

QFDcapture CASE STUDIES

The following Case Studies describe projects which have been successfully completed by customers of International TechneGroup Incorporated using the QFD process along with QFDcapture™ software. Each case study describes the nature of the problem being solved and the results that were achieved.

Problem: **Need to Stay At the Front End of the Market**

Product: **Dental Instrument**

Issue: How can we stay at the front of the market?

Approach: Used QFD methods to establish the design requirements and ensure that they were correctly implemented. Used QFDcapture to capture, manage, and analyze the data.

Problem: **Need a Tool to Track All Requirements Through Implementation**

Product: **Micro-Electronics Chips**

Issue: How can we ensure that we do not forget something as we move forward in the design process?

Approach: Used QFD methods to establish a huge list of design requirements and track them through implementation. Used QFDcapture to capture, manage, analyze the data.

Result: New product was very successful. QFDcapture allowed the team to efficiently manage all of the QFD data used in the project. A great deal of time was saved.

Problem: **Need to Decide Area of Product Emphasis**

Product: **Software Package**

Issue: Should we emphasize development of our technical capabilities or improve the ease of use?

Approach: Used QFD methods to capture customer requirements. Included an in-depth analysis of competitive products. Used QFDcapture to capture, manage,

analyze the data.

Result: The results caused the team to change product development direction. QFDcapture's analysis and calculation capability helped the team identify some problems with an early version of the matrix and prioritize the data correctly.

Problem: **Need to Identify Needs and Wants of Internal Business Unit Customers**

Product: **Internal Sales & Marketing Organization**

Issue: What should an internal Sales & Marketing organization do to satisfy its business unit customers?

Approach: Each business unit was treated as a customer. The list of requirements was prioritized taking the input from each business into account. These were then converted into prioritized Sales & Marketing actions.

Result: The correct focus of the Sales & Marketing organization was established. Used multiple customer capability of QFDcapture. Also used QFDcapture's analysis capabilities to identify synergy and conflicts between business units.

Problem: **Need to See If There is a Market for Products Using a New Technology**

Product: **Production Using New Technology**

Issue: Can we build a business case for more development with this technology?

Approach: Capture customer requirements. Prioritize requirements based on relative importance to customers and competitive perceptions of performance. Look at both direct and indirect competitors. Then develop a complete product specification.

Result: QFDcapture's analysis capabilities were used to show that the only areas where the new technology had advantages were in areas which are not important to the customer. Stop development unless we can overcome the problems which are inherent in the technology.

Problem: **Need Way to Do a Pre-production Requirements Check**

Product: **Multi-Laminate Molded Part**

Issue: Have we considered everything given that we are ready to start

production?

Approach: Develop a special roadmap for QFD since some requirements are satisfied by the product and other requirements are satisfied directly by the manufacturing process.

Result: QFDcapture's calculation capabilities were used to correctly handle partial satisfaction of requirements by both the product characteristics and the process characteristics.

Problem: **Service Connection and Billing Cycle Time Were Too Long**

Product: **Telecommunications Services**

Situation: A major telecommunications company found that it had tremendous problems with its Service Activation process. A huge percentage of its connection fees was not billed in a timely fashion resulting in an estimated 20 to 25 percent lower revenue than possible. It also took far too long to make the connections. Employees and customers were all unhappy with the current process.

Approach: They decided to solve the problem by using QFD to define how the process should be configured to best satisfy its customers. Market research was performed to determine what the consumers wanted from the Service Activation process. Critical process characteristics were then defined using a cross-functional project team. The critical process characteristics were benchmarked at non-competing telecommunications companies to determine "Best in Class" performance. Their own process was also benchmarked against these parameters to determine their own performance levels. Actions necessary to move the critical process characteristics from their current levels to the required level of performance were then established and assigned for implementation.

This process took them a total of seven team days. They also spent a significant amount of time gathering the benchmark data from the different companies.

Results: As a result of this project, the service activation time dropped to under the desired target. They were also able to reduce the unbilled revenue to almost nothing. Preliminary indications show that both the customers and the providers are going to be much happier with the new process.

Problem: **Need Product Differentiation and Need to Reduce Development Cycle Time**

Product: **Agricultural Implements**

Situation: An Agricultural Implements manufacturer was struggling with implementing Concurrent Engineering to reduce development time and cost. They also faced serious product differentiation problems because they were often perceived as a "me too" vendor and were forced to differentiate themselves mostly on price. The product being developed would be produced at fairly low volumes so they could not afford to "do things in a big way."

Approach: They decided to try to implement Concurrent Engineering using Quality Function Deployment (QFD) as one of the main drivers. Prior to starting the project, the Marketing organization spent a considerable amount of time meeting with users and dealers to understand their requirements and the relative importance of each requirement. They also had spent a lot of time understanding how the competitors' products were perceived by discussing their performance with dealers and customers they shared with the competitors. They came to the meeting prepared to represent the Customers' interests on the team.

The cross-functional team was complete with good representation from Marketing, Finance, Development, Manufacturing, and Quality. The people on the team were the company's experts in each of their areas.

User Spoken/Excitement Requirements, Basic Expectations, and Operations Requirements were analyzed and converted into Key Performance Indicators which would help the development team predict whether their design would be successful at addressing their customers wants and needs. They also used these Key Performance Indicators as selection criteria which enabled them to select a design concept which would satisfy all of the requirements as cost-effectively as possible.

This process took them a total of five team days.

Results: As a result of this project, the product was ready for production in 12 months instead of the normal 18 months for a product of this type. The company has now adopted QFD as a fundamental part of their product development process.

Problem: **Need To Recruit and Keep Employees**

Product: **Petrochemicals**

Situation: A major petrochemical company was having a very difficult time recruiting and keeping top graduate students. They needed to solve the problem because the company was becoming very top-heavy as talented employees with 3 to 8 years of experience were rapidly leaving. This left a large experience gap between the current managers and those who would soon be forced to replace them.

Approach: They decided to address this situation using a two step QFD

process. They would first identify the type of people that the company was interested in hiring. They would then go to these people and determine what the company would have to do to keep these types of people happy with the company.

Internal research was performed to determine what the organization was looking for in entry-level employees with good long-term potential. This list of desired employee characteristics was converted, using QFD, into measurable evidence which a recruiter could look for in a potential employee.

External research was then performed with students which could provide evidence that they had the desired characteristics. A prioritized list of what they wanted in an employer was developed. This list was then converted, using QFD, into measurable employer characteristics. Actions were taken to start transforming the company from its current way of treating employees to the configuration which is expected to yield the desired results.

Results: While it is still early to determine whether the graduates hired using the guidelines will stay with the company longer than their predecessors, the feeling is that they will. The company is also having much greater recruiting success because they have a solid set of measures which they can look to as evidence of the potential employees' long-term success within the company.

Problem: **Need Reliable and Easy to Administer Test**

Product: **Pharmaceuticals**

Situation: A major pharmaceutical company wanted to develop a new test for a highly contagious illness which would be easier to administer, more reliable, and more specific to particular strains of the disease. They also wanted to do this in a "patient-friendly" way.

Approach: They decided to apply QFD since many of the desired benefits of the test went well beyond the clinical requirements (does the patient have the disease?) and dealt with usage, cost, safety, and business issues. They developed patient, technician, business, and operations matrices. These matrices were used to develop a comprehensive list of test characteristics for which target values could be established. These Characteristics were then used as selection criteria to choose between approximately 10 alternative ways of implementing the test.

Results: The new test is now in clinical evaluation. The development was much more straight forward than the typical diagnostic test. When it actually hits the market, it will be much better than the tests which it replaces. The company expects it to be a terrific success.

Problem: **Need to Upgrade Product Due to Changing Customer Needs**

Product: **Medical Implements**

Situation: A major supplier of medical implements needed to upgrade one of its products because of recent improvements in associated medications, an increased level of use, and for better infection control. They found they were losing business because their competitors were already a generation ahead of their current product.

Approach: The team decided to use QFD in order to better understand customer wants and needs. This data was gathered through numerous one on one interviews with their medical users. This really opened their eyes. They could easily tell, even this early in the project, that a product concept which had been mandated by management would not satisfy the customers. They decided to continue following the process and see where it led.

Only after completing the product-level QFD matrices, did they identify the alternative design concepts. These were documented, using CAD, to a level which allowed them to choose one alternative as being clearly better than the others at satisfying the customer requirements in a cost effective way. The selected concept was significantly better than anyone had conceptualized before the study. It was truly a breakthrough.

Results: The project was completed significantly faster than any previous, similar project. They were able to re-orient management's pre-conception of the product because they could prove that the selected product concept would satisfy all of the requirements whereas the management concept would not. Finally, the project manager states, "The new product was a revolutionary advancement in the existing technology. This breakthrough was largely due to the insight obtained by the project team as part of the QFD process." They credit the process with a lot of their success!

Problem: **Need to Differentiate from Competitors**

Product: **Banking Services**

Situation: A major bank was struggling with how to differentiate itself from its many competitors in a particular market segment. They wanted to either change the way they were performing their current business or add an innovative new service which would be difficult for their competitors to copy.

Approach: The team, consisting of the regional manager and his direct reports, was brought together to define in strategic terms what direction their bank should go. Market research was performed and a number of niches were identified which wanted very specialized services.

After a particularly attractive niche was selected, the team used QFD to convert the benefits desired by the customers into measurable characteristics of a service offering. Alternative services were brainstormed using a structured brainstorming process. These concepts were defined in enough detail that they could be objectively analyzed. The team used the characteristics of the service offering to select the concept that would best satisfy the user and business requirements.

Results: The team was able to identify, define, and develop a brand new concept in personal banking. While the bottom-line results are not yet available, the team expects the new service to be a dramatic success.

Problem: **Need a Tool to Make and Document Design Decisions for ISO 9000**

Product: **Manufactured Products**

Situation: A major manufacturer was seeking ISO 9000 registration. They needed to be able to document compliance with Section 4.4 of ISO 9001.

Approach: They decided that since QFD would allow them to specify product and process specific characteristics which would address each of the requirements requested by the customers, it would be an ideal way of making, and documenting, their design decisions.

Each product development team is now expected to use QFD to define the product. The QFD matrices form a critical design document and are placed under design control. Rigorous reviews are in place to ensure that the QFD matrices are actually developed appropriately and not just created in order to get past a design hurdle. The company has also done a significant amount of training to ensure that the QFD process is integrated into the development process so it is not viewed as an extra, time-consuming step.

Results: The company has not yet obtained the desired ISO certification, but they are confident that they can provide the required documentation. The development teams are also excited about how this process forces them to communicate across their traditional functional organization.

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