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Ops 4.0 is generating huge demand for capabilities. Which ones will be the hardest to meet?

by Markus Hammer

The [Ops 4.0 revolution](#) has profound implications for the skills, capabilities, and culture of many companies. In the [first issue](#) of “Ops 4.0: The Human Factor,” we asked how much progress your organization has made in preparing for that change. Your feedback made intriguing reading. Almost half of all respondents (47 percent) said that they don’t yet fully understand what capabilities their company will require as it makes the transition to Ops 4.0. And while a further 42 percent of respondents said they had taken steps to understand the necessary capabilities, all admitted that there was still work required to identify and close specific capability gaps.

Now, we want to take a deeper dive into the specifics. Where is Ops 4.0 going to create the most significant capability demands? Which skill profiles will be the toughest to fill? It is likely that most companies will need to obtain, upgrade or expand their capabilities in a number of major areas:

- **Managing machines.** Automated equipment, [robots](#) and [advanced control systems](#) are becoming increasingly capable and flexible, but more machines need more people with the skills to set them up, adapt them to meet new requirements, and fix them when they break.
- **Coordinating networks.** Ops 4.0 and the [Internet of Things \(IoT\)](#) will be all about connections, with continual data flows between machines on the factory floor, between the factory and the cloud, and across the value chain between customers, suppliers and the wider world. Building, maintaining and securing those networks will require new combinations of skills that span the realms of industrial control and enterprise IT.
- **Implementing analytics.** The transformation of [raw data into actionable information](#) is a key source of value in Ops 4.0. To build and run the tools that drive that transformation, companies will need to master a raft of techniques, from [smart statistical analysis](#) to emerging [machine learning](#) and [artificial intelligence](#) technologies.

It won’t all be about new capabilities. Ops 4.0 is also likely to increase the requirement for many of the skills companies use and value today. In particular, they’ll need people who can:

- **Identify process improvements.** Whether digital or analogue, human or machine, operations achieve excellence through a process of [incremental continuous improvement](#). Knowing what to change requires deep functional and domain expertise, together with the skills to identify waste and solve problems on the front line.

- **Implement changes.** Ideas only become performance improvements if they are adopted and sustained. That requires managers and team leaders who can design and enforce standards, and who can [engage and motivate their people](#).

And companies won't just need specialists in each of these areas. They'll also want people with right combinations of skills to bring all these elements together. Digitally-enabled process improvements will require an understanding of analytics and change management along with deep domain expertise, for example.

Where are you now? [Let us know](#) using our quick poll below.

Poll

To what degree does your organization need to enhance the following capabilities, if it is to achieve its Ops 4.0 ambitions? (*Choose one answer for each*):

- Managing machines: Robotics/automation/control systems
☐ No need ☐ Some need ☐ Substantial need ☐ Urgent need
- Coordinating networks: IT and Internet of Things
☐ No need ☐ Some need ☐ Substantial need ☐ Urgent need
- Implementing analytics: Statistics/data science/machine learning/artificial intelligence
☐ No need ☐ Some need ☐ Substantial need ☐ Urgent need
- Identifying process improvements: Deep functional and domain expertise/Lean systems/problem solving/continuous improvement
☐ No need ☐ Some need ☐ Substantial need ☐ Urgent need
- Implementing changes: Lean leadership and change management
☐ No need ☐ Some need ☐ Substantial need ☐ Urgent need

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