The Future of Work
Hype or Here?

May 2017

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

A membership with SIG provides access to Fortune 500 companies who are seeking:

SIG members share their expertise and develop long-lasting relationships with other Fortune/Global 500 companies through best practice content and SIG events

- Insights and industry trends
- Best and "next" practices
- Business cases / proofs of concept
- Benchmarking information
- Lessons learned on change management, risk management, talent management, vendor management and more
- Governance, performance and other management measurements
- Key Performance Indicators (KPIs)
- Service Level Agreements (SLAs)
- Risk categories, factors, and mitigation approaches
- Templates, tools, and information sources

For more information, visit:

www.sig.org

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Digital technologies are changing the way we work…

…and those technologies are taking some of the work off of our plates

The premise of Artificial Intelligence is its ability to continually learn from the data it collects…the more data it collects, the better it can make predictions

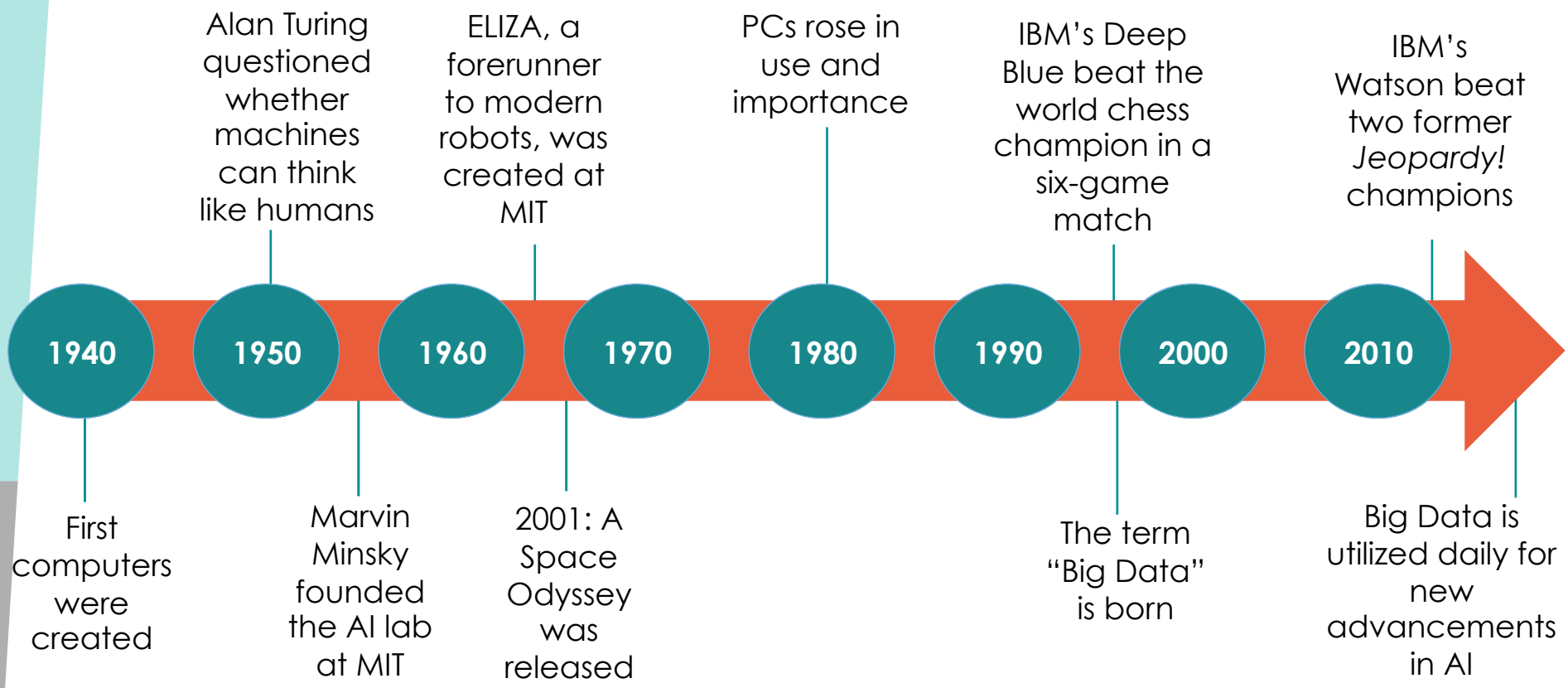
SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Is it hype or are AI and RPA finally here?

Artificial Intelligence has been around since the 1950's



Source: Lightspeed: Science Fiction & Fantasy. (8/2011); Wired. (1/27/15); The Economist. (5/13/15)

Moore's Law

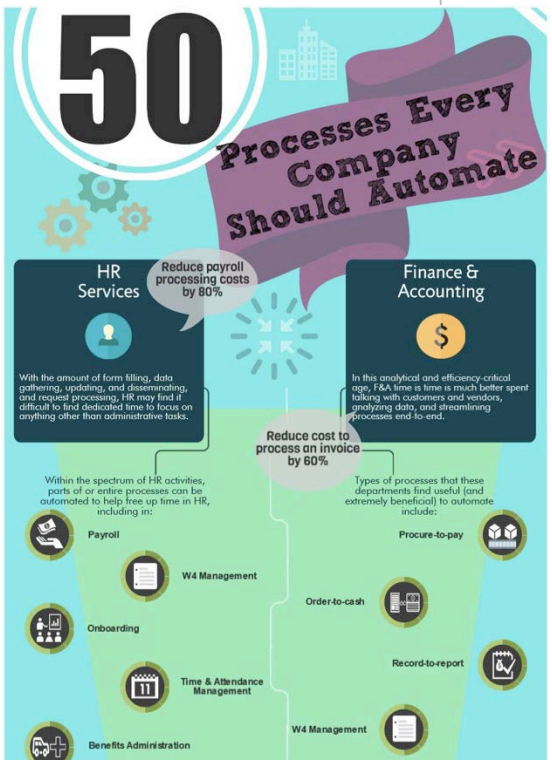
1	
2	524,288
4	1,078,576
8	2,097,152
16	4,194,304
32	8,388,608
64	16,777,216
128	33,554,432
256	67,108,864
512	134,217,728
1,024	268,435,456
2,048	536,870,912
4,096	**1,074,374,2e9**
8,192	
16,384	
32,768	
65,536	
131,072	
262,144	

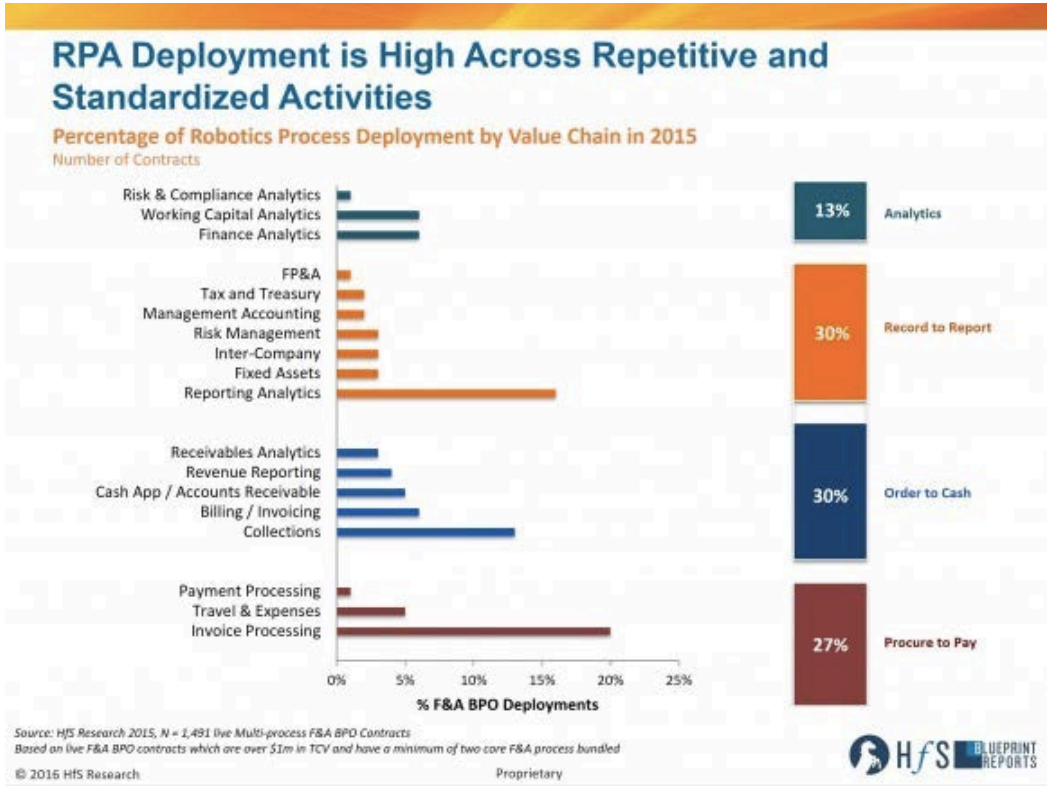
SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

RPA is well established but It's still early





Source: ISG, 2016

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Since 1980 levels of office automation have improved by only 3% compared to a 75% increase in factories over the same period

Source: ISG, 2016; Vrije University Amsterdam, exploratory study into information logistics

Millions of back office workers all over the world still have routine and mundane tasks

- Complete the same forms multiple times in multiple systems
- Use spreadsheets to bridge gaps between different systems
- Create spreadsheets to gather, organize, analyze and report information
- Take data from one system and re-key into another
- Build self-authored applications with desktop tools to try and save time
- Aggregate content from various applications to generate and share reports

Source: ISG, 2016

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

According to a McKinsey study, over the next 10 years the work of up to 140 million knowledge workers may be handled by cognitive robotic process automation systems

Almost all jobs to be affected by automation in coming decade: McKinsey

By Ethan Baron / July 8, 2016 at 3:43 PM

- 70% of occupations could have 30% of their constituent activities automated

"In retail, ***53 percent of activities are automatable,*** *including managing inventory, logistics, and packing merchandise, along with maintaining sales records and other data-collection work. But retail-sector bean counters beware: McKinsey said* ***86 percent of the work done by bookkeepers, accountants and auditing clerks could be done by machines instead.****"*

Source: ISG, 2016; Silicon Beat, *Almost all jobs to be affected by automation in coming decade: McKinsey,* Ethan Baron, 7/8/16

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Will your job be done by a machine?

Most likely to be replaced

1.	Telemarketers	99.0%
2.	Tax preparers	98.7%
3.	Timing device assemblers	98.5%
4.	Loan officers	98.4%
5.	Umpires and referees	98.3%
6.	Bank tellers	98.3%
7.	Packaging machine operator	98.0%
8.	Procurement clerks	98.0%
9.	Milling machine setters	97.9%
10.	Credit analysts	97.9%
11.	Driver/sales worker	97.8%
12.	Fashion models	97.6%
13.	Legal secretaries	97.6%
14.	Bookkeepers	97.6%
15.	Cashier	97.1%

Least likely to be replaced

1.	Mental health social workers	0.3%
2.	Occupational therapists	0.4%
3.	Physicians and surgeons	0.4%
4.	Choreographers	0.4%
5.	Elementary school teachers	0.4%
6.	Set and exhibit designers	0.5%
7.	Education administrators	0.5%
8.	Medical scientists	0.5%
9.	Computer systems analysts	0.6%
10.	Clergy	0.8%
11.	Foresters	0.8%
12.	Makeup artists	1.0%
13.	Mechanical engineers	1.1%
14.	Pharmacists	1.2%
15.	Lawyers	3.5%

Source: NPR; *Will Your Job Be Done By A Machine?* May 21, 2015

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

What do soft and social robots mean for you?

Robots will interact with people!

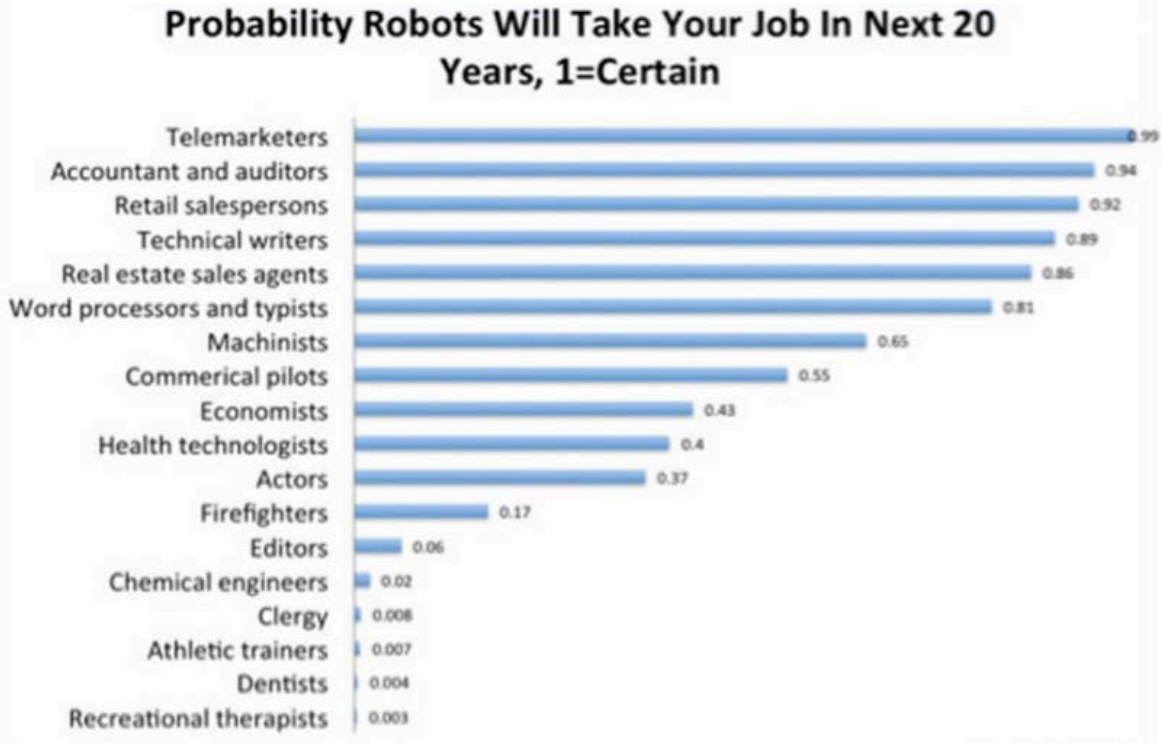
Source: Sarah Bergbreiter, *Humans Interfacing with Technology*, Singularity University, 2016

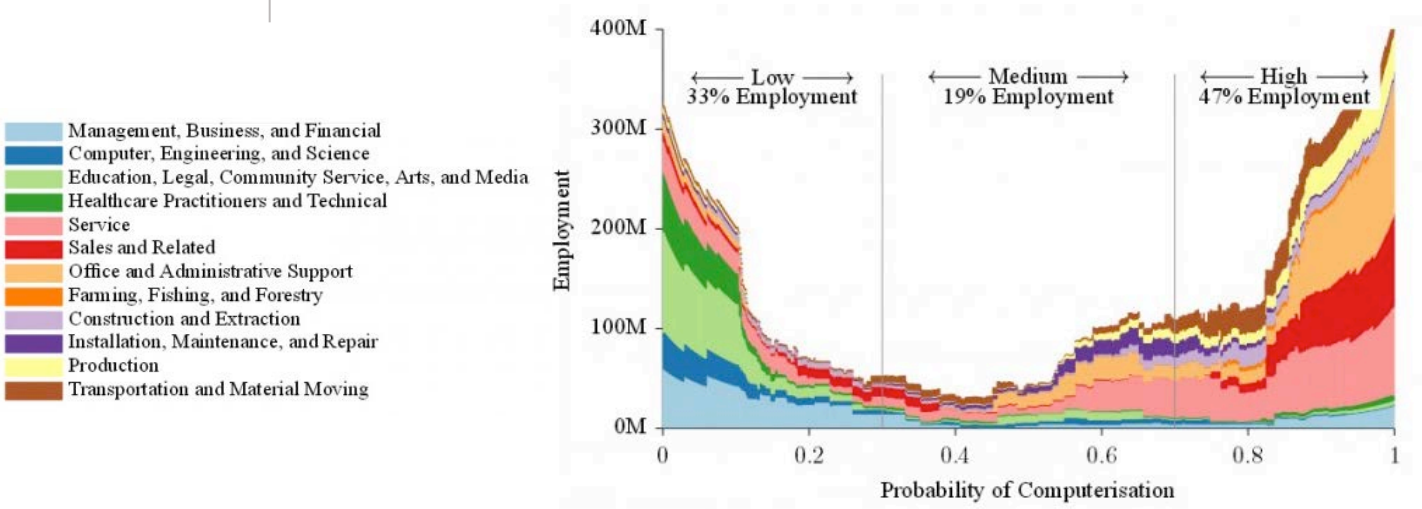
SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Researchers at the University of Oxford published a study estimating that 47 % of total US employment is “at risk” due to the automation of cognitive tasks

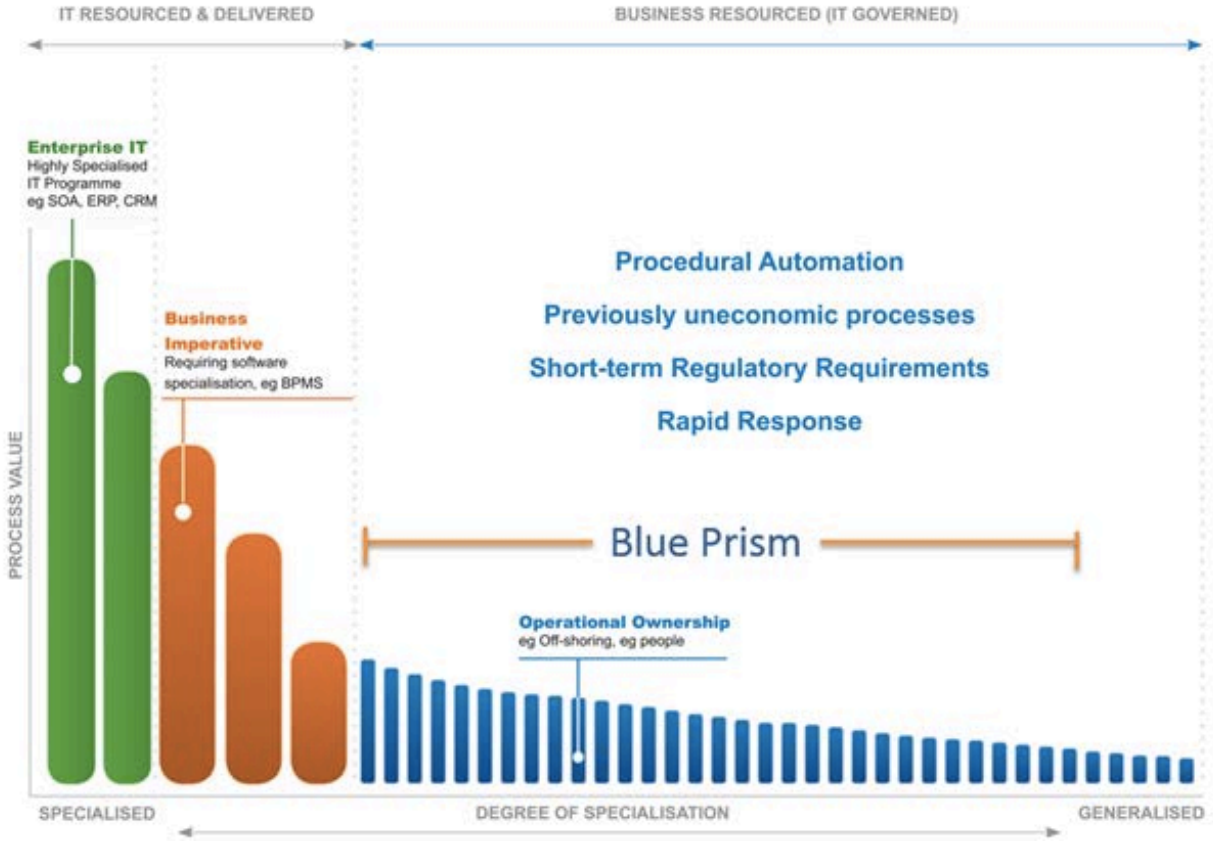




Source: ISG, 2016

RPA uses digital robots to execute processes in the same way that a person manipulates existing applications and systems

The Long Tail of Process Automation

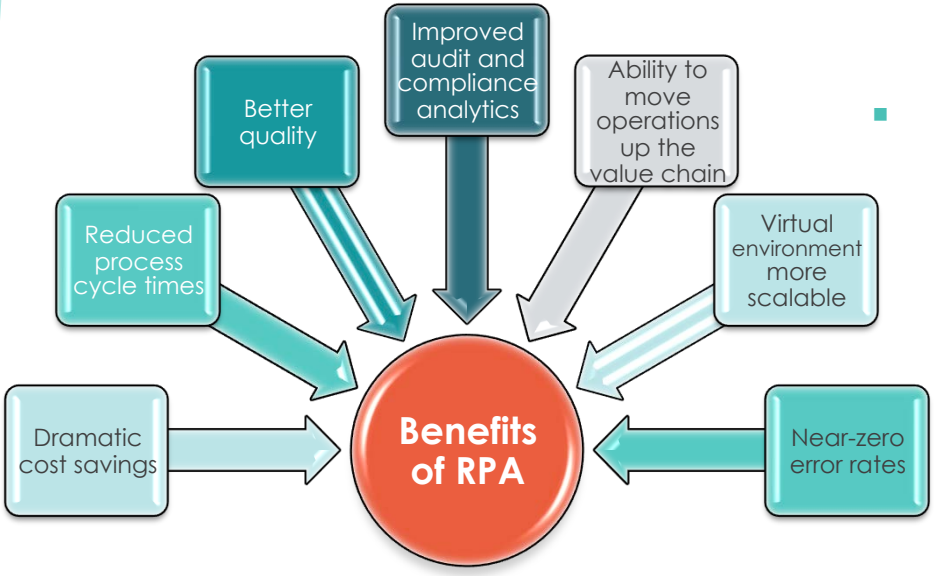


Source: ISG, 2016

Source: Blue Prism

The benefits of Robotic Process Automation

- Depending on the type and volume of robots purchased, the license fees typically range from $10,000 - $13,000 per year per robot
- Robots **work much faster** than humans
- Robots work 24 hours per day, 7 days per week
- In the event a process change is required, then you **update it once centrally** versus retraining a team of people
    - A single robot can be trained and deployed against a variety of processes
    - Robots process transactions with **100% accuracy, mitigating compliance risks** and other negative consequences
    - Audit trails, process data and the overall access to "big data" is dramatically enhanced **enabling predictive analytics** and business benefits



Source: ISG, 2016; SIG University, 2016

Standard shared processes offer immediate opportunity

Procure to Pay	Order to Cash	Record to Report
Avg. RPA Potential: 40% - 70%	Avg. RPA Potential: 50% - 70%	Avg. RPA Potential: 50% - 65%

Invoice Processing
- Receipt/processing and electronic inputs
- Verification and approval actions, escalations and monitoring
- Account downloads from ledger to AP system for reconciliations
- Invoice match – exceptions
- Check preparation, handling activities

Discrepancy Resolution
- Identification of discrepancies (i.e., price/quantity differences, short pay, missing or invalid PO nos.)
- Follow-up aged discrepant items
- Error corrections as received either from systems, audit or sites

Supplier Management
- Supplier master management
- Item master / content management
- Payment execution

Order Management
- Quote generation
- Customer profitability analysis
- Order entry errors
- Customer service frequent responses

Credit Management
- Customer segmentation
- Customer credit management
- Payment trend vs. credit monitoring

Customer Billing
- Unbilled management and billing triggers
- Bill calculation and verification
- Customized billings
- Credit memo processing

Cash Applications
- Cash posting
- AR reconciliation
- Unallocated and unapplied cash
- Short payments

General Ledger Accounting
- Automated GL transaction feeds
- Manual journal entry processing
- GL reconciliation and analysis
- GL reporting
- Period end close

Intercompany Accounting
- Manual data entry activities
- Reconciliations

Reporting
- Download data/format in Excel/auto distribute
- Record report receipt
- Auto report follow ups

Tax
- Sales and use tax reconciliation
- Sales and use tax forms
- Tax master data annual monitoring/ renewal processing

Source: ISG, 2016

RPA Software Vendors

RPA Pure Plays	• Broad applicability across process types • Blank slate requiring user to build processes • Interfaces (not integrates) with virtually any application • Needs structured, digital data as inputs/outputs • "Taught" to perform process using rules engine and workflow	AUTOMATION ANYWHERE UiPath openspan NICE blueprism
Autonomics	• Limited to IT Infrastructure and Dev Ops • Preset library with hundreds of standard IT processes • Integrated w/ ticketing systems, CMDB, monitoring, etc. • Robots learn over time using algorithms applied to data that flows real-time between robots operating nested if/ then decision trees	IPSOFT ignio arago The Automation Experts thoughtonomy
Cognitive Technology	• Generally lack transaction processing capabilities • Used primarily for data analytics, working with unstructured data, natural language processing and human interaction • Must be fed data to build it's knowledge base and then trained by running through scenarios from which it builds logical reasoning capability	IBM Watson  WorkFusion Celaton AUTOMATION ANYWHERE

Source: ISG, 2016

Recent Examples

Reducing temporary labor

$1.2 mm

Saving, implemented in 3 months

RPA was implemented in a Shared Service Center for a global media company. To cope with increasing demand within the Finance department the company had dramatically increased their use of temporary staff

RPA was investigated as an alternative to temporary resources within Credit, Master Data Management, Billing, Cash and Collections functions

There were **RPA opportunities in 34 out of 40 processes** investigated. The implementation **freed up 30 resources from a team of 125**. Annual **savings were over $1.2 million** and the end to end implementation was **completed in 3 months**

5hrs to 10mins

A global engineering firm operating in disparate geographies with a private and public sector customer base. A pilot project was carried out in the billing function, where thousands of monthly invoices each with 150+ pages of back up data required entry into 5+ individual systems

Through RPA the **average invoice processing time went from five hours to ten minutes**. Accuracy improved dramatically and billing improved by multiple days with a **material impact on cash flow**

Source: ISG, 2016

Other Relevant Examples

Co-operative Banking Group has **automated over 130 processes** including complex CHAPs processing, VISA charge back processing and many back office processes to support sales and general administration

Through RPA, Barclays Bank has seen a **$222 million annual reduction in bad debt provision and over 120 FTE saved** through automated fraudulent account closure, automated personal loan applications and new loan applications

O2 **replaced 45 offshore employees, costing a total of $1.71mm a year, with ten robots**, example processes included the provisioning of new SIM cards

ABN Amro has implemented a semantic application that involves processing policy changes and processing claims. The service is faster, more efficient and **transparent to the user, resulting in a considerable reduction in the number of client contacts** in the call center

Source: ISG, 2016

What does Robotic Process Automation mean in the context of back office administrative process automation?

Robotic Process Automation

Software platforms that use "virtual robots" to manipulate existing application software in the same way that a person processes a transaction or completes a request

- Is software that drives software
- Uses existing applications
- Automates complex business processes
- Is good for high-volume, highly transactional work
- Can tap into areas not previously automated
- Does not have to understand the data to process it

Source: SIG University, 2016

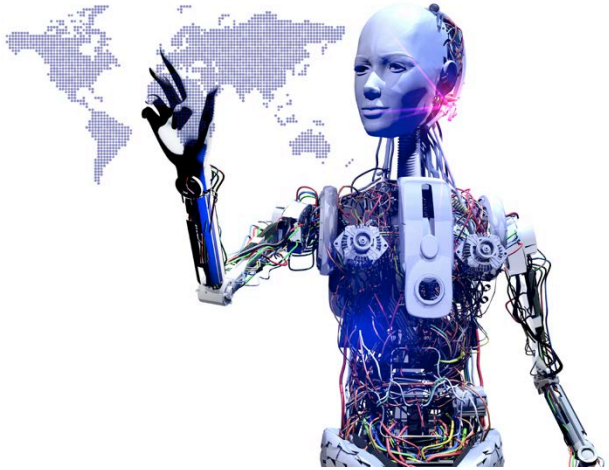
What are the advantages of robotically orchestrating existing applications through the user interface?

- **No IT infrastructure changes are required** and there is no integration requirement – the robots interface with any application through the user interface in the same way a user does
- No integration costs – **robots drive existing applications**
- IT robots are **"trained" by their users** by being "shown" how to complete a task. This is akin to training a new employee
- A robot once trained **can scale across any number of other robots**
- The robot **knowledge is extended** and re-used over time
- A robot is trained in the live environment making projects **less expensive and much faster** than traditional IT
- **Multiple robots** applied to a task can be **synchronized** to deliver large-scale robotic platforms

Source: ISG, 2016

How easy is it to train and manage robot activity?

- A robot is **trained through a flow chart** of the procedure
- Management **information is gathered automatically** as the robot operates
- RPA systems come with failover and recovery inbuilt as core capabilities
- RPA systems have **full audit and security authorization** meaning that all changes and all access is recorded and regulated
- **Backup process steps are managed**; roll-back and recovery are all automatically captured by the robot platform



Source: ISG, 2016

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Is Robotic Automation a platform for "rogue" IT?

No – **Robotic Automation actually addresses rogue IT** (i.e., disparate initiatives across the business that may create risks to business standards, continuity and brand quality). Robotic automation addresses this issue on a number of levels:

- Robotic Automation is normally housed, monitored, licensed and controlled by IT, or a centralized governance body. This group enforce a central usage policy configured within all robots
- Robotic processes are accretive – objects are built and are then available for re-use across the business
- No new data – best practice RPA discourages or even forbids the creation of new data. Systems are used by robots as they appear to users so as to coordinate and streamline enterprise governance

Source: ISG, 2016

What is the process for implementing robotics?

- RPA is typically implemented via a series of small steps with nimble teams. **This begins with a Proof of Concept** (PoC) and ends with a rollout of Robotics across as much of the business as organizations desire
- RPA is relatively **fast to get up and running** due to the nature of the technology. This allows for project scope to begin in a way that builds confidence and enthusiasm for the potential of robotics and the many possible benefits

Source: ISG, 2016

How will I see robotics running in my organization?

- Robots are largely **invisible assistants**. They may be assigned tasks just as a person is assigned tasks and the work will show up in the same places a human would have put the work
  - For example: If your business receives applications from potential customers and those applications need to be processed through a series of rules based steps, the robot can do that work and move the applications along in the process for the next step in the line
- What the humans experience is repetitive and administrative work being done by "somebody else." What the business experiences **is increased speed, fewer defects and an overall better process** for everyone involved

Source: ISG, 2016

How much does Robotic Automation cost?

A "fully loaded" office robot is generally approximately 1/5th the cost of a resource – however a business case must take into account:

- Annual software license costs
- Infrastructure hosting costs
- Testing and support costs
- Project implementation costs
- Change management costs

Source: ISG, 2016

How do robots deal with human judgment?

Robots (for now) only follow rules…

Where a procedure requires interpretation and skill in judging an outcome then a robot may not be suitable.

Source: ISG, 2016

How do I identify and select the right processes for RPA?

Best projects for robot automation are **bulk repetitive rules based procedures**. The flexibility of the robotic automation platform is such that it **does not matter if this involves interaction with multiple systems**

A scoring profile is applied to criteria such as case volumes, average handling time, right first time targets, exception levels and customer service levels

Source: ISG, 2016

How long does a Robotic Automation project take?

The most successful programs are set up to follow a vision and set of principles for RPA adoption across the whole enterprise. Standards for governance, service delivery, IT security, benefits realization and change management should all be established upfront

Once established typical projects are measured in weeks. **It takes as long to train a robot as it does a human.** Complex new tasks will take longer depending on the level of object re-use available

Source: ISG, 2016

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

On the legal side, you also need to consider risk-based contracting

- Invest in new policies, such as a cloud computing policy, to simplify and govern basic decisions on risk
- Leverage industry standards where appropriate
- Create a template for legal gap analysis to measure supplier offerings against minimum requirements for compliance, legal, security, risk mitigation, governance, etc.
- Create a checklist of hidden legal and compliance costs

Source: Mayer Brown. September 2015

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

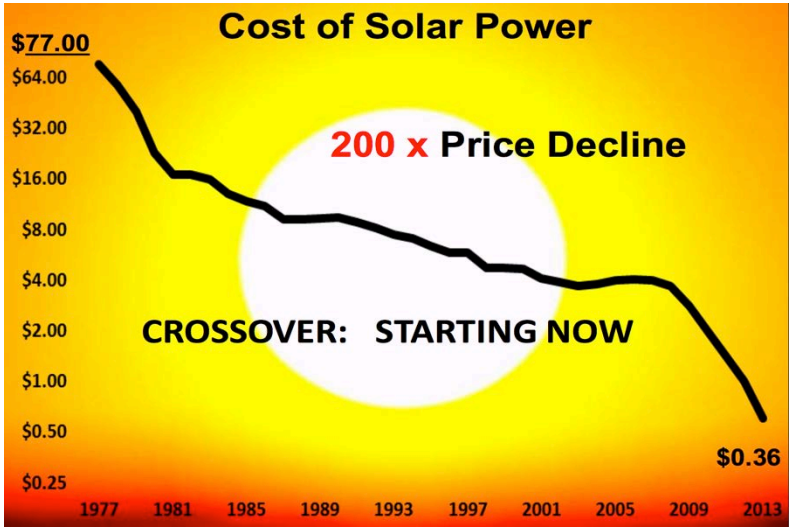
Robotics will never take away the need for human interaction

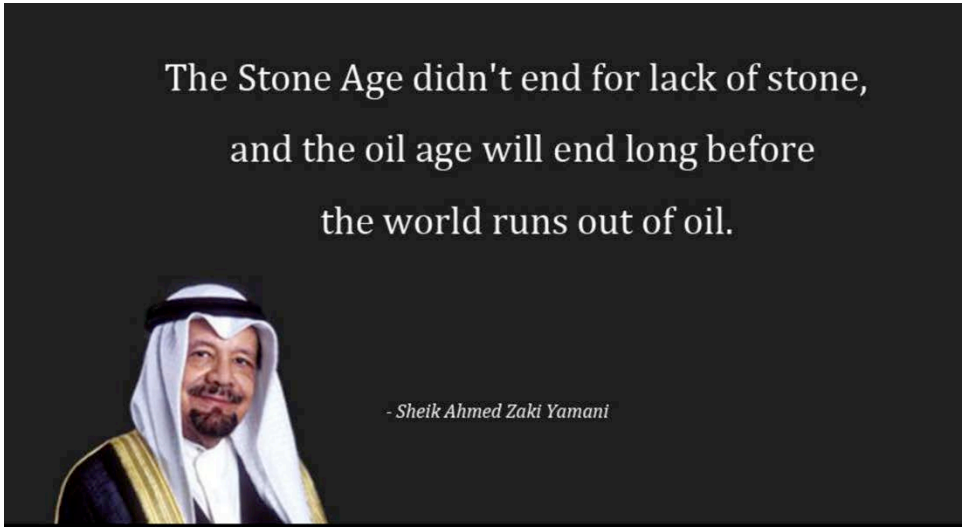
- C-level jobs will never be replaced by automation
- Mid-level jobs are most at "risk" for automation, but there are some that will never be subject to it
- Creative thinking or problem solving will always require human input

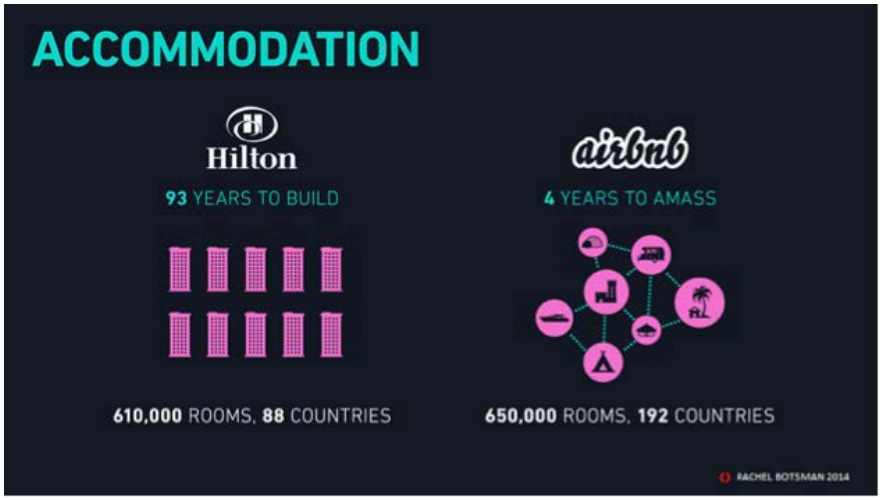
But make no bones about it…RPA is here!

Source: SIG University, 2016

Other Industry Disruptors







Source: *Energy Disrupted,* Ramez Naam, Singularity University, 2017

Thinking at Scale: Passion & Purpose

"I didn't go into the rocket business, the car business, or the solar business thinking this is a great opportunity. I just thought, in order to make a difference, something needed to be done. I wanted to create something substantially better than what came before."

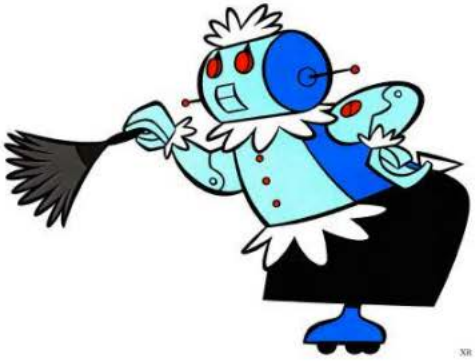
- Elon Musk

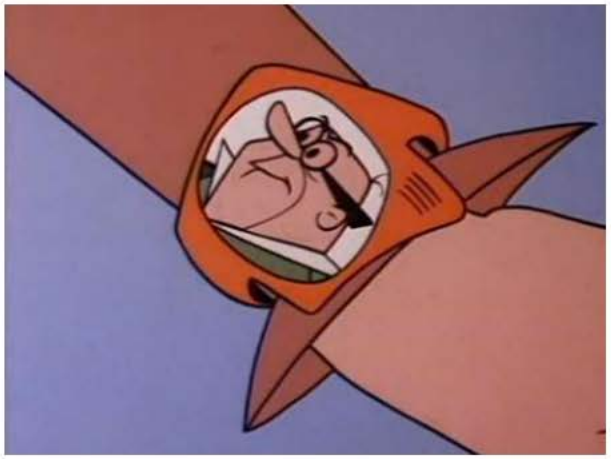
SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

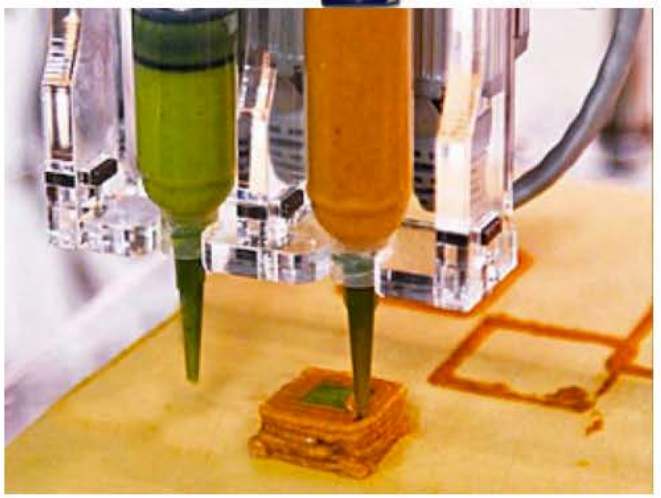
outsource
powered by SIG

Source: *Transformational Practices,* Lisa Solomon, Singularity University, 2017



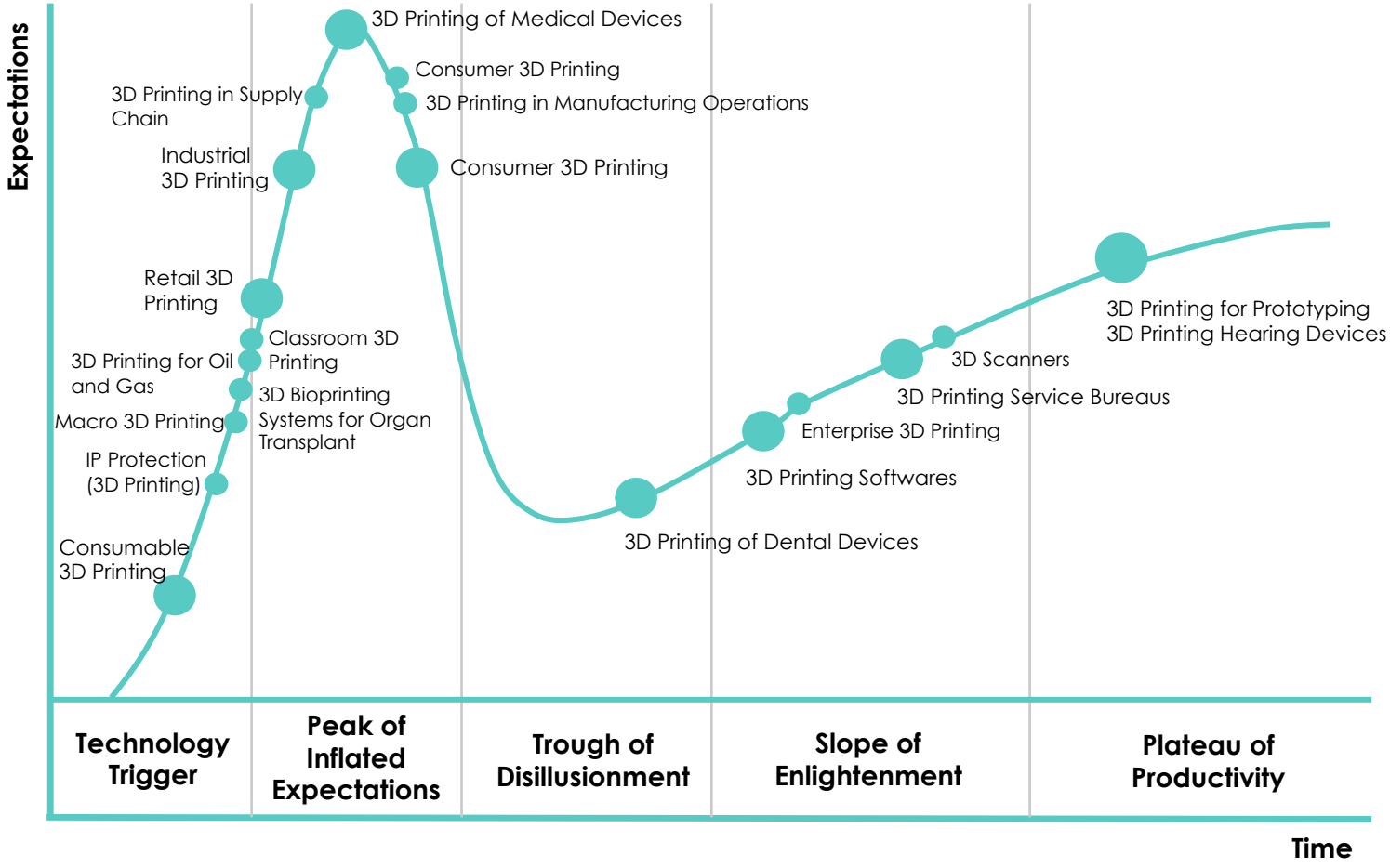


Source: *Transformational Practices,* Lisa Solomon, Singularity University, 2017



Source: *Transformational Practices,* Lisa Solomon, Singularity University, 2017

Gartner, July 2015

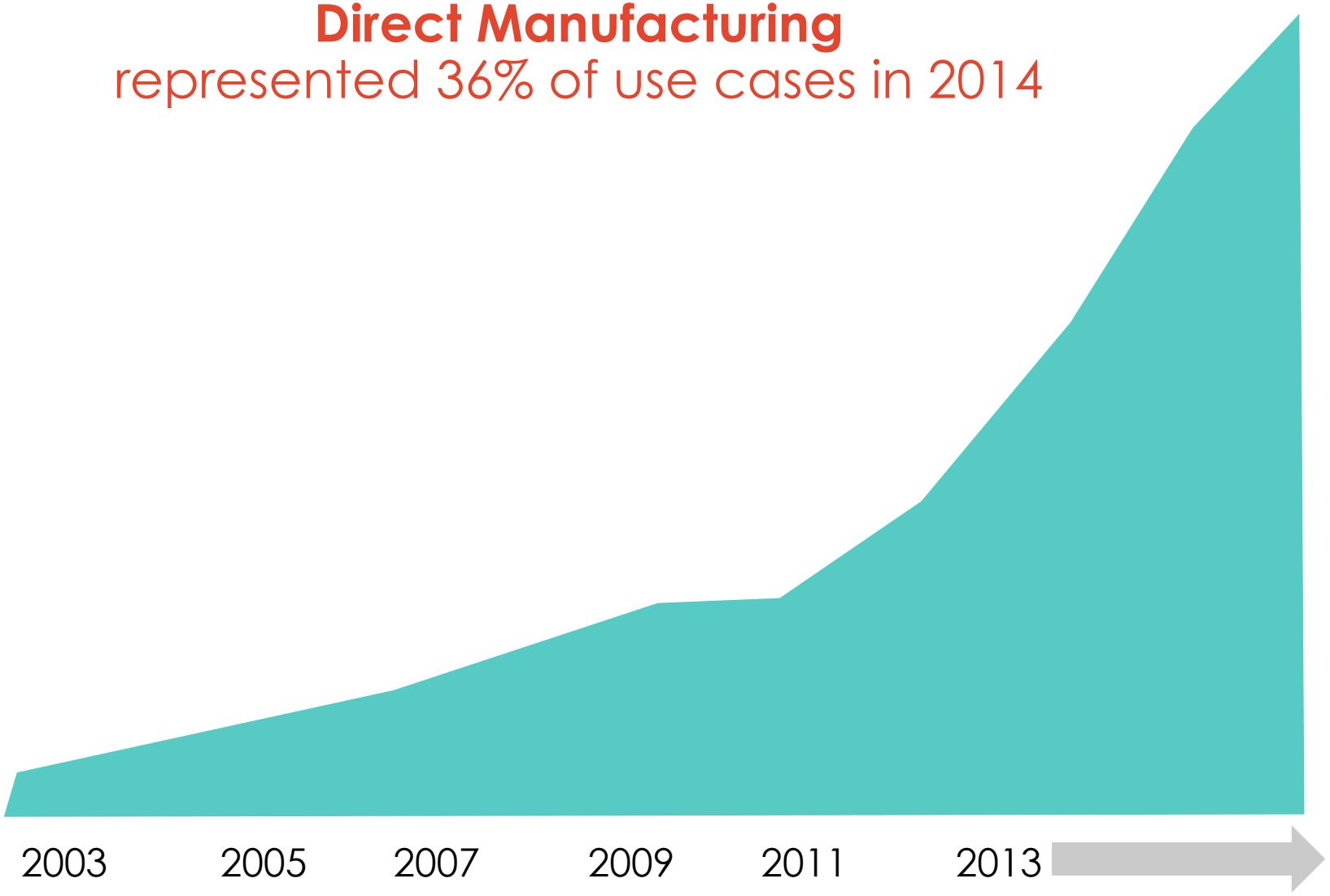


SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Direct Manufacturing
represented 36% of use cases in 2014



SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

How Will 3D Printing Impact Industrial Distribution?

- No more distinction between stocked versus non-stocked parts
- Immediate ability to print any item in the catalog
- Service levels to up for the distributor
- Brick-and-mortar facilities with high inventory become less advantageous or necessary

Source: Barrett Thompson; Zilliant; General Manager of Pricing Excellence Solutions ; 8/7/15

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

SIG
the network for sourcing executives

SIG
UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

World's first 3D printed house

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Supply Chain Failure

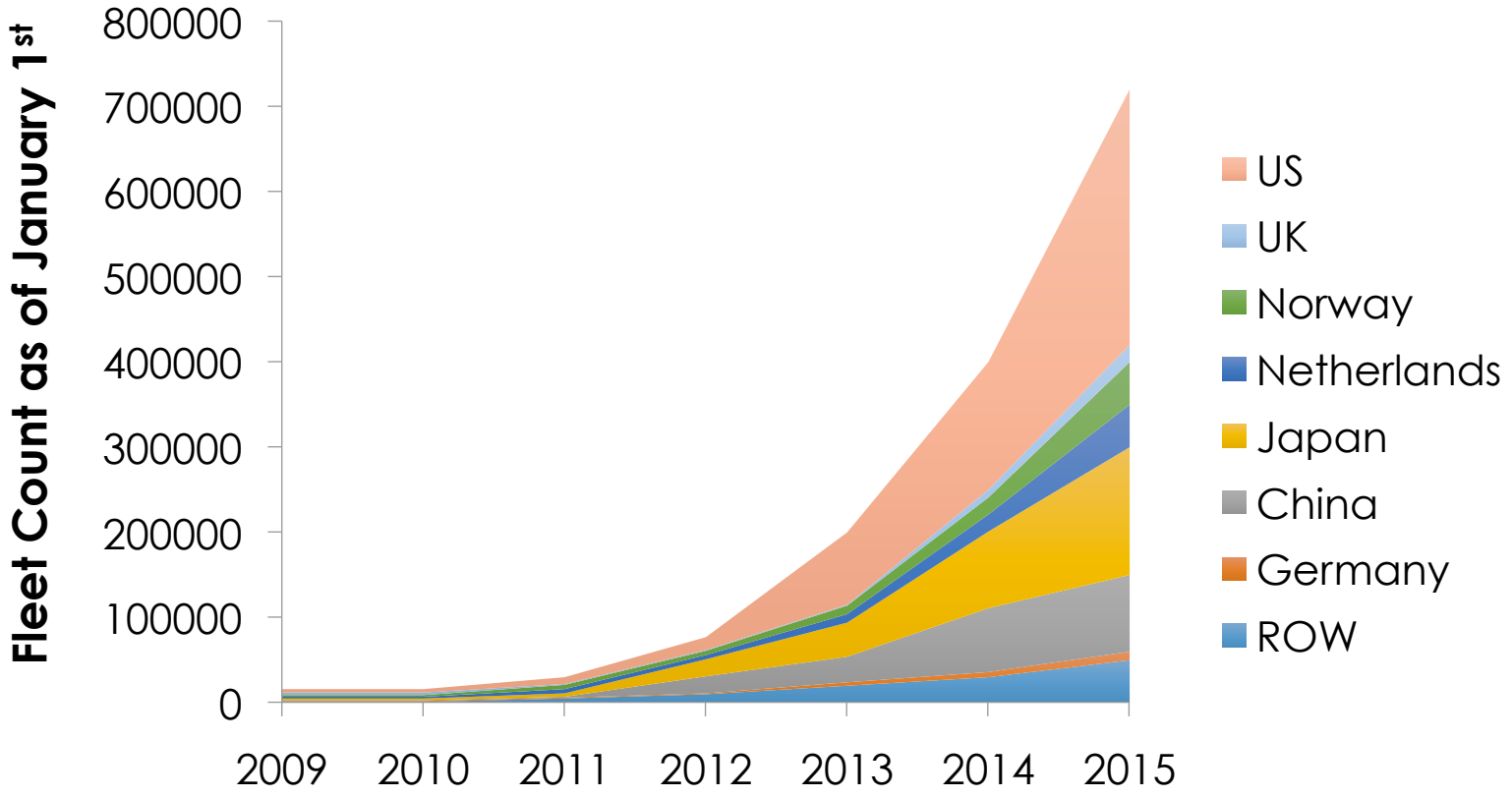
- Lead Times
- High Costs
- Authenticity
- Standardization
- Availability
- Storage Needs

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Number of Electric Passenger Cars in the World



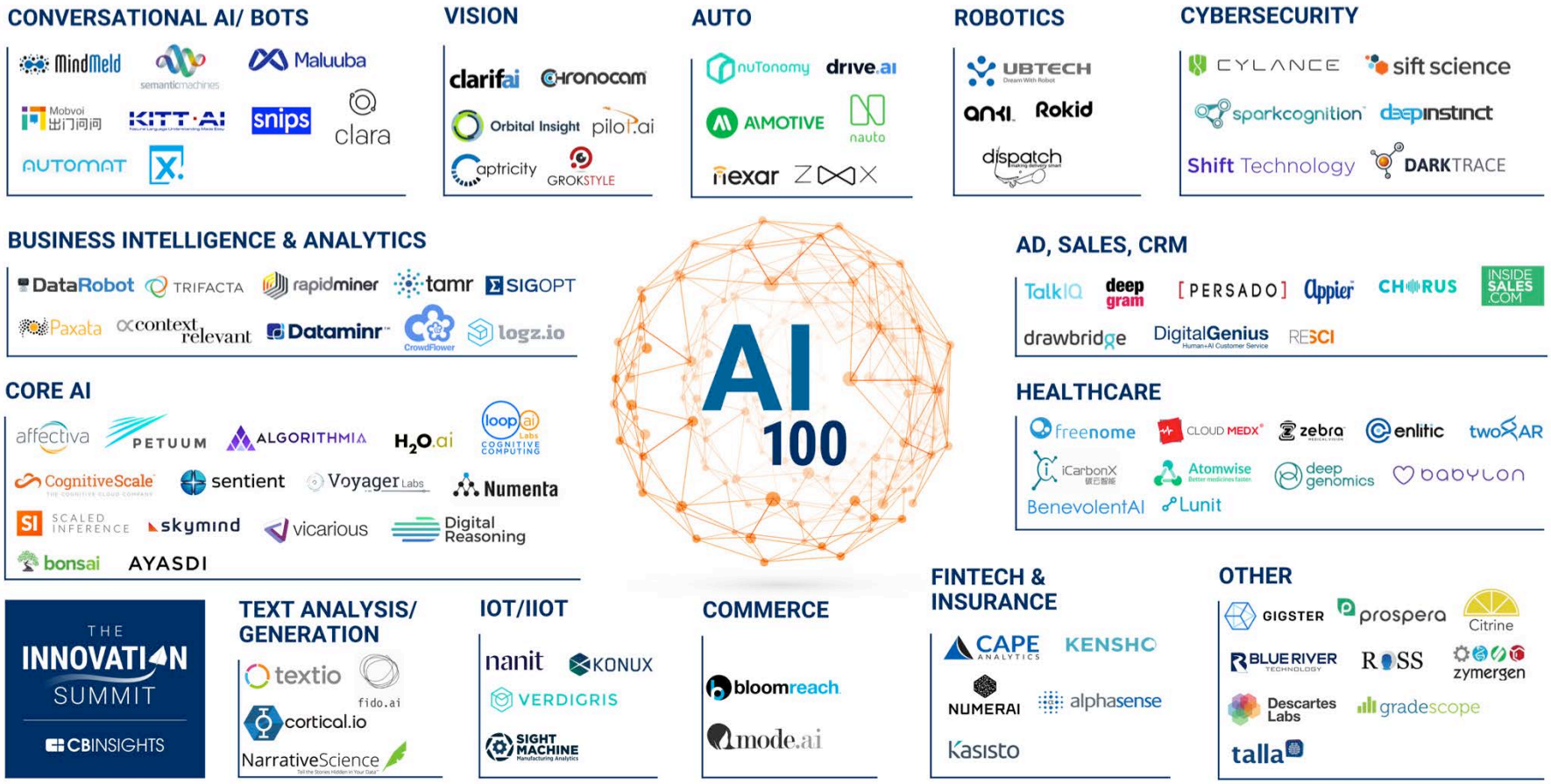
Source: Centre for Solar Energy and Hydrogen Research

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

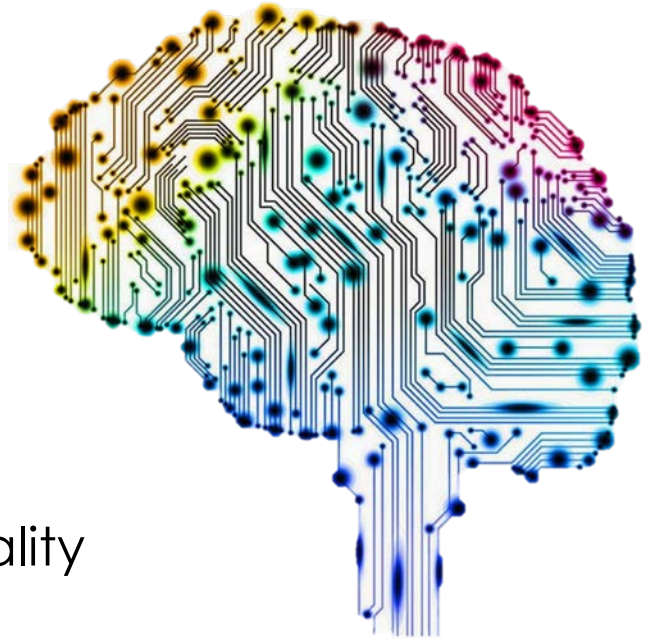
outsource
powered by SIG

100 Startups Using Artificial Intelligence to Transform Industries



Source: CB Insights; https://www.cbinsights.com/blog/artificial-intelligence-top-startups/; January 11, 2017

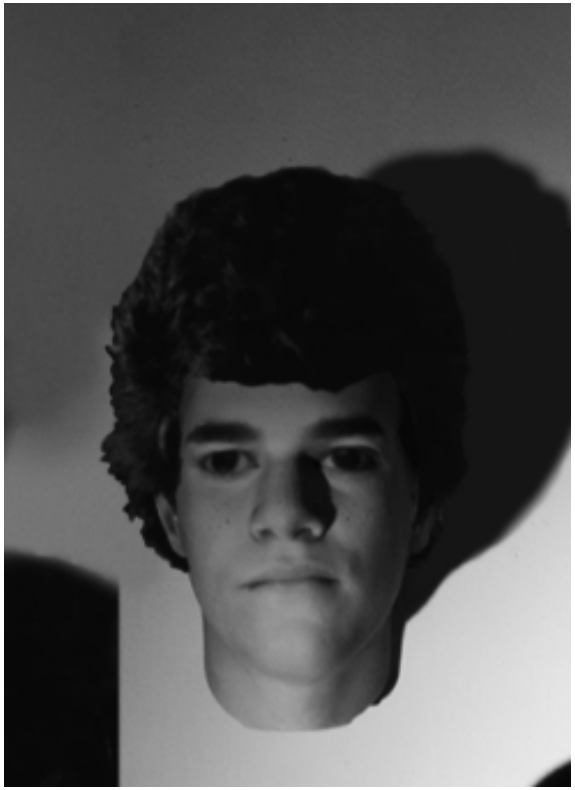
AI's Value Add



- Augments human skills
- Improves prediction accuracy
- Accelerates process timing
- Solves complex problems quickly
- Improves product and service quality
- Increases productivity
- Decreases total product and service costs
- Manages corporate task and domain knowledge

Expands the range of the possible!

Not a disruptor…but very exciting!



Source: Kurt Anderson's DNA Portrait;
http://deweyhagborg.com/projects/stranger-visions

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG

Thank You

Dawn Tiura
President and CEO, SIG

URL: www.sig.org
Phone: 904.310.9557
Email: dtiura@sig.org

SIG
the network for sourcing executives

SIG UNIVERSITY
CERTIFYING SOURCING LEADERS

outsource
powered by SIG