customers greetings, coupons, alerts, surveys, Q&As, and even employment opportunities via their smartphones when they walk through the door.<sup>22</sup> Customers receive an alert through the Piper app to opt in to take advantage of these offers. Customers can also personalize the content they receive, selecting relevant ads and deselecting those that aren’t.

McDonald's is, of course, collecting intelligence through data generated in these engagements and through active customer engagement. Customer service issues and inquiries for employment are routed via automated text message directly to the specific manager or other responsible party who can respond before the customer leaves the restaurant.

In the long term, this feedback loop grants McDonald's the ability to improve, even customize, numerous aspects of the customer experience, including facilities, offers, menu items, and recruitment techniques. During the initial four weeks of the launch, McDonald's garnered more than 18,000 coupon redemptions, McChicken sales increased 8%, and McNuggets sales increased 7%.<sup>23</sup>

This example illustrates how McDonald's is addressing multiple aspects of its customer journey by leveraging sensors in beacons and mobile devices:

- **Awareness:** Through reward and information, such as greetings, promotions, and employment opportunities
- **Consideration:** Through information, such as notifications, surveys, Q&As, and content
- **Purchase:** Through mobile payment and conversion, as with employment inquiries
- **Support:** Through service, like rapid response of inquiries
- **Loyalty:** Through innovation and product, service, and in-store improvement



## Progressive's Snapshot Program Monitors Driving Habits to Reward Lower-Risk Drivers

A good example of how IoT can shift a consumption model is Progressive Casualty Insurance's Snapshot program. Drivers mount a Progressive-provided device in their vehicle to track speed, location, driving habits, and the number of people in the car. In exchange for this amount of sensitive data, Progressive provides a discounted policy rate based on actual use. By tracking how hard drivers brake, for instance, or the typical time of day the driver uses the car, company is able to more accurately connect lower premiums to safer drivers, based on a real, quantifiable risk profile.

The result, in theory, is higher profitability on more risky drivers and lower pricing for safer drivers, as well as behavior modifications based on penalties. To date, Progressive boasts over 1.6 million enrolled individual policyholders and estimates roughly two out of three have saved money because of the program.<sup>24</sup> Through this usage-based insurance (UBI) model, Progressive claims to have collected data on 10 billion miles of travel, reducing the number claims, lower premiums, and increasing its bottom line as a result.

This example illustrates how Progressive is addressing multiple aspects of its customers' experience by leveraging sensors in the Snapshot device, mobile devices, and cars. By monitoring driving habits, the company can more effectively reward and support customers based on empirical insights, available to both brand and consumer. Transaction is also based on and automated through usage. Progressive is transparent about how data is collected—opt-in is baked into the very use of the product—and the result is greater awareness and an increased likelihood for loyalty and retention, particularly for safer drivers.



## HOW BRANDS CAN BEGIN CRAFTING CONSUMER-FACING IOT STRATEGIES

With an ecosystem evolving as rapidly as that around IoT, brands face a dual imperative: to act swiftly, but also to plan, partner, deploy, test, and scale mindfully and with respect for not just the consumer experience, but the human experience. Paramount to any IoT activation, and to all considerations is to understand the implications of collecting so much (big) data, as well as the analytical approaches required to act on it ethically and responsibly.<sup>25</sup>

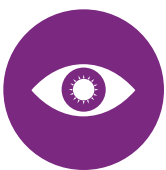
Our research finds that early adopters, both vendors and brands, take the following steps when introducing IoT activations to their customer experience (see Figure 4).

**FIGURE 4** FOUR STEPS FOR ARCHITECTING CONSUMER-FACING IOT EXPERIENCES



Source: Altimeter Group

### I. PRIORITIZE USE CASES



#### Define Future State Customer Experience Vision

Although the Internet of Things encompasses a wide spectrum of technologies, developing an IoT strategy does not begin with technology. Rather, brands must articulate their vision for the future state of customer experiences first. Whether this is step one to deploying an IoT strategy, or an existing vision to which sensor-enabled deployments are relevant, alignment with this vision is critical. Brands must realize that the digital transformation they are undergoing (of which IoT is a part) impacts all business functions, not just consumer-facing ones.<sup>26</sup> Thus in defining the vision of future state CX, brands must consider the role of each function across the entire customer journey and align the CX with each of those roles.

Experience mapping is foundational to understanding not only existing pain points, behaviors, preferences, and needs but also where the opportunities are to empower customers. How and when are connected devices used? What information can be collected and emitted along the customer or device lifecycle?

Identifying these opportunities is key for prioritizing IoT CX use cases. Applying the use cases requires clarity and documentation on how each use case and sub-use case supports a specific phase or multiple phases of the journey. To define your vision for the future state of the customer experience:

- ✓ Clearly articulate the reasons why customers would embrace new devices or behaviors.
- ✓ Conduct journey-mapping research to understand those pain points along customer journeys where connected devices, products, infrastructure, and the like can best serve CX and the opportunities to better empower customers.
- ✓ Future state CX likely incorporates more than sensors. Include what other elements to involve (e.g., product, environment, data sets, content, loyalty, sales).



### Begin with Empathy

Before adding sensors to create new brand experiences and to prioritize use cases, begin with some fundamental questions: What are you empowering customers to do now that they couldn't do before? What are you enabling customers to accomplish that was once either too cumbersome, too expensive, or just impossible?

Brands must begin with empathy when designing IoT-enabled customer experiences, assessing for worthiness (e.g., is what we're doing actually valuable?), required friction level (change or disruption to behavior), and the risk of privacy concerns. Just because we can add sensors to just about anything doesn't necessarily mean we should. Simplicity is key, whether in device setup, connected customer support, or any other interface unfamiliar to consumers. "For every piece of creative content or experience that is triggered by IoT, brands should ask, 'Will this create value and WOW the consumer, or would a consumer look at it and say 'why are they bothering me with this?'" says Rob Murphy, VP of marketing at Swirl, a beacon marketing platform. To create the "wow" moment, brands need to:

- ✓ Design for low friction, a low learning curve, and intuitive adoption, with a clear benefit solving an actual pain.
- ✓ Embrace the mindset of key personas, run focus groups, and consider how different proposition and potential perceived creepiness
- ✓ Give prospects and customers a voice, asking for feedback and requests for improvement.



### Replace Behaviors, Don't Reinvent Them

Most consumers are not early adopters of technology. More often, they just want ways to improve what they're already doing. When developing sensor-enabled experiences, brands must think incrementally: start with subtle tweaks to how customers already interact. Companies that set out to transform customer interaction, to reinvent how people get things done, and to make a bold statement in doing so will fail. Brands must think incrementally, easing consumers in with a clear value exchange that will pull consumer interest, not freak people out with pushy marketing agendas. Companies we interviewed constantly reiterated the importance of simplicity, subtlety, intuitiveness, and instant gratification.

NEB observed self-serve checkouts at supermarkets for inspiration when designing the user experience for its connected refrigerators. "As a result," explains Ruben Melo, NEB's business systems manager, "we didn't have to train end users at all!" To ease consumers into a new way of doing things:



- ✓ Replace behaviors by tweaking one or two features or steps, and provide instant gratification.
- ✓ Ask: would my grandmother understand how to do this?
- ✓ Leverage existing templates for interaction to drive adoption and circumvent learning curves.



### Consider the Platform

The platforms through which brands choose to build sensor-enabled experiences dictate many of the parameters of those experiences. Connected objects, kiosks, digital signage, tablets, wearables, scannable codes, connected transportation mechanisms (e.g., cars), 3D printers, and of course, smartphones all fall under the IoT umbrella. No doubt this list will expand. Also included in IoT are components of connected infrastructure, such as location-based sensors (e.g., beacons), shelf weights, and motion detectors, as well as POS systems, mobile payment systems, cameras, and connectivity infrastructure. And never mind software, APIs, and other applications, like augmented reality. It is less important that brands view these technologies as a checklist of areas for development or integration and more important that they understand those platforms most relevant to their customers.

While many view smartphones as the portal to the Internet of Things—indeed many examples in this report include smartphones—brands must think and prepare beyond the smartphone. Although smartphones imply a level of instant mobile reach and mass adoption that is not the reality for other IoT technologies today, history has taught us that consumer preferences can shift rapidly.

When designing for platform, brands must again consider how an ideal customer experience will look and feel. For some applications, smartphones may be the best option; for others, connected objects will be, and even others will find the best option requires integration across a number of interfaces. Technology is most powerful when it enables action, not when it is a barrier to achieving an ends. To ensure the technology enables action:

- ✓ Determine what types of sensors are required (e.g., GPS, RFID, NFC, BLE, Wi-Fi, biometric, temperature).
- ✓ Determine which sensors are proprietary (i.e., embedded into your company's connected products or infrastructure) and which are leveraged (i.e., tapped into via the consumer's device or public infrastructure).
- ✓ Consider how time, location, psychographics, and behavioral preferences inform the prioritization of one platform over another. Consider how this varies across customer segments.



### Start Small, but Prioritize with an Eye for Multiple Use Cases

eAlthough most companies advise starting small, with tightly scoped initiatives, brands must plan future state customer experiences with an eye for multiple use cases. The deeper value of IoT to consumers is not in location-based reward, or even connected product facilitation, but in how these and other use cases can emerge seamlessly and contextually, based on where individuals are throughout the customer journey. Thus, brands must prioritize how use cases serve business objectives, how new and existing technologies serve use cases, and how data can inform the evolution of this strategy. To plan the customer experience with multiple use cases in mind:

- ✓ Prioritize which use cases serve business objectives and how.
- ✓ Conduct gap analysis around how new and existing technologies support use cases; ascertain level of new investment.
- ✓ Identify all business functions involved and where teams will interact with each other; align workflows with use case prioritization.

## II. MAKE THE BUSINESS CASE



### Align IoT Initiatives with Business Objectives

How brands embrace IoT for consumer-facing activations is unique to each company's product/service, budget, vision, and culture. But regardless of industry, use case, or size of deployment, companies must align any sensor-enabled initiatives with the larger objectives. As marketing, service, sales, innovation, product, and IT are converging towards a single end: 'experience,' education across workflows must encompass and serve departmental pain points and needs. It's also important companies make a sober assessment of existing relationships with customers, and use these early days to build on existing programs (e.g. social, support, loyalty, coupons, etc.). The success of releasing new (more innovative) initiatives relies on the existing foundation of engagement in place today.

- ✓ Articulate and prioritize how IoT CX use cases will support larger organizational objectives.
- ✓ Build out foundational programs to encourage deeper engagement to drive new initiatives.
- ✓ Develop tightly scoped pilots that support departmental and larger organizational objectives with clear metrics and KPIs.



### Educate All Stakeholders on IoT's Potential & New Business Model Creation

The Internet of Things is a new way of thinking for most organizations, requiring substantial education and evangelization, both horizontally across functions and vertically to leadership. In addition to creating an understanding of what IoT is, it's critical to communicate its value, potential, risks, and ecosystem impacts. This type of education can come from inside the organization, via IT, marketing, product, or other change agents or from outside, such as from an agency. A digital agency called Primacy, for instance, helps prime its clients for forward-thinking activations by providing presentations, hands-on demos of technologies like voice and gesture control, beacons, wearables, and virtual reality, etc. "Once goals are established, brands have a better idea if and how to apply technologies," says Melissa Tait, SVP of tech and product management. "Educate internal clients with lightweight prototypes, you'll be surprised how much of an appetite that generates."

Many businesses also find that IoT enables entirely new models of generating revenue and/or cost-savings and efficiency. Those leading IoT initiatives will benefit from educating stakeholders (especially leadership) about the potential for new business model creation. Leveraging data for new or enhanced services; incorporating sensors for more crowdsourced or collaborative services in the shared economy; identifying service gaps or opportunities are just a few of the ways companies are capitalizing on new monetization strategies. "We've seen many clients realize new monetization strategies, as connected products are an amazing source of data which can illuminate opportunities previously invisible, or impossible," says Kristen Billhardt, Internet of Things marketing strategist at Dell. Another B2B company interviewed, which requested anonymity, realized a new and

unforeseen software offering (which they now sell to their customers) as a result of the sensor data generated upon connecting multiple components across its manufacturing infrastructure.

- ✓ Educate all stakeholders on the role of IoT, and what competitors are doing
- ✓ Educate stakeholders (especially leadership) on business model creation or enhancement
- ✓ Leverage pilots to drive results that support specific departments; Focus on departmental and business objectives, not bright, shiny technologies
- ✓ Develop a timeline for deployment, iteration, and expansion

### III. BUILD THE INFRASTRUCTURE FOR INTEROPERABILITY

#### Collaborate & Integrate Across Teams & Workflows



More often than not, bringing IoT-enabled experiences to market successfully requires more than one business function. Whether generated from Marketing, IT, Product, or elsewhere, those leading IoT initiatives must build the infrastructure (and mindset) for ongoing ideation and collaboration with other functions. This includes ensuring the proper systems are in place and integrated across workflows, training employees on how to share insights, updates, and feedback. “It has to be a hand-in-hand partnership, a good balance between operational needs and innovation,” says Ruben Melo, “in our case, the Marketing & Sales teams define the direction, and we in IT provide the back end infrastructure, address their issues, and try to offer innovative solutions.” The more visibility each department has into how IoT activations impact each other, the more efficiently all teams can optimize activations to create better customer experiences.

- ✓ Infuse a culture of collaboration into IoT activations (and experimentation), from ideation to implementation to ongoing iteration
- ✓ Embed reporting and feedback mechanisms into technology workflows
- ✓ Train analysts responsible for listening, measurement, and testing to surface and share data analysis that is actionable for specific functions

#### Focus on Data Integrity First



Once primary stakeholders have a clear sense of use case prioritization and cross-functional needs, they can then develop a sense for what data is required to properly execute. Ensuring data integrity is a critical first step in the design and deployment of all technology systems, connected products or services, indeed anything that stores, processes, or accesses data. ‘Integrity’ of data includes, but isn’t limited to, the selection, collection, analysis, handling, reporting, publishing, and ownership of data. Understanding data sources, types, and internal and external (e.g. regulatory) requirements is a prerequisite to systems integration as enterprise data may require substantial cleaning, processing, and customization to be functionally and ethically usable.

- ✓ Invest in data clean-up
- ✓ Monitor all internal and external requirements for data integrity
- ✓ Prioritize data integrity across all data sets



## Integrate Technology, Standards, & Data for Interoperability

Once strategists have a clear sense of how IoT can support key business objectives, they must prioritize integration of existing systems and evaluate the need for new systems. Systems most critical to consumer-facing IoT activations will vary by application; what is most important is that companies align systems integration with use case prioritization.

Furthermore—a real challenge to realizing connected services—brands must plan activations to be as technologically standardized as possible. Standards across connected devices are inconsistent today, but building out connected products and services to be able to ‘play nicely’ with other hardware, software, APIs, computing and connectivity protocols, etc. is critical for contextual relevance and driving adoption. “If you want your connected service to be reliable, there must be clear standards; no silos by individual manufacturers,” says Kurt Hoppe, former head of Smart Home North America at LG.

Data integrations are another area for prioritization, as these integrations help build out the ability to deliver services based on context, but are not accomplished overnight or without immense challenges around structure, speed, ownership, privacy, security, and beyond. Some brands we interviewed keep user and device data separate due to safety concerns around personally identifiable information in the event of a hack or data breach.

- Prioritize systems integration based on use case implementation
- Prioritize (and build for) standardization, even across the smallest pilots
- Prioritize data integration to account for multiple use case deployment over time, as safely, securely, and ethically as possible



## Infuse Content Strategy into IoT Use Case Prioritization

Content is the ‘atomic particle’ of all brand interactions.<sup>27</sup> As we embed sensors into products and experiences, they become platforms for dynamic [digital] content. NEB, for example, runs a track loop of marketing material on refrigerator screens with a default screen saver for specific campaigns. Repeatedly, brands, vendors, and agencies interviewed emphasized the importance of integrating content strategy into IoT activations. Whether providing troubleshooting guides on the connected washing machine, sending location-based promotions triggered by beacons, or providing information for real-time decision-making, brands must ensure the proper tools, workflows, training, and assets are incorporated into IoT initiatives and reflected across any channel, at any time.

- Think beyond the smartphone; content deployments in IoT are subject to any connected interface and should be consistent across touchpoints
- Integrate key content systems (e.g. CMS, DAM) across all sensor-enabled product systems (CRM, ERP, analytics, finance, etc.)
- Consider how connected experiences (and insights from these experiences) impact paid, owned, and earned media convergence

## IV. ENGAGE WITH TRANSPARENCY

### Prioritize Transparency in Consumer Communications



The Internet of Things introduces a new paradigm of interaction between brand and consumer, meaning that traditional standards for messaging and transparency won't cut it. If brands are asking customers to adapt to digital engagement techniques in the physical world, they too must adapt how they convey the purpose, security, and value of such techniques. Specifically, brands must embrace new standards of transparency, articulating how (and what) consumer data they are collecting, how it is used, shared, stored, etc.

"Be religious with clarity: if the value is there, consumers will share," says Alexis Rask, CRO of Shopkick. Our research found that most brands are not communicating the value exchange (i.e. what's in it for me?) to customers at all today, and in fact any communications around data collection and usage exist buried deep in the terms of service.

- Use transparency to build trust and differentiate the experience; today's standard is low transparency on the brand side and low expectation on the consumer side
- Connect the dots of value exchange: what value will customer data offer customers?
- Monitor emerging regulatory requirements, including international variations



### Brands Have an Ethical Obligation to Default to Privacy

There are many reasons why brands should default to privacy when deploying sensor-enabled experiences, chief among them, the ethical obligation to protect consumers. Transparency and accountability are also critical because it is simpler to opt-out of connected devices. Brands now have an obligation toward a clear sense of openness because the consumer has more control over their own experience than ever before.

"Disabling cookies across browsers, computers, etc. is pretty difficult. By contrast, it's easy to opt out on a physical object in your house -- you just stop using it," says Jamie Beckland, head of product at Janrain, a customer identity management platform. Easier opt-out spells risk for brands as deterring customers diminishes ROI on IoT implementations—which aren't inexpensive. With new security and privacy breaches surfacing everyday, consumers are wary of sharing their data. Address these fears, and your understanding and accountability of them head-on.

If brands are asking customers to adapt to digital engagement techniques in the physical world, they too must adapt how they convey the purpose, security, and value of such techniques.

- ✓ Articulate how the company is accountable for customer privacy (e.g. anonymity, security, data, sharing, incase of breach, etc.)
- ✓ Provide customers simple ways to access support and content addressing their privacy (e.g. Dedicated support lines, FAQs, community, etc.)
- ✓ Prioritize privacy sensitivities, especially when deploying multiple use cases at once



### Craft Experiences to Reflect (& Respect) Existing Relationship

While the reward of IoT can be powerful (and lucrative), IoT activations also carry a certain amount of risk: in investment, service failure, creep-factor, and customer turn-off. Brands must balance this risk by providing clear notifications for opt-in, opt-out, value-exchange (i.e. what's in it for me), and instant gratification. Brands must also consider urgency, privacy, consumer instigation, and existing relationship when serving promotions. "Loyalty programs give brands more rope when it comes to balancing risks of creep," says Michael Hibbison, VP of marketing & social media at Home Depot. "The way we think of it is we will be as personalized as you are loyal." There is a fine line between creep and delight; brands must align IoT activations against depth of relationship above all other targeting capabilities.

- ✓ Tailor messaging and call-to-action (CTA) to depth of existing relationship (prospect, customer, loyalty member, advocate, etc.)
- ✓ Develop clear triage for how experience differs based on depth of existing relationship
- ✓ Incentivize deeper engagement through incremental outreach, reflecting depth of relationship (e.g. persona, phase of customer journey before location, purchase history)



### Anticipate Messaging Evolution

As IoT strategies evolve to incorporate more use cases, companies must simultaneously evolve messaging around the collection and use of customer data so that it is clear how data collection in one area might impact sensor-enabled experiences in another. For instance, if integrating loyalty data into an existing beacon-triggered promotion activation, provide clear messaging to consumers as to how and why promotional or informational content is now more personalized than before. Data mediation scenarios, wherein brands partner to gain access to 3rd party customer data, complicate this. This underscores the brands' obligation towards transparency and communicating the 'What's in it for me' ('WIIFM') value exchange.

Brands must also be empathetic to customers' understanding of who (which brand) is engaging with them as they move from one connected environment to another. "In our context, there is the mall, the stores in the mall, the telecom provider(s), and even advertisers," says Andy Hedges, director of shopping center management at Westfield Mall. "The challenges for us all is [not just] securing data privacy, but providing a seamless, intuitive experience for the end user as they move about."

The more brands act with transparency and accountability, the more this fosters trust, which is the key ingredient for inspiring ongoing engagement and relationship with the brand.



- ✓ With each new IoT activation, consider how to reflect new capabilities (and potential partnerships) when messaging to consumers
- ✓ Articulate how new data streams impact (improve) value proposition when messaging to consumers
- ✓ Use transparency and accountability as tools for fostering trust



### Move Strategically—which May Mean Conservatively

The reality is that, while many brands are dipping their toes into IoT, we are in the very early days. Consumers are already suffering device and media fatigue and brands must be sensitive to this reality, in addition to the fact that consumers aren't demanding more connected products, more mobile apps, or location-based targeting, etc. Cultural hurdles aside, the space is also still something of a wild west in terms of standards, regulations, and industry best practices. "Don't be afraid though," encourages Kristin Billhardt, Internet of Things marketing strategist at Dell OEM Solutions, "Don't wait for standards to be worked out because it's going to take years. Just start small and build on that. It's a wide open field for innovation and disruption." Brands should see these early days, consumers' low expectations, and an open [competitive] landscape as opportunities to differentiate. Ask what is doable and make a move. Begin with calculated baby steps, taken boldly, but strategically executed.

- ✓ Start small, with highly scoped (single use-case) initiatives for proof of concept
- ✓ Define attainable and actionable key performance indicators (KPIs) before deploying; use these to drive departmental understanding and support
- ✓ Aim not to re-invent existing customer behaviors, but to replace them with subtle tweaks that deliver immediate value.

## CONCLUSION

*Technological progress has merely provided us with a more efficient means of going backwards.*  
- Aldous Huxley

While perhaps Huxley wouldn't have favored the Internet of Things, there is great wisdom in his words. The Internet of Things and its vast orbit of connected interfaces have historically unprecedented potential, but the truest role of IoT is to make technology more invisible so that we can reacquaint ourselves with the world around us.

Viewed from this perspective, IoT shouldn't be about technology (perhaps you noticed the technology-agnostic approach to this research?). Rather IoT is about enhancing each of our unique contexts in ways both intuitive, timeless, and familiar, as well as seamless, enchanting, even magical. Let this next phase of the Internet detach us from the tethers of our smartphones, enhance our understanding of ourselves and our impacts, and allow us to use digital connections to foster deeper connections with each other and our planet.

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## ECOSYSTEM INPUT

### Brands

**Maureen Silber**, Senior Marketing Manager, The Chamberlain Group  
**Venky Balakrishnan Iyer**, Global VP of Digital Innovation, Diageo  
**Michael Hibbison**, VP Marketing & Social Media, Home Depot  
**Kevin Meagher**, VP & GM of Smart Home, Lowe's Home Improvement  
**Joel Yarbrough**, Senior Director of Global Solutions & Verticals, PayPal  
**Andy Hedges**, Director of Shopping Centre Management at Scentre Group, of International Westfield Corporation  
**Ruben Melo**, Business Systems Manager, New England Biolabs  
**Kurt Hoppe**, Former Head of Smart Home Solutions for North America, LG  
Manufacturer of packaging solutions (preferred anonymity)

### Vendors

**Nathan Pettyjohn**, CEO, Aisle 411  
**Bob Dahlberg**, VP Business Development, Arrayent  
**Miguel Castillo**, CEO, Carriots  
**Maciej Kranz**, Head of IoE, Cisco  
**Jim Learish**, VP Service Delivery, DeCurtis Corporation  
**Derek Barnier**, VP Business Development, DeCurtis Corporation  
**Kirsten Billhardt**, Internet of Things Marketing Strategist, Dell OEM Solutions  
**Niall Murphy**, CEO, EVERYTHING  
**Jamie Beckland**, Head of Product, Janrain  
**Kevin Bardos**, VP Products, Xively of LogMeIn  
**Paddy Srinivasa**, VP Product, Xively of LogMeIn  
**Sean Lorenz**, Senior Product Manager, Xively of LogMeIn  
**Jack Dashwood**, Senior PR & Marketing Manager, Metaio  
**George Shaw**, Head of Research & Development, RetailNext  
**Charlie Isaacs**, CTO for Customer Connection, Salesforce.com  
**Alexis Rask**, Chief Revenue Officer, Shopkick  
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### Agencies

**Marko Mueller**, Digital VP Group Director, Edelman  
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**Craig Kallin**, Senior VP Business Development & Marketing, Primacy  
**Gleb Popov**, AVP of Technology & Apps, Primacy  
**Alex Lirtsman**, Chief Strategist at Ready Set Rocket  
**Cheryl Metzger**, Director of Creative Strategy, OglivyOne Chicago  
**Ash Kumar**, CEO, Tapsense

### Experts

**Andy Smith**, General Partner, Center Electric  
**Jay Adelson**, General Partner, Center Electric  
**Kristin McDonnell**, Advisor, Investor, and Strategy Consultant  
**Chris Massot**, Partner, Claro Partners  
**Robert Neivert**, COO, Private.Me

## METHODOLOGY

Altimeter Group conducted qualitative research and analysis for this report, including input from:

- Interviews with 9 brands
- Interviews with 18 technology vendors
- Interviews with 6 agencies
- Interviews with 5 industry experts
- Briefings from technology vendors and start-ups

Input into this document does not represent a complete endorsement of the report by the individuals or companies listed below.

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# About Us



## Jessica Groopman, Senior Researcher

Jessica (@jessgroopman) is a Senior Researcher with Altimeter Group, where she covers the Internet of Things. The focus on her research is on the application of sensors for consumer-facing businesses, with an emphasis on customer experience, privacy, contextual marketing, automated service, and wearables. She is featured on Analytica's top 100 influencers in the Internet of Things. Jessica blogs about her research at [jessgroopman.com](http://jessgroopman.com) and is a regular contributor to numerous 3rd party industry blogs. She is also a contributing member of the FC Business Intelligence IoT Nexus Advisory Board. Jessica has experience conducting business, technological, and anthropological research.



## Rebecca Lieb, Industry Analyst

Rebecca Lieb (@liebblink) covers digital advertising and media, encompassing brands, publishers, agencies and technology vendors. In addition to her background as a marketing executive, she was VP and editor-in-chief of the ClickZ Network for over seven years. She's written two books on digital marketing: *The Truth About Search Engine Optimization* (2009) and *Content Marketing* (2011). Rebecca blogs at [www.rebeccalieb.com/blog](http://www.rebeccalieb.com/blog).



## Charlene Li, Founder and CEO, Analyst

Charlene Li (@charleneli) is Founder and CEO of Altimeter Group and author of the New York Times bestseller, *Open Leadership*. She is also the co-author of the critically acclaimed bestselling book, *Groundswell*, which was named one of the best business books in 2008. She is working on a new book on the digital transformation of leadership, to be published in March 2015 by Wharton Digital Press.

Altimeter is a research and consulting firm that helps companies understand and act on technology disruption. We give business leaders the insight and confidence to help their companies thrive in the face of disruption. In addition to publishing research, Altimeter Group analysts speak and provide strategy consulting on trends in leadership, digital transformation, social business, data disruption and content marketing strategy.

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# How to Work with Us

Altimeter Group helps organizations understand and take advantage of digital disruption. Our research is applied and brought to life in our client engagements. In conjunction with our research on customer-facing Internet of Things (IoT), there are several ways Altimeter can help you with related business initiatives:

- **Education and Workshops.** Engage an Altimeter analyst to help make the business case to executives or arm strategists with new insights on consumer-facing IoT. Schedule an advisory session or team workshop to build IoT knowledge and explore opportunities for your business.
- **Speeches, Webinars, or Reports.** Educate and inspire your audience with thought leadership and research-based content on consumer-facing IoT.
- **Market Assessments and Opportunity Analysis.** For brands or vendors, retain Altimeter for research-based assessment of your opportunities, or an analysis of competitors, innovators, and emerging best practices on consumer-facing IoT.

To learn more about Altimeter's offerings, contact [sales@altimetergroup.com](mailto:sales@altimetergroup.com) or visit <http://www.altimetergroup.com/how-to-work-with-us>.