NEW PRODUCTS MANAGEMENT

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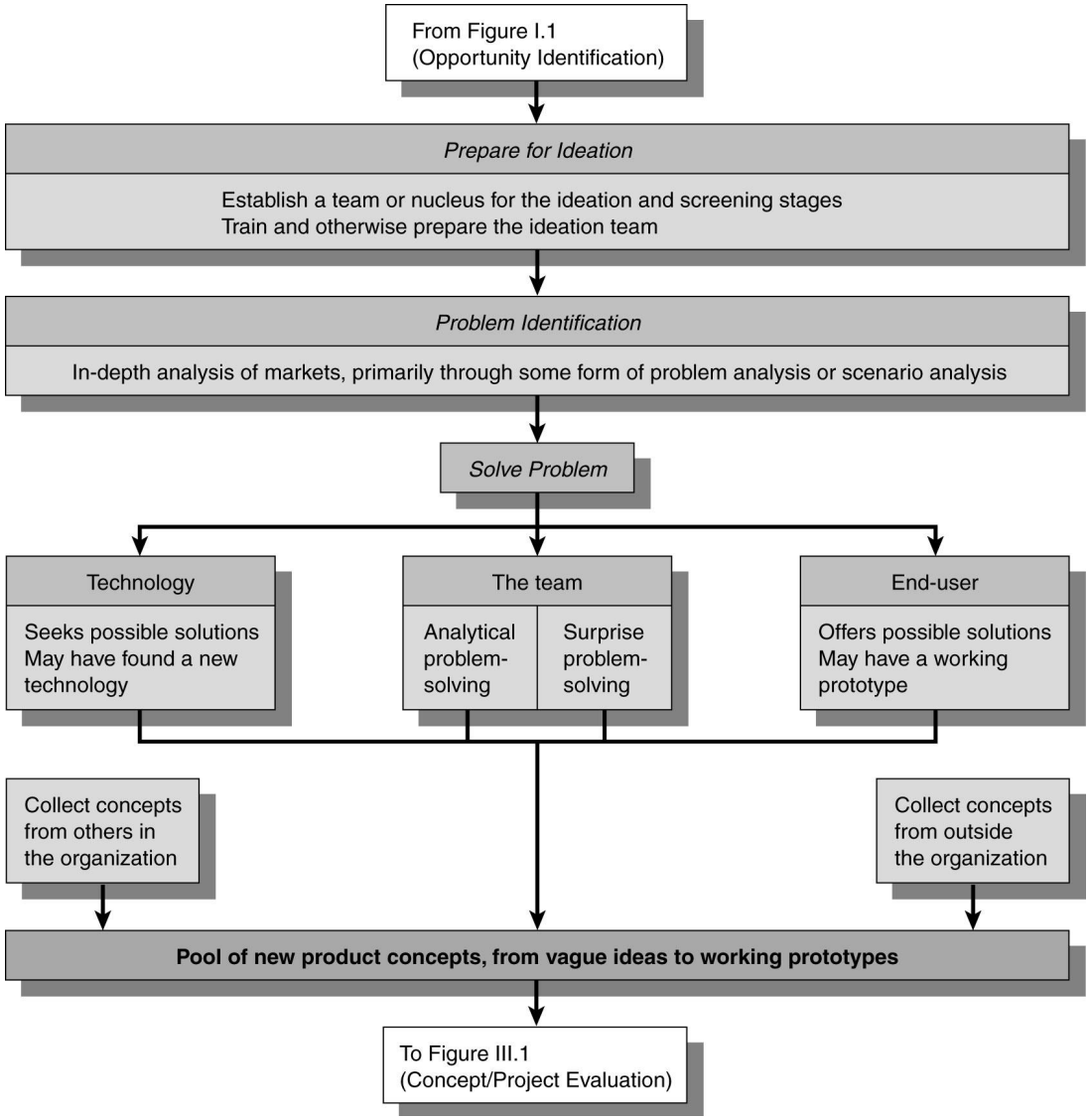
10th Edition

PART TWO

CONCEPT GENERATION

Concept Generation



Chapter 04
Creativity and the Product Concept

Genius Thinking Strategies

- *Geniuses find many different ways to look at a problem.* Einstein, for example, and da Vinci, were well known for looking at their problems from many different perspectives.
- *Geniuses make their thoughts visible.* Da Vinci's famous sketches, and Galileo's diagrams of the planets, allowed them to display information visibly rather than relying strictly on mathematical analysis.
- *Geniuses produce.* Thomas Edison had a quota of one invention every ten days. Mozart was among the most prolific composers over his short life.
- *Geniuses make novel combinations.* Einstein found the relationship between energy, mass, and the speed of light (the equation $E=mc^2$).
- *Geniuses force relationships.* They can make connections where others cannot. Kekule dreamed of a snake biting its tail, immediately suggesting to him that the shape of the molecule he was studying (benzene) was circular.
- *Geniuses think in opposites.* This will often suggest a new point of view. Physicist Neils Bohr conceived of light as being both a wave and a particle.
- *Geniuses think metaphorically.* Bell thought of a membrane moving steel, and its similarity to the construction of the ear; this led to the development of the telephone earpiece.
- *Geniuses prepare themselves for chance.* Fleming was not the first to see mold forming on a culture, but was the first to investigate the mold, which eventually led to the discovery of penicillin.

Source: Michael Michalko, "Thinking Like a Genius," *The Futurist*, May 1998, pp. 21-25.

Historic Roadblocks to Creativity

"I think there is a world market for maybe five computers." ***Thomas Watson, Chair, IBM, 1943.***

"Computers in the future may weigh no more than 1.5 tons." ***Popular Mechanics, 1949.***

"I can assure you that data processing is a fad that won't last out the year." ***Business books editor, Prentice-Hall, 1957.***

"So we went to Atari and said, '...We'll give it to you. We just want to do it. Pay our salary, we'll come work for you.' And they said no. So then we went to HP, and they said 'We don't need you, you haven't got through college yet.'" ***Steve Jobs, co-founder, Apple Computers.***

"640K of RAM ought to be enough for anybody." ***Bill Gates, Microsoft, 1981.***

Historic Roadblocks to Creativity

"Who the hell wants to hear actors talk?" ***H.M. Warner, Warner Bros., 1927.***

"Stocks have reached what look to be a permanently high plateau." ***I. Fisher, Prof. of Economics, Yale, 1929.***

"We don't like their sound, and guitar music is on the way out." ***Dick Rowe, Decca Records executive, rejecting the Beatles' demo tape, 1962.***

"This 'telephone' has too many shortcomings to be seriously considered as a means of communication [and] is inherently of no value to us." ***Western Union, 1876.***

"Heavier-than-air flying machines are impossible." ***Lord Kelvin, President, Royal Society, 1895.***

"Everything that can be invented has been invented." ***C. H. Duell, Commissioner, U.S. Office of Patents, 1899.***

Obstacles to Idea Generation

- Group think: We think we are being creative, when in reality we are only coming up with ideas that our group will find acceptable.
- Targeting error: We keep going back to the same simple demographic targets (for example, the under-35 or under-50 markets.
- Poor customer knowledge: Lavish research spending doesn't guarantee that customer research was done well.
- Complexity: Creative types within organizations, as well as senior management, often think that the more complex the idea, the better it is (or the smarter and more promotable they seem).
- Lack of empathy: These same managers are also well-educated, high-income individuals accustomed to an upscale lifestyle. They may simply not understand the "typical" customer.
- Too many cooks: A small new product team works fine, but large companies especially are prone to internal competition for power and influence.

Source: Jerry W. Thomas, "In Tough Times, "Hyper-Creatives" Provide an Advantage," *Visions*, 33(3), October 2009, 24-26.

Barriers to Firm Creativity

- *Cross-functional diversity:* Diversity leads to more creative stimulation but also to problem solving difficulties.
- *Allegiance to functional areas:* Team members need to have a stake in the team's success, or won't be loyal to the team.
- *Social cohesion:* If interpersonal ties among team members are too strong, candid debate may not occur, resulting in less innovative ideas.
- *Role of top management:* Management should encourage the teams to be adventurous, otherwise only incremental changes will occur.

The Role of Management in Stimulating Creativity

- Recognize individuality
- Be tolerant of mistakes
- Be supportive under stress
- Techniques include:
  - Competitive teams
  - Idea bank of unused ideas for possible reuse
  - Encourage interaction – even in how offices are laid out

Required Inputs to the Creation Process

- *Form* (the physical thing created, or, for a service, the set of steps by which the service will be created)
- *Technology* (the source by which the form is to be attained)
- *Benefit/Need* (benefit to the customer for which the customer sees a need or desire)

Technology permits us to develop a *form* that provides the *benefit*.

Some Patterns in Concept Generation

Customer need firm develops technology produces form

Firm develops technology finds match to need in a customer segment produces form

Firm envisions form develops technology to product form tests with customer to see what benefits are delivered

Note: the innovation process can start with any of the three inputs.

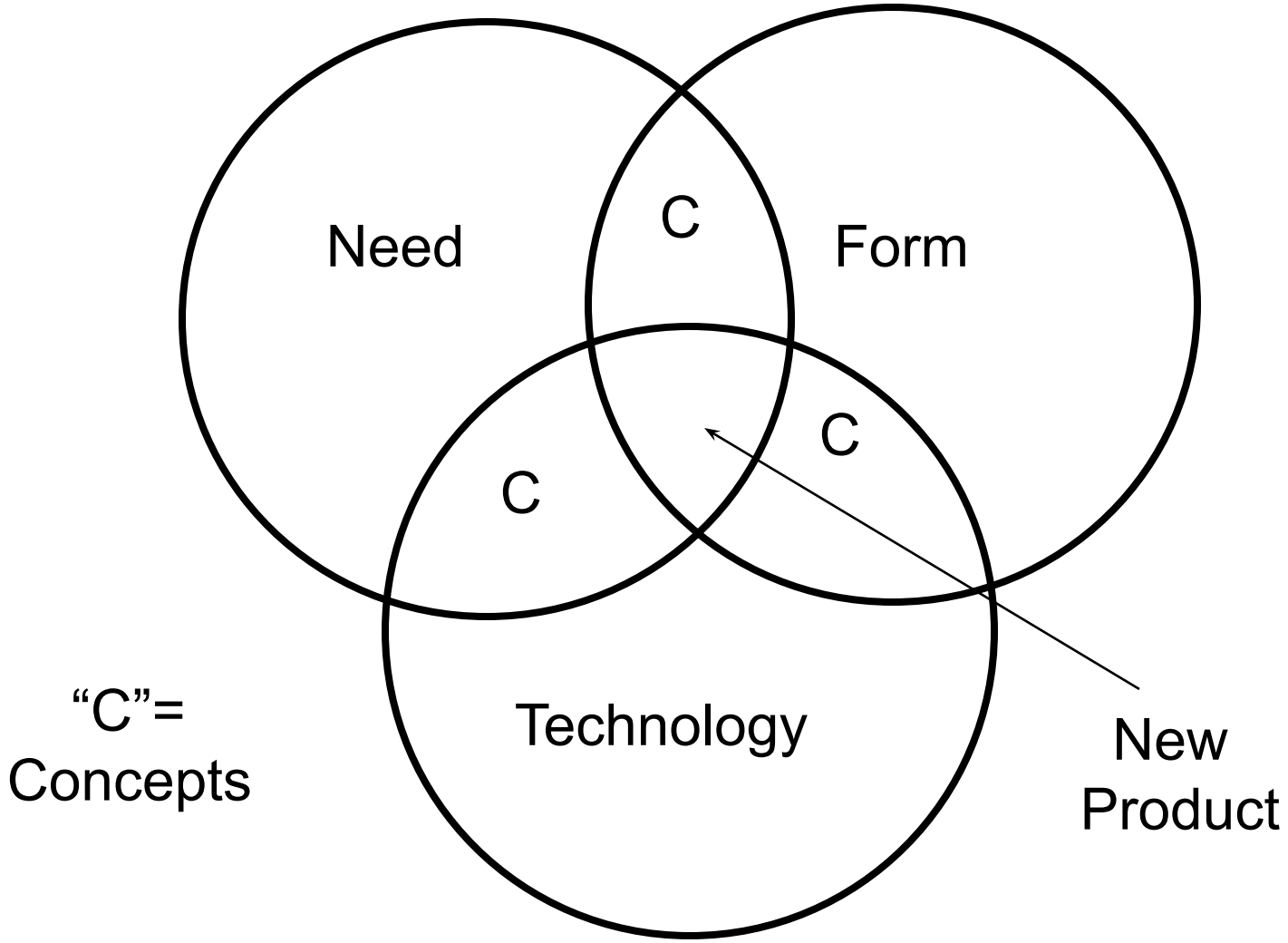
What is a Product Concept?

- A product concept is a verbal or prototype statement of what is going to be changed *and* how the customer stands to gain or lose.
- Rule: You need *at least two* of the three inputs to have a feasible new product concept, and *all three* to have a new product.

Why Do You Need a Product Concept and Not Just an Idea?

- Needed to judge whether it is worthy of development
- Potential customers do not have enough information to judge the worthiness of an idea: the product concept gives them the required information.
- Ex.: Would a taxi operator like cars with a 10 cents per mile operating cost? (need)
  - Not if it used Caterpillar tractor technology instead of wheels! (need plus technology)

New Product Concepts and the New Product



The Designer Decaf Example

- *Benefit:* "Consumers want decaffeinated espresso that tastes identical to regular."
- *Form:* "We should make a darker, thicker, Turkish-coffee-like espresso."
- *Technology:* "There's a new chemical extraction process that isolates and separates chemicals from foods; maybe we can use that for decaffeinating espresso coffee."

Why would each of these taken individually not be a product concept?

The Toilet Brush Example

- Idea: A new and improved toilet brush.
- Concept: A toilet brush that contains detergent, refillable, and easy for the customer to attach to the handle.
- Product (executions of this concept):
  - Lysol Ready Brush
  - Scrubbing Bubbles Fresh Brush
  - Clorox Toilet Wand
  - Others?

What a Concept Is and Is Not

IS: “Learning needs of computer users can be met by using online systems to let them see training CDs on the leading software packages.” (good concept; need and technology clear)

IS NOT: “A new way to solve the in-home training or educational needs of PC users.” (need only; actually more like a wish)

IS NOT: “Let’s develop a new line of instructional CDs.” (technology only, lacking market need and form)

Methods for Generating Product Concepts

Two Broad Categories of Methods:

- Gathering Ready-Made Product Concepts
- Using a Managed Process Run by the New Products Team

Best Sources of Ready-Made New Product Concepts

- New Products Employees
  - Technical: R&D, engineering, design
  - Marketing and manufacturing
- End Users
  - Lead Users
- Resellers, Suppliers, Vendors
- Competitors
- The Invention Industry (investors, etc.)
- Idea exploration firms and consulting engineers
- Miscellaneous (continued)

Best Sources of Ready-Made New Product Concepts (continued)

- Miscellaneous Categories
  - Consultants
  - Advertising agencies
  - Marketing research firms
  - Retired product specialists
  - Industrial designers
  - Other manufacturers
  - Universities
  - Research laboratories
  - Governments
  - Printed sources
  - International
  - Internet

Crowdsourcing as a Creative Source

- Crowdsourcing: open idea solicitation from customers.
- Dell's Idea Storm: encouraged customers to submit ideas for new products and improvements to existing products online. Over 10,000 ideas were obtained from sources around the world.
- Apple used crowdsourcing in generating ideas for the iPad. Apple monitored reviews and blogs and also obtained Voice of the Customer data to understand the needs of potential users.
- Fiat solicited design ideas via their website when relaunching the 500 subcompact, and claims 500,000 combinations.

Lead Users as a Creative Source

- An important source of new product ideas.
- Customers associated with a significant current trend.
- They have the best understanding of the problems faced, and can gain from solutions to these problems.
- In many cases, have already begun to solve their own problems, or can work with product developers to anticipate the next problem in the future.
- Example: X-Games athletes for new high-performance snowboards.
  - They provide design requirements and also are early adopters and good at stimulating word-of-mouth.

Toolkits for User Innovation

- A set of design tools that customers can use to customize a product best suited to them.
- Can incorporate CAD/CAM or rapid prototyping.
- Example: International Flavors and Fragrances: Internet-based toolkit that provides a database of flavor profiles and rules on how to combine them. Customer can specify flavor mixes that are immediately made into samples; customer can then make adjustments until the desired flavor is obtained.

Open Innovation

- The process by which a firm searches for research, innovation, technologies, and products.
- Increases speed of research and innovation, cuts risks, and generates new innovative ideas.
- Viewed by some as the dominant innovation model of the 21st century.
- Inputs can come from internal sources (marketing, strategic planning) and external ones (customers, market information, etc.).
- Sources such as inventors, startup companies, or university laboratories are actively sought out.

Principles of Open Innovation

- Accept that “not all the smart people work for us.”
- Is both in- and out-bound: obtain knowhow technology, patents, etc.) from external partners, and also monetize technology (through licensing, sale, etc.) that is no longer consistent with corporate strategy.
- It is not outsourcing! The external sources are viewed as complementary to internal sources so that innovation can be more efficient.
- Selecting the best partners is critical, and mutual trust is important.

Open Innovation at Work: P&G

- P&G's "Connect and Develop" program, designed to allow for internal intellectual property to be marketed outside, spun off, or licensed.
- Avoids the "not invented here" syndrome.
- To execute Connect and Develop, P&G assigned a team to find external partners, build brand equity, access new technologies, and create new product categories.
- Examples:
  - SunHealth Solutions (a P&G partner) developed the UV sensing technology used in Huggies swimpants with UV sensors, that help parents monitor their child's exposure to UV radiation.
  - Mr. Clean scrubbing brush uses technology originally used as insulation in the auto industry.
  - Magic Eraser cleaning pad was sourced from a German chemicals company, and first noticed by P&G in use in Japan.

More Examples of Open Innovation

- Lego: Web forum, sites, and blogs for participants to share and improve products. Result: the on-line community was instrumental in the development of the LEGO robotics system.
- Philips: Specialized facility in Singapore ("the Innohub") that provides realistic environments for end users and product developers to work on breakthrough ideas.
- Some are completely online systems, like the Innocreative web community.