Configuring Heterogeneous Variability Models using a Dynamic Product Configuration User Interface

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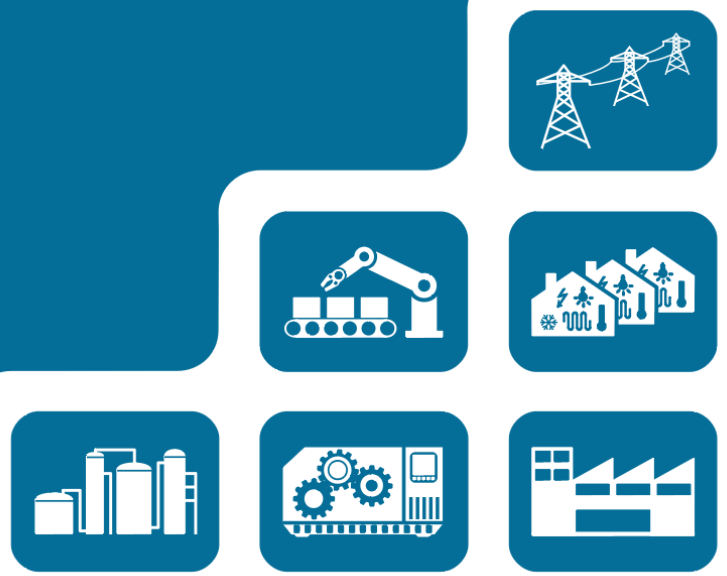

Welcome to Software Development in CPPSs

We build a system comprised of **control software and hardware** that can **deliver production system functionalities**

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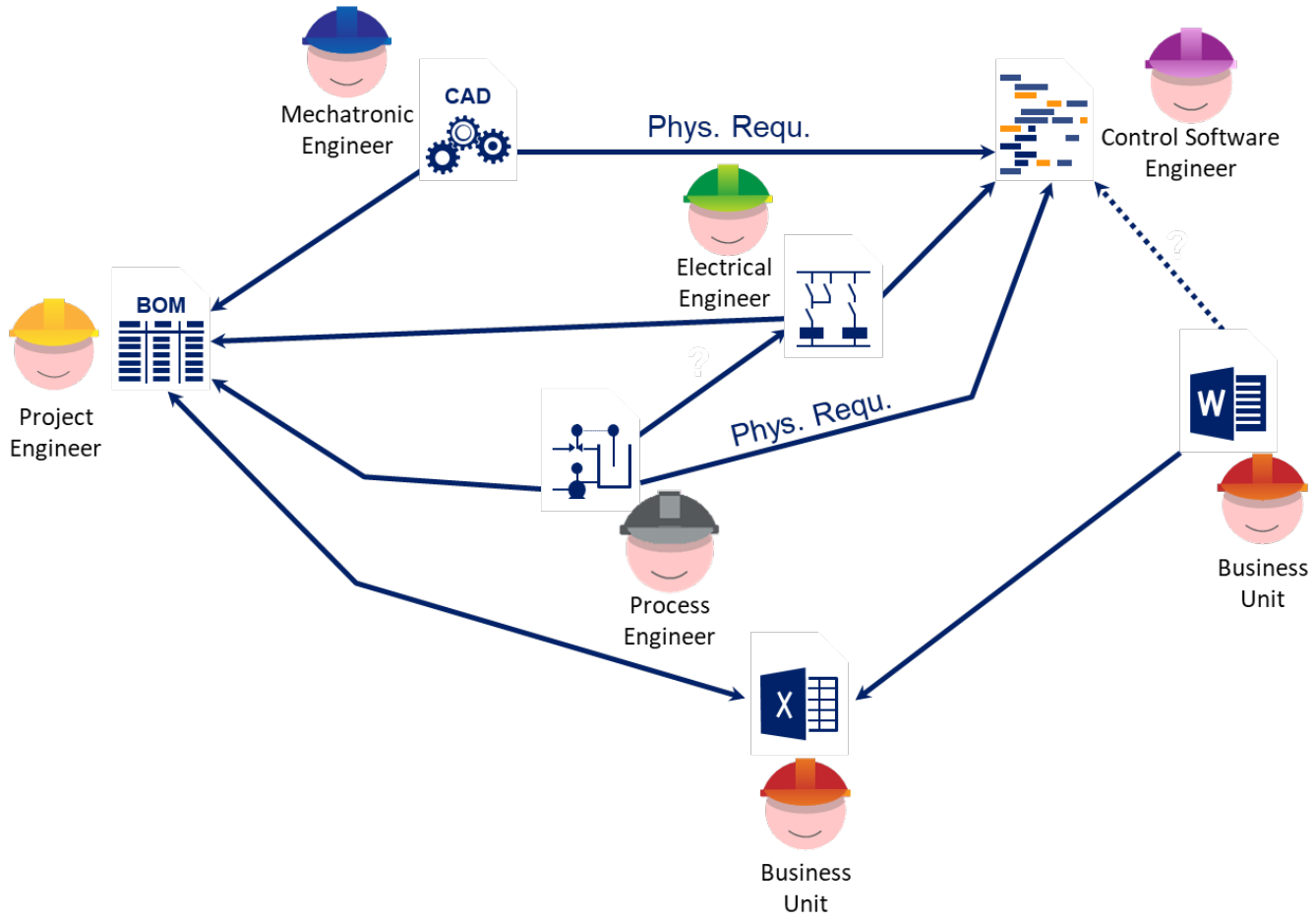
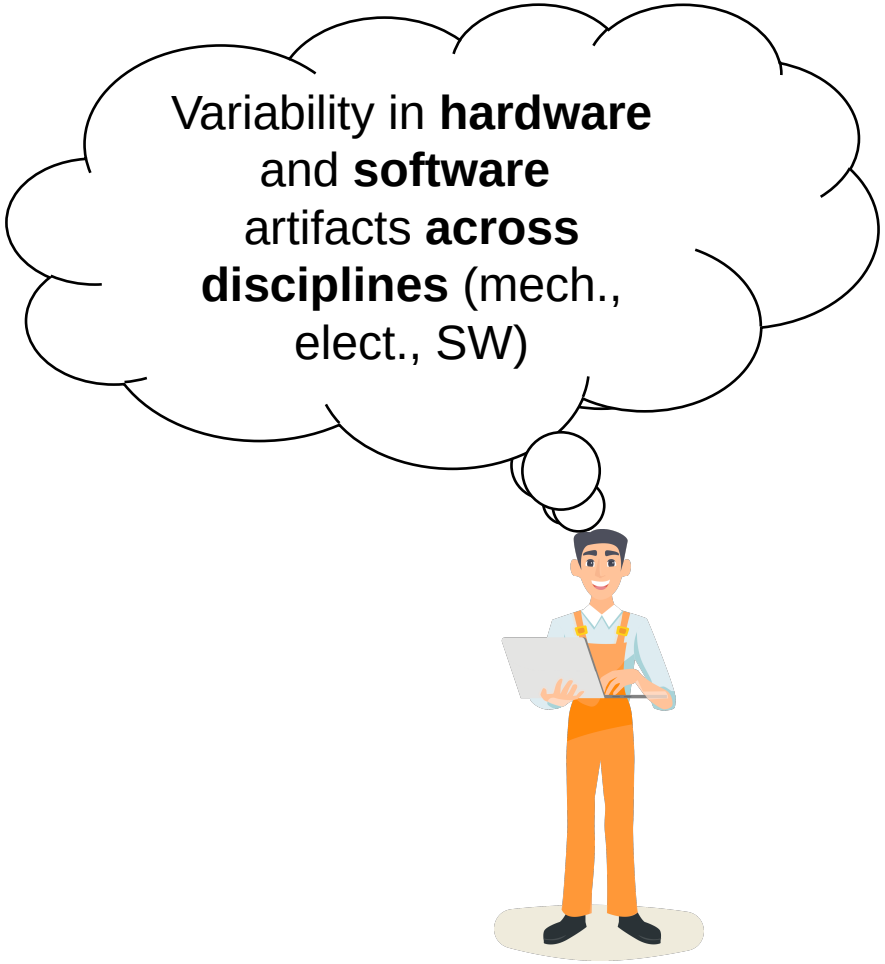
Welcome to Software Development in CPPSs





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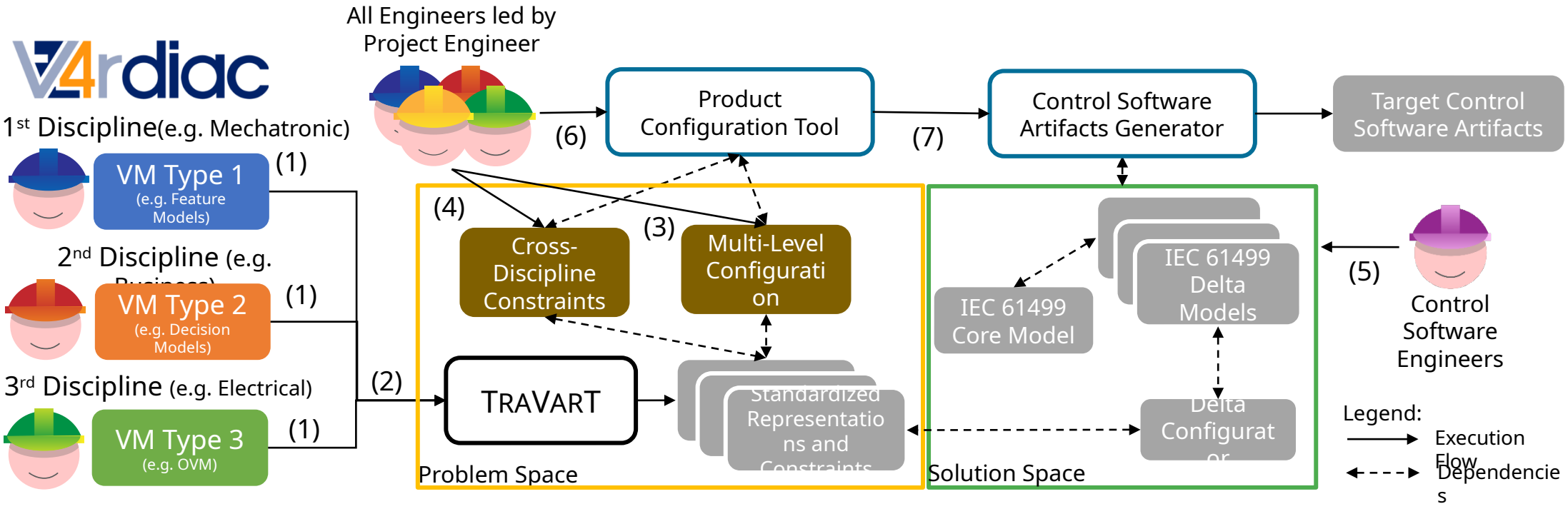
V4rdiac: Multidisciplinary Variability Management Approach for CPPS



Fadhlillah et al. 2022. Towards Multidisciplinary Delta-Oriented Variability Management in Cyber-Physical Production Systems. In VaMoS '22.

Fadhlillah et al. 2022. V4rdiac: Tooling for Multidisciplinary Delta-Oriented Variability Management in Cyber-Physical Production Systems. In SPLC '22.

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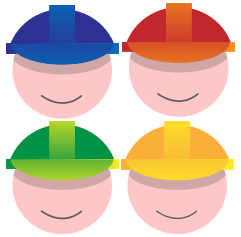
Drawback: Standardized Product Configuration User Interface

All Engineers led by Project Engineer

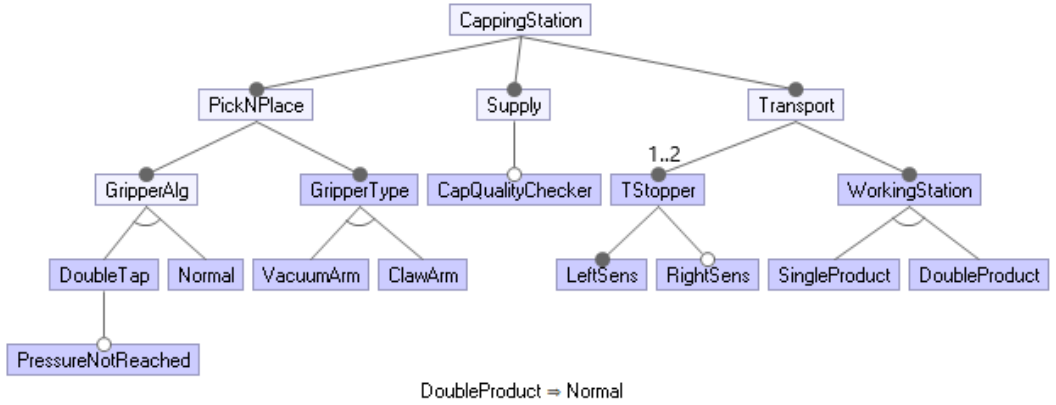


Let's perform product configuration based on these variability models

Q1. What is your planned production capacity? $Capacity > 100 \mid Capacity \leq 100$

Q2. What is your planned return of investment? $ROI > 150 \mid ROI \leq 150$

Q3. How much is your initial fund (in million USD)? $Fund > 5 \mid Fund \leq 5$



Business Variability (Decision Model)

Mechatronic Variability (Feature Model)

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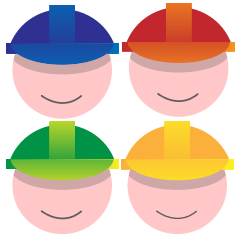
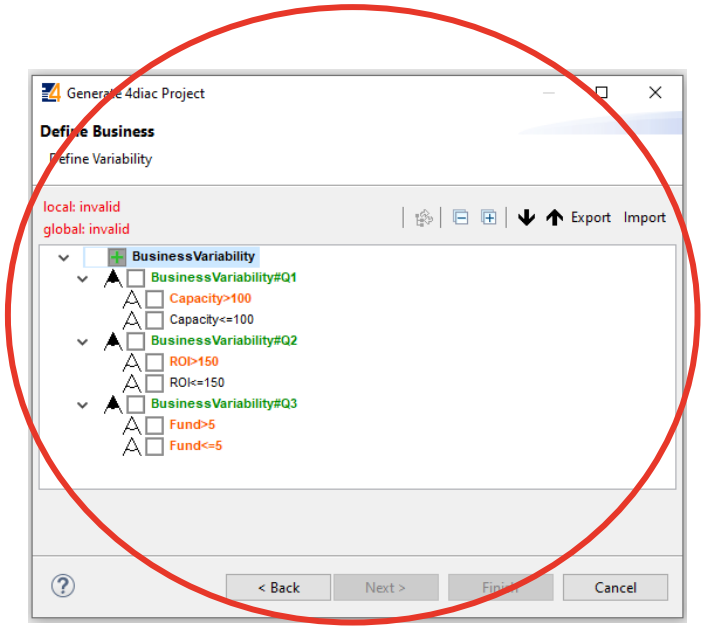
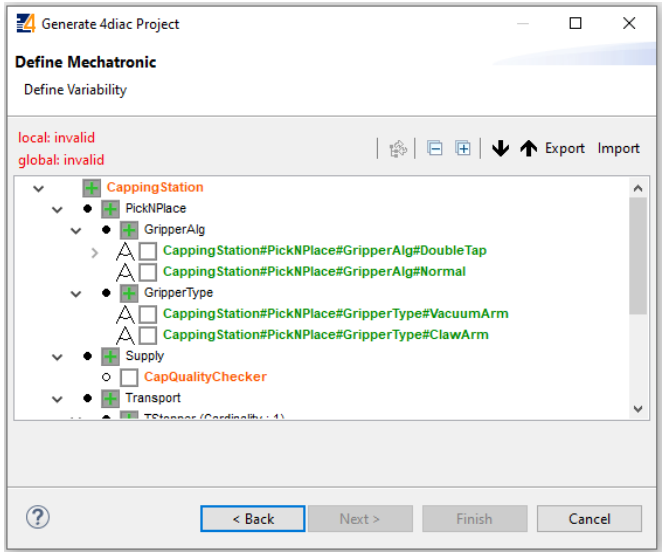


This is OK-ish, but I want to input **number** instead of **choosing enumeration**



Product Configuration Tool



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Drawback: Standardized Product Configuration User Interface

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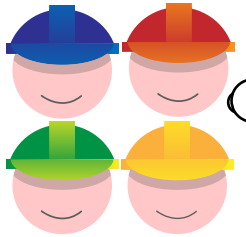
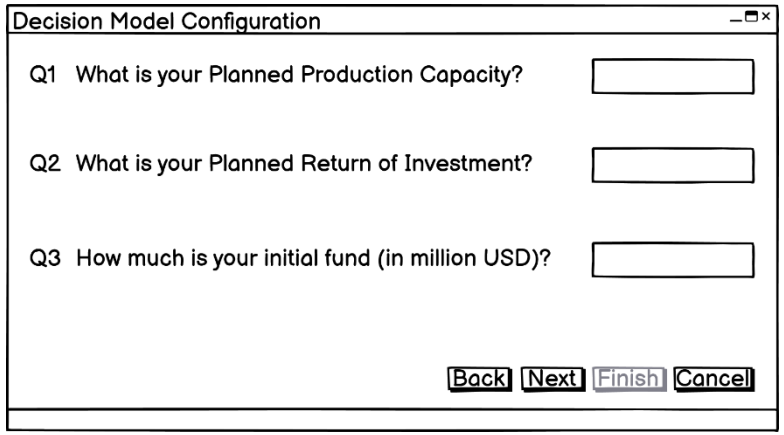
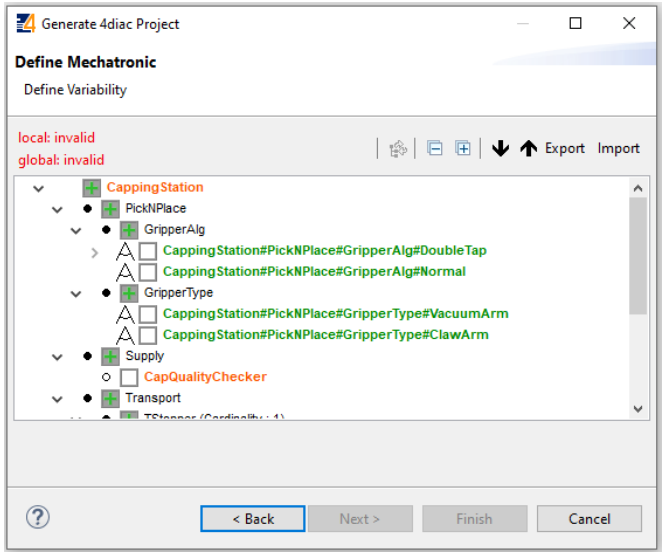


Something like this is what **we are expecting** when configuring our business decisions

Product Configuration Tool





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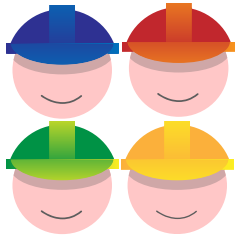
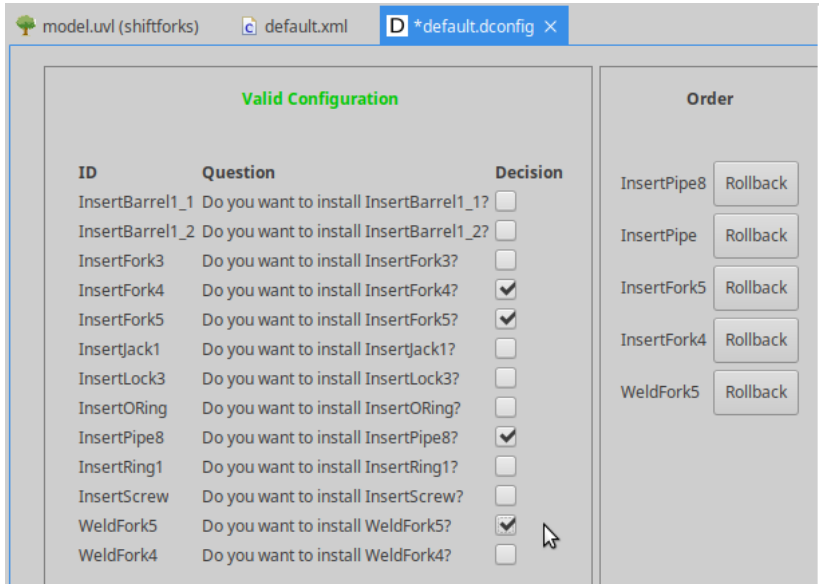
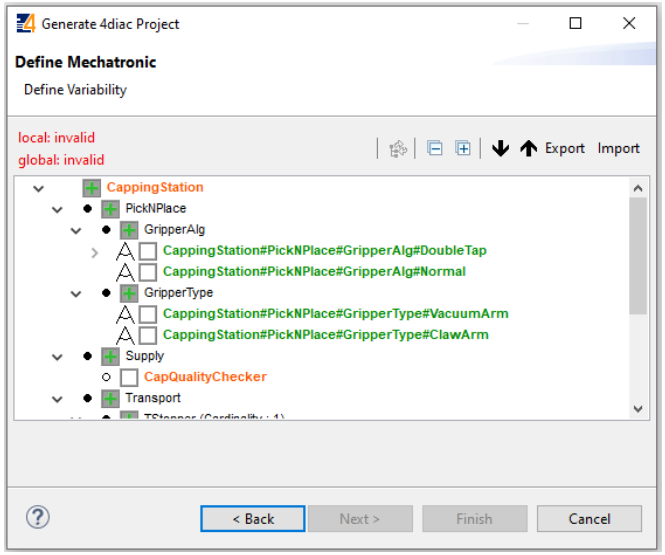


Sometimes **we even desire** such custom representation…



Product Configuration Tool



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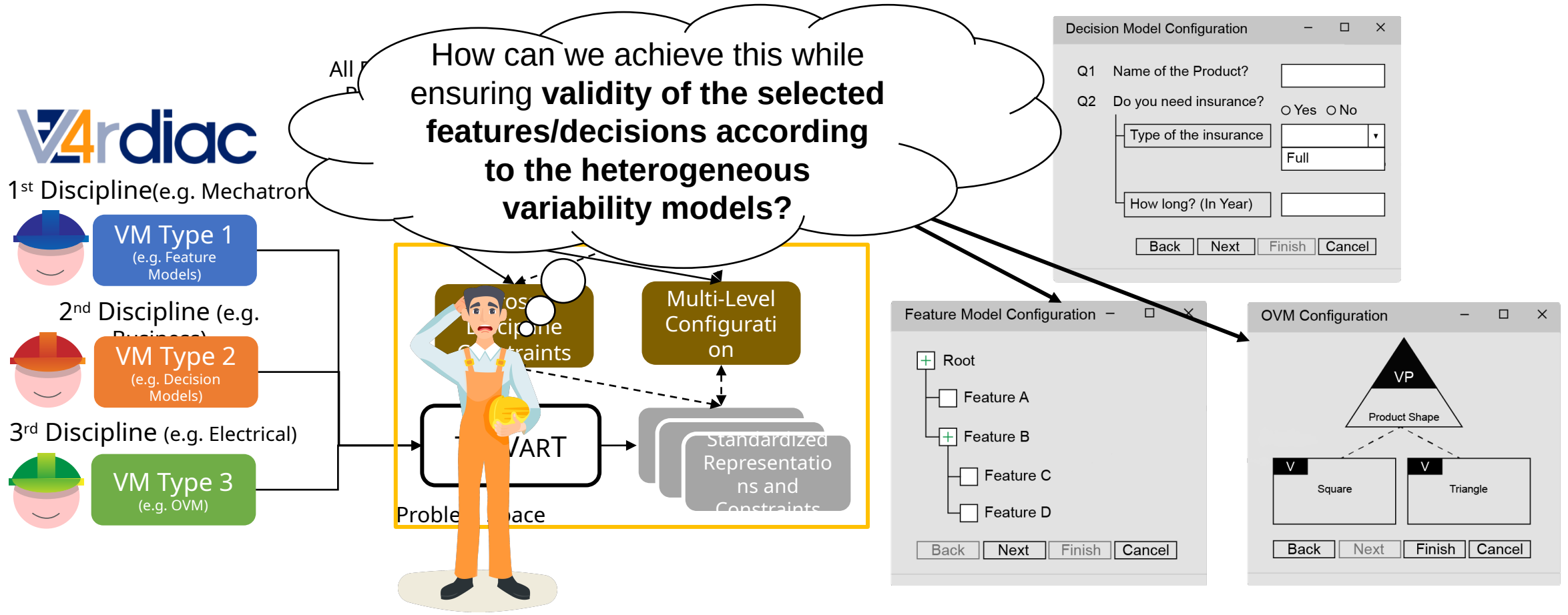
Dynamic Product Configuration User Interface



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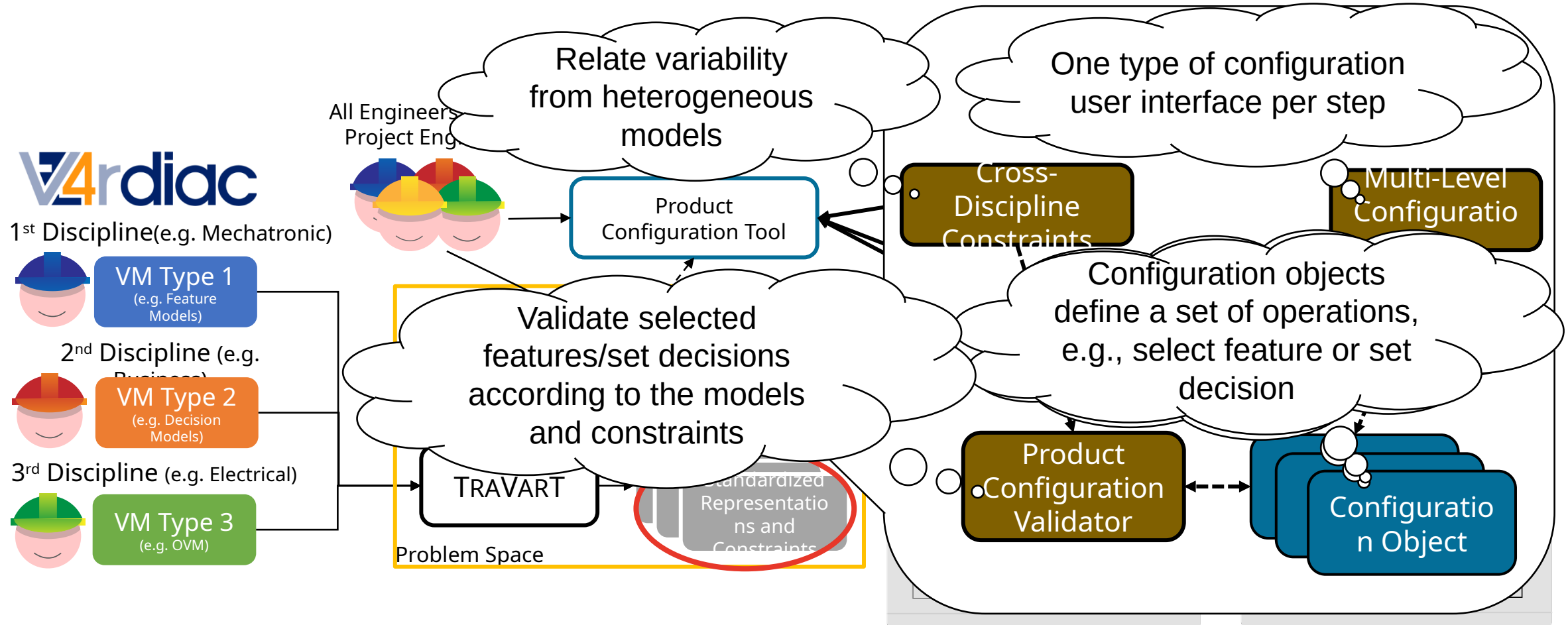
Dynamic Product Configuration User Interface



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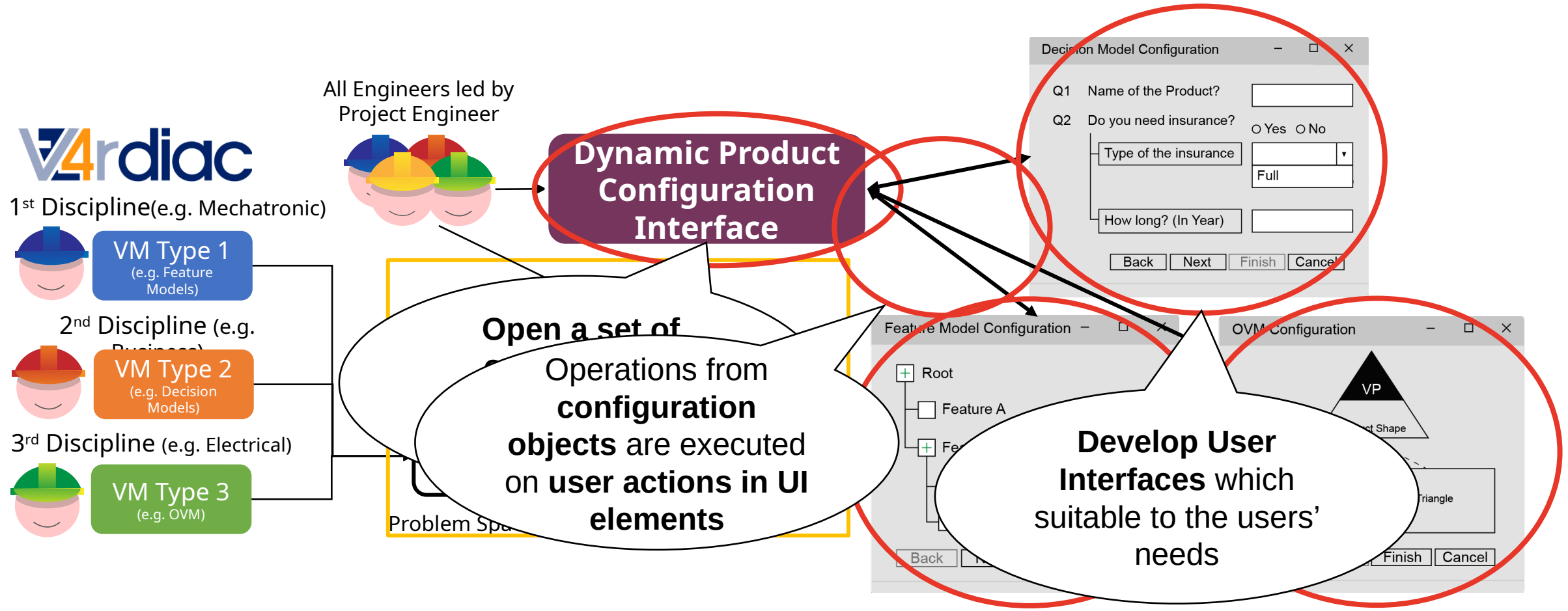
Dynamic Product Configuration User Interface



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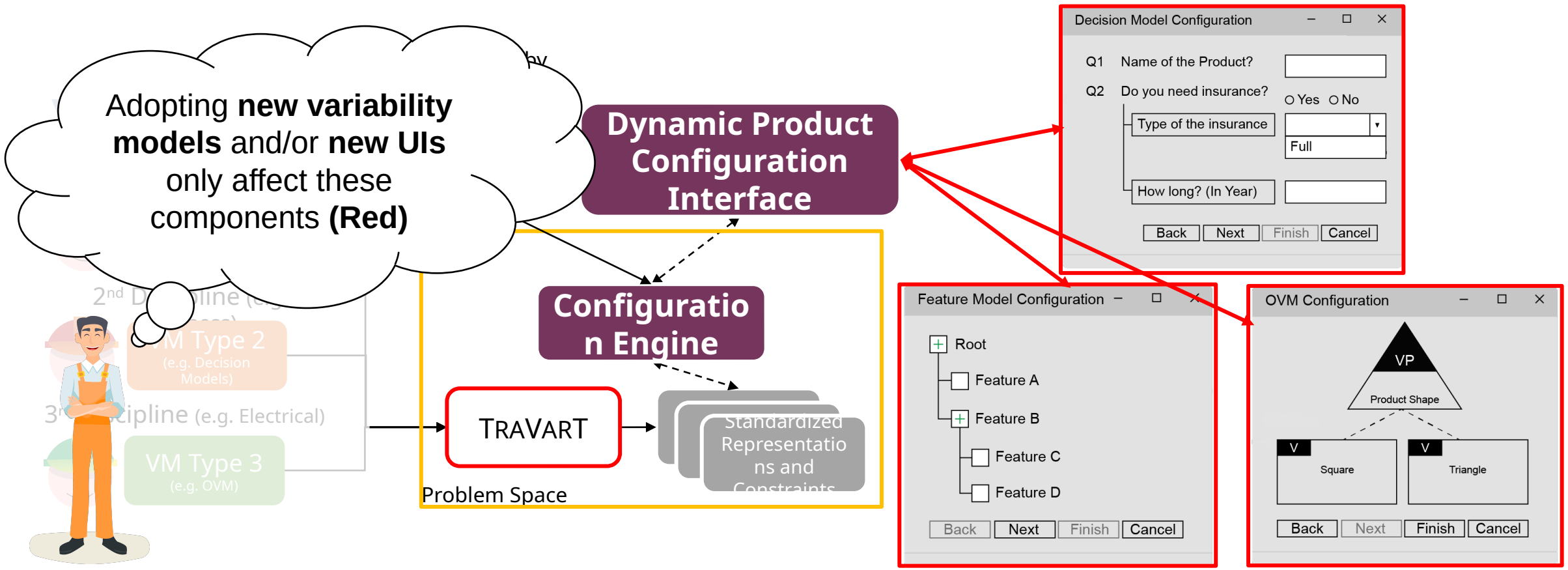
Dynamic Product Configuration User Interface



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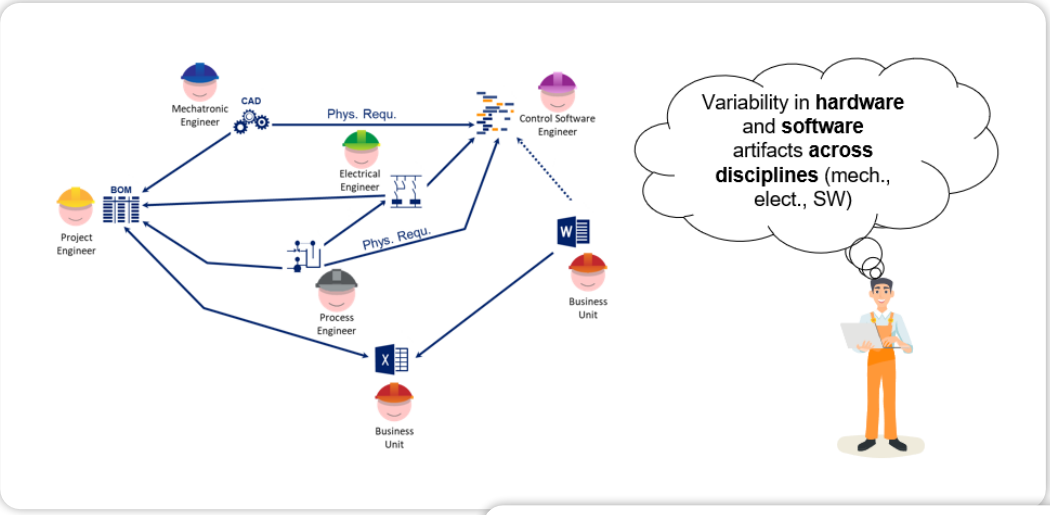
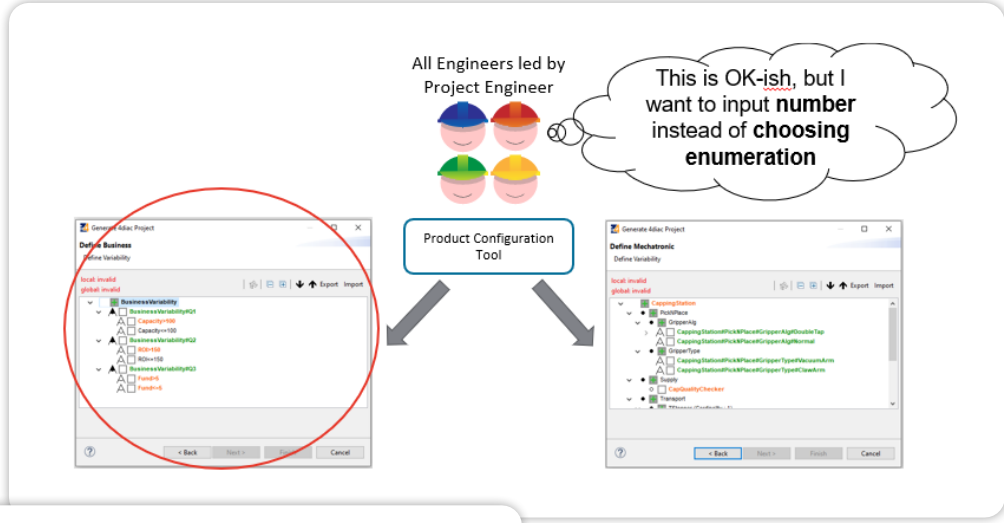
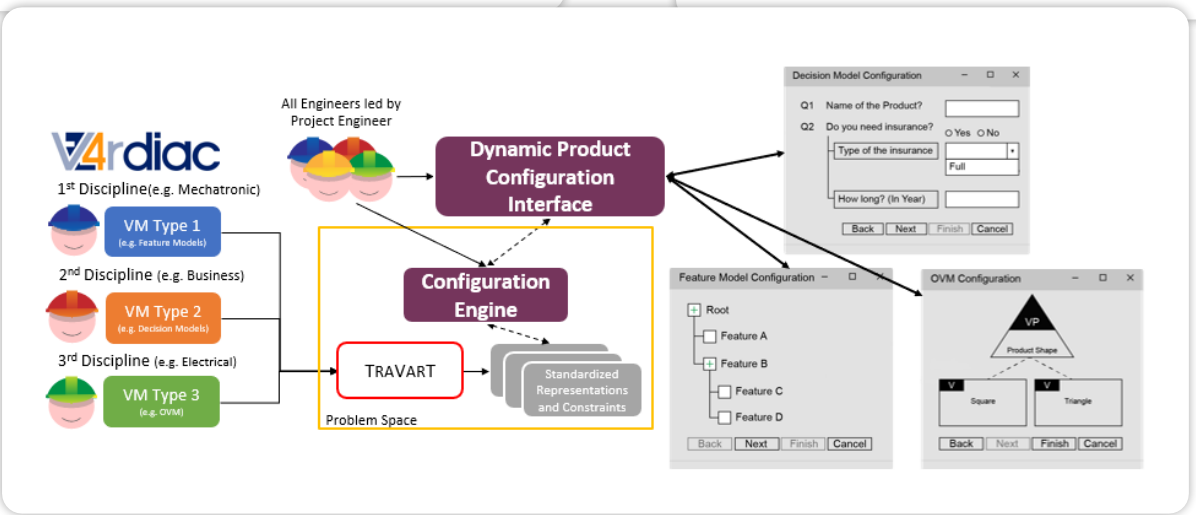
To Summarize…







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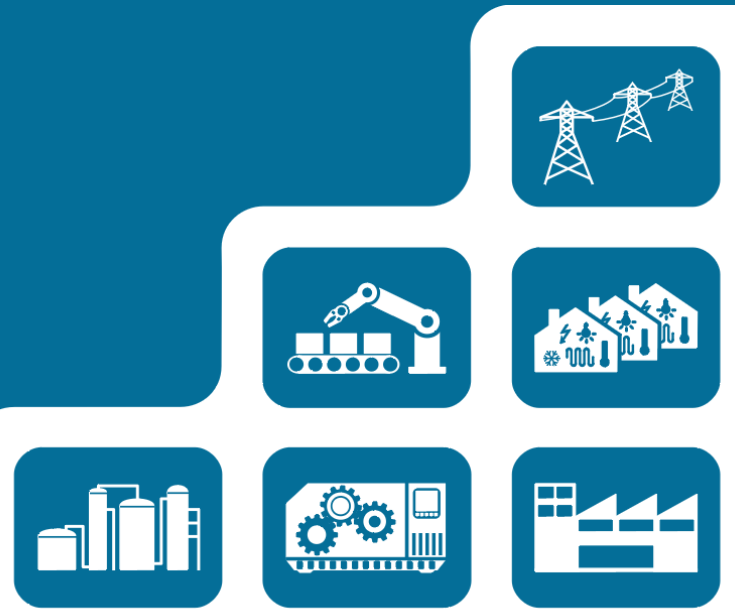
Thank you!

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