

◀ “It is increasingly important to build broad knowledge that is also deep so the GES consciously tries to avoid disciplinary silos.”

OPEN INNOVATION

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<http://www.global-economic-symposium.org/solutions/the-global-economy/open-innovation-and-access-to-knowledge>

http://futurechallenges.org/wiki/index.php/Open_Innovation_and_Access_to_Knowledge

THE TEN EXPERTS FROM EUROPE AND ASIA WHO MAKE UP OUR DISCUSSION GROUP ON OPEN INNOVATION TAKE FOUR STATEMENTS AS A SPRING BOARD TO DISCUSS ITS VARIOUS ASPECTS.

DEFINITION OPEN INNOVATION

“OPEN INNOVATION IS A PARADIGM THAT ASSUMES THAT FIRMS CAN AND SHOULD USE EXTERNAL IDEAS AS WELL AS INTERNAL IDEAS, AND INTERNAL AND EXTERNAL PATHS TO MARKET, AS THE FIRMS LOOK TO ADVANCE THEIR TECHNOLOGY.”

Chesbrough, H. W. (2003).

Open Innovation: The new imperative for creating and profiting from technology. Boston: Harvard Business School Press

THE BOUNDARIES BETWEEN A FIRM AND ITS ENVIRONMENT HAVE BECOME MORE PERMEABLE; INNOVATIONS CAN EASILY TRANSFER INWARD AND OUTWARD. THE CENTRAL IDEA BEHIND OPEN INNOVATION IS THAT IN A WORLD OF WIDELY DISTRIBUTED KNOWLEDGE, COMPANIES CANNOT AFFORD TO RELY ENTIRELY ON THEIR OWN RESEARCH, BUT SHOULD INSTEAD BUY OR LICENSE PROCESSES OR INVENTIONS (I.E. PATENTS) FROM OTHER COMPANIES. IN ADDITION, INTERNAL INVENTIONS NOT BEING USED IN A FIRM'S BUSINESS SHOULD BE TAKEN OUTSIDE THE COMPANY (E.G. THROUGH LICENSING, JOINT VENTURES OR SPIN-OFFS).

Chesbrough, H. W. (2003). The era of open innovation. MIT Sloan Management Review, 44 (3), 35-41

Innovation in technology, products, processes and services is the motor of a flourishing economy. By open innovation we mean companies and organizations using both in-house ideas and external ideas that come from beyond corporate and organizational boundaries, thus creating new paradigms of collaboration between company staff, partners and customers.

Although research on open innovation first started nearly thirty years ago, there are still a great many unanswered questions in this field ranging from how open innovation can be calibrated to the success factors and barriers inherent to it.

There are no patent recipes. Each company must find its own way to open innovation. Business start-ups and companies in the small and medium-sized enterprise sector (SMEs) are at a particular advantage here as they don't have to deal with rigidly established structures. It's well established organizations which have to face the thorny issues of corporate culture and the management culture that comes with it.

Yet it's not just the particular form of company organization that is decisive for open innovation, the type of economy in which the enterprise is embedded also plays a key role. While Shanzhai companies are seen as the very prototype of open innovation in a dynamic forward thrusting economy like China's, Europeans with their eyes on established global players continue to grub around for strategies and solutions in the existing regime of copyrights and patents.

THE LEGAL FRAMEWORK IS A LEFT-OVER FROM THE INDUSTRIAL AGE IS AND NO LONGER FIT-FOR-PURPOSE IN THE 21ST CENTURY!

Many ways of thinking and their manifestation in the laws of the 19th century impede or in the worst case even prevent open innovation. This is why the law needs a complete overhaul both in terms of its content (e.g. what do intellectual property and patents actually mean in this new context) and in terms of its timeframes. Current heavily formalistic legal procedures need to be speeded up.

All members of the panel readily agree that existing regulations governing intellectual property and patents must be modernized. Opinions diverge, however, when it comes to the question of what kind of reform is needed. While some call for effective enforcement of the present IPR regime for the protection of copyright and patent holders, others would like to see the development of an alternative open system of knowledge for the common good.

Wan-Hsin Liu and Tillmann Schwörer are convinced that the main thing needed is an enforceable system of intellectual property rights that enables knowledge sharing across individual and/or national boundaries. Companies both large and small, they say, often shy away from embracing open innovation as they fear that it could unnecessarily increase the risk of product piracy. Frequent network attacks, many of which are from China*, with the aim of bagging intellectual property, they argue, are destroying business relationships and impeding not just incentives and readiness for open innovation but investment in research and development in general. So what is needed for successful open innovation is a well functioning global system of protection for intellectual property, one which would promote the legal exchange of knowledge.

Wim Vanhaverbeke pins his hopes on reform, "It's about innovation in the legal agreements rather than reinventing IPR system." In terms of the standardization process, he underscores that it's less a matter of the actual technology than of cultivating good relationships and good collaboration within the standardization consortium. He argues that while patents are obviously important, the European IPR system itself is "highly fragmented" and that SMEs in particular find the cost of protecting their intellectual property prohibitive. And he argues that these circumstances must be reflected in the prices charged by the patents process.

Frank Piller points out that there are already a great number of examples of successful open innovation within the present legal set-up. Even so, he argues that intellectual property should be able to be used in a huge variety of ways if the barriers to transfer of knowledge are to be overcome. And he sees a "great example" of such an approach in the Open Hardware Movement with its new Open Hardware License.

Nikolay Georgiev points out that the greater part of the know-how in a sector like mechanical engineering is not freely available. He believes that we must strike out in new directions as patents hinder progress on well trodden development paths. And David Li cites the protracted legal wrangling about patents between Microsoft, Apple and Google as an example of how present regulations serve to protect established companies. No moves to reform, he believes, can be expected from their side.

David Li also cites Chinese Shanzhai enterprises as a counter example of companies which in "total disregard of IPR", put their bets on an open source environment in from which they can challenge established players like Nokia and Samsung in markets like India. He thinks that working together with these Shanzhai companies is one way for innovative SMEs in Europe to push forward development – as the Geeksphone (<http://geeksphone.com>) and iFree Tablet (<http://www.ifreetablet.es>) initiatives have shown.

Talking about the Shanzhai ecosystem, David Li says, "There are about 2000 design/solution houses in Shenzhen that service the assemblers, marketers and distributors. The ecosystem practice, the so-called OpenBOM process, is where the design houses will give assemblers the full specifications to the hardware design with the complete bill of materials. There is no expectation of trade secrets and once the OpenBOM is out of the door of the solution house, it's expected to be distributed openly in the Shanzhai community for some others to innovate on top of. This OpenBOM process emerged from the pirate origins of the ecosystem in which IP isn't protected and is treated as public assets. The rules of open source are forced on this ecosystem."

Yet Wan-Hsin Liu and Tillmann Schwörer emphasize that Chinese Shanzhai companies in particular from the very beginning have not been considered as fair players in open innovation processes as they initially focused on product piracy. And product piracy could well prevent those companies who had seen their intellectual property stolen from investing in expensive development work and sharing their know-how. Even though Shanzhai has shown that the dissemination of knowledge can spur the development of new products thus increasing general welfare, the spread of knowledge still needs to take place on a sound legal footing. "Shanzhai factories etc. need to learn how to explore knowledge and use knowledge on a legal basis through legal interactions and cooperation with the original innovators."

* <http://www.thisismoney.co.uk/money/news/article-1687393/Chinese-hackers-blamed-for-cyber-attack-wave.html>.



▲ Rudy Bike Rudybike.com (co-created by Rich Yu)

David Li on the other hand sees the Shanzhai economy as a kind of counter movement to the patent dominated hegemony of major corporations like Microsoft, Apple and Google. “Shanzhai in China can be a place to start such an overhaul as an initial open innovation and open source ecosystem has already been formed here. Such radical disregard of IP protection has a great precedent as the American Congress in the 18th century passed legislation to invalidate all European patents and copyrights in the New World to encourage the spread and innovation of technologies in the new republic.” Nokia’s eclipse, he argues, is not just attributable to the iPhone but to Shanzhai as well.

Felix Lam says that major corporations with fat patent portfolios have already launched frequent legal proceedings against small innovative companies. As this could threaten the life of many inventions, Makible has turned to the Peer Patent (peer-patent.org) ideas database. This alternative patent system is socially enforced, whereby an idea is published to define what is new about it in a set of claims which others can review and award a PeerPatent. This grants him no legal rights but gives recognition for the original idea. It serves as a framework to encourage innovators to focus more on the development of ideas rather than defending patentable concepts.

Michael Bauwens thinks that the situation needs to be dramatically reversed. Instead of artificially maintaining licensing fees which slow innovation, we need to sustain and develop knowledge, code and design commons which can lead to thriving and non-monopolizable industries that do not rely on fees, but on real production.” Companies that apply the principles of sustainable development should be “organized around shared knowledge pools which are either shared globally as now with the GPL license in free software, or in pools which are only available for free within the network but for which for-profit entities must pay.”

OPEN INNOVATION REQUIRES A RETHINKING OF CORPORATE CULTURE!

The departmental and power structures found in hierarchical companies organized on the lines of Taylorism impede the flow of information. Values associated with open innovation such as transparency, openness and sharing must be lived out by management in its strategic thinking and corporate culture.

Anna M. Koeck argues that open innovation research has shown that “the most important challenges relate to organizational and cultural issues as a consequence of dealing with increased external contacts.”¹ Wim Vanhaverbeke sees cultivation of external networks – in the way that Philips or Procter & Gamble are doing – as a critical factor in a company’s success because people don’t need to think just of their own company’s health, they should also consider the health of their entire ecosystem. This means, he says, that rather than squeezing the last ounce of profit out of their suppliers, procurement departments should be concentrating on building up a partner management founded on trust. Wim also argues that any company that successfully embraces open innovation will need to view all its various divisions or departments as cooperating parts like the cooperating parts of an ecosystem. This means that human resources, for instance, must be prepared to take on people with different skill sets, or that legal departments need to rethink their roles, “They need to become business enablers to make open innovation possible.” Open innovation, he warns, cannot take place in companies whose development divisions squabble with their legal departments about intercompany exchange of intellectual property.

Frank Piller thinks that one of the major challenges is integrating ideas and solutions evolved on the edges of a company in the core company context. “Internal (proprietary) knowledge has to be connected with externally generated knowledge.” And Anna Koeck follows on by drawing attention to the “not-invented-here”(NIH) syndrome in research which, together with

¹ van de Vrande, V., de Jong, J. P. J., Vanhaverbeke, W., de Rochemont, M. (2009) *Open innovation in SMEs: Trends, motives and management challenges*. *Technovation*, 29, 423-437

² Katz, Ralph; Allen, Thomas J. (1982): *Investigating the Not Invented Here (NIH) syndrome: A look at the performance, tenure, and communication patterns of 50 R & D Project Groups*. In: *R & D Management*. Vol. 12, Blackwell Publishing Ltd, p. 7

the lack of in-company engagement, constitutes two of the main barriers to open innovation. Katz and Allen define the NIH syndrome as “the tendency of a project group of stable composition to believe that it possesses a monopoly of knowledge in its field, which leads it to reject new ideas from outsiders to the detriment of its performance.”²

The first symptom of the NIH syndrome is when parts of the development department reject proposals for improvements put forward by the marketing department. Frank Piller notes that this is also the reason why crowdsourcing platforms collecting customer input can fail. Anna Koeck points out that companies like Henkel have introduced “We borrow with Pride Awards” for company innovations based on external ideas or outside knowledge in an effort to combat the NIH syndrome. Even so, Frank Piller still cautions that far too little research has gone into identifying the reasons for the NIH syndrome and ways to combat it.

David Li believes that business start-ups and SMEs are the companies with the best chances of successfully embracing open innovation. Yet he also thinks that current economic pressure is also making big companies more willing to risk their hand at a “new paradigm”. Felix Lam thinks that open innovation can mean growth opportunities for start-ups and small companies as when they take up an open source approach supporting user engagement. And he argues that this is a good way of making ideas known and enabling them to penetrate a community-driven market.

Wan-Hsin Liu and Tillmann Schwörer come up with three good reasons why major corporations find it so difficult to turn to open innovation. “First, established companies may be used to the traditional, more closed innovation procedures and there is a kind of trajectory dependency. Second, established large corporations have more resources and potentially relevant knowledge stocks which enable them to perform a large part of innovation activities within the firm boundary. Third, given their stock of knowledge accumulated over time, established large corporations may be more cautious about opening up (parts) of their knowledge and innovation processes to external innovators if they cannot trust the IPR system and the related legal framework.” Even so, they add, there are still a number of successful instances like the Patent Commons which numbers large corporations like IBM and Linus among its contributors. The bottom line here, they argue, is the extent to which these companies can benefit from collaboration with external innovators, and how well they can protect their innovations from illegal forms of usage.

Michel Bauwens believes that “Commons, community and a collaborative infrastructure must be brought together and harmonized, “Traditional corporate structures can no longer cope with cooperation requirements, as the example of IBM, which has ditched its own control processes for that of the Linux community, shows.”

OPEN INNOVATION IS NOT JUST FOR SOFTWARE, IT’S FOR HARD GOODS AS WELL!

The fine art of open innovation lies in the co-creation of industrial products – customers and external partners join together to develop products which are then jointly manufactured. However, industrial companies and their traditionally managed development departments prove particularly reluctant to take this approach on board.

All panelists agree that open innovation is not for software alone. Frank Piller adds that this is also the consensus of current research. And Wim Vanhaverbeke points out that open innovation is no longer confined to the IT sector but has now spread into the service sector, the low-tech sector, and traditional industry sectors like foodstuffs, textiles, pharmaceuticals and chemicals. Plus a rising number of NGOs are adapting an open innovation approach in environmental and social matters. Open innovation, he believes could also benefit newly industrializing and developing countries.



RENÉ OBERMANN, CEO, DEUTSCHE TELEKOM AG

1. Open innovation requires a rethinking of corporate culture! Would you agree with this?

Absolutely. Companies need to create an environment where people collaborate across departments and divisions. Otherwise, open innovation will not work. Of course it may face some internal challenges, because 'things used to be different'. Encouraging a culture of innovation is a central management task which will become ever more important.

2. Open innovation is challenging our legal restrictions. Do you see any need for action to change the legal frameset?

I would be cautious in calling for new laws and regulations. Generally speaking, successful open innovation depends on trust and the openness of the business model. It's more about finding commercially viable ways to share intellectual property rights (IPRs), for instance through cross-licensing agreements, rather than using those rights as a defense mechanism. It is nonetheless crucial that both parties honor each other's R&D investments and IPRs, especially when large and smaller partners cooperate. That's why, for instance, Deutsche Telekom has clear intellectual property rights agreements in place when collaborating not just with universities and start-ups but also with large companies.

3. When people refer to open innovation they often think software. Is open innovation also an option for "hard goods"?

Yes, of course it is. Software is ideal for collaboration, because you can make full use of the internet and it's driven by a very dynamic industry. But open innovation goes way beyond Silicon Valley: many multinational companies are now increasingly relying on outside information and R&D for new products and processes. Take the pharmaceutical and chemical industries: both are industries with long lifecycles and a strong tradition of protecting intellectual property rights. But the large companies are increasingly looking for specialist firms or external researchers to trigger innovation.

4. Talking about open innovation at Deutsche Telekom AG – what kind of projects are you now working on?

While we constantly work on becoming more efficient, driving innovation is key to the success of our corporate strategy. Innovation in the digital economy is characterized by co-opetition: we collaborate with companies in some areas, in others, we may compete. We embrace open innovation through partnerships with small and large internet companies, device manufacturers, content partners, research institutions, IT firms or telco operators.

Just take the Telekom Innovation Laboratories, our T-Labs. Today, some 350 experts and researchers work there, half of them are Telekom employees and the other half are a mix of university researchers and start-up entrepreneurs from all over the world. A whole ecosystem is developing around this cooperation, aided through our T-Venture fund. It's currently the second largest corporate venture fund worldwide and is investing in promising start-ups in information and communication technology (ICT).

Open innovation can also help us enter new markets. In the healthcare sector, one of the partners we cooperate with is Berlin's Charité university clinic where we develop innovative tele-healthcare solutions. In October we will launch a new service for the remote monitoring of patients' heart rates. This will help avoid lengthy trips to specialists and improve the healthcare situation in rural areas.

Anna Koeck thinks that most open innovation activities are focused on “hard goods” in the sense of products. Nikolay Georgiev agrees with her and cites his own experience, “Open innovation is already working with hardware as we show it. We have collaborated with a lot of people on the current designs of our machines.” He would like to see a “Global Repository from which everyone can download the designs and instructions and build the machines locally in their flexible manufacturing facilities.” And he laments the fact that we still don’t have any good Web tools to support open hardware innovations.

David Li reports that open innovation activities in the hardware sector in China are taking place across a huge range of industry sectors, and cites the study by John Hagel and John Seely Brown on the motorbike industry in Chongqing (<http://www.john-seelybrown.com/davos.pdf>). Another example is that of Local Motors (<http://www.local-motors.com>) a company seeking to get ahead on the global automobile market with an open innovation development built by an open source community of designers, engineers and supporters.

Michel Bauwens sees the development goal as “a combination of open design and distributed manufacturing”. He thinks that, “Open innovation communities design for best quality, for inclusivity in the process of innovation, and redesign both machinery and the product with these priorities in mind. It is on top of these already sustainable designs that entrepreneurial entities can create marketable value.”

OPEN INNOVATION IS NOT JUST FOR GLOBAL BRANDS, IT’S ALSO GREAT FOR SMEs!

A major part of the economy – and thus of its innovation potential – is anchored in the small and medium sized enterprise (SME) sector. Even so, statistics show that SMEs make significantly less use of open innovation as they lack the innovation capacity and resources to do so. How can SMEs be given sustainable support and who is going to do this?

Statistics show that SMEs rarely tend to use open innovation methods as they lack the wherewithal to do so. Yet at the same time all the panel holds that these are the very companies who stand to gain the most from open innovation. Wan-Hsin Liu and Tillmann Schwörer say that different sized companies tend to adopt different attitudes towards, and take up different approaches to, open innovation. Big companies may be more reluctant to actively engage in open innovation since they are more likely to be the ones that provide the resources and knowledge at least at the beginning, thus bearing higher risks of loss. On the other hand, SMEs are expected to be much more open-minded about open innovation as they are the ones who first profit from the resources and knowledge provided by others.

Frank Piller gives the following explanation for why SMEs are dragging their feet: “Small firms often lack the organizational slack that allows their management to take time to consider and analyze new approaches. From our research we know that OI demands a dedicated team and special management attention.” Anna Koeck sees this “special management attention” as one of the key success factors in open innovation. “The stakeholders concerned have to “want” engagement. They have to be competent in methodological knowledge.” Management support is also essential.

She notes that thus far the primary focus of research has been on multinational companies in the high-tech sector.³ On top of this, she also points out that thus far nobody has come up with a measuring system for open innovation activities.⁴ At the same time a survey of 605 innovative SMEs has shown that comprehensive open innovations activities are on the steady rise.⁵

³ van de Vrande, V., de Jong, J. P. J., Vanhaverbeke, W., de Rochemont, M. (2009) Open innovation in SMEs: Trends, motives and management challenges. *Technovation*, 29, 423–437, p. 423

⁴ Gassmann, O., Enkel, E., Chesbrough, H. (2010) The future of open innovation. *R&D Management* 40 (3), 213–221, p. 216

⁵ van de Vrande, V., de Jong, J. P. J., Vanhaverbeke, W., de Rochemont, M. (2009) Open innovation in SMEs: Trends, motives and management challenges. *Technovation*, 29, pp. 423–437



P&G's **CONNECT & DEVELOP** open innovation strategy has established more than 1000 active agreements with innovation partners. It enables the company to share their R&D, commercialization and brand strength and to bring ideas to market faster!



On **INNOVARO** pharma licensing global companies profile their partnering opportunities, covering both out-licensing and in-licensing. Anyone looking for technologies, products and new opportunities can view and search the website and then can contact the company involved directly. The audience is made up of the most senior decision makers CEO's, Chairmen, VP's, Licensing and Business Development managers.



USHAHIDI is a non-profit tech company that develops free and open source software for information collection, visualization and interactive mapping. We built the Ushahidi platform as a tool to easily crowdsource information using multiple channels, including SMS, email, Twitter and the web. Currently the platform has been deployed over 17,000 times in over 230 countries globally by people all over the world. Major deployments include the Haiti, New Zealand and Japanese earthquakes, Tanzanian elections, Egyptian unrest and the floods in Canada and Australia.



The **FIAT MIO** is a concept car developed by Fiat Brazil adopting an open-source approach through a dedicated website. Fiat is looking for ideas that make a car personal. Brazil was chosen as the home for Fiat Mio because it's a digitally sophisticated and innovative market, and Fiat's largest after the company's native Italy.

Yet we still lack a structured framework in which the findings of scientific research can be related to practical proposals for action.⁶ This is the reason why each company must still find its own way to open innovation. As she says, “I do not think that there is a general, universally valid guideline for implementing and operating open innovation activities.” Yet she still thinks it’s helpful to get a good understanding of the methods and tools we now have at our disposal.⁷

Wim Vanhaverbeke cites an EU project in which managers explain why they’ve been successful in short ten to fifteen minute videos, and gives the examples of Curana⁸ and Quilts of Denmark⁹, two companies which both have relations with Philips. Michel Bauwens thinks that, “Through shared open design and mutual ‘stigmergic’ coordination, using techniques such as open book management, SME’s can obtain the same advantages of scale as MNOs.”

David Li and Huo Ju both have serious doubts about whether open innovation can really ever function well for existing global brands. They both believe that it’s going to be more the business start-ups and SMEs that will develop the global brands of tomorrow. David Li cites the case of the Chinese mobile phone manufacturer G’Five (<http://www.gfivemobile.com/>) specialized in emerging markets. This Shanzhai company has knocked Samsung out of second place on the Indian mobile handset market and could well unseat Nokia from the top notch in the next two years.¹⁰ It’s the open innovation ecosystem, he says, which gives the competitive edge to such companies through “efficient micro-manufacture and fast time to market at low overheads.”

UPSHOT

The discussion between Europeans and Chinese brings the major differences in their respective understanding of open innovation to the forefront. While Europeans tend to favor cautious and gradual modernization and opening of their markets, and view open source and open innovation as a complementary development system, the Chinese see themselves as pioneers of an open source system that gives them effective low-threshold access to the global marketplace. In their legal system copying and sharing is a recognized method of acquiring knowledge and feeding it into their own comprehensive dissemination and recycling system.

The advantages of such an approach are not immediately obvious for Europeans as – with the exception of business start-ups and SMEs – established companies see it merely as an alternative approach still fraught with a great deal of uncertainty. As the success factors and barriers still remain largely uncharted by research, each individual company must find its own way to open innovation. The Commons discussion does show, however, that such routes can be successfully navigated when co-operative methods and technologies are used to involve the communities on the way.

⁶ Gassmann, O., Widenmayer, B. (2010) Open Innovation: Vom Schlagwort zum praktischen Tool. *Technische Rundschau* Nr. 2/2010, pp. 56-57, p. 56

⁷ For instance, Hilgers, D., Burkhart, T., Piller, F., Wuhrmann, J. C. (2011) *Strategisches Controlling für Open Innovation. Konzeptioneller Rahmen am Fallbeispiel Henkel. Controlling – Zeitschrift für Erfolgsorientierte Unternehmenssteuerung*, 23. Jahrgang 2011, Vol. 2, pp. 84-90.

⁸ Vanhaverbeke, W. (Fundación ESADE); Bosch, S. (Fundación ESADE) (2010), CURANA BVBA: MANAGING OPEN INNOVATION FOR GROWTH IN SMES, http://www.ecch.com/educators/products/view?id=97976&rc=1&pg=1&tc=14&adv_search=1

⁹ Vanhaverbeke, W. (Fundación ESADE); Bakici, T. (Fundación ESADE) (2010): QUILTS OF DENMARK: MANAGING OPEN INNOVATION IN A LOW-TECH INDUSTRY SME, http://www.ecch.com/educators/products/view?id=97980&rc=2&pg=1&tc=14&adv_search=1

¹⁰ <http://www.livemint.com/2011/06/22230826/G8217Five-plans-to-unseat-N.html>