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Enterprise Agility and IT Skills Practices in Kenya

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Abstract: *Enterprise agility is a company's ability to outperform the competition and drive growth in new, ambiguous situations by learning and adapting when confronted with foreseen and unforeseen circumstances, dilemmas, crises, and complex problems. Companies striving to become agile must think in terms of three kinds of drivers of change: The "operating environment" that might radically reshape their business environment; "strategic responsiveness" or the soft levers they can pull in response; and the "organizational flexibility" that invariably affects their capacity to respond quickly.*

Problem Statement

Business executives and IT leaders lack the strategies to manage human capital and skill gaps in all areas of the organization including the IT department (CioIndex, 2019a). The organizations are not agile and are faced with dire consequence of not being able to compete in a dynamic environment. The need for enterprise agility and skills is driven by the current VUCA (Volatility, Uncertainty, Complexity, Ambiguity) market dynamics. Competitive pressures across industries are increasing. The general business problem is that managers lack strategies to drive agility and skills development. The specific business problem is that some managers in Kenya lack the strategies to manage the human capital and skill gaps.

Keywords: *Agility, Skills, Strategy, Adaptability, Flexibility, Balance, Human Capital, Volatility, Uncertainty, Complexity, Ambiguity***.**

I. Literature Review

Enterprise Agility Framework

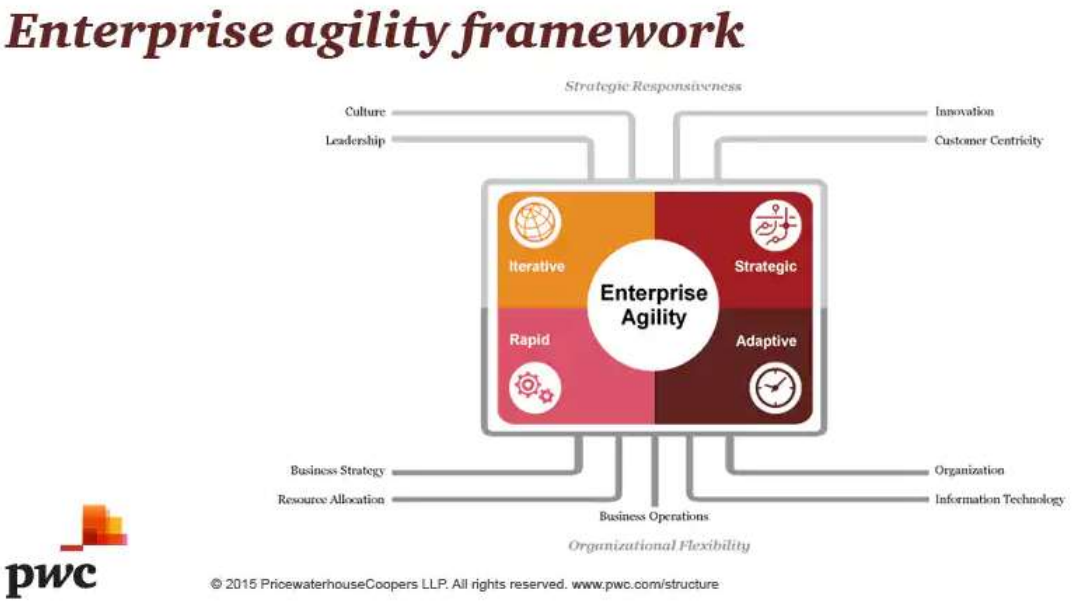

Figure 1. Enterprise agility framework

Source: (PWC, 2019).

Figure 2. Factors impacting enterprise agility

Source: (PWC, 2019).

The need for Enterprise Agility is driven by the current VUCA (Volatility, Uncertainty, Complexity, Ambiguity) market dynamics. Competitive pressures against large organizations across industries are increasing. Contributing to these pressures and the change in these market dynamics is disruption from global innovators, particularly through start-up organizations which can compete in new ways. They are achieving this by pinpointing lucrative / niche segments and combining these with a customer first focus and new technologies. This is lowering the barrier to entry allowing start-ups to compete at scale with traditional large corporations. Not only is the competitor and technology landscape changing, so are customer demands for a better, more personalized service. With the rise of digitization and the global economy, this has changed the information customers now have access to. This means the goal for organizations now also needs to change. No longer can an organization prioritize their shareholders needs over their customers. They can no longer offer an average service or customer experience and see no broader impact outside that single customer. They can also no longer take months or years to provide customers with the products and experiences they want. The customer needs to be at the heart of everything they do. As customers are now more interconnected, this heightens the need for providing customers a great experience. Single customer experiences can now have significant impacts on an organization, especially through easy-to-share channels through social media and on your mobile. For example, when the recent incident showcasing the treatment of a passenger on United Airlines went viral, this resulted in United Airlines stocks dropping $1.4 Billion. Even though stocks may have since bounced back, the impact on the brand was still felt. While the obvious answer is to focus on the customer experience with everything we do, there are other ways organizations can change their ways of working by adopting the Agile mindset and principles more broadly. An organization which has achieved enterprise agility is also one that operates effectively and with efficiencies gained in all areas across the organization (and continuously striving to be further optimized, as there is no end state). It is also one that leverages the next gen and innovative technology to create a digital experience for both customers and employees and maximizes productivity through a high degree of automation. Ultimately, it means changing the way we do our work across all elements of an organization, to adopt the values highlighted in the diagram above.

II. Enterprise Agility Enablers

An organization is said to have long-term business agility if it possesses the following salient features:

- Adaptability: Adaptability refers to the vivacity of an organization to quickly assemble its technology, management, and resources through means such as communication and information infrastructures in an effective, intentional, and coordinated response to an increase in changing external and internal environments. The market environment in question needs to be experiencing a continuous and unanticipated change. In contemporary organizations, continuous change is increasingly becoming a "new normal" phenomenon. For this reason, interest in organizational agility has increased exponentially for managers and corporate personnel. Organizations attempt to adapt and respond to

these market changes through coordinated processes and responses, thus making the organization adaptable

- Flexibility: Agility facilitates increased flexibility in the organization. An organization is flexible if it can easily implement its core business objectives in a loose hierarchy and adapt to the rapid changes in the market and global environment. An organization that can easily reshape its cultural and business practices in line with changing circumstances through the contribution and participation of the team members is said to be flexible and fits the description of organizational agility. Organizational agility ensures equal contribution and participation by the team members. There is a team structure that is characterized by role authority where individual members of the team have a role to play in the organization. Efforts contributed by each member to the organization are recognized and encouraged. These organizations focus on a result-driven rewards scheme instead of the predefined KPIs. It also involves the extent to which the organizations can scale its knowledge base and awareness.

- Balance: Agility enables organizations to balance both the aspect of control and autonomy through its organizational infrastructure. The organization achieves balance among its core activities when it has acquired the dynamic capabilities in the form of combined competencies and resource development and has created a source of competitive advantage to respond rapidly to the changes in the market conditions.

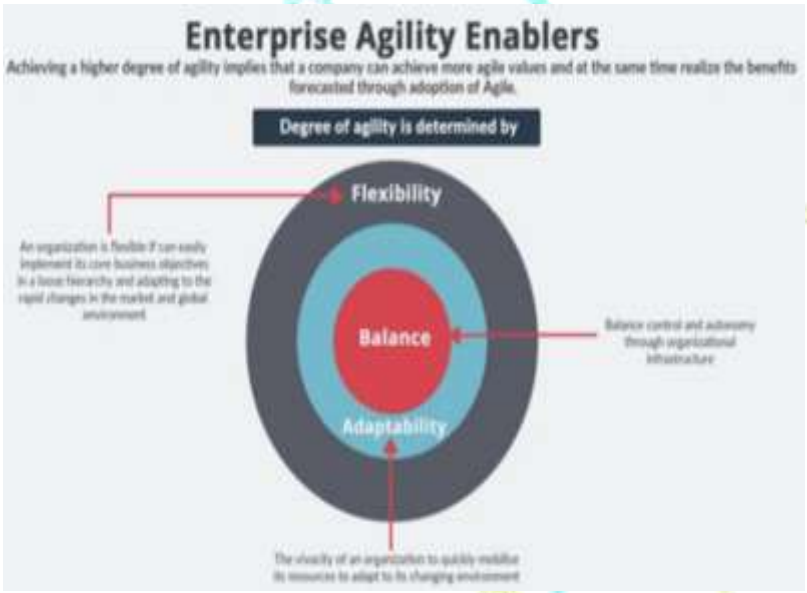

Figure 3. source: (ModernAnalyst, 2019).

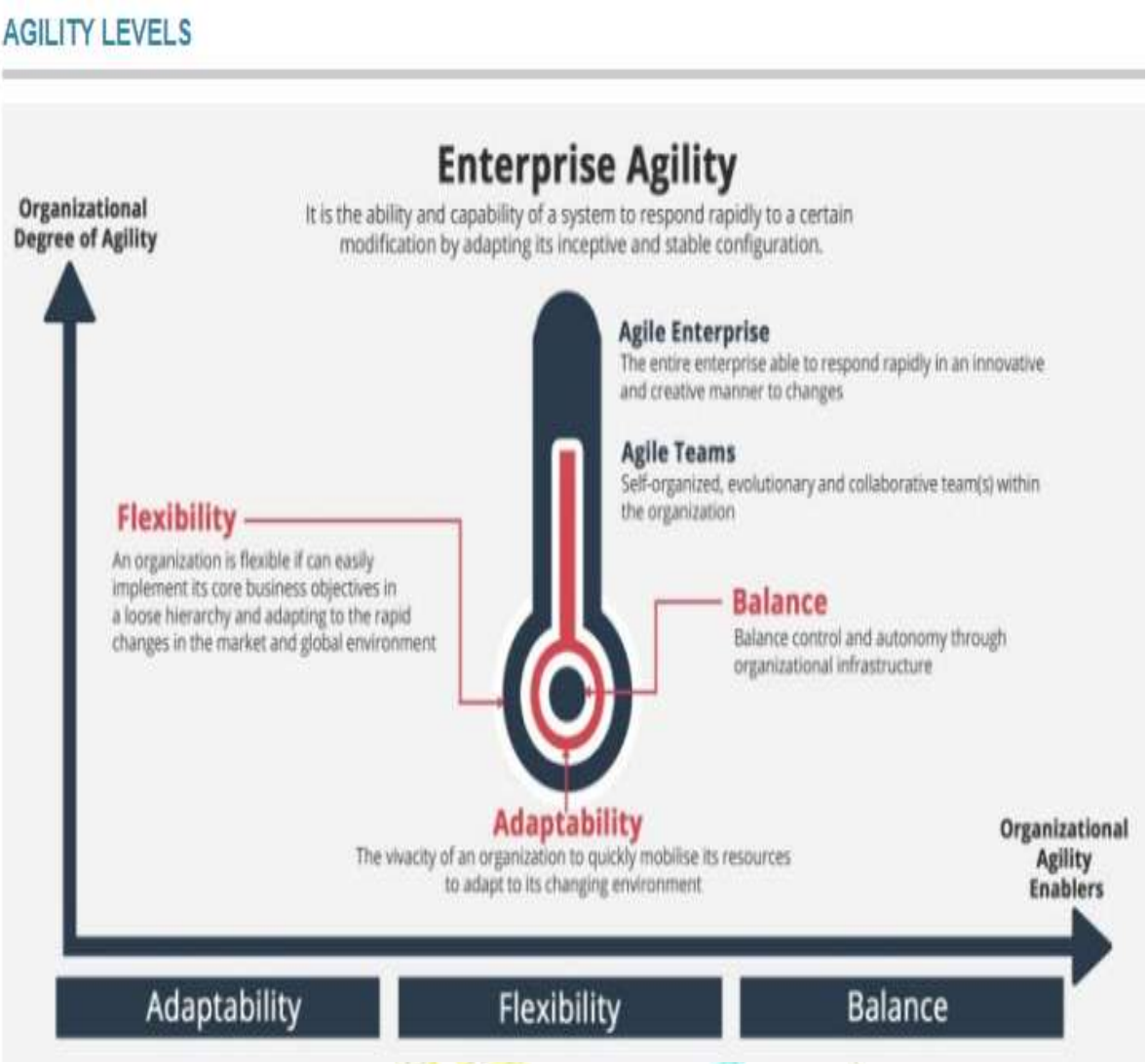

Figure 4. Two levels of agility

Source: (ModernAnalyst, 2019).

Team-level agility: This is the level of agility where self-organizing, co-evolution, and interactions are within the members of a given team. The interactions are among the individuals that have a common goal and holding the necessary behaviors, resources, competence, and experience to transform the organization. In the team-level agility, the spontaneous and feedback-driven exchanges occur among the team members within the organization.

Enterprise-level agility – The enterprise-level agility involves the ability of the entire enterprise to respond rapidly in an innovative and creative manner to changes in the market conditions. It is the ability of the enterprise to facilitate dynamic decision making that supports the trending direction and any emerging competitive advantage. The level of agility in an enterprise is contrary to that of the traditional organizations where there is adherence to sustained competitive advantage.

In the figure below, there is the illustration of some of the values, practices to execute, and organizational areas which are considered in a traditional organization embarking on a journey to achieve enterprise agility:

Figure 5. Enterprise agility

Source: (Deloitte, 2019).

Achieving Enterprise Agility

Here are three ways (based on the software industry) organizations can become more agile, regardless of its size or structure:

- Enterprise agility and self-organization: Create broader, more flexible job roles that allow employees to organize around specific problems and initiatives they care about. Enable them to collaborate cross-functionally to reduce dependence on others outside the team. Encourage them to utilize all their skills, not just those related to their job functions. Team size matters. Keep teams as small as possible while ensuring that all necessary skills are included.

- Collaboration: Relentlessly seek out and eliminate any communication barriers that are standing in the way of real-time collaboration. Every "throw over the wall" wastes valuable time. Provide channels for quickly and easily sharing information and expertise between groups. In agile software development, physical co-location is considered optimal, but close online collaboration can produce the same results.

- Autonomy for project teams: Finally, help find ways to give project teams more autonomy. Allow teams to move more quickly by giving them decision-making authority. The fewer approvals and sign-offs a team needs along the path to project completion, the better. Teach managers to guide, oversee and support rather than direct. A leader's top priorities should be continually removing impediments to the team's progress and helping the team avoid roadblocks. Allow teams to achieve optimal efficiency and productivity as they discover the best ways to work together.

In a survey conducted by the Economist Intelligence Unit, 90% of executives across all industry sectors cite organizational agility as critical to any organization's long-term success, and a study conducted by MIT suggests that companies embracing agile principles grow revenue 37% faster and generate 30% higher profits than non-agile companies. By taking a few tips from the software industry, your organization will gain the speed and flexibility it takes to compete at today's lightning-fast pace of business. Most agile organizations anticipate, adapt to, and act on change (WorkDay, 2019).

III. Patterns for Enterprise Agility

The four patterns for enterprise agility have been extracted from everyday practice in applying agile in complex, large-scale enterprises. They can be applied individually, depending on organizational needs and objectives, but are preferably combined for optimal value and true agility in the enterprise context. Surely, if the agile principles would have been applied consistently throughout the entire service delivery chain, we wouldn't need to discuss enterprise agility. But reality is that many large enterprises still encounter powerful issues regarding portfolio, scale, lifecycle management and external parties. These four patterns illustrate a comprehensive path to enterprise agility for these enterprises, enabling them to truly deliver on the agile promise.

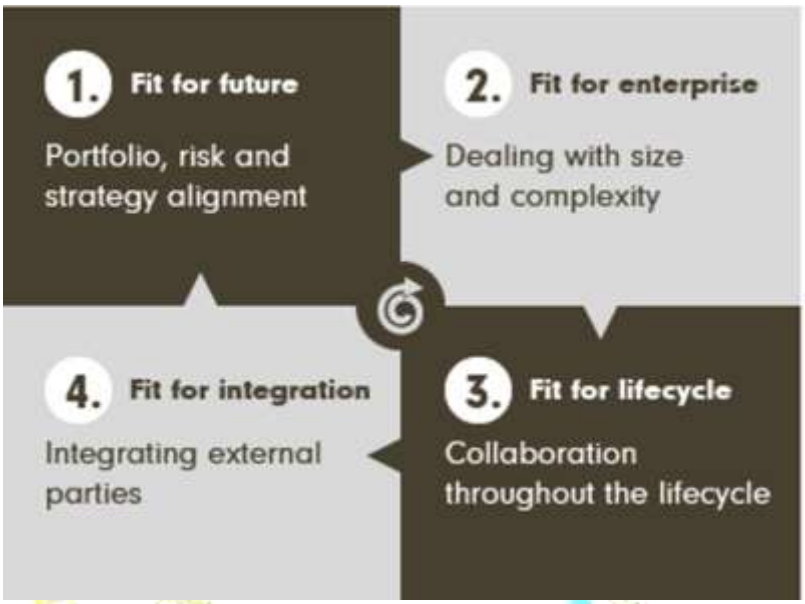

Figure 6. Four patterns for enterprise agility.

Source: (Sogeti. 2019)

- 1. Fit for Future: The first pattern revolves around the alignment of the individual agile teams with the overall business strategy and portfolio. Surely, having decentralized decision making to product owner level, like in Scrum, empowers teams to respond quickly to changing market needs. Most enterprises, however, also deal with long-term strategic themes (e.g. mobile strategy) and related programs which need to be brought into line with the several team backlogs.

- 2. Fit for Enterprise: Organizations of substantial size generally deal with programs comprising more than, say, 100 people working on shared program objectives. This level of complexity and scale puts more and more pressure on monitoring dependencies, sharing architectural guidelines and harmonizing delivery cadence. Your organization may decide to use SAFe (Scaled Agile Framework), DAD (Disciplined Agile Delivery), may be inspired by the way of working at Spotify, or simply use Scrum instruments to scale (Scrum of Scrums, Meta Scrum). Irrespective of the solution you choose, an organizational and cultural fit is key for true agility at scale.

- 3. Fit for Lifecycle: The third pattern deals with the lifecycle scope of agile. Despite the massive growth of DevOps cultures and Continuous Delivery practices, most organizations that have adopted agile, still focus on agile for their software development domain. Making agile truly work for your enterprise implies translating its principles and instruments to the other domains involved in the IT delivery chain. From the moment new ideas emerge (business, IT innovation) until the moment they are maintained in production (operations, support), agility needs to be integrated in current practices.

- 4. Fit for Integration: The final pattern for enterprise agility hinges on the observation that virtually no modern enterprise builds and runs their IT completely in house, without any external supplier. Almost every organization has to deal with complex value chains, comprising multiple external parties like body shops, outsourcing partners or cloud suppliers. Integrating these individual components to

sustainable business value is key for the modern enterprise. Upcoming models like SIAM (Service Integration and Management) help providing guidelines to organize for integration. The challenge remaining here, is how to combine external agreements (fixed contracts, SLAs) with agile behavior and processes. The most effective way to deal with this disparity is to embrace the agile context even on integration level, such as agile service management, reducing batch sizes, value stream mapping and focus on cycle times.

Key Topics in Agile Enterprise Studies

- Comparing agile enterprises to complex systems

- Interactions, self-organizing, co-evolution, and the edge of chaos are concepts borrowed from complexity science that can help define some of the processes that take place within an agile enterprise. Interactions are exchanges among individuals etc. holding a common vision and possessing the necessary resources, behaviors, competence and experience in aggregate. They are an important driving force for agile enterprises, because new ideas, products, services, and solutions emerge from the multiple exchanges happening over time. The interactions themselves, rather than individuals or the external environment, are significant drivers of innovation and change in an agile enterprise.

- Self-organizing describes the spontaneous, unchoreographed, feedback-driven exchanges that are often found within agile enterprises. Vital initiatives within the agile enterprise are not always managed by one single person—rather all parties involved collectively make decisions without guidance or management from an outside source. The creativity and innovation that arises from this self-organizing process gives the agile enterprise an edge in developing (and redeveloping) products, services, and solutions for a hyper-competitive marketplace.

- Co-evolution is a key process through which the enterprise learns from experience and adapts. The agile enterprise is constantly evolving in concert with (and in reaction to) external environmental factors. Products and services are in a constant state of change, because, once launched, they encounter competitors' products, regulators, suppliers, and customer responses that force adaptations. In one sense, nothing is ever completely "finished", although this does not mean that nothing is ever made, produced, or launched.

- The edge of chaos is a borderline region that lies between complete anarchy or randomness and a state of punctuated equilibrium. The agile enterprise ideally operates in this region, needing the tension between constant change and the constraints that weaken change efforts to keep the organization perturbed enough for innovation and success. In other words, the edge of chaos is the space in which self-organizing and co-evolution flourish.

- Agile enterprise versus bureaucracy: There are several key distinctions between the agile enterprise and the traditional bureaucratic organization.

- The most notable is the agile enterprise's use of fluid role definitions that allow for dynamic decision-making structures. Unlike the rigid hierarchies characterizing traditional bureaucracies, organizational structures within agile enterprises are more likely to fluidly adapt to changing business conditions into structures that support the current direction and any emergent competitive advantage.

- Similarly, agile enterprises do not adhere to the concept of sustained competitive advantage that typifies the bureaucratic organization. Operating in hyper-competitive, continuously changing markets, agile enterprises pursue a series of temporary competitive advantages—capitalizing for a time on the strength of an idea, product, or service then readily discarding it when no longer tenable.

- Lastly, the agile enterprise is populated with individuals pursuing serial incompetence — they work hard to obtain a certain level of proficiency in one area but are driven to move on to the next "new" area to develop expertise. There are no "subject-matter experts" specializing for years in one topical area, as found typically in a traditional bureaucracy.

- Operating at the edge of chaos: Although agile enterprises include numerous, constantly co-evolving and moving parts, they do require some structure.

- The enterprise must develop specific structures (also called system constraints) to serve as a counterbalance to randomness and anarchy, keeping the enterprise optimally functioning on the edge of

chaos. These structures—including a shared purpose or vision, resource management aids, reward systems, and shared operating platforms—often emerge from three key organizational processes: strategizing, organizing, and mobilizing.

- Strategizing is an experimental process for the agile enterprise, in which individuals repeatedly generate ideas (exploration), identify ways to capitalize on ideas (exploitation), nimbly respond to environmental feedback (adaptation), and move on to the next idea (exit).
- Organizing is an ongoing activity to develop structures and communication methods that promote serial execution. It often includes defining a shared vision, as well as systems and platforms, that ground the enterprise.
- Mobilizing involves managing resources, ensuring the fluid movement of people between projects, and finding ways to enhance internal and external interactions. Typically, enterprise values, personal accountability, and motivational and reward systems are a key output of this process.

Benefits of Enterprise Agility

- Increase business value creation: Enterprise agile aligns the entire organization through a set of lightweight, shared processes and practices. By doing that, the organization can adapt quickly as the market changes or as new ideas come to the fore. By harnessing the entire organization to focus effectively on the few top priorities, with progress visible to all through objective, meaningful metrics, the organization can rapidly create and deliver value and then move on to the next-highest-priority items.
- Meet customer needs and exceed expectations: The agile enterprise values rapid feedback loops in all aspects of work—both internal and external. This builds transparency and trust with co-workers and customers alike. The mantra of "release early and often with high quality," as exemplified by the DevOps culture, can be exciting for customers who learn to eagerly await the next imminent release.
- Create a positive shared culture: By their nature, enterprise agile practices foster a culture of teamwork, honesty, and transparency. Everyone collaborates closely, fostering a spirit of cooperation and shared trust. Retrospectives and other forms of actively engaging improvement opportunities mean that everyone has a real chance to make things better. No lonely, ignored suggestion boxes needed.

Solving the business domain challenges is what moves the organization forward and allows managers to innovate, bringing novel capabilities to the customers. This eliminates the dysfunction and misalignment within the organization (Techbeacon, 2019).

Enterprise Agility Challenges

- 1. Preparing for the Unknown: Doing business today is not about just preparing for tomorrow. It's about preparing for an unknown, unpredictable future that is filled with uncertainty. Worryingly, 70 percent of executives who responded to a recent Accenture survey expressed dissatisfaction at their inability to predict future performance in the new normal of permanent market volatility and the uncertainty it creates (IFS, 2019).
- 2. Realizing Value from Investments, rapidly: Any investment, whether in real estate, resources, personnel or technology not only has to be justified at board level but must demonstrate a return more quickly than ever. If the days of long implementation cycles are over, the days of stringent measurement of total cost of ownership, combined with quick return on investment have arrived.
- 3. Converting Skills and Knowledge: A key challenge faced by businesses in complex, technical industries is how to convert skills, knowledge and ideas from individuals, as human capital into structural capital that can benefit the whole business. In highly technical and geographically distributed industries, the knowledge of specialist teams and employees can be an organization's greatest asset and therefore should be managed accordingly. Information needs to be diffused and shared as much as possible to create effective knowledge transfer to new employees and ensure vital information stays within the organization.

- 4. Transforming Customer and Supplier Relations: The growing digitization of business and personal spheres has not only fundamentally changed the way businesses operate, but it has changed the way consumers think, behave and engage with organizations. The power of the internet combined with the onslaught of mobile devices, giving consumers access to information 24/7 means organizations must adopt a digital transformation strategy to remain competitive. Project - and asset-based businesses – such as energy and utilities, manufacturing, construction and defense -- are under pressure to transform how they serve and interact with customers, suppliers and partners.

- 5. Changing Working Culture, Processes and Practices: As well as adaptable technology, adaptable people and culture within an organization are also essential to agile businesses and helping organizations work towards a strategic vision that is itself constantly changing. Driving this change is a new generation of worker. According to Forbes, "Millennials are going to make major shifts in corporations over the next decade and most people are not ready for change that's coming. By 2025, Millennials will account for 75 percent of the global workforce." What this means for organizations is that to capitalize on these changes to create business advantages, they must have the systems, processes and culture in place to facilitate transformation, as and when it occurs.

IV. Information Technology (IT) Skills

Soft Skills

The term soft skills refer to the personal traits, characteristics and competencies that inform to how an individual relates to others and is often used as a synonym for people skills or interpersonal skills (TechTarget, 2019c).

The term describes those personal attributes that indicate a high level of emotional intelligence. These skills can include empathy, analytical thinking and etiquette. Soft skills are attributes that are impossible to quantify but play an important factor in many business settings

Unlike hard skills, which describe a person's technical skills and abilities to perform specifically defined tasks, soft skills are broadly applicable across job titles and industries. It's often said that hard skills will get you an interview, but you need soft skills to get -- and keep -- the job, as well as to successfully lead and influence others.

Examples of soft skills

An employee with a high level of emotional intelligence has good communication skills and interpersonal skills. They can clearly articulate goals and can work in a team with a positive attitude. Other are: Ambition, self-management skills, time-management, confidence, friendliness and manners, enthusiasm and optimism, focus, common sense, empathy, situational awareness.

Another important soft skill is adaptability. The ability to be diplomatic and respectful, even during disagreements, is a key soft skill. This skill requires the employee to maintain a professional tone and demeanor even when frustrated. In 2018, LinkedIn listed leadership, communication, collaboration and time management as the top four most in-demand soft skills.

Technology company iCIMS Inc., which develops recruiting and other employee management-related software, analyzed its proprietary data and found that problem-solving, adaptability and time management are the top three soft skills that recruiters seek in candidates.

They also seek candidates who are ambitious, confident, friendly, charismatic, articulate, enthusiastic, determined, easygoing, efficient and focused, according to findings publicized by iCIMS on its website in 2018.

Business executives and leaders are making soft skills more of a priority when hiring, as they are often essential for workers to succeed in modern organizations. Business projects often require employees to work as a team, making employees' abilities to have positive interactions with others just as valuable as the technical tasks they're asked to accomplish. As a result, business leaders are seeking workers who possess team work, collaboration, communication, problem-solving skills, and other emotional and cognitive capabilities to work in multimember, multidisciplinary teams that are geographically and/or cultural dispersed. For businesses that have

a customer service/relations component, strong soft skills are a way to ensure a positive relationship between customer and company without providing extensive training.

Soft skills training

Businesses and individuals can close the soft skills gap through training. Individuals should start by asking family and trusted colleagues for feedback, which can help individual employees to identify the soft skills which require improvement.

Figure 7. Most Valued soft skills

Source: (TechTarget, 2019c)

Hard Skills

Hard skills are specific abilities, or capabilities, that an individual can possess and demonstrate in a measured way. Possessing a hard skill connotes mastery and an expertise within the individual to perform a specific task or series of tasks to complete a job (TechTarget, 2019b).

Measuring hard skills

Hard skills are demonstrable and quantifiable; individuals who possess hard skills can be tested to prove their capacity in each hard skill they possess. There are objective metrics that can be applied to the hard skill, not just subjective judgment.

Furthermore, an individual's proficiency in any hard skill can be measured against the proficiency of other individuals who possess that same hard skill. Typing is a hard skill. Two individuals with the ability to type can be tested for speed and accuracy, with their scores determining which individual is more proficient in the skill.

Skill training

Although some individuals can have innate abilities that make it easier for them to learn a hard skill either through formal lessons or in informal ways, most people develop hard skills through some sort of educational process.

For example, some people have a natural sense of numbers that makes it easier for them to learn basic as well as complex math; yet, they, as well as others, learn math through a series of lessons.

Individuals learn hard skills in various ways, including learning them in traditional schools, colleges and vocational education programs. Individuals can also learn hard skills through apprenticeships, mentoring, on-the-job training and hands-on training. Individuals can teach themselves hard skills, too, through books, online platforms and even through trial and error.

Certificates, diplomas, licenses and test scores are often used as proof that an individual has achieved a certain level of proficiency for a hard skill or set of hard skills. A driver's license, for instance, demonstrates that an individual has demonstrated a minimum level of proficiency as determined by the government agency issuing the driver's license. A commercial driver's license shows that an individual has achieved another, higher level of proficiency. Hard skills can also be considered technical skills.

Hard skills vs. soft skills

Soft skills, on the other hand, are characteristics or capabilities that are nearly impossible to quantify or measure in an objective way. Thus, judging one's soft skills is a subjective exercise.

Some soft skills are described as intangible; for example, being a good listener is a capacity that describes an individual's ability to hear a speaker's words and understand and empathize with the speaker. Although someone could measure the ability to correctly hear the speaker's words, the soft skill comes in the listener's capacity to understand and empathize -- a skill that's practically impossible to quantify, measure and compare against someone else using objective standards.

Soft skills are often called interpersonal skills or people skills. Additionally, soft skills can describe an individual's own characteristics; examples of such soft skills include having a good work ethic or working well with others.

Individuals generally have a disposition that favors the expression of specific soft skills, but there is an element of nature vs. nurture as well. There aren't traditional degree programs or vocational programs focused on soft skills, but colleges, schools, organizations and even companies do indeed invest in developing soft skills in individuals.

Individuals can seek out learning opportunities and activities on their own to cultivate soft skills within themselves as well. Nearly all jobs today, including most professional positions, require hard skills. Job descriptions frequently list a series of hard skills needed to be hired, and they also often list the preferred proof of such skills, such as degrees or certificates, that each job applicant needs to be considered for the position.

Possessing specific hard skills demonstrates one's ability to successfully perform the job and fulfill its duties. For many professions in many companies, the possession of hard skills is important to ensure a company's financial success; however, in some instances, the worker's hard skills are critical to preventing catastrophic results. A surgeon, for example, must have very specific hard skills to ensure against unnecessary harm to a patient; a pipefitter must also be exacting in his or her application of hard skills to ensure against something like a gas leak.

Furthermore, many employers seek out soft skills, finding that interpersonal skills are needed -- sometimes in equal measure to their hard skills -- for individuals to successfully complete the jobs they're assigned to do.

According to LinkedIn, the most in-demand hard skills for 2018 are:

Cloud and distributed computing; statistical analysis and data mining; middleware and integration software; web architecture and development framework; user interface design; software revision control systems; data presentation; SEO/SEM marketing; mobile development; network and information security.

LinkedIn also published the most in-demand soft skills, based in its survey of 2,000 business leaders. They are leadership, communication, collaboration and time management skill.

IT skills gap

IT skills gap (information technology skills gap) is the difference between existing IT workplace knowledge and the knowledge required to fulfill business objectives. Closing the IT skills gap by aligning the current state of workforce IT knowledge with forecasted future needs is a complicated proposition for C-level executives.

Today, employers often struggle to locate and retain qualified tech talent, especially individuals with application development, security and data analysis skills (TechTarget, 2019a).

Common approaches to closing an IT skills gap include recruitment process outsourcing, social recruiting, off-site training, employee mentor incentives, mentoring services, in-house turnkey training and partnerships with universities. In many instances, an IT job will remain unfilled for an extended period when an employer needs to hire someone who has a very specific set of skills. In recruiting lingo, such candidates are referred to as purple squirrels. Because squirrels in the real world are not often purple, the implication is that finding the perfect job candidate with exactly the right qualifications, education and salary expectations can be a daunting – if not impossible task.

V. Human Capital Index (HCI)

Human Capital Index measures how well an organization makes use of the ability of an individual to perform and create shareholder value through his/her competencies, knowledge and expertise. A higher human capital index indicates better management of human capital by the organization. It is measured on a scale of 100. The human capital index can be enhanced by providing training to increase the expertise and competencies of individuals, providing bonuses to performing individuals (MBAskool, 2019). In general, human capital index is a measure of effective human resource management.

The Human Capital Index measures countries' ability to maximize and leverage their human capital endowment. The index assesses Learning and Employment outcomes across 5 distinct age groups, on a scale from 0 (worst) to 100 (best), and assesses 130 economies (Weforum, 2019a)

The 6 primary human capital performance drivers

- Strategic alignment: the extent to which all leaders share a consistent perspective about, and commitment to the organization's stated mission and vision, its goals, and its strategies for achieving success.
- Leadership quality: the extent to which leadership quality is recognized as a strategic differentiator that drives performance, quality, customer satisfaction, engagement, and overall organizational results.
- Engagement: the extent to which employees at all levels and functions are meaningfully treated in ways that lead to full participation in their jobs and contribution to the growth of the company.
- Culture and identity: the underlying and collective beliefs about an organization's purpose, and the degree to which culture is both recognized as a critical factor in organizational effectiveness and is actively managed.
- Change agility: The speed and accuracy by which the organization is able to adapt, change direction, and implement new initiatives and strategic priorities.
- Execution: The extent to which members of the company, from leaders to the front line, are accountable, deliver on promises, and focus on performance.

Figure 8. 6 primary human capital performance drivers

Source: (Fmgleading, 2019).

The Watson Wyatt Human Capital Index is an ongoing study that quantifies the link between specific human-capital practices and shareholder value. Conducted every two years, beginning in 1999, it has a four-pronged objective: 1) to provide HR with financial-performance metrics; 2) to test the belief that it pays to manage people right; 3) to help managers assess their human-capital investments; and 4) to determine whether some HR practices offer a "bigger bang for the buck" than others. Seven hundred and fifty large publicly traded companies in the United States, Canada, and Europe took part in the 2001 study. Human resources executives at the companies were asked a wide range of questions about how the organizations carried out their HR practices, including pay, people development, communication, and staffing. Their responses were matched to objective financial measures, including market value, three- and five-year total return to shareholders, and Tobin's Q, an economist's ratio that measures an organization's ability to create value beyond its physical assets (Workforce, 2019).

VI. The Global Human Capital Index

As a leader in the analysis and improvement of human capital disparities worldwide, the World Economic Forum considers factors and indicators of individuals as well as long-term trends that shape a nation's workforce and talent pool. The Global Human Capital Report presents information and data that are compiled and/or collected by the World Economic Forum. The Global Human Capital Index provides a means of measuring the quantifiable elements of the world's talent potential so that greater attention can be focused on delivering it. By measuring countries' talent resources holistically according to individuals' ability to acquire, develop and deploy skills throughout their working life rather than simply during the formative years, we hope to foster a true revolution in educational systems where education is geared to meeting the needs of the future workforce.

There are four guiding concepts underlying the Index, forming the basis of how indicators are chosen, how the data is treated, and the scale used.

- Outcomes vs. inputs: The Global Human Capital Index evaluates countries based on outcomes rather than inputs or means. And provides a snapshot of a country's current human capital,

current investment in building future human capital and current outcomes in the labour market. The Index examines each indicator in relation to a meaningful maximum value that represents "the ideal." Every indicator's score is a function of the country's "distance from the ideal" for the specific dimension measured. By establishing an absolute measure of countries' performance, the Global Human Capital Index allows for both intra- and inter-country comparisons year-to-year.

- Distance to the ideal: The Index holds all countries to the same standard, measuring countries' "distance to the ideal" state, or gap in human capital optimization.
- Human capital as a dynamic concept: "Human capital" does not mean individuals themselves but the knowledge and skills they possess that enable them to create value in the global economic system. This requires investment both on the side of individuals and by public and private stakeholders across people's lifetimes. The Index thus treats human capital as a dynamic rather than fixed concept. It recognizes that human capital is not defined solely through formal education and skilling but can be enhanced over time — growing through use and depreciating through lack of use.
- Demographics count: Whenever possible and relevant, the Index aims to take a generational view and disaggregates indicators according to five distinct age groups, highlighting issues that are unique or particularly crucial for the human capital development of each cohort. This view across age groups allows for more targeted policy interventions and human resource planning.

To better understand the human capital index, the American University School of International Service's International Relations Online created this infographic that illustrates the four pillars that the WEF uses to measure human capital and provides a comparison of national performance within the context of the index (Weforum, 2019b).

Figure 9. Source: (American University, 2019).

VII. People Capability Maturity Model (P-CMM)

PCMM® is an integrated set of best practices that improves performance and key capabilities for organizations that want to improve their critical people management processes (CioIndex, 2019b). The People Capability Maturity Model® provides guidance for improving the capability of an organization's workforce. These best practices help identify skill gaps, break down workflow bottlenecks, and empower team members to develop skills that will help the organization succeed.

PCCM - Process Maturity Rating

The process maturity rating is from ad hoc and inconsistently performed practices, to a mature and disciplined development of the knowledge, skills, and motivation of the workforce. Traditionally, process maturity models like ISO/IEC 15504 or CMMI focus on organizational improvement with respect to operational (Product) Development Processes. PCMM in contrast focus instead on the three prominent factors for operational capability to deliver successful products and services:

- People
- Process
- Products, Technology

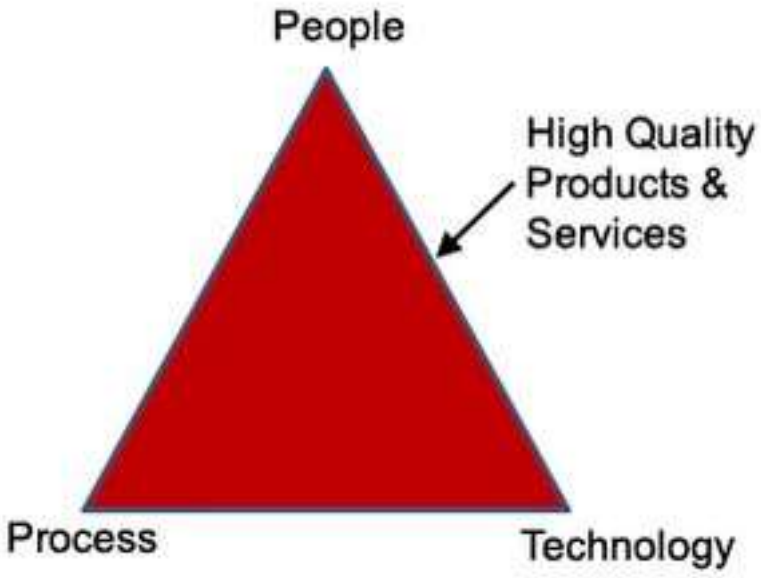

Figure 10. Source: (Plays in Business, 2019).

Thus, these 3Ps of PCMM are comparable to ITIL's 4Ps: People, Processes, Products (tools and technology) and Partners (suppliers, vendors, and outsourcing organizations). P-CMM is characterized by a holistic approach to people-related issues. Instead of looking at traditional Human Resource interventions in a reactionary scrappy fashion. The P-CMM framework enables organizations to incrementally focus on key process areas and to lay foundations for improvement in workforce practices. Unlike other HR models, P-CMM requires that key process areas, improvements, interventions, policies, and procedures are institutionalized across the organization — irrespective of function or level. Therefore, all improvements have to percolate throughout the organization, to ensure consistency of focus, to place emphasis on a participatory culture, embodied in a team-based environment, and encouraging individual innovation and creativity.

People Capability Maturity Model (P-CMM) Maturity Levels

A maturity level represents a new level of organizational capability created by the transformation of one or more domains of an organization's processes. The People CMM applies the principles of the process maturity framework to the domain of workforce practices. Each of the People CMM's five maturity levels represents a different level of organizational capability for managing and developing the workforce. Each maturity level provides a layer in the foundation for continuous improvement and equips the organization with increasingly powerful tools for developing the capability of its workforce. The nature of the transformation imposed on the organization's workforce practices to achieve each level of maturity is depicted in Figure 3.

Figure 11. Source: (Software Engineering Institute, 2019).

- The Initial Level: Maturity Level 1

Organizations at the Initial Level of maturity usually have difficulty retaining talented individuals. Even though many low-maturity organizations complain about a talent shortage, the inconsistency of their actions belies whether they believe it. Low-maturity organizations are poorly equipped to respond to talent shortages with anything other than slogans and exhortations. Despite the importance of talent, workforce practices in low-maturity organizations are often ad hoc and inconsistent. In some areas, the organization has not defined workforce practices, and, in other areas, it has not trained responsible individuals to perform the practices that exist (Software Engineering Institute, 2019).

- The Managed Level: Maturity Level 2

The workforce practices implemented at the Managed Level focus on activities at the unit level. The first step toward improving the capability of the workforce is to get managers to take workforce activities as high-priority responsibilities of their job. They must accept personal responsibility for the performance and development of those who perform the unit's work. The practices implemented at Maturity Level 2 focus a manager's attention on unit-level issues such as staffing, coordinating commitments, providing resources, managing performance, developing skills, and making compensation decisions. Building a solid foundation of workforce practices in each unit provides the bedrock on which more sophisticated workforce practices can be implemented at higher levels of maturity.

- The Defined Level: Maturity Level 3

Organizations at the Managed Level find that, although they are performing basic workforce practices, there is inconsistency in how these practices are performed across units and little synergy across the organization. The organization misses opportunities to standardize workforce practices because the common knowledge and skills necessary to conduct its business activities have not been identified. The primary objective of the Defined Level is to help an organization gain a competitive advantage by developing the various competencies that must be combined in its workforce to accomplish its business activities. These workforce competencies represent the critical pillars that support the strategic business plan; their absence poses a severe risk to strategic business objectives. In tying workforce competencies to current and future business objectives, the improved workforce practices implemented at Maturity Level 3 become critical enablers of business strategy.

- The Predictable Level: Maturity Level 4

An organization at the Defined Level has established an organizational framework for developing its workforce. At the Predictable Level, the organization manages and exploits the capability created by its framework of workforce competencies. This framework is sustained through formal mentoring activities. The organization is now able to manage its capability and performance quantitatively. The organization is able to predict its capability for performing work because it can quantify the capability of its workforce and of the competency-based processes they use in performing their assignments.

- The Optimizing Level: Maturity Level 5

At the Optimizing Level, the entire organization is focused on continual improvement. These improvements are made to the capability of individuals and workgroups, to the performance of competency-based processes, and to workforce practices and activities. The organization uses the results of the quantitative management activities established at Maturity Level 4 to guide improvements at Maturity Level 5. Maturity Level 5 organizations treat change management as an ordinary business process to be performed in an orderly way on a regular basis. At Maturity Level 5, individuals are encouraged to make continuous improvements to their personal work processes by analyzing their work and making necessary process enhancements. Similarly, workgroups are composed of individuals who have personalized work processes. To improve the capability of the workgroup, each person's work processes must be integrated into an effective operating procedure for the workgroup. Improvements at the individual level should be integrated into improvements in the workgroup's operating process. Mentors and coaches can be provided to guide improvements at both the individual and workgroup levels. Simultaneously, the organization continually seeks methods for improving the capability of its competency-based processes exist (Software Engineering Institute, 2019).

Benefits of People CMM®

The above is a set of benefits observed in some of the organization that have implemented People CMM®. The adoption of the model:

- Drives a "systems" approach to its people related processes and initiatives
- Promotes a long-term thinking in terms of the people
- Increases transparency, democracy and openness
- Builds organizational agility and ability to execute cross-functional projects
- Increases the level of automation
- Makes the organization metrics and data analytics
- Drives a competency culture
- Enables handling of rapid growth and scale
- Makes the HR function become more of a business partner
- Transforms line managers to better people managers

VIII. Practices in Kenya

Moringa School

Moringa school has received many awards from the World Economic Forum for innovation in IT skills development. It has also received recognition from Fast Company. Moringa is developing future knowledge workers through market driven education. Here beginners learn more advanced development skills. The courses consist of pathways that branch into either Full-Stack development (python and Django) or Android development-based path (Java and Android) (Moringa, 2019).

Founded by American Audrey Cheng, Moringa is a Kenyan tech accelerator offering a low-cost coding boot camp, giving rising developers the skills, they need to enter the booming tech workforce. Ninety-five percent of graduates are placed in major companies such as Safaricom and Barclays upon completing the program, and Moringa offers scholarships to women to even the gender imbalance in tech. The accelerator is poised to become a major player within Africa. It has hosted Nairobi Tech Week and has a partnership with the Meltwater Entrepreneurial School of Technology (MEST) to offer Moringa courses at MEST incubators across the continent (Fast Company, 2019).

Andela

Andela software engineers operate as dedicated remote team members. They work using the software development tools, adhere to your SDLC processes, and are guaranteed to overlap with customer teams for at least 5 working hours. They may not be onsite with the customer, but they are very much a part of the team (Andela, 2019).

Andela believes customers need the same level of real-time insights about the performance of the software engineers. Andela provides the data and tools customers need to quantify output and understand the impact.

Andela core stacks are Javascript (React.js, Angular.js), Python, Ruby, PHP, and Android. We also can support additional technologies including Java, DevOps, and iOS, depending on scope and availability.

Soft skills are just as critical as technical expertise. Beyond raw talent and technical ability, Andela assesses communication, collaboration, and problem-solving skills. Andela software engineers are imbued with both the hard software engineering skills and the power skills to work as part of a high functioning team.

Computer Pride

Since 1990 Computer Pride continues to contribute to the ICT sector in Kenya in terms of training, testing and software consultancy services. The company employs over fifty professionals in its three departments. Computer Pride partnered with number of industry leaders to provide right solutions and technology to its clients. Computer Pride is one of the premier institutions and its philosophy is based on professionalism and good customer service (Computer Pride, 2019). It endeavors to offer excellent services to its customers in the following areas: Business and Personal Effectiveness Training; Software Solutions; IT Technical Training; Project and Process Management Training; Diploma and Degree Programs

Microsoft Africa Development Center (ADC)

Microsoft unveiled a research and development center in Nairobi tasked with producing innovative solutions. The ADC will be unlike any other existing investment on the continent. It will help Microsoft better listen to the customers, develop locally and scale for global impact. It is an opportunity to engage further with partners, academia, governments and developers. It will drive impact in sectors important to the continent, such as FinTech, AgriTech and OffGrid energy,

Africa is poised for innovation at the intelligent edge. Microsoft are seeking engineering talent from across the continent to fuel AI, machine learning and mixed reality innovation. Engineers have already started working, and the company intends to recruit 100 full-time engineers by the end of the year and expanding to 500 across the two sites by 2023.

To build their talent pipeline, Microsoft are also partnering with local universities to create a modern intelligent edge and cloud curriculum, totally unique to Africa. Graduates will have access to the ADC to build a relevant and meaningful career in data science, AI, mixed reality, application development and many more (Business Daily, 2019).

IX. Five Enterprise Agility Trademarks

	Trademark		Organizational-agility practices[1]
Strategy	North Star embodied across the organization		• Shared purpose and vision • Sensing and seizing opportunities • Flexible resource allocation • Actionable strategic guidance
Structure	Network of empowered teams		• Clear, flat structure • Clear accountable roles • Hands-on governance • Robust communities of practice • Active partnerships and ecosystem • Open physical and virtual environment • Fit-for-purpose accountable cells
Process	Rapid decision and learning cycles		• Rapid iteration and experimentation • Standardized ways of working • Performance orientation • Information transparency • Continuous learning • Action-oriented decision making
People	Dynamic people model that ignites passion		• Cohesive community • Shared and servant leadership • Entrepreneurial drive • Role mobility
Technology	Next-generation enabling technology		• Evolving technology architecture, systems, and tools • Next-generation technology development and delivery practices

Figure 12. 5 Enterprise Agility trademarks. Source: (McKinsey & Company, 2019).

X. Conclusion

Today's environment is pressing organizations to become more agile; in response, a new organizational form is emerging that exhibits the five trademarks of agility. In aggregate, these trademarks enable organizations to balance stability and dynamism and thrive in an era of unprecedented opportunity. In a rapidly changing commercial and social environment, some organizations are born agile, some achieve agility, and some have agility thrust upon them (McKinsey & Company, 2019).

IT leaders are facing IT skills shortages and gaps. IT skills gap is the difference between existing IT workplace knowledge and the knowledge required to fulfill business objectives. Closing the IT skills gap by aligning the current state of workforce IT knowledge with forecasted future needs is a complicated proposition for C-level executives. Today, employers often struggle to locate and retain qualified tech talent, especially individuals with application development, security and data analysis skills.

Common approaches to closing an IT skills gap include recruitment process outsourcing, social recruiting, off-site training, employee mentor incentives, mentoring services, in-house turnkey training and partnerships with universities.

In many instances, an IT job will remain unfilled for an extended period when an employer needs to hire someone who has a very specific set of skills. In recruiting lingo, such candidates are referred to as purple squirrels. Because squirrels in the real world are not often purple, the implication is that finding the perfect job candidate with exactly the right qualifications, education and salary expectations can be a daunting task (TechTarget, 2019d).

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