Autonomization

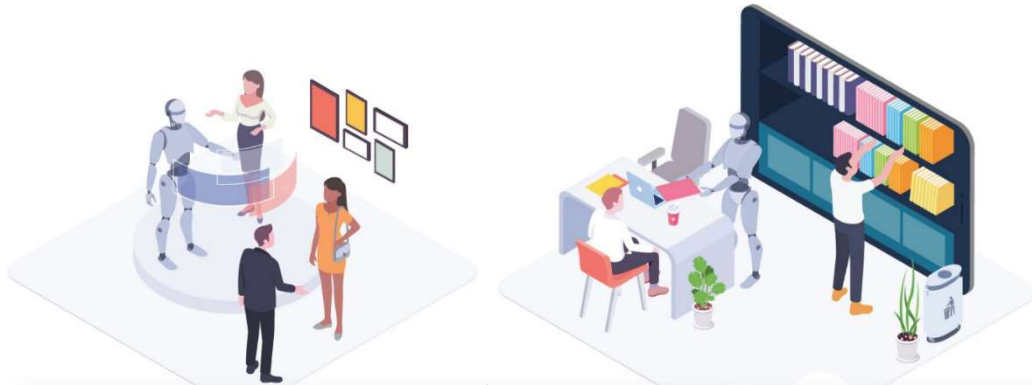**Is my process ready to be autonomized?**

Fig 1. Autonomization Illustration- This figure shows that the future of industries and work places will have a heavy integration of technology for autonomization into the existing processes. [6]
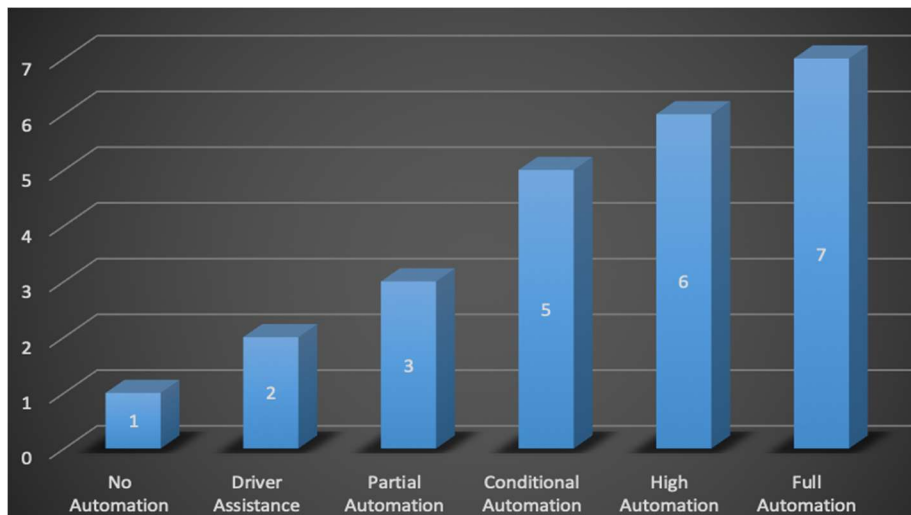

Fig 2. Process maturity [7]

Fig 3. Level of Autonomy – The figure shows varying levels of automation in vehicles [8]

What is Autonomization?

Autonomization defines processes that are deployed by systems working independently and which make decisions without human interference. This behaviour of the system enables it to be flexible and not necessarily wait for a human input in case of correcting any issues. It can therefore define its own goals by analysing the overall environmental conditions and work towards it. This leads to a quicker and apt decision-making which increases the efficiency and quality of the processes carried out by the system.

Automation vs. Autonomy [1]

In simple words, taking modern day vehicles as an example we can give a differentiation between automation and autonomy. In this case, automation refers to the ability of a system to control a vehicle, like autopilot or cruise control (deterministic cases). Autonomy can be described as the ability of a system to not only control a vehicle but also respond to unexpected hazards (non-deterministic cases).

Process Maturity Models to evaluate the process readiness [2]

Maturity models measure the ability of an organization for continuous improvement in a particular field. The higher the maturity, the higher will be the chances that incidents or errors will lead to improvements either in the quality or in the use of the resources of the discipline as implemented by the organization. To evaluate process maturity for autonomization, the FSTI is developing criteria and such models for companies to evaluate their standpoint of progress.

Game changer [3]

The realization of Autonomization is being pursued within a variety of sectors. This includes fields such as finance, national security, health care, criminal justice, transportation, or smart cities. Few present-day examples seem promising:

1) Autonomous Cars
   Tesla cars have created a revolution in self driving capabilities. Huge advantages are already being seen in the early pursuit for autonomization with the goal to leave decision making to the vehicle. However, we are far away from this achievement. Getting closer in the future has huge potential in improving passenger safety, reduction in travel time, self-diagnostics, etc.

2) Supply Chain Management [4]
   Covid times have shed light on the fragile nature of today's supply chains. Companies have scrambled to realize autonomization for their production and supply chain management in order to cope with the everchanging environment. Autonomization helps to eliminate rigidity and cater to the global demand. Also, we need to make further progress to cope with the high complexity realizing Autonomization.

Follow up on current work

At the FSTI, we developed a maturity model for autonomization as a supporting tool. It helps companies in a qualitative assessment of their respective level of autonomization. Transparency beyond the current development state of a company is created and any potential future development ideas are provided. In accordance to design principles that were found through the study, enhancements of existing models to a final model containing maturity levels, dimensions and characteristics was conducted.

The process maturity model's advantages [5]

- Flaws in process development operations can be identified more accurately
- Reduction in the cost of the software development or management of data as a resource

- Increase in productivity from software development and/or data management professionals (staff and contractors).
- Reduction of post-release defects and essential enhancements
- Reduction of the time-to-market for implementations

Conclusion

Autonomization is an inevitable pursuit in today's world. It is certainly going to revolutionize and help in improving various aspects of industries. Maturity models help to gain clarity over this process and provide a tool to evaluate your standpoint in this journey.

References

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