



The top five skill domains essential for DevOps in 2021

Eveline Oehrlich, Research Director Research in Action

The pre-pandemic shortage of skills within the IT teams of global enterprises are fueling today's search for skilled team members as organizations are catching up in their digital transformation. DevOps as an operating model with its many capabilities and sub models is essential for improving the velocity, quality, security, and scale within the software delivery cycles while addressing technical debt. I have been working for the last four months on the analysis and authoring of the third [Upskilling 2021: The Enterprise DevOps Skills report](#) as part of the DevOps Institute team. I am delighted to share some of the work here.

The hiring into DevOps teams in 2020 has not stopped and 60% percent are planning to recruit now or in the future with the trend to first look for team members internal to staff their DevOps team(s). As [Robert Half Salary Guide 2021](#) reports, a DevOps Engineers salary ranges from 97,000 US Dollars to 184,750 (whereas a Developer ranges from 97,250 to 165,000 US Dollars).

But there are challenges as it is tough to either find or retain existing skills. To continue thriving within DevOps or to initiate a DevOps journey, individuals, leaders, and organizations must act in developing skills across key capability domains. Unfortunately, according to the DevOps Institute research, only 39 percent of respondents reported to have a formal upskilling program.

Can skills be taught and if which ones?

The challenges found to staff DevOps teams range from finding skilled people (65%), determining the skill set (57%) or attracting skilled people (41%). [Different research](#) has shown that knowledge and skills can be developed by most people, while abilities, personal capabilities and characteristics are rather innate.

Furthermore, existing human capabilities are constructs that facilitate individual learning, adaptability, and development and maintain their value even when drastic environmental changes occur.

When the DevOps Institutes research team asked about the priority of the top must-have skill domains, human skills (69% of respondents said human skills are a must-have) are among the top five must-have skill domains. Other top must-have skills domains are automation skills (72%), technology ecosystem and technical skills (65%), functional skills (56%), and process and framework skills (55%).

Two things to understand and do about human or “soft” skills

The human skill or domain is fundamentally different. While technical skills such as container orchestration, CI/CD automation technologies and cloud infrastructures can be developed through training and these skills can be certified, the human skill domain is somewhat different. First, some human skills are shaped through experience and practice in both our personal and work life. For example, collaboration and communication skills are shaped during projects and can be adjusted according to the culture of the organization. Other skills such as curiosity might have been developed during early life stages or are somewhat innate.

The top five human must-have skills are collaboration and cooperation (84%), problem solving (76%), sharing and knowledge transfer (76%), interpersonal skills



(74%), and communication skills (73%). Additional other important skills, particularly in the post-pandemic era are creativity, empathy, leadership, flexibility and adaptability, diversity and inclusion, personal value commitment.

1. **To address parts of the people, challenge within DevOps take inventory of your (or your teams) human skills.** In my professional journey I have come across many situations where human skills made a difference between the success of failure of a project. We know that the journey of DevOps is difficult across people, process, and technology and every situation and team is different, but one thing you can do is to self-check your human skills or that of your team. To help you do that leverage the [DevOps Institute human skill details](#).
2. **Pair your DevOps capabilities with a skill journey and shift towards a learning organization.** Human skill development requires coaching and continuous feedback. No matter what methodologies organizations leverage, one key aspect is that individuals and leaders alike should have a coach or mentor who provides guidance and support. And, just as important is continuous feedback around an individual's personal development. Other skills which are essential for your DevOps journey will be developed as well. No matter if you are planning or you already have developed an upskilling program for your DevOps journey, here is what I would suggest considering:
 - **Understand what DevOps capabilities are needed first.** Without knowing what is missing around the capabilities of culture and people, intelligent automation, process and frameworks, technology ecosystem and functional knowledge and capabilities, it is difficult to develop or drive a DevOps roadmap. Capability assessments are one way to understand what is essential for progress. The DevOps Institute has developed a crowdsourced [capability assessment model](#) which will help you and your team.
 - **Pair the DevOps capabilities which are missing with a skill path for the DevOps team members.** Once the missing capabilities are known, the next logical step is to understand if you have the right skills across the skill domains. There are a variety of available certifications across vendors and learning institutions which are useful to expand technical, automation or process and framework skills.
 - **Embrace the concept of a learning organization.** Start acting and behaving like a [learning organization](#) which is composed of individuals and leaders all interested in increasing their capabilities and improving their skills to achieve results they care about. Learning how to do something is extremely rewarding and at the same time achieves specific goals if the learning is aligned to the needed capabilities.
 - **Make continuous learning part of the DevOps journey.** Continuous learning and education must be a fundamental best practice within your DevOps journey. A first step is always education, providing learning resources, and allowing engineers and individuals to participate with and learn from others in the community so you should make certifications a key priority. Almost three-quarters, 66%, of survey respondents from the mentioned DevOps Institute research survey said that certifications are extremely valuable.



- **Don't hide the experts.** Another critical step is to determine if subject matter experts are being sheltered or siloed away. Learn how to instead embed those individuals in the teams so they can spread their subject matter expertise by osmosis to others on the team.
- **Growth of skills requires time and budget.** According to [Jayne Groll](#), “Enterprises should take intentional steps to support the growth of their DevOps humans.” Some may assume that engineers learn organically but in truth engineers need the time and budgeted resources to develop new skills, hone existing skills, experiment and improve their capabilities. This could be time to attend a virtual conference, go to a training class, practice in a sandbox, and do peer-to-peer mentoring. Just take a look at Site Reliability Engineers which are tasked with spending half of their time “making tomorrow better than today” by reducing toil through automation. DevOps engineers should be allotted a similar amount of time to do the same.”
- **Adopt a buddy system.** The adoption of a coach or buddy systems to further aid individual learning and growth is an excellent idea to pair less skilled DevOps Humans and engineers with highly skilled and experienced ones and helps growth. This helps growth on both sides – the buddy and the less experienced in learning and teaching.
- **Equip your leaders.** Leaders are expected to know how to do things. Well, not really. Some research has shown that the largest group of leaders today are “accidental leaders” and 60% of frontline leaders say they have never received any training for their new role. [Leadership is an art but also can be learned.](#)

The challenges of the past year showcased the importance of human skills in transformational efforts. Without the spirit, willingness, collaboration, cooperation, and competencies of IT professionals around the world, many enterprises would not have been able to adapt to rapidly changing business models in a pandemic fueled economy. As we continue into this next decade, organizations should plan to invest in upskilling their humans as much (or even more) than their technology.

As always, stay human.

Eveline Oehrlich