

# STRATEGY HQ

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## The Internet of Everything

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**The Internet of Everything is a term used to describe the proliferation of smart, linked products – and the new opportunities therein. This phenomenon will forever alter the competitive landscape, creating a revolution with far -reaching strategic and operational implications. Is your business prepared?**

# ARE YOU READY?

**The inevitable interconnectivity of everything** By Kristi Castano

For some, the “Internet of Everything” (IofE) conjures up a realization of exciting technological promises.

Scenes from *The Jetsons* come to mind: magical appliances that create food upon request, house cleaning robots with attitude, and “cars” that fly themselves. These things of fantasy and imagination, first introduced to us in the 1950’s, seem to be coming to life before our eyes at an increasingly rapid pace: smartphones, drones, and vacuuming robots. It certainly is an exciting time to be alive!

For others, the IofE seems like the plot of a thousand sci-fi horror films! Think *War Games* or *Colossus*, where independently minded computers come close to causing worldwide nuclear annihilation. *Transcendence*, where computers were akin to Satan himself or *The Matrix*, where machines take over the planet and proceed to enslave the entire human race.

Then there is the 2013 academy-award nominated film *Her*. This disturbing “romantic-comedy” introduces us to Theodore Twombly, an introverted, depressed, soon-to-be-divorced father living in a not-so-distant future where technology is pervasive and largely voice-activated. We watch as Theodore

turns his artificially intelligent operating system “Samantha” into a virtual girlfriend who ultimately outgrows him, rejects him, and transcends to some “hyper-intelligent” OS existence. Whoa, freaky stuff!

We have long been fascinated by both the amazing possibilities and the dark side of relying on machines. The seemingly obvious trade-offs between the conveniences artificially intelligent technology promises and some bleak future. A future where human usefulness has been overridden, and the value of human life diminished. A future where life itself is replaced by over-zealous, intelligently-designed computers bent on ultimate order and control.

So when confronted with the very real and growing IofE, should we embrace the promises these technological advances will bring? Or should we run for the hills?

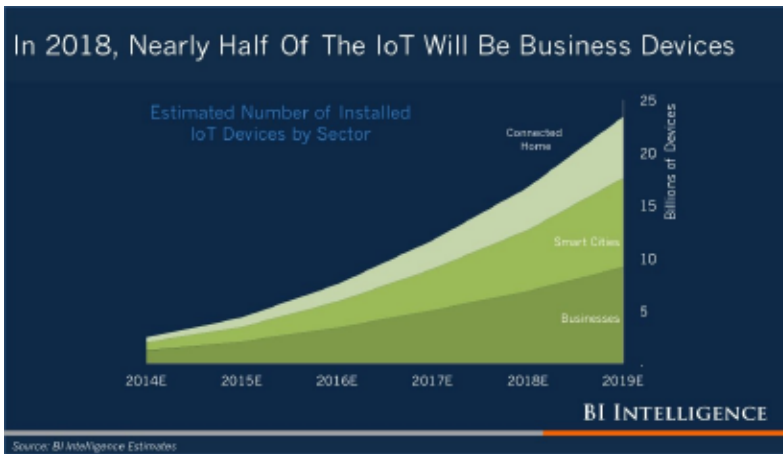
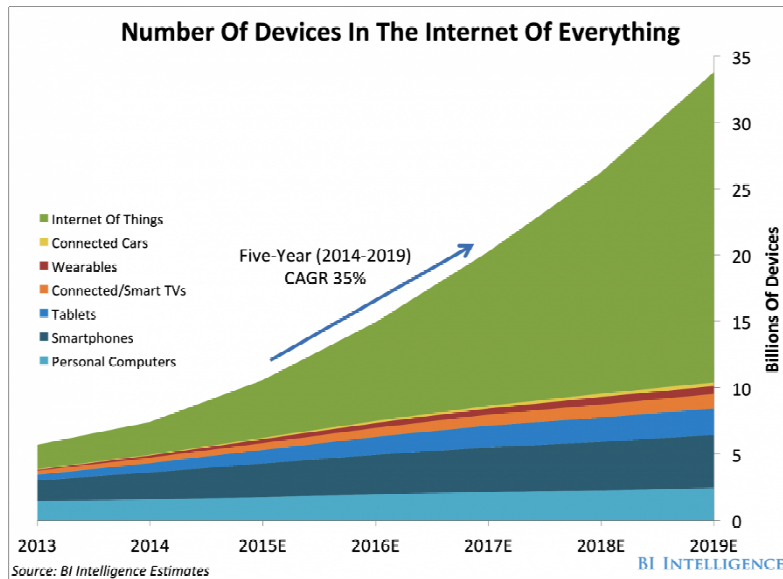
Well, in truth, the question is moot. Whether we like it or not this technology ubiquitous, sci-fi prediction of the future is well on its way to becoming a reality. Only we may not see the actualization of this future in the way most might expect.



Meet “Geminoid F”  
- a human-like robot  
created by Hiroshi  
Ishiguro created for  
human companion-  
ship. (source: Popular Science)

While intelligent appliances and self-driving cars are already here, their cost (and consumer trepidation) will likely prevent these cool gadgets from being adopted by the masses overnight.

Technology will likely take the path of least resistance and take hold in the corporate sector first.



Graphics Source: [www.businessinsider.com/internet-of-everything-2015-bi-2014-12/#-48](http://www.businessinsider.com/internet-of-everything-2015-bi-2014-12/#-48)

According to Business Insider Intelligence, the IofE will be the world's largest device market worth close to \$35 Billion dollars by 2019—compared to just \$10 Billion today. Nearly half (10 billion) of the estimated 24 billion connected devices are predicted to be owned by businesses – compared to approximately 6 billion consumer-owned devices.

While devices that enable consumers to control their home heating system from their tablet or phone

(like Nest) are convenient and offer savings to the homeowner; these same devices executed on a corporate scale could equate to billions of dollars in increased efficiency for the business sector. The application of connected devices for manufacturing, transportation, healthcare and other industries will enable more efficient management of everything – product development, operations management, customer service and even strategic planning.

Much like the introduction of

robotic technology revolutionized the auto manufacturing industry in the 1960's, these connected devices have the potential to greatly change the way corporations manage their businesses and employ actual humans. Corporations that can afford to invest in new technology and connected devices will reap the benefits of this amazing IofE age.

Adoption of more advanced connected devices is already on the upswing in foreign markets. Japan, for example, is using IofE connected devices in long-term-care and Alzheimer patient facilities in the form of robotic companions. Right now these companion robots take the shape of pets, specifically baby seal cubs. Robotic engineers/artists are creating amazingly life-like androids capable of interacting with patients in a compassionate, emotional, and supportive manner. Roboticist, Hiroshi Ishiguro, has developed just such a robot - "Geminoid F." Ishiguro's companion robots transcend "android" and create a feeling of **real presence of life**. For a closer look at this technology in action, check out the YouTube video Female Android Geminoid F and ATR.

Then there is Forbes recent video of a similar android addressing the crowd from the Toshiba booth at the Consumer Electronics Show. The goal is for these companion androids to recognize and convincingly mimic human emotions. Freaked out yet?

Beyond increased efficiencies, beyond changing the literal face of healthcare, the IofE will change economies on a much broader and global level.

As the World Economic Forum's January, 2015 report suggests, the IofE will create a new worldwide

“outcome economy fuelled by software-driven devices; innovations in hardware; and the increased visibility into products, processes, customers and partners.”

This will be a new age of collaboration across business partners to provide better outcomes for customers. An age of massive data collection – requiring new ways to harness and interpret these incredible volumes of intelligence. Of course, the world will also need to find a way to secure this data from potential hackers, thieves, and other ne’re-do-wells; something our current security systems seem unable to guarantee with any consistency.

If all these prognosticators and technology experts are to be believed,

it seems the entire human race is at the precipice of something big. Something akin to the industrial revolution more than two-hundred years ago, or the more recent Internet revolution of merely 15 years ago.

This IofE revolution will see its share of new and disruptive companies and blossoming new industries as well as its share of has-beens. Companies too slow to change, unable to innovate or grasp the true breadth and scale of what’s coming will be left behind.

What remains to be seen is what this new revolution will do for the average middle class or low-income citizen. Certainly any low-level, manual or unskilled jobs that remain are going to continue to disappear. What will the work of tomorrow look like? Will

there be enough work to go around?

Will the IofE be good for the human race and live up to those promises made decades ago? Convenient, helpful, magical machines that enable people to rise to higher purposes. Or will they simply consolidate wealth, increase the divide, and make for uber-efficient global powerhouses.

In the end, we are left with no certainty other than the assurance that this change is on its way. As a matter of fact, it’s already here. The best thing to do is prepare for it... and maybe skip the sci-fi channel for a while.

## Quick Facts

# 250,000,000

By 2020, there will be a 250 million connected vehicles on the road, enabling new in-vehicle services and automated driving capabilities. Source: Gartner

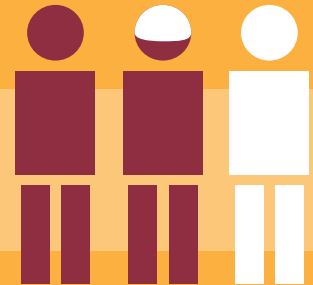
7%

of consumers own a wearable IoT device.

4%

of consumers own an in-home IoT device.

Nearly two-thirds of consumers plan to buy an in-home device in the next five years.



60% of the one billion IoT devices that will be sold in 2015 are to enterprises. This proliferation of consumer and enterprise connected devices offers an opportunity to build deeper understanding of how we will use a wide range of products.

In 2015, wearable technology ownership will double—increasing from 7% in 2014 to 14%.

By 2016, wearable technology is expected to double again and reach a total of 28% adoption rate.

Source: CMO.com

**W**e've heard that we will soon be absorbed with the Internet of Things. All devices in our homes, cars, workstations, exercise equipment, clothing will have the ability to connect to the Internet and overwhelm us with analytics to make our lives better. Someone had the understanding to immediately coin the phrase, "The Internet of Things" which has somewhat involved into the phrase, "The Internet of Everything". The realization of how this transformative experience will affect our lives and interaction with our devices has started an evolutionary thinking that this really is about the "The Internet of Me".

The Internet of Me really amounts to the services

and connections that will enrich the daily activities of individual's lives. No additional complications or hardships should be involved with getting and staying connected. Data and content will be weaved into everyday lives in a continuous cycle of feedback on how much and how efficient our lives are. The aim is to be connected, but not interrupted. This is the key understanding for all brands to weave into their marketing plans. Brands need to strive to interject connections into lives that add convenience and time to an already pressure packed life. This is the mantra that needs to hang in every cubicle in the digital marketing department and in the hallways of the C-suites. "Connective and Additive or Deleted and Ignored". The temptation by the executives to add more and more advertising messages will need to be tempered by the consumer behaviorists and data analysts of the company who understand the negative weight of additional communications that detract from the consumer experience.

Limited interaction is counterintuitive to many business leaders who often do not understand that the Internet of Me means high quality and low frequency interactions. Every connected device will need a smartphone app in order to function. The smartphone

is the first filter that will be put in place so that only high quality interactions make it through. Consumers will tune out quickly to those brands that do not add value. In the Internet of Me, wearables will become the additional filter that will screen ineffective interruptions from our lives. Consumers do not want to be "advertised" by undisciplined brands. Their wearables will become the remote control to their other remote control, the smartphone. Once they decide that a brand has overstepped the boundaries of trust and usefulness,

# The Internet of Me

by Rohan Rodney



consumers will simply disengage and find it virtually impossible to gain back into the customer's trust.

In addition to the high quality / low frequency tactic, brands need to aim for a one brand app for multiple products. In the Internet of Everything, a deluge of apps will be thrown at consumers from all direction. The natural reaction will be for consumers to yearn for simplification. Brands should see this as an opportunity to create such great convenience and time savings that it becomes painful for consumers to untie themselves. Brands must aim to generate emotional separation anxiety between their customers and the brands' app. Make it as painful to untangle as it would be for anyone to unwrap all auto-payments from their bank account and then re-establish the same auto-payments with a new account. No one wants to do that. Do not aim to add layers of complexity into the relationship, but strive to add so many layers of value that it just makes sense for consumers to add additional products from the brand into the equation for increased efficiencies.

Connected and additive is the theme to keeping your brand relative in the Internet of Me. There should be no assumption that consumers will be willing to let any brand into their connected lives. There will be a low



tolerance for brands who add little or no value into the equation. Imagine how the “unsubscribe” function will operate in this atmosphere. Once a consumer chooses to unhook from a brand, it may be gone forever. Traditional brands must not approach this transformation as just additional real estate in which they get to operate. Brands must develop defensive

strategies to protect their hard earned territories by continuously adding convenience and time to their customers’ lives. These are the resources that are very hard to quantify, but hold unparalleled value. Ensure that at the epicenter of the Internet of Everything is the Internet of Me.

# IoT: Super Complicated?

By G.A. Bivens

Today there is a proliferation of discussions regarding the Internet of Things (IoT). For the purpose of this discussion, the Wikipedia definition is sufficient as a point of reference: IoT is the network of physical objects or “things” embedded with electronics, software, sensors and connectivity to enable it to achieve greater value and service by exchanging data with the manufacturer, operator and/or other connected devices.

You might say “that’s nice to know, but what does it mean to me?” There are some deployments of IoT that we may be familiar with though we don’t think of them as IoT, but just interesting technology implementations. Things like the smoke/CO2 detector that can communicate with the thermostat; the cow that communicates to the farmer, through sensors, that it has had a change in health.

There is a parallel between horology and IoT (I, like many people, have an appreciation for watches). The idea of the IoT is that a series of things can be accomplished through the internetworking of disparate systems resulting in benefits beyond that originally envisioned. In horology there is the concept of complications. Simply put, a complication is anything that a watch does in addition to telling time. Leveraging the same core movement does this.



Patek Philippe’s Sky Moon Tourbillon is one of the high points of horology. Only 3-5 of these wristwatches will be made annually due to its complexity. There are some 686 components of the movement. The Sky Moon Tourbillon has some 12 complications (features beyond the hour of the day) on 2 dials, front and back. Among the complications is the ability to audibly indicate the meantime via two cathedral gongs. It has earned the classification super complication.

There are many IoT applications that pose to help make life more manageable. Things like GlowCap® which is a physical cap for medications. However,

The GlowCap® service keeps track of your scheduled medications. It includes automated reminders, push-of-a-button refills, personalized reports and real-time updates. This takes a purpose built device (bottle cap) and adds complementary capabilities, beyond those initially conceived.

According to Gartner, currently the spending and investment in IoT is not evenly dispersed. Many investments are being made by the technology vendors to acquire, partner, market and prepare themselves for enterprise, public sector and consumer adoption. Utilities, industrial sectors, connected car, healthcare and smart city remain the forefront areas of investment. Maturity levels in the IoT space are sector specific.

While promising to revolutionize the way things interact and how things are done, the IoT also brings with it a series of complicated choices and risks that have to be considered. An enterprise or individual will need to determine how much integration/complication is necessary, manageable and affordable. New levels of connectedness and access to ever expanding amounts of data also creates overload that can lead to a lack of focus. How does a mature organizations decide which technologies are worth investing in? How can makers sift through everything to create something

meaningful? The IoT presents tremendous risks to both enterprises and to individuals if not managed properly. An increased threat surfaces and questions of data ownership and management are just a couple of the risk areas to mitigate.

Much like the name suggests, complications add a level of complexity to the movement of a timepiece. With that complexity comes a longer delivery time and a commensurate increase in the cost. The Sky Moon Tourbillon has a \$1.2M price tag. A more complex level of connectedness in an IoT application can increase time to value as well as negatively impact the budget of an organization.

The good news is that the IoT is early in the Hype Cycle. All indications are that the widespread adoption is 3-5 years out. In the interim, some core technologies will mature horizontally. This window gives an organization a window to plan thoughtfully what level of connectedness is required as well as what will be demanded by its end customers.

In the end, adopting an IoT strategy need not be “super complicated”.

# The Internet of Everything: The Past is the Future

By D. Cooper

## Yesterday

Think back to 1997. This phenomenon called the internet had everyone anxious and optimistic regarding its market potential. Business leaders, with star gazed eyes, watched as investors (well speculators) poured billions into this transformative model. The excitement was overwhelming, as the world committed to an unproven and unreliable concept – an idea that proceeded and misunderstood the consumer, business and government

requirements. Soon “irrational exuberance” ensued.

In 2000, the investors realized that excitement was devoid of ROI, and that the business models were hopes without substance. Yes, some innovations survived and thrived. Unfortunately, most perished as the bubble burst and the prosperity of the internet was debunked.

## Today

Fast-forward 15 years. There’s a new

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## Next Q: The Collaborative Economy

Everything is being redefined – products, services, industries and economies. More recently, networks of individuals and communities are collaborating, exchanging or sharing human and physical resources. This includes pooled creation, production, dissemination, trade, education, finance and consumption. What we consume and how we consume will never be the same.

phenomenon called the Internet of Everything. In its purest definition, the Internet of Everything means everyday objects will have network connectivity, allowing them to send and receive data. In other words, everything will be connected. For this context, the definition will include not only object-to-object connectivity, but also consider a comprehensive digital connectivity globally, both everything and everyone.

Here's how today's challenge seems contrary to 2000. Then, users were slow to engage new technology as the new economy overwhelmed its target audience. Companies wanted the consumer to quickly adopt the internet as the preferred methodology of doing business. Unfortunately, the masses lacked access, understanding and trust, deciding to wait before completely adopting and adapting. Currently, the user has taken hold of the internet, propelling consumption beyond expectation. Commerce to content to communication, internet-based platforms are leading the profitability charge. So what's happening?

Currently, most businesses are lagging the users/consumers investment in the internet. Over the past 15 years, consumers have committed resources (time and money) to the internet. They are more accepting of the

benefits and challenges posed, such as convenience and security. Consumers have assimilated, generating new expectations and requirements for those who serve them. Unfortunately, many leaders lack investment, expertise and strategy when it



**In changing roles since 1997, the consumer is committed to the internet and many businesses minimize or miss its value.**

comes to using the internet to build bridges with customers, and walls for competitors. In changing roles since 1997, the consumer is committed to the internet and many businesses minimize or miss its value. Many leaders view a sound internet strategy as a contingency when it's an absolute necessity. Why are some business leaders waiting?

### Tomorrow

Very simply stated, the internet is the backbone of all engagements (everything). It enables people to communicate and trade across barriers – exactly what everyone thought it would be, circa 1997. It connects products and services, customers, cultures, economies, industries and geographies – it's only the beginning. Yes, there are uncertainties. But the possibilities and challenges are exceeded only by the opportunities. Build your internet (digital) strategy now. Your business viability depends on it.