

DESIGN

The Internet of Things Needs Design, Not Just Technology

by Scott A. Nelson and Paul Metaxatos

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Gartner Research predicts that the typical family home will contain as many as 500 networked devices by 2020. Similarly, Ericsson forecasts 50 billion connected “things” by the same date. Reaching these lofty projections over the next four years, however, will require a fundamental reorientation in the way that technologists and product designers work together to create successful “connected” personal devices and home appliance

products. This evolution to “Internet of Things (IoT) 2.0” will be difficult for many companies to achieve – not for lack of technological expertise but because they’ll fail to recognize the value of design in connected product development.

Machine-to-machine (M2M) connectivity – the forerunner of consumer-focused IoT – has been around for decades. Overwhelmingly, those IoT 1.0 applications pushed technology to address B2B market requirements.

Product design considerations in the IoT 1.0 world are not critical to persuading customers to adopt offerings. Enterprise IoT buyers seldom require great design, because most often the buyer is not the product’s end user. Fleet logistics companies, for example, monitor the condition and location of their vehicles. Their developers focus on meeting operational and environmental requirements, caring little about the physical appearance or user experience of a dashboard- or engine-compartment-mounted device that monitors vehicle data.

However, as the application of IoT expands to a broader range of commercial opportunities, enterprise B2B applications have become B2B2C. Fleet vehicle operators now directly engage with IoT devices that can measure their physical condition as well as their driving behavior. As B2C companies rush to exploit new IoT applications, pushing technology to potential end users no longer works. Increasingly, the pull of user experience will drive market demand, and product design will be critical to getting consumers to adopt offerings in this new IoT 2.0 world.

The fundamental principle in the IoT 2.0 era is that IoT is *not* the end product. The IoT is not an iPhone, a networking application, or a wearable device. Customers do not buy IoT. In fact, studies suggest that most consumers are unaware of what IoT is or does. IoT connectivity can enhance a product’s value, but it can never serve as the rationale for the customer purchase.

This misunderstanding of IoT's role is contributing to a growing list of commercial failures by product manufacturers. Their excuses for missteps include security issues, complexities of managing product life cycles, and lack of interoperability. But most often the root cause is that IoT companies with traditional B2B business models and B2B2C distribution channels have been pushing IoT technology rather than addressing the pull of customer needs and tastes.

One notable example of this type of IoT failure involves the demise of Revolv, a home automation hub designed to communicate with any light switch, garage door opener, home alarm, heating or AC unit, and entertainment system. The product's manufacturer, Nest, which is now owned by Google, recently informed Revolv customers that their devices would no longer function. So Revolv now serves as a classic example of an IoT product that was long on technology and features and short on addressing the needs of customers.

This kind of "tech push" occurs when both management and engineering discount the value of effective design for representing the emotional and physical connections to the end user. Product function is valued more highly than the expected or actual user experience.

When end users fail to engage with an IoT offering, technology is most often viewed as the problem and solution: "We need better security." "We need to be interoperable with these other products." "We need a smartphone app." The "we," however, seldom includes the end user's perspective, and so market acceptance continues to suffer until management pulls the plug on the product.

Effective product design and innovation are the result of an integrated, thoughtful process that focuses on making things that simplify, delight, or enrich the lives of people. The IoT, because of its innate technological integration and new customer experiences, demands a significantly higher level of design and technology partnership.

Unfortunately, the perspective of many technologists (as well as business leaders) in the IoT is that product design as a professional discipline contributes very little to a product's intrinsic value and market appeal. Changing this well-entrenched bias will not be easy. But developing mutual respect and creating an effective technology-design dynamic are essential if the connected device market intends to move beyond its current hype bubble over the next few years.

Here are five ways that technology and design can build successful partnerships to succeed in IoT 2.0.

Agree to a clear problem statement. Every new product development is based on addressing some problem or opportunity, but often those issues – obsolescence, margins, quality – don't reflect the needs of the customer. Problem statements should assess value to the customer, covering fundamental questions including, “Why does this matter?” and “What will they pay?” This inquiry requires someone who is experienced in user-centered design and the design-thinking processes. If your team cannot define a problem that truly matters to your customer or their customers, then you don't have a viable product.

Appoint a systems lead who understands design. Your development team likely has a lead systems person who understands the technology stack, but for an IoT offering, that individual must also possess an understanding of the user and their experience. If your systems lead does not appreciate how design delivers those insights, find a new lead.

Work with designers who understand technology. IoT also requires a technology-aware approach to design. Product experience now includes upgrades, adapting to other products, personalization, and big data. Designers must work closely with technology teammates to understand what's possible and what's necessary in the design of the customer experience.

Follow a build-test-learn process. More than other technologies, IoT development benefits from the lean start-up process. The expectation of recurring revenue demands a recurring customer experience in a market with a continuous stream of new competitors. In this environment, churn is worse than a lack of sales, because it reduces revenue after customer acquisition costs are made. Designers can mitigate churn by building an experience that customers desire, observing their behavior, and sustaining the experience based on what they learn.

Simplify for success. Consumers demand simple solutions to everyday problems. Friction of any kind in the user experience, even for something as mundane as having to change batteries, will give users reason to stop using a product – which is death to an IoT offering. Technologists and designers must approach IoT development with a “less is more” mandate.

The IoT is driving the next wave of business transformation. The first wave of IoT change was fueled by technology and validated the potential of connectivity. The next wave will be led by companies who will achieve mass-market success by changing the way they develop IoT offerings, which in turn will change the way they do business.

This business evolution will require a new partnership between those who understand and advocate for the user and those who understand and integrate the technology. Together, they will create IoT 2.0.



Scott A. Nelson is chief executive and chief technology officer of Reuleaux Technology, a Minnesota-based consulting firm that helps companies with strategy and new business development in the Internet of Things (IoT).



Paul Metaxatos is a co-founder of and a principal at Motiv, a Boston-based product design and brand-development firm. He has worked with a number of well-known consumer product companies, including Keurig, Culligan, and Vitamix.

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Ken Figueredo 8 hours ago

From a strategic perspective, its more than an issue of design over technology, particularly where companies have to mitigate product/service-longevity risks.

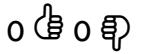
The Google/Revolv situation is a warning that even the largest 'market-maker' businesses lack the institutional capacity to deliver sustainable IoT solutions. Institutions such as 3GPP, the IETF and W3C, by contrast, have a long track record for delivering standards-based technologies which set the stage for affordable solutions (how cheap has mobile become over the last 20 years?) as well as competitive eco-systems (supplier choice).

Over the medium to long term, these are more prudent technology eco-systems around which to apply

design, user experience and technology-management disciplines.

Ken @MoreWithMobile

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