The Future of (e-)Business is Swarm Business

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Introduction
The goal of this report is to explore how the state of e-Business has evolved over the last ten years. The short answer is that while having a dedicated role of chief e-Business officer was customary in 2000 in companies, this has fundamentally changed over the last ten years. Using basic Internet technology has now become part of daily business just like using the phone, where no company would think of having a chief telephony officer. What we see, however, is the growing use of social media, subsumed in the term Web 2.0. In it’s most advanced uses, as encountered in companies like LEGO, Apple, Google, EMC, and Pfizer, social media is seamlessly integrated along the entire supply chain, from new product design and innovation over customer service and marketing to internal knowledge management.

Collaborative Innovation Networks
For our analysis we use the framework of Collaborative Innovation Networks (COINs)\(^1\). COINs introduces a seamless ecosystem of interconnected social networks, where customers, employees, shareholders, and the outside world are all connected in swarms of people. COINs in its most advanced form are the main building blocks of a new type of company where customers become one with the

\(^1\) Peter A. Gloor, Swarm Creativity Competitive Advantage through Collaborative Innovation Networks, Oxford University Press, 2005.
company, working together in collaborative communities fostered by the Internet and online social networks.

**Share 99% - Keep 1%**  
On of the key insights of swarm business is the principle of sharing knowledge within the business ecosystem of a company. I call this the 1-99 principle, meaning that a company should share 99% of its accumulated knowledge with customers and competitors, and keep the remaining 1% to gain a competitive advantage. Google is a key example of this principle, sharing the key product, search, with its customers for free, and also making most of its other products such as gmail, picasa, google+, etc. available for free. The key piece of information that Google guards carefully is the knowledge about who is searching what where and when. And as we know, this insight, sold as Google Adsense, is hugely profitable. Facebook is doing the same, making its platform available for free, only keeping the detailed demographic information of its user base as its competitive advantage, and selling it to its online advertisers. One might argue that this only works for companies that sell information, it turns out, however, that this is also true for companies selling physical products. For example, Apple is outsourcing not just design of its new products such as the iPhone and iPad to Ideo, but also production to Samsung, HTC, etc., and just keeping the visioning of new products, tight integration of supply chain, and communication with its fanatically loyal customers as its core knowledge.

**Social media is everywhere**  
To analyze the influence of social media on the enterprise we propose a straightforward framework, based on the product supply chain (figure 1).

![Figure 1 - Analyzing Social Media in the Enterprise](image)

Leading companies leverage social networks in all six areas of the framework shown in figure 1, as illustrated in the following examples:

*New product development* - For example LEGO’s users do a large part of the product design for the further development of the programmable Mindstorm toy bricks’ hard and software.

*Production* - For example EMC is using its hugely successful EMC ONE internal social network and EMC Community network to connect with customers and suppliers.
**Marketing** - For example, Swiss Airlines is using its Facebook page to reach 80,000 of its most loyal flyers to announce special offers and sales. Nespresso is announcing special editions of its coffee capsules and new coffee maker designs to its over 1 million Facebook followers.

**Sales** - For example, Apple is creating a unified network in its iTune store accounts to offer iPod/iPhone/iPad owners a super-easy way of buying new apps and media files, sharing the revenue with creators of the documents.

**Customer service** - For example, MySQL is at the same time selling corporate versions of its open-source database, and nurturing a huge self-help community-driven forum to debug and optimize its database.

**Human resources** - For example, Pfizer is using its internal Wikis to share all types of internally-generate drug-related knowledge among its R&D teams.

Figure 2 illustrates main social media usage at companies from another perspective, identifying the two main (related) uses: generating ideas, and cultivating relationships.

![Figure 2. Use of social media for new product development and sales](image)

Social media is used successfully internally e.g., at IBM and EMC to generate new ideas in “idea jams”, where during a pre-set period of time employees share ideas. For instance, in the last EMC idea jam, 1000 employees submitted 1500 ideas, out of which the swarm chose 47 for further development.

Social media is also used externally for idea generation in customer forums, such as EMC community network, where 250,000 people, out of which 80% are customers, discuss product features and bugs, and come up with suggestions for new products. Social media is also heavily used for nurturing and cultivating relationships internally in Facebook-like networks, for example EMC ONE, where 30,000 out of 50,000 EMC’s employees actively participate to share knowledge in a more collaborative environment, in extension to e-mail.

**Different Knowledge sharing cultures in Asia and US/Europe**

There is a key difference between Asian companies, and leading US/European companies, in their attitude towards sharing knowledge with competitors. While
companies in the Silicon Valley even hire new employees with the promise of helping them start their own business after having worked for one or two years for the company, Asian companies discourage or explicitly forbid their employees to exchange knowledge with competitors. Leading Asian companies like Infosys invest into sophisticated internal knowledge-sharing wikis, but are not interested in sharing insights with the outside world. This is very different in US/European companies. For instance, leading Swiss companies who are also competitors, such as Novartis and Roche, or UBS and Credit Suisse, explicitly collaborate in areas such as IT or HR, sponsoring collaborative research projects at universities (for example the competence centers at University of St. Gallen) and sharing learnings with their competitors.

**Case Infosys**
The key insight that stood out in my interview is that Infosys is very reluctant to share knowledge with outsiders, and is not inclined to opensource software developed by its employees. It does not really use open innovation platforms like Innocentive top tap collective intelligence, nor platforms like TopCoder to get solutions to coding challenges from outside talent.

For product information management Infosys is using internal Wikis, recording team-related communication with the option to multicast project-related mails to its own staff globally. Social Media is used for recruitment (LinkedIn). Infosys has internal community pages and an internal Facebook, which is also used to reach out to students and potential recruits. The internal Facebook is used by its employees as an internal “sales platform” to sell their skills. It can be used to do interviews with knowledge experts and has an internal twitter channel to reach a large group of people quickly. It also has an internal public broadcasting channel. Social network analysis has been used to improve communication in R&D, but not in contact with clients.

For new customer acquisition, neither e-mail marketing nor social media channels are used extensively, as its sales and marketing is based on longtime relationships and personal relationship management.

**Case EMC**
With an open knowledge sharing environment, high accessibility of senior management up to the CEO, and a culture that values transparency on all levels, EMC early on embraced social media and Web 2.0 technologies. Inside EMC, the focus is on merit, several programs have been established which promote employees based on technical skills complementing the classical management career. Employees also have wide freedom in choosing their own work hours, with emphasis not on work presence, but on work results. Everybody at EMC is encouraged to contribute, independent of seniority and hierarchical position.
Its internal online social network EMC ONE, with 30,000 active participants out of the 50,000 EMC employees has become a huge success. It complements e-mail and is used daily by most of its users. It is seen as one of the key enablers of transparency.

Two years ago, EMC also started an external social network called EMC Community Network (https://community.emc.com/index.jspa), which by now has 250,000 users, out of which 80% are from outside EMC. The different topic and product specific communities on EMC Community Network are managed by community managers, who are appointed to their function either part-time or full-time. The forums are also used as labs to testdrive new ideas among EMC customers and business partners, and as knowledge hubs to gather and collect new ideas for extending existing and creating new products with input from outside EMC.

This is complemented with internal idea jams, which are organized annually during a few days. All employees are encouraged to submit ideas, which then are commented on and vetted by other employees. Last year, 1500 ideas were submitted by 1000 employees, 47 ideas were chosen for further development.

External social media monitoring for competitive intelligence is not seen as important, coolhunting of new trends happens more by tapping existing social networks and personal relationships than by using sophisticated Web tracking software. EMC’s competitive analysts have been early adapters of EMC ONE and are using social networking to collaborate 3-4 times more effectively (by estimate of the group leader) than before.

**Case Pfizer**
Pfizer’s use of social media is quite conservative. While it is using an “internal Facebook” based on Microsoft SharePoint, it is not used very actively. Pfizer’s experimenting with internal knowledge sharing with wikis in R&D teams has been more successful. Researchers are using internal wikis to share data and collaborate in all phases of the new drug development process. Pfizer also experimented with Jammer, an online social network originally created for artists, which caught on with early enthusiasts, but did not spread widely so far.

External use of social media has also been quite fragmented. One key restricting factor in using social networks more widely in communicating with customers (aka patients and doctors) is restrictions imposed by the FDA. This means that setting up patient communities for diseases where Pfizer sells prescription drugs is not possible. Two areas where Pfizer is allowed to engage in collaborative communities is with doctors, and with users of its OTC drugs. For example Pfizer is selling an OTC product for back pain called ThermaCare HeatWraps, and has established a successful online community for users of this product (http://www.backexperts.co.uk/).

Pfizer also has a partnership with Sermo, with 120,000 members the largest online community of physicians in the US. Pfizer is using Sermo as an additional sales
channel to contact physicians and inform them about its products. From the beginning, Sermo and Pfizer decided on transparency, disclosing to the doctors communicating on Sermo that Pfizer would now get access to the contents of their internal communications.

While Pfizer has an active presence on Facebook, Twitter, LinkedIn, and YouTube, the external online social networking efforts of Pfizer are quite fragmented, although efforts are underway to create a community of community moderators at Pfizer, i.e. the people at Pfizer working on creating these external customer communities.

**Coolhunting Overview**

Large-scale phone polling made with surveys to track popularity of products/companies etc. has been used for a long time to measure public opinion. The Coolhunting approach\(^2\) offers an automated and much cheaper way than polling people over the phone to achieve similar goals by analyzing the linking structure of Web sites and blogs. Using the Web as a mirror of the real word permits to automatically measure and track the popularity and attributes of brands and stars. It offers an efficient way to trace fame of brands and stars in the real world.

Our software *Condor*, a dynamic social networking tool, measures popularity and influence of brands and stars over time by looking at their “social embedding” on the Web and to conduct *Nethnographic* analysis in different information spheres:

- Key search term comparison on Web
- Key opinion leaders on Facebook
- Key topics on the Web/Blogs
- Key consumer topics in forums
- Hot trends of today on Twitter

Combining multiple datasets, each containing the linking structure of the Web sites collected through querying for the name of a search term permits to find the most central actor in a group of actors by comparing the betweenness scores of the different actors. By combining the link maps returned by different searches, we can compare different actors, identifying the ones with the highest betweenness values. These are the most linked, or “talked about” search terms in a given Web or Blog context.

The same combined query and subsequent evaluation by betweenness also permits to find the most relevant Web sites discussing related topics.

**Coolhunting 3M**

With our Coolhunting approach we want to answer the following four questions:

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\(^2\) PeterA. Gloor, Scott Cooper. Coolhunting, Chasing Down the Next Big Thing. AMACOM, 2007
- How is 3M represented in the Web and Blogs?
- How does 3M participate in Social Media?
- How open-minded is 3M about Open Innovation & Crowdsourcing?

**How is 3M represented in the Web and Blogs?**
Using Condor’s Web Collector with the Google Search API, we got the expected results. There were basically a lot of 3M-related websites like the national microsites (e.g. [http://solutions.3maustria.at](http://solutions.3maustria.at)).
The Google Blog Search results in contrast were more interesting.

![Figure 3. Term view of blog search results. (Query: “3M”)](image)

Analyzing the terms with Condor, we found out that bloggers are writing about 3m in different ways. 3M “health products” like Littmann and 3M “technology” seem to be mentioned very often in blogs. But there are also negative posts/comments about discontinued products.
A further interesting fact is the relationship between the terms „design“, „best“ and „media“. This might be a hint that 3M is already doing a good job in social media marketing. That leads us to the question how far 3M is dedicated to social media marketing.

**How does 3M participate in Social Media (Webresults)?**
Using Condor’s Web Collector with “3M social media” as an initial query, we got the following results analyzing the used terms in the web.
Figure 4. Term view of web search results. (Query: “3M social media”)

It gives us the impression that 3M is active in 5 social media „categories“:
- „tweet“ → Twitter
- „photos“ → Flickr / Picasa
- „videos“ → YouTube
- „apps“ → iPhone
- „social“ → Facebook etc.

We verified these results. On the following pages, we list a few examples of „Digital Marketing“ & „Social Media“ campaigns 3M did recently.

3M@youtube
The 3M “Car Care“- YouTube channel shows automotive enthusiasts how to use 3M „Car Care“ products. The videos are moderated by Paul Dalton, a worldwide master detailer.
To measure the success of this campaign, we analyzed two big car detailing communities (www.autopia.org & www.detailingworld.co.uk). The feedback from these communities is visualized in figure 6. It is quite positive.

3M is well-represented in the Flickr community as well. In the Post-it® Flickr group artists and fans create artworks with Post-it notes.
3M@Facebook
Analyzing Facebook regarding the presence of 3M-related fanpages, we found a lot of official 3M end-consumer product fanpages.
3M found three apps from 3M. 3M Marker Mapper, 3M VAS and 3M Littmann® SoundBuilder. Only the last one is related to a concrete 3M product (Littmann® Stethoscopes).

How does 3M participate in Social Media (Blogresults)?
Using Condor’s Web Collector with “3M social media” as an initial query, we got the following results analyzing the terms used in the blogs.

Figure 9 shows us that there are more negative terms (negative, worst, debacle) in the graph than positive ones. It could mean that some of 3M’s social media campaigns were considered a letdown by consumers.

We verified this statement using Google blogs with the query „3m negative jaguar“, which are terms we found from our Coolhunting. For results execute the Google query [http://www.google.com/search?hl=en&ie=UTF-8&q=3m+negative+jaguar&tbm=blg](http://www.google.com/search?hl=en&ie=UTF-8&q=3m+negative+jaguar&tbm=blg). The result reveals that a lot of blogs write about a Post-It Note campaign which offended many bloggers:

Back in 2006, some workers pulled a practical joke on one of their co-workers who was obsessed with his Jaguar, always searching for standalone parking spots. For this reason a group of colleagues used about 14,000 Post it Notes and covered the Jaguar complete with Post It Notes. The photo of this joke was posted on Flickr, with a Creative Commons License (allowing the use for non-profit purposes) the stunt took on immense popularity, and was reported in blogs, websites, national news networks etc., giving a boost to 3M’s Post It Notes in popularity.
Then came 3M calling up the photo’s owner, asking for the rights to use his photo for their 6 months nationwide In-Store campaign in the US. The picture owner tried to negotiate a price with 3M, which however was rejected by 3M. 3M went ahead re-creating the Post-It-Note Jaguar and ran the nationwide campaign anyway; the end result was very similar in color combination to the original Post It Note Jaguar. The blogger scene was very disappointed about how 3M had dealt with the person who had created the original photo, creating a lot of negative publicity and calling for a boycott of 3M products.

**How open-minded is 3M about Open-Innovation & Crowdsourcing?**

We searched for 3M open innovation platforms and crowdsourcing communities and the results were quite interesting. 3M has no international crowdsourcing platform, which is accessible for everybody. 3M Austria however started a crowdsourcing platform ([www.zukunfts-innovation.com](http://www.zukunfts-innovation.com)) in February 2010. It works like this: A company pays a certain amount of money for a certain amount of ideas. Innovators and creative minds can reveal their ideas. All project participants can rate the ideas with so-called "Flowers". The highest rated idea gets the money. 3M Germany also started a webportal for „innovation-culture“ and open innovation ([http://www.die-erfinder.com](http://www.die-erfinder.com)) which is associated with 3M Austria's crowdsourcing platform.

**Conclusion**

3M end-consumer products are well-represented in social media sites and communities. However, there was no mention about 3M's B2B products in our coolhunting results. This shows us that they are not well-promoted in social media. Moreover, 3M should stick to the social media guidelines:

1. **Transparency**
   - Never pretend to be someone you are not
2. **Privacy**
   - Unless given permission, don't blog about something disclosed to you
3. **Disclosure**
   - Disclose anything people might consider a conflict of interest
4. **Truthfulness**
   - Don't lie
5. **Credit**
- Give credit to bloggers (and other sources) whose material you have used in your blog

An international crowdsourcing community has not been established yet by 3M. A look at 3M's competitors like Johnson & Johnson shows that they already have such kind of community (e.g. http://www.jjconsumerideas.com/).