The Service Management System and Automation

Many organizations providing services to their customers do so using some sort of IT infrastructure and more and more often using a certain level of automation in their processes and systems. Automation (and, when evolving further, also artificial intelligence functions such as machine learning and robotic process automation) is expected to have an impact on the efficiency of service provision. It also has an impact on the way in which the service management system (SMS) is run. We will look into this later in the article.

Automation is most often used to replace manual human effort in tasks that are repetitive or have simple steps that can be taken over by a computer. Automating these tasks allows people to focus on more value-added activities that need intelligent decision-making or have a level of complexity that computers cannot reliably handle.

When looking at the requirements of ISO/IEC 20000-1, the International Standard for Service Management, we can identify numerous areas that should be considered when using automation.

1. **ISO/IEC 20000-1:2018, Clause 9.1: Monitoring, measurement, analysis and evaluation.** This clause requires the service provider to determine what they need to measure for the SMS and the services, how and when this is done and when the results will be analysed and evaluated. When a process or other service element is automated, this area is probably easier to conform to than when there is a large amount of manual work involved. Automation facilitates reporting if the reporting can be set up in an automated way as well. Do make sure that the required documented information is generated as evidence of conformance, though.

2. **ISO/IEC 20000-1:2018, Clause 9.4: Service reporting.** Very closely related to clause 9.1, this clause requires the service provider to determine what should be reported on and for what purpose. This clause is mostly about the performance and effectiveness of the SMS and the services and reporting is aimed at decision-makers in the organization. Also here, automated service elements allow for easier reporting if the data is available in the right format. There are many service management platforms that allow reports to be created with a click on a button that give insight into the efficiency of a process or another aspect of the SMS or the services.

3. **ISO/IEC 20000-1:2018, Clause 8.5: Service design, build and transition.** This clause in the standard contains several sub-clauses that have requirements for Service design and transition, Change management and Release and deployment management. In software-based services, this is an outstanding area for the use of DevOps principles and practices. DevOps has as one of its principles “Automate everything”, meaning that development, integration, deployment and testing of the software is done as much as possible in an automated manner, covering many requirements of these clauses in the standard. Do keep in mind that not all requirements in this clause can be automated, such as creation of a change management policy or certain documentation requirements. However, for service development where DevOps can be used, there is great potential to automate as much of the service design, build and transition activities as possible while conforming to the standard's requirements.

   **Note:** ISO/IEC 20000-15 discusses the use of Agile and DevOps principles in an SMS based on ISO/IEC 20000-1.

4. **ISO/IEC 20000-1:2018, Clause 8.5.1 and 8.6.2: Change management and Service request management.** Even if you are not using DevOps practices, the complete chain from customers requesting something, evaluating the request, approving the change request and implementing it is often automated. Password resets are a common one, where a customer simply resets their password online. But other more complex changes such as increasing network bandwidth can also be automated completely. Especially in Service request management, where associated changes are usually pre-approved, there is a great
potential for automation. As long as the requests are documented in the system, classified as an automated request, prioritized and queued for implementation and properly fulfilled and closed, all requirements of the standard are fulfilled without human intervention. Here, there is a possible connection with Demand management (Clause 8.4.2) and Capacity management (Clause 8.4.3) as well, especially for cloud-based services, where server capacity, processor capacity or storage capacity can automatically be increased or decreased depending on the end-user’s demand.

5. **ISO/IEC 20000-1:2018, Clause 8.6.1: Incident management.** It again depends on the nature of the services what the potential for automation of Incident management is. If an (IT) service allows for self-healing, meaning that the network or other service component can restore itself under certain conditions (for instance by rebooting a device or resetting a network interface), then the resolution of incidents can at least partially be automated. There are organizations that calculate the number of incident tickets that are resolved without human intervention and calculate a so-called “no-touch rate” as a Key Performance Indicator (KPI).

6. **ISO/IEC 20000-1:2018, Clauses 8.2.5 and 8.2.6: Asset management and configuration management.** For services that are based on assets, such as managed network services, there is an opportunity to automate managing these assets and ensuring that their configuration is tracked when changes are implemented. If you are using DevOps’ “Automate everything” principles for service provisioning, then this area can probably easily be combined with Change management and Release and deployment management. The requirements in these clauses are very much suited for automation for an IT-based service.

7. **ISO/IEC 20000-1:2018, Clause 6.1: Actions to address risks and opportunities.** This is not necessarily an area for automation, but automation does bring certain risks and opportunities with it that should be considered. A risk in the use of automation is the loss of a certain level of control. When an automated process starts, it is hard to interrupt, unless controls are built in that serve as tollgates for further automation steps. Depending on the nature of the organization and the nature of the services, fewer or more controls would be required to lower the risk of automated service elements malfunctioning and causes incidents. At the same time, the main opportunity of automation is greater efficiency in service provision and management, specifically in the areas mentioned before.

**What is the impact of using automation on running the SMS itself?**

As we have seen in the example above, a lot of processes or elements of the processes in the SMS can be automated, depending on the type of service that is provided. ISO/IEC 20000-1 requires a certain number of records to be available, though, so it can be traced back what activities have been performed to modify a service element. It is probably this aspect that needs to be kept in mind foremost when using automation in an SMS: there needs to be record of the changes automation made. Completed service requests need some form of record stating that, for example, a password has been reset for a user. Configuration changes need to have a change record that has been approved somehow and the device configuration needs to be recorded as having changed. Resolved incidents should leave a trace in the form of an automated incident ticket that has information about the nature of the incident and what the automated action was that resolved it. Remember: if you can automate an activity, you can also automate the creation of a record of that activity.

Even so, there are elements of ISO/IEC 20000-1 that require a slight reinterpretation when using automation. For example, in Service request management (Clause 8.6.2), there is a requirement stating, “Instructions for the fulfilment of service requests shall be made available to persons involved in service request fulfilment.” Obviously, these work instructions would be implemented in the automation used to fulfil certain service requests rather than be available in written form for human use. Similarly, in Release and deployment management, there is a requirement to analyse the success or failure of releases. Other areas of ISO/IEC 20000-1 have similar requirements for analysis. Most likely, this can only be done by people, but with the help of records left by automation after the deployment of a release.

Using automation in an SMS is almost unavoidable for IT-based services. It depends on the nature of the services how much they can be automated. However, from the perspective of ISO/IEC 20000-1 there is no conflict with its requirements. Automation can in fact make the SMS more efficient and allow people involved in the SMS to focus on more value-added activities.