eightfold.ai Talent Insights

What Telecoms Need to Build a Future-Ready Workforce

Key points

- Emerging technology trends like the rise of 5G are paving the way for new offerings in the telecom industry, which in turn drives telecoms to accelerate their digital reinvention
- Innovation disruptors are increasing the need for new skills and capabilities in the industry, with a short window to act
- Telecoms are on tap to adopt the latest technologies, foster the right culture, and build future-ready workforces
- Many of the most common telecom roles and skills are not currently addressing innovation trends
- Telecoms have an opportunity to address their talent needs by using data-driven insights to upskill and reskill, calibrate roles with future skills, and hire for potential

About This Report

Eightfold Talent Insights Reports contain the findings and insights of Eightfold's research and analysis garnered from its Talent Intelligence Platform™. This deep-learning platform is powered by the largest global talent dataset, to reveal people's skills and potential as well as workforce trends across sectors and demographics.

For this analysis of talent in the telecommunications industry, Eightfold analyzed approximately 500,000 publicly available profiles from top telecoms.

Emerging technology trends are paving the way for new offerings in the telecommunications industry, pressuring the industry to accelerate transformation

Consumers' demand for seamless, high-quality, safe connectivity is driving the telecommunications industry to modernize its business practices. Time to market is shortened. Security practices are forced to adapt. Silos must be broken. Decision making needs to become more data-driven.

In short, the industry is experiencing a period of mass transformation, especially as leaders make headway in delivering on the promise of these seamless, high-quality, safe connections through 5G and other new offerings.

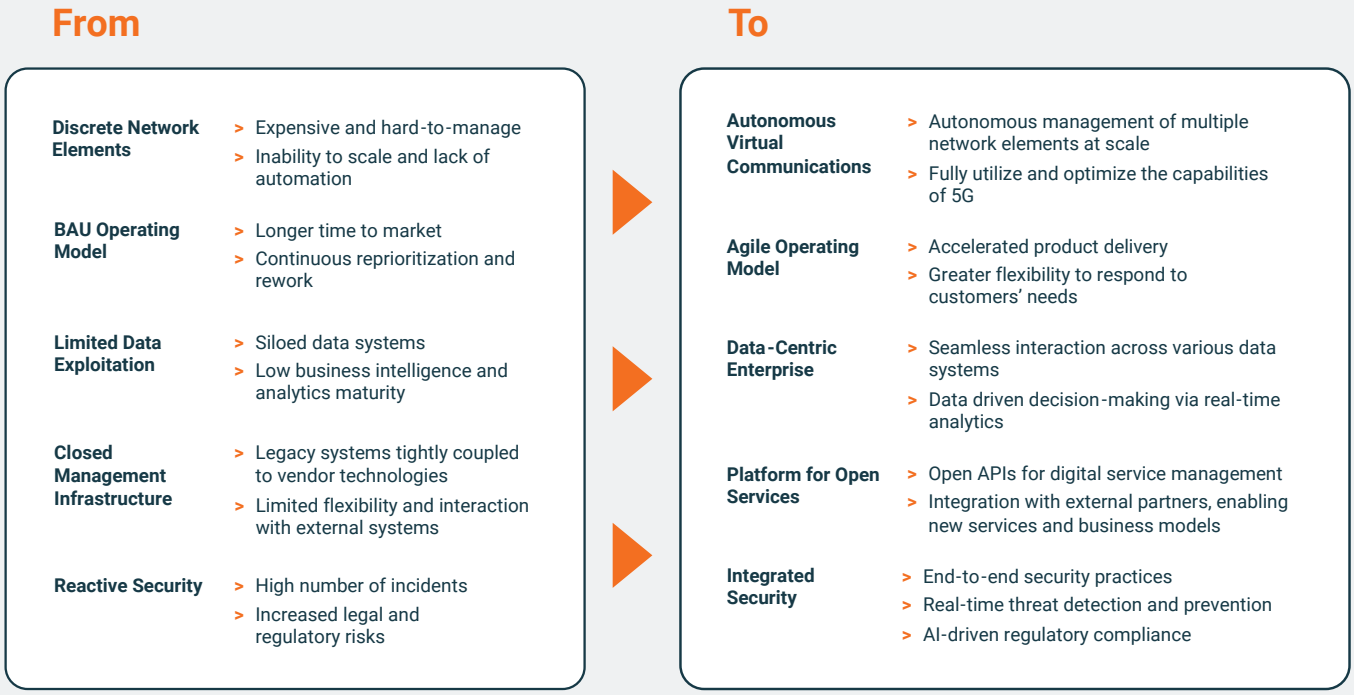
And 5G isn't the only emerging trend at the top of the agenda. The growing importance of edge computing, AI and big data, IoT, cloud computing, software-defined networking, and Open Radio Access Networks (RAN) all mean new offerings for telecom. Innovation in IoT, for example, is introducing smart grid automation & smart cities, smart home devices, monitoring systems, and autonomous vehicles to consumers' lives.

Jennifer Tracy, Vice President of Talent Attraction and Acquisition at Spectrum, says that the increased sophistication of the average customer is impacting the industry's approach to talent.

For example, she says, customers today are much more likely to install equipment themselves, leading to evolving responsibilities for field tech roles. "What you need now is the technical know-how to troubleshoot with a customer," Tracy says.

Building and improving these capabilities across 5G, edge computing, AI and big data, IoT, cloud computing, and Open RAN requires a significant investment in new technologies, processes, and skills that are already in short supply.

Such trends are putting more pressure on telecoms to transform



Source: McKinsey (A blueprint for telecom's critical reinvention); Telco digital transformation : The conditions, journeys, and destinations (Martin Creaner)

The "natural progression of technology" calls for future-ready workforces

Telecoms need to act now to build a future-ready workforce. 5G is here but "10G is right behind," says Tracy, the Spectrum VP. "That's just the natural progression of technology and the business that we're in. You have to stay current."

To do so, telecoms should hone in on three key areas within their organizations:

- **Technology & processes:** Integrate state-of-the-art technological solutions across the business, modernize existing processes, and prioritize customer centricity.
- **Culture:** Create a culture of trust, collaboration, and ownership by integrating growth mindset principles into coaching practices, and engage in frequent, two-way communication.
- **Talent:** Build future-ready workforces with skills that empower talent to tackle emerging challenges. Without proper workforce planning, most transformations will fail.

For context throughout this report, there are four key talent groups that make up a telecom organization.

- About 45 percent is the **customer-facing division** of a telecom, which includes functions such as sales, retail, customer service, and call center services
- About 30 percent is the **technical department** of a telecom, which includes functions such as product management, software development, IT, and analytics
- About 15 percent is **core operations**, which includes functions such as design, implementation, and maintenance of networks
- And 10 percent is **administration and support**, which includes functions such as HR, finance, accounting, legal, and supply chain

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The most common telecom roles and skills are not yet equipped with future skills

In our analysis, roles and skills across telecom organizations were assessed to determine talent readiness for addressing innovation trends.

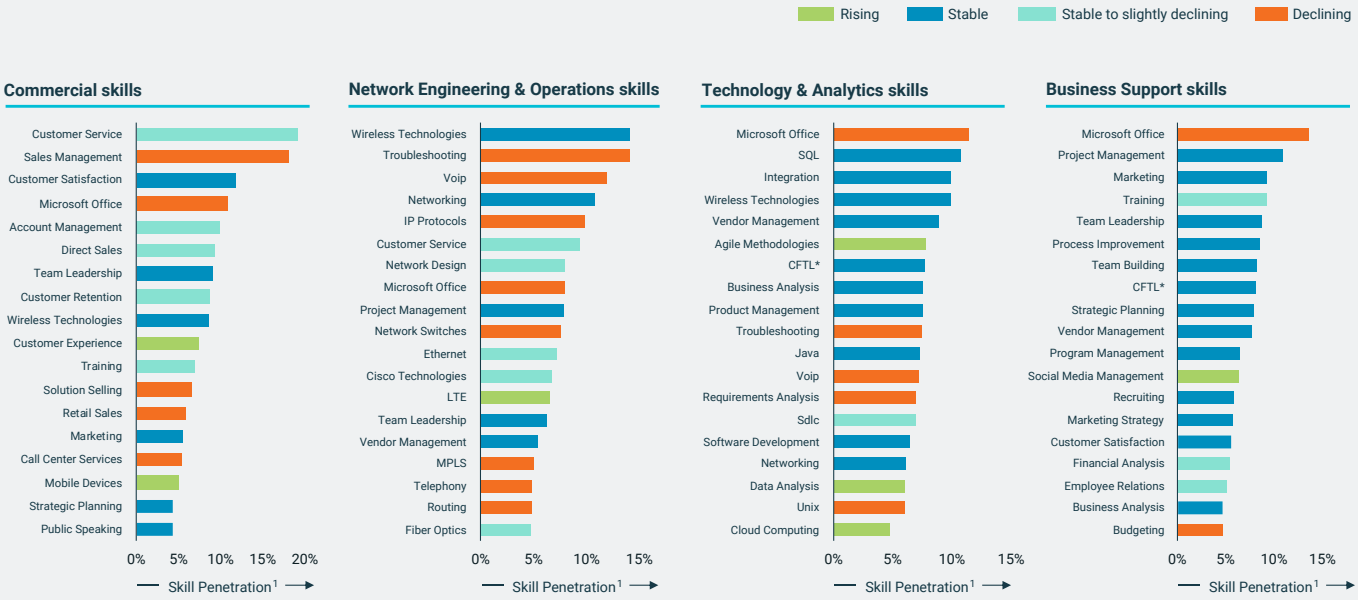
At a high level, the top penetrated roles within telecoms are either stable or declining in prevalence. Automation, emerging technologies, and new business models are all having a significant impact on these familiar telecom roles such as retail sales consultants, network technicians, and IT technicians.

When it comes to technician roles, a stark 33 percent of the top network engineering and operations roles are declining in prevalence, meaning they are not currently equipped to build and strengthen innovative offerings. Where telecoms boast a significant number of network and field technicians, which are declining in prevalence, they lack construction managers and cybersecurity engineers, which are in higher demand.

In the customer-facing division, the most common roles are all declining: sales representatives and retail sales consultants, for instance. Within technology and analytics, the role of an IT technician is also declining. For business support roles, administrative assistant roles are also on the decline.

The situation is similar when you look at skills (see image). Many of the most penetrated skills are declining: commercial skills like customer service and sales management, as well as technology and business support skills like Microsoft Office.

Similarly, the top penetrated skills in the industry are either stable or declining



Source: Eightfold Talent Intelligence Platform

* Cross Functional Team Leadership

There's a short window to act

With a constantly evolving skill mix due to automation, emerging technologies, and new business models, familiar telecom roles are undergoing a transformation of their own. Even in just 10 years, there has been quite a shift in the skills necessary for a variety of roles.

The changing role of a network engineer is a prime example. In 2010, the top rising skills included a number of skills that weren't on the rising skill list for 2020, such as C# and MATLAB. In 2020, top rising skills included Python, Amazon Web Services, 4G/5G, cloud computing, and Juniper switches, all not on the 2010 list.

Software engineers also saw a dramatic change. In 2010, top rising skills included Scrum, AJAX, Jira, Apache Maven, and others not rising in 2020. In 2020, top rising skills included Docker, Git, HTML5, react.js, and others not on the list a decade prior.

By analyzing the penetration of rising skills, we have assessed the workforce readiness for several key innovation trends, including 5G and IoT, cloud computing, and AI. While the industry is better positioned to build out capabilities for cloud and edge computing as well as big data, the analysis identified the industry's lowest talent readiness is in areas such as 5G and Open RAN.

Moreover, innovation trends are increasing the need for new skills and capabilities

Skills rapidly gaining relevance

	5G and IoT	Cloud and Edge Computing	Big Data & AI	SDN and SASE	Open RAN
Use-cases	> Broadband-like mobile service > Low latency and high network capacity > Smart traffic mobility and grid-automation > Expanded industrial IoT	> Network automation and management > Highly scalable and flexible infrastructure > Faster time-to-market > Targeted consumer experiences and solutions	> Virtual assistants for customer support > Preventive maintenance > Network optimization > Recommendation engines	> Efficient, smarter network management > Dynamic WAN reroutes > Stronger security posture > Reduced time-to-market for new products	> Flexibility, choice, uniformity and agility in RANs > Lower TCO of networks > Resource sharing > Traffic steering
Key Skills	> **Network slicing** > **Massive MIMO** > **NFV[2]** > **Node.js** > Near field communication > **Small cells**	> **Cloud computing** > **Virtualization** > **AWS** > **Vmware** > **Edge computing** > **Fog computing**	> **Python** > **TensorFlow** > Data mining > **Hadoop** > **Machine learning** > **Deep learning** > **NLP**	> **SD-WAN** > **Network virtualization** > **Network automation** > **Kubernetes** > **DevOps** > **Cyber security** > **DevSecOps**	> **C-RAN** > **CI/CD practices** > **vRAN** > Interoperability > **OpenStack**
Talent Readiness[1]					

1 Used the skill penetration of Key Skills to assess the workforce readiness for each of the capabilities/Innovation Trends

2 Network Function Virtualization

Source: Eightfold Talent Intelligence Platform; McKinsey (The 5g Era: New horizons for advanced electronics and industrial companies); 5G and IoT: Emerging Technologies With Endless Use Cases; (O-RAN Alliance (O-RAN Use Cases and Deployment Scenarios); Deloitte (Operationalizing SDN and NFV Networks)

By looking at historical capability trends from the emergence of LTE and HSPA, for example, we can see that telecoms have a short window of one to two years to build 5G capabilities, as providers accelerate 5G expansion and even prepare for 6G capabilities that will contribute to making emerging trends like the metaverse phenomenon a reality.

Use data-driven insights to upskill and reskill, calibrate roles with future skills, and hire for potential

As the telecom industry accelerates its digital reinvention, there are steps that can be taken to overcome their talent challenges. The solution is three-fold: 1) **Upskill and reskill** the current workforce; 2) **Calibrate** roles with future skills; and 3) Hire for **potential**.

Upskilling/reskilling helps bridge the gap between declining and rising skills.

Take business support roles, for example. An employee may know PeopleSoft, GAAP standards, and data entry, all of which are on the decline. Depending on their role, they might add skills such as social media management, digital marketing, and employee engagement, which are all rising and in-demand.

Other employees with retail sales, store management, and inventory-control skills can add digital sales, SaaS, and strategic partnership skills to future-proof their roles.

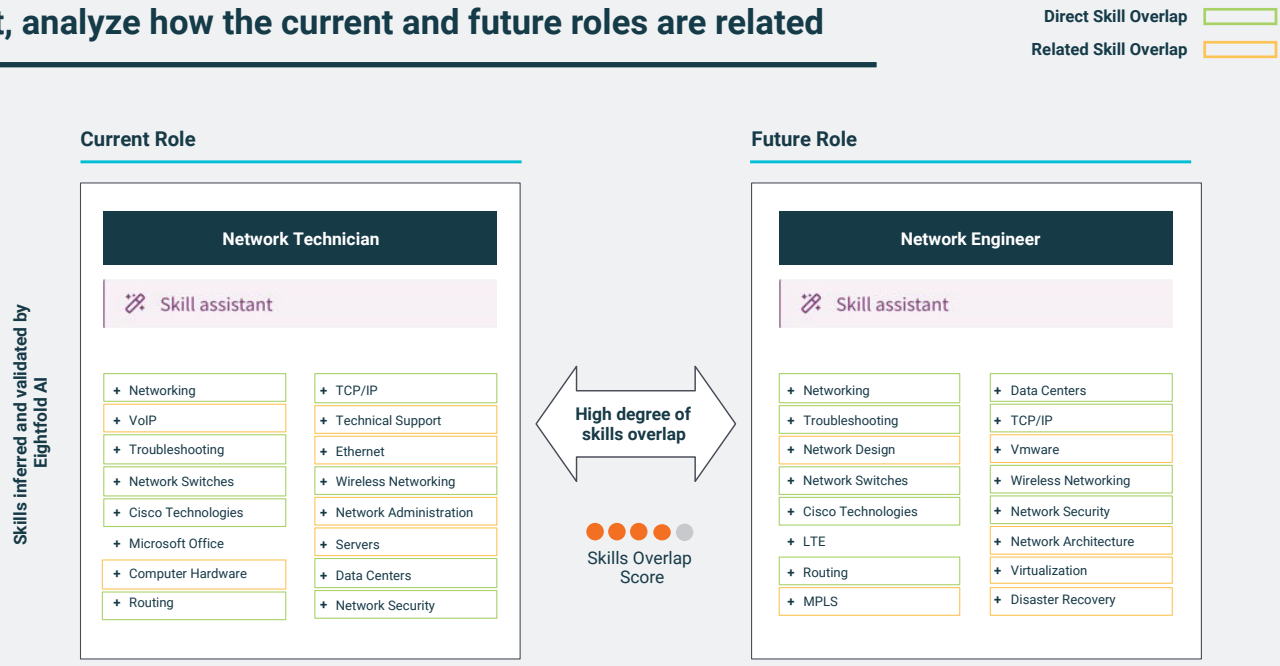
This is where the important concept of adjacent skills comes in. With AI capabilities now available to draw actionable insights from data, we can see patterns. Who is capable of learning what? If you know skill A, might you be able to pick up skill B?

Edge computing, for example, is a future skill. Adjacent skills include cloud computing, LTE, and wireless technologies. People with adjacent skills are in a good position to move to future-ready roles.

To take this a step farther, we can identify career paths for people and see how they can move from declining roles to ones in-demand. Again, it's all about understanding skills adjacencies.

For instance, the skillset of a network technician overlaps with that of a cybersecurity engineer. If a network technician chose to explore the cybersecurity engineer career path, they could use routing and troubleshooting skills and learn new skills like disaster recovery.

Next, analyze how the current and future roles are related



Source: Eightfold Talent Intelligence Platform

AI can be used to continually provide intelligence as to how the skills needed for each role are changing. Vodafone provides an example of that.

"We are changing our company to become a tech comms company," says Marc Starfield, Group Head of HR Programmes and Systems at Vodafone. "That means we need to really think differently about how we attract, rescale, and develop human capital. It's really critical that our employees understand where they are on their skills journey. What are the skills the organization needs and how will they play part of that journey? It is important to have an environment where skills are dynamically updated."

Starfield says that AI is allowing the company "to use skills targeting to connect cohorts of people who want to develop in a certain direction, all as a single experience."

Telecoms can build the workforce of tomorrow by calibrating roles with the skills of the future.

What might a future-ready network engineer role look like?

A recruiter might seek talent with current top skills, such as network engineering as well as emerging skills such as Python and 5G. They can even look at quickly rising skills at the most innovative companies, skills like Cisco Nexus and Git.

For a future-ready big data engineering role, the calibration might involve current top skills like Hadoop, quickly growing skills like Amazon Web Services, and emerging skills like Python and data science that are prevalent within the workforces within fast-growing, highly innovative companies.

Organizations can only do this at scale by leveraging AI to show what's needed to achieve future readiness.

Finally, telecoms can adopt a "hiring for potential" approach. In short, this enables organizations to tap into a significantly larger pool of qualified talent.

Take a future skill such as Python. By looking for remote prospects with Python skills, an employer might be looking at a pool of about 1.1 million people. But considering people with adjacent skills – and with the help of AI to identify who is capable of learning Python quickly – the pool expands to 2.2 million. Adjacent skills include C++, algorithms, Java, R, and data structures.

Expanding the talent pool by considering potential, in addition to calibration and upskilling and reskilling, can ultimately change the game for telecoms by building a workforce with the future skills to tackle emerging challenges.

Key terms in this paper are defined as follows:

Role penetration: Percent of employees in a role (out of the total number of employees in a group/cohort)

Skill penetration: Percent of employees with a given skill (out of the total number of employees in a group/cohort)

Relative skill penetration: Skill penetration within a given company minus skill penetration in a market

Skill prevalence (rising/declining/stable): The increase/decrease of individuals with those skills in the workforce: Number of profiles with a given skill / number of profiles with a given skill in the prior year

Prevalence index (Role): Role prevalence relative to the highest point on the chart. A value of 100 represents peak use of role

Adjacent skills: Frequently co-occurring skills within profiles in the global workforce

Adjacent roles: Roles that have high direct and related skill overlap. The higher the overlap of direct and related skills, the higher the adjacency score

About Eightfold AI

Eightfold AI's market-leading Talent Intelligence Platform™ helps organizations retain top performers, upskill and reskill their workforce, recruit talent efficiently, and reach diversity goals. Eightfold's patented deep learning artificial intelligence platform is available in more than 100 countries and 20 languages, enabling cutting-edge enterprises to transform their talent into a competitive advantage. For more information, visit www.eightfold.ai.

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