

Information Technology Industry Community Briefing

Skillset Principles for Corporate Leaders: Enabling Employees to Thrive in the Fourth Industrial Revolution

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Introduction

We are in the midst of an era driving new innovation and unprecedented productivity. The benefits of automation technology could well exceed simple labour substitution because people and technology combined are stronger than either alone. Even so, the disruption to enterprises and workers will be significant. According to the World Economic Forum's [report on workforce reskilling](#), one in four adults reported a mismatch between the skills they have and the skills they need for their current job.

At the World Economic Forum Annual Meeting 2017 in Davos-Klosters, Switzerland, the Governors of the Information Technology Community launched the IT Industry Skills Initiative to contribute to the global skills gap challenge and help address job displacement arising from automation and the Fourth Industrial Revolution. In response, the community created a free platform of online tools to help inspire and equip individuals with lifelong learning and reskilling (or upskilling) to thrive in an ever-evolving digital world. The Governors also mandated the Forum to develop practical tools to encourage organizations to strategically prepare their businesses and employees for inevitable disruption.

This white paper outlines seven principles that corporate leaders could consider to kick-start a conversation about how to respond proactively to the Fourth Industrial Revolution in ways that prepare not just businesses for the future, but their managers and employees as well. The paper summarizes the findings gathered by means of consultations and desk research and will be used to inform discussions at the World Economic Forum Annual Meeting 2018 in Davos-Klosters.

Skillset Principles for Corporate Leaders at a Glance

1. Awareness: Enabling transformation

Organizations with a comprehensive understanding of the opportunities presented by the Fourth Industrial Revolution are leading the change.

- How strategically has your organization considered digital transformation as a go-forward strategy?
- How prepared is your organization for the integration of disruptive technologies over the next 5 to 10 years?
- What actions can you take at all levels of your organization to become better educated about disruption in your industry and how this will affect you?

2. Organizational agility: Delivering strategic value

As technologies disrupt businesses, companies must adopt flexible organizational structures that enable digital and augmented workforces.

- Is your organization currently structured to foster and promote innovation?
- Does your current organizational structure support the integration of human creativity and digitization?
- In previous instances, where your organization went through a period of change, what worked and what did not? What could be replicated and what avoided?

3. Continuous learning: Creating employability

Creating a culture where continuous learning is valued and promoted cultivates a workforce with the skills needed for new phases of technology introduced by the Fourth Industrial Revolution.

- What skills will be most useful to your industry now and in the future?
- What is currently being offered by way of upskilling and/or reskilling initiatives?
- What are the incentives and resources that can be leveraged for different types of learners?

4. Leadership adaptability: Empowering and driving change

To respond to the demands of change, leaders must adapt their skillsets and attitudes.

- How well do you understand the impact of the technologies that are changing your industry and adjacent industries?
- How is diversity of opinion integrated into the decision-making of the company?
- Do your leaders seek mentorship outside of their industry?

5. HR strategy: Responding to continual, rapid evolution

Human resources managers are at the forefront of a rapidly evolving employment landscape. They are uniquely positioned to anticipate and prepare for future skills requirements and evolve existing talent management strategies.

- Have you mapped and tracked mobility trends to determine what skills are needed and when?
- Have you aligned your talent management strategy with the wider business strategy?
- Have you built strong links between the functions within your organization that are responsible for mobility, talent development, succession planning and global resourcing?

6. Empowered employees: Generating a competitive advantage

True employee empowerment is shaped by internal policy adaptation and employee influence in decision-making. Organizations that foster this working environment have a competitive advantage.

- What is needed to better empower employees? How does the culture of your organization support a fail-fast approach and encourage risk-taking?
- Are your mobility policies and processes forward looking or mainly reactive?
- Are you leveraging technology to free employees from mundane tasks so they can add more value to the organization?

7. Learning from others: Finding your way

Leading companies in the Fourth Industrial Revolution display a commitment to their workers, increased agility and cultural strength. They learn from the success of others both within their own industries and outside of them.

- How often do leaders in your organization focus on industry trend reports and other reports of best practices?
- Can you identify practices exhibited in other companies that would work well for yours?
- What information can you share to promote collaboration across industries?

Principles

1. Awareness: Enabling transformation

Organizations with a comprehensive understanding of the opportunities presented by the Fourth Industrial Revolution are leading the change.

Concept

“Helping people upskill and adapt to a fast-changing world of work will be the defining challenge of our time... Now is the time to be responsive and responsible.”

– Jonas Prising, Chairman and Chief Executive Officer, ManpowerGroup, USA

Understanding the value and possibilities of new technologies to ensure success in the Fourth Industrial Revolution is the first step towards reimagining an organization’s future. Although at first, this may look like technology revolutions of the past, the pace of innovative development and diffusion of technology are faster than ever. As new business models transform the current industry landscape, automation and artificial intelligence will surely alter the skills in demand. But new opportunities will also emerge and spawn new jobs for leaders and workers in many fields such as risk management, service integration, and relationship management. “The defining challenge” will be to understand the opportunities of the Fourth Industrial Revolution, and translate this understanding in action.

Supporting data

New technologies are allowing firms to develop revenue streams outside of their core businesses, increasing product line and service diversification, and furthering cost reduction.¹ For example, to maintain product differentiation and global market expansion, Tesla, Inc. invested heavily in research and development of alternative sources of energy. This has produced significant advancements in the lithium-ion industry, electric vehicle market, rapid charging infrastructure and availability of solar energy alternatives for households. Further, in the spirit of advancement, Tesla made all of their patents open source for other manufacturers to leverage their technology to meet the demand of zero-emission vehicles.²

Not only are business processes and models being disrupted; organizational structures and occupations have begun to shift. It is estimated that roughly 50% of workers’ activities today – the equivalent of \$15 trillion in global wages – can be automated by adopting current technologies, an opportunity with the potential to become a reality by 2055.³ Replacing \$15 trillion in global wages may seem daunting. However, as AI has the potential to displace some roles, it is undoubtedly creating new ones. In fact, 52% of CEOs surveyed say they are “already exploring the benefits of humans and machines working together.”⁴ Productivity growth is expected to rise 0.08% to 1.4% every year because of automation – by some accounts, a solution to the productivity stagnation of the recent decade.⁵

Assessing your organization

- How strategically has your organization considered digital transformation as a go-forward strategy?
- How prepared is your organization for the integration of disruptive technologies over the next 5 to 10 years?
- What actions can be taken to become better educated about disruption in our industry?

Recommendations

Companies that familiarize themselves with the benefits technologies offer their organizations are better prepared for the future. Continuous collaboration with others to share insights and create knowledgeable and expert work forces is essential to ensure the impacts of digital transformation are understood at all levels. Having a solid understanding of what technologies an organization needs to adopt in the future is crucial. But awareness is a continual process; leaders should always be looking for insights that help themselves better understand their company’s function within the industry through all stages of the transition.

2. Organizational agility: Delivering strategic value

As technologies disrupt businesses, companies must adopt flexible organizational structures that enable digital and augmented workforces.

Concept

“Building superior and lasting change capabilities has become a competitive advantage. Companies that are ready, willing and able to face the challenges of change initiatives are better equipped to manage new changes over time.”

– *Why Change Initiatives Fail*, Boston Consulting Group

Many organizations are transitioning to more agile organizational structures to better adapt to uncertainty and disruption.⁶ These new structures dissolve rigid silos and hierarchies, fostering more effective communication. This trend is relevant to the Fourth Industrial Revolution as awareness and knowledge levels vary across organizations.⁷ During this technological transition, a culture of trust and transparency is fundamental to having a strong organization and building a competitive advantage in the global digital economy. Shifting organizational structures require substantive change management strategies as well.

Supporting data

The Deloitte 2017 Global Human Capital Trends survey notes that while 94% of surveyed companies are aware that agility and collaboration are the key to success in a globalized economy, only 6% consider themselves agile.⁸ One example of the agile organization in the Fourth Industrial Revolution is the shift towards the “gig” economy, where labour markets are characterized by short-term contracts or freelance work as opposed to permanent,

salaried jobs. Companies such as Upwork have built successful businesses around this new outsourcing model. Upwork provides a platform that connects highly skilled individuals with companies looking to strategically outsource such work.⁹ Another successful organizational change management example is the United States' Department of Defense (DOD). Despite its massive size, the DOD led an exercise to list and organize the skills and abilities of its seven million-strong workforce and used this knowledge to dynamically adjust their staffing and create the most efficient teams to obtain results.¹⁰

Assessing your organization

- Is your organization currently structured to foster and promote innovation?
- Does your current organizational structure support the integration of human creativity and digitization?
- In previous instances where your organization went through a period of change, what worked and what did not? What could be replicated and what should be avoided?

Recommendations

An agile structure allows organizations to capitalize on their employees' unique blend of skills and capabilities. It also allows teams to fluidly evolve and grow, incorporating newer forms of work such as independent contractors. Creating a skill heat map identifies gaps and opportunities in the organization to anticipate what might change. This enables organizations to identify solutions such as employee mobility, and even acquisitions and partnerships. Employee mobility is evolving from a straightforward transfer of skills to a far more complex concept, designed to address a diverse set of business needs.¹¹ Change management practices prepare and support individuals and teams, instilling trust in the process and ensuring organizations have the right skills at the right time and in the right locations. For example, identifying informal organizational networks can help leaders create effective strategies for change.

3. Continuous learning: Creating employability

Creating a culture where continuous learning is valued and promoted cultivates a workforce with the skills needed for new phases of technology introduced by the Fourth Industrial Revolution.

Concept

“To foster a strong learning culture and a continuous learning environment, we needed to enable collaboration and the ability to learn anywhere and anytime.”

– *Digital Transformation in Action Report 2017, SAP*

Responding to the rapid pace of workplace change, employees should be encouraged to seek out continuous learning opportunities to proactively upskill throughout their careers. Career progression, or lack thereof, is the main driver of both retention and turnover.¹² Employer investment in developmental programmes and education platforms for employees to learn on the job makes companies more attractive places to work.¹³ A capable future workforce will reflect an agile learning culture where opportunities to continue to develop new skills and competencies abound.

Whereas employees need to own their own lifelong learning journeys, organizations must take ownership of identifying the skills that are, and will be, most relevant and then making these needs understood across the company. As entire industries transform, and the lifecycle of new skills shortens, it is crucial for disruptive and disrupted industries to build organizational infrastructures that support continuous learning and the cognitive flexibility required to develop in-demand skills. As economies begin to integrate more technology and new technical skills-based roles, diversity in skillsets helps safeguard against the changes brought by the Fourth Industrial Revolution, providing employees the additional benefits of increased income and job mobility opportunities. With defined mechanisms for upskilling and reskilling processes in place, organizations benefit from a more capable, and even agile, workforce.

Supporting data

Along with a changing working environment, the definition of employability is evolving. An estimated 65% of jobs performed by Generation Z throughout their careers do not yet exist.¹⁴ Agility and adaptability, therefore, play central roles in the organization of the future, as companies begin to replace structural hierarchies with networks of teams empowered to act.¹⁵ By creatively leveraging partnerships, Hewlett Packard Enterprise is delivering an innovative approach to workforce reskilling. Leveraging LinkedIn's Lynda.com service, and the EdCast platform, employees have defined and engaged in learning paths relevant to their current and desired future roles as well as their personal interests. This opportunity to develop additional skills and competencies through self-selected learning has resulted in ten times the amount of “informal” on-and-off-the-job learning than what was previously utilized with the company's more traditional learning management approach.

Assessing your organization

- What skills will be most useful to the industry now and in the future?
- What is currently being offered by way of upskilling and/or reskilling initiatives?
- What are the incentives and resources that can be leveraged for different types of learners?

Recommendations

Organizations should incentivize human capital improvement, education and upskilling programmes to increase internal promotions. Encouraging employees to take their personal development into their own hands increases employee buy-in and company loyalty. Organizations must realize and advocate for employees as “owners” of their own careers. Inevitably, much of the responsibility will be on the individual. They will need not only to adapt to organizational change, but be willing to acquire new skills and experiences throughout their lifetime to try new tasks and even to rethink and retrain mid-career.¹⁶

Creating partnerships with online platforms that provide specific education opportunities to employees helps foster continuous learning and enables faster, more real-time access to knowledge and information. The resulting improved skillsets not only provide additional value to the organization, but they also help ensure the employee is

prepared to face eventual change. By promoting these opportunities, leadership, in collaboration with human resources, creates trust in the evolving need for new skills.

4. Leadership adaptability: Empowering and driving change

To respond to the demands of change, leaders must adapt their skill sets and attitudes.

Concept

“Competitive advantage in the digital age lies not in securing the best technology, but in using and managing talent well – and that demands truly great leadership... Leaders must create a culture where innovation thrives, ideas spark into life and people – whoever and wherever they are – are bound together in a common cause.”

– 18th Annual Global CEO Survey on People Strategy for the Digital Age, PricewaterhouseCoopers

Recognizing the new dimensions of the Fourth Industrial Revolution and responding adequately is the hallmark of a successful leader in a fast-paced, digital world. Managing in this new environment requires developing a nuanced understanding of the emerging changes and a culture of skills-based learning cultivated from the top down. The Fourth Industrial Revolution forces leaders to adapt their own skills to serve their organizations better. Leaders must enhance their own digital capabilities to lead their companies through the transition. As new technologies disrupt business models, a leaders' ability to help their organizations remain competitive is being challenged.

As the likelihood of disruption increases, business leaders must study their industry's competitive landscape to manage risk. Leaders must become adept at anticipating and dealing with these new risks and opportunities. They need to fully understand the impacts of technology on their businesses and proactively seek out diverse perspectives and opinions to make the most informed decisions. Developing a deep understanding of how their business processes and technology interact with humans ensures their organization can benefit from new trends. The strategic adoption of technologies provides a competitive edge.

Supporting data

Ceridian, a company that specializes in human resources and payroll services, is an example of how agile leadership can impact a company's bottom line. Ceridian's chief executive officer, David Ossip, has been hailed as a transformational leader because his actions moved the company away from declining sales, profits and employee engagement. Recognizing that the organization's siloed structure could be improved through increased collaboration, Ossip deployed a digital service to connect different groups such as employees to leaders. Ossip then worked to align company values towards optimism and agility. Once values were aligned and managers were prepared to work more collaboratively, the company grew by \$100 million in three years.¹⁷

It is imperative for leaders to understand the impact of technology and AI on their organization, and learn to respond effectively to benefit from it. Leaders must embrace fast, iterative approaches and be attentive to the external environment. Developing empathy and employing a greater level of emotional intelligence allows leaders to more effectively adapt to changes in their workforce.

Assessing your organization

- How well is the impact of the technologies that are changing the industry and adjacent industries understood?
- How is diversity of opinion integrated into the decision-making process of the company?
- Do leaders seek mentorship outside of their industry?

Recommendations

The Fourth Industrial Revolution is driving significant workforce transformations. Leaders' abilities to demonstrate all the components of emotional intelligence (open-mindedness, empathy, flexibility, listening, talent development, change management, etc.) amidst the steep learning curve encountered by employees play a critical role in the success of reskilling efforts. Leadership after all, ultimately determines the type of talent a company attracts. Leaders should develop a keen understanding of the characteristics their organizations require to accurately redefine employability to direct their companies' success.

5. HR strategy: Responding to continual, rapid evolution

Human resources managers are at the forefront of a rapidly evolving employment landscape. They are uniquely positioned to anticipate and prepare for future skills requirements and evolve existing talent management strategies. HR leaders can positively influence their organization's human capital pace of adaptation.¹⁸

Concept

“HR is all about helping organizations and leaders achieve desired business outcomes through people. Our sole purpose is to strengthen the alliance between employee and employer and ensure we collectively achieve our shared vision.”

– Brigette McInnis-Day, Executive Vice-President, Human Resources, SAP, Germany

Disruptive changes to business models are having a profound impact on the employment landscape and are fundamentally altering the concept of a career.¹⁹ The human resources function is playing a pivotal role in attracting and retaining talent as we've entered the Fourth Industrial Revolution. By deploying new analytical tools to spot talent trends and skills gaps, HR managers are gaining insights that help their organizations align business, talent management and succession planning strategies.¹⁹

Every aspect of HR is being called on to become more strategic, including talent acquisition, talent management, career development, workforce planning, analytics and labour relations. The “gig” economy is fundamentally changing how some organizations are structured. The future of work requires employers to reimagine their people practices as builders of talent. Along with a changing working environment, the definition of employability is evolving. Agility and adaptability, therefore, play central roles in the organization of the future, as companies begin to replace structural hierarchies with networks of teams empowered to take action.²⁰

As the demand for cross-functional teams continues to rise, mobility is growing in importance. HR departments need to study existing patterns of career mobility and begin more progressive professional development programmes. Similarly, HR needs to develop hiring strategies to create a more streamlined job architecture to support more flexibility. This means HR officers have to hold managers accountable for training and supporting internal candidates for advancing roles.

Human resource departments need to adopt new evaluation methods to collect informative data to make the appropriate changes. Once this data is collected, HR should be able to recognize patterns and provide insight into the direction the workforce is moving. Finally, an effective employment brand is more important than ever before. Employees are prioritizing workplace culture when making career decisions. Publishing metrics about career growth and opportunities ensures top talent is recruited into the organization.

Supporting data

Netflix provides an example of a flexible HR policy that highlights people over process. By encouraging independent employee decision-making, sharing information openly, being extraordinarily candid and retaining only highly effective people, Netflix has positioned itself to anticipate and respond to future challenges.²¹ This policy, which encourages managers to provide “context over control”, eliminates unnecessary bureaucracy and provides employees with more autonomy in their roles.

Due to their transparency and trust in their employees to work in the best interest of the business, Netflix was able to transform its business model, not only to respond to market shifts such as DVD to streaming preferences, but also to bounce back from mistakes. Netflix’s unpopular decision to raise prices in 2011 caused its stock to plummet more than 25%, losing 800,000 members.²² Since addressing this mistake, Netflix has encountered continued success, approaching record stock price levels.

Assessing your organization

- Has your company mapped and tracked mobility trends to determine what skills are needed and when?
- Has your company aligned talent management strategy with the wider business strategy?
- Has your company built strong links between the functions within the organization that are responsible for mobility, talent development, succession planning and global resourcing?

Recommendations

Just as the organizations they support are adapting to digital transformation, HR organizations need to understand the benefits and opportunities this brings to the HR function itself. HR must support change and growth for their organizations while also changing their own processes and adapting to new technologies. For businesses to capitalize on new opportunities, they need to put talent development and future workforce strategy front and centre. HR managers can help ensure the organization’s job architecture is responsive, streamlined and supports future career models. HR leaders should review existing patterns of career mobility and launch programmes to respond to employment trends, including rotational assignments and professional development initiatives; embrace technology and help workers adapt to new models of work and careers; and look at structures, policies, technology and the overall employee experience for new, exciting opportunities to drive the transformative impact brought by the Fourth Industrial Revolution.

6. Empowered employees: Generating a competitive advantage

True employee empowerment is shaped by internal policy adaptation and employee influence in decision making. Organizations that foster this working environment have a competitive advantage.

Concept

“The key to ensuring that your company and employees remain both technically and economically relevant in a rapidly-changing world is to create an internal environment of continuous learning and personal growth coupled with ongoing, real-time feedback from customers or other key external stakeholders.”

– Alan May, Executive Vice-President, Human Resources, Hewlett Packard Enterprise, USA

Companies that ensure employees have responsibility and autonomy in their work will be more agile, responsive and adaptive to technology and market changes than those firms maintaining a traditional organizational culture. When employees are given authority and autonomy in how they interact with technologies and are involved in decision-making about how best to apply technology, they are able to innovate at faster speeds and on larger scales. Likewise, this empowerment allows them to collaborate with leadership and HR on the planning and implementation of new technological changes, which provides a greater sense of purpose and loyalty to the organization. Autonomy to experiment and innovate on the job, leads to positive organizational impact, increased self-confidence and overall motivation.

The rising popularity of the gig economy is giving rise to shorter-term project hires, making people-centric policies more important than ever. Creating a cohesive and inviting workplace requires more collaborative processes and decision-making structures, while the discrete nature of the contracts necessitates consistent and rapid feedback processes. Prioritizing these practices demonstrates that

companies place value on the multi-faceted advancement of all employees.²³ Promoting a growth mindset across the organization is essential with its emphasis on cognitive flexibility and risk-taking.

Supporting data

The manufacturing company 3M, for example, has been innovative in strategies used to empower their employees. 3M has a 5% rule, which allows employees to dedicate 5% of their time to pursue their own interests and projects. This internal policy is responsible for inventions such as the Post-it note. 3M has built upon the internal policy by targeting a fiscal standard that 30% of sales derive from inventions 43 years old or less; funneling 5.8% of sales into research and development results in approximately 3,000 patents per year. These types of policies are not only relevant for product-based organizations; providing employees autonomy over their work and encouraging creativity and innovation – no matter the sector – positively impacts business results.

Assessing your organization

- What is needed to better empower employees? How does the culture of your organization support a fail-fast approach and encourage risk-taking?
- Are your mobility policies and processes forward looking, or mainly reactive?
- Are you leveraging technology to free employees from mundane tasks so they can add more value to the organization?

Recommendations

Leaders should communicate to their employees the big picture about how technology is affecting jobs and provide opportunities and policies that encourage employee “ownership” and ideation about how best to adapt or replace existing work processes based on new technological capabilities. Organizations need to focus on how best to enable employees to “fail fast, fail better”, which encourages innovation.²⁴ Making decisions aimed at enhancing employee empowerment creates a culture of bold experimentation, crucial to a company’s ability to innovate and stay competitive.

7. Learning from others: Finding your way

Leading companies in the Fourth Industrial Revolution display a commitment to their workers, increased agility and cultural strength. They learn from the success of others both within their own industries and outside of them.

Concept

“Boundaries between sectors and professions are artificial and are proving to be increasingly counterproductive. More than ever, it is essential to dissolve these barriers by engaging the power of networks to forge effective partnerships.”

– Klaus Schwab, Founder and Executive Chairman, World Economic Forum

As companies display best practices and economies become more integrated, sharing information and learning from other enterprises keeps leaders and their organizations aware of the most important and successful actions to take throughout the Fourth Industrial Revolution. To share and collect information, leaders should consult a variety of sources and awards to find sources of inspiration.

Being aware of others’ effective programmes is useful as leaders contribute to their organization’s future. The following case study provides examples of many of the principles mentioned above: awareness, continuous learning, organizational changes, evolving HR strategy and empowered employees.

Supporting data

A final example of a company exhibiting the characteristics necessary for workforce and organizational agility in the Fourth Industrial Revolution is AT&T. This US telecommunication company invested \$250 million to reskill its workforce, resulting in 140,000 workers receiving higher education, and an increase in internal promotions.²⁵

To serve its loyal workforce (average tenure for an employee historically has been 22 years²⁶), it was fundamental for AT&T to handle the delicate transition to the Fourth Industrial Revolution in a way that would empower its employees while capitalizing on the power of new technologies.

In 2013, AT&T implemented the Workforce 2020 (WF2020) programme and invested \$250 million through 2016. This programme featured two main phases. First, the initiative identified and responded to the changing nature of needed skills. Second, the company invested in continuous learning and development for its employees. Opportunities ranged from ad hoc internal training to tuition assistance programmes. To make sure employees were engaged and to foster adoption, AT&T collaborated with labour unions. The company also simplified its organization to become a more agile workplace to foster exchange of ideas and knowledge. It created a more collaborative environment and made job mobility more possible within the company.²⁷

The programme’s impact was far-reaching. Half of AT&T’s 280,000 employees took advantage of the education and professional development opportunities offered by the company.²⁸ By the end of the three-year period, those employees moved to managerial positions in technology and represented 47% of company promotions.²⁹ Beyond the impact on employees’ career growth, AT&T reduced its product development cycle time by 40% and time to revenue by 32%.³⁰ One of the key examples of this acceleration is a new service that enables more than 400 large business customers to increase their bandwidth dynamically in multiple markets in six months, down from the previous timeline of over one year.³¹

Assessing your organization

- How often do leaders in your organization focus on industry trend reports and other reports of best practices?
- Can you identify practices exhibited in other companies that would work well for yours?
- What information can you share to promote collaboration across industries?

Recommendations

Industry trend reports and pieces that predict outlooks are helpful in understanding what other companies do in response to the Fourth Industrial Revolution. Reports such as IDC Futurescape,³² Gartner Special Reports,³³ CompTIA Industry Trends,³⁴ PWC Annual CEO Survey Reports³⁵ and Deloitte Human Capital Trends³⁶ provide resources about forward-looking industry trends. Ensuring a culture of openness, transparency and communication helps organizations remain trusted partners within their industries and communities.

Conclusion

With rapid advances in technology comes great disruption. Since it is difficult to predict the extent and timing of the changes to come, it is important to be prepared for whatever future unfolds.

PWC outlines four distinct and plausible scenarios for the future of work, from a world in which humans come first, to one in which innovation rules, to one where companies care, and one where Corporate is King.³⁷ The future may very well be a hybrid of these or something entirely different. Understanding, anticipating and influencing how organizations, governments and institutions adapt to the Fourth Industrial Revolution is an obligation for each of us.

The seven principles outlined here emphasize practical actions that can be taken immediately and into the future. Agile policies, structures and leadership are key to ensuring organizations continue to support the people that make them successful. These principles are just the beginning. It is up to everyone to work together to ensure a positive future.

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— Adam Sherman, Project Lead, on behalf of the IT Industry Skills Initiative project team.

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Endnotes

1. ManpowerGroup. (2016). The Skills Revolution: Digitization and Why Skills and Talent Matter. Milwaukee: ManpowerGroup Global.
2. All Our Patent Are Belong To You. (2014, June 12). Retrieved from <https://www.tesla.com/blog/all-our-patent-are-belong-you>.
3. Ibid
4. PWC. (2017). Workforce of the Future: Brains + Bots. New York City: PriceWaterHouseCoopers, Int.
5. McKinsey Global Institute. (2017). A Future That Works: Automation, Employment, and Productivity. New York City: McKinsey & Company.
6. Deloitte. (2017). Rewriting the rules for the digital age; 2017. Deloitte Global Human Capital Trends. New York City, NY: Deloitte University Press.
7. Accenture. (2017). Getting it Right with Digital Talent. Multiple: Accenture.
8. Deloitte. (2017). Rewriting the rules for the digital age; 2017. Deloitte Global Human Capital Trends. New York City, NY: Deloitte University Press.
9. Upwork. (2017). www.upwork.com.
10. Deloitte. (2017). Rewriting the rules for the digital age; 2017. Deloitte Global Human Capital Trends. New York City, NY: Deloitte University Press.
11. PWC. (2017). Talent Mobility: 2020 and Beyond. New York City, NY. PriceWaterHouseCoopers, Int.
12. Workplace 2020 Committee. (2017). Making the Workplace Work: Chief Human Resource Officers on Trends Shaping the Workplace, the Outdated Policies That Govern It – and the Way Forward. Washington, D.C.: HR Policy Association.
13. ManpowerGroup. (2016). The Skills Revolution: Digitization and Why Skills and Talent Matter. Milwaukee: ManPowerGroup Global.
14. ManPowerGroup. (2016). Human Age 2.0: Future Forces at Work. Milwaukee: ManPowerGroup.
15. Deloitte Development, LLC. (2017). 2017 Deloitte Global Human Capital Trends. New York City: Deloitte University Press.
16. PWC. (2017). The Workforce of the Future: The Competing Forces Shaping 2030. New York City, NY. PriceWaterHouseCoopers, Int.
17. Efron, Louis. "How Transformational Leadership Saved This Company: Ceridian's Story." 2016. <https://www.forbes.com/sites/louisefron/2016/07/06/how-transformational-leadership-saved-this-company-ceridians-story/2/#20cd168c33b3>.
18. Forum, T. W. (2016). The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. Geneva: The World Economic Forum.
19. Ibid.
20. Deloitte Development, LLC. (2017). 2017 Deloitte Global Human Capital Trends. New York City: Deloitte University Press.
21. Work at Netflix. (n.d.). Retrieved from <http://jobs.netflix.com/culture>.
22. Nick Wingfield and Brian Stelter. (2011, October 24). Netflix Lost 800,000 Members With Price Rise and Qwikster Plan. Retrieved from <http://www.nytimes.com/2011/10/25/technology/netflix-lost-800000-members-with-price-rise-and-split-plan.html>.
23. ManpowerGroup. (2016). The Skills Revolution: Digitization and Why Skills and Talent Matter. Milwaukee: ManPowerGroup Global.
24. Leadership in the Fourth Industrial Revolution: It's time for an upgrade. (n.d.). Retrieved from <https://www.weforum.org/agenda/2016/11/leadership-in-the-fourth-industrial-revolution-its-time-for-an-upgrade/>
25. World Economic Forum. (2016). The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. Geneva: The World Economic Forum.

26. Benko, Donovan and Cathy Benko. (2016). AT&T's Talent Overhaul. Harvard Business Review. <https://hbr.org/2016/10/atts-talent-overhaul>.
27. Ibid.
28. World Economic Forum. (2016). The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. Geneva: The World Economic Forum.
29. Ibid.
30. Benko, Donovan and Cathy Benko. (2016). AT&T's Talent Overhaul. Harvard Business Review. <https://hbr.org/2016/10/atts-talent-overhaul>.
31. Ibid.
32. IDC. (2016). IDC FutureScape: Worldwide IT Industry 2017 Predictions. Farmingham, MA: IDC.
33. Gartner. (2017). Gartner Special Reports. <https://www.gartner.com/technology/research/>.
34. CompTIA. (2016). IT Industry Outlook 2017. <https://www.comptia.org/resources/it-industry-trends-analysis-2017>.
35. PWC. (2017). 20 Years Inside the Mind of the CEO: What's Next? <https://www.pwc.com/gx/en/ceo-agenda/ceosurvey/2017/us>.
36. Deloitte. (2016). 2017 Deloitte Global Human Capital Trends. Deloitte University Press.
37. PWC. (2017). The Workforce of the Future: The Competing Forces Shaping 2030. New York City, NY. PriceWaterHouseCoopers, Int.



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