

The Application of LEAN to a Global R&D Microscopy Organization in an Industrial Environment

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LEAN is a management and organization methodology, which focuses on the pursuit of a perfect process through the elimination of waste, with waste being defined as any non value-added tasks. LEAN is therefore centered on the creation of more value with less work; while this methodology is obviously often applied to manufacturing operations it is not limited to this specific environment.

Here we report about the application of LEAN in a global R&D microscopy organization at an engineering thermoplastics company. Specifically, our microscopy operation comprises a large team of microscopists with a global representation (Americas, Europe and Asia). Our objective was to ensure consistency across our laboratories globally while maximizing efficiency and ensuring uniform data management and reporting. In other words we wanted to make sure that the “customer’s experience” would be globally consistent. We therefore applied the LEAN methodology to enhance the set up of our microscopy labs, optimize workflow and reduce waste. Various types of waste were considered, for instance: overproduction (working on the wrong samples at the wrong time), inventory (too much floor space or shelves), motion (due to poor lab layout), unnecessary processing (for example, due to tasks that have not been simplified), transportation (again, this can be due to a poor lab layout) and finally waiting (due for instance to a lack of “standard” operations). We used various tools including the “spaghetti diagram” (see Figure 1) and value-stream mapping (see Figure 2). The spaghetti diagram provides a clear visual representation of a present-state process flow and provides opportunities for improving the lab layout; the value-stream mapping exposes the sources of waste and the ratio of waste to value-added tasks. The value-stream mapping also provided a deeper understanding of the process at each facility. We also focused on establishing a common template for data / report generation by adopting usage of a home-built report generator software that ensured global consistency by semi-automating the creation of reports.

In summary, we applied the LEAN methodology to a global R&D microscopy organization in an industrial environment to understand and optimize our processes, and to make them consistent with one another. While it is particularly significant in any profit driven organization, LEAN allows you to get the most of what you have without sacrificing quality.

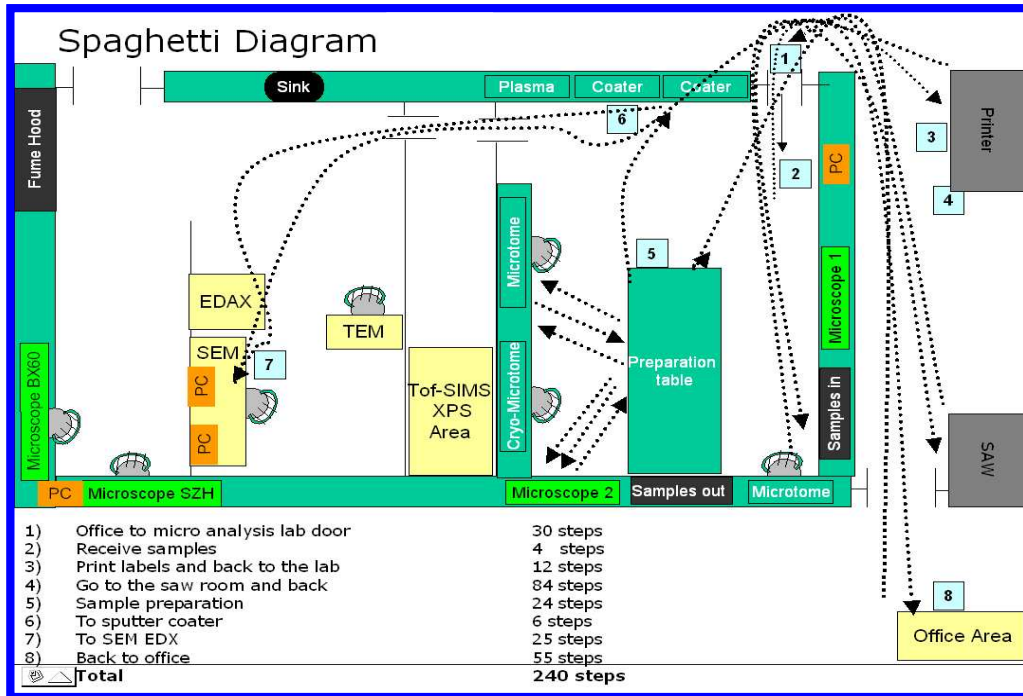


Figure 1: Example of a spaghetti diagram used to map motion for a specific process in a microscopy laboratory setting.

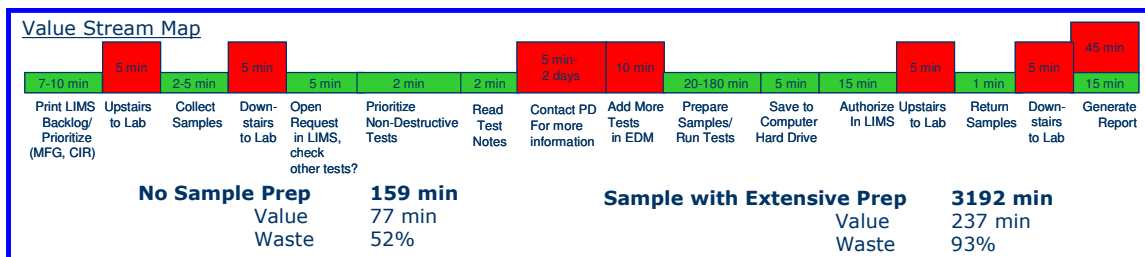


Figure 2: Example of value-stream mapping for a specific microscopy process.