

Design Transfer as a Lever for Accelerated Medical Device Innovation: A Case-Based Mapping Approach

The Stryker logo is a white circle containing the word "stryker" in a bold, lowercase, sans-serif font.

BUSINESS PROBLEM

Stryker aims to accelerate its New Product Development (NPD) to deliver new products to market faster and more efficiently. A subset of NPD, Design Transfer, describes the procedures governing the correct translation of a new design into a set of manufacturing instructions and procedures that could be transferred to manufacturing operations. Design Transfer, as it currently stands, is a one-size-fits-all procedure that is over-prescriptive. There have been attempts to parallelize some of the tasks and bucket deliverables for phase exits, but there has not been a study on the effect of this parallelization on the amount of rework.

DATA SOURCES

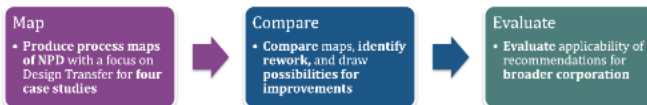
Primary sources: data gathered via interviews with subject matter experts in Design Transfer from Advanced Operations Engineers, Advanced Operations Project Managers and Advanced Operations Functional Managers. Secondary sources: data gathered from historical project records, including project schedules, task lists, and other relevant documents.

Data Types and Format

Microsoft Project Plans, written interview notes, Excel sheets, Powerpoints

APPROACH

I analyzed the as-is process for four projects across two business units that vary in complexity, spend, and procedure. I visualized the process steps using a swimlane flowchart and Design Structure Matrix to highlight feedback loops and rework cycles. Subsequently, I tracked the effect of task parallelization on the amount of rework occurring in the development phase across cases.



IMPACT

The methodology used sheds light on the Design Transfer process that drives new product development. Mapping Design Transfer allows Stryker's decision-makers to make informed choices on where to optimize the process and minimize chances for rework, aligning with the company's overall goal to accelerate new product development. The case study analysis reveals key inefficiencies caused by poor cross-functional communication, late-stage validation testing, and inadequate supplier integration. Addressing these pain points through improved knowledge-sharing practices, early subassembly testing, and set-based concurrent engineering with suppliers helps reduce delays and costly rework. The approach enhances transparency across teams and builds a shared understanding of the Design Transfer process, enabling more predictable execution. Importantly, the methodology is scalable across business units, making it a repeatable blueprint for driving efficiency in complex, regulated development environments.

DRIVERS

The industry has room to adopt the best new product development practices, as it lags behind other industries due to regulation. Stryker, driven by growth, is very interested in adopting strategies to accelerate their operations.

BARRIERS

As Design Transfer is a business process, there was no Gemba to visit, and it was difficult to understand the steps to complete the process, especially since there was sparse documentation of the process as executed and issues that arose throughout. Furthermore, the execution of Design Transfer was slightly different across projects, and it required some extra work and best estimates to make the case studies comparable.

ENABLERS

The company is highly networked, which made it easy to reach out to any stakeholder I needed. My company supervisor was great at introducing me to people that could support my project.

ACTIONS



I engaged with stakeholders throughout and until the end of my project to ensure their buy-in. Stakeholders included Design Transfer Divisional Process Owners (DPOs) who are experts in the process and gave valuable feedback and enthusiasm towards the recommendations shared at the conclusion of my project.

INNOVATION

Although swimlane mapping is quite common, DSM mapping is not—especially the sequencing feature to minimize feedback loops, which revealed, for example, the need for later concept freezes.

IMPROVEMENT

The solution provides a framework that, if adopted, will lead to a shorter, streamlined design transfer process that reduces the overall new product development cycle and hastens time-to-market.

BEST PRACTICES

Engage with stakeholders early and often, especially during the process mapping phase. Be ready to create multiple iterations of the map, as it changes quickly with feedback, and try to seek consensus across stakeholders of each project. Explicitly ask for descriptions of breakpoints in the process and rework, as that is not always clearly documented in the development phase, and fact-check what is reported against what is documented.

OTHER APPLICATIONS

The solutions recommended are applicable to any design transfer project across the organization. The methodology used is beneficial in mapping out any complex process that is non-linear with branches and feedback loops to provide a better understanding of its strengths and pitfalls.