

Automation-as-a-Service



Transforming Business and IT Organizations

Rodrigo Scorsatto

Senior Principal Site Reliability Engineer - Automation Architect

*All Rights Reserved. Dell Technologies, Dell, EMC, Dell EMC and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners.

Table of contents

- Introduction 3
- When should we automate? 3
- What is next? Automation-as-a-Service 5
 - Normal process 5
 - Automated IT process 7
 - Why and how to offer it as-a-Service? 8
 - Automation lifecycle 9
- Conclusion 10

The extent of automation that is appropriate for a particular task depends on many factors, such as available technologies, complexity of the task, and level of human oversight required.

Introduction

Artificial intelligence (AI) is a rapidly growing field that focuses on creating intelligent machines that can perform tasks that typically require human intelligence. AI has applications across industries, including medicine, communication, transportation and numerous others. Transformation in technology has delivered ever increasing value to our digital world and it would be hard to imagine life without it. However, advancements in technology also create complex ecosystems with numerous dependencies. In order to keep complex ecosystems running with high availability and zero business impact, many still require human intervention to monitor and support 24x7. As ecosystems grow in scale and complexity, it seems almost certain that larger teams would be necessary to provide support. This is where automation can play a major role and be a game changer for IT and business organizations. Automation-as-a-Service is a concept that involves providing automation solutions as a service to businesses. It is a great approach to integrate automated solutions for an unlimited number of use cases, quickly and efficiently. This allows businesses to easily implement automation without the need for significant investment or technical expertise.

When should we automate?

Automation is a set of technologies that help to reduce human intervention in a determined process and can be used by various means including electrical, hydraulic, computers, and so on.

The identification of tasks that can be automated is the first and most important step. Can we automate everything? Maybe, but the more important question is, should we? We must think about the pros and cons when we choose to automate a specific case.

Automation can vary in extent from simple scripting to fully autonomous systems. Good candidates for the lowest level of automation, which involves the use of programming languages, include repetitive tasks, manual work that requires a lot of time to complete, or mission-critical tasks that cannot risk human errors.

Semi-autonomous automation involves the use of machine learning algorithms and other advanced technologies to automate more complex tasks. Humans

still play a role in supervising automated processes, but the system can make decisions and take actions on its own based on pre-defined rules.

On the other hand, fully autonomous automation involves systems that can operate independently without any human intervention. This type of automation requires advanced AI and ML technologies that can learn and adapt to changes.

The extent of automation that is appropriate for a particular task depends on many factors, such as available technologies, complexity of the task, and level of human oversight required. In some cases, a combination of different levels of automation may be used to improve efficiency and reduce errors.

The chance of a human incorrectly completing a critical task can represent a big risk to organizations. When automation is implemented, it helps to reduce or even eliminate business impact leading to a consistent, positive experience and improved response time.

Frequently, there are tasks that we cannot eliminate, such as a financial report that the business needs every week to assess its performance and profitability. These types of tasks are usually a great fit for automation. Automating tasks like this often free up human resources to complete other more complex tasks. Additionally, the reporting would have good accuracy as it does not rely on human intervention and will likely be generated faster which means the business can make timely decisions.



While these technologies can be incredibly powerful and effective, it is important to mention that they are not fail-safe, and human oversight and intervention are recommended to prevent catastrophic failures.

Automation brings great benefits for both customers and service providers by offering low costs for organizations, reducing time spent by teams, and allowing them to focus on other important initiatives. When costs are reduced, the organizations can reallocate resources to solve problems across the larger environment thereby making all the dependent systems more resilient. Additionally, automation can offer several benefits for employees by reducing the workload, improving work-life balance, job satisfaction, and enhance skill development.

Automation brings great benefits for both customers and service providers by offering low costs for organizations, reducing time spent by teams, and allowing them to focus on other important initiatives.

What is next? Automation-as-a-Service

When you have a team that creates automation for your organization, we usually see similar automation requests from different IT or business teams. Instead of creating one-off automation processes for each individual team should we consider Automation-as-a-Service? Before answering this question, we must understand the normal process and determine if it is suitable to offer as-a-Service.

Normal process

One of the most famous IT processes is incident handling. When there is a system outage, the IT team usually follows the steps in Figure 1. To summarize, an IT analyst will be assigned an incident and will begin working toward a resolution. At the initial stage, the analyst will try to understand the issue and may request more information from the requestor who has reported the problem. Once the issue is clear, the analyst will attempt to solve the problem and may engage a specialized level of support if required until the issue is resolved.

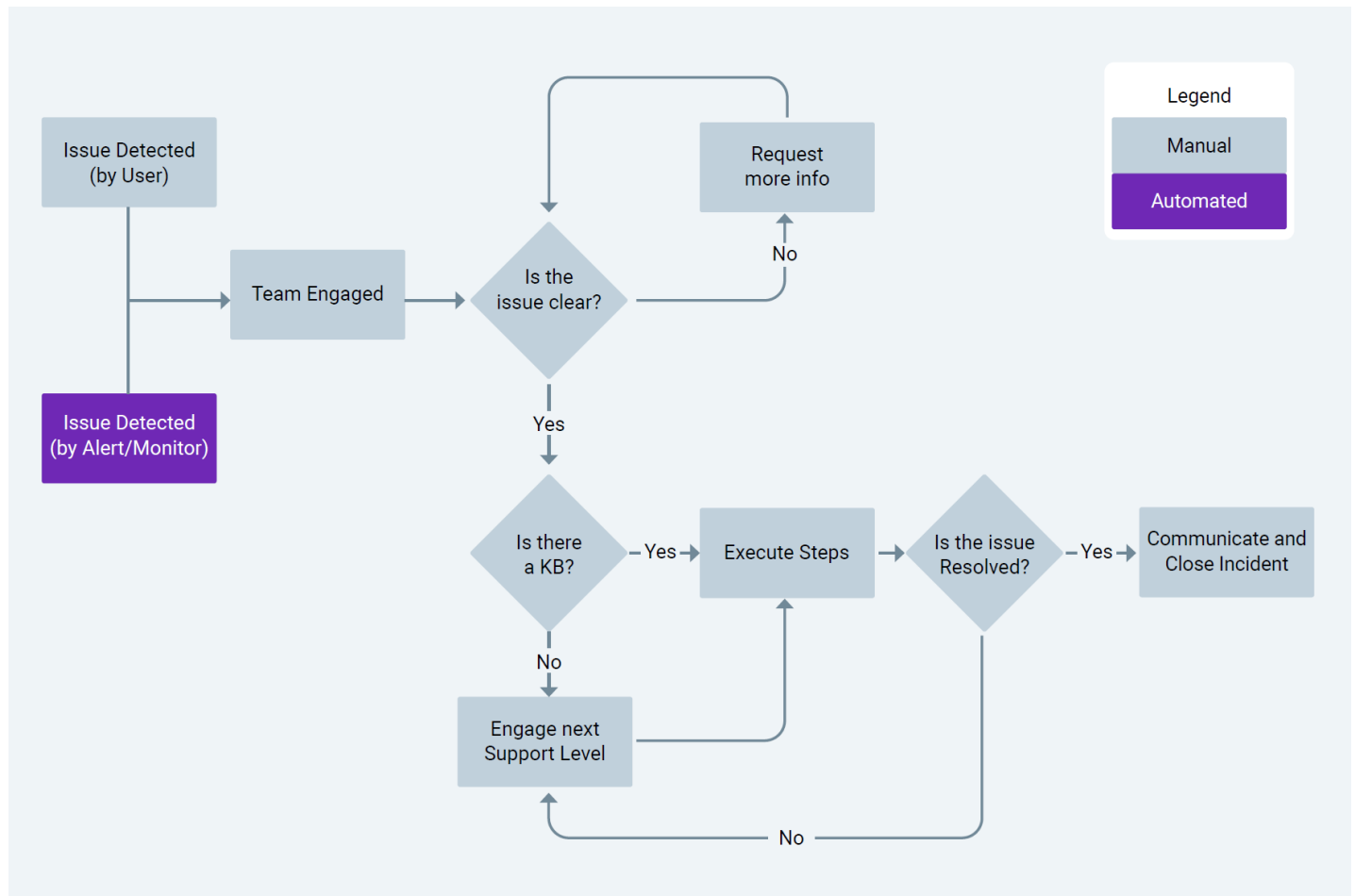


Figure 1: The incident handling process

By looking at the flowchart above, we can observe some challenges described in Figure 2.



01

Difficulty identifying the root cause

Increase in the time to identify the problem, if the issue is reported by the business, who is aware of when it started occurring.



02

Long time resolution

Increase in the time to resolve the problem. If the identification of the issue is delayed, the time to fix it will also be affected. In addition, the involvement of the IT team - and the time to resolution - depends on the current team workload and prioritization. If the issue is not deemed important, it will need to wait until someone has time to work on it.



03

Time-consuming and manual tasks

It contains many manual tasks. During the investigation of the issue, this could easily take a lot of time to resolve. Example: connect in servers, check logs, verify network, health check the whole IT infrastructure, and so on. Remember, manual tasks often mean human errors.



04

Reliant on deep knowledge

It depends on IT analyst knowledge. If the person assigned to it is not able to solve the issue, it will require the next level of engagement, and this can be ongoing until the issue is resolved.



05

Poor customer experience

The worst part is that our customers are waiting for these items to be resolved, and persistent issues can negatively impact customer experience.

Figure 2: IT process challenges

Automated IT process

Now that we have a good understanding of the regular IT incident handling process, it is time to think about how we could use automation to improve this process. Figure 3. depicts an example of how we could use automation to help resolve some of the common IT issues using an efficient self-healing process.

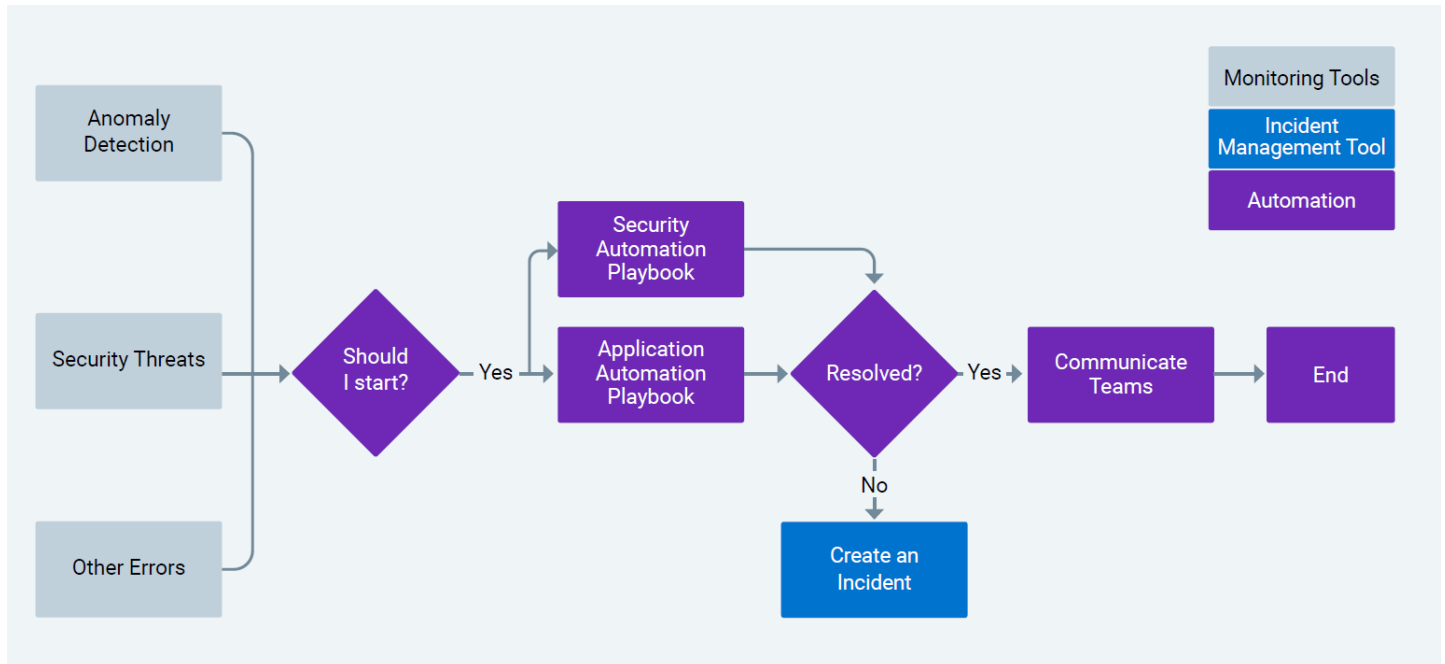


Figure 3: Automated incident handling process

Automating the most common issues first can quickly lead to big gains for IT teams. We will show at least six key benefits to using this approach in Figure 4.

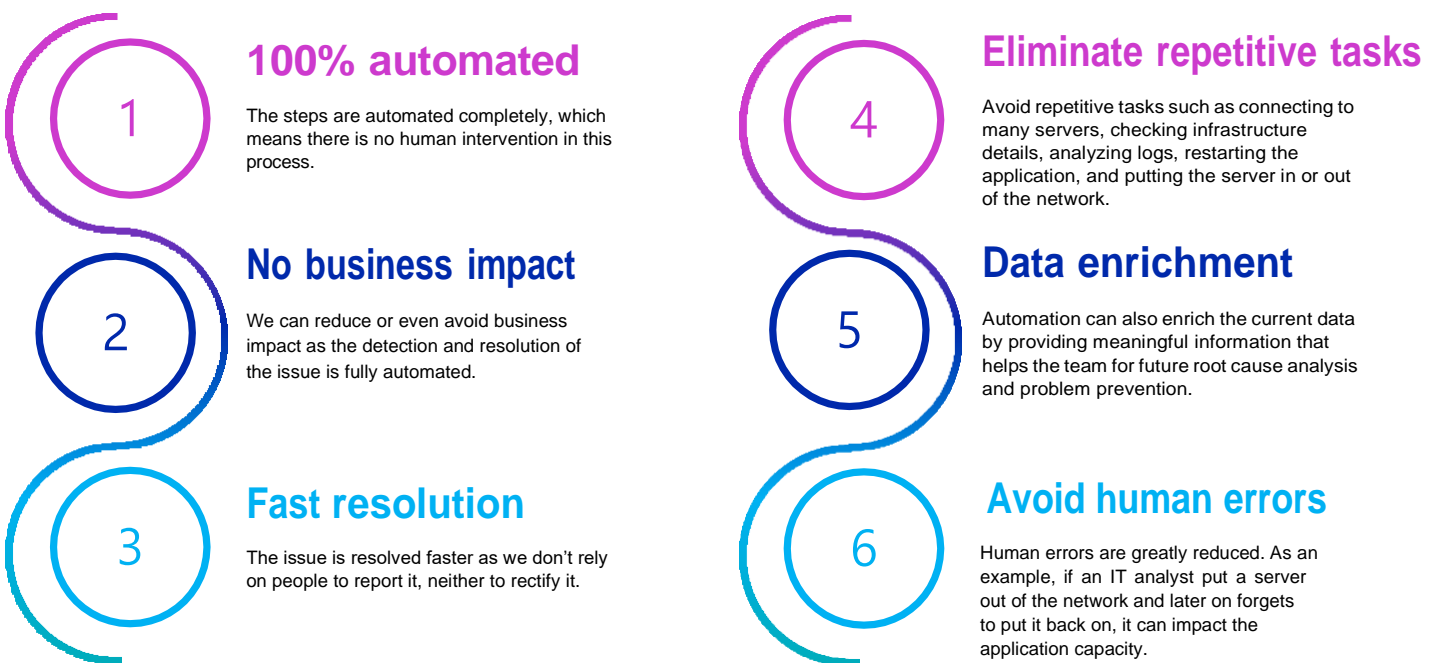


Figure 4: Automated process key benefits

When we analyze Figure 3. One could ask, why do we have a “Should I start?” at the beginning of the execution? Well, the answer is simple, if the automation did not resolve the issue in the first execution, we do not want to keep running this process as it is ineffective. But we should also look for ways to keep improving this process and understand if it provides meaningful information for the IT analyst to continue investigating. We do not need an IT person to perform the same steps that the automation has already executed, so yes, we are reducing the time required to troubleshoot the issue even if it is not resolved at the initial stage.

Why and how to offer it as-a-Service?

We have a good understanding of the most important benefits one or more automation can bring to our organizations, but we should think about the next phase which is to provide it as a service. However, we need to assess each automation process and understand if it can be re-utilized in its generic form enough to avoid significant changes and add extra complexity.

At present, there are many approaches offered as a service, such as Environment-as-a-Service (EaaS), Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS), and others. The as-a-Service model is a great way to turn a product into a marketable service.

When creating automation to offer as-a-Service it is extremely important we think of a more generic approach, that we can reuse for different cases. Embracing a services-oriented approach to your own IT delivery also brings great benefits to the company. There are many benefits to offering Automation-as-a-Service. In Figure 5, we will describe some of them.

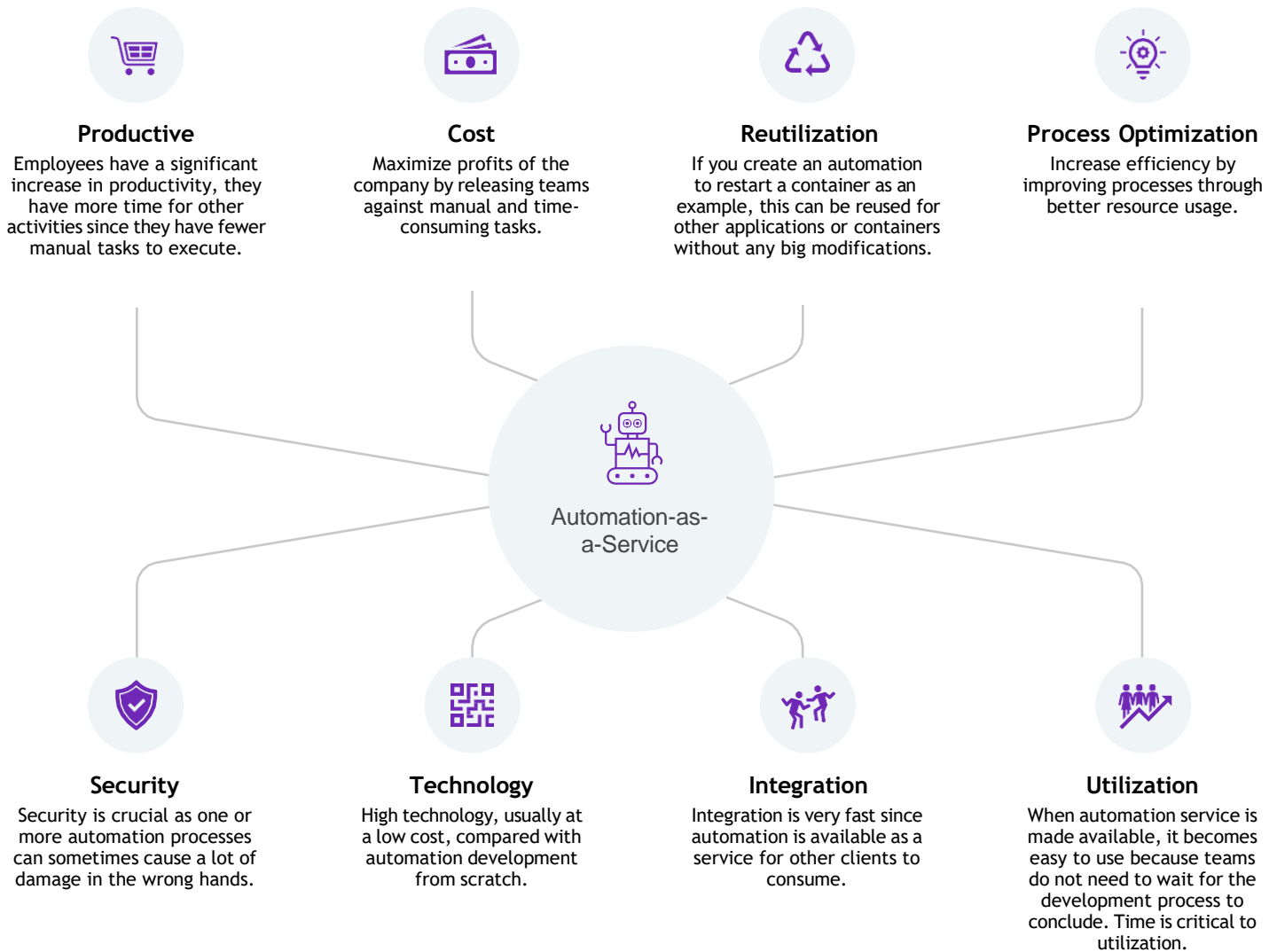


Figure 5: Automation-as-a-Service key benefits

Automation-as-a-Service can also provide automation services on a subscription basis, this model allows IT and business teams to assess different automation technologies without the need to invest in infrastructure and extra staff. Additionally, it improves productivity, and efficiency, reduces costs and frees up workers to focus on higher-value activities.

While we recognize what our current IT team can accomplish, we understand that there may be limits to what they can handle on their own. They may be experiencing burnout and that may be difficult to find and hire qualified employees to support the growing workload.

If you consider an IT Analyst who works 8 hours a day and receives a salary of eighty thousand dollars (\$80,000) annually. If we build a total of 40 different automations, which execute an average of 250k unique executions in a year, we have calculated the following results: more than 30 full-time employees gained (FTEs) which is converted to ~2.5 million dollars saved with automation. It is truly clear when we look at the numbers, automation pays!

To address the IT challenges, it is also important we find a balance between IT workload and automation processes to ensure that employees can maintain a healthy work-life balance.

Furthermore, we should also think about exploring various products. For example, ChatGPT can enable different automation capabilities quickly and efficiently. ChatGPT can be used in conjunction with Automation-as-a-Service to provide natural language processing, text generation capabilities, content creation, e-mail automation, sentiment analysis, and so on. It is a valuable tool for automating routine tasks and improving customer experiences through Automation-as-a-Service.

When automation is developed and deployed in production environments, observability is a key aspect that must be included as part of the automation lifecycle management.

Automation lifecycle

The automation lifecycle refers to the different stages involved in planning, developing, implementing, and maintaining an automated process. Automation maintenance is a key stage of the automation lifecycle, and it includes monitoring and maintaining the process to ensure that they continue to work efficiently.

One of the most common errors, when teams are automating a process, is forgetting about it, which is somewhat expected because the automation is doing its job. But what happens if the automation fails? Unfortunately, teams frequently discover this when the customer is already impacted.

When automation is developed and deployed in production environments, observability is a key aspect that must be included as part of the automation lifecycle management. This is also useful to identify bugs not found during the testing phase. With monitoring, the Automation team can identify issues more proactively than waiting for the business team to report them. The goal is to expand automation utilization, but we need our customers to trust that it works as designed.

Thus, automation housekeeping is a mission-critical task for the success of this process, with some portion of the Automation team dedicated to ensuring high confidence and stability in existing automation. This includes creating log orchestrations, configuring dashboards, and resolving issues quickly. Complex system changes, often as companies need to adapt to new market trends, mean that an automation process working today, will not necessarily continue to work in the future.

Moreover, we should think of a good process for allowing customers to submit automation ideas and officially engage the Automation team. This level of engagement also helps to prioritize the automation requests to be implemented.

We also need to highlight all the work the Automation team is doing and provide a place where they can input details and share them with teams across the organization. Sharing these great innovations will help the company grow faster and enhance profitability!

Conclusion

Automation is quickly transforming the way we work, and this trend will only continue. With the development of machine learning and artificial intelligence, many tasks that were exclusively in the domain of humans will soon be automated. This will lead to a shift in the nature of work, with a greater emphasis on tasks that require human skills such as critical thinking, emotional intelligence, and of course creativity.

Every company needs to consider having one or more dedicated automation teams. Automation professionals are responsible for solving complex problems in many aspects of the industry.

Automation is a key process for company success and offering Automation-as-a-Service delivers automation options and dynamic approaches that improve day-to-day work, drive business, and create a great environment for innovation.



[Learn more](#) about
Dell Consulting Services



[Contact](#) a Dell
Technologies Expert



[View more](#)
resources



Join the
conversation