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Innovation Process

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Strategic Leadership and Change

Organizational Consulting

Alan Cay Culler
+1-973-744-4911
alan@alanculler.com

Why Innovate?

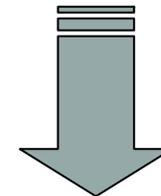
Partial List of Disruptive Events/Technologies 1990 - 2001

- The adoption of personal computing
- The collapse of communism
- The adoption of compact disc technology
- The globalization of capital markets
- Category killer retailing
- The adoption of the internet and growth of associated technologies and businesses
- The shift of resources to developing economies
- The growth of mobile telecommunications
- The Asian financial crisis
- The proliferation of email
- Global deregulation and privatization of nationalized industries



Competitors Are Responding

- Investment in technology
- Mergers and acquisitions
- Shortening product life cycles
- Strategic alliances and joint venture
- Team structures



**Creating an
Innovation
Imperative**

Innovation: Definition of Terms

- **Creativity:** The creation of new ideas or approaches to solving problems
- **Creative Process:** Described by Alex Osborn (*Applied Imagination*, 1966) as:
 - Immersion (systematic study of disparate but relevant information)
 - Gestation (a quiet period of reflection)
 - Idea Generation (using divergent thinking techniques such as “brainstorming” and “analogic comparison”)
 - Idea Selection (using convergent techniques such as “multi-voting” and “weighted criteria analysis”)
- **Innovation:** The implementation of new ideas, solutions to problems, or the creation of goals or services used by society
- **Innovation Process:** Described by Peter Drucker in *Innovation and Entrepreneurship* as:
 - Purposeful search for opportunity in environmental change and new knowledge
 - Start small, simple and focused, with planned application testing and prototyping
 - Disciplined implementation
 - Process and results measurement
- **Invention:** Defined in patent law as the fabrication of something new and useful not obvious to one skilled in the art
- **Technology:** Knowledge systematically applied to useful purposes (often driven by new inventions and discoveries, e.g., agrarian, mechanical/industrial, electronic, network)
- **Technological Innovation:** New knowledge implemented in the forms of solutions to problems or new goods and services

Characteristics of Innovation

- **Probabilistic:** Because the field of study is new, and often customer needs are not well established “wider networking becomes an imperative to increase the likelihood of finding a workable answer at all”
- **Complex:** “Few important innovations today are carried through by single individuals or within a single discipline...probabilities improve if teams have close to “best in the world” capabilities...[but] the most innovative organizations tend to operate in adhocracies that bring together groups of experts for short-term...disaggregated information intensive collaborations
- **Spurts, Delays and Setbacks:** Innovation is an unpredictable, time-consuming process. “Innovating organizations...find ways to break normal operating rules in order to ensure lateral interactions and stimulate exchanges with outside parties”
- **Intuition and Tacit Knowledge:** “Because innovations move so rapidly and because the sought-after result has never been achieved before, it is almost impossible to rely on codified explicit knowledge...successful innovation systems therefore tend to intrigue and frustrate innovators with intense needs and then release them into informal or unstructured circumstances where ... network interactions can take over”
- **Fanatics or Champions:** “Numerous studies note that educated fanatics or innovation champions are needed to overcome the frustrations, ambiguities, time delays and resistances inherent in the process...Given the high expertise other contributors have champions tend to lead with their own charisma...Champions emerge best in organizations that are flat and largely voluntary.”

Innovation Process



- Environmental Scan
 - Industry
 - Periphery
- Creative techniques
 - Brainstorm
 - Analogy
 - trends/scenarios
 - Value Chain analysis
- Vision
 - Stage/Gate
 - Real-Win-Worth
- Multiple
 - Small
 - Low-cost
- Start early
 - Start small
- Highest impact first
 - Manage adoption curve
- Set measures
 - Monitor
 - Improve
- Begin replacement early
 - use idea generation techniques

Balanced Focus:
Ideation and Implementation
Serendipitous and Systemic
Creativity and Results

Recent Writers on Innovation Theory

Organizational Theorist/Practitioner

- 1963 **Richard Cyert and James March**, *The Behavioral Theory of the Firm*: the occurrence of innovation follows adaptive organization learning behavior and is enhanced by integrative mechanisms
- 1982 **Thomas Peters and Bob Waterman**, *In Search of Excellence*: study of 43 excellent companies which have revenue and profit growth over a 20 year period, including growth from product and process innovation. Peters and Waterman discover several characteristics which drive innovation, including: autonomy and entrepreneurship, productivity through people, and simultaneously loose and tight properties (“they tolerate chaos in return for quick action and regular innovation”)
- 1982 **Rosabeth Moss Kanter**, *The Middle Manager as Innovator*: HBS
- 1985 *The Change Masters*: In depth study of five companies that correlated the free flow of information and predominantly horizontal network communication with high innovation success. Study of 115 innovative firms across multiple industries that have an “integrated approach to problems not walling off departments, functions, and products from each other like segmentalist companies”
- 1985 **Peter Drucker**, *Innovation and Entrepreneurship* describes the innovation process, sources of innovation and three absolute conditions for innovation: “1. Innovation requires knowledge and great ingenuity...talent. 2. Successful innovators build on their strengths...the more strengths you can access, the wider the range of opportunity you can access, but every company must focus on their best opportunities. 3. Innovation always has to be close to the market, focused on the market, market driven”

Recent Writers on Innovation Theory

Organizational Theorist/Practitioner

- 1986 **Richard Foster**, *The Innovation: The Attacker's Advantage* describes how market leaders are always reluctant to abandon the technologies which give them their success, demonstrates that the only companies that consistently do so build new skills through interactions with others outside (Corning's joint venture strategy) or inside with continual reorganization (IBM and Motorola)
- 1988 **Arie Y. Lewin**, *Research on Creative and Innovative Management* reports on the Minnesota Innovation Research Project which identified origins of innovation factors including formal vehicles for stimulation of random variability and availability of stock resources
- 1988 **George Freedman**, *The Pursuit of Innovation* identifies eight structures within which companies successfully innovate, and notes that most use multiple overlapping approaches often with the same people
- 1993 **James Brian Quinn**, *Intelligent Enterprise, Managing Innovation: Controlled Chaos* (HBR)
- 1997 **James Brian Quinn**, *Innovation Explosion* notes eight characteristics of innovating companies including multiple independent collaborations and circular interdependent organizations, postulates starburst and spider web organizations based upon information interactions
- 2000 **Gary Hamel**, *Leading the Revolution*, describes a model for imbedding radical, systemic business concept innovation into an organization. The model combines strategic thinking to become aware of discontinuities, design rules such as "an open market for ideas," and principles of individual and small group activism to make change happen. Hamel advocates that companies take a process and innovation portfolio management approach to "bring Silicon Valley inside"

Models of Corporate Innovation Structure

Model	Examples	Advantages	Disadvantages
Technology Center	<ul style="list-style-type: none"> General Motors, Warren Tech Center, GE Plastic Applications Center 	<ul style="list-style-type: none"> Technology applications focus, good for mature industries 	<ul style="list-style-type: none"> May not “push the envelope” enough
Research Centers	<ul style="list-style-type: none"> Xerox PARC, Bell Labs, Microsoft Corporate Research, Advanced Technology Group, Pfizer Control Research 	<ul style="list-style-type: none"> Examines next wave of technology 	<ul style="list-style-type: none"> May be out ahead of the market and have a low adaptation rate
Skunk Works	<ul style="list-style-type: none"> Lockheed Skunk Works, Apple MacIntosh Quansethut, Data General (as described in <i>Soul of the New Machine</i> by Tracey Kidder), Xerox East Rochester Operations (ERO) 	<ul style="list-style-type: none"> Single mission, fast, concentrated, new concepts, new products 	<ul style="list-style-type: none"> Products may be so revolutionary that it is rejected by sponsoring organization
Captive R&D	<ul style="list-style-type: none"> DuPont, Exxon, Kodak, Repligen 	<ul style="list-style-type: none"> Large companies R&D plays coordinator/ documentary role of centers, skunk works small company can be more self-contained 	<ul style="list-style-type: none"> Oriented toward bureaucracy
Entrepreneurial Venturing Processes	<ul style="list-style-type: none"> Charles Schwab, Enron, Royal Dutch Shell 	<ul style="list-style-type: none"> New idea generation; individual and small group ownership of innovation challenge 	<ul style="list-style-type: none"> Complex change management and disciplined process orientation required
Acquisitions Process	<ul style="list-style-type: none"> Cisco, GE Capital 	<ul style="list-style-type: none"> Build genetic diversity and entrepreneurial energy through acquisition and adaptation 	<ul style="list-style-type: none"> Requires skill in post merger integration and flexible culture

Models of Corporate Innovation Structure

Model	Examples	Advantages	Disadvantages
New Products Centers	<ul style="list-style-type: none"> • Ratheon, Raychem 	<ul style="list-style-type: none"> • Strong client focus • Strong product focus 	<ul style="list-style-type: none"> • Can create duplication in technology development
Internal Ventures Group	<ul style="list-style-type: none"> • Eastman Technology Inc., AT&T Ventures Group 	<ul style="list-style-type: none"> • Incubation like • Resource sharing • Protected funding 	<ul style="list-style-type: none"> • Adoption of innovation may be limited, parent may intervene in technology that is unfamiliar or may totally abdicate
External Teams and Consortia		<ul style="list-style-type: none"> • Single mission, easy to concentrate on new concepts, new products 	<ul style="list-style-type: none"> • May become technology driven with little real world applicability
External Ventures Group, Joint Ventures, Incubators	<ul style="list-style-type: none"> • Ciba Corning Diagnostics, Raytheon Ventures, Genecor 	<ul style="list-style-type: none"> • Can build new products, processes, and revenue streams 	<ul style="list-style-type: none"> • May inhibit internal innovation as talent moves start-up ventures, newco/ oldco divisiveness may inhibit adoption
Licensing Agreements	<ul style="list-style-type: none"> • MIT Technology and Licensing Office 	<ul style="list-style-type: none"> • Licensing in builds expertise; licensing out buys access to markets 	<ul style="list-style-type: none"> • Can weaken internal capability if not maintained or developed in parallel

Common Elements of All Successful Innovation Structures

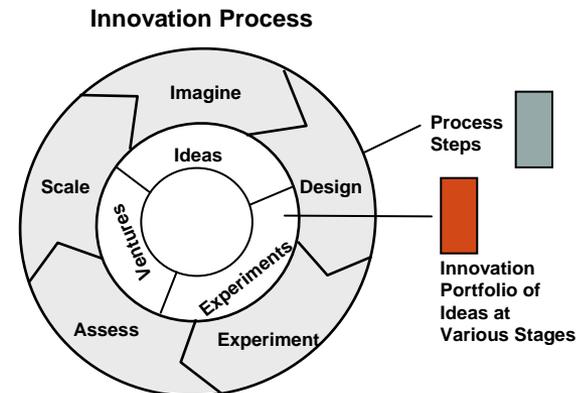
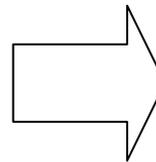
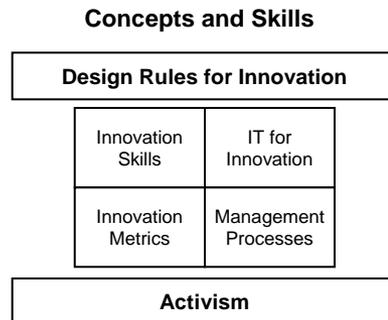
- **Vision and Culture of Innovation:** Innovative companies define themselves as innovative and recognize and reward ideas and results
- **Availability of Capital:** There must be money to spend when needed; some over-budget, some set up venture funds
- **Opportunity Orientation:** Mental models that look for discontinuities and incongruities in markets and new developments in technology
- **Independent Action:** Creative people do not respond well to bureaucracy. High innovation organizations tend to encourage entrepreneurship and independent action
- **Market Focus:** “Many studies suggest that effective technological innovation develops hand-in-hand with customer demand” (Even totally new innovations like Sony Walkman start with the perception of customer use)
- **Interconnected Information Flow:** Lateral communication and the free flow of information is achieved through job rotation, informal networks, liaison managers, open team membership, etc.
- **Multiple Approaches:** Because it is unclear which efforts will produce the best results the most successful organization use many different, overlapping and often competing approaches

Gary Hamel, *Leading the Revolution: The Fundamental Concepts*

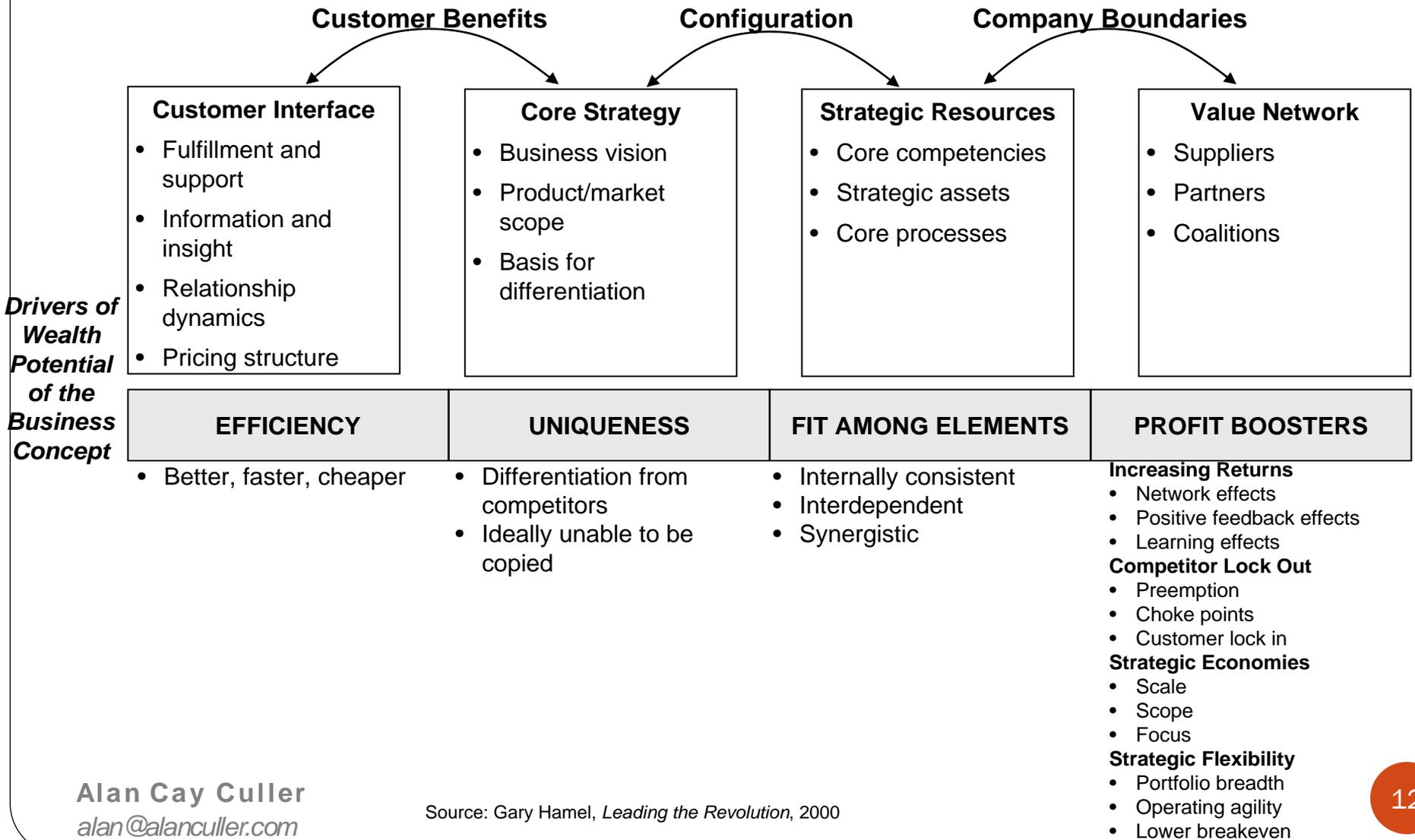
This book makes the argument that current business conditions require:

- **Business Concept Innovation**
 - Strategic thinking
 - Radical, systemic locus/type of innovation
- **Revolutionary Activism Values**
 - Honesty
 - Compassion
 - Humility
 - Pragmatism
 - Fearlessness
- **Institutionalizing Innovation as a Process**

		Locus of Innovation	
		Component	System
Type of Innovation	Radical	Non-Linear Innovation	Business Concept Innovation
	Incremental	Continuous Improvement	Business Process Improvement



The Strategic Framework for Business Concept Innovation



How to Start an Insurrection: Rules for Activists

- **Over arching principle**
 - **Be credible, coherent, compelling, commercial**
- **Steps**
 1. **Build a point of view**
 - **What is changing in the world?**
 - **What opportunities are created?**
 - **Business concept innovation**
 2. **Write a manifesto**
 3. **Create a coalition**
 4. **Pick your targets; pick your moments**
 5. **Coopt and neutralize**
 6. **Find a translator**
 7. **Win small; win early; win often**
 8. **Isolate; infiltrate; integrate**

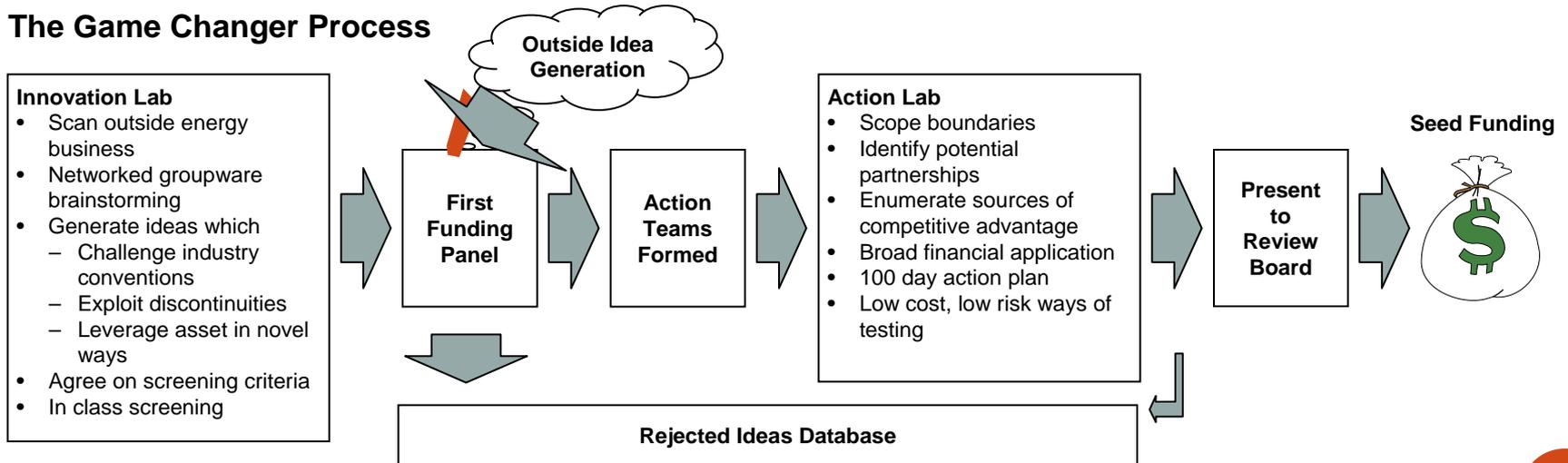
Innovation Design Rules

- 1. **Unreasonable expectations**
- 2. **Elastic business definition**
- 3. **A “cause” not a business**
- 4. **New voices**
- 5. **Open market for ideas**
- 6. **Open market for capital**
- 7. **Open market for talent**
- 8. **Low risk experimentation**
- 9. **Cellar division**
- 10. **Personal wealth accumulation**

A Sample Intervention at Royal Dutch Shell Exploration and Production

- A “Game Changer Process” – to create “venture funded” new businesses to change the business
- Process begun by Tim Warren, Director of Research and Technical Services, 1996
- Trained 72 would be entrepreneurs in 3 day Innovation Lab – created 12 potential ideas for funding
- Created a panel of peers to review ideas and decide venture funding of \$100,000-\$600,000
- Trained teams of 5-8 in an Action Lab to implement ideas
- Institutionalized process
 - Rejected ideas go into an accessible database for new idea generation
 - Funding is available yearly
 - Training is available on a flexible schedule
- In 1999 four out of five of Shell’s largest growth initiatives began in the Game Changer Process

The Game Changer Process



Innovation “Hothouse”

(Project Done for a Lubrications Company)

Pre-work:
Contact
customers

Session 1
Welcome, Introduction Innovation overview Stages and skills Product led, customer driven VoC presentations Engaging the opportunities Real-Win-Worth Analysis Diverge and Converge techniques Stakeholder analysis Product evaluation and planning Close
Start the process



Advance

Session 2 Day 1	Session 2 Day 2
Welcome/Review Preview Project decisions by stage Project presentations Evaluation workshop Product, Prototyping Product testing Getting decisions and overcoming barriers	Review /Preview Project presentations Evaluation workshop Market, Market testing Project presentations Evaluation workshop Financial Capturing Learning
Improve; Enhance; Decide	



Test

Session 3
Review /Preview Project presentations Stage gate evaluation workshop Innovation Fair VoC/ Stakeholder Panel Capturing the learning Starting the process again –new opportunities workshop
Innovation Fair

Theme

Outcomes

Understand:

- Voice of the customer
- Stage gate process ideation, Evaluation and planning
- Real Win Worth
- Product-market extension/innovation
- Stakeholder mgt.

Advance

- innovation**
- Data collection/ analysis
 - Stakeholder mgt.
 - Prototype req.

Understand and practice:

- Evaluation product, market, financial risk
- Customer focused prototyping
- Product/market testing
- Go-no go; development, further study

Advance innovation

- Market/product testing
- Scale-up
- Engage sales force/channel

Fair

- Innovation workshop
- Share success
- Troubleshoot and learn from failure

Alan Cay Culler Background and Connections



Alan Cay Culler

- 30+ years delivering business results as a strategic change consultant
- Specializing in Strategic Leadership, Organization Consulting, Process Change Infrastructure, Leadership Group Work Change Teams and Change Agent Development
- Clients in: Airlines, Chemicals, Construction, Manufacturing, Media, Oil & Gas, Pharmaceuticals

Alan Cay Culler
alan@alanculler.com

Connected Resources

- Connections to over 25 independent consultants and executive coaches and several small consulting firms
- Specialists in Strategy, Operations, Organization and Change
- Resources in
 - United States and Canada
 - United Kingdom and EU countries
 - Asia, Hong Kong, Singapore, Japan