

Pre-competitive Collaboration and Open Innovation: Finding Solutions for Industry-wide Materials and Process Changes to Address Regulatory, Market, or Environmental Issues

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Abstract

We will describe combining the concepts of Open Innovation (OI) and pre-competitive consortia to address industry specific issues. We will examine several pertinent topics such as finding alternatives to non-biodegradable packaging, finding alternative toner resins, or developing more environmentally friendly processes important to toner-based imaging.

Regulating bodies at the federal, state and local level are continually expanding the list of harmful materials in products. This trend will likely continue and increase the focus on the electrophotographic printing industry.

Open Innovation (OI) is an effective method for seeking expertise to solve technical challenges. Industry leaders, such as Nestle, 3M, GE, Goodyear, Xerox, and BP are successful leading practitioners of OI. We invite the toner-based imaging companies to join other corporations and NineSigma to benefit from the discovery of multiple industry-wide alternatives.

Join your competitors, suppliers and customers in pre-competitive collaboration of multiple users and manufacturers in industry to use Open Innovation to seek alternatives to materials and processes subject to imminent regulation. Such collaborative use of Open Innovation can result in faster, more economical discovery of suitable alternatives that will benefit your company's stature, the industry, its customers, and the environment.

TOPICS:

- Issues that Could Affect Toner Printing Industry
- Open Innovation – Accelerate Wins
- Pre-competitive Collaboration – Reduce Risk
 - Water Example
- Next Steps

Issues that Could Affect Toner Printing Industry

Toner Printer Emissions

- Toner particle emissions from office laser printers were recently targeted for effects on respiratory system (Print Professional Magazine online, Aug 13, 2007)
- Australian researchers measured indoor office air quality and found that particles from printers contribute to submicron particle number concentration levels in the office (Environ. Sci. Technol. 2007, 41(17) pp. 6039-6045)
- Fraunhofer WKI and Queensland University determined that emissions were not toner particles but rather volatilized paraffins and silicone oils (<http://www.fraunhofer.de:80/EN/press/pi/2008/12/ResearchNews122008Topic3.jsp>)

- Public concern remains strong for indoor air quality
- Could this be start of new regulations on toner printers?

World Scrutiny of Bisphenol A (BPA)

- June 2008:
 - Friends of the Earth Europe (anti-BPA) implicates recycled office paper as source of BPA in cardboard containers used for take-out food in Belgium, Italy, Spain, and Portugal (Blissfully unaware of Bisphenol A, June 2008, Dr. Rye Senjen & David Azoulay, Friends of Earth Europe, www.foeeurope.org)
- July 10, 2008:
 - Norway's State Pollution Control Authority recommends to restrict use of selected substances, including BPA, in consumer products (<http://www.bisphenol-a-europe.org/index.php?page=additional-legislation>)
- May 18, 2009:
 - Last week, Minnesota became the first state and Chicago the first city in the country to ban the sale of baby bottles and sippy cups manufactured with BPA. (Earlier this year, Suffolk County, in New York, passed a measure banning the sale of the chemical there.) (May 18, 2009, ConsumerReports.org)

Standby Energy Requirements of Printers

- January 2009:
 - Natural Resources Canada Office of Energy Efficiency proposes to amend Canada's Energy Efficiency Regulations to require products such as computer printers to use standby power
 - Lowest level of electricity consumed by appliances
 - Will establish minimum energy performance standards for printers and multifunction devices
 - Standby mode of 4W in June 2009
 - Energy Star (2W) in 2011
 - All products imported or shipped for sale or lease in Canada
- Other countries will eventually follow

Packaging Issues Transcend Multiple Industries

- There is a push to reduce packaging
 - World's largest retailer, Wal-Mart, has a goal to reduce packaging by 5% by 2013 (<http://walmartfacts.com/reports/2006/sustainability/companymessage.html>)
 - Their stores in U.S. and Canada now only sell concentrated detergents which result in savings of water, plastic, and cardboard

Open Innovation – Accelerate Wins

Leverage Open Innovation for Maximum Value

Open Innovation is an evolving model of innovation focused on leveraging the global technology and innovation community.

As was well stated in the book *Open Innovation*, by Henry Chesbrough, in 2003:

“The presence of many smart people outside your own company is not simply a problem for you or a fact of life to be regretted. It poses an opportunity for you. If the smart people within your company are aware of, connected to, and informed by the efforts of smart people outside, then your innovation process will reinvent fewer wheels. What’s more, your internal efforts will be multiplied many times through their embrace of other’s ideas and inspiration.” [1]

NINESIGMA'S CLIENTS' PERSPECTIVE ON OPEN INNOVATION

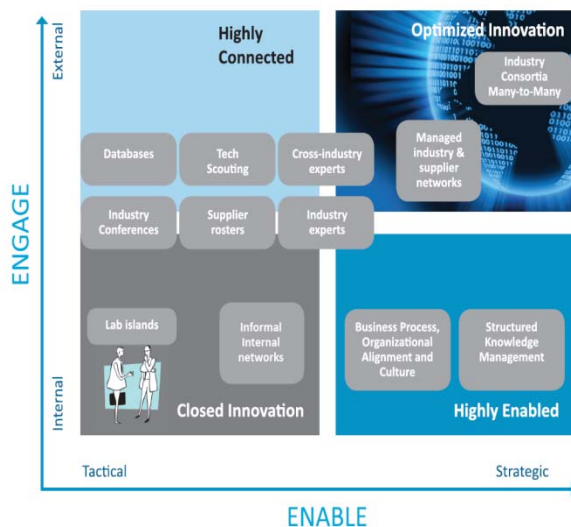


Figure 1 - Engage and Enable: Optimized Open Innovation

NineSigma has been supporting global organizations such as Xerox, 3M, GE, BP, Philips, Nestle, Kraft and P&G to **Engage** with the global innovation community and **Enable** them to optimize the strategic value of previously unknown organizations around the world.

The basic process has 4 steps:



Figure 2 - Open Innovation Process

Define Need:

Needs statement captures the innovation challenge and communicates solution concepts to the global community.

- **Clear:** Crisp description of the underlying scientific requirements, specifications and attributes.
- **Concise:** Factual with intelligence that speaks to potential solution providers.
- **Compelling:** Opportunity is relevant and inviting.

Connect:



Figure 3 - Connection Network

The most challenging step of the process is “Connect”. A truly boundless network to millions of innovators around the world and access to their knowledge through multiple channels of contact is essential to the **Engage** process.

Evaluate:

Efficient and effective Solution Provider selection is crucial to your ultimate success.

Due diligence:

- Information gathering and comparisons from multiple Solution Providers.
- Sampling, testing, validating and comparing the solutions offered from the top selected Solution Providers.

Acquire:

- Assessment of the commercial viability of this opportunity based on project criteria and the selected solution.
- Addressing and resolving mutual Intellectual Property
- Establishing relationship criteria in project decision factors
- Negotiate win-win agreements with chosen providers.

Pre-competitive Collaboration – Reduce Risk

Pre-competitive Collaboration: Leverage the power of many to many to reach project goal

- Use a Process of Collaborative R&D
 - Leverage knowledge, investment costs and scarce resources across multiple partners to address issues of common interest faster and more economically.
- Combine with Open Innovation
 - Accelerates solution development time and will minimize risk by connecting companies faster with the global innovation community.
 - Looks broadly across industries and technical disciplines for cutting edge ideas, technologies and innovations.
 - Identifies solutions that are not in the public domain, including tacit knowledge.
 - Provides a rich set of options that can be leveraged into final solutions.
- Facilitate the project by using a neutral third party to manage the collaboration to a successful conclusion.

Proactively address Confidentiality to remove it as a barrier to success

- All of the participating sponsor companies should sign a multi-party NDA.
- Participating companies will opt-in to engage in the solution development phases critical for themselves.
- Each participating organization has an immediate opportunity to offer and acquire IP amongst the group's members.

Multi-party Program to identify tangible breakthrough solutions

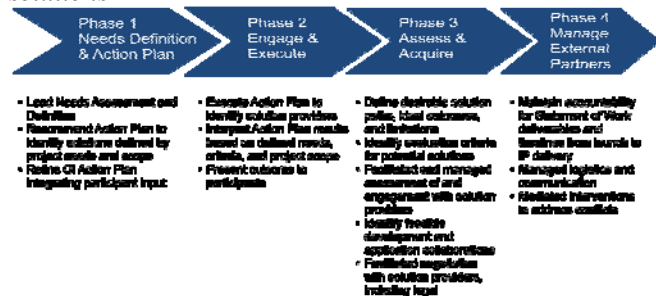


Figure 4 – Solutions Development with a Many-to-Many Collaboration Model

Many-to-Many Water Project Example

Program Goal: Breakthrough water recovery technology

- Identify technologies that will lower the cost of recovery and re-use of contaminated process water.
- Facilitate a group of motivated, non-competitive organizations with shared goals to identify tangible breakthrough solutions.
- Develop water recovery solutions that will address each company's goals and:
 - Maximize the resources and minimize the risks
 - Minimize the cost of each participating company

Program Background: Breakthrough water recovery technology

- Members face a scarcity of available water plus increased costs for water input and water reclamation.
- Sustainability has been elevated to a key operating goal for many organizations.
- Members from diverse industries have previously evaluated technologies that will lower the cost of water recovery and re-use of contaminated process water to potentially be acquired by other interested members.



Figure 5 - Contamination Sign

Next Steps

- Identify the most challenging issues facing your organization that have a significant impact on meeting goals for profit, growth, sustainability, regulatory issues and customer requirements.
- Seek out what other organizations are likely impacted in a similar manner across multiple industries.
- Assess each issue and separate them as either competitive or pre-competitive and rank by risk assessment.
- Analyze the internal core competencies of your organization to resolve each issue and define the gaps.
- For the high risk/high gap count issues determine the suitability for using OI and/or a consortium to reduce the risk and cost to develop the best solution.

Author Biography

Frank Evan joined NineSigma in 2005, bringing with him more than twenty years of management and consulting experience helping businesses address critical growth issues—managing profitable client-partner relationships, heading multi-organization, cross-functional teams, and managing multi-million dollar projects. Evan was Associate Partner at IBM Business Consulting Services, and ran a P&L at Keane, Inc. where he created a new e-Solutions consulting practice and had responsibility for a

\$15M+ business unit. In his current role, he works with innovation-focused companies across industries to implement value-based open innovation strategies that fuel growth in new product and service development.

References

- [1] Henry Chesbrough, Open Innovation (Harvard Business School Publishing Corporation, 2003) pg. 177.