

digitization  
HUMAN SKILLS MACHINE LEARNING  
new ways of working  
AUTOMATION AI VR  
Robots GROWTH

# Humans Wanted: Robots Need You





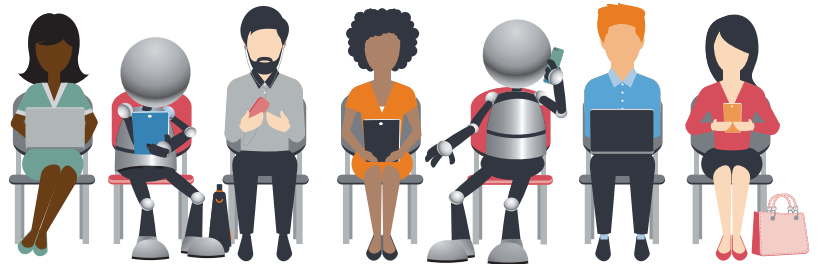
*The focus on robots eliminating jobs is distracting us from the real issue. More and more robots are being added to the workforce, but humans are too. For three consecutive years our research shows most employers plan to increase or maintain headcount as a result of automation. Tech is here to stay, and it's our responsibility as leaders to work out how we integrate humans with machines.*

*We have an important role in creating a culture of learning and building talent. Skills are the passport to growth and resilience for organizations and individuals alike, so we must nurture people's learnability and encourage continuous learning for all employees, not just those who would develop their skills anyway. Learning cannot be done as it was in the past. We must help people learn how to work with automation and develop the new skills they need to integrate with machines. We need quick bursts or cycles of learning so we can capture these opportunities as technology transforms markets.*

*This report provides a real-time view of how automation is changing the way organizations operate: hiring more people, creating more jobs and upskilling more so that they have the workforce they need to succeed. This is not an either - or, human versus machine. I'm convinced: organizations and individuals really can befriend the machines and collaborate in harmony to create a stronger, better society.*

**Jonas Prising,**  
**Chairman & CEO, ManpowerGroup**

# Humans Wanted: Robots Need You



Robot workers replacing human jobs – the debate of the decade. In reality, the opposite looks true. Our research shows **U.S. employers, 91%, plan to increase or maintain headcount as a result of automation for the third consecutive year.** Rather than reducing employment opportunities, organizations are investing in digital, shifting tasks to robots and creating jobs. At the same time, companies are scaling their upskilling so their human workforce can perform new and complementary roles to those done by machines. **The Skills Revolution is in full flow.**

*More U.S. employers, **91%**, plan to **increase** or **maintain** headcount as a result of **automation***

## WE ASKED 1,050 EMPLOYERS in the UNITED STATES ABOUT:

- The impact of automation on job growth in their organizations in the next two years
- The functions they plan to increase headcount the most, and the types of skills they are looking for
- The talent strategies they are implementing to ensure a future-fit workforce



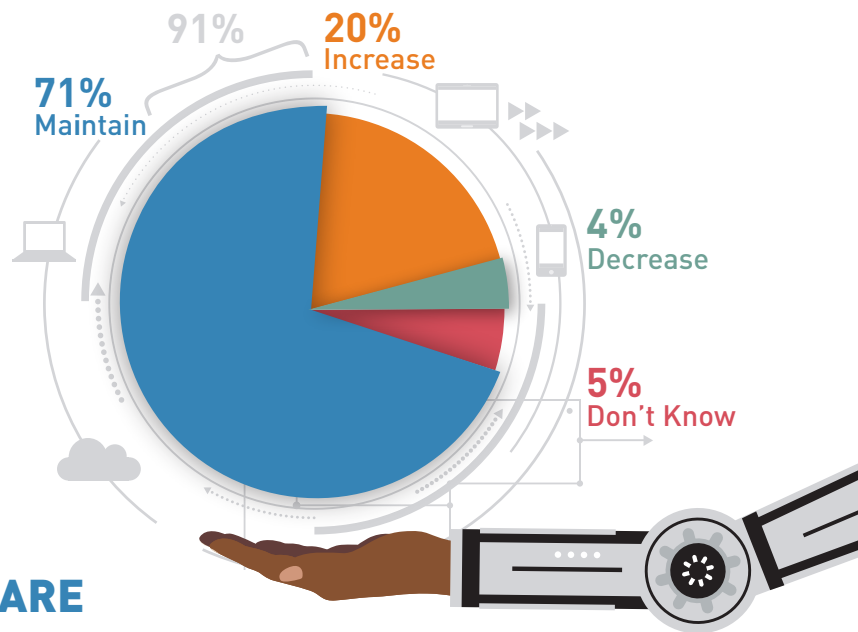
## LEARNABILITY

the ability and desire to quickly grow and adapt one's skillset to stay employable for the long-term

# THE HIGHLIGHTS

## AUTOMATION IS CREATING JOBS – AND THE TREND IS SET TO STAY

Employers continue to anticipate increasing or maintaining their workforce as a result of automation – a slight increase from 90% to 91% in three years. At the same time, the share of companies predicting job losses has remained low and consistent at just 4%.



## ... AND ORGANIZATIONS THAT ARE AUTOMATING MOST ARE CREATING THE MOST JOBS

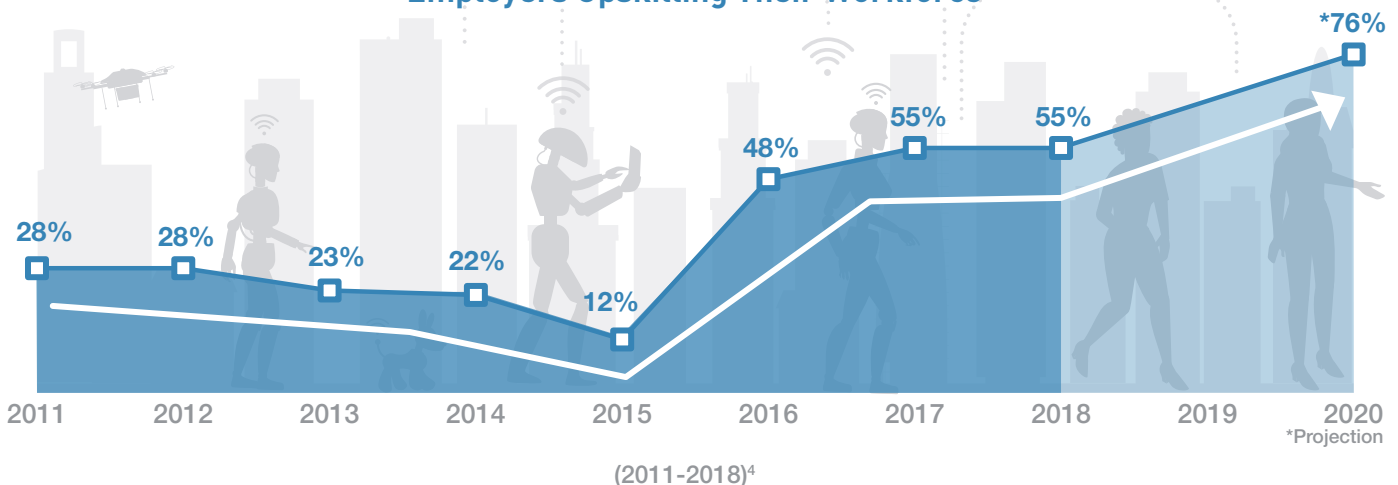
Companies that are digitizing are growing, and that growth is producing more and new kinds of jobs. Those **organizations that are already automating tasks and progressing their digital transformation are also most confident** of increasing headcount. Thirty-four percent of those companies say they expect to create more jobs in the next two years. Only 7% of those that are automating say they will reduce headcount, while 4% are not sure what the future holds.

*Of the **30% of companies** that will automate tasks over the next 2 years, **34% will create more jobs**. Employers continue to anticipate increasing or maintaining their workforce for the third year as a result of automation – at 91%.*

## ... AND UPSKILLING IS ON THE UP: COMPANIES ARE BECOMING BUILDERS OF TALENT

With global talent shortages at a 12-year high<sup>3</sup> and new skills appearing as quickly as old ones disappear, **more companies are planning to build talent than ever before**, and this is projected to increase by 2020. Companies are realizing they can no longer expect to find just-in-time talent, on tap. Seventy-six percent of U.S. organizations expect to be upskilling their workforce by 2020.

### Employers Upskilling Their Workforce





## HIGH HIGH HOPES FOR AUTOMATION

Confidence in automation is growing globally. In 35 of 44 countries more companies are planning to grow or maintain rather than shrink their workforce. Robots are helping to boost productivity and proving to be critical to economic growth. Failure to invest in automation risks missing out on creating wealth and jobs. Yet countries and regions are adopting robots at vastly different rates: Southeast Asia is outperforming Europe and North America, and China is outpacing the U.S.<sup>5</sup>

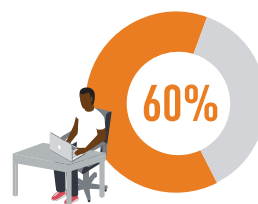
## DEMAND FOR DIGITAL SKILLS GROWING: OUT WITH THE OLD, IN WITH THE NEW

Automation is changing the skills companies need from workers, yet the speed with which this is happening across functions within organizations varies.

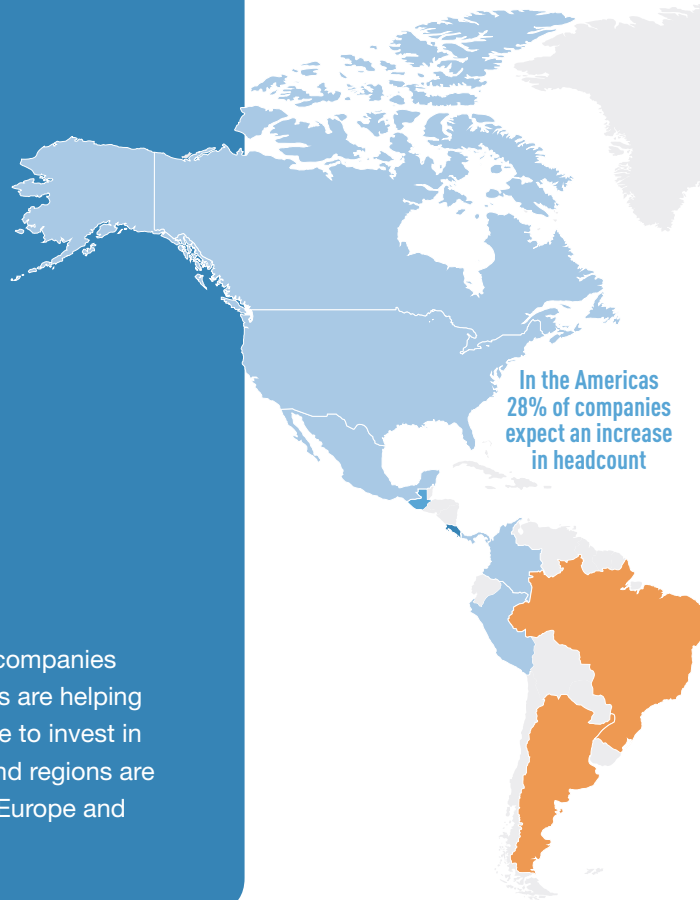
Demand for IT skills is growing significantly and with speed: 16% of companies expect to increase headcount in IT — over three times more than expect a decrease. Meanwhile **the availability of tech talent is increasingly scarce,<sup>6</sup> and the education and experience employers require versus what exists is presenting a mismatch.** In the U.S. 86% of IT vacancies require a bachelor's degree in computer science, yet just 43% of IT workers have one; 92% of Java developer job ads ask for a degree when only 48% of developers have one. In the U.K., only 25%

of IT workers have a degree yet for 46% of open roles it's a mandatory requirement.<sup>7</sup>


Manufacturing and production anticipate the most change: 19% of employers say they will employ more people in the near-term while another 12% say they will employ fewer — resulting in job growth together with significant skills disruption in the industry. **Globally, growth will come too in frontline and customer-facing, engineering, and management roles, all of which require human skills** such as advanced communication, negotiation, leadership, management and adaptability.<sup>8</sup> In other functions, HR, administrative and office roles are shrinking their headcount.



**of U.S. companies planning to *increase headcount in IT roles say communication is the most valued soft skill<sup>9</sup>***



**In the Americas  
28% of companies  
expect an increase  
in headcount**



**ManpowerGroup is closing the gap. Working with clients like Microsoft, we are assessing role requirements, identifying skills adjacencies and upskilling people to become certified games testers in just three months. Passion for gaming, excellent problem-solving skills and the ability to learn quickly are key components, and to date we have upskilled over 500 people in these in-demand skills.**



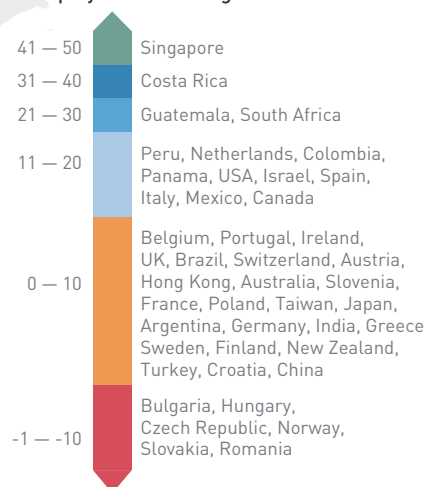
Only Bulgaria, Hungary, Czech Republic, Norway, Slovakia and Romania predict a decrease in headcount

Agriculture and Manufacturing sectors are least confident the workforce has the skills to take advantage of new technology

Two thirds of employers in EMEA anticipate no change in headcount as a result of automation

Countries least confident in existing technical skills predict lowest increase in headcount, with the exception of Singapore

#### % Employers Increasing Headcount

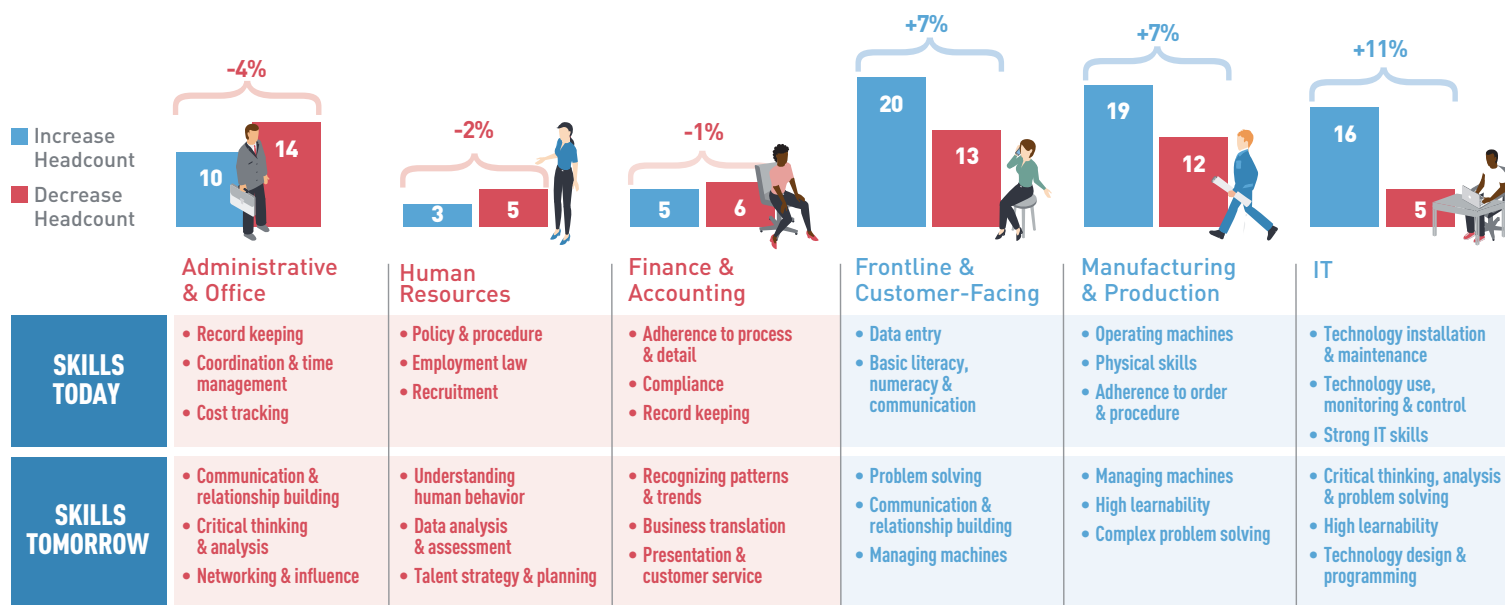


#### % Employers Decreasing Headcount

## HUMAN SKILLS TRENDING: HARD TO FIND, EVEN HARDER TO TEACH

Demand for tech and digital skills is growing across all functions<sup>10</sup> yet **employers place increasing value on human skills as automation scales and machines prove better at routine tasks.** While 29% of organizations say it is difficult to train in-demand technical skills, 38 % said it is even harder to teach the soft skills they need such as analytical thinking and communication. Candidates who can demonstrate higher cognitive skills, creativity and the ability to process complex information, together with adaptability and likeability, can expect greater success throughout their careers. By 2030, demand for human skills – social and emotional soft skills – will grow across all industries by 26% in the U.S. and by 22% in Europe.<sup>11</sup>

## Functions Anticipating the Largest Increase and Decrease in Headcount in the Next Two Years



# TALENT STRATEGIES FOR THE SKILLS REVOLUTION: BUILD, BUY, BORROW, BRIDGE

Talent shortages are at a 12-year high and new skills are appearing as quickly as old ones disappear. Almost all (89%) employers are pursuing one or more talent strategies to secure the skills they need and companies with a plan are more confident of expanding their headcount than those that are hesitating.



Invest in learning and development



Go to market to attract the talent that cannot be built in-house



Cultivate communities of talent beyond the organization



Help people move on or move up to new roles inside or outside the organization

## BUILD THE BUILD SOLUTION: UPSKILLING IS SCALING UP

More companies are planning to build talent within their workforce than ever before. Seventy-six percent plan to upskill employees by 2020 – an exponential increase from 28% in 2011.<sup>12</sup> **Companies are realizing they can no longer expect to find just-in-time talent, even if they are willing to pay the premium for it.**



**76% of employers will upskill their current workforce versus 28% in 2011**

## ALL ROADS LEAD TO LEARNING

By 2022, over half (54%) of all employees will require significant reskilling and upskilling. Of these, about 70% are expected to require training of up to six months, 13% will take six to 12 months to reskill and 9% will require additional skills training of more than a year.<sup>13</sup> Learning will be essential.

Companies are deploying a myriad of approaches to address this. In North America, online Learning Management Systems are the primary means of training the workforce at scale, providing mass content, especially for onboarding, compliance and cyber security training.

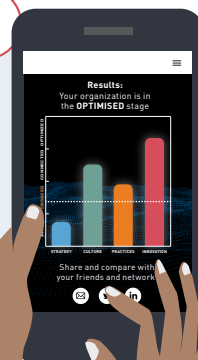
But to really compete in the Skills Revolution, **companies need to promote a culture of learning, provide career guidance and offer short, focused upskilling opportunities.** People need to know how to prepare for high growth roles of the future and that their employer supports their learning. The return on investment for upskilling is clear: in North America the cost of turnover and replacement can exceed 30% of wages,<sup>14</sup> while the cost of training remains less than 10% of wages.<sup>15</sup> As well as providing internal in-person and online training, companies are tapping external resources to do this: 38% are partnering with outside organizations such as schools, colleges and industry bodies to build communities of talent.



Companies prioritize talent strategies differently depending on where they are on their digital journey. Trailblazing organizations – those most advanced in automating tasks and increasing headcount – are utilizing the following strategies in this order:

- |                                 |                                    |                                  |
|---------------------------------|------------------------------------|----------------------------------|
| 1. Automating work              | 4. Recruiting for temporary skills | 7. Upskilling existing employees |
| 2. Increasing salaries          | 5. Redeploying internally          | 8. Hiring new permanent skills   |
| 3. Bridging unneeded talent out | 6. Offering better benefits        |                                  |

ManpowerGroup's Digital Evolution Pathway assessment helps leaders measure their organization's digital maturity across four areas: strategy, people and culture, process and innovation. Find out yours at: [www.digipathway.com](http://www.digipathway.com)



# BUY



**77% of employers plan to buy the skills they need, either paying higher market prices or improving compensation for existing staff**

## THE BUY SOLUTION: WAGES ARE RISING FOR THOSE IN DEMAND

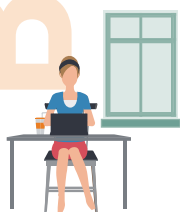
Organizations have long been used to being able to spend to find the skills they need, when they need them. Not so today. In this tight labor market when skills needs are changing faster than ever, the most **in-demand talent can call the shots**. While wage stagnation is much talked about and wage growth is stubborn for low-skilled workers, companies are happy to pay more for sought-after skills. Twenty-six percent are offering higher salary packages to solve recruitment problems and 53%<sup>16</sup> are paying more to attract and retain existing staff. The challenge comes when those skills are not available. Then the only option is to build.

# BORROW

## THE BORROW SOLUTION: NEXTGEN IS THE NEXT BIG THING

Digitization has created **new ways of working and new generations of workers who are increasingly comfortable clocking in part-time, working on a contract or project basis** and pursuing other forms of alternative labor. But here's the rub: 94% of workers say they are open to these NextGen work approaches<sup>17</sup> yet only 25%

of employers are offering alternative ways of working. Companies need to address this disconnect to be able to attract NextGen workers while retaining and motivating those they have today.



**Only 25% of organizations will use contractors and other forms of alternative work models even though 94% of workers say they are open to this NextGen work**



## THE BRIDGE SOLUTION: REDEPLOY, REASSIGN OR RELEASE

Over half of organizations (49%) are helping people move on, move up or move out to new roles inside or outside the organization as part of their talent strategy. Of those, 43% of employers are moving employees around within their organization, while 23% are helping workers whose skills no longer fit move to roles outside the organization. **Bridging requires tools including assessment, big data and predictive performance to define adjacent skills, identify strengths and help workers create clear career paths.** Companies need to treat workers fairly and with compassion if their skills are no longer required.

**49% of employers will create pathways for people to move around or out by 2020**

**Warning: companies not pursuing any future workforce strategies are only around half as confident of creating new jobs in the near-term as those rolling up their sleeves and putting actions in place.**

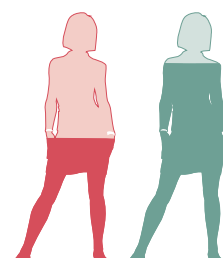
## WHAT NOW, WHAT NEXT?

### ASSESSING FOR CURRENT CAPABILITIES AND FUTURE SKILLS ADJACENCIES

People perform at their best when their role is the right fit for their natural capabilities and their strengths are understood. **Assessment is the most valuable way of understanding human potential and matching people to the right role.** This is how employers can identify skills adjacencies — the skills people have that can be easily adapted and applied to new roles.

Assessing people increases the likelihood of placing the right person in the right role from 50% to more than 80%, yet **just 48%<sup>18</sup> of people have actually had an assessment of their skills.<sup>19</sup>** When companies understand their people and can predict their performance, they will see better performance and more engaged, productive and motivated employees.

*Assessing people increases the likelihood of placing the right person in the right role from **50%** to **80%***



## WINNING SOLUTIONS IN THE SKILLS REVOLUTION



### LOOKING INTO THE FUTURE OF DIGITAL MANUFACTURING

The manufacturing sector in the U.S. is estimated to produce up to 2 million new jobs over the next decade. At the same time, almost 2.7 million manufacturing workers are set to retire by 2025,<sup>20</sup> while digitization and automation are changing skills at pace. The jobs of today look different to yesterday and will look different again tomorrow.

To find practical solutions to this skills shortage and ensure up to 2 million jobs do not go unfilled, ManpowerGroup convened companies including Siemens, Microsoft, Caterpillar and GE to create an industry recognized taxonomy that defines digital manufacturing roles of the future. **This groundbreaking workforce analysis, developed in partnership with the Digital Manufacturing and Design Innovation Institute (DMDII), identifies 165 data-centric jobs and 20 core roles of the future.**

Detailed descriptions include both the technical and soft skills required for in-demand roles such as collaborative robotics specialists, manufacturing cybersecurity strategists and enterprise digital ethicists. And as these are future roles, n-depth analysis also helps companies to identify people with adjacent skills — those skills that are connected and can be adapted easily, developed and applied to these new roles. This is how manufacturing organizations can source a talent pipeline for existing and future factories, put new technology into practice and remain globally competitive.

#### Manufacturing Roles

##### Today

Assembler  
Technician  
Molder  
Welder  
Caster  
Fabricator  
Heat Treater  
Inspector  
Machinist  
Operator

##### Tomorrow<sup>21</sup>

Digital Manufacturing Engineer  
Predictive Maintenance Systems Specialist  
Manufacturing Cyber Security Strategist  
Collaborative Robotics Specialist  
Digital Manufacturing Biomimicry Specialist  
Change Management Strategist  
Enterprise Digital Ethicist  
Virtual Reality System Specialist  
User Experience Architect  
Digital Twin Architect





## USING AI TO PREDICT FUTURE SKILLS, AND ASSESS, MAP AND DEVELOP TALENT

It is critical for employers to understand the skills their workforce has, the skills they will need, and how to bridge that gap to build talent inside their organization and develop people for high-growth roles. To help companies do that ManpowerGroup Italy has designed an innovative Artificial Intelligence driven platform, Visi-Skill, which combines data analytics and workforce insight to help employers develop their own cloud-based skills bank.

**Visi-Skill captures the specific technical skills and human strengths of the workforce, analyzes current roles and generates an AI dashboard of skills changes over time, projecting the evolution of roles over a 1-3 year horizon. Every role breaks down the proportion of skills required: for example, a java developer role may require 50% java coding skills, 20% C# coding, 10% software design and 20% creativity. AI uses semantics to analyze people within the organization, and/or resumes of prospective external candidates whose skills most closely align with current and future skill demands.**

Visi-Skill began in Italy and is being scaled to the U.K., Germany, Netherlands, Spain, Norway and Sweden.



## DESIGNING CAREER PATHWAYS AND UPSKILLING FOR GROWTH INDUSTRIES

Preparing people for a future of work that is more digital and fast-paced than ever requires the upskilling of workers at speed and scale. To help our most motivated people access meaningful jobs and develop sustainable careers ManpowerGroup's MyPath® is providing accelerated learning programs, on-the-job training, certification and experience in the most in-demand roles.

### MyPath®



ACHIEVER



PROBLEM SOLVER



COMMUNICATOR



LEARNER



TEAM PLAYER

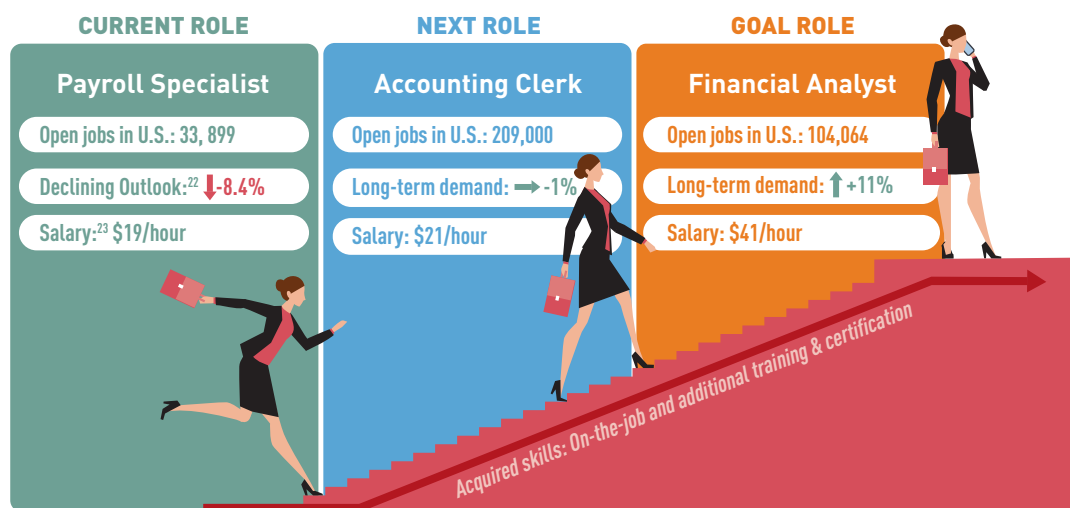


PRODUCER

By analyzing current and future demand for specific roles **MyPath creates tailored career tracks for our people to upskill and progress in their careers in growth industries** including IT, manufacturing and business operations. In the U.S. certified Talent Agents are taking individuals on a track from payroll specialist at \$19/hour to financial analyst at \$41/hour and beyond.

Individuals that demonstrate human skills — engagement, collaboration, curiosity, problem-solving, results-orientation and excellent communication skills — receive badges of recognition from employers, positioning them for further promotion and career progression. This combination of experiential learning, badging and coaching certifies technical skills and reward human strengths.

MyPath began in the U.S. and has helped more than 120,000 people upskill and earn more. It has been scaled to additional sectors in France and India.





**Mara Swan, EVP**  
Global Strategy and Talent,  
ManpowerGroup

## THE BEST SOLUTION TO THE SKILLS REVOLUTION: TALENT STRATEGY 4.0

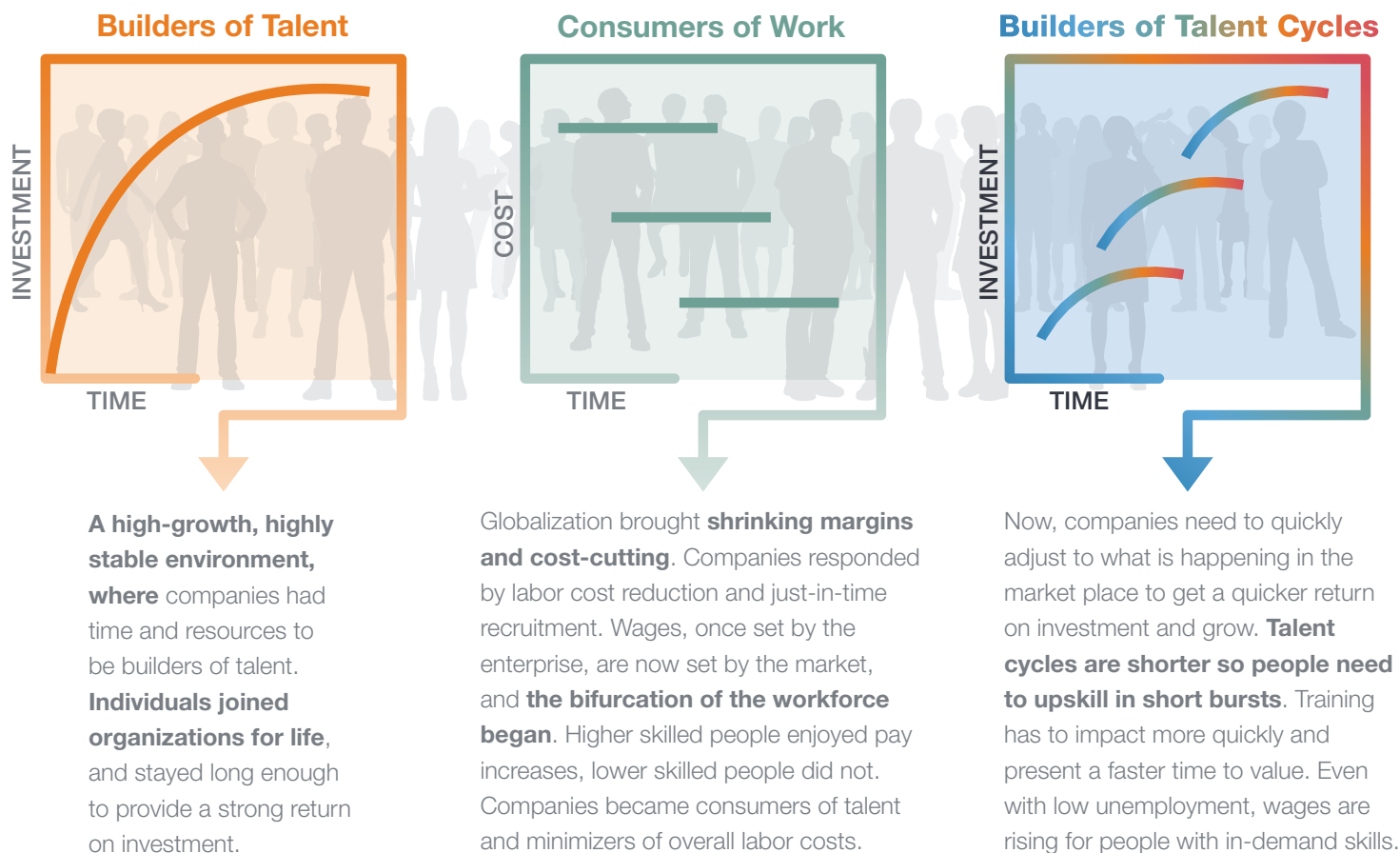
*The role of HR needs to continue to evolve to help organizations drive growth and profitability. We need a new talent strategy to help all companies integrate automation with human skills.*

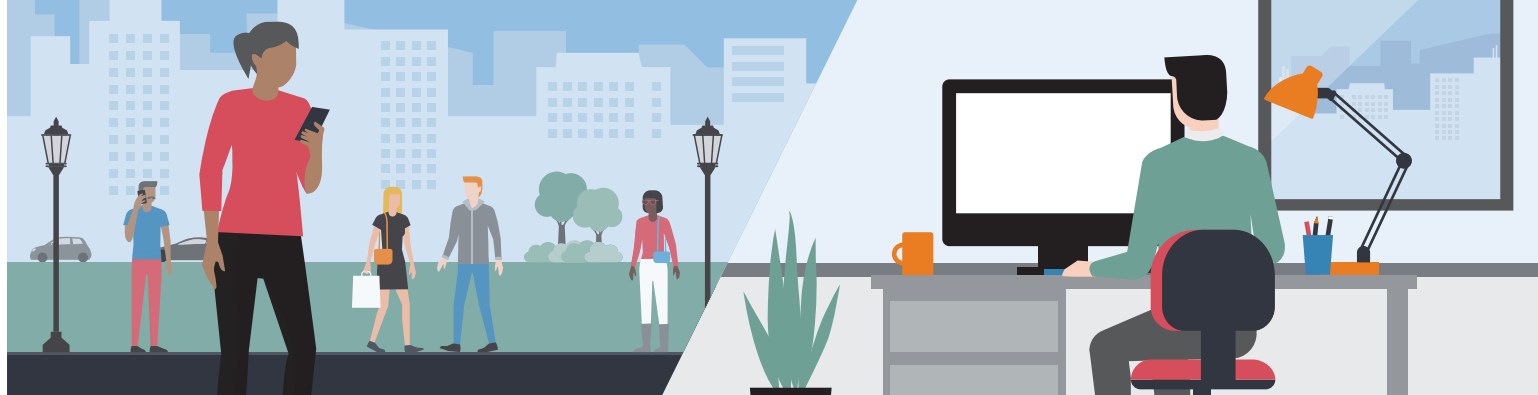
*Companies need to be able to adapt to quicker talent cycles than they have done in the past. They need to create agile teams, multi-functional and multi-skilled — similar to how many IT departments already work. They need to use quality assessments and data to predict performance and have full transparency of people's capabilities. That's how they can know an individual's skills, strengths and styles, beyond just the manager-worker perspective. And that's how they can know where to move talent around so people can perform to their potential.*

*People will need to do new work with new skills. This will require continuous learning and it's why learnability — the desire and ability to continually develop one's skills — is so important. People with high learnability will be able to develop in-demand skills, while those without will need to be developed in their job or helped to move elsewhere.*

*Companies can no longer be purely consumers of work. They need to be builders of talent cycles, helping people develop their resilience and ability to move from this role to that. In the Skills Revolution, this is how people will augment robots rather than be replaced by them.*

## THE EVOLUTION OF TALENT STRATEGY





## 7 WAYS TO ENSURE HUMANS CAN BEFRIEND THE MACHINES:



**1 REMEMBER LEADERSHIP MATTERS**

Executives need to be the igniters of change, innovation and culture to ensure their companies become learning organizations in an era of rapidly changing skills.<sup>24</sup>



**2 ENSURE THAT WOMEN ARE A PART OF THE SOLUTION**

Women comprise 50% of the workforce and in 2017 became more educated than men<sup>25</sup>. Creating a culture where women can thrive is more critical than ever. And importantly, what works for women works for others too.<sup>26</sup>

**3 UNDERSTAND WHAT YOUR WORKFORCE WANTS**



By 2025 Millennials and GenZ will make up more than two-thirds of the global workforce. Companies must respond by incorporating NextGen work models including contract, part-time, and temporary work to attract and retain the best skills — because 94% of workers want that.

**4 KNOW THE CAPABILITIES OF YOUR PEOPLE**




Organizations need to use assessment, clean data and predictive performance to deploy talent in the most effective way and avoid creating “skills silos.”

**5 TAILOR TRAINING**




Companies must replace sheep-dip approaches to training with focused strategies and guidance to develop critical, in-demand skills for their workforce.

**6 BET ON SOFT SKILLS**



Organizations should fine-tune talent strategies to account for the fact that human skills are harder to develop than technical skills.

**7 ENABLE HUMANS TO AUGMENT TECHNOLOGY**



Companies must continuously upskill their workers and create talent. They must assess and reevaluate the skills they need to ensure human talent complements automation.

**As digitization and automation become business as usual, HR needs to evolve.**

**With record talent shortages around the world and employers planning to automate tasks and create jobs, it's no longer a question of simply finding talent: we need to build it.**

**A dynamic talent strategy will fuel future growth by employing the right combination of building, buying, borrowing and bridging talent. Developing skills that are core to the business is how companies will develop organizational agility and workforce resilience for the future.**



ManpowerGroup®

## ABOUT MANPOWERGROUP

ManpowerGroup® (NYSE: MAN), the leading global workforce solutions company, helps organizations transform in a fast-changing world of work by sourcing, assessing, developing and managing the talent that enables them to win. We develop innovative solutions for hundreds of thousands of organizations every year, providing them with skilled talent while finding meaningful, sustainable employment for millions of people across a wide range of industries and skills. Our expert family of brands – Manpower®, Experis®, Right Management® and ManpowerGroup® Solutions – creates substantially more value for candidates and clients across 80 countries and territories and has done so for 70 years. In 2018, ManpowerGroup was named one of the World's Most Ethical Companies for the ninth year and one of Fortune's Most Admired Companies for the sixteenth year, confirming our position as the most trusted and admired brand in the industry. See how ManpowerGroup is powering the future of work: [www.manpowergroup.com](http://www.manpowergroup.com).



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Solutions



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ManpowerGroup



Manpower®



Right  
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## ABOUT THE RESEARCH

ManpowerGroup commissioned Infocorp to carry out quantitative research in 2018 surveying 19,417 employers across 6 industry sectors in 44 countries. The research was conducted in Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, China, Colombia, Costa Rica, Croatia, Czech Republic, Finland, France, Germany, Greece, Guatemala, Hong Kong, Hungary, India, Ireland, Israel, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Panama, Peru, Poland, Portugal, Romania, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Turkey, U.K. and USA. Data analysis conducted by Reputation Leaders.

## FOOTNOTES

<sup>1, 2, 9, 12, 16</sup> The Skills Revolution, ManpowerGroup, 2017  
and Skills Revolution 2.0, ManpowerGroup, 2018

<sup>3, 4, 6</sup> Solving the Talent Shortage, ManpowerGroup, 2018

<sup>5</sup> "Robot Reality Check: They Create Wealth – And Jobs,"  
Wall Street Journal, 2018

<sup>7, 22</sup> TalentNeuron, Gartner, 2018 and Market Analysis,  
ManpowerGroup Solutions, 2018

<sup>8, 10</sup> "Skill Shift: Automation and the future of the workforce,"  
McKinsey & Company, 2018

<sup>11, 13</sup> Future of Jobs Report, World Economic Forum, 2018

<sup>14</sup> "How much does employee turnover cost your business?,"  
G&A Partners, 2018

<sup>15</sup> Workforce Insights, ManpowerGroup Solutions, 2018

<sup>17</sup> Gig Responsibly: The Rise of NextGen Work,  
ManpowerGroup, 2017

<sup>18</sup> The Talent Delusion, Tomas Chamorro-Premuzic, 2017

<sup>19</sup> Human Age Series, ManpowerGroup, 2019

<sup>20</sup> Skills Gap and Future of Work Study, Deloitte Insights  
and The Manufacturing Institute, 2018

<sup>21</sup> The Digital Workforce Succession in Manufacturing,  
ManpowerGroup and UI Labs, 2017

<sup>23</sup> Employment Situation Summary, Bureau of Labor Statistics, 2018

<sup>24</sup> From C-Suite to Digital Suite: How to Lead Through Digital  
Transformation, ManpowerGroup, 2018

<sup>25</sup> "A Record Share of Men are 'Marrying Up' Educationally,"  
Institute for Family Studies, 2017

<sup>26</sup> Seven Steps to Conscious Inclusion: A Practical Guide for  
Accelerating More Women Into Leadership, ManpowerGroup, 2015

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