

SMART AUTOMATION TO COLLABORATIVE AUTOMATION

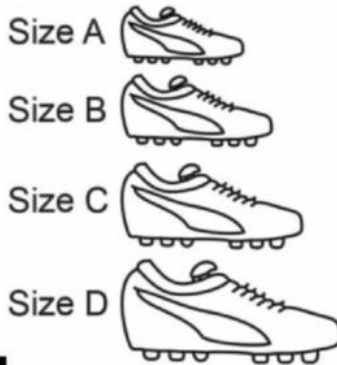
THE INDUSTRY 4.0 HAS WELL SETTLED IN THE MANUFACTURING INDUSTRY. NOW WHAT BEING LOOKED AHEAD AT IS INDUSTRY 5.0. WHAT IS EXPECTED FROM INDUSTRY 5.0?

WE ARE IN THE

middle of Industry 4.0, as most of us agree that there is already discussion on Industry 5.0. The Society 5.0 envisions human centricity that balances economic development and talks about integrated cyber and physical space. Coincidentally enough Industry 5.0 also brings the collaboration between human and automation. On the manufacturing side Industry 5.0 means cobots in the place of robots. The Design and Engineering activities in Industry 5.0 would include and look beyond Digital twin, AR, VR, ROM and automation into collaborative automation.



Digital Twin, IoT, and AI are parts that add up to make the picture of Industry 4.0 complete. Automa-



are already part of automation focus across industry verticals. Industry has CAE process automation teams that write code to automate the steps involved in virtual validation from inputs data to final

tion that was important part of Industry 4.0 is expected to add human dimension in Industry 5.0. The demand towards high degree of customisation / personalisation in product expected by users is bringing in exciting time for engineers designing and building them with precision and speed. It's already shifting from "we design, you buy" to "you/ your design".

SIMULATION SOFTWARE TOOLS ENABLING ENGINEERING ACTIVITY IN INDUSTRY 5.0:

Engineering simulation software already play major role in product design and development and its going to be no different. Developers of such software have already taken note of how Industry 5.0 is shaping up and how it could help bring best of computing world and human participation. Simulation software developers having implemented Digital Twin, VR/AR, ROM's and automation as part of Industry 4.0 enablers are now looking at engineering process automation in new dimension considering benefit of human intelligence as part of it.

Under engineering process automation, CAE process automation plays a vital role. CAE/Virtual Validation activities tend to be time consuming and

MS PowerPoint Report generation. Industry experts do agree that this "one size fits all" automation approach would not work well particularly in the view of increasing meta model use or optimisation studies that involves tradeoffs or an engineering process that kicks off from generative design or for that matter wide personalisation. Engineer's creativity, cognitive input / judgment can make a significant difference in the quality of output achieved and the time invested.

AUTO'MAN'TION IN INDUSTRY 5.0:

What can make a difference to practicing CAE users and Design teams in general is CAE / Virtual Validation process automation, which has human intelligence playing interactive role. This means it does not end with creating requirements and inputs but in walking through the process sharing the best of computing and human intelligence. Thus Automation is not conceived as lines of code in a programming language created by another team to benefit CAE Engineers. It is a process created by the engineer himself interactively with software without being an expert programmer. This is what we call collaborative automation in Industry 5.0. Can we dare call it "Auto'man'tion" as yet? 🤖

1. Karthik Shankaran, Chief Innovation Officer, Detroit Engineering Products

2. We design (left) versus you design (right)