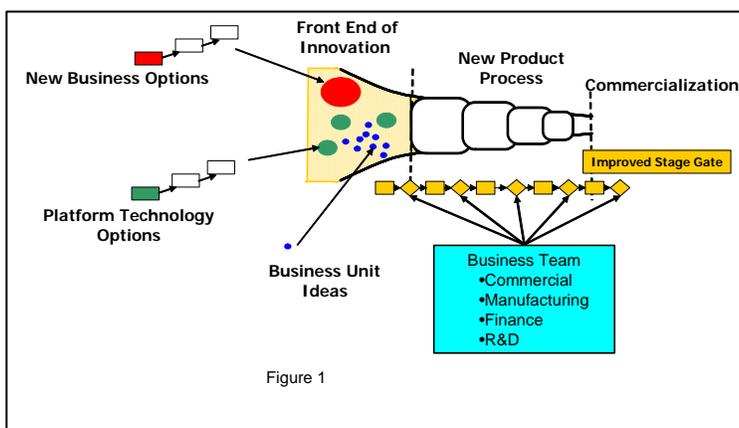


# Structured Innovation Empowered by TRIZ

## The Innovation Dilemma

Most companies today face an innovation dilemma. The world has become intensely competitive. China, Mexico, and other countries have much cheaper labor costs. Raw material costs are lower in the Middle East, China, South America and other areas. And recently, professional jobs are being outsourced to India and other Asian and Southeast Asian countries. American firms can no longer simply rely on existing technology to provide a low cost position. It is necessary to be innovative. Innovation is the key driver of competitive advantage, growth, and profitability. There are many parts to the whole field of innovation: Business innovation, marketing innovation, organizational innovation, open innovation, process innovation, product innovation, strategy innovation, technology innovation, suggestion systems, etc.

Much time has been devoted to developing ways to manage the innovation process but little has been done to develop more reliable and systematic innovation methods. The typical state-of-the-art innovation management process is shown in Figure 1. Ideas are generated from a number of sources. The marketing and sales organization interacts with customers on a regular



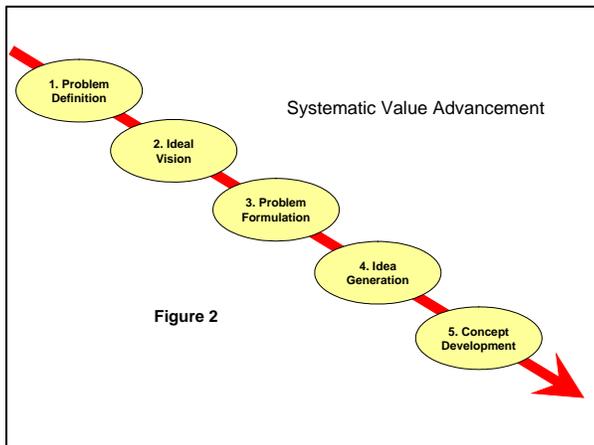
basis, and gain insight into customer behavior and needs. Manufacturing personnel operate the plants and identify opportunities to improve performance or reduce costs. Many of these ideas are very good and some of them are essential to survival, but they are often incremental in scope and do not offer sustainable differentiation. Platform technologies are those existing technologies used to manufacture products or deliver services. R&D and Engineering groups are well schooled in

these platform technologies. Ideas derived from platform technologies can offer larger profit impact, but they often require extensive research commitments, and require a long time to commercialize. Finally, there are new business options. Mergers and acquisitions create opportunities for innovation, but the investment is often very significant and the risks considerable. This is the so-called “fuzzy front end” (FFE) of innovation. The problem we face in the FFE is twofold. First, we must be able to generate a lot of good ideas in a short period of time, and second, we must select only those ideas which have a high probability of success.

Once the selection process is complete, we must effectively manage the development process. Stage gate methods are commonly used here. A cross functional business team consisting of management representatives from the Commercial, Manufacturing, Finance, R&D, Legal and other functions are assigned responsibility for shepherding projects through to commercialization. It is important that they not only move projects along, but also that they kill projects that run into insurmountable road blocks. Every organization has limited resources and spreading these resources too thinly, over a large number of projects usually results in a little bit of progress being made on a lot of fronts, but no projects brought through the process to commercial success.

# Pretium Consulting Services (PCS) Value Based TRIZ Methods

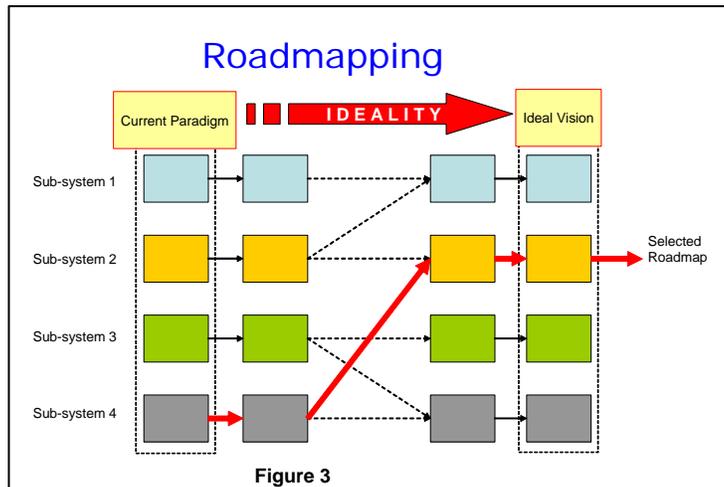
## Systematic Value Advancement (SVA) Process



Pretium's SVA process is based largely on TRIZ principles, but it also incorporates best practices from Six Sigma, Brainstorming, Value Engineering, Function Analysis System Technique (FAST) and other well established problem solving techniques. The SVA process has five steps as shown in Figure 2. Pretium brings three (3) essential resources together to execute the SVA process: TRIZ Master(s) from Pretium, Facilitator(s) from Pretium and Subject Matter Experts from the client. The combination of these resources and using a structured innovation process such as SVA produces three to ten times the number of out-of-

the-box ideas than traditional brainstorming methods.

## Pretium's Structured TRIZ Roadmapping Process



The SVA process is a very useful and powerful problem solving method. However, it is based upon existing systems and the useful and harmful functions that comprise the system. This means that SVA is limited to developing the next generation of product or service. In order to develop a business or Intellectual Property (IP) strategy that is far reaching, we must be able to identify how a system is likely to evolve. To accomplish this, Pretium utilizes the primary TRIZ postulate: *Technological systems evolve not randomly, but*

*according to objective patterns.* Based on these evolutionary patterns, Pretium's Roadmapping process (Figure 3) facilitates the development of fact-based scenarios which become the basis for strategy development. Mere extrapolations of the past tend to develop strategies that are short lived. The evolutionary patterns which form the basis of Roadmapping are abstract patterns that have been revealed from an exhaustive analysis of the patent fund to identify evolutionary patterns that are broadly applicable.

"Every organization - not just business - needs one core competence: innovation"  
- Peter F. Drucker

"73 percent of companies worldwide will increase spending on innovation in 2005, up from 64 percent in 2004. In addition, more than 90 percent said that generating growth through innovation has become essential for success in their industry."

- Boston Consulting Group (BCG)



## **Senior Leadership**

### **Dr. David Bonner - Managing Partner - Pretium Consulting Services**

Senior technology and engineering executive with broad global experience in both public and private organizations. Demonstrated ability to set strategy, create change, and operate business units with full P&L responsibility. Dr. Bonner has been a pioneer in the application of TRIZ technology in the chemical industry, and is skilled in leading innovation teams, developing new products, negotiating and managing licenses, joint ventures, and all Intellectual Property (IP) matters. Dr. Bonner most recently was President / COO of Ideation International, has been Vice President & Chief Technology Officer at Cabot Corporation, Global Director of Technology at Rohm & Haas; Vice President Research & Development, The Chao Group International; Vice President Research & Development, Premix, Inc; and Vice President Research & Development, B. F. Goodrich Company. Dr. Bonner holds a PhD, from the University of California, Berkeley - Chemical Engineering, M.S, University of Texas, Austin - Chemical Engineering, B.S, University of Texas, Austin, - Chemical Engineering.

### **Pete Hanik - Managing Partner - Pretium Consulting Services**

Mr. Hanik has an extensive management background in many disciplines including general management, research & development, manufacturing, information technology, e-business, quality, and health-safety-environmental. Strong and effective leader able to establish vision and strategy and build consensus across functions to achieve the organization's goals, as well as developing new products, negotiating and managing licenses, joint ventures, and all Intellectual Property (IP) matters. Mr. Hanik most recently was Senior Vice President of Ideation International, has held positions of Senior Vice President Technology, Millennium Chemicals; President and CEO, Millennium Petrochemicals; Vice President Chemicals & Supply Chain, Quantum Chemical; Vice President Reengineering and Information Systems, Quantum Chemical. Mr. Hanik holds a B.S. in Chemical Engineering from Illinois Institute of Technology and an MBA from the University of Chicago

## **Technology / Process Leadership**

### **Sergey Malkin – Vice President of Technology, Pretium Consulting Services**

Mr. Malkin is a well-known TRIZ Master, trained by the method's founder, Genrich Altshuller. He has more than 20 years experience in TRIZ application and implementation. Was one of the first in the world to combine and implement TRIZ & Value Engineering. He was most recently the Director of Software Development at Ideation International Inc, has held positions of CEO of Private Enterprise Eurotecton; Manager of TRIZ & VE Department, Foton Corp.

### **Len Kaplan – Managing Director, Outcompete (Strategic Partner)**

Mr. Kaplan is a well known and highly respected TRIZ Master, has 25 years experience in business process improvement across multiple industries, and has successfully managed more than 80 innovative projects. Len's expertise includes identifying, analyzing (modeling and operations research), scoping, forecasting, optimization and delivering quantifiable business value that is consistent with the client's revenue growing and strategic objectives. Before founding Outcompete, Len was a project manager for Ideation International.