

CASE STUDY #14

Sulzer Orthopedics Case Study

Sulzer Medica (now: Centerpulse), is a wholly owned subsidiary of Sulzer, headquartered in Switzerland with total sales of CHF 1.875 billion.

Development II was retained to assist Sulzer's Orthopedic Group to develop a better prosthetic Acetabular (hip) replacement system. Development II conducted the project using its proprietary New Product Development Methodology.

Phase 1: "Painstorm" Ask potential customers (3-6 people) to identify what they do not like or what bothers them about their present Products

Using one-on-one interviews and focus groups with surgeons and agents, Development II identified problems with current hip replacement designs. At one point, twenty orthopedic surgeons were invited to a ski resort in Idaho (Snowbird) for a weekend of skiing, and small groups of surgeons were interviewed in Painstorming sessions held during breakfast.

Phase 2: Conduct a Survey of Potential Customers. Quantify Irritation Level. Survey customers using ConSensor®. Ask them to rate their satisfaction with the issues or problems that were identified in the Painstorming Phase.

The results of the "Painstorming" sessions were synthesized by Development II into a questionnaire that was distributed to a wider array of Orthopedic Surgeons.

Concurrently, 150 orthopedic surgeons were recruited to form an Orthopedic Surgeon Survey Panel (OSSP) to participate in a ConSensor® Internet survey. In recruiting this panel, an attempt was made to represent the US orthopedic community with regards to the number of procedures performed per year, practice type (e.g., solo practice, group practice), practice location (New England, Southwest, etc.), and surgeon age. OSSP surgeons agreed to join the panel and complete on-line surveys for a small honorarium. As an added benefit, once this OSSP was formed, the surgeons became available for additional, future survey sessions.

Phase 3: Analyze the Results of the Survey. Derive Customer Priorities Using QuantaMetrics® 1 (State of the art Neural Networks), derive the "hidden persuaders" that really determine priorities.

While the results of the analysis are client confidential, listed below are a couple of key factors that the orthopedic surgeons pinpointed as irritants, issues and major problems with the then, available Acetabular Systems.

- 1.) The Acetabular Shell that fits into the hip socket opening had pre-drilled holes for attaching to the patient's bones. These pre-drilled holes were designed as a "one-size-fits-all", which it did not. Most of the time, these pre-designated openings did not line up with healthy, solid bone structure.
- 2.) Some Acetabular Shells had too many holes, set there to accommodate the numerous human body shapes undergoing surgery. These proved too flexible to be of use.

Phase 4: Present the Results to the Design Team. Solve Customer Problems Using "BrainNet" Expertise with a team of creative individuals to provide design concepts that solve or eliminate the high-priority problems.

In the specific case of the Acetabular (hip) replacement system, an internal team of experts was used as the "BrainNet" team. Development II presented the results of the survey, the analysis, and the key drivers of the US the Orthopedic Surgeon community. Sulzer's internal experts, lead by Development II, developed several solutions to alleviate the problems identified by the survey participants.

Phase 5: Build Prototypes. Develop actual prototypes, or simulation of prototypes, to validate the results of the design process.

Based upon the specifications outlined by the internal "BrainNet" team, Sulzer's R&D and engineering groups developed several variations on the same theme. One of the best concepts was an Acetabular Shell developed with no pre-drilled holes in the design. Instead, there were many areas designed as "knock-out" holes. As the surgeon aligned the Acetabular Shell with the patient's hip cavity, the surgeon could instantaneously make the decision which, and how many, holes to open up, in order to screw into health bone. This approach allowed Sulzer to minimize their inventory, while allowing the surgeons' maximum choice (and subsequent success) during surgery.

Phase 6: Conduct a Concept Test to Determine Customer Acceptance. Test Solution Effectiveness with Experts from your customers to assess how well the prototypes solve the high-priority items.

Once the prototypes were produced, Sulzer set them in front of a group of Orthopedic Surgeons, asked for comments, took the recommendations back to the prototype lab and incorporated them into the new designs. Specifically these surgeons were asked how well the prototypes solved the high priority issues. After several iterations, an acceptable product was sent to production.

Phase 7: Commercialization

This Acetabular System has been a very successful product for Sulzer.

Footnote 1: ConSensor®, QuantaMetrics®, and BrainNet are proprietary tools used by Development II.