

Fra vækstvirksomhed til industrigigant - hvordan?

Open innovation and collaboration between SMEs and external partners

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What is open innovation?

Hello, I have
a problem...



I have a
solution!

“Open Innovation is a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms.”

(Bogers and Chesbrough 2014)

What is open innovation?

Hello, I have a problem...



I have a solution!

“No matter who you are, most of the smartest people work for someone else.”

(Joy’s law, attributed to Sun Microsystems co-founder Bill Joy)

What is open innovation?

Hello, I have
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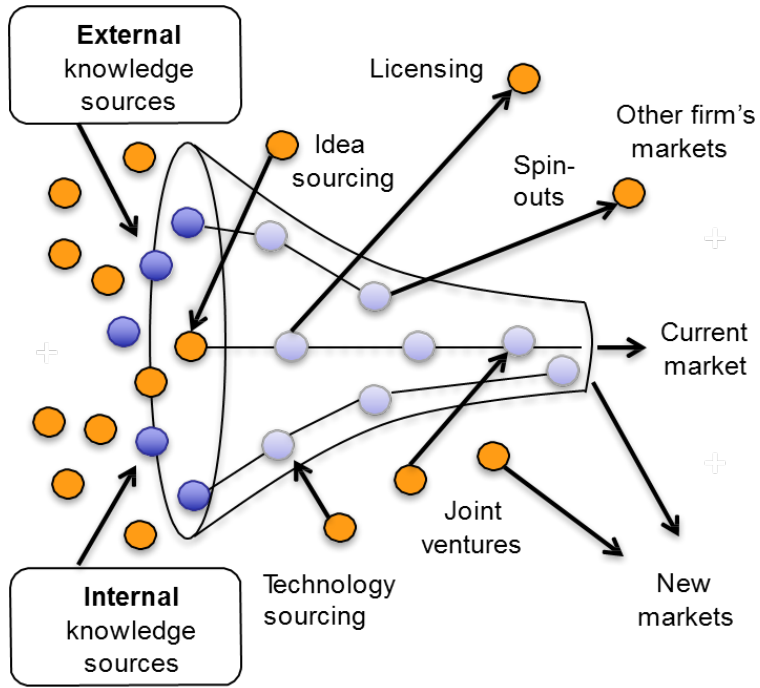
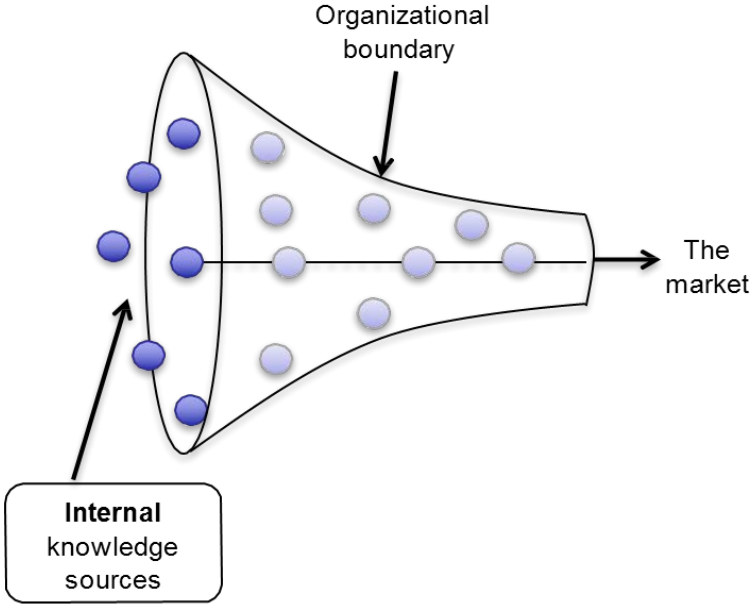


I have a
solution!

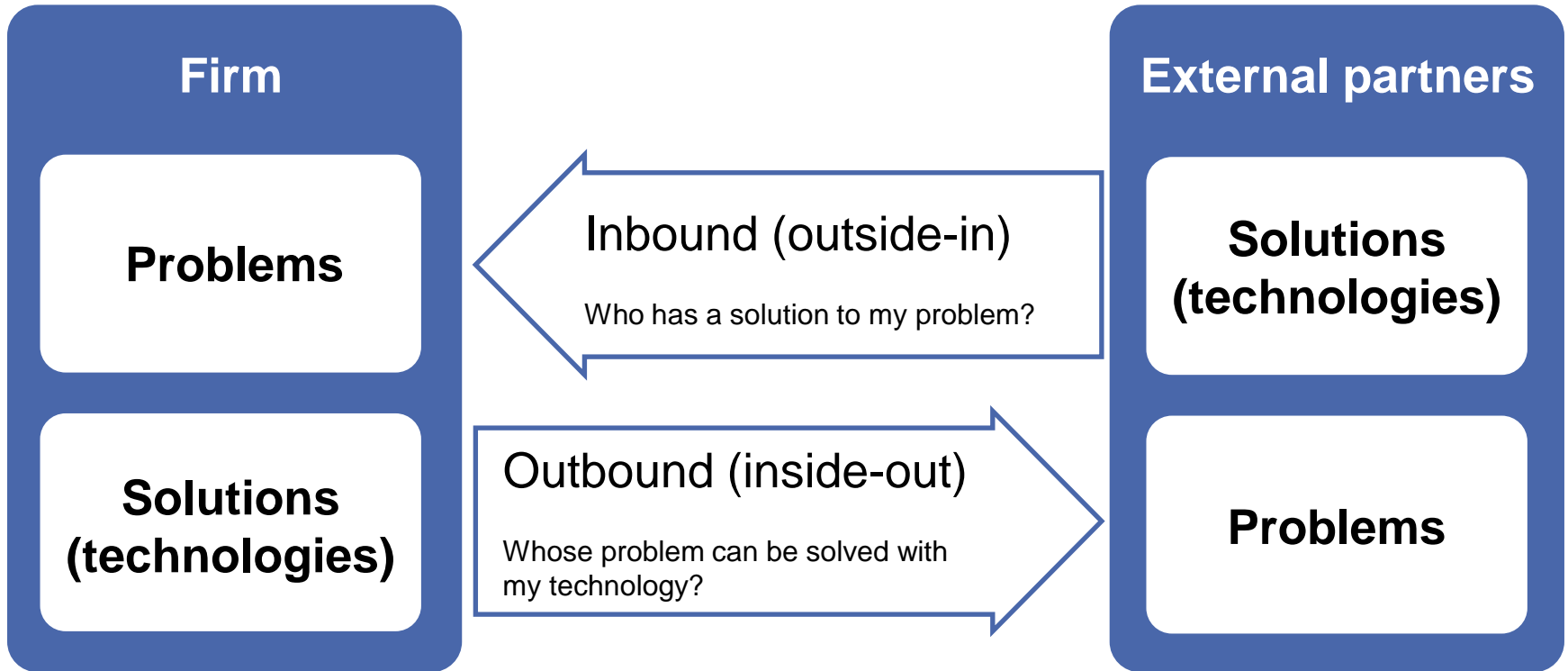
“Given enough eyeballs, all bugs are shallow.”

(Linus’s law, named in honor of
Linus Torvalds)

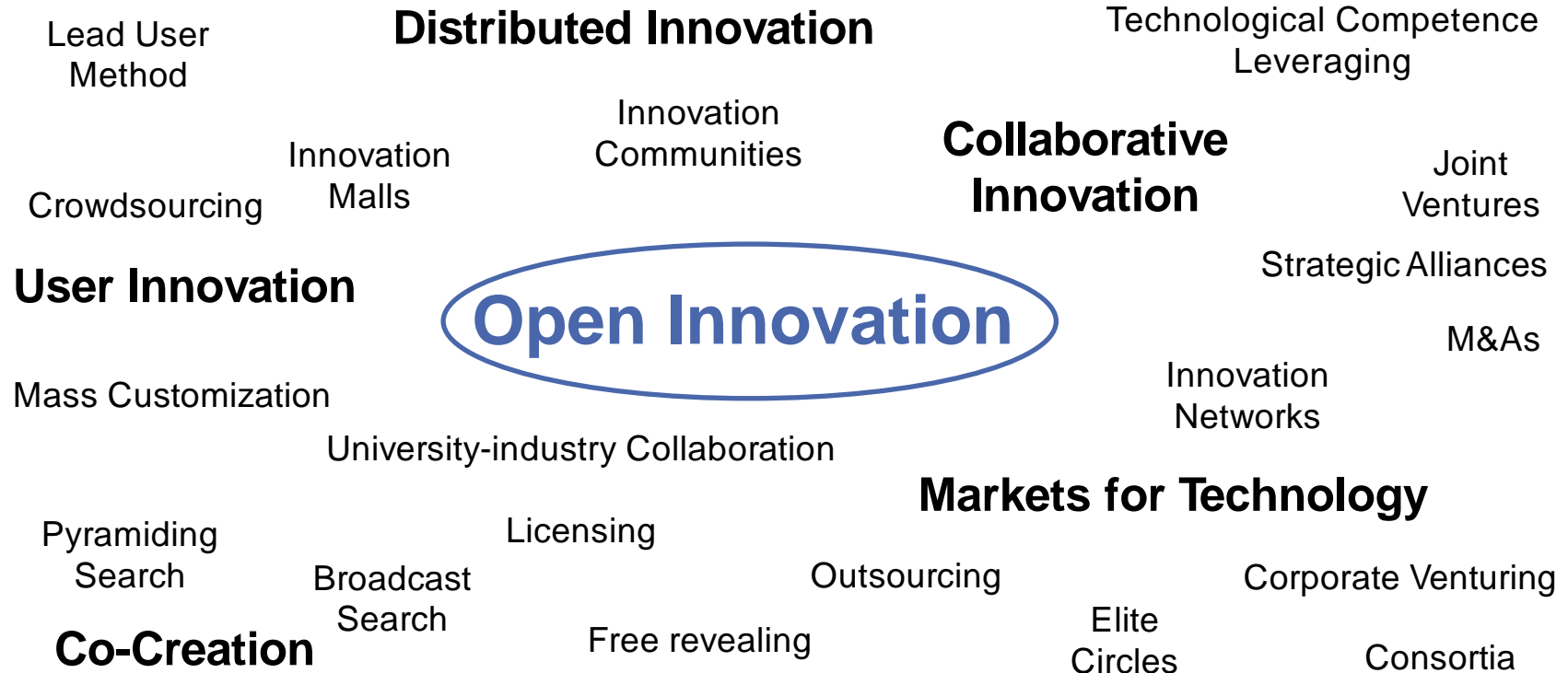
Closed versus open innovation



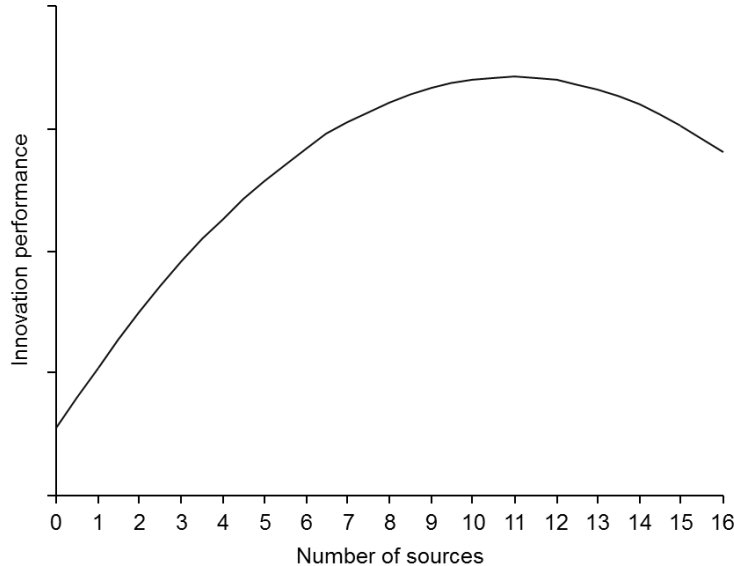
Inbound and outbound open innovation



How to do open innovation?



How does open innovation affect performance?



- External search breadth (the number of different innovation sources a firm draws from) is curvilinearly related to innovation performance
- After a certain threshold, firms may “over-search” because they fail to attend to the vast diversity of innovation sources

Source: Laursen and Salter (2006)

Some findings from research

Higher number of solutions

e.g. Alam (2003), Bonser (2006), Hargadon (2003), Hargadon and Sutton (1997) Hargadon and Sutton (2000), Huston and Sakkab (2006), Kolle (2005), Lettl (2004), Vincent and Mann (2002)

More novel solutions

e.g. Cooper (2005), Hargadon and Sutton (1997), Hienerth, Pötz and von Hippel (2007), Higgs (2005), Hsu und Kwanghui (2006), Huston and Sakkab (2006), Katila (2002), Lakhani et al. (2007), Grimpe and Kaiser (2010)

Effects of open innovation

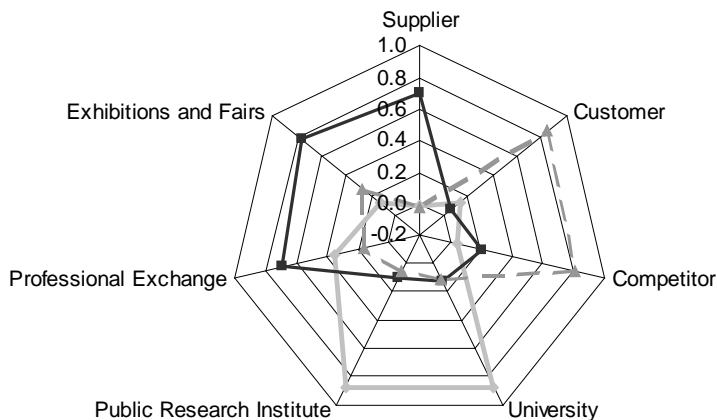
Higher success potential

e.g. Alam (2003), Bonner and Walker (2004), Bonser (2006), Fontes (2005), Gassmann and Enkel (2004), Hargadon and Sutton (1997), Lakhani et al (2007), Miller, Fern and Cardinal (2007), Grimpe and Sofka (2009)

Shorter development times, lower costs

e.g. Alam (2003), Gassmann and Enkel (2004), Hargadon and Sutton (2000), Huston and Sakkab (2006), Lagace (2006), Lakhani et al (2007), Lettl (2004), Ramirez et al. (2005)

Identifying collaboration strategies



—◇— Scientific search strategy —■— Supply search strategy —▲— Market search strategy

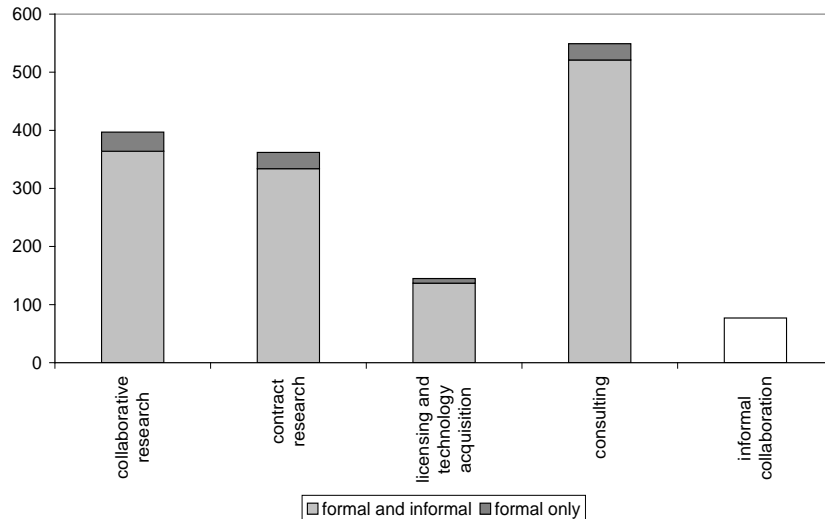
Source: Köhler, Sofka and Grimpe (2012)

	Share of sales with products new to the market (all)	Share of sales with products new to the firm (all)
Scientific search strategy (scale)	0.062* (0.033)	0.015 (0.013)
Supply search strategy (scale)	0.077** (0.032)	0.023* (0.013)
Market search strategy (scale)	0.046 (0.028)	0.056*** (0.011)
Share of internal R&D exp. of sales (ratio)	0.345*** (0.080)	0.153*** (0.033)
Cont. R&D activities (d)	0.142*** (0.015)	0.040*** (0.006)
Share of sales w/ exports (ratio)	0.076*** (0.026)	0.035*** (0.010)
Sales 1998 (log)	-0.018*** (0.004)	-0.011*** (0.002)
Part of company group (d)	0.010 (0.015)	-0.001 (0.006)
Process innovation (d)	-0.006 (0.013)	-0.033*** (0.005)
Country dummies included	yes	yes
Industry dummies included	yes	yes
Pseudo R2	0.08	0.14
N	5022	5010
LR/Wald chi2	337.16	631.76
P-value	0.00	0.00
Log likelihood	-2052.87	-1877.15

(d) for discrete change of dummy variable from 0 to 1

* p<0.10, ** p<0.05, *** p<0.01

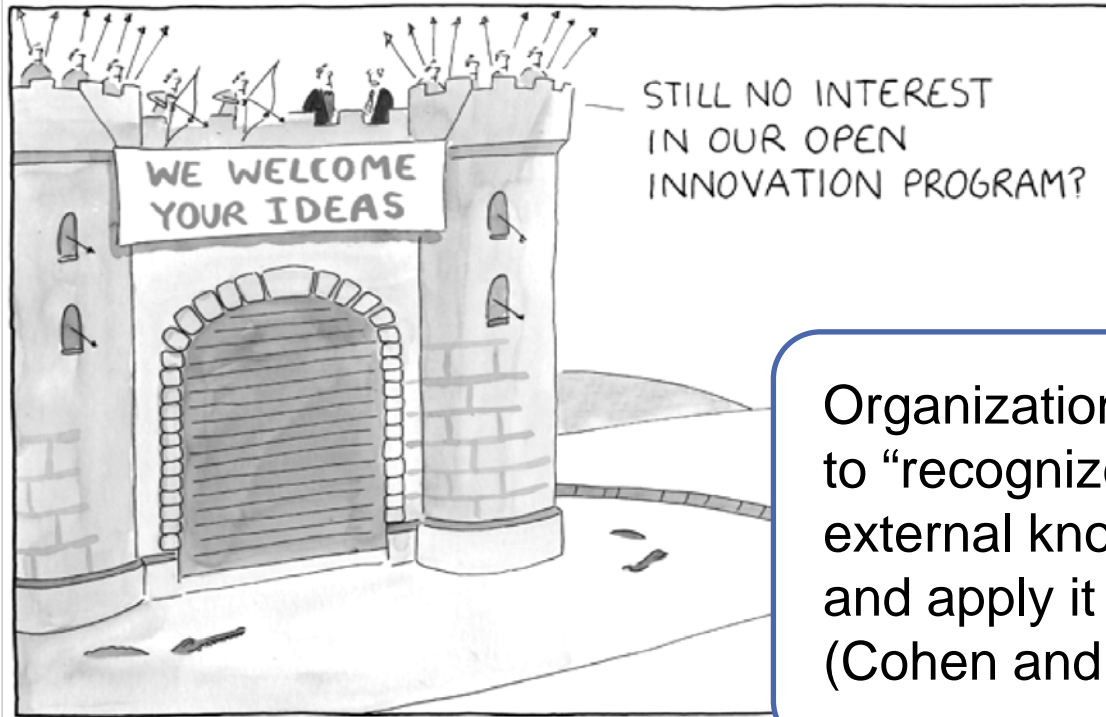
Collaborating with universities



	% of Innovation sales ₂₀₀₃		Innovation sales > 0	
	Tobit model		Probit model	
	coefficient	std. err.	coefficient	std. err.
Formal collaboration ₂₀₀₂	4.39	6.06	0.12	0.27
Informal collaboration ₂₀₀₂	1.60	3.95	0.10	0.18
Formal and informal collaboration₂₀₀₂	16.02 ***	2.090	0.58 ***	0.13
Collaboration with firms ₂₀₀₂	13.95 ***	3.86	0.78 ***	0.20
% Innovation sales/Employment ₂₀₀₂	0.79 ***	0.05	1.01 ***	0.12
Log(R&D ₂₀₀₂)	0.40	1.31	-0.01	0.06
Share of high skilled workers ₂₀₀₂	12.30 *	7.14	0.94 ***	0.36
Log(employment ₂₀₀₂)	-1.00	1.12	0.04	0.05
SME ₂₀₀₂	-6.33 *	3.59	-0.30 *	0.16
Log(export ₂₀₀₂)	-0.37	0.54	-0.02	0.02
East Germany ₂₀₀₂	0.05	5.50	-0.00	0.11
Log(age ₂₀₀₂)	-0.51	1.29	-0.04	0.06
Process innovator ₂₀₀₂	6.07 ***	2.42	0.42 ***	0.11
Part of a firm group ₂₀₀₂	6.55 ***	2.59	0.16	0.12
... with a headquarter outside of Germany ₂₀₀₂	-7.05 *	3.85	-0.32 *	0.18
Industry dummies	Yes		Yes	
constant	-17.09 **	7.90	-0.83 **	0.35
Complementarity test:	F-statistic:		X ² -statistic:	
Formal & informal > formal + informal	1.97 *		2.04 *	
Number of observations	884		884	
Number of left-censored observations	441			
Number of right-censored observations	10			
LR-X ²	483.54 ***		348.41 ***	
Pseudo R ²	0.10		0.28	

Source: Grimpe and Hussinger (2013)

Challenges in open innovation



Organizations often lack the ability to “recognize the value of new, external knowledge, assimilate it, and apply it to commercial ends” (Cohen and Levinthal, 1990)

What does it take to collaborate externally?

Absorptive capacity

Ability to **recognize** the value of new information

Ability to **assimilate** new information

Ability to **apply** it to commercial ends

The level of an organization's absorptive capacity influences its ability to widely explore new (external) knowledge to generate innovations.

- Prior knowledge
- Organizational structure and culture
- Level of autonomy
- Diversity of staff
- Resources

Open innovation example: Crowdsourcing

The screenshot shows the Goldcorp website with a dark header. At the top right, it displays stock prices: GOLD: US \$ 1,241.29 -14.94, NYSE: GG \$ 16.57 -0.70, and TSX: G \$ 21.31 -0.82. The main navigation menu includes 'About Us', 'Careers', 'Media', 'News', 'Contact', 'Operations', and 'Español'. Below the navigation, there are four main sections: 'Why Goldcorp?', 'Unrivalled Assets', 'Investor Resources', and 'Responsive Mining'. The 'Why Goldcorp?' section is highlighted with a video player. The video player has a title 'It's Who We Are, To The Core' and a description: 'A day in the life of mining is unlike anywhere else. Mining is not just what we do; it's who we are, to the core. You learn a lot about life when you're a miner.' Below the video player, there are social media sharing options for 'Share', 'Subscribe', and 'Blog'. The main content area below the video player contains a paragraph: 'Goldcorp is a leading gold producer focused on responsible mining practices with safe, low-cost production throughout the Americas. A portfolio of long-lived, high-quality assets positions the Company to deliver long-term value.' At the bottom, there are three smaller video thumbnails: '2014 SUSTAINABILITY REPORT', '2015 ANNUAL REPORT', and 'APRIL 28, 2016 FIRST QUARTER CONFERENCE'.

GOLDCORP

GOLD: US \$ 1,241.29 -14.94 NYSE: GG \$ 16.57 -0.70 TSX: G \$ 21.31 -0.82

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Why Goldcorp? Unrivalled Assets Investor Resources Responsive Mining

It's Who We Are, To The Core

A day in the life of mining is unlike anywhere else. Mining is not just what we do; it's who we are, to the core. You learn a lot about life when you're a miner.

Video: See who we are, to the core. AGM 2015 video

Share Subscribe Blog

Goldcorp is a leading gold producer focused on responsible mining practices with safe, low-cost production throughout the Americas. A portfolio of long-lived, high-quality assets positions the Company to deliver long-term value.

2014 SUSTAINABILITY REPORT 2015 ANNUAL REPORT APRIL 28, 2016 FIRST QUARTER CONFERENCE

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Why Goldcorp? Unrivaled Assets Investor Resources

The problem

Goldcorp of Canada had difficulties pinpointing the exact location of gold on its properties

The solution

Goldcorp made its exploration databases **available to the public** and offered a prize to anyone who could tell the company where to find gold.

A **team from Australia** came up with the answer, and Goldcorp struck enough gold to **improve its competitive position** from producing 53,000 ounces of gold a year at a cost of \$360 an ounce to producing 504,000 ounces per year at a cost of \$59 per ounce.

2014 SUSTAINABILITY REPORT 2015 ANNUAL REPORT

Why crowdsourcing?

- A medical instruments manufacturer is looking for a method of infection prevention in surgery (**target market**)
- Problem: avoiding contamination



- Same trend in **analogous market** (e.g. chip production)
- Maybe better insights?



Analogous market effects

Ideas from analogous/distant markets are more novel than those from the target market



Innovation med Crowdsourcing

Vi hjælper små og mellemstore virksomheder med innovation og crowdsourcing

Lær mere

Kontakt Os

<http://www.smvcrowdsourcinglab.dk/>



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SMEs and external partners**

Thank you for your attention!

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