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WORKFORCE READINESS IN TIMES OF CHANGE

Employer Perspectives

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Employers constantly face challenges of preparing for success in the future. Sometimes those challenges are self-induced as when a business elects to enter an unfamiliar market. Sometimes they arise because an organization, like others in its same niche, is caught up in a wave of change affecting all in that niche, as when a new competitor emerges advantaged by its unique innovation (think early Amazon competing with bookstores). At other times, employers find themselves needing to respond to the same large waves of change that almost all are responding to such as technology advances, globalization, and ups and downs in population demographics. Whatever the origins, employers frequently are compelled to consider how best to acquire, prepare, re-equip, replace, reconfigure, adapt, or otherwise alter the nature of their workforces for future success.

This chapter adopts an employer-centric perspective on workforce readiness. Three case studies illustrate. The things that ignite the concern about workforce readiness are unique to each: the evolving nature of one sector of a nation's economy, transformative technology-driven change in an industry, and one company's pursuit of a new business strategy. Each case describes what workforce capabilities (e.g., skills, abilities, knowledge, and experiences) define readiness in that situation, the processes by which those capabilities were identified, and initial actions to enhance readiness.

Of universal relevance to all employers' workforce readiness efforts are two concepts, external and internal labor markets. External labor markets are the sources of an employer's new hires or contracted workers. Rather than some undifferentiated quantity, external labor markets are best thought of as being bounded in ways meaningful to an employer's needs, such as by geography (e.g., a nation's workforce), a specific skill set (e.g., coding), and combinations

INTERNAL LABOR MARKET DYNAMICS

Employers have unique configurations of processes for hiring, placing, retaining, managing, motivating, and developing employees. Together, these influence outcomes such as who stays with the employer, who performs well, who gets promoted, and who learns and changes. Ideally, today's internal labor market dynamics are creating tomorrow's needed workforce, but managing these dynamics is complex. For example, multiple practices can simultaneously affect the same outcome, as when pay, job rotations, coaching, and other practices all influence employee retention. Also, any one practice (e.g., training) can affect multiple outcomes (e.g., knowledge, performance, retention, promotability). Further, interdependencies exist such that one employer's investments in, say, employee learning may have different outcomes than another employer's because of differences in context, such as when in one enterprise learning is tightly integrated with changes of job assignments and compensation while not so in another. As a consequence, it is unrealistic to think that there will be one best path forward to readiness—for example, "reskilling through MOOCs for all." Further details about internal labor market dynamics can be found in Nalbantian et al. (2004) and Guzzo and Nalbantian (2014).

of relevant attributes (e.g., coding in Python in eastern European countries). The supply of capabilities in an external labor market is shaped by educational institutions, government policies, population demographics, and the nature of the economy. The internal labor market is comprised of those people already working for an employer. Internal labor market dynamics refer to practices such as hiring, rewarding, training, transferring, promoting, coaching, and so on that are constantly shaping the capabilities inherent in an employer's workforce as well as events and experiences in the workplace that those practices influence. External and internal labor markets offer alternative points of leverage for workforce readiness. Depending on circumstances, an employer may emphasize one or the other as the primary source of its future workforce.

Case #1: Workforce Readiness in a Changing Economy

Employers are part of an ecosystem. As such, they can act in concert with other entities to address workforce readiness. This case presents one such example, centered on anticipated changes in Canada's economy with regard to foreign trade. While countries that transition from "closed" to global economies can experience dramatic workforce readiness challenges such as China did in the

late 1970s and early 1980s as it adopted some forms of Western-style capitalism (e.g., accepting foreign investment, encouraging entrepreneurism), the challenges described in this case are less dramatic and are limited to one economic sector, international trade. Employers in this sector have accepted the premise that the nature of Canada's international trade is changing in response to the rise of new and more diverse trading partners, increased complexity of global supply chains, and an expected shift toward more trade in the form of services relative to manufactured goods and extracted resources. Given the criticality of trade to Canada's economy (Cross, 2016), employers banded together with representatives of government, educational institutions, and other interested stakeholders to make a systematic assessment of the readiness of Canada's workforce to meet the expected demands of future international trade and to identify strategies for increasing readiness.

The case described here draws heavily on the report issued by the Forum for International Trade Training (FITT, 2013). The work was carried out under the auspices of FITT supported by a core team of researchers advised by members of business, education, and government. Employers contributed to the process in many ways, such as by lending representatives to task forces and steering committees, reviewing findings, and being participants in the research process. The research process first focused on identifying the skills required for international trade and then gauging where gaps are most likely to arise between the expected demand for those skills and their likely future supply. Research findings thus provided a foundation for specifying actions to prevent gaps from arising. At the highest level of abstraction, the process is straightforward:

- Identify the skills, knowledge, and other attributes ("capabilities" here for convenience) required of those segments of the national workforce engaged in international trade;
- Quantify the current and future supply of those segments and their capabilities, estimate the future demand for those capabilities, and specify where the largest supply-demand gaps will be for the relevant capabilities; and
- Formulate strategies for closing those gaps.

In many ways, this process enacted at the national level is very much like processes that any individual employer could engage in "in miniature" when assessing its own workforce's readiness. At both the employer and national levels, however, a seemingly straightforward process is actually a complicated journey full of nuanced issues, judgment calls, imperfect or missing data, and diverse viewpoints swirling in a milieu of futurism. Nonetheless, several scientific disciplines can make important contributions to this process.

Identifying Occupations Critical to International Trade

What workforce capabilities are required for international trade? The search for answers in this case began with Canada's National Occupational Classification (NOC) system which at the time identified 519 distinct occupations in the Canadian economy. The NOC, however, did not identify which occupations are most relevant to international trade. So, a two-pronged "bottom-up" and "top-down" approach was adopted to identify occupations—and thus the capabilities essential to those occupations—required for international trade.

In the bottom-up analysis, all 519 occupations in the NOC were independently classified by five subject-matter experts (SMEs) into core and non-core occupations for trade. Core occupations were defined as those directly involved in international trade processes (e.g., shipping and receiving), those essential to areas of the Canadian economy that generate substantial revenues from abroad (e.g., mining), and occupations (e.g., managing) deemed to have high relevance to trade. The five SMEs then met to compare their respective lists and resolve differences by discussion to consensus. This resulting list of occupations was then reviewed independently by a project steering committee and by outside advisors, resulting in a list of 109 occupations identified as candidates to be considered core to international trade.

The top-down approach was more quantitative. Using data from Statistics Canada, it began by identifying the 15 sectors of the Canadian economy which generate a large share of their revenues from international trade. These included sectors in manufacturing, energy, business services, computers and electronics, banking, insurance, and wholesale trade. Next, the 20 occupations that occur most frequently in each of these 15 sectors were identified, again using data from Statistics Canada. Redundancies that occurred when the same occupation appeared in more than one industry sector were eliminated, as were entry-level jobs such as laborers. The top-down approach resulted in 112 occupations identified as candidates to be considered core to international trade.

The products of the two approaches were integrated in the following way:

- The 350 occupations not identified as core by either of the approaches were eliminated from further consideration.
- The 52 occupations identified as core by both approaches were accepted without further review.
- The remaining 117 occupations—57 from the bottom-up and 60 from the top-down approaches—were further assessed by the SMEs in a discuss-to-consensus procedure, followed by a review by the project steering committee, to determine the final list.
- In the end, 95 occupations were identified as core to Canada's international trade.

The full list of occupations can be found in the Appendix B of the FITT's (2013) report. No assertion was made that all workers in these occupations are engaged in international trade activities. Consider a purchasing manager. Some who work in this job regularly engage in international transactions while others may never. Rather, it is the capabilities of workers in these occupations that are important.

Further, the changing nature of international trade can bring about new jobs—new configurations of tasks and activities—that have not yet had the opportunity to be recognized and cataloged in the NOC's taxonomy. Consequently, employers participated in a series of facilitated expert panel discussions to identify such new and emerging occupations relevant to trade. The panels were composed of volunteers representing a mix of industries, company sizes, and locations across the country. Table 5.1 reports the ten emerging occupations identified through this process. Employers saw these occupations as distinct from existing occupations because (1) new capabilities are required in some of these jobs or (2) these new roles require atypical or unusual combinations of known capabilities. While recognizing these occupations as important, no workforce data existed with regard to these emerging occupations; thus, they were excluded from the next step of the analysis.

TABLE 5.1 Emerging Occupations in International Trade

Ecommerce—conducting business through the Internet including social media use and customer intelligence
Environmental risk—assessing risk of business practices on local environments
Global account management—cross-border oversight and management of customer relationships
Global IT systems—design, development, implementation of systems that manage the flow of information across borders
International risk management—assessing and managing enterprise-wide risks of doing business across borders
International business development—international sales based on knowledge of customer segments, local business practices, and trade agreements and regulations
Trade facilitation—coordinating the flow of information and contracting among multiple parties involved in international trade
Regulatory compliance—oversight and advice to ensure compliance with country and local laws and regulations
Trade finance—analysis and guidance regarding foreign investments and cross-border payments
Value-chain management—creating and directing multiparty partnerships at all points in a supply chain (e.g., sourcing, production, assembly, distribution, logistics, marketing, and sales)

Quantifying Supply, Estimating Demand, and Specifying Gaps

The goal of addressing gaps between future workforce supply and demand was not to make precise numerical estimates but rather to provide an evidence-based categorization of supply-demand gaps as high, medium, or low in the types of occupations most relevant to international trade. Such a simple categorization scheme would help prioritize efforts to achieve workforce readiness.

Quantifying future workforce supply was made easy by relying on estimates of workforce growth, publicly available from Statistics Canada, in each of the 95 key occupations. Demand is more difficult to estimate. One source of insight, again using data available from Statistics Canada, was the proportion of each industry's revenues that come from foreign sources. Another was the proportion of an occupation's total workforce working in the industries of interest. So, for example, occupations that have low (or negative) workforce growth rates and that are concentrated in industries with above-average proportions of revenues coming from foreign sources would be occupations where expected supply-demand gaps would be categorized as high.

The analysis yielded a number of specific-to-Canada insights. For example, jobs in three occupational groups—management, business/finance/administration, and natural/applied sciences—were found to be relatively highly concentrated in industries with large revenues from foreign trade. However, in only the first two of those occupational groups were supply-demand workforce risks deemed to be high, mostly due to comparatively lower rates of entry into and higher rates of exits from the two groups. The Management workforce in Canada is appreciably older than that in Natural/Applied Sciences, for example, and thus managers are expected to exit the workforce at comparatively higher rates over the next several years. Sometimes shortfalls of worker supply in an occupation can be overcome quickly through intensive schooling. However, because of the value of experience to managerial work, extensive more time may be required to overcome its shortfall. One final observation of interest is that workers in occupations core to international trade are more highly educated—that is, a greater proportion of people working in those occupations hold bachelor's degrees and higher—relative to those working in other occupations, pointing to the broad importance of higher education to workforce readiness for international trade.

Setting Strategies for Closing Gaps

Three broad sets of stakeholders were identified as initiators of action to reduce gaps: government, educational providers, and employers engaged in foreign trade (FITT, 2013). Many of the suggested actions are the province of only one stakeholder. For example, it is uniquely within the domain of the Canadian government to change immigration policies in ways that favor the admission

of immigrants with skills well matched to employment in international trade. Educational institutions have great autonomy to design degree and certificate programs that enhance graduates' readiness for employment in international trade-related jobs. Employers, too, can act individually or in concert through industry associations to build relevant capabilities, such as knowledge of regulations governing international commerce. Numerous recommended actions call for collaboration among two or three of the major stakeholders. For example, one action called for two stakeholders, employers and the government, to act in concert to facilitate the placement in the private sector of individuals leaving the Canadian Armed Forces because many leave with valuable cross-cultural exposure and with experience in activities relevant to international trade, such as managing logistics across national borders. A three-stakeholder action is illustrated by educational institutions which, with government support where appropriate, offer relevant degree-granting and credentialing programs of study with employers advising on curricula and offering internships in the private sector integrated into a curriculum.

Uniquely from the employer's perspective, the existing external labor market can immediately be leveraged in ways that do not require time spent waiting for future workers to complete their programs of study or military service. One such way is by recruiting workers who are not currently employed in international trade-related occupations but who already possess capabilities needed for international trade. Customs brokers are occupations core to international trade and require such things as customer service abilities, attention to detail, familiarity with long-form contracting, compliance skills, and the ability to work with deadlines. Real estate agents require many of the exact same capabilities. Real estate agents mostly are engaged in local, not international, commerce but illustrate an occupation whose members would have, by virtue of the nature of the work they perform, capabilities readily transportable to employers in international trade. Many occupations have capabilities transportable into one or more of the 95 core occupations, thus mobility across occupations is a potentially important external labor market tactic that employers can leverage for greater workforce readiness.

Case #2: Leadership Readiness in Digital Manufacturing

Manufacturing organizations face profound workforce readiness challenges due to changes in technology-driven production processes. Robots continue to be the face of technological change in manufacturing. It is estimated that over 2.5 million robots will be operating in industrial processes in 2019, reflecting a 12% average annual growth rate of implementation (International Federation of Robotics, 2017). The workforce implications of robots, like the implications of other technologies, can include job loss, job change, and job creation (National Academies of Sciences, Engineering, and Medicine, 2017). Robots are perhaps

popularly thought of as machines that eliminate employment opportunities altogether, pushing individuals out of the workforce or displacing them into other jobs. But robots may not eliminate jobs so much as change them, such as by taking over highly complex or exacting tasks that humans may not be able to perform as quickly or to the standards that a machine can repeatedly meet. When activities pass from worker to robot, the worker is freed to take on new activities in a now-redefined job. Another example of job change comes from collaborative robots ("cobots") that operate alongside and in interaction with humans. Further, introducing robots into workplaces can also create new-new jobs for developing, programming, and maintaining them.

Another of the technology-related changes contributing to manufacturing's workforce readiness challenges is the rapidly expanding use of sensors to monitor production processes, people, and equipment. Sensors can collect enormous numbers of observations—often high-velocity, high-volume data—during a production process, for example, and that data can be acted on in real time through algorithms that can intelligently direct a change to be made in a production process to deter errors and to bring measured values back to within accepted tolerances. Networked sensors—the Internet of things (IoT)—can communicate, share data, and amplify the usefulness of sensor-based data. Sensors and the IoT have implications not only for the skill requirements of workers on a manufacturing line but also for engineers who design production processes as well as for analysts who are in position to make use of the outsized sensor-based data sets to pinpoint sources of unwanted errors, discover opportunities for heightened efficiency, and craft models that predict such things as when maintenance will be required.

Additive manufacturing, a new and rapidly evolving process, is also affecting the nature of work. The term additive manufacturing refers to the process of building things by adding layer upon layer—extremely thin layers—of material such as a plastic or a metal that binds into finished outputs. Those outputs typically are parts that become integrated into larger products although, at the forefront of additive manufacturing, complex systems of parts are being fashioned as whole entities. Sometimes referred to as 3-D printing and direct digital manufacturing, the process involves computer-aided design and control of what are usually very precise requirements of process and product. The benefits of additive processes are potentially enormous, including lower cost of production through the use of less expensive materials, achieving in one step what might otherwise require multiple steps to produce, and the capacity to create customized objects with shapes and features that could not be created through traditional processes. Additive manufacturing also changes what is required of employees, such as programming skill, the ability to visualize, and knowledge of materials.

Technology-driven changes in manufacturing have implications for leadership, and the readiness of future leaders in digital manufacturing is the focus of this case. One employer's early steps to meet this challenge are described here.

General Electric (GE) is a digital industrial company. At the time of the work described in this case, GE operated hundreds of production facilities globally, served customers in over 180 countries, and provided products and services such as aircraft engines, power generation and oil and gas production equipment, medical imaging, and financing. Currently, the company is in a state of transformation to focus on aviation, power generation, and renewable energy as core and will sell or spin off other lines of business. Thus, GE's concern for leadership readiness is focused on its digital manufacturing environments.

GE has a long history of developing leaders from within. That is, through years of service, select employees gain the requisite skills and expertise essential to performing well in positions of leadership. These capabilities are acquired through a mix of training and development programs as well as ample experience-based learning acquired by rotating through different positions, facilities, functions, and lines of business. It is not uncommon for a manager of a production facility to have spent 20 years with the company prior to taking on that leadership position, for example. GE utilizes its internal labor market to "build" its leadership talent over "buying" it from the external labor market. The degree of technological change being experienced by the manufacturer prompted its concerns about whether today's model for developing leaders from within will be effective for leadership in the digitized workplace.

Capabilities and Leadership Readiness

A starting point for GE is its existing leadership competency model. That model specifies a set of domains (e.g., quality, operations, and finance) relevant to leadership responsibilities in manufacturing. Within each domain, the model further identifies specific competencies and knowledge areas (e.g., problem-solving, coaching, and financial risk management) that have been tagged as especially relevant to the domain. Further, the model provides guidance for recognizing differing levels of mastery of a competency or knowledge area, from "aware of" through "can do it" through "can lead others to do it." Ideally, training and development programs plus directed career experiences develop high levels of mastery of many competencies. But might there be leadership capabilities not yet accounted for in the model that will become critical in the increasingly digital manufacturing environment? The interest of this employer is to successfully adapt the existing competency model and the talent management practices aligned to it to ensure the availability of leaders ready for its future workplaces.

The Investigative Process

Although the company would say that none of its production facilities is at a fully realized state of digital manufacturing, several of its facilities around the

world are demonstrably deeper into the digital era than others. The company took advantage of this by making higher digitization facilities targets of study. Specifically, it was in these facilities that the current experiences of leaders and leadership teams were investigated to learn about the unique demands being placed on them by digital environments.

Qualitative research methods were used. The work began with a series of structured one-on-one interviews with manufacturing plant leaders and their leaders. These interviews queried the general experience of implementing advanced digital manufacturing, how the day-to-day activities of plant leaders changed as result of digitization, and specific changes in the knowledge, skills, abilities, and competencies required of leaders in these new environments. The interviews also explored views on how best to develop or acquire the new capabilities, including issues such as the value of experience in the firm versus the value of experience in digital environments outside the company. Interviews were followed by immersive visits to higher-digitization plants. The visits served several purposes. They gave researchers the opportunity to see first-hand digitization in action and to more fully appreciate the contexts in which it is occurring. The visits also enabled multiple discussions to occur with site leaders and leadership teams regarding the issues of interest, discussions that were grounded in each specific work context. Visits also provided the opportunity to interact informally with employees in jobs at various points along production lines or in supporting roles. Notes from interviews and observations were synthesized and key findings identified. The final step in the investigative process involved "testing" selected key findings through telephone interviews with individuals from operations, innovation, and human resource functions at four other manufacturing organizations, themselves at different stages of digitization. The objectives of these final interviews were to see if the findings "ring true" in other settings and to see if anything was missed in the internal research.

Meeting the New Leadership Requirements in Digital Manufacturing

The research found that certain staples of knowledge and experience important to effective leadership in manufacturing are expected to remain so, such as having shop floor experience and understanding cost containment methods. It was also found that the digital environment expands what is required of leaders. Expanded leadership capabilities in this company's digital manufacturing environments include:

- Conceptual thinking, including the ability to visualize. Digital environments not only change the way work is done but change how leaders can "see" linked processes and their outputs.
- Social skills, such as networking. Digitization raises the bar for leaders' social skills by creating numerous opportunities for increased connectivity

among people, not just among things. Additionally, digitization enables individuals with nontraditional backgrounds to contribute in a manufacturing facility, such as individuals with knowledge of computers, data visualization skills, or data analytic capability. Employees with such backgrounds are atypical for manufacturing facilities and those employees are likely to come with workplace expectations and preferences that differ from those of in-place manufacturing workers. Effective leaders will require social skills to integrate and position such newcomers for success.

- Innovation and change management capabilities. The information-rich digital environment creates occasions for insight and innovation at multiple stages in a production process. Digital environments put a premium on leaders' capacity to facilitate data-driven innovation within and among teams responsible for different production stages and to oversee the implementation of new ways of doing things.
- Strategic thinking capabilities. With digitization, the plant leader's role is expected to become more strategic than it is now. The digital age brings with it fluidity, adaptation, and replanning sparked by volumes of data and insights into the performance of the plant at any point in time. Data-driven, on-the-spot strategic thinking, often done collaboratively with the local team, is a heightened demand on plant leaders.

Given its culture and long track record of developing leadership from within, the company is predisposed to continue to rely on its internal labor market to meet future leadership needs. While some greater concession may be made to hiring leadership-level talent into the firm, internal development is likely to dominate, and all means of development are open to revision. For example, changes in the company's leadership training programs have been made or will be made to orient those programs to create capabilities suited to digital environments. Also, advancement into leadership positions historically often has occurred within a single line of business. However, many of the required digital-era leadership capabilities (e.g., conceptual thinking, networking) are transportable across business lines within the company. Consequently, a greater emphasis on cross-line-of-business mobility to fill leadership roles is a viable tactic, where one line of business identifies candidates strong in digital-era capabilities currently working elsewhere in the company and "imports" those individuals to meet its leadership needs. Greater comingling of nontraditional and traditional employees in production facilities is also a way of developing experience-based proficiency in leading people with diverse backgrounds in digital environments. Different tactics will suit different employers, and not all manufacturers can be expected to follow GE's practices. Indeed, one of the employers interviewed in the final step of the research rejected the GE approach, declaring that it will rely on the external labor market for its future digital leaders.

Case #3: Workforce Readiness for a New Business Strategy

With some regularity, employers revisit their business strategies. Typically that process starts by looking outward, scanning competitors and the marketplace for new ways to grow revenues and profits. When new strategic directions are adopted employers sometimes, but not always, then look inward and ask "Is our workforce ready to make the new strategy successful?" This case describes how one company that did exactly that.

The company is a mid-sized firm ("MidCo"). It provides products and services that help its clients work more efficiently and better manage customer relationships. Changes in the ways in which software-based services are provided and data stored—such as cloud-based solutions—shape the strategic possibilities for this company, as do the growth of opportunities to expand into underserved markets. Following an extensive review and analysis of business opportunities, the company adopted a new strategy with the objective of doubling revenues in a five-year period. The new strategy had several components to it, including introducing the company's existing offerings into new overseas markets, acquiring or partnering with smaller companies that have complementary software products so to expand its overall portfolio, and investing heavily in new product development to increase the number of products and the speed at which they are brought to market. Having laid out the strategy and committed to it, the company leadership then turned its attention to the readiness of its current workforce for success with it.

Skill Requirements for the New Strategy

If a company adopts a strategy that says "we're going to do X" and X is something that other businesses already do, it is often easy to know what skills, knowledge, and abilities are required. A healthcare organization opening up its first walk-in urgent care clinic is such an example. MidCo did not feel that it had comparator organizations that would serve as easy referents for specifying the workforce capabilities critical to achieving its strategic objectives. So, the company elected to rely on the pooled expertise and opinions of its leaders to identify requirements of its workforce under the new strategy.

The process began with a review of documents that codified the new business strategy followed by individual interviews with executive team members to generate an initial specification of employee skills, knowledge areas, and experiences thought to be critical to the success of the new strategy. The "working list" of these attributes were further refined, clarified, and reduced to a set of 13. While each of the 13 attributes could indeed be important to future business success, the company felt a need to establish which among them were the most important as this would aid in prioritizing actions to ensure the availability of needed capabilities.

To establish rank-order importance, the company carried out a survey to capture the views of 83 of its leaders who occupied positions in and one and two levels below the executive level. The 13 attributes were investigated using a "MaxDiff" approach that is designed to yield a clear ordering of importance among attributes (Marley & Louviere, 2015). In this approach, respondents were presented with a series of subsets of 4 of the 13 attributes and asked to indicate which among the attributes in a subset was most the important and which was the least important to the success of the new strategy. Subsets were constructed such that the 13 attributes were balanced in terms of being presented an equal number of times with each other. Analyses yield a ratio-scale ordering of the importance of the 13 workforce attributes to the new strategy. The survey also captured perceptions of the current workforce vis-à-vis the needed workforce. Using a five-point scale anchored by "no gap" (1), "moderate gap" (3), and "extensive gap" (5), respondents reported their perceptions of gaps between the current level and the needed level of a capability for the strategy to succeed. Figure 5.1 shows the 13 attributes (skills, experiences, and knowledge areas), the relative importance of the attributes to the business strategy, and the relative magnitude of the perceived gaps between current and needed capabilities.

Company leadership found the pattern of findings in Figure 5.1 startling: The capabilities it deemed most important to future business success were the very capabilities most lacking in the current workforce. For example, the top right quadrant—higher importance, larger gaps—lists capabilities germane to features of the new strategy such as those related to new product development and entering into business partnerships. Also in this quadrant are general

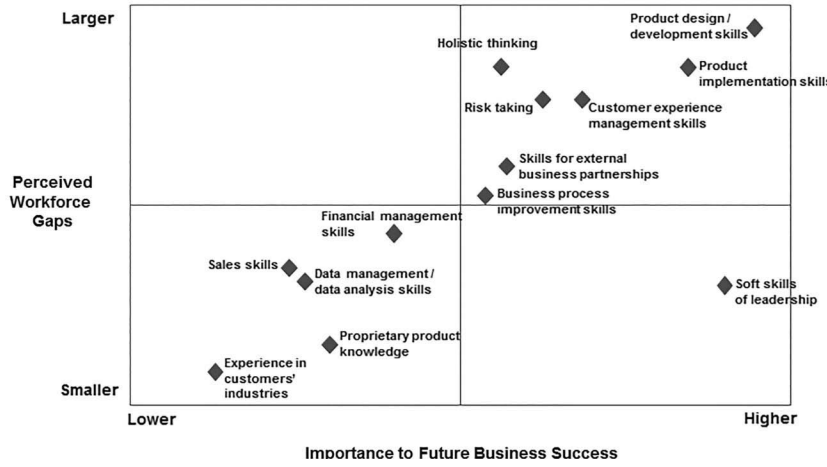

FIGURE 5.1 Workforce skills for business success in MidCo: importance and gaps.

capabilities supportive of the strategy (e.g., risk-taking, regarded as important to identifying new products and services and bringing them to new buyers, and holistic thinking, regarded as important to successfully bringing customers bundles of revenue-generating services).

Planning for the New Workforce

So how might MidCo come to have the workforce it needs for future success? One option—the internal labor market approach—would be to reskill the existing workforce through education and coursework, for example, or through structured experiences. Survey responses indicated that 80% of the leaders described the current workforce as a product of building versus buying, consistent with workforce data indicating modest turnover rates and appreciable employee tenure. However, when asked about the future, only 15% of the respondents endorsed a build-workforce-capability-from-within approach as the way preferred way forward. Clearly, company leadership believed that it needed to emphasize hiring, not development, as the better way to secure required workforce capabilities. MidCo's new business strategy was causing it to pivot from a "build" to a "buy" strategy to achieve workforce readiness.

Further, new hires and new places were seen as going hand-in-hand. Linked to the choice to draw new talent into the enterprise, leadership believed that the company needed to explore additional, alternative locations—in effect, to go where the talent is rather than try to attract it to its headquarters. Being a US corporation, MidCo actively explored alternative US-based locations as well as overseas locations, some where the company intended to expand its business and some where it did not expect to make sales but where it believed that the right workforce capabilities would be abundant.

Concluding Observations

Readiness is Not Just About Entry-Level Employment

The concept of workforce readiness most often is applied to initial employability, especially with regard to youth or generally any new entrants or re-entrants into the workforce. As such, readiness typically concerns fundamental skills relevant to almost all employers everywhere. Lists of such skills provide guidance for educators and others seeking to equip new workforce participants with what it takes to be employable (e.g., National Network of Business and Industry Associations Employers, 2015). Figure 5.2 illustrates one such list, ordered by importance to general employability as rated by 521 members of the Society of Human Resource Management (Lezotte & Marder, 2017). Employers and prospective employees benefit greatly from the well-specified definition of readiness at the entry level.

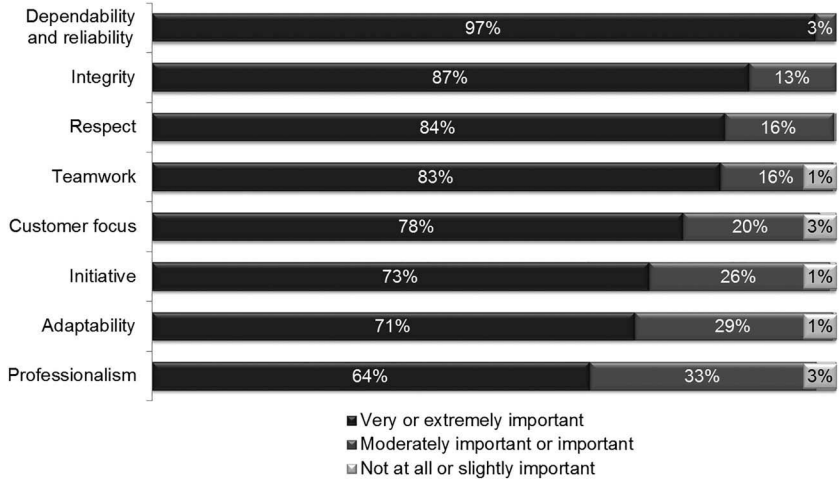

FIGURE 5.2 Entry-level skills and their importance.
Source: Lezotte, D. & Marder, B. (2017).

The concept of workforce readiness, however, also applies to the already-employed, the highly skilled, and the experienced. All three case studies presented here illustrate this. Importantly, the cases show that the meaning of readiness for the experienced worker shares little with its meaning for the entry-level workers. Experienced workers have mastered the basic requisites of employability (see Figure 5.2), one reason for the difference. But the major reason that readiness means something very different for experienced workers is that, for them, readiness is highly context specific. The case presented here about workforce requirements and a new business strategy illustrates such specificity of context, as does the case of leadership readiness in digitized manufacturing. An experienced worker can indeed be unready for a new environment, thus it would be a shame to restrict the concept of readiness to only entry-level employability.

Readiness is Loaded with Uncertainty

Readiness requires the specification of "for what." Compared to the familiar demands of entry-level employment, the "for what" is far less knowable when looking into uncertain futures, as the cases presented here illustrate. The perils of defining readiness in circumstances of uncertainty are easily imagined, yet the need to establish a useful description of what readiness will look like is real and persistent. Are there lessons to be taken from the three case studies about how best to navigate the uncertainty inherent in specifying the meaning of workforce in an uncertain context?

One lesson is to avoid exercises in armchair futurism. All too often this occurs in business when, for example, an extensive compilation of trends and prognostications is created and then the question is posed, "What does it all mean for our workforce?" Here is one such list shown to business leaders (source to remain anonymous): mobile computing, crowdsourcing, the IoT, big data, robots, autonomous vehicles, artificial intelligence, advanced manufacturing, multigenerational workforces, global demographic changes, gender parity, increasing longevity, income inequality, and changing social norms. Any one of those issues is legitimate; taken all at once, they are enormously unhelpful to enterprises seriously seeking to address workforce readiness. Rather than starting with a "change is all around us" mindset, the cases described here are instructive for their focus on an agreed-to, reasonably well-bounded (if complex) anticipated change. Establishing a narrowed focus grounded in a particular context thus appears to be an important element in reducing uncertainty and turning the abstract concept of readiness into something workable, in part by providing a common frame of reference and minimizing the risks of failure due to overreach.

Another lesson concerns the value of multiple approaches to data. Quantitative projections made from good here-and-now measurements are very valuable, such as forecasts of the occupational supply that begin with solid numbers about the number of people in an occupation now, the rate of occupational entry, and age-related demographics. On balance, though, most of the data relevant to defining workforce readiness will be qualitative in nature. Consequently, the value of classic methods of "doing research with words" (Gephart, 2013) in management contexts is very high, as is evident from the cases. Interviews with executive leaders, for example, initiated data collection in the cases on business strategy change and digital leadership. In the latter case, fieldwork and observational methods were also essential sources of data. Several other methods of data analysis were also evident in the cases, including the use of reasonably sophisticated survey techniques, content analysis of documents, and facilitated expert panel discussions. Skills in qualitative methods are critical to gaining data-based insights into the details of what workforce readiness means in a business context. Overall, flexible, adaptive applications of both qualitative and quantitative methods are keys to success.

Readiness Brings a Labor Market Dilemma

As the cases here illustrate, employers make different choices about the extent to which they will rely on external and internal labor markets. These choices are usually more about proportionate rather than absolute reliance on one over the other. Future workforce needs can lead employers to recalibrate, even radically alter, the extent to which they rely on one labor market over the other.

The emergence of alternative work arrangements represents different ways for employers to transact with their external labor markets. Such arrangements—gig workers, on-call workers, contract workers, agency-sourced temporary workers, freelancers, independent contractors, and the otherwise self-employed—are on the rise. Katz and Krueger (2016) report that the percentage of US workers engaged in alternative work arrangements grew from about 10% in 2005 to nearly 16% as of late 2015. The most populous among these is self-employment, which is about 10% of the US workforce (Bureau of Labor Statistics, 2018), and the category with the greatest rate of growth is contract workers (Katz & Krueger, 2016). Short-term affiliations with any one organization and limited scope of responsibilities are typical features experienced by individuals in these forms of employment.

The rise of alternative work arrangements is attributable to many factors. Technologies that support remote working and flexible work times, for example, may enable certain individuals to participate in the workforce who might not otherwise be able to do so at all (e.g., retirees, people with at-home responsibilities, the disabled, and those living in rural areas). Personal preferences also fuel their rise. For example, individuals who do not need to work for the income may find in alternative work arrangements a wished-for freedom to engage in only those work activities that most appeal to them. Employers, too, have a strong hand driving the growth of these arrangements. One reason is cost reduction. Lower wages, fewer benefits costs, lower overhead costs related to maintaining physical workplaces and employee record-keeping are all sources of cost savings for employers.

Employers face a classic investment quandary when choosing between internal and external labor markets. Those employers electing to achieve workforce readiness through their internal labor markets—that is, by engaging in training, coaching, managed career experiences, and rewarding to create and retain desired workforce capabilities—are making what are often long-term investments. Such investments are real costs to the employer. However, the employer controls those investments and will be first in line to reap their payoffs. In contrast, organizations electing to rely on external labor markets for workforce readiness can also make investments designed to help ensure that workers with desired future capabilities will be available. These investments, which can take the shape of expenditures on education and community services to influence the general workforce readiness, are almost certain to be smaller than those made in internal labor markets. However, the disposition of those investments is far less under the control of any one employer and any payoffs will be shared with many others.

A core strategic dilemma for employers concerned with future workforce readiness, then, is the resolution of the better bet: minimize short-term costs (the external labor market bet) or incur costs today in exchange for advantageous future returns (the internal labor market bet). For employers whose

business success heavily relies on entry-level or short-term workers—for example, those in industries such as hospitality, food service, and mass retail—the better bet seems clear. But for other employers the better bet may be the internal labor market. These other employers may be those whose business success relies on the continued mastery and development of proprietary knowledge and work processes, for example, or employers relying on the preservation of distinctive organizational cultures for business advantage. Employers, however, surely will encounter challenges when making a bet on the internal labor market. One such challenge is the growth of alternative work arrangements: These keep individuals out the very type of employment relationship on which internal labor markets are predicated. Another, and perhaps greater, challenge is the prevailing emphasis on cost reduction. Meeting short-term financial goals can undercut commitments to long-term investments, as does the press to return value to outside shareholders now rather than later. How well employers manage this labor market dilemma—and how well they overcome challenges when the better bet is on the internal labor market—will be critical to success in achieving workforce readiness.

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