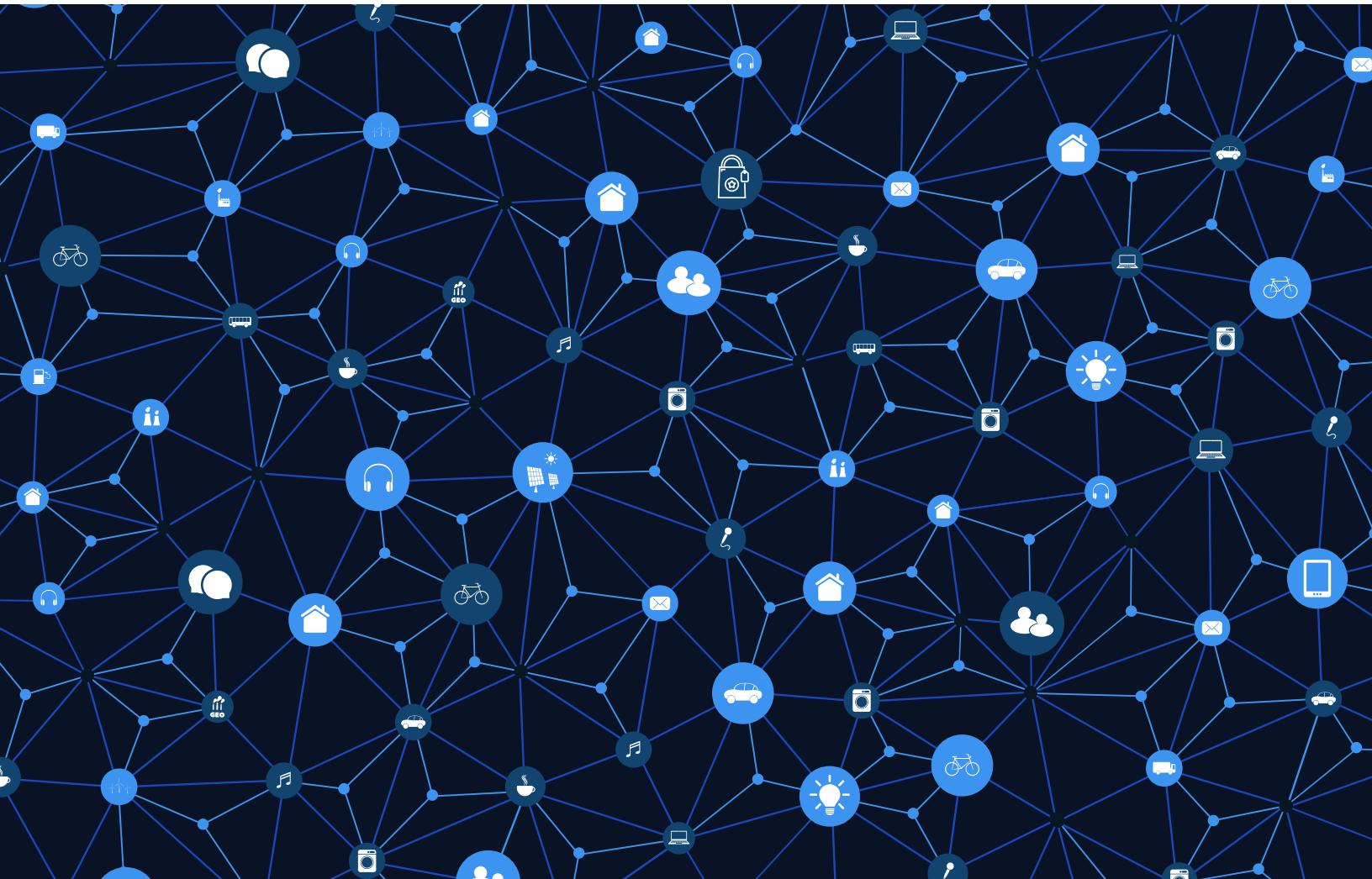
GoSpotCheck

Secrets to IoT Success

The tools and strategies enterprises are using to gain efficiency and increase competitive edge



IoT is simplifying every aspect of daily life

The future of "things" is changing. Since the term "IoT," or the "Internet of Things" was introduced in 1999 -- originally to refer to RFID technology -- the landscape has shifted to encompass nearly all devices with which we interact on a daily basis. Smart sensors, doorbell cams, fitness trackers, automated shopping lists: IoT is buzzing beneath the surface of most human routines today, and it's easy to see why. These devices keep tasks simplified in an accessible platform, ultimately making the lives of their users less time-consuming and less labor-intensive. By 2020, Gartner estimates there will be over **26 billion connected devices** to bridge the gaps between people-things, things-things, and people-people.

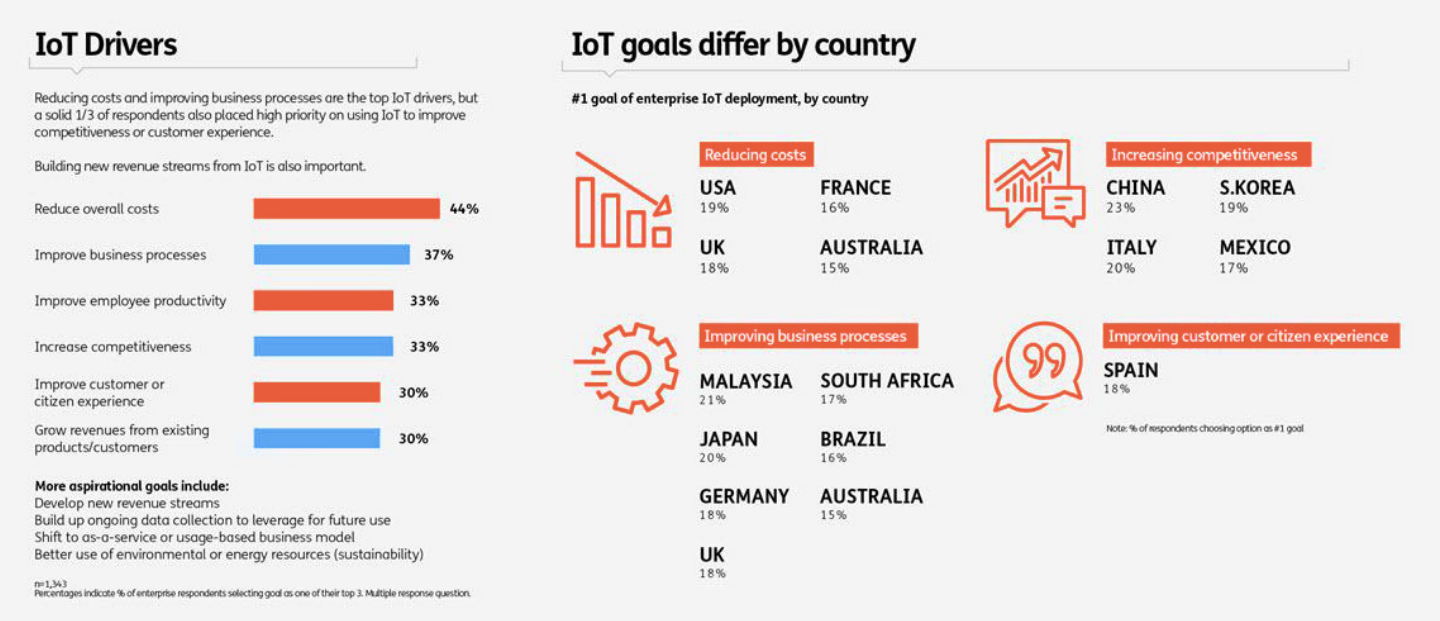
What is IoT?

> The Internet of Things, commonly abbreviated as IoT, refers to the connection of devices (other than typical fare such as computers and smartphones) to the Internet. Any stand-alone internet-connected device that can be monitored and/or controlled from a remote location is considered an IoT device.[2]

The global rise of IoT crosses virtually all industries

IoT isn't limited to personal use. Industries from restaurants to energy worldwide are deploying IoT devices to **cut costs and gain advantage amongst competitors**. While China is the global leader of adopting IoT to benefit enterprises and industries, its goals differ greatly from those in the U.S., according to analyst firm Ovum. Across all countries, **44% of respondents ranked reducing overall costs** as the primary driver of adopting IoT.[3]

In fact, according to an executive survey conducted by Forbes and Hitachi Vantara, a data storage systems provider, IoT is projected to save the industrial economy up to **$11 trillion in revenues in 2025, in addition to boosting corporate profits by 21% by 2022**.[4] With its powerful capabilities and ability to flex on an enterprise level, IoT is the most promising -- and cost-efficient -- tech solution on the market.

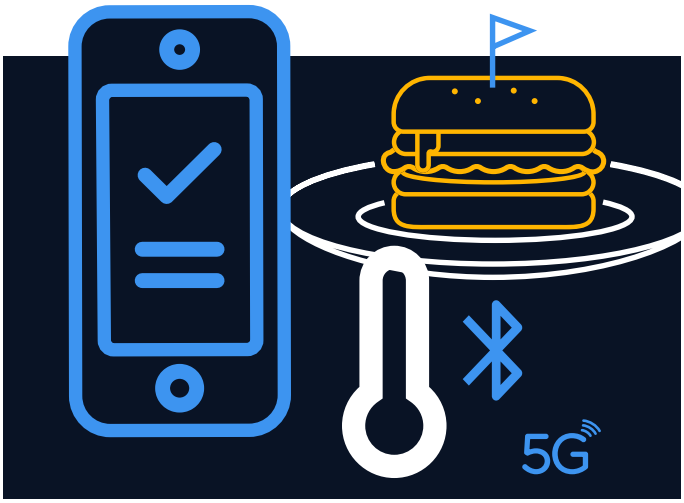


1 https://www.forbes.com/sites/jacobmorgan/2014/05/13/simple-explanation-internet-things-that-anyone-can-understand/#29ff530c1d09
2 https://www.businessinsider.com/internet-of-things-definition
3 https://ovum.informa.com/resources/product-content/iot-infographic
4 http://events.pentaho.com/rs/680-ONC-130/images/internet-of-things-forbes-insights.pdf

In comparison to other technology initiatives such as robotics, Artificial Intelligence and Augmented Reality, IoT was globally ranked as the most important emerging technology by senior executives across 9 diverse industries (Energy, Financial Services, Information Technology, Healthcare, Manufacturing, Retail, Telecom, Transportation). And while an organization's goals and devices may greatly differ depending on industry, the importance of implementing an IoT solution remains the same. Bryan Kester, Director of IoT at Autodesk, Inc., puts it simply: **"The IoT is so transformative that no company can afford to ignore it. A company that does will find itself at a major disadvantage on cost, agility, and in its relationships with customers."**

IoT adopters see scalable results

Tech-forward industries such as information technology and telecom may be at the forefront of early adoption of IoT. However, restaurants and auto manufacturers have found IoT solutions to streamline internal processes, increase sales, and significantly cut labor costs. In restaurants, the "connected kitchen" is transforming general restaurant operations, and will continue to grow considerably in the coming years. By 2020, **Gartner estimates the connected kitchen will contribute at least 15% savings in the food and beverage industry**.[5] Devices here include Wifi-enabled sensors throughout cold and hot food chains, which detect and record temperatures for HACCP compliance (Hazard Analysis and Critical Control Points). If any measurement falls outside of user-set guidelines, notifications are set via SMS for immediate corrective action, enabling restaurants to optimize processes for food safety. Odd Duck, a small, farm-to-table restaurant out of Austin, TX, implemented Toast Go™ handheld devices, and immediately saw results through increased sales, decreased ticket times, and employee retention. Turn times dropped from 30-45 minutes per table, and Odd Duck increased sales volume by $500,000 a year.[6] Additionally, with decreased wait times and servers' ability to spend more valuable time with guests, Odd Duck saw a boost in employee tips, which ultimately led to increased employee retention. When it comes to managing external restaurant operations, such as energy efficiency, there's an IoT solution for that, too. Take the third largest Pizza Hut franchise, the American West Restaurant Group, which reduced monthly energy usage by 15% after implementing EcoEnergy Insights' advanced platform to monitor energy usage. The franchise is on track to save an estimated $2 million in the next 5 years for 250 restaurants with this single IoT program.[7]



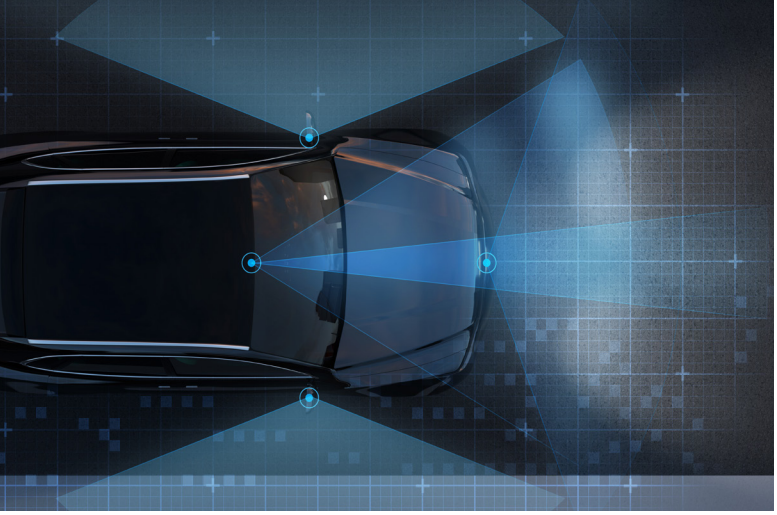
Less human interaction + more data = increased savings and efficiency

The auto industry has made significant moves toward the future of IoT, including self-driving cars and automated manufacturing processes. In 2009, Google introduced Waymo, a self-driving car designed to improve mobility and general road safety. In a way, Google's project is the epitome of IoT's very definition: It connects a driver to a car, a car to a road, and a road to a grid -- creating an ultimate system of communication between "things." Since then, IoV (Internet of Vehicles) has seen rapid growth worldwide: hardware spending alone reaching $250 billion, and $200 billion in module/sensor purchases. This year, **IoT software**

5 https://www.gartner.com/en/newsroom/press-releases/2015-01-26-gartner-says-by-2020-a-quarter-billion-connected-vehicles-will-enable-new-in-vehicle-services-and-automated-driving-capabilities

6 https://pos.toasttab.com/customers/odd-duck

7 https://www.prnewswire.com/news-releases/advanced-iot-solutions-expected-to-serve-up-millions-in-energy-savings-for-pizza-hut-franchisee-300698566.html



spending will total $154 billion, with a CAGR of 16.6%.[8] Overall, IoV aims to not only increase efficiency within manufacturing and production, but also to eliminate the risks associated with human drivers. Manual procedures and maintenance are still abundant in the automotive industry, giving IoT many opportunities to step in and create efficiencies. By employing sensors placed on machines throughout the production plant, employees can identify energy losses and measure manufacturing pieces from end to end. In turn, this enables a shift from periodic maintenance to condition-based maintenance (CBM), which greatly decreases the need for manual labor. In addition, efficiency continues when self-driving cars are deployed on the road: In a study published by the National Renewable Energy Laboratory on behalf of Volvo, cars driving with adaptive cruise control (speed maintained and/or automatically adjusted by the vehicle during driving) consumed **5-7% less fuel than entirely human-driven cars**.[9] With autonomous vehicles operating according to data collection from roads, traffic, and other drivers, IoV has great potential to improve performance and reliability in the auto industry.

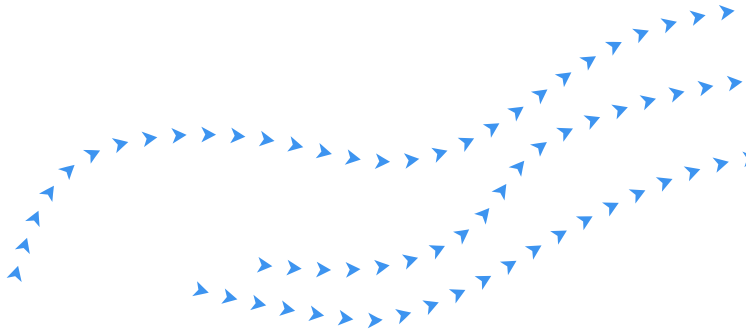
IoT adoption spans across industries like construction, brick & mortar retail, and energy

The beauty of IoT lies in its widespread capabilities regardless of industry. While restaurants and self-driving cars may be top-of-mind when thinking of innovation and technology, less likely players are diving into adoption of IoT devices -- and seeing positive results. In the construction industry, productivity, safety of workers, and building maintenance are top drivers of IoT investment. Until recently, building processes relied on hefty amounts of guesswork, which inevitably led to project delays and longer hours for workers. During the tedious process of concrete curing -- a procedure that hasn't changed in over a century -- workers would cast concrete specimens into cylinders, which were then sent to a lab to be crushed and analyzed in a compression machine. Field teams then patiently waited onsite to hear results, and consequently, projects remained at a standstill until further notice -- until Giatec created SmartRock, a rugged wireless sensor to measure concrete temperature and strength in a fraction of the time. By removing the middleman (in this case, the lab), SmartRock allows construction teams to monitor concrete maturity, track projects, and deliver reports in real-time from a convenient mobile app. The results of moving to a mobile-based sensor speak for themselves: After implementing SmartRock for a construction project in Nova Scotia, Dexter Construction performed **65% fewer break tests** and **cut concrete pouring time by 2 days**.[10]

For construction teams and facility managers alike, finding solutions to **cut costs, ensure employee safety, and save time** are critical to business performance. Using wireless detection systems like Pillar Pods enable managers to keep track of current projects and facility conditions according to building, floor, and sensor, ultimately streamlining work projects and status updates for proper quality assurance. The Pillar app also provides real-time detections of temperature, fire, water, mold, and unsafe working conditions, and automatically alerts users of a hazardous or unsatisfactory environment. At The Norton Museum in West Palm Beach, Florida, Pillar's environmental detection system allowed the facility to identify over air-conditioned galleries causing condensation, leading to significant cost savings and ahead-of-schedule artwork installments.[11]

8 https://www.forbes.com/sites/vinaynathan/2019/03/29/the-iiot-is-driving-results-for-the-automotive-industry/#4951c56e34ad
9 https://www.greencarreports.com/news/1124209_volvo-study-shows-driver-assistance-self-driving-features-will-make-cars-more-efficient
10 https://www.giatecscientific.com/case-study/dexter-construction/
11 https://pillar.tech/casestudies/gilbane-norton-museum/

IoT within construction literally sets the foundation for successful launch and maintenance of facilities, restaurants, and retail stores. Tech innovations within construction and development can help inform, unite, and propel strategies for retailers and restaurants if teams collaborate in project planning stages of implementation.



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Retailers are expected to spend more than $2 billion on IoT-enabled devices by 2020

From accurate collecting of data to improving the human experience in-store, IoT provides retailers with myriad innovation opportunities that drive cost savings and competitive advantage. In the next year, **more than 65% of retailers will strive to shift their business models to include IoT devices**.[12] Jeff Wrona, Vice President of Strategic Implementation at GoSpotCheck, says current platform users are already thinking ahead. "Broadly, all of our GoSpotCheck users are thinking of ways to either be **more precise within a store** or to be **more operationally efficient**. IoT presents valuable opportunities in both of those areas." Of course, retailers only need look to Amazon Go stores, which are sprouting up nationwide, as an example of a fully-automated shopping experience led by IoT. With 14 locations in large cities around the country and three more in the works, Amazon is pioneering the future of brick & mortar retail. This entirely-automated solution offers a two-fold opportunity for retailers: improving and simplifying the shopping experience for customers, and significantly cutting labor costs by digitizing operational processes. While Amazon has adopted the more extreme end of this method (not one cashier is in sight at one of their shops), retailers can take pieces of its IoT strategy as food for thought.

Smart Shelves

Retailers can lose up to $1 trillion in sales due to out-of-stocks.[13] With smart shelving technology, employees receive real-time notifications of low product inventory and reduce time spent manually surveying shelves. This **decreases labor costs** and allows employees to spend more **meaningful time with shoppers**.

Beacons

Introduced in 2013, beacons allow retailers to locate shoppers and send personalized notifications based on store and department (i.e. makeup, electronics, etc.). According to Swirl Networks Inc., **70% of shoppers said beacon-triggered notifications increased their likelihood to purchase**.[14]

Automated Checkout

It's no secret: Customers don't enjoy waiting in long checkout lines. Data from GPShopper indicates **44% of shoppers would rather use "Scan & Go" checkout** than waiting, and up to **60% of global internet users would prefer a checkout experience similar to that used at Amazon Go**.[15]

12 http://technologymagazine.org/retail-analytics-market-iot-sector-grow-significant-rate-2024/
13 https://www.retaildive.com/news/out-of-stocks-could-be-costing-retailers-1t/526327/
14 https://blog.hubspot.com/marketing/iot-retail
15 https://www.retailtouchpoints.com/features/trend-watch/can-cashierless-checkout-scale-up-without-breaking-the-bank

Joey Alfano, CPO and co-founder of GoSpotCheck, encourages retailers to approach change management from the ground-up. "Some of the most successful retailers experimenting with IoT, like Amazon, are creating their own palettes for technological innovation," he says.

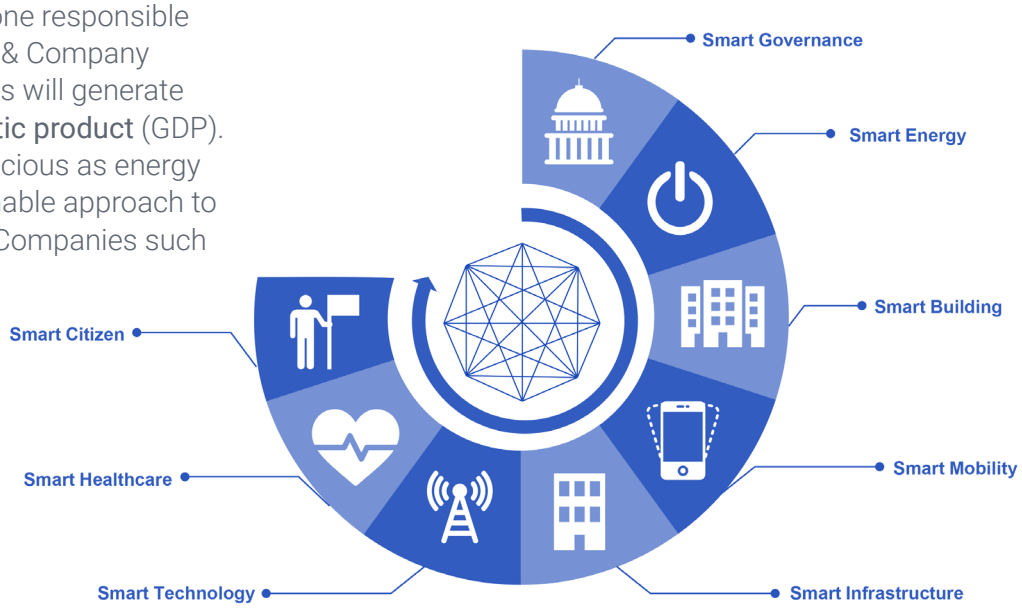
> ***"Abandon what you know about tech advances, and start to test, iterate, and develop."***

While it may take some time for retailers to warm up to automating in-store processes, customers are eager for a simpler, more efficient experience -- and this trend is spreading industry-wide.

IoT is working to conserve global resources in densely-populated cities

With city populations exploding globally -- the United Nations Department of Economic and Social Affairs **anticipates 68% of the world's population to reside in cities by 2050**[16] -- conserving and optimizing the use of energy is a priority that may ultimately be tied to survival. Currently, **cities consume 60-80% of the world's energy**, lighting alone responsible for 19%, and by 2025, MicKinsey & Company estimates 600 of the largest cities will generate **60% of the world's gross domestic product** (GDP). Suffice it to say, resources as precious as energy require an innovative and sustainable approach to maintenance and conservation. Companies such as IBM, Intel, GE Lighting, and Cisco Systems are promoting the "smart city" industry, or the adoption of IoT technology to better manage city assets and resources. According to U.S. consulting firm Frost & Sullivan, in order for a city to be considered "smart," it must have an active presence and agenda in at least 5 of the eight following criteria: smart governance, smart energy, smart building, smart mobility, smart infrastructure, smart technology, smart healthcare, and smart citizens.[17]

With smart meters, sensors, robotics, drones, and AI implemented to carry out objectives city-wide, IoT not only has the capability to connect each device for autonomous functionality, but it can also provide real-time, actionable data to cut waste and improve human health in certain areas. For example, NRG's Demand Response (DR) energy solution allows factories to pinpoint high energy usage areas and power down consumption with a switch. As a result, organizations have access to their own consumption data, and they're paid for their performance as more efficient energy users. In Uppsala, Sweden, IoT has been implemented to identify pollution levels in the city, and reroute public transportation vehicles around those areas. The GreenIoT project has also experimented with an IoT-enabled parking system, which recognizes empty parking spaces, saving drivers time and decreasing CO2 emissions.[18] The future of smart cities is extremely promising -- expected to reach over $400 billion by 2020 -- but the adoption and continuation of such technology won't come without its challenges.



16 https://interestingengineering.com/smart-cities-initiatives-around-the-world-are-improving-citizens-lives
17 https://ww2.frost.com/wp-content/uploads/2019/01/SmartCities.pdf
18 https://dealersupport.co.uk/iot-and-pollution-a-breath-of-fresh-air/

IoT Adoption Hurdles

From cybersecurity to overcoming obstacles in program design, IoT adoption requires flexibility and a willingness to adapt from the enterprise and its leaders. Thought leaders charged with delivering efficiencies and competitive edge should be prepared to explore the following as a governing body:

1. Ensure Device Security

Transitioning to an IoT device holding vast amounts of data poses security and privacy threats that adopters should not ignore, particularly those in the energy and smart city industries. Last month, The National Institute of Standards and Technology released a report to assist organizations in managing cybersecurity risks associated with IoT. While security measures depend on device, raising awareness in the early stages of adoption will help lead to safety and success down the road. Learn more about the report here.

2. Prepare to Learn

With IoT still in its nascency, investing in new devices, designing business processes and articulating strategies will take time and experience to master. Companies pulling ahead are adopting a "fail-fast" approach, which allows them to experiment, make mistakes, and quickly move on. Before beginning an IoT program, ensure there is a strategic, aligned plan in place for experimentation and improvement with the right stakeholders involved across lines of business, and be ready to make strategy changes as you go.

3. Adapt to New Capabilities

As technology develops at an exponential clip, IoT will continue to evolve. 5G provides significant benefits to connected devices, but it also could run up to 50 times faster than 4G, making battery life a critical issue for ongoing device use. Fortunately, long-range wireless power is an option to stay charged for now, but network updates and improvements will likely continue -- requiring tech leaders to stay on-trend and adaptable. Read more on the challenges associated with 5G here.

Implementation Roadmap

From initiating value-added conversations to setting, monitoring, and evolving a strategy, implementing IoT within your enterprise requires commitment and ongoing dedication across functions. Here are a few suggestions to strengthen your process.

Step 1: Analyze industry trends and mavens.

Perform research and become an expert on the IoT climate in your industry, and how it will benefit your business and customers. Explore competitive case studies, strategies, and results to better inform your approach to crafting a strategy and understanding IoT's capabilities and costs.

Step 2: Develop an end-to-end strategy.

Clearly define your KPIs, objectives, resources, and subject matter experts, and create milestones to track your progress once projects launch. Since IoT will function across many lines of business, articulating goals and securing executive alignment will be critical. Socializing successes and failures across teams will be vital, and small investments should be proven, with adoption confirmed before making a large-scale investment.

Step 3: Form a team and embrace collaboration.

Taking a holistic, team-oriented approach to IoT implementation isn't optional. Ensure diversity in stakeholders -- both in function and position within the enterprise -- to ensure you're capturing a 360-degree view of how IoT programs are progressing and how they're impacting frontline users and customers. Meet with your customers and suppliers and share results transparently. Understanding current pain points in the business and how IoT is driving impact will help inform initial and future projects.

Step 4: Create a budget.

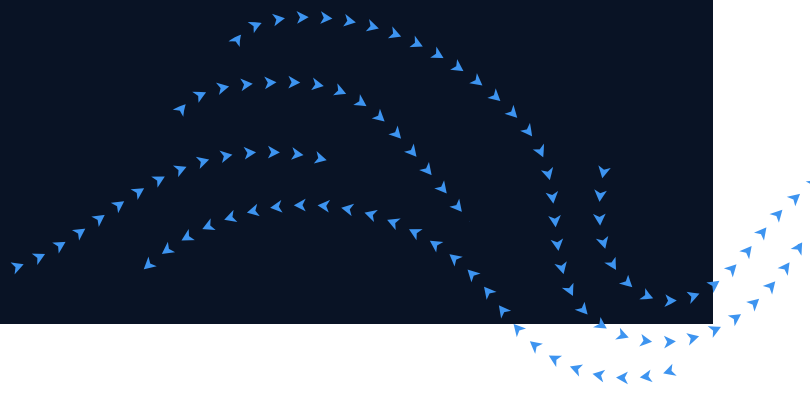
Depending on your industry and devices required, investment in hardware and software will vary significantly. Forecasting and allocation of spend should be done in a cross-functional team, timed for end user and customer benefit, to ensure minimal disruption to the business. Given well-defined fiscal cycles and the amount of investment needed at scale, deploying successful IoT programs may take 2 - 3 years to complete. Ensure your program plan begins with a strong business cases for transformation.

Step 5: Start small.

With a well-defined strategy, cross-functional stakeholders with well-rounded perspectives, and a budget in-place, designing a project plan comes next. Before rolling out an IoT program that spans the entire business, performing tests on a smaller scale will give you a chance to test the technology, organize your data, and better prepare for results once you reach large-scale projects.

Step 6: Learn from mistakes.

Creating a "fail-fast" approach to implementation is inherent to the learning process of IoT, particularly in its beginning stages. If initial projects don't go as planned, or the technology proves more tedious than expected, take these opportunities to improve and move forward. After all, the act of adopting IoT gives you an edge among your competitors -- but you have to start somewhere.



From restaurants to retail, construction to energy -- IoT has proven its ability to flex across nearly all industries with measurable results, and it's here to stay. In the coming years, connected devices will continue to bridge relationships between businesses and customers through producing actionable data, enabling organizations to increase labor efficiencies, save money, and remain competitive in an ever-changing landscape. In order to experience success in IoT implementation, adopters must understand the challenges of security and data protection, and create a comprehensive roadmap that extends to all areas of the business. Without a clear action plan and willingness to experiment, companies will inevitably fall behind competition and lose opportunities to transform their ways of working and ability to best serve customers and communities.

About GoSpotCheck

200+ brands in 70 countries across 6 continents power their teams with GoSpotCheck. Our easy-to-use mobile app helps increase sales, optimize labor, generate business insights, and improve profitability from the field. Named a 2019 Editor's Pick by Consumer Goods Technology with a 4.7 End-User Rating on G2-Crowd, GoSpotCheck has Sales Force integrations, deep linking, data encryption in transit and at rest, SCIM provisioning, and is GDPR compliant and SSO-enabled.