



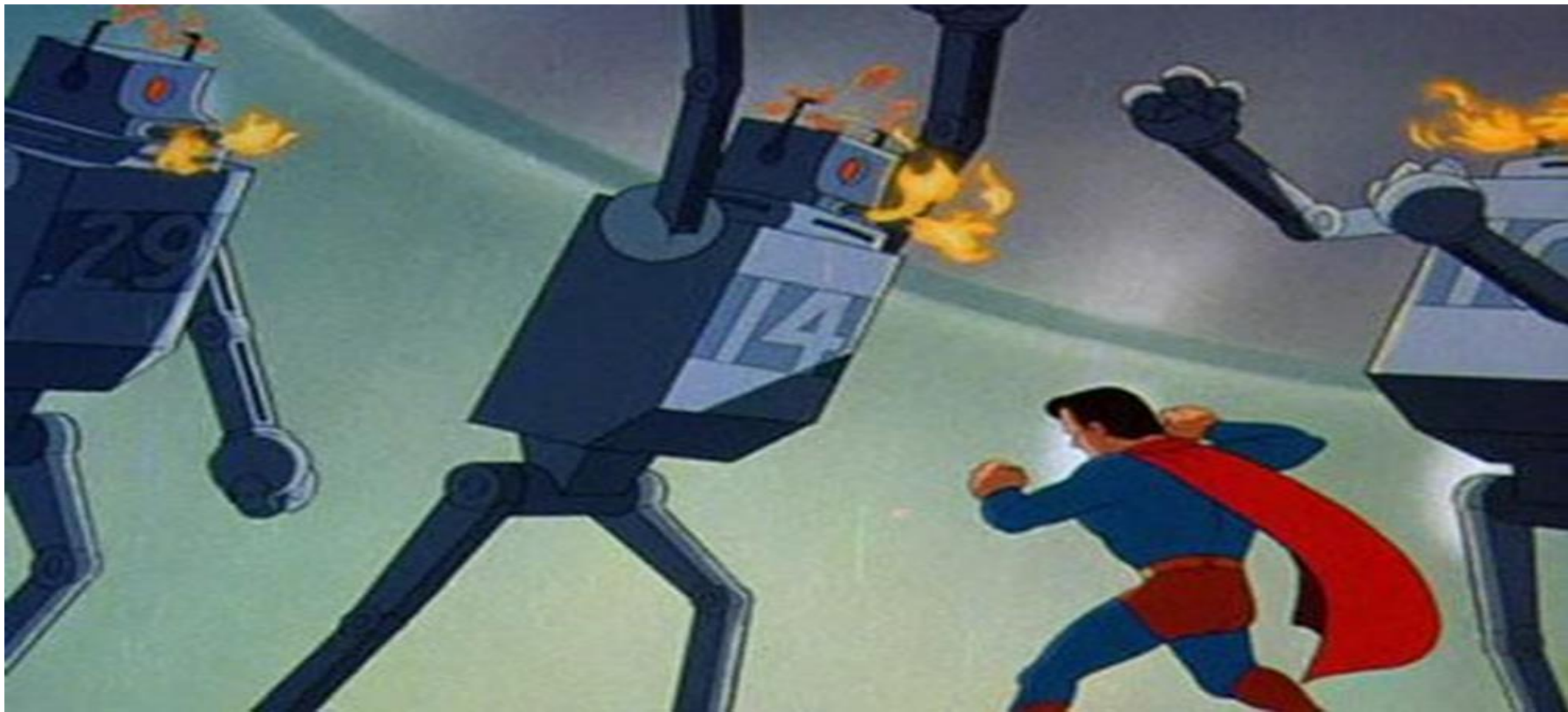
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# Should You Hire An Employee, A Robot Or An Algorithm?

Welcome to **Human & Robot Resources (HRR)**  
where robots are part of the workforce plan

© Dr John Sullivan

**Just like Superman...  
HR can't ignore... "The March Of The Robots"**



# Five key points for today

1. My goal is to get you to **think about the impact of robotics**
2. The March of the Robots **is a tidal wave that has already begun**
3. **HR is mostly out of the loop** when it comes to robot adoption decisions
4. If HR's goal is to increase productivity, it must begin to **consider all options for getting work done**
5. Whether HR gets involved with robots or not, **be ready for a firestorm** when your employees realize that their jobs are permanently gone



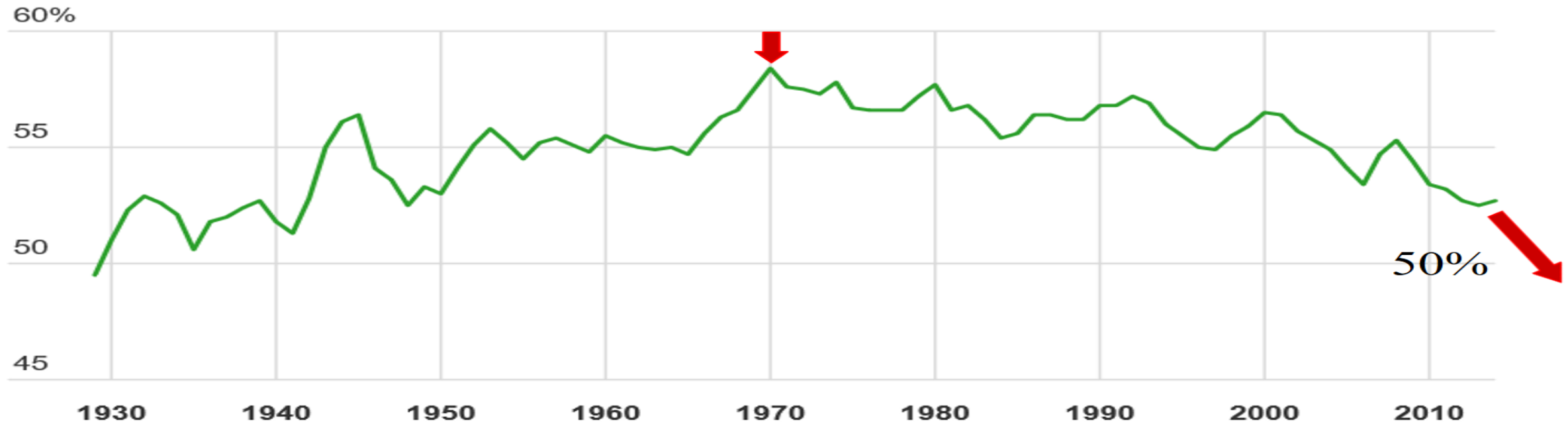
**IN CASE YOU MISSED IT...**

**THE ROBOT REVOLUTION  
IS ALREADY HERE**

# Who produces more... humans or robots?

## Workers now produce a smaller share of US output

This graph shows workers' share of US output since 1929. Notice that employee income comprises the lowest share since the 1940s.



Washington Post [https://www.washingtonpost.com/posteverything/wp/2016/02/17/yes-the-robots-will-steal-our-jobs-and-thats-fine/?utm\\_term=.04ed0d3cccb6](https://www.washingtonpost.com/posteverything/wp/2016/02/17/yes-the-robots-will-steal-our-jobs-and-thats-fine/?utm_term=.04ed0d3cccb6)

**88% of lost US jobs** were taken by robots and other homegrown factors that reduce factories' need for human labor (Source: Christian Science Monitor)

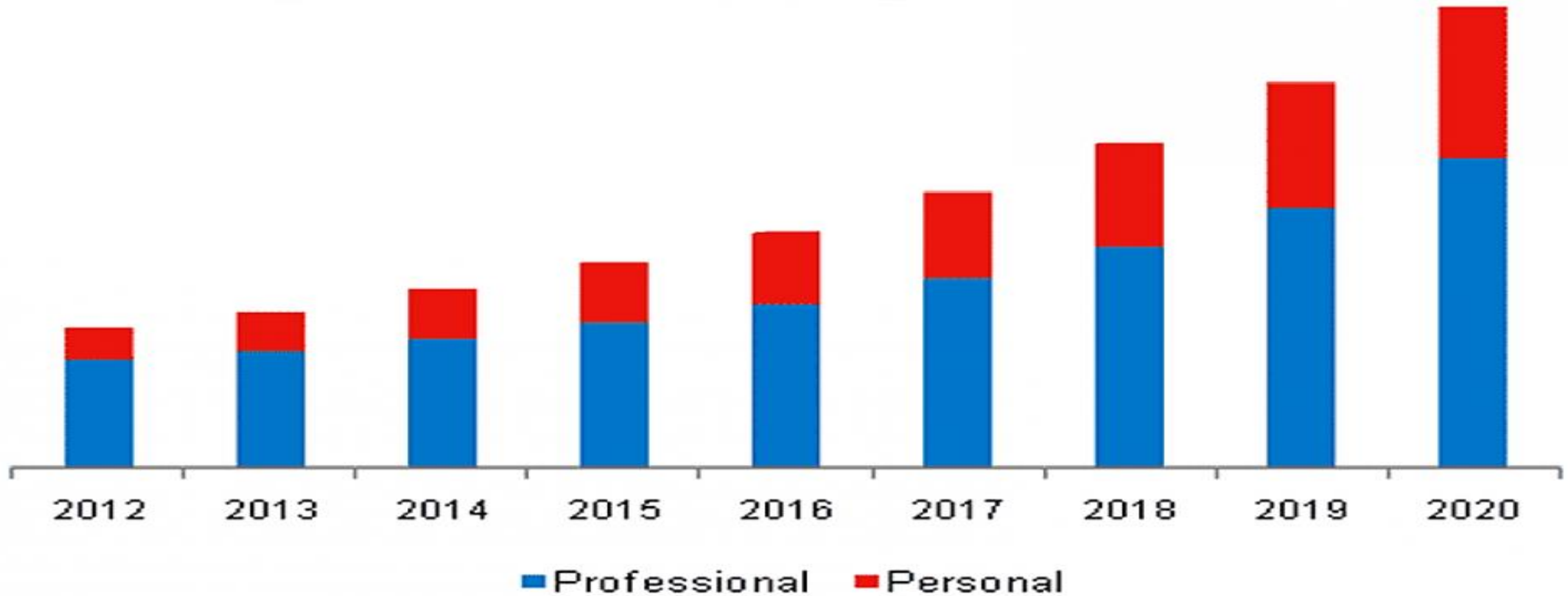
# What percent of jobs will robots do?

*“Robots will take over approximately 50% of the jobs in the U.S. economy over the course of just a decade or two” - Marshall Brain*

*"We are approaching a time when machines will be able to outperform humans at almost any task"*

*Moshe Vardi, Rice University*

# The demand for robots is increasing



Global service robotics market  
by application (USD Billion)  
2012 to 2020

Source: Grand View Research



**IS YOUR HR CURRENTLY CAPABLE  
OF ...**

**DECIDING WHEN ROBOTS ARE  
BETTER FOR THESE JOBS?**



# Drivers are becoming obsolete



**Bud makes shipment with self-driving truck**



Already operating in Pittsburg

# Delivery drivers are becoming obsolete

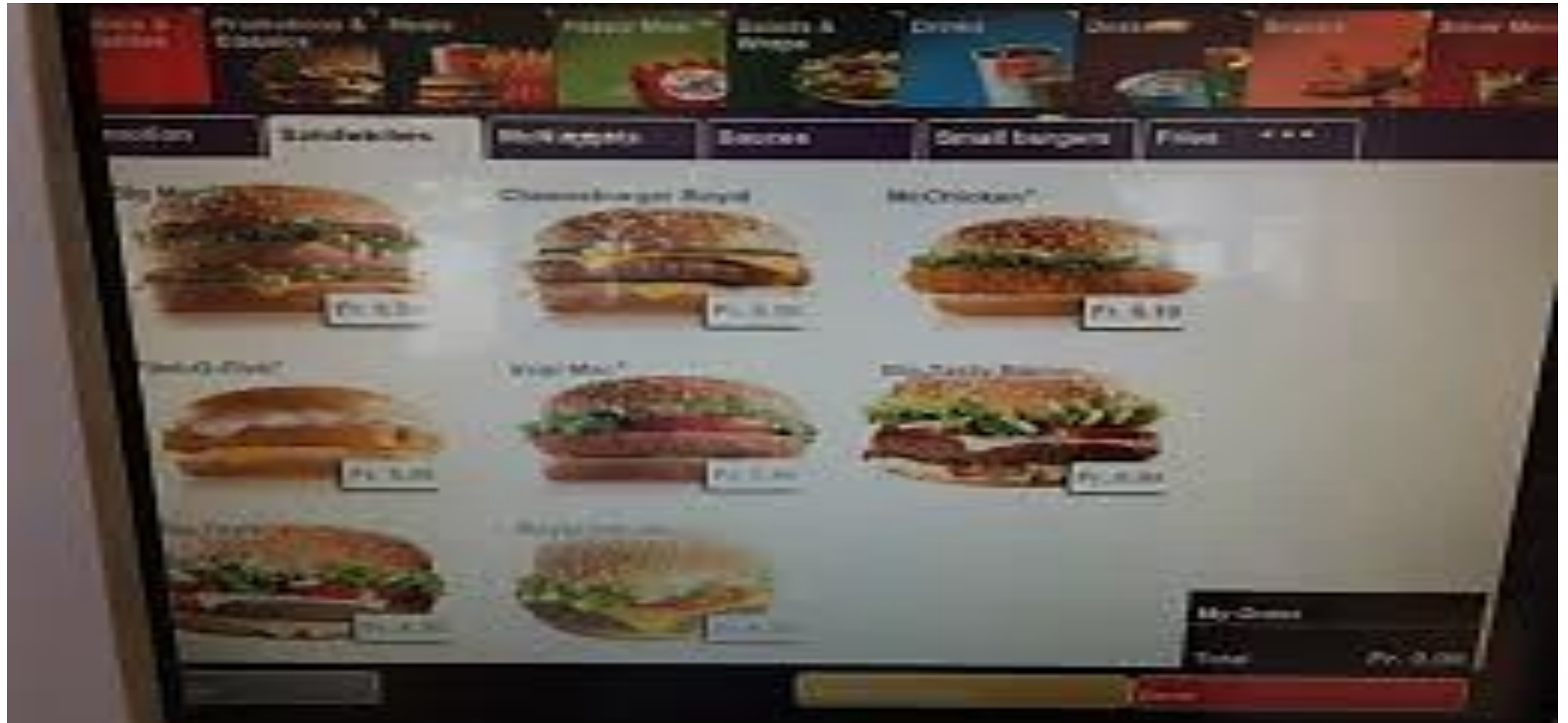


**Slurpee delivery in Reno**



**Domino's Robot Unit in NZ**

# Cashiers are becoming obsolete



McDonald's self-service in Australia

# Servers are becoming obsolete



Robots server in China

# Some cooks are becoming obsolete



Zume pizza  
delivery in SF



# Warehouse / inventory jobs are being replaced



Amazon warehouse

# Production jobs are being supplemented with CoBots



Baxter factory - CoBots work alongside and do not replace people

# Jobs that answer questions are going to chatbots and IVR



At Georgia Tech... the TA  
“Jil Watson” was a chatbot



# Farmers are being replaced by robots



Robot fruit picker in California

# Security, police, fire and military





**AND DON'T BE FOOLED...**

**PROFESSIONAL JOBS WILL ALSO BE  
DONE BY ROBOTS**

# The medical field is a leader in robots

How many med. papers are published a day? 8,000

Watson “sifted through 20 million cancer research papers”

And came up with the proper diagnosis within 10 min.

Watson found something that humans missed 30% of the time



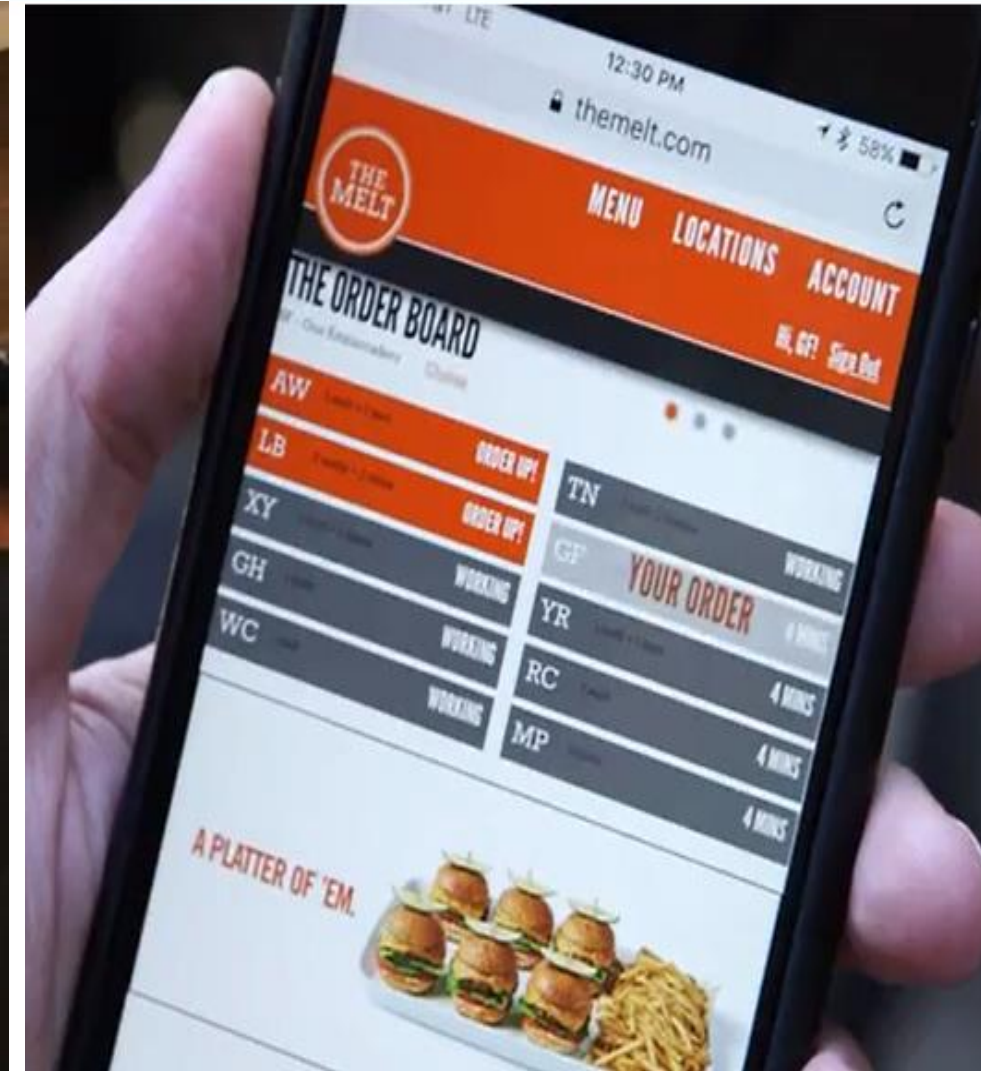
# Surgical jobs now go to robots





**SOME ENTIRE STORE OPERATIONS  
WILL BE ROBOTIC**

# Robots might do every employee job



Café X in SF



**NO,  
HR CAN'T AFFORD TO WAIT**



# The Robot Tsunami is coming faster than you think

Be aware... once all Uber cars become driverless...



The Robot Tsunami will accelerate beyond belief



# Unique technologies which are likely to replace your employees

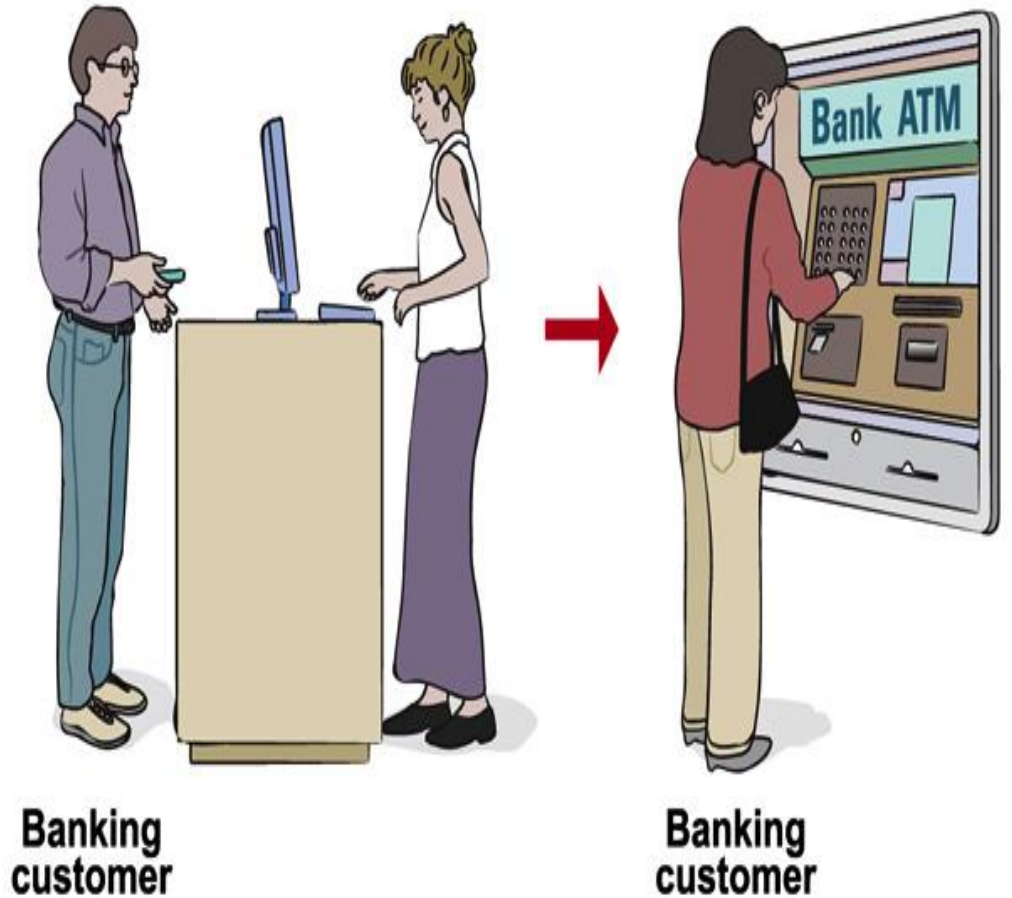
- **Phone apps** (the internet is shrinking)
- **Voice recognition apps**
- **Facial recognition** and neuroscience tech
- **Employee tracking** and GPS location devices
- **Chatbots**
- **CoBots** (work alongside employees)
- **Decision algorithms** using AI & machine learning
- **Predictive analytics**
- **Virtual reality**



**VISUALIZE ALL THE JOBS  
AT YOUR FIRM... THAT ARE  
ALREADY DONE BY ROBOTS**

# These corporate jobs have mostly been replaced

- Fax / Xerox machine operators
- Travel agents
- Switchboard operators
- Legal / business researchers
- Telemarketers
- Stock traders
- Hotel / airline check-in
- Movie projectionists
- All bank employees (Fintech)



# These HR jobs have already been replaced by tech

- Org chart drawing specialist
- Payroll pay distributor
- HR call center staff
- Pension manager
- Resume reader / sorter (ATS)
- Personnel record clerk
- HR secretary
- Employment tester
- Benefits information assistant
- In-house reference checker

# Is this a future help want ad?





# HR STRATEGIC ACTION STEPS

**Step #1** - Be part of the robot vs. human **decisions**

**Step #2** - **Criteria** for selecting between them

**Step #3** - Handling **hostile employee pushback**

HR is often already at a disadvantage

(When compared to tech or IT )





# Step #1 – Understand why HR has little impact on “tech vs. employee work decisions”

1. **HR is often not invited...** to discussions on purchasing worker replacing technologies
2. **HR has little influence...** even when HR is involved and it fights tech... **technology usually wins**
3. **Know both...** tech managers argue they **know both people and tech... but HR isn't tech savvy**
4. **Metrics...** robot installations always have **metrics quantifying performance... employees don't**
5. **ROI...** tech departments already **calculate the ROI of their installations... HR does not**
6. **Data on advantages...** tech has data **showing the advantages of tech... HR has no data on when employees perform better** >

# What's wrong with people / employees?

1. They want **pay, overtime and benefits**
2. They expect **retirement pay** till they die
3. Higher **minimum wages** make hourly's expensive
4. They can't work **24 / 7 / 365** and **in bad weather**
5. A **high error rate** when compared to machines
6. Their **skills go obsolete** & upgrading them is difficult
7. They require a **manager / supervisor**
8. They get **sick**, they are **late and absent**
9. They arrive at work **sleepy, drunk or high**
10. They get **tired, hurt** and they **need breaks**
11. They **steal and** can reveal **company secrets**
12. They **join unions**
13. They **create interpersonal and robot conflicts** >

# Advantages of tech over employees

1. Machines have higher level **capabilities** (Watson)
2. It can do **dangerous work** in any weather
3. It can do **precision work** with few errors
4. It can do **high level mental calculations** better
5. It can do physical **work with more strength**
6. It can do **high volume of work... at low cost**
7. It can do work **faster and in less time**
8. It does **continuous repetitive work** without tiring
9. Phone app access is **24/7, so it will dominate**
10. It can find **relationships** in seemingly unrelated areas
11. Machines seldom have a **steep learning curve**
12. **Work replacement vendors** are everywhere >

# People may only be superior to technology in a few areas...

1. Innovation – humans come up with most innovations
2. Building relationships
3. Empathy
4. ~~Sales?~~
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

## Step #2 - You must develop your own Robot vs. Human selection criteria

1. Proof of **performance** improvement or differential
2. Customer / user **resistance** and satisfaction
3. Is the **work strenuous or dangerous?**
4. **Tech reliability, capabilities** and error rate
5. **Global** capability
6. **Time** to implementation & **probability of failure**
7. Costs and **ROI**
8. **Vendor reliability** & service (vendor selection checklist)
9. The availability of **upgrades**
10. Is decision-making / **adaptability** under crisis needed?
11. Is company specific **innovation required?**



# **HR MUST KNOW WHERE THE MOST PRODUCTIVITY COMES FROM**

- Understanding **which employees** are more productive
- Calculating **when robots** are more productive than humans

# With fewer employees... you must have the right ones

**The top 10% of your employees produce what percentage of the value?**

**“90% or more of the value on your teams comes from the top 10%”**



Source: Laszlo Bock of Google

# Which level of employees have the highest ROI?

**The Container Store®**

**makes hiring top performers its foundation principle**



- **We pay great employees up to 100% more than other retailers**
- **Yes, top employees cost more... but we get... “three times the productivity at two times the payroll cost” (ROI)**



# Robots can do better quality and cheaper work

**Changying Precision Technology (China) recently replaced 90% of its workforce with machines**

- **It used to need 650 workers to make mobile phones**
- **Now the factory has 60 robot arms and only 60 people**
- **The change led to “a staggering 250% increase in productivity and a 80% drop in defects”**



# The remaining employees must be special

- **Technology employees...** will be critical but they will be hard to recruit and retain
- **The remaining managers...** will have to be able to **manage both technology and people**
- **The remaining employees... must have higher-level tech skills and be top performers...** and HR must be able to attract and retain them
- **Innovators...** will have the **highest value**, but innovation is difficult in a **6 Sigma world**



**STEP #3 - HR MUST BE AWARE OF  
THE HUGE PEOPLE PROBLEMS THAT  
**ROBOTICS CREATE****

# Permanently unemployed workers will be unhappy

*Computers, intelligent machines, and robots seem like the workforce of the future.*

*And as more and more jobs are replaced by technology, people will have less work to do and ultimately will be sustained by payments from the government*

*Elon Musk*

# Are you ready for these people management problems?

- **Executives will expect a smooth transition** – so HR must have a great plan with metrics
- **Employee stress levels** – stress will increase as employees and managers fear **the uncertainty**
- **Resistance & sabotage** - asking employees to implement tech that will take their jobs **may cause stalling & sabotage**
- **Violence** – is possible between impacted and non-impacted employee groups & with installers & managers
- **Location tracking** – will make workers suspicious
- **Unions** – existing ones **will resist** or some new ones **will be formed** to fight tech replacements
- **Managing layoffs** – layoffs will be continuous, expensive and difficult with new legal protections

## Be prepared to handle a multitude of people problems

- **Who will be the future managers?** – because there will be fewer employees in **the promotion pool**
- **Retention** – the retention of **soon to be replaced employees** will be difficult, so **employment contracts** or “**stay bonuses**” may be needed
- **Surplus physical space** - there will be an excess of real estate after tech implementation (**ghost town**)
- **Bad PR from your conversion** – if there is bad PR, it will mean lost customers and applicants

# Why not just re-train your current workers?

## Up-skilling employees will be problematic because...

- **The required new tech skills will be so different** – many employees simply won't be able to raise their skill levels
- **Time is critical** – technologies change so rapidly, there may simply be **no time to wait for retraining**
- **Employee interest** – the **burden of re-training** may cause many employees to lose interest
- **Will training work?** – the training will be expensive and there is **no guarantee that it will work**
- **Firms won't have the training capabilities** – and by the time the training program is developed, the new technology may already be becoming obsolete

**And if re-training isn't viable...  
can't HR just hire the best from the talent market?**

**What % of all new-hires fail within 18 months?**

**“46%”** (Source: Leadership IQ)

**What % of all hourly employees quit or are fired within  
their first 6 months**

**“50%”** (Source: Humetrics)

**What % of management new-hires fail within 18 mths.**

**“Between 40 and 60%”** (Source: Harvard Business Review)

**What % of executive new-hires fail within 18 mths”**

**“Nearly 50%”** (Source: The Corporate Leadership Council)





# **HR IMPLEMENTATION STEPS**

# Implementation steps for HR

- Put together a **human / robot team**
- Make a **business case** for funding
- **Benchmark** what other companies are doing
- Begin shifting to a **data-driven HR**
- **Meet with** the heads of IT and technology
- **Form a partnership** between the departments that are likely to be considering new technology
- Jointly develop a set of “**selection criteria**”, integrated processes and performance metrics
- Ensure that new hires are **tech savvy (also HR)**
- Develop a checklist for **assessing tech vendors**

# Implementation steps for HR

- **Measure results** and improve your criteria
- Develop an effective **gig hiring** process
- **Assume obsolescence within HR** - in a VUCA world, HR must adopt an “**assumed obsolescence approach**” which assumes that all HR programs will likely become obsolete within 18 months

# Firms to learn from

- **Amazon**
- **U.S. Army**
- **IBM (Watson)**
- **Uber**
- **Domino's**
- **Tesla**
- **Google**
- **Mc Donald's**
- **Home Depot**
- **BMW uses CoBots** (Cooperative robots)

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