

Just Imagine

a quarterly newsletter from Invent Resources, Inc.
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Who we are

When your product line needs new life...when you hit a technical bottleneck...when you're looking for ways to polish your manufacturing process...it's time to call on Invent Resources, Inc.

At Invent Resources, our world-class scientists and engineers "**invent on demand.**" Whether you are an individual or an organization, whether your product need is low tech or high tech, we'll work with you to develop and prototype new, proprietary products. We also routinely help our clients obtain and strengthen patents.

Drawing on extensive backgrounds in research, technology and business, our scientists and engineers have:

- guided the development of over 200 products
- received over 100 patents
- formed over 60 licensing arrangements

Our inventions have boosted our clients' total annual sales by several hundred million dollars. ...Now, just imagine what Invent Resources can do for you.

Contact Us

Mail... Invent Resources, Inc.
23 Berkshire Drive
Winchester, MA 01890

Phone... 781-862-0200

E-mail... rp@theworld.com

Learn more... www.weinvent.com

Seven Steps to a New Product

No company keeps selling the same product line forever. In good times and bad, every firm needs *new products*. If your company doesn't fill a newly perceived need, you can be sure the competition will.

But, how do you develop a new product if your in-house product development staff is being thinned down or even eliminated? The answer is: outsourcing.

George Freedman, one of the principals of Invent Resources, identifies seven steps to outsourcing new product development.

1. *The idea.*

The idea comes from you, the client. Often, the idea has been sitting in the unfilled wish list of the CEO or the VP of Marketing. "This is what we want," you tell Invent Resources.

2. *The concept.*

Generating the concept is an internal brainstorming session that Invent Resources calls "invent on demand." This comes at no cost to the client. Invent Resources gets payback on its investment in the project only if the relationship leads to royalty-bearing sales. In over 95% of its projects, Invent Resources has met the challenge and come up with a practical concept.

3. *The feasibility model.*

An operating model demonstrates the feasibility of the concept. The model is usually created at one of several model shops retained by Invent Resources—or it can be built on the client's premises, with a selected Invent Resources principal as consultant.

4. *The engineering model.*

Now it's time to refine the feasibility model to meet the client's requirements for performance, product cost and marketability. Invent Resources begins the transition to the client's facilities and personnel.

5. *The visual model.*

The visual model includes the ergonomic factors that characterize user-device interactions. This step, together with steps 6 and 7, is primarily the client's responsibility. Invent Resources provides any needed consulting services.

6. *The prototype.*

The client uses the prototype as a basis for final construction specifications. This step includes testing, safety and reliability factors.

7. *The production.*

The pilot production and field-testing are, again, largely the client's responsibility. Field test results can lead to an independent market strategy.

What makes this breakdown of tasks so effective? The client can set realistic target dates for each step and develop a disciplined program to manage time and money. That means product development proceeds more quickly and inexpensively.

The biggest gain comes from the unique talents and breadth of the Invent Resources principals. For the first time, the client is not limited to the often-narrow expertise of in-house staff. Invent Resource's specialty is its generality: its scientists and engineers are experts in dozens of relevant fields. Their experience in other industries and technologies can lead to an unexpected solution—which often proves to be the most expedient and inexpensive path to success.

Sidebar: Seven Steps to Outsourcing New Product Development

- 1. Idea**
- 2. Concept**
- 3. Feasibility model**
- 4. Engineering model**
- 5. Visual model**
- 6. Prototype**
- 7. Production**

From Pursuit of Innovation: Managing the People and Processes That Turn New Ideas into Profits, George Freedman, 1988, Amacom Press, a division of the American Management Association, New York, N.Y.

Inventive Solutions

How long does it take to dry your hands under a dryer in a public bathroom? Up to now, about 30 seconds. Then Excel Dryer, Inc. (<http://www.exceldryer.com>) approached Invent Resources with this need: a dryer that dries hands comfortably in just 10 seconds.

During development of this new product, Invent Resources drew on its expertise in physics, aerodynamics, thermodynamics, noise muffling and motor technology and had a close working relationship with the staff of Excel Dryer. This relationship, for the creation of new and improved products, is ongoing.

The solution: the XLerator hand dryer, which comfortably dries hands in the required 10-12 seconds, is licensed to Excel Dryer.

This technology has resulted in one patent issued and another pending. The XLerator promises to revolutionize the hand-dryer industry and to greatly expand its market.

Spotlights

Who are the five principals of Invent Resources? They have doctorates in science and engineering...they've been presidents of their own companies...they've worked in sales and marketing, so they understand the significance of the bottom line. Now, meet the team...

Richard Pavelle, Ph.D.

Richard Pavelle was named "One of 50 R&D Stars to Watch" by *Industry Week* magazine in 1996. He's an applied mathematician, physicist, computer scientist *and* inventor who makes intuitive projections of product trends.

In his words: "We asked the president of a New York bank whether his bank would offer, as a premium, a thin calculator imbedded within a checkbook. His reaction was so positive that my partner and I went home that night and built one. We ripped out the guts of a standard calculator, integrated them on a thin PC board, and imbedded these components into a plastic check-register holder—and we had our one-hour invention.

Several years later Casio, Sharp and Canon licensed the technology for their respective versions of the credit card calculators. Sales resulting from this patent have exceeded \$100 million."

Richard Pavelle holds more than 30 patents and patents pending.

George Freedman

George Freedman was the founder and head, for 18 years, of the New Products Center at Raytheon Co. He led teams that developed over 50 new products—five of which won national "New Product of the Year" awards.

In his words: "While at Raytheon, I led a small team of engineers to prove that it should be possible to increase magnet power by a factor of at least four, compared to magnets available at that time. Within six months, we had produced the world's first samarium cobalt magnets—and Raytheon's stock went up two points. The magnets were later used in Patriot missiles and in tools used in the moonwalk.

Based upon our work, rare earth magnets are now commonly available for thousands of commercial and industrial uses."

George Freedman holds more than 36 patents and patents pending.

A. Ze'ev Hed, Sc.D.

Ze'ev Hed holds several patents that include innovative medical devices for diagnosis and therapy. He was president and COO of a publicly traded medical instrumentation company.

In his words: "I was asked to find a way to cool the end of a catheter used in freezing certain tissues inside the heart. I combined the best characteristics of traditional refrigeration techniques with thermoelectric cooling, creating a new technology that resulted in two patents. The catheter is now in the marketplace sold by Cryocath, Inc.

As for the technology, I won the rights outside of the medical field. One simple application under discussion is a stick-like wine cooler that will rapidly cool a bottle of freshly opened wine."

Ze'ev Hed holds more than 51 patents and patents pending.

Sol Aisenberg, Ph.D.

Sol Aisenberg is a physicist, inventor and seven-time winner of *R&D* magazine's prestigious annual awards for important new products. His specialties include enhancing patent applications—and bypassing competitive patents. He is a pioneer in the development of diamond thin films.

In his words: "To help clients prepare strong patents, I identify potential modifications and make sure they're included in the patent application and claims. My approach is to look at the applications from the point of view of potential attack, and help devise ways of making the client application and patent bulletproof.

Surprisingly, I have found that most patents can be bypassed. Ones that seem resistant to bypassing are ones that have been prepared with my help."

Sol Aisenberg holds more than 33 patents and patents pending.

Joseph Friedberg, M.D.

Joseph Friedberg, the newest inventor to join Invent Resources, has devised many medical and nonmedical inventions. He also heads an active surgical research laboratory and was recently named a regional "Top Doc" in thoracic surgery by *Philadelphia Magazine*.

In his words: "I view my role in medical research and inventing as both an 'idea man' and as someone who can bridge the gap between the basic scientist and the patient. When Invent Resources gets a request to solve a medical problem, I am able to guide our group to solutions that not only are unique and elegant, but also have direct clinical application."

Patent Portfolio

One recent example of an invention by Invent Resources is:

"Method and apparatus for providing secure timestamps for documents and computer files" (US Patent # 6,209,090, issued March 27, 2001)

It's 3:05 p.m. and you've just finished and saved an important letter. Now, would you be able to prove exactly what time that letter was written?

Many legal disputes arise from uncertainties about when a document—like a letter or an account—was created. Lawyers, physicians and even inventors would all benefit from an easy, indisputable timestamp on their documents.

Currently, computers use their internal clocks to timestamp new files. But, even a novice could easily change the clock setting. Maybe your computer uses a more sophisticated encryption system to authenticate and timestamp documents. But, this method can be costly and cumbersome and, in any case, doesn't give a truly independent verification of the time.

Invent Resources recently received a patent for the "secure timestamp." How does it work? The apparatus includes:

- an externally generated time signal, such as a GPS signal,
- a timestamp serial number generated through an irreversible process that cannot be duplicated by the apparatus, and
- one or more check-sum values used to verify the content of the timestamp parameters or any data files associated with the timestamp.

The timestamp automatically identifies not only the time but also the *location*, an important feature not found in any other system.

Beyond documents and computer files, the secure timestamp could help resolve disputes related to the timing of electronic and financial transactions—particularly with the advent of Internet equity trading. For example, the timestamp would make it possible to pay and receive interest on large financial transactions by the hour, or even shorter time intervals (an issue of great importance when government bonds transactions reach billions of dollars daily).

Secure timestamping also has a role in online commerce, where deals are made between computers owned by people who don't know each other. Computer security expert Michael Bacon, director of Information Risk Management at KPMG, cites cases where cargoes of oil were diverted while the tankers were at sea because their captains could not authenticate the source of purchase orders sent by telex. Bacon says authentication technology will be vital if online commerce is to succeed.