Adapting to Flexibility

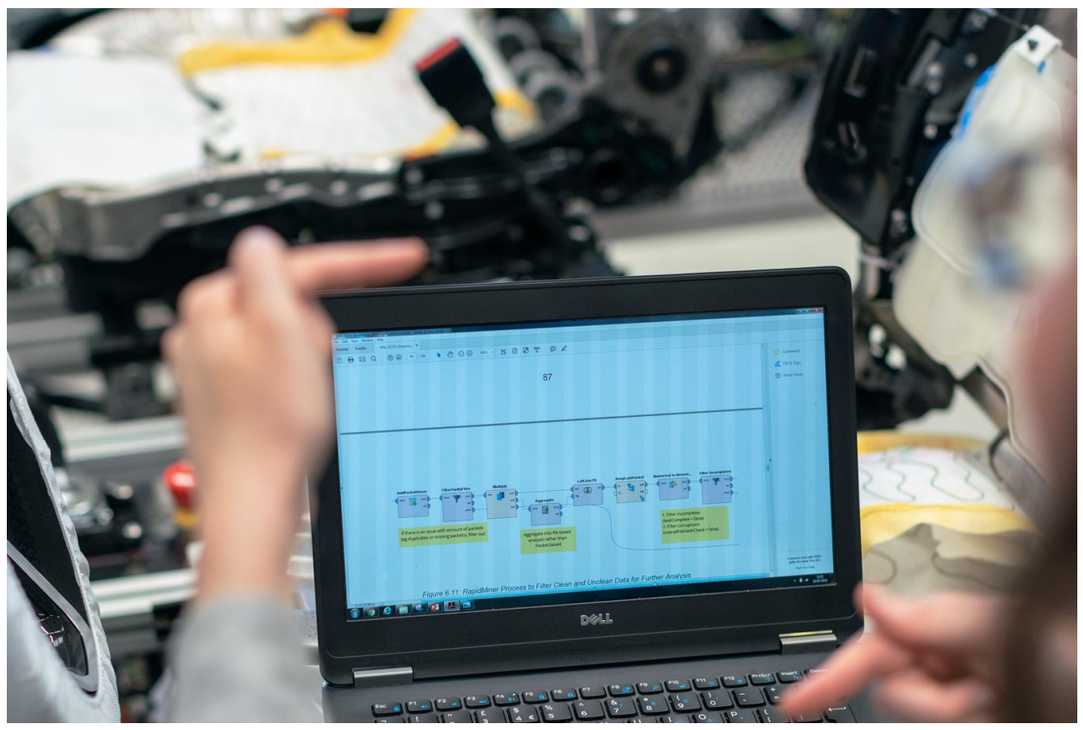

Figure 6.11: RapidMiner Process to Filter Clean and Unclean Data for Further Analysis

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The fact that many systems/assets/products item are configurable, including software and firmware, and that increasing digitization is bringing more flexibility (and configuration requirements) to more and more systems/assets/products means that organizations will benefit from policies, procedures and systems in place to manage and control this configurability. Conversely you could argue that they may suffer from inconsistent approaches if they do not do this.

Flexibility offers many benefits. Modifying certain assets, such that their behavior is adapted to fit specific circumstances, creates benefits. Maintaining these benefits are why we need to manage configuration carefully. A configurable system/asset/product can provide great value and flexibility but if it is used in the wrong way problems will occur so knowing what configuration the asset is currently in, how it has been configured previously and what configuration is required/demanded are very important to know.

The Atomic Energy Agency has a simple approach to understanding basic asset documentation. It uses three simple lists and if they are not aligned then you have a problem. For every system/assets/product you should know what is supposed to be there to perform the required function(s). You also need to know what you have documented as being there. Finally, you need to know what is actually there.

It sounds simple but these three aspects are misaligned for many organizations. Emergency changes, untrained staff, forgetting to complete work orders, not understanding interoperability, dependability and consequential issues are all factors that can cause this misalignment. There are many reasons that documentation and/or configuration records become stale and do not reflect actual systems/assets/products that are deployed.

This gets more complicated when the same system/asset/product can perform multiple functions or can change at which level of input its actions are triggered. In many cases you can't tell from looking at the asset how it is configured. Configuration management is going to become more important as we deploy more IoT enabled assets, i.e the organization derives a level of control to provide confidence that their assets will fulfil the functions they desire when the organization wants them to.

Adaptability provides flexibility to adjust to abnormal conditions. It creates opportunities to improve functionality and resilience while creating the chance for mis-configurations. Configurability of smart systems/assets/products and their adaptability to system health means that situational awareness is dependent on how well we perform configuration management.

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