

Case Study:

Making Air Conditioning Sustainable



Reducing your footprint

Shinwa Controls, a Japanese leader in temperature control technologies, turned to Goldfire to reduce their product footprint by 50%.



The Challenge: In a quick moving and competitive environment, Shinwa Controls needed to develop a more sustainable product, but do it fast.

The Issues: Finding and effectively using the know-how of individuals in years past made engineering difficult and time consuming. Alternatively, innovating an entirely new product development process seemed time consuming and difficult.

The Results: Shinwa Controls used Goldfire to research and innovate their product as well as their own internal processes – ultimately able to downsize their air conditioning equipment by 50%, cut power consumption by two thirds, and reduce previous assembly time by 15%.



Where did they start?

Shinwa Controls knew the importance of listening to and advancing on what their customers were asking for. What they heard was a need from the consumer for lower equipment prices, higher control precisions, and greater functionality. To do this, Shinwa knew they needed to take a step back and look at their own processes. How does a company shorten the time to market on new products? How do you avoid losing valuable insights and knowledge when engineers leave the company or retire? As they were thinking through the best way to reinvigorate their processes, Shinwa heard that IDEA Inc, a leading TRIZ-based product development firm had helped many Japanese manufacturing companies update their development methods. Takuji Yamamoto, deputy general manager at Shinwa, decided to apply IDEA's methodology and Goldfire into their own business – specifically as the tool to hit their goal of downsizing equipment by 50%.



The Solution

Downsizing by half was an aggressive goal, and was doubted by more than a few. Here's how they used Goldfire to get there:

Identify the causes of the current size of equipment

 They used Goldfire to do function modeling and cause-effect analysis to break the system down into it's components and understand the interactions between each part

Identify possible problem areas

- Goldfire then helped the Shinwa team identify problem areas and use cause-effect analysis to understand what was happening.
- The main issue the team saw was in their piping – because of its need to be strong, the piping was large and space consuming when bent.

Ideate Solutions

 Goldfire's inventive principles helped the team think of root-cause solution to downsize the piping. Together, they came up with over 300 ideas that while simple, were beyond fixed perception.

"It was not like one extreme idea suddenly appears in our mind to solve our problem. Instead, we piled up many modest ideas such as changing component layouts and removing unnecessary features, which finally led us to the achievement of our goal. But this project freed us from our perceptions (past experience and common sense) as we had built up in ourselves as engineers, and helped us feel that we could push our engineering ability and creativity much further".



The Results

Shinwa Controls realized their goal of developing new air conditioning equipment with a 50% downsize – but along the way, they also found that doing so cut power consumption by two thirds, and shortened the time to assemble the equipment by 15%.

Today, they continue to use Goldifre and QFD-TRIZ methodology for development projects on solenoid and motor valves.





Reduce business risk. Engineer sustainably.

7

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