



## Tutorial

# Problem reframing for innovative problem-solving: system transfer and causal analysis

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## Speaker Biography:

Daniel has 9 years of industrial experience primarily in the electronic industries with Hewlett-Packard, Motorola, and Matsushita prior to joining National Tsing Hua University as a professor where he served for 23 years. He is Professor Emeritus of National Tsing Hua University and a Visiting Professor at Shanghai Jiao Tong University. Professor Sheu is the President of International Society of Innovation, Editor-in-chief of International Journal of Systematic Innovation, Area editor of Computers & Industrial Engineering in Engineering Design and Innovation Methods. He has expert knowledge in systematic Innovation including TRIZ. He has developed more than 20 new TRIZ<sup>++</sup> tools. Daniel has taught/facilitated more than 100 sessions of industry training/consulting courses in more than 70 companies. He is a certified TRIZ Expert in Training and problem-solving consultation. Daniel Conducted 24 national/cross-strait conferences and 9 international conferences in the areas related to systematic innovation/Manufacturing Engineering. He has been invited to deliver keynote/plenary speeches 12 times in international conferences and 15 times in national conferences. Daniel published 44 peer reviewed journal papers, 174 conference papers, authored 11 books, and translated 4 books. Daniel holds 10 patents from Taiwan, China, and USA.

## Abstract

Many people solve a problem from where the symptom is or the problem occurred. Well trained problem solver would find out the cause effect chain of the problem and solve the problem from the root causes of the problem. A third and much more innovative problem solving approach is not to deal with where the problem is or is caused but to deal with a location which is seeming unrelated to the problem and solve the problem more elegantly at that seemingly unrelated location. This is called **system transfer**: transferring the issue of a problem to a seemingly unrelated place and resolve the transformed issue at that place.

This tutorial presents a systematic method for problem reframing in order to identify a variety of different issues to solve the existing problem. This process can expand the original problem into different hierarchies, and integrates the concept of system transfer and causal analysis in the problem hierarchy. The process helps problem solvers break psychological inertia to reframe and refocus the problem to identify different problems to solve and the original problem may be solved more effectively. It can also be used in identifying innovative products for development. Besides multiple illustrations of the problem reframing techniques, hands-on exercises will also be given to help the participant appreciate the thinking methods which will be very useful in seeing the whole scope of related problems and select best place to solve the problem.