

## Open Innovation: The new imperative?

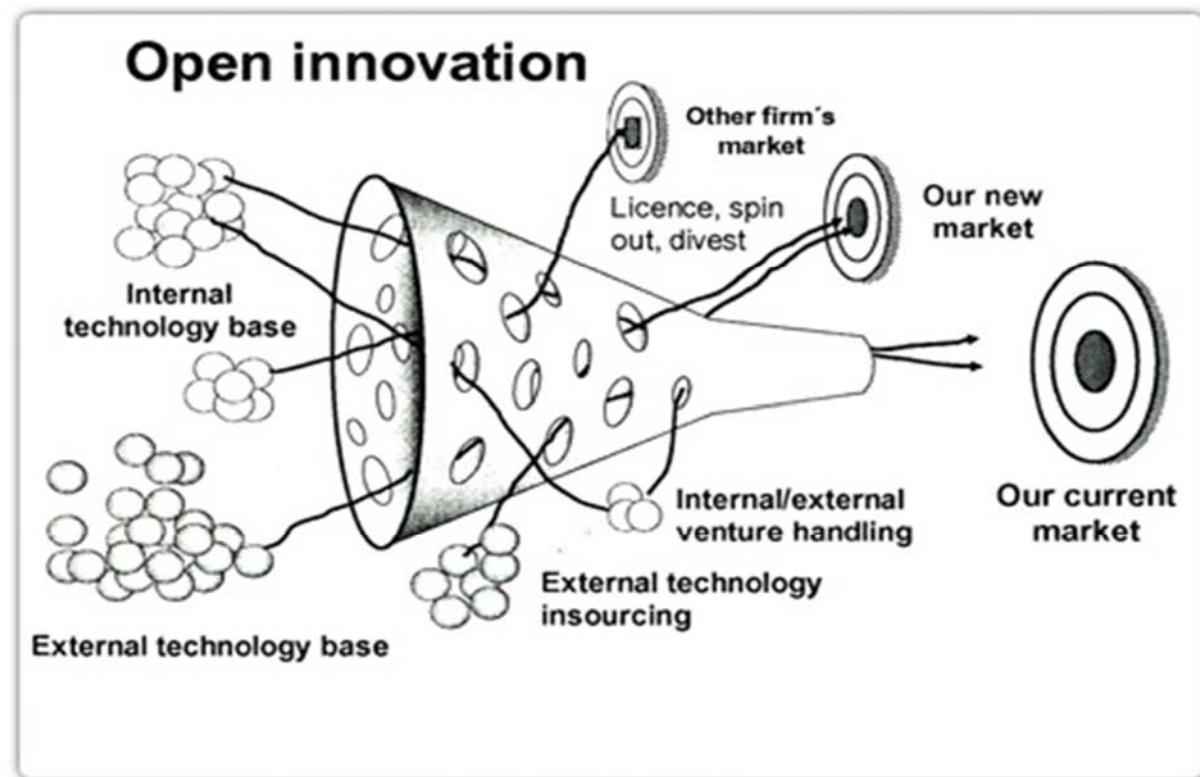
Prof. Dr. Dennis Hilgers | dennis.hilgers@jku.at



15-01-15

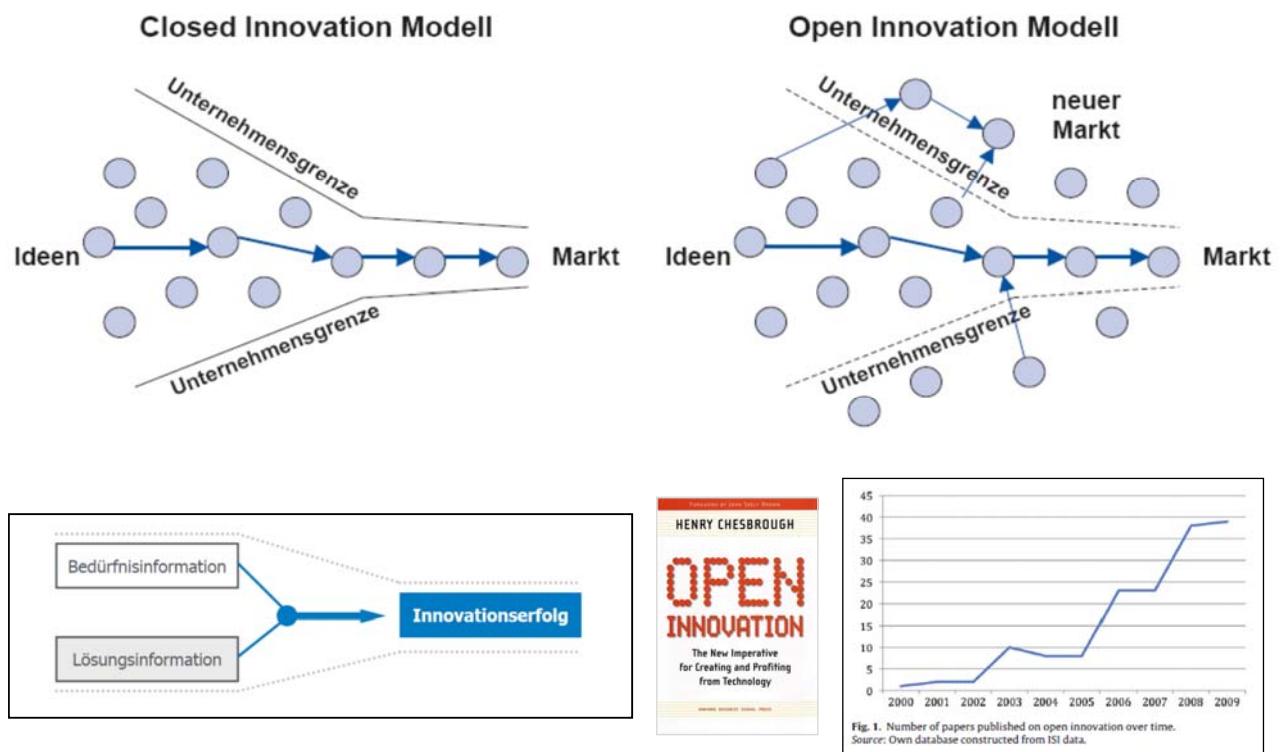
#1

When googling "*Innovation*",  
this picture used to show up  
as the No. 1 hit.



Chesbrough 2003

## Closed Innovation vs. Open Innovation





home create explore info my area      email... password...  [register](#) [forget your password](#)      [f Connect](#)       open your mind

style your smart design contest      new: matching game >> play it now      meet the winners

Style your smart design contest completed! And the winner is...

Many thanks to all contributors for your excellent designs and incredible commitment! The jury meeting was held on March 1, 2010 at the sidelines of the International Geneva Motor Show. Click [here](#) to see the winning designs and the jury members at their meeting.

The Style your smart project team is impressed by the total number and creativity of designs. This truly shows that people, passion and the right product produce awesome results. For the time being, the functionality and features of the site are available to see if and what kind of further designs will come in.

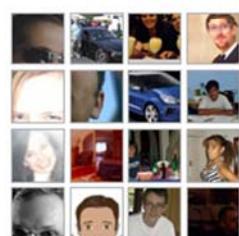
Please note that your submissions can not be considered for jury evaluation any more.



timeline



latest members >> all



statistics

today all

0	52410	Designs
6	9029	Members
244	608583	Evaluations
8	15221	Messages
4	27301	Comments

**smart** <http://www.smart-design-contest.com/>





connect + develop™



External collaboration plays a key role in nearly 50 percent of P&G's products. We've collaborated with outside partners for generations but the importance of these alliances has never been greater.

Our vision is simple. We want P&G to be known as the company that collaborates — inside and out — better than any other company in the world.

A.G. Lafley

Chairman of the Board and  
Chief Executive Officer



**„Proudly developed  
elsewhere“**

- Customer idea contests
- Online configurators/  
eToolkits for Open Innovation
- community building &  
observing (netnography)

pnpi

**Innovation Community**

Register | Forgot password? Email Password Login f Connect

Home Idea Pool Community Info Join now >

**Improve the Hand-luggage Process**

**1** Join & explore    **2** Submit your idea    **3** Discuss & evaluate

What is the Lufthansa Innovation Community about?

News

How to rate ideas

Dear Community, ideas can be evaluated with the rating tool, which is placed under the description o ...

[Home](#)[Submit](#)[Ideas & Challenges](#)[Community](#)[Contest](#)[My Area](#)

## Welcome to the Swirl Innovation Contest!

The Smellfighters Innovation Contest is over! The deadline was January 11th 2010! In the next couple of weeks, the best ideas will be selected by the jury and presented to the Smellfighters community. But all the features of the contest are open to you. We hope to still see new and old members submitting new ideas, discussing and evaluating them together with the rest of the community! Let your creativity run wild!

[Meet the winners >>](#)

### Evaluation



I like this idea:

Yes

No

I would use this idea:

Yes

No

### Get informed about the contest

- WIN GREAT PRIZES! -

dirty clothes and shoes

**“I hate this smell!”**

Tell us about it

**“My idea!”**

Show your idea

**“My opinion!”**

Evaluate & Discuss

### Latest members

[more >](#)


chris@bjqzz.com

2010-02-27

[details](#)


gold@bvjul.com

2010-02-24

[details](#)


xmdoqj@taig.co

2010-02-22

[details](#)


drewh@mstlin.cc

2010-02-18

[details](#)
werwenwe  
Oskar At Hyve

2010-02-04

Popularity:

0%

[details](#)
FLOWERPOT  
andrie 2b2

2010-01-12

Popularity:

63%

[details](#)
CENTRALFRESH  
Erick Palafox

2010-01-12

Popularity:

100%

[details](#)
SHOE RACKER  
Sanjith Yeruva

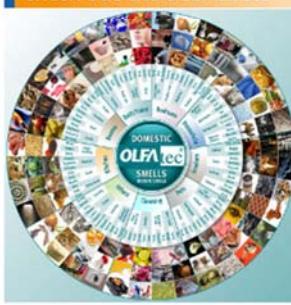
2010-01-11

Popularity:

70%

[details](#)

### Check out the odor circle!



### Current Info

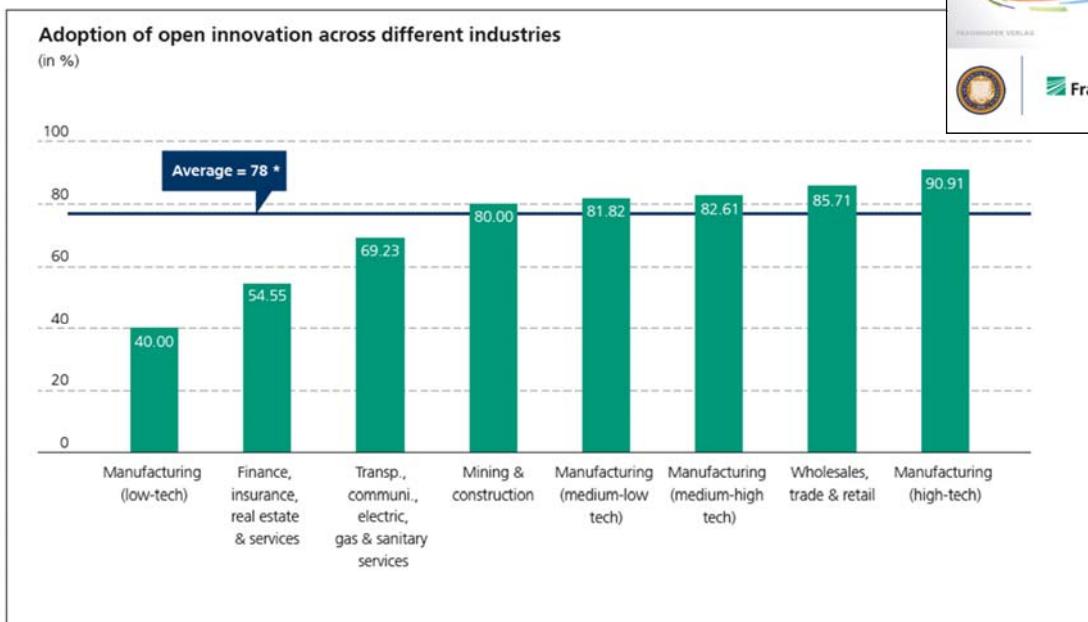
209 Ideas  
68 Challenges  
278 Members  
3440 Evaluations  
2404 Comments  
4066 Messages

### Contest News

# Dies ist kein Nischenphänomen

# Open Innovation als Every Day Practise

n = 2840 Börsennotierte mittlere und große Firmen in Europa und USA (> 1000 MA, > 250 Mio. EUR Umsatz



Fraunhofer Studie by CHESBROUGH/Brunswicker (2013)



## User Innovation: The innovative Power of Users



*Within a huge customer base, companies will easily find motivated users willing to develop innovations jointly.*

„90% of our customers just want to consume.

Perhaps 10% want to make their own stuff.

1% has the skills to make something which is good enough for others to want to buy it.

So, let us very conservatively say 0.1%,  
With a customer base of 32 million  
that is still more than **30.000 people!**

At the moment we have **150 designers** at LEGO®

*Paal Smith-Meyers, LEGO*

Talke (2010)



**Wie knüpft man diese  
Verbindungen? Wie findet  
man “nicht offensichtliche”  
Andere?**

**#2**

**Open Innovation Plattformen  
Für die technische Problemlösung**

#2

# "Ruft, und sie werden kommen!" (anstatt nach Wissen zu suchen)

„broadcast search Prinzip“

InnoCentive: Mehr als nur eine Plattform....?

[www.innocentive.com](http://www.innocentive.com)

The screenshot shows the InnoCentive website homepage. At the top, there's a navigation bar with links for Home, Products, Seekers, Solvers, Challenge Center, and My InnoCentive. The Home tab is currently selected. On the left, there's a sidebar with sections for "WHAT IS INNOCENTIVE?", "NETWORK FACTS" (1,026 Challenges Posted, \$5.3 MILLION Total \$ Awarded, 208 Countries with Active Solvers), and "INNOVATION PARTNERS" (nature.com, NASA, globalgiving). The main content area features several sections: "OPEN CHALLENGES" with three listed (Predictive Data Analysis, NASA Challenge: Coordination of Sensor Swarms for Extraterrestrial Research, Green Chemistry Process); "FEATURED CHALLENGE" for "What Do We Not Know to Cure Type 1 Diabetes?"; "CHALLENGE CENTER" with a "Seeking Solutions?" section and a "Solvers Wanted!" section; "WINNING SOLVERS" featuring profiles for Omar Parve and Scott Fisher; "SOLVER NETWORK" with a map showing solver locations; and "FOLLOW INNOCENTIVE" with links to Twitter, Facebook, and the InnoCentive BLOG. A red box highlights the "Seeking Solutions?" and "Solvers Wanted!" sections.

Lilly



**Disciplines**

- Business and Entrepreneurship
- Chemistry
- Computer Science and IT
- Engineering and Design
- Food Science
- Life Sciences
- Mathematics and Statistics
- Physical Sciences
- Requests for Partners/Suppliers
- Pavilions**
- SAP Innovation & Technology
- The Rockefeller Foundation
- Clean Tech and Renewable Energy
- Global Health
- Public Policy and Citizens in Action

**FAQ**

[My InnoCentive](#)

[Refer-A-Friend](#)

[Blog](#)

[News and Events](#)

[About Us](#)

**Physical Sciences**

Search Challenges:

View By Category:

12345Next Page Showing 20 out of 84 listings

**Plastic with Properties of Glass**

Challenge Reward: \$50,000 USD Challenge Type: RTP INNOCENTIVE 8219824

 This Challenge is looking for a plastic with some properties of glass. This is a reduction-to-practice Challenge that requires a written proposal and experimental proof-of-concept data. [Read More](#)

 269 Project Rooms

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**Applications for Minute Patterned Metal on a Transparent Substrate**

Challenge Reward: varies Challenge Type: eRFP INNOCENTIVE 8397172

 The Seeker is looking for potential applications for a technology that applies small patterned metal lines on transparent substrates. The Seeker is looking for a new business opportunity to use their technology. Any suggestion or proposal for co-development is welcome. They would like to identify potential partners who could help develop any new technologies. [Read More](#)

 152 Project Rooms

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**Quality Control of Plastic Welding**

Challenge Reward: \$100,000 USD Challenge Type: RTP INNOCENTIVE 8244892

 This Challenge is looking for a quality control of plastic welding process. This is a reduction-to-practice Challenge that requires a written proposal and experimental proof-of-concept data. [Read More](#)

 316 Project Rooms

**pnp**

## InnoCentive - effizienter Mechanismus zur Lösung von Problemen

JEPPESEN AND LAKHANI, MARGINALITY AND PROBLEM-SOLVING EFFECTIVENESS IN BROADCAST SEARCH, ORG SCIENCE, 2010

Probleme, die intern nicht gelöst werden konnten, konnten durch die Community bewältigt werden (**n=166**)?

- Firmen verbringen zwischen **6 Monaten und 2 Jahren**, um Probleme intern zu lösen
- **49 Probleme (29.5%)** wurden gelöst
- 75 Lösungsprämien verteilt
- Pro Problem beschäftigten sich ca. 240 Personen damit
- ca. 10 Lösungen pro Problem wurden vorgeschlagen
- **Durchschnittlich gebrauchte Zeit: für gewonnene Lösungen: ~74 Std.!**



## Die Effizienz beim Problemlösen basiert auf der Wiederverwertung von Wissen.

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- Bereits vorhandenes Wissen (72.5% Wiederverwertung)
- Heterogenität und Spezialisierung der Solver unterstützen die Lösungsfindung, 89% der Solver besitzen akademischen Grad
- Motivation: Intrinsiche Motivation (Herausforderung an wissenschaftl. Problemen zu arbeiten, "sich selbst etwas beweisen") und monetärer Incentive (Prämie)

**Open Innovation ist hoch profitabel für Unternehmen:**

Kosten für den Lösungssuchenden (pro Challenge): \$60 000  
Generierter Wert: \$10 300 000 → **ROI: 2175%**



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„The smartest people always work for someone else“

*Bill Joy, co-founder of SUN Microsystems*



# Solver Locations for 13 Challenges Run By An InnoCentive Client



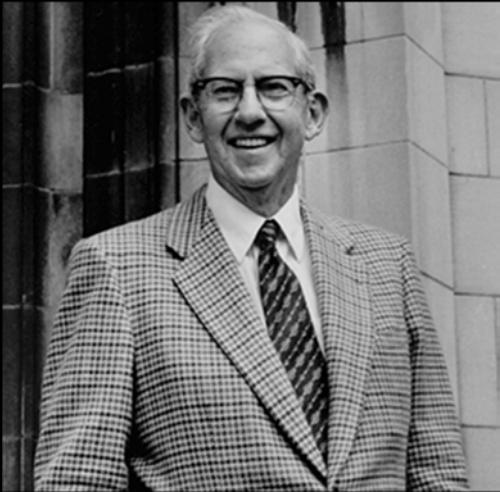
Represents Locations of Solvers That Opened Project Rooms

pnp



**„Growth and  
Innovation  
a rooted in  
the division  
of labor“**

*Adam Smith*



## The division of labor is limited to the extent of the market

George Stigler

Challenge.gov powered by

A partnership between



# Challenge.gov

Government Challenges, Your Solutions

**NASA's Asteroid Tracker Challenge**  
**FEATURED** Posted by NASA

NASA must find ways to observe, track & characterize asteroids that may threaten Earth. NASA needs your help to improve systems needed to identify & track asteroids using large arrays of antennas. [Show more](#)

**\$41,500**  
IN PRIZES

OPEN UNTIL  
**AUG 15, 2014**

**National Aquatic Resource Survey Campus Research Challenge**  
**FEATURED** Posted by EPA

College students are invited to develop innovative ways of using EPA's water data to better protect aquatic resources. [Show more](#)

**\$50,000**  
IN PRIZES

OPEN UNTIL  
**MAY 15, 2014**

**Consumer Product Safety Apps Challenge**  
**FEATURED** Posted by OTHER

Challenges developers to create applications and innovative tools that raise awareness of consumer safety reports submitted to CPSC and of recalls of consumer products

**\$4,000**  
IN PRIZES

OPEN UNTIL  
**MAY 23, 2014**



US EPA





Photography by Morgan Wigard for USAID



## West Africa faces the largest Ebola epidemic in history.

Follow Us:

Every day, in extreme heat and humidity, health care workers are performing life-saving tasks to stop the spread of the virus.

They face many obstacles in providing timely care to patients—heat stress caused by Personal Protective Equipment (PPE), lengthy infection control measures that leave no room for error, and communities reluctant to seek care are just a few.

Health care workers need new tools to win this fight.

### Take Action Now

You do not have to be an expert in healthcare or infectious disease to contribute ideas for life-saving solutions. Join our open innovation platform.

<http://www.ebolagrandchallenge.net/>



## US Government offers \$1 Million crowdsourcing prizes for best Ebola hazmat suit designs



### CHALLENGE

Develop new practical and cost-effective solutions to improve infection treatment and control that can be rapidly deployed (1) to help health care workers provide better care and (2) transform our ability to combat Ebola.

→ cooling devices, stress detectors and thinner, stronger suits

Solution Information

# "Das funktioniert bei uns nie"

**VDMA**

Home Wer wir sind Was wir tun Veranstaltungen Mitgliedsfirmen Mitgliederbereich Partner/Links

Forschungshefte Projekte Software Literaturrecherchen Dokumentationen FVA-Richtlinien

  Die FVA ist für uns eine wertvolle Möglichkeit unsere Forschungsaktivitäten auf eine breitere Basis, ergänzend zu unseren internen Forschungsaktivitäten, auszuweiten.

Kurt Maute, Daimler AG 

**Gemeinschaftsforschung**

> Die FVA greift übergeordnete Themen vorwettbewerblicher Art in Gemeinschaftsvorhaben auf. Hierbei wird sowohl die mechanische als auch die elektrische bzw. mechatronische Antriebstechnik, sowohl von stationären industriellen Anlagen über Fahrzeuge bzw. mobilen Maschinen bis zu Luftfahrzeugen abgedeckt. Zusammen mit dem Forschungsfonds Fluidtechnik sehen unser Betätigungsgebiet überall dort, wo etwas angetrieben, gesteuert und bewegt wird. In der Wertschöpfungskette befassen wir uns von den Werkstoffen über Fertigungstechnik und Qualitätssicherung, Komponenten und Systeme, ihre Berechnung, der Schmierstoffe, bis zur Analyse von Umweltverträglichkeit, Qualität und Kosten und dem Innovationsmanagement.

RWTH AACHEN UNIVERSITY  
TECHNOLOGY AND INNOVATION MANAGEMENT GROUP

Die Gemeinschaftsforschung bietet den Unternehmen die Möglichkeit, ihr technisches Know-how und die Qualität ihrer Produkte zu verbessern und die Produktionskosten zu senken.

Die Forschungsprojekte werden durch die Mitglieder aus der Industrie in Arbeitskreisen definiert und zur Durchführung an die bestgeeigneten Institute vergeben.

**FVA**  
Forschungsvereinigung Antriebstechnik e.V.

research, drive & innovation

Kontakt Anfahrt Presse Impressum

E-MOTIVE SIMPEP GETPRO

# Open Innovation Intermediäre



## RFP Review

### REQUEST # 66198 Durable, Non-Lubricated Gear Materials

#### REQUEST FOR PROPOSAL DESCRIPTION

NineSigma, representing a Central European Academic/Industrial Development Consortium invites proposals for strong, durable gear materials that don't require lubrication.

The successful material will:

- Be compatible with one or more methods of contemporary gear manufacturing
- Convert into gearboxes that can run without lubrication
- Create gearboxes that meet the following specifications
  - Ambient temperature range from 0 to 40 °C
  - Hertzian stress (at gear contact points) up to 1600 N/mm<sup>2</sup>
  - Nominal drive torque >100 Nm
  - Typical operating input speed>2000 RPM (up to approx. 8000 RPM); output ratio 1/3 – 1/10
  - Support tooth design permitting Efficiency at full load of >90%
  - Operating life >10000 hour
  - Gear thickness about comparable to same performance metal gears

#### POSSIBLE APPROACHES

Possible approaches might include, but are not limited to:

- Stronger plastic materials
- Composite Materials
- Durable one-time surface treatments for metal gears
- New Alloys for metal gears
- Ceramic materials
- Porous, oil-soaked gears and pre-lubricated gears
  - oil losses must be safely inhibited
  - bulk oil cannot leave gearbox under any circumstances
- No additional lubrication for the operating life of the gearbox

#### Opportunity

Licensing, product acquisition, contract research, proof of concept leading to scale-up to manufacturing, joint development, supplier agreement

#### Timeline

Phase 1 – Material Feasibility and Proof of Principle  
Phase 2 – Manufacturing and Commercial Development

#### Financials

Phase 1 funding to demonstrate proof of principle is supported by the Academic/Industrial consortium up to the amount needed to contract one year of research in an academic environment. Alternative pathways and options for development will be funded by one or more industrial partners at levels appropriate to the opportunity.

#### APPROACHES NOT OF INTEREST

The following approaches are not of interest:

- Materials that cannot be fabricated into gears by existing manufacturing methods
- Alternative power trains as substitutes for gears



Request #66198

**NINE SIGMA**  
Accelerating the Innovation Cycle

# RFP Review

## REQUEST # 66204 Extraordinary Fine Particle Removal from Lubricated Mechanisms

### REQUEST FOR PROPOSAL DESCRIPTION

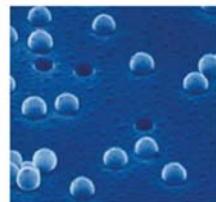
NineSigma, representing A Central European Academic/Industrial Development Consortium, invites proposals for Extraordinary particulate removal additives to conventional lubrication systems.

The successful additives will:

- Reliably bind to metal particles in the 0.001 to 5 micron range
- Peacefully co-exist with conventional lubricants and additives
- Render the small particles capturable by a convention filtration system.

### Opportunity

Licensing, product acquisition, contract research, proof of concept leading to scale-up to manufacturing, joint development, supplier agreement



### Timeline

Contract Research phase to begin Fall 2010

### Financials

Funding of research by the Development Consortium is possible for up to two graduate students for a 2-3 year program. Funding of other options by individual members of the consortium to be determined as appropriate to the state of technology development

### POSSIBLE APPROACHES

Possible approaches might include, but are not limited to:

- Development of surface treatment of nano particles
- Long chain-multi-functional group polymers
- Sticky nanospheres
- Permeable microcapsules
- Coagulation, precipitation, sequestration

### APPROACHES NOT OF INTEREST

The following approaches are not of interest:

- Approaches requiring new lubrication media
- Approaches that use highly toxic materials
- Approaches that decrease the lubrication performance of existing media
- Approaches that only remove soot from lubricants

Request #66204    Slide 2



# RFP Review

## REQUEST # 66210 Rapid nondestructive inspection of surface and subsurface microstructure properties of machined steel

### REQUEST FOR PROPOSAL DESCRIPTION

NineSigma, representing a Central European Academic/Industrial Development Consortium invites proposals for the non-destructive determination of surface microstructure properties of machined steel.

The successful technology or device will:

- Detect and report changes in surface and subsurface microstructure properties of steels in relation to a reference state
  - Sensitive to crystal structure and transformation, for example martensite
  - Detect and assess residual stresses
  - Detect structural changes up to a maximum of 5  $\mu\text{m}$  (micrometers) below the surface of the machined part as designated by the operator
- Be insensitive to the shape of the machined part being studied
- Be applicable to parts of 25 to 4000 mm diameter
- Be general or customizable to a specific part shape
- Provide a clear signal (for example a green or red light) when it encounters an out-of-specification region
- Sample and report at a rate of at least one spot per 0.1 s or scan at a rate of 1 m/sec

### POSSIBLE APPROACHES

Possible approaches might include, but are not limited to:

- Improved Barkhausen Noise instruments
- Improved Eddy Current measurements
- Improved Speckle Interferometry imaging
- Ultrasound methods
- Ultrahigh frequency radio imaging
- Tomographic methods
- Appropriate fluids to detect changes in the stress state
- Data processing methods that improve the usability of information reported by otherwise unsuitable methods

### APPROACHES NOT OF INTEREST

The following approaches are not of interest:

- Destructive Testing
- Surface Preparation
- Microscopic preparation such as etching

### Opportunity

Licensing, product acquisition, contract research, proof of concept leading to scale-up to manufacturing, joint development, supplier agreement, etc.



### Timeline

Phase 1 – Proof of Principle complete by August 2010

### Financials

Phase 1 funding to demonstrate proof of principle is supported by the Academic/Industrial consortium up to the amount needed to support one year of research in an academic environment. Alternative pathways and options for development will be funded by one or more industrial partners at levels appropriate to the opportunity.

Request #66210



**Open Call of 4 RFPs ("Requests for Proposals")  
lead to 96 solutions**

### Origin of Solution:

- 42 Industry
- 32 University
- 21 Other (z.B Non-Profit- and Public Resea

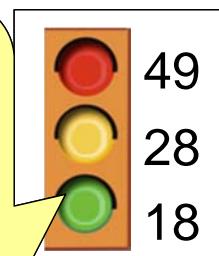
NINE  
Accelerating the

### Evaluation of the solution contribution

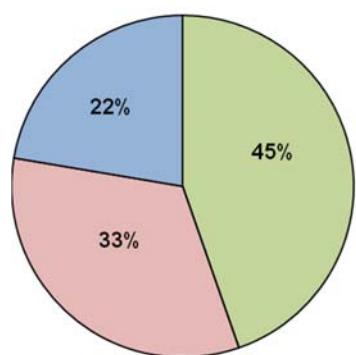
Red: not interesting

Yellow: interesting, but more clarification

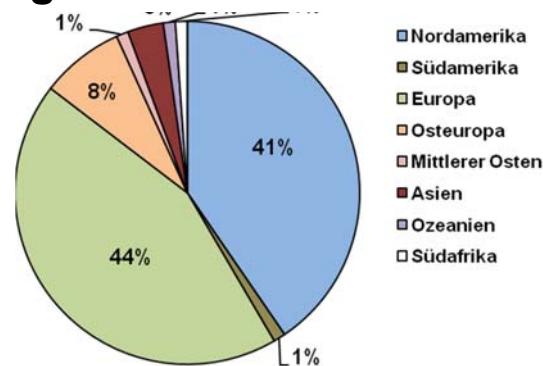
Green: very interesting/ adequate solution / follow up



### Institution



### Origin



**The contributions (solutions) come from unknown Institutions and are new from a technical perspective**

### Evaluation of solution proposals by project steering committees

RFP	Institution		Solution Technology		
	new	known	new	known	unsure
66198	23	3	16	6	4
66204	10	0	3	7	0
66207	7	0	6	0	1
66201	33	2	22	8	5

**Innovation =  
Zielgerichtetes Problemlösen**

**Open ≠ kostenlos**

**Open**  
= weit, undefiniert,  
**distribuiert, verteilt, nicht  
offensichtlich ...**

## **Open Innovation**

**Die Praxis, Entdeckungen, Erfahrungen,  
Kreativität und (technisches) Wissen  
Anderer in den eigenen  
Innovationsprozess durch formale und  
informale Kooperationsbeziehung zu  
integrieren.**

\*Hinweis: Gerade die informalen Kooperationsbeziehungen machen das "Neue" an Open Innovation aus.

# **Praxishandbuch Technologietransfer**

Innovative Methoden zum Transfer wissenschaftlicher Ergebnisse in die industrielle Anwendung

Frank T. Piller, Dennis Hilgers (Hrsg.)



**symposion**

**Wie können wir  
Unternehmen bei  
Open Innovation  
helfen?**

**Vielen Dank für Ihre  
Aufmerksamkeit!**

dennis.hilgers@jku.at  
[www.pnp.jku.at](http://www.pnp.jku.at)

