CERIDIAN

IoT Skills and Jobs Opportunities

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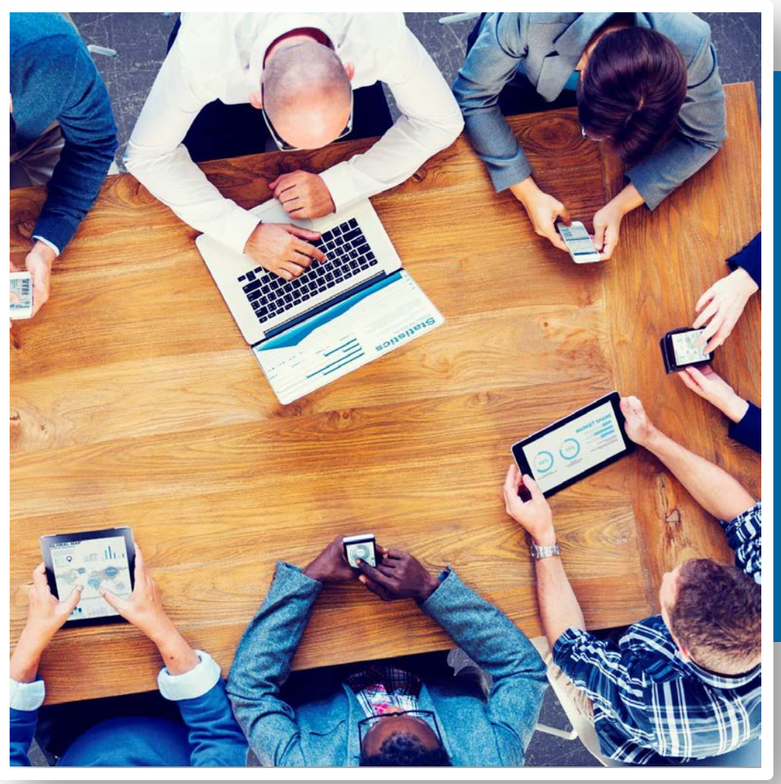
About Ceridian

Ceridian is a leading provider of cloud-based HCM Technology:

- Recruiting & Onboarding
- HR, Payroll, Tax & Benefits
- Workforce Management
- Performance Management
- Workforce Analytics
- Global Payroll



- **25M Users**
- **100,000 Customers**
- **50+ Countries**
- **US$ 400B Funds Movement**

World of Work in State of Flux

This Is How AI Will Change Your Work In 2017

Don't fear artificial intelligence. It's what's going to help you do your job faster and better in 2017.

How is technology impacting industries?
Who will be impacted and when?
Will we have the required skills for jobs of tomorrow?
How many jobs will be lost?
How many jobs will be created?

The technical potential for automation in the US

Many types of activities in industry sectors have the technical potential to be automated, but that potential varies significantly across activities.

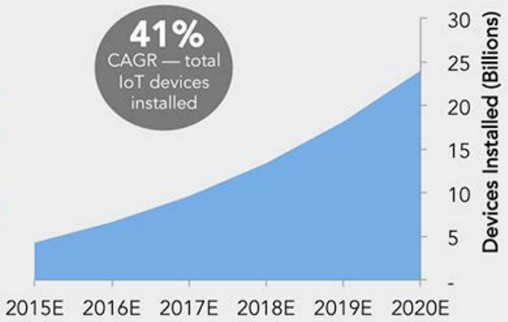
Technical feasibility: % of time spent on activities that can be automated by adapting currently demonstrated technology

0 — 50 — 100

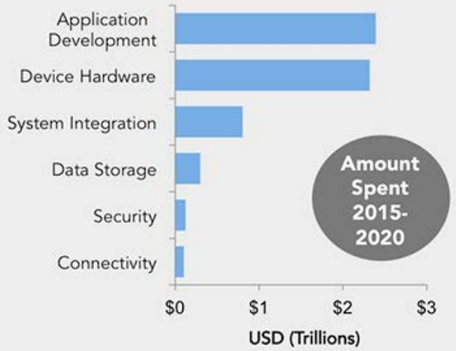
IoT will Explode by 2020

Sizing The Market

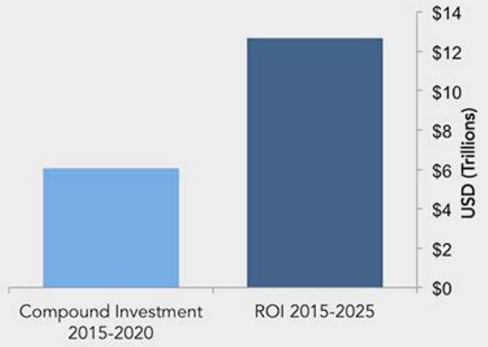
24 BILLION
There will be 24 billion IoT devices installed by 2020



$6 TRILLION INVESTED
$6 trillion will be invested on IoT solutions over the next five years



$13 TRILLION ROI
Total investments over the next five years will generate $13 trillion by 2025



Environments

Many environments from the three entities will benefit from utilizing IoT ecosystems.

Manufacturing
35% of manufacturers already use smart sensors, 10% plan to implement them within a year, and 8% plan to implement them within three years, according to PwC.

Transportation
Connected cars are a top IoT device. We estimate there will be over 220 million connected cars on the road by 2020.

Defense
We estimate spending on drones will reach $8.7 billion in 2020. In addition, 126,000 military robots will be shipped in 2020, according to Frost & Sullivan.

Agriculture
We estimate 75 million IoT devices will be shipped for agricultural uses in 2020, at a 20% CAGR. These devices are primary sensors placed in soil to track acidity levels, temperature, and variables that help farmers increase crop yields.

Infrastructure
We estimate municipalities worldwide will increase their spending on IoT systems at a 30% CAGR, from $36 billion in 2014 to $133 billion in 2019. This investment will generate$421 billion in economic value for cities worldwide in 2019.

Retail
Beacons, paired with mobile apps, are being used in stores to monitor customer behavior and push advertisements to customers. In the US, we estimate $44.4 billion will be generated from beacon-triggered messages.

Logistics
Tracking sensors placed on parcels and shipping containers will help reduce costs associated with lost or damaged goods. In addition, robots, such as the Amazon Kiva robot, help reduce labor costs in warehouses.

Banks
There are nearly 3 million ATMs installed globally in 2015, according the World Bank. Some teller-assist ATMs provide a live-stream video of a teller for added customer support.

Oil, gas, and mining
We estimate 5.4 million IoT devices will be used on oil extraction sites by 2020. The devices will primarily be internet-connected sensors used to provide environmental metrics about extraction sites.

Insurance
74% of insurance executives said they believe the IoT will disrupt insurance within the next five years, and 74% plan to invest in developing and implementing IoT strategies by 2016, according to an SMA Research survey.

Connected Home
By 2030, we expect the majority of home devices shipped will be connected to the internet due to initiatives from device makers to connect everything they produce.

Food Services
We estimate 310 million IoT devices will be used by food services companies by 2020. The majority of these devices will be digital signs connected throughout grocery stores and fast-food companies.

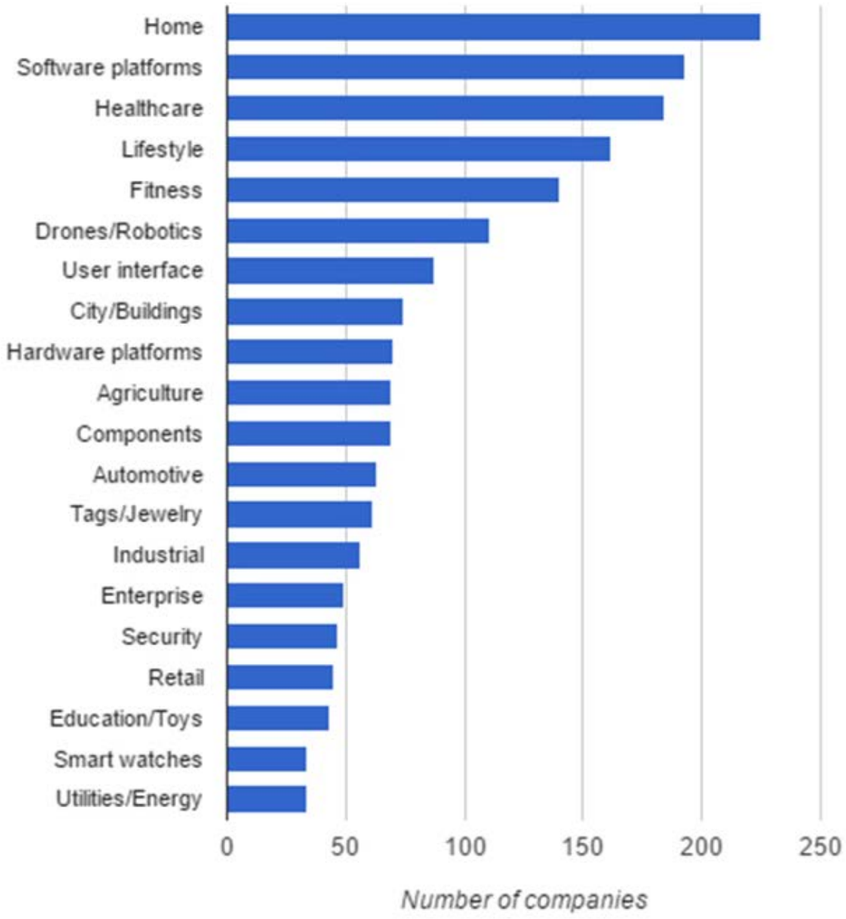
Utilities
Energy companies throughout the world are trying to meet the rising demand in energy. To do this, they will be installing nearly 1 billion smart meters by 2020.

Hospitality
31% of hotels use next-generation door locks, 33% have room control devices, 16% have connected TVs, and 15% use beacons throughout the hotel, according to Hospitality Technology's 2015 Lodging Technology survey.

Healthcare
We estimate 646 million IoT devices will be used for healthcare by 2020. Connected healthcare devices can collect data, automate processes, and more. But these devices can also be hacked, thereby posing a threat to the patients who rely on them.

Smart Buildings
43% of building managers in the US believe the IoT will affect how they run their building within the next two to three years, according to a survey from Daintree Networks.

IoT startup companies and categories



Internet of Things Stack (Source: Cisco)

Levels

7 **Collaboration and Processes**
(involving People & Business Processes)

6 **Application**
(Reporting, Analytics, Control)

5 **Data Abstraction**
(Aggregation and Access)

4 **Data Accumulation**
(Storage)

3 **Edge (Fog) Computing**
(Data Element Analysis & Transformation)

2 **Connectivity**
(Communication & Processing Units)

1 **Physical Devices & Controllers**
(The “Things” in IoT)

Source: Cisco

Shortage of Talent will Impact IoT Growth

Challenges Lead to Opportunities

10 Most In-demand IoT Skills (Source: CIO.com, May 2017)

Machine Learning – 220% YoY	• Machine learning algorithms can be used to make predictions based on identifying data patterns from the devices.
AutoCAD – 108%	• Design the devices.
Node.js – 99%	• Node.js is an open-source environment for server-side web development used to manage connected devices
Security Engineering – 83%	• Companies are investing in security engineering and seeking talent skilled in vulnerability assessment to identify both physical and logical threats.
Security Infrastructure – 83%	• Information security and fears of increased exposure of data are some of the top impediments to IoT development

10 Most In-demand IoT Skills (Source: CIO.com)

Big Data - 71%	• Strong demand for data scientists and back-end engineers to develop algorithms, collect, organize, analyze and architect the disparate sources of data.
GPS Development – 44%	• Major demand for professionals who can help develop GPS-enabled technology for wearables, smart vehicles and other IoT applications
Electrical Engineering – 41%	• The creation of the next generation of connected devices requires both software and electrical engineering expertise
Circuit Design – 18%	• Build miniaturized circuit boards for sensors and devices.
Microcontroller Programming – 12%	• Write code that provides intelligence to microcontrollers, the embedded chips within IoT devices.

Get Ready for Digital Transformation

Leverage technology before it leverages you

Recalibrate and retrain existing workforce to become more tech literate
Evolve education systems and learning – improve basic STEM skills
PPP to stimulate investment in enabling infrastructure
Rethink transition support and safety nets for workers affected
Embrace technology sooner than later
Personal level

- Have a growth mindset
- Stay relevant – learn the lingo
- Learn to code
- Develop skills – Analytical, Critical thinking, Collaborative, cross functional, team based problem-solving
- Take your education in your own hand

Watch Out for these Job Postings

- C++ Software Developer (Smart Lighting IoT)
- Development Engineer, Mobile (IoT PaaS)
- Applications Engineer- IoT mbed
- Java Developer (IoT & M2M)
- IoT Developer
- Senior Mobile QA Engineer (IoT, PaaS)
- Technician IoT Devices Support
- Big Data Lead (IoT)
- Data Scientist - IoT
- Data Engineer Sensors and IoT Applications
- Chief IoT Officer
- Director of DevOps - Sensors, Analytics, and IoT
- Research Director - Information Assurance and IoT Security
- Azure Cloud Architect (IoT)
- IoT Solutions Architect
- Product Manager – IoT Smart Cities
- Segment Marketing Manager - IoT Technologies
- Connected Spaces IoT Consultant

Thank You

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