

Inventors' Network Volume 11

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SEPTEMBER 03 Speaker, Richard Leshuk, VP INCA

“Individual Inventors in the Innovation Big Picture”

To be a successful individual inventor, it is vital to understand the idea-to-market process. On a larger scale, the national economy is vitally linked to this same process. The large scale process is often defined as Technology Transfer; subtopics include such issues as the exploitation of new technologies and the Government's role in promoting innovation. The month's speaker,

Richard Leshuk, is the Education Chairman for the Washington, DC Chapter of the Technology Transfer Society. His September INCA talk will draw from the technology transfer lore to look at some concepts of particular interest to individual inventors, including invention evaluation and invention licensing alternatives.

Editor Ray's notes about our July and August Speakers:

Mr. Wendell Leimbach (410) 308 5754 brought his most recent 15 years of experience to INCA attendees. His present role is manager of LME consulting services within the 8th largest consultant practice in the United States: American Express Tax and Business Services Inc. His practice's clients range from major corporations to individual inventors. He is a mechanical engineer and individual inventor who intends to place one of his products in the marketplace within the next year.

Wendell's first theme to INCA was that an abundance of business research reveals that the product development process has key steps that apply to both large and small ventures. To omit diligence to any of the key steps invites economic failure.

Modern product development processes for domestic products, such as those sold by Black and Decker (B&D), differ from old sequential processes by “concurrent” interactions of teams comprising very knowledgeable people with expertise in marketing, engineering, and manufacturing. Prior to a full scale product development program at B&D, a process for the product selection [The “Fuzzy Front End”] helps identify projects that are most worth pursuing .

The fuzzy front end is an abbreviated iteration of product development and usually directed by a market-knowledgeable person. It focuses on product selection, drawing on data from engineering and manufacturing that reflects “best practice” and parametric estimates for adapting new and old manufacturing practices to “Capture” a market share over a long term. An effective “Fuzzy front end” study is intended to select “preemptive and dominant-market products”

Assessment and selection of new product ideas for commitment use some style of “fuzzy front end”. That cross functional discipline will include these considerations:

- * Understand customer’s values that mean the most to them.
Look beyond the obvious to anticipate unarticulated needs.
- * Identify events that might drive the marketplace
- * Analyze and display product attributes that will meet customer future needs.
Determine performance levels for each attribute.
Determine product and life-cycle cost objectives.
- * Develop strategy for prospering and meeting business objectives
Identify pre-emptive product opportunities
Plan to pre-empt own products.
Start products through development process to balance portfolio.
- * Reconfirm the selection criteria and decision as changes occur in market practices and available technology.

[Corning and Chevron Texaco also have internal practices for identifying their customer’s present and future needs plus business criteria for their unique arena of product development.]

HEAVY LIFTING for PRODUCT DEVELOPERS

Having selected a high-value product for development, the Product Development process starts proceeding through go/no-go gates of meeting essential criteria at the conclusion of each of 6 stages.

Stages are:

1. Customer Requirements
2. Concept Development
3. Detail Layout and Design
4. Production Tooling Design
5. Pilot Lot Approval
6. Bulk Production

First stage, in defining customer requirements, generates a **Design Guide**. It includes

A further definition with statistical projection criteria regarding the **Market Opportunity**.

The market segments

Current and forecast sizes of each segment.

Target price to achieve market share throughout forecast period.

A competitive analysis

Which competitive way of our customer’s spending might weaken each market segment

What features can be expected to enter the market

How customers will value current and new features.

Customer Requirements by Market
Proposed Features and Functions
Cost Targets (Product and Life Cycle)
Safety, Quality and Reliability

Stage 1 also (1) Proves technical feasibility
 (2) Creates a preliminary industrial design and
 (3) Generates a development plan and budget.

Stage 2, Concept Development invests in sufficient detail to:
Create product concepts including Design For Manufacturing and Assembly. (DFM&A)
Build and test alpha prototype(s)
 Analyze test results, and
Assess safety with Failure Mode Effect Analysis (FMEA)

Obtain manufacturing and quality inputs to
 Generate Cost estimate

Conduct review for Industrial Design
 Revise Design Guide and specifications

Develop schedule for next stage

Stage 3, Detailed Layout and Design iterates steps of Concept Development with first feedback from alpha approach.
Redesign, including details for Beta prototypes.
Build and test Beta units
 Update safety confirmation and fmea for new portions of Beta units.
Complete a manufacturing process plan to generate
Complete industrial design
 Review serviceability
 Review standardization
Complete plant cost and investment estimates
Review patent clearance.

Stage 4 Design Production Tooling after
Iterating reviews for specifications, FMEA safety and Beta prototype test work.
 Concurrently define lab and field test plan
Audit drawings against design, processes and tooling.
Confirm patent clearance and filing.
Freeze standardization
Review unit cost, investment and schedules

Stage 5 Approve pilot lot after
Iterating diligent focus on specification, tooling and tests on pilot lot samples to
refine manufacturing process, update drawings and quality plans.
Confirming process stability at sources in-house and at subcontractors.
Reviewing Safety & Costs.

Stage 6 Enter full rate production with attendant reviews and confirmations.

[Note: Inventors who visit MIT Enterprise Forum have heard panelists and observers discuss elements of marketing research and product development criteria that they expect to see in a business plan. Elements from the Design Guide are a high-interest segment of a business plan if the project is suitable for further investment. It seems likely that these investors would be remarkably pleased with the kind of evidence generated by the 6 stage process outlined by Wendell.]

[Note: Inventors who visit MIT Enterprise Forum have heard panelists and observers discuss elements of marketing research and development criteria that they expect to see in a business plan that is suitable for their investment. It seems likely that these investors are actively seeking the kind of information described by Wendell.

My lesson #1: Entering a market prematurely is a high-stake gamble. The six stage process hedges most risks. If a high-margin product finds its market, competitors will drive out the insufficiently prepared innovator. If an underpriced product finds a big market, those customers can absorb more value than available to the innovator. [Bankruptcy leads to extreme discomfort to all who are involved.]

My lesson #2: Knowledge is the power to make the right things happen for a high-value idea. If an inventor iterates his team's growing depth of knowledge through the Fuzzy End project selection; and then through a well-planned series of 6 confirmations with appropriate further depth, his team deserves the investment resources to bring the innovation and investment resources to their sustained, high-value objectives.

BERT R. KEMPE (732) 370 9050 is a marketing analyst and product cost consultant who works with individual inventors to help define the market suitable for developed invention (s). He offers to listen to inventor's plans and to propose market distribution options. He promises to step away from any venture whose Inventor's plans do not match the special knowledges he offers. His process for helping an inventor maximize chances for success includes:

Assessing the inventor's ambition about an invention vs resources available to him for successful rewards. What does he want to gain and what does he have to invest.

Assessing the inventor's knowledge of his customer:

Who is the customer?

What is the size of the market for this product?

Who represents competition for this product's customer-dollar?

How does the product cost and resultant pricing influence sales within the inventor's defined market? [Economists call this "elasticity of demand".]

Product costs include materials from vendors, personal efforts plus hired labor and distribution.

Pricing may drive cash flow as vendor order-quantities pulse through growth and recession.
Vendor selection may merit professional help. Lack of special vendor knowledge has power to make or break the commercial success of an invention.

Selection of distribution system determines necessary unit cost margin and at-risk investment.

Distribution planning also merits professional help. Bert discussed examples of how appropriate margins vary in response to the optional distribution systems.

Bert's experience includes

Direct Response, Test market may demand \$30 - 40k upfront.

If successful, Direct Response Marketer will foot next investment level for National coverage. Some innovators have made a fortune from this leverage.

Price needs to be 6 - 10 times direct cost.

Unique product demands advertisement for education.

Distributor may return 25 to 40% of stock because it did not sell.

Electronic Shopping (Internet & TV) and

Wholesale. Price can be 2 times cost - If product is a known commodity.

Bert also offers coaching in other Inventor decisions:

- Market the product yourself

Consider breadth of inventors experience and probable need for more expertise.

Consider depth of resource at direct control by the inventor.

- Take on a partner

What does the partner offer and how much reward should he get? Typically 50%

What are the benefits and risks?

- Grant a license, even for a pending patent or trade secret

What is a fair fee?

How will the licensee be monitored?

What are the benefits and risks?

- Accept a royalty, usually from a published patent.

What are the conventional fee rates?

What are these benefits and risks?

Mr Kempe (732) 370 9050 brought to INCA's attention a type of specialist that is available to complement the inventor's knowledges and abilities. Without successful experience in new areas of business, the inventor/developer who plans to enter new areas usually needs a trusted, knowledgeable guide. Responsibility for execution usually remains with the inventor or his team.

Missy Schoener (410)515 0595 h (410)530 8200 w represents **Maryland Thermoform**, a packaging firm in Baltimore. She, Wendell, Bert and her Thermoform associate drove from Baltimore together.

As INCA-member's products take their shape and Brand image, another specialty supplier enters the business network. Missy and her friends are ready to advise and possibly perform to enhance the customer appeal of our products.

AUGUST 03 INCA PRESENTATIONS

Tom Brooke, trademark attorney is a friend of **Raoul Drapeau**, patent book author and INCA webmaster. Raoul arranged for Tom to speak to INCA because trademarks have a special contribution to an IP strategy. They cost less than patents, protect a different part of ownership, and are renewable.

Tom disclosed that Trademarks are a “source identifier” and a major instrument in Branding a product line. Trademarks are a friend of low price items having popularity that encourages others to copy. Trademark law acts to protect customers from being confused through unfair competition or false advertising.

To the surprise of many listeners, we heard that Trademark law protects non-registered trade marks according to some common law rules. While registration is a preferred condition, a trademark cannot be registered until it is being used in business; and an owner of a trademark runs a risk of losing his right to it (abandonment) unless he keeps using it or shows evidence that he has plans to resume using it.

The USPTO has completed their effort in adapting trademark applications to an electronic mode. This means that registered trademarks and some pre-registered trademarks can be searched through www.uspto.gov.

Our **Jerry Porter** introduced his wife, **Dr Barbara Cross** who manages the National Institute of Health (NIH) grants office for the National Cancer Institute (NCI). As Grants officer, Barbara oversees the work of about 25 health professionals who award approximately **\$1/2 million each working day**. In response to the Small Business Innovation Research (SBIR) law, Congress has directed that 2.5% of this kind of grant (**\$12,500/day** in Barbara’s office) be directed to small business independent research projects.

Dr. Cross group faces a demanding challenge in getting all the SBIR grant funds awarded in a timely manner. It seems that many business persons having control over health-related research resources difficulty in meeting the time-pacing requirements in applying for grants. Getting the paper work started in time is vital in drawing cooperative knowledge-based researchers into temporary employment (consultantships) of the proposing small business. Up to 1/3 of the budget for experts might come from cooperative universities who have time-driven internal disciplines.

Note: More than half the “expert” budget proposed for a NIH grant must be allocated for use of in-house talent. Any proposal for health related issues will need to include a medical advisor who can critique the elements of a proposal as they are being written. Winning proposals are granted up to \$125,000 per year.

Disclosure about the NIH program is to be found at www.nih.gov Their CRISP program (Computer Retrieval of Information on Scientific Projects) is a searchable biomedical database of federally-supported proposed research.

Barbara encourages proposal writers to talk with her office people because at NIH, SBIR proposals do not directly compete with one another, but include “priority scores” about administrative responsiveness which is included for total merit evaluation. Priority score measures of how clearly the proposal is written – and how easy it is to read. NIH wants to receive proposals of high value, hopefully that are very clearly defined because a well-written work offers much greater assurance that its execution will bring good value for the investment.

SBIR and STTR Proposals for NIH are timed for 3 cycles per year with closing dates in May, Sept & Jan. Barbara recommends that small businesses time delivery of their proposals as soon as possible because the mail load becomes intense immediately before the closing date.

Other SBIR and STTR information:

[Note. The SBIR program, P.L.106-554 has been reauthorized through 2008. **Small companies retain the intellectual property rights to technologies they develop under these programs.** The Department of Defense SBIR and STTR programs fund over \$1/2 billion / year in early-stage R&D projects at small technology companies for projects that serve a DoD need and have commercial applications.

Rolf Butters from Department of Energy (DOE) noted that their SBIR release date would soon be announced. The release date will be Oct 7, 2003 with a due date of Jan 6 2004. List of upcoming topic issues is linked to www.zyn.com/sbir/bnews.htm#doe03a.]

Mechanical, Electrical/Electronic and Chemical engineers might find inventive interest in topics
29 "Energy Storage Technologies for Electric and Hybrid vehicles",
30 "Innovative Research for the Hydrogen Economy
35 "Innovative Waste Head Recovery",
38 "New Energy Sources" and
39 "Sensors and Controls"

Successful applicants (approximately 230 for SBIR and 28 for STTR) may receive up to \$100,000 for a phase I grant for a period about nine months to develop the feasibility of the idea. Awardees an apply for phase II funding u- to \$750,000 for those ideas with the highest potential to meet program objectives.

October has SBIR release dates for National Science Foundation (NSF), Department of Defense (DoD), Dept of Energy (DOE), Dept of Commerce's DOC-NOAA, and DOC-NIST Ref www.zyn.com/sbir/scomp.htm

PATENT FEE UPDATE

Mr Herb Wamsley (202) 466 2396 is executive director of Intellectual Property Owners (IPO) Assn. WWW.IPO.ORG

He also is a registered lobbyist for the US Houses of Congress on behalf of approximately 100 large business owners of Intellectual Property plus a few independent inventors such as Richard Levy (toys) and Frampton Ellis (Shoes) and Don Kelly (Services).

Herb participated in the founding of INCA's predecessor organization, Capital Inventor's Society and has been our Program speaker before. While his major support is from large companies that pay twice the user fees of the small number of independent inventors, corporate users within IPO particularly value 3 characteristics for the USPTO:

High Quality Examination Standards Early determination of patent rights, and Reasonable, affordable costs

He expects Congressional action on a change in fee schedule, initially proposed by Patent Director Rogan as he entered his new job. Present language being considered by the House Judicial committee is greatly different from the original proposal. IPO is now ready to support an increase of fees by about 15 to 25%.

MONEY

Few citizens appreciate that the full cost of the USPTO is paid by its users. Most users of USPTO services have not been satisfied that a portion of the fees are appropriated to other federal departments. Some other federal organizations are free from budget losses by the appropriation process. In September, he expects the House to discuss the propose legislation which omits the appropriation treatment of patent user income.

His constituents, the 100 major patent user corporations, are expected to hold a hard position in support of stemming this risk of loss. The Senate is expected to pay attention to this “tax-like” issue.

Many of the initially proposed and controversial law changes have been deferred to a status of study . A trial of outsourcing portions of the examiner’s work will be subjected to a second-look by an independent examiner as was done for controversial “business method” patents.

We were comforted to hear IPO’s position that

- (1) They rigorously supported sufficient recruiting and training in the interest of high quality.
- (2) They oppose deferral of examination. A negotiation resulted in a refund of a portion of initial fee if an application was abandoned by applicant before start of its search or examination.
- (3) They would not tolerate further diversion of fee income to other appropriations.

On behalf of INCA, this editor thanks Herb and the IPO board members for performing the diligence in enhancing our Intellectual Property environment.

**MIT Enterprise Forum of Washington DC and Baltimore and
Virginia’s Center for Innovative Technology**

**Interactive
Satellite
Program:**

**“No Money Down: Raising Capital from Unconventional Sources”
Thursday, September 18, 2003 6:30 PM to 9:00 PM**

Learn About Starting and Running A Business Without VC Funding

Having a difficult time getting venture capital does not mean you don’t have other prospects. Beyond angel investors, there are other methods, including Small Business Innovation Research [SBIR] grants, using consulting as a springboard to developing a company with actual products, and a variety of means of customer financing.

The Enterprise Forum has put together a panel that will speak to their real-world experiences of using these methods to build successful companies.

- Vic Petri (moderator), Global Leader of the Software and Internet Sector for Pricewaterhouse Coopers,
- Jake Karrfalt, President and CEO of Alternative System Concepts (<http://www.ascinc.com/>),
- Pamela Lipson, CEO and President, Imagen, Inc., and
- Bernd Schoner, Managing Partner of ThingMagic, LLC (<http://www.thingmagic.com/>)

Light buffet and great I-Connect business networking begin at 6:30 PM

Program begins at 7 PM

LOCATION: Virginia's Center for Innovative Technology 2214 Rock Hill Road, Herndon, VA (free parking)

PRICE: Free for Members; \$15 for nonmembers RSVP prior to midnight Tuesday (September 16):

<http://www.mitef.org/UpcomingEvents.htm>

OTHER UPCOMING EVENTS:

September 23, 2003: The StartUpLab Event Networking and Business Case Presentations to Forum Panel
Featuring: LightSpin Technologies and Gensor 6:30 to 9:00 PM, NRECA Conference Center

RSVP: www.mitef.org/UpcomingEvents.htm

October 28, 2003: The EnterpriseLab Event Mature Company Presents Business Challenge to
Forum Panel

6:30 to 9:00 PM, NRECA Conference Center Featured Business Case: Sytel, Jeannette Lee White,
Founder and CEO, RSVP: www.mitef.org/UpcomingEvents.htm

Emhart Teknologies is again partnering with NASA Tech Briefs for the Second Annual "Create the Future" Design Contest. The contest invites engineering professionals, students, and the general public to submit innovative designs for products in three categories:

* Everyday Products -- A functional or ergonomic new product, or an upgrade to an existing product, that improves quality of life.

* Safety -- A mechanical or electromechanical device that improves personal safety during travel, work, recreation, or at home.

* Transportation -- A mechanical or electromechanical product that improves the functionality, performance, or cost basis of a transportation product.

Entries will be judged on innovation, manufacturability, marketability, and cost-effectiveness. Winners not only receive great prizes, but also get the recognition and support needed to take their ideas from the drawing board to the production line.

One Grand-Prize Winner will receive a hybrid automobile or \$20,000 in cash; one First-Prize Winner will receive a Segway Transporter or a trip for two to the U.S. Space Camp, valued at \$5,000; and three Second-Prize Winners will receive a DeWalt Power Tool Combination Kit, valued at \$500. All qualified entrants receive an Emhart POP(r) PowerLink 30 repair kit/hand rivet tool, valued at \$50, as an entry gift.

Visit the contest Web site at <http://link.abpi.net/l.php?20030902A3> for the official entry form and rules.

Invention News from Joanne Hayes-Rines www.inventorsdigest.com

***** Start making your plans NOW to attend or exhibit at the Yankee Invention Exposition in Waterbury, Conn. Dates: October 18-19. Go to www.yankeeinventionexpo.org or call (203) 575-8322. See you there!**

***** HURRY! If you haven't yet submitted your patent pending or patent issued invention to the 2003 National Inventors' Month Product Hunt, it's not too late. One of the cosponsors of the Hunt is Procter & Gamble Corporation. Go to www.uiausa.org for details.**

Virginia's 9th Annual Small Business Innovation Research and Development Workshop, Williamsburg, VA, September 15-16, 2003. This conference is designed to help Virginia's small businesses to increase their chances of winning SBIR award funding to develop and commercialize their technologies in collaboration with universities, federal research and development centers and non-profit institutions. A description of what's new in the SBIR program, the fundamentals of applying for SBIR and STTR awards and an opportunity to talk face-to-face with SBIR Program Managers will be available. For more information, contact: Julie Light at jligh@cit.org or 703-689-3020, or visit <http://www.cit.org/sbir/>.

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