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The OpeningUp project started at the first of October 2011 as a collaboration of 9 partners from 6 European countries. The project is set up to promote the use of open data and social media.

The partners are: Gemeente Groningen, Groningen, Netherlands; Hanze University Groningen, Groningen, Netherlands; Intercommunale Leiedal, Kortrijk, Belgium; Karlstads Kommun, Karlstad, Sweden; Kristiansand Kommune, Kristiansand, Norway; Thomas more, Mechelen, Belgium; Hoeje-Taastrup Municipality, Hoeje-Taastrup, Denmark; Forism Ltd, London, United Kingdom, and Regiopolitie Groningen, Groningen, Netherlands.

Objectives

The website of Opening Up states the objectives as follows:

• Develop transformational citizen-led services through the use of social media approaches.
• Integrate social media into government and business service delivery.
• Spearhead the adoption and use of open data by governments and businesses.
• Set up an accredited training programme on social media.
• Extend the European Service List to include new social media channels.
• Build a community of practitioners in the NSR aimed at promoting the adoption and use of social media in government-citizen, government-business and government-government relations.
• Build instruments to measure an organisation’s capacity to use social media to develop relationships with their stakeholders.

The Hanze university of Applied sciences got involved by the effort of professor Frank Jan de Graaf. The project was adopted by KCO (Center of Applied Research Entrepreneurship) and the schools IBS, CMI an IMM. The initial project manager was Anu Manickam; after a year this position was taken by Jan Liefers. In the last year the responsibility was taken over by professor Karel Jan Alsem. The total budget for the three years was 394.796€ of which some 50% was covered by Europe.
Overview of this report
This report shows the outcomes of the various projects that have been performed at the Hanze University of Groningen, within the context of Opening Up. We present the projects in 4 parts: first various activities around social media, then specific research projects about social media, then a separate chapter about the Social Media Lab developed at the Hanze University, and finally the results of the Open Data projects. We end up with some conclusions about the overall results of the Opening Up project at Hanze University of Applied Sciences.
The total budget for the project is set to € 394,796. € 59,132 is on a transnational budget (100% funding) and € 335,664 is a regional budget which offers 50% funding.

This document was finished before the actual closing of the project so no final budget outcomes can be presented. The most likely outcome was presented in the final budget change. We expect an underspending of € 96,448 for the total project of which € 31,005 on the transnational and € 65,443.

This difference is explained by two main reasons. The transnational underspending arises since the proposal for the Cluster Strategy Toolkit was not accepted. The regional underspending is caused by the inability to meet the standard of 50% staff hours / 50% other expenses.
International Network Northern NetherLands (INNNL)

By Jan Liefers

The International Business & Management School has taken the initiative, together with some regional partners, called SPINN, to develop a website on which individuals can make their trusted international connections visible on an online map. Existing social media do not offer this feature, and it was expected this could contribute to promoting the international profile of members of organizations.

Social Media Networking tools that focus on professionals, like LinkedIn and Xing offer the possibility to show your network. It also provides users with various search and filter options to search for people in specific areas and locations. The option of Inmaps within LinkedIn is a good visual representation of the size and interrelatedness of your network. LinkedIn had in Q1 of 2014 296 million users. Xing, which is dominant in German speaking countries had in Q4 2013 14 million users. Yet none of these shows your network on a global map. They do not distinguish the quality of the relationship with people in your network.

The idea was to develop a website that enables individual members of organizations to show and share their international contacts and present this on a global map. Initially it was thought to add a space for cooperating and sharing data with these contacts. One of the drivers behind this idea was the need to expand internationally.

Finding people who are known by people in your network and who they trust would create a greater network possibility. The approach of a map seemed a new and promising approach. Suppose you want to export products to Poland and are looking for legal experts of the Polish market it could help if one of your contacts already knows people in that market. Seeing people you know and trust know people they know and trust adds to the great desire of getting to know reliable and trustworthy contacts.

The work started in sept 2011. The Hanze University of Applied Sciences, as one of the SPINN partners contacted a web design agency and set up a functional design. The design agency had recently developed a platform that enabled all kind of social networking features so this proved to be a good way to start from. The initial design was finished in June 2012. In Sept. 2012 a user test was done and results showed some room for improvement. At the same time the design company went through a major restructuring.

It was decided to look for other options. A Chinese web designer was found to do the technical and programming work, the functional design list was revised, persona’s were developed and the design was completely revised. In a series of test sessions with all the SPINN partners the new design was tested and slightly modified. Within two months a new website was launched and a communication campaign was set up, based on starting at the SPINN partners and their internal networks.

1 Service stopped on Sept. 1st 2014
After two test runs it could be established that the second web version performed technically OK and was seen as an improvement to the first version. The success in terms of people actively using the site was disappointing.

Finally it can be concluded one cannot so easily create a new social medium, particularly in the realm of professional activities since effort is measured in time and result. And very likely results should be clear before spending time working on a project like this.

The initial site was developed by a company, now known as Malengo. The redesign was done by Yan Xue, and written in python 3k. User interface was done by Jan Liefers and a free-lance designer provided by Yan Xue. Testing was done by Jan Liefers. The media for promoting the website were designed by Jan Liefers with the aid of Ciska Eskes. The final result can be seen at www.innnl.biz.
Using social media to support cluster development

Working Paper         By Anu Manickam & Frank Jan de Graaf

Abstract
Developing European transnational clusters is a cornerstone in current EU-policies towards a sustainable competitive and open European economy. This conceptual paper relates these objectives to new developments in the application of network IT or, in popular terms, the rise of social media. The growing importance of clusters is related to new theoretical insights. Based on this, the paper comes with suggestions for policy makers in governments, businesses and knowledge institutions such as universities.

Introduction
The 'Innovation futures in Europe' a European Policy Brief (INFU, 2010) explores possible futures of Europe that include globalization of innovation, open source and user driven innovation in the new economic landscape.

Behind this complex terminology an even more complicated world comes into existence, which reflects the shifting boundaries of physical and technological futures. Within it's economic policy, the European Commission explores these developments within two documents.

The European Commission's communication on "An integrated Industrial Policy for the Globalisation Era Putting Competitiveness and Sustainability at Centre Stage' (EC, 2010) strongly voices the need to put globalization and the emerging markets at the focus of all economic and industrial policy agendas with the emphasis on clusters and networks as drivers of innovation.

These networks and clusters would ideally seek collaborations across sectors and between clusters to enhance cross-fertilization and create critical mass for innovative regions. The emphasis is on clusters enhancing communication and interactions in the networks to generate innovation and therefore indirectly economic growth.

The European cluster policy is a second area of relevance here. The European Cluster Policy Group identified the need for 'international cluster cooperation' and the 'support of emerging industries' to help raise excellence of clusters to become 'dynamic clusters with a global reach' (ECPG, 2010). The emergence of inter-connected networks of global production value chains and, the increasing outsourcing of services in business practice (Pralahad & Krishnan, 2008) mean that businesses increasingly seek connections beyond their immediate regional and local boundaries. (Local) governments may need to re-align their policy and instruments related to supporting businesses and regions.

In both policies, the use of IT-enabled inter-organisational cooperation – in popular terms the use of social media – is a pre-assumption. Until now the relationship between social media and economic policies have not been assessed. This paper explains and explores the implication of cluster approach to regional growth for policy and in particular, the use of social media in this context.

What are clusters?
A cluster is “a geographically proximate group of interconnected companies and associated institutions” (Porter, 2000, p.254). Clusters can be a policy initiated region or network of organizations in a designated location that may or may not have an explicit programme (defining their objectives and focus) and clusters are also described in terms of the triple-helix to stress the participation and collaboration of government, knowledge institutes and businesses in the cluster network. Silicon Valley is the most famous of the clusters. The idea of clusters has become extremely popular within the last two decades among policy makers. However, much is unclear about how a cluster emerges and should be developed.

In general clusters are characterised by a set of explicit and implicit interdependencies in which there are formal and non-formal contracts and agreement that help the innovation process (Storper 1997). With the knowledge economy, the generation and
spreading of innovation, knowledge in the cluster is one of the main themes of the policy literature. Edquist (1997) emphasizes the joint engagement of cluster members in activities that are socially embedded and this is where the sharing and spreading of knowledge and innovation takes place. Asheim et al (2012) embraces this in their overview of developments in clusters and innovation policy: that it is in the interaction amongst cluster members that learning and sharing of new knowledge takes place. In the context of knowledge economy and innovation economy, the focus on interaction and knowledge flows takes on new significance.

The importance of a cluster approach: Europe as example
The European Commission (EC) has indicated that within the new Horizon 2020 and in particular within the Innovation Union, cluster development will be a key economic driver for the regions.

One of the most central themes of the Innovation Union is to pool innovation efforts by involving everyone in the innovation process. What has been coined European Innovation Partnerships refers to a “new way of bringing together public and private actors at EU, national and regional level to tackle the big challenges we face such as climate change, energy and food security, health and an ageing population” (IU). Again, ambitions and complex terminology characterize the statements of the union on this.

Clusters and networks improve industrial competitiveness and innovation by bringing together resources and expertise, and promoting cooperation among businesses, public authorities and universities. Regional, national and EU cluster policies should aim to overcome existing market failures and funding gaps, especially to supply the bridge between companies and research institutions. The EU’s Regional Policy and the research Framework Programmes assist regions to adopt ‘smart specialisation strategies’ to strengthen their competitiveness through developing innovation niches. Building upon existing successes, there is a need to develop more globally competitive clusters and networks for both traditional and R&D and innovation clusters. Through local clusters that are connected Europe-wide, a critical mass can be achieved for R&D and innovation, skills, funding, the cross-fertilisation of ideas and entrepreneurial initiatives. However, the various cluster initiative need to be consolidated and streamlined.

Source: An Integrated Industrial Policy for the Globalisation Era Putting Competitiveness and Sustainability at Centre Stage (2010)

The development of new institutions related to cluster by the EC – such as Cluster Managers’ Club, Cluster Associations, Cluster Labels are indications of the significance and priority given to clusters and cluster development in policy. Local governments will have a key role to play in these new developments to enhance competitiveness and innovation in the local regions. In addition, local governments will not only have a role as facilitator of business environments to enhance innovation and competitiveness but also, as a stakeholder in cluster’s triple helix.

New industries and services, which combine knowledge in new and novel ways, are associated with innovation and entrepreneurial activities. New industries and services emerge not only as a result of new technologies and entrepreneurial savvy, but also as a result of the renewal, transformation or intersection of existing economic activities. The evolution of economic activities occurs to take advantage of new opportunities (e.g. technological advances) and address new needs (related to e.g. climate change, energy and public welfare)…

Clusters can offer a favourable “eco-system” in which new industries flourish and grow stronger. They foster the interaction and collaboration between different creative milieus and innovation actors (including users/customers) in a region, and promote entrepreneurship by providing a fertile business environment for emerging high growth firms. Emerging industries are very much at the centre of interest of both enterprises and public authorities, since they offer scope for creating new jobs and wealth in regions – and provide the platform for future economic growth.

According to European policy makers, (local) Governments have to learn to embrace the new cluster development as a cornerstone of business environment support and integrate policy measures to this end. The changing nature of business environments (macro economic changes) and the preferred multi-sector and trans-national nature of excellent clusters that the EC would like to realize means that governments need new and more integrated approaches to business environment support as well as to have new insights into the changing contexts of businesses (drivers of change) and how to support existing and emerging clusters in their regions.

These demands on local governments and knowledge institutes mean that more dynamic models of policy development are needed. Clusters are multi-agent, multi-level, multi-sector networks that are constantly evolving. Government agencies that want to support innovation in cluster development need to be able to deal with the complexity of clusters. Focus on local interactions and emerging innovation at different places in the cluster is part of the new and more dynamic role that governments will need to take. Social media is part of this more dynamic landscape and at the same time offers solutions to governments and businesses and education institutions in the cluster to support innovation.

How can governments support cluster development in this changing environment?

Local governments have always supported networks developments and through other agencies such as regional development agencies (RDA in UK, SSN in North Netherlands), chambers of commerce and enterprise and, indirectly through business associations and branch associations. However, the globalization and technology innovation is changing how businesses are organized and transforming. E-commerce, EU economic integration and the financial crisis, social media and instant communication are all impacting businesses and the competitiveness of local regions.

Regional development was till recently very much looking inwards and using traditional networking and sector based policy support from governments. This is changing: globalization and technology shifts in networks and communications are making local-global connections possible and necessary. The global pipeline and global value chains are all part of the new economic landscapes. Governments can and may need to support businesses, especially SME, to part take in this new economic landscape. One of the solutions besides the more traditional support to export oriented clubs is that of cluster-based support.
Encouraging micro and small businesses to form clusters to be better equipped to go international is one of the solutions advocated by the EU's innovation policy. Moreover, connecting similar clusters across transnational borders to create stronger regional positions is also part of Europe's response to facing greater competition from emerging economies.

Expanding policy and economic perspectives to support new and emerging clusters plugging into global markets is one of the changing roles of policy emerging from the cluster approach.

The diagram below captures the relation between 'local buzz' and global pipelines capturing the need for regional systems to connect to global markets. And this is one of the pilots that could be initiated in support of the cluster development and business support in internationalization. (Innl international networks website, a pilot of Opening Up supports sharing regional networks and expertise for internationalization).

**Understanding and supporting cluster development**

Clusters are complex and are constantly evolving and have different levels of activity as well as activity that transcend the level and also of the cluster. In order to better understand clusters and cluster development, a more integrated and dynamic model is needed. The following model below captures the key concepts and inter-connected nature of clusters:
There needs to be instruments that can facilitate and support the interactions and knowledge exchanges of the various stakeholders and players in the cluster at all levels and across levels. Individual entrepreneurs, businesses, and clusters are nested in layers to build the next level. The individual agents in these levels are usually connected to each other and to agents in other parts of the cluster.

The interactions of the various agents in a cluster will have an impact on their environment and this, in turn, on the interaction of the agents in the cluster. This inter-connected nature of interactions of agents in clusters either at the same level or at different levels result in dynamic patterns and have an effect on the whole system.

When individual businesses start using new processes in their operations and this is communicated and spread to other businesses in the same sector, the chain of changes will spread throughout the cluster both at the business level but also in time to the sector and possibly at the regional level. When businesses in one part of the cluster start using apps to promote their goods or to gain customer loyalty, then other businesses will often follow and eventually whole sectors rely on apps for customer communication and loyalty promotion. Often, this could spread not only to other business sectors but also to education and public services as is the case in the introduction of social media currently.

The need to understand these micro-level interactions and the ‘emergence’ of new patterns at both the micro and macro levels and the relation of these to each other is supported by complex adaptive systems’ (CAS) approach. The diagram above illustrates how CAS captures these interactions and the emerging results. Individuals, organizations, sectors, clusters, regions, national and the European Union as a whole all interact and influence the overall development of these systems and nested sub-systems.

When there are significant differences between the agents and, the quality of the interaction is high, often, new and innovative outcomes result. Quality of interaction has to do with the level of trust, ability to learn and collaborate, to seek new solutions, etc. (Axelrood and Cohen, 2001).

Policy is also part of the interaction. When policy makers interact in clusters with businesses and higher education in search of more innovative solutions for social and economic challenges, the quality of the solution is dependent on how open policymakers are open to learning and to new solutions and alternatives. The quality of the (innovative) solutions will increase with the quality of the interactions within the cluster.

The cluster policy approach underlines the importance of local interactions as a motor for new combinations (Schumpeter,..) in addition to recognizing the importance of boundaries. And that, having activities at and across boundaries is where new and emergent clusters and industries could be generated. In network theory, which is described later in this paper, (Granovetter, 1985), touches on the importance of ‘weak ties’ that often extend beyond the local network. Cluster development policy that includes supporting networks and interactions at the boundaries of systems could generate new economic development coincides with the CAS insights about emerging outcomes at boundaries. EU policy on inter-cluster and internationalization of clusters also converge in this direction.

The choice of framing EU policy at regional levels with the focus on cluster development has implications for the interaction and development of local cluster outcomes. When EU has a strong regional policy focus, embedded in central EU policy, local interactions and therefore developments at the regional levels are strengthened. The resulting outcomes of cluster development enhance innovation at regional, national and EU levels. This also allows for leveraging the strengths and differences in the regions. Connecting clusters to other regional clusters with significant but differences can help strengthen innovation for whole region. An example of this is in the Baltic Sea region. Connecting the innovative clusters from the northern rim of the Baltic Sea to the production clusters of the southern rim of the Baltic Sea produce new combinations and outcomes that are not possible if these connections are not made. Leveraging differences is an essential part of the CAS cluster approach. This is why internationalization is an important driver of economic growth (EC, 20…) and an essential part of cluster policy.

The section on network theory will further elaborate on both network interactions and the significance of social mechanisms in developing successful regional and cluster policies as well as the critical governance structures and support needed.
How does social media fit into this?
Social media is the new communication channel that is crossing boundaries, including and not exclusively, location, sectors, regions, etc. Whilst social media has been primarily a social network generated communication and interaction, it is also increasingly becoming a business and policy tool. Social media, and Internet in general, is providing borderless (organization, regional, national, sector) interactions. Developing innovative clusters could be enhanced by the use of social media. Social media excels in creating communities that could be sourced for innovation: crowdsourcing and user-led innovation are increasingly important in open innovation principles. Below is an illustration of how online communities can be leveraged for user driven and tested innovation.

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<th>Idea Generation and Concepts</th>
<th>Design and Engineering</th>
<th>Test and launch</th>
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<td>Community Members as Source of Ideas</td>
<td>Community Members as Co-Creators</td>
<td>Community Members as End-users and Buyers</td>
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The use of social media for innovation in cluster development is new and there have not been many systematic studies on how to do this and how effective it is to do so. Pilots to explore how social media could be engaged for enhanced innovation in clusters coupled by research on how this works would be desirable. (Opening Up intends to have one or more pilots in (energy clusters) to explore how this works)

Potential of social media for economic growth
Social media provides channels of communication that supports diverse and instantaneous communications and interactions that support sharing information and knowledge as well as enhancing network connections. The use of social media in innovation clusters can be used to leverage:

- Increase communication and interactions in networks related to cluster.
- Increase news and coverage of key events, key stakeholder news, new innovations and opportunities for collaboration, etc.
- Inform and share resources, facilities, financial programmes, etc.
- Develop and share strategic agenda’s and vision for the sector/region.
- Open up to newcomers and make linkage to current stakeholders more accessible.
- Shared objectives as starting point for shared futures (collective strategy formation).
- Opportunities for crowd-sourcing and therefore opening up to new entrants. Differences as complementary competences for innovation development. Crowds/groups to make sense of new development and adapt to changes brought by innovation. Linkages across boundaries of organization, sector, private/public, regions, etc. It makes for a level playing field in communication and access to information.

Figure 8 Community based innovation (Hoyer, 2011)
**Practical implications: Making it work**

To be able to succeed, various social mechanisms are important. Because networks cannot be organized by contracts only, social factors become important such as trust, reputation and assessing the competences of certain actors. Under certain circumstances, there is a need to develop networks. Interesting is that network theory suggest that networks can only be successful when certain restrictions exist.

Jones et al. (2009) identify a number of reasons for networks to come into existence. These reasons lead, under certain conditions, to some kind of social structure, social embedded-ness, in which four social mechanisms underpin the, so called, ‘network governance system’ (see Table 1).

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<th>Drivers of network governance</th>
<th>Social Mechanisms within a network</th>
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<td>Human asset specificity</td>
<td>Restricted access</td>
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<tr>
<td>Task uncertainty</td>
<td>Macroculture</td>
</tr>
<tr>
<td>Demand uncertainty</td>
<td>Collective sanctions</td>
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<tr>
<td>Frequency of tasks</td>
<td>Reputation</td>
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Participants in a network endeavour seek to optimize their reputation, interacting according to norms that may be implicit, but are well accepted within the network community and that define the culture within the community. Access restriction and collective sanctions offer means for the network community to reward or sanction individuals, which increase or decrease the individual’s reputation.

The notion of ‘reputation’ may appear fairly soft from a business perspective. However, reputation has direct consequences for an individual’s opportunities to participate in future business endeavours and provides, thus, a firm incentive to contribute constructively to business objectives. Reputation even may provide a stronger incentive in certain situations than traditional methods for rewarding and sanctioning employees in an agency setting. Therefore, trust in the effectiveness of a network governance system is – in the right circumstances – not that much of a ‘leap of faith’.

Network IT facilitates the type of intra- and inter-organisational collaboration of a network governance system. There exist now social media platforms, both internal to an organisation (e.g. Yammer) and external. The advent of such platforms within companies has in many cases been ad hoc and unregulated. But sooner or later the question should arise whether Network IT and the network governance system it supports be turned into a purposeful instrument for performing business activities. Analogous to the discussion so far in this section, it would follow that those activities that are characterised by human asset specificity, task uncertainty, demand uncertainty and frequency are prime candidates for such an approach. An example of such a task is the formulation of a new strategic plan, or the development of a new product idea. By using the notions of competence trust and openness trust one can assess the suitability of a Network IT approach to any given task.

Understanding the role trust from a perspective of network theory helps decision makers to decide if and what kinds of governance measures are necessary. This can lead to actions and policies. Am I able to approach the right people (could make competence trust necessary, if competences are not inside the company) and am I able to figure out what the solution should be (openness trust, if solutions, products are not inside the company)? Also, it makes clear what are critical items of network governance, so on which features managers/entrepreneurs should develop policies in a non-hierarchical context. Accessibility, cultural items, sanctions and reputational mechanisms should be developed together with the network partners.

Again, in these processes, these mechanisms are not only developed in formal arrangements but, more importantly, they come into existence in cooperating, in developing something else. This is the real challenge of using social media within clusters. You do not develop a contract together, sign the contract and start. In network governance cooperation develops and as far as contracts exist, they are often implicit and developing. Only at certain stages within the process, contracts need to be made explicit.
Conclusion
Within this paper we related current EU ambitions on clusters to the emergence of IT-enabled inter-organisational cooperation – social media in popular terms. We were able to do this using two academic streams of research that are related to each other, systems theory and network theory. We conclude that clusters do not only exist by formal relations. Informal, implicit relationships are as important. Social media networks have the same characteristics. This implies that social media applications will not lead to a world in which everything is possible. Social media applications can strengthen clusters when certain network mechanisms are taken seriously. Within a common set of values network participants – actors within a cluster – have to participate. Based on network theory, new emerging IT-applications do not make social close social ties less relevant, but make it even more important to have attention for social-cultural mechanisms. Technology can only be used successfully when the mindset of people that work with it is enabling a proper use.

References
Network governance for dealing with IT-enabled Inter-organizational cooperation

WHEN SHOULD NETWORK IT - SUCH AS SOCIAL MEDIA - BE USED AND HOW TO GOVERN IT

By Frank Jan de Graaf and Hugo Velthuijsen

Abstract

IT-based networking trends such as the rise of social media, crowd sourcing, open innovation, and cloud computing enable a profoundly different way of working and collaborating that challenges significantly traditional approaches of companies towards governance, i.e. the mechanisms a company employs to achieving business results and safeguarding information. Standard practices developed with a hierarchical model of the company in mind, are inadequate for providing sufficient correlation between governance mechanisms deployed and results achieved.

Popular literature on the subject states that dealing effectively with such new technologies in a business environment requires relinquishing control and subverting to trust. This paper makes the case that deploying successfully new IT-based networking tools rather involves shifting one's trust from a well-established and well-known governance system based on hierarchy and control towards another governance system, termed in the literature as network governance. This paper assesses when network governance is the better suited governance system. The presented theoretical model helps to understand how companies should use arising new technologies and which tasks are suited for network-driven IT-applications. Furthermore, the model enables to understand how network governance works to achieve business results and to safeguard information exchanges.

Key words: Entrepreneurship, Innovation, Network-IT, IT Governance, Information technology, Network governance theory.

1. Introduction

Current governance practices are questioned by arising new international networks driven by changing institutional conditions such as the application of new IT technologies. A global economy is arising in which new technologies change sector conditions. IT technologies make it easier for a company to enter new markets, which may imply that foreign competitors can enter your market virtually overnight. These developments, leading to global competition in many markets, do affect big as well as small and medium sized companies alike. Companies need to be aware, therefore, what the potential opportunities and threats are of these developments.

In this paper, we study how governance can be used to deal with the consequences of these developments, thus investigating how network IT (for example social media), IT solutions can be deployed to allow inter-organizational collaboration Information and communication technology is changing the way IT is used and managed within a company. For example, companies outsource activities to companies on other continents or buy IT services abroad. Or employees are interacting with experts in different time zones to solve an acute problem in their work. Within the ‘new’ economy coordination mechanisms need to be redefined and hybrid governance mechanism seem to appear (Elsner (2004).

In this paper we combine current theory on network governance (Jones et. al. 1997), with new insights within inter-organizational cooperation within IT-governance (Ibrahim & Ribbers 2009). The combined theory provides insights in what types of tasks are suitable for a networked collaboration approach, and what type of mechanisms allow networked collaborations to be effective. To frame it in popular terms: When do social media offer opportunities to organisations and how should these kind of opportunities be governed? We do not use the word management here, because it suggests a hierarchical relationship. The lack of (formal) hierarchy appears to be a characteristic of the use of network IT, inter-organizational cooperation and network governance.

Governance indicates a set of – formal or informal – processes and decision rights that together support accountability (Jones et. al. 1997, De Graaf & Herkströter 2007). The assessment of the relevance of IT solutions to the companies’ success and how the
pertinent IT solutions are organized and implemented are governance questions. Within this governance perspective, we assume that the board will try to create new fruitful interdependencies, without becoming solely dependent of forces they do not know nor understand and do not control. They should be able to assess:
• when network IT offers a preferable approach to achieving business objectives,
• when and how employees of the company should be allowed to communicate and build networks with the outside world freely,
• when IT systems and business processes can or should be performed in collaboration with outside entities, and
• how these activities can be expected to achieve business results and how information flow will be safeguarded.

This paper focuses on the third and fourth of these questions: When and how should network IT (for example social media) be used by organisations? Within our perspective, following Jones et al. (1999), we define network governance as “a select, persistent, and structured set of autonomous entities (individuals or companies, as well as non-profit agencies) engaged in creating products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges” (Jones et. al., pp. 914).

Our paper is structured as follows. Below, in section 2, we will elaborate on the emerging developments within current economies, often coined as the network economy. Thereafter [section 3], we will elaborate on developments within corporate governance, in particular on network governance. These developments have preceded the emergence of the network economy, but offer useful tools for understanding and governing inter-organizational cooperation. We highlight the differences between a traditional governance perspective and theoretical perspectives on network governance, mainly based on (Jones et. al. 1997, Ibrahim & Ribbers 2009).

Within the fourth section, we come back to the question when an inter-organizational approach is preferable and when network governance becomes the better perspective. In the fifth section, we provide a better understanding of how network governance works to achieve business results and to safeguard information and how management could use network governance to maximize benefits.

2. The Network Economy
The term “network economy” is generally meant to denote the business environment that has emerged as a result from ubiquitous information technology allowing access to information anytime and anywhere, irrespective of time and location. Some descriptions of this kind of environment have been described in a number of popular books, including those by Kelly (1998), Malone et al. (1998), Chesbrough et al. (2006), Fingar (2006) and Tapscott and Williams (2006).

With the advent of social media, individuals play increasingly independent roles in the network economy. This also implies that employees have active relationships and communications with others within as well as outside the company. This can lead to undesired situations, such as employees reacting directly to aggravated customers complaining on the internet or employees developing new product ideas with people outside the company. However, social media can also be powerful tools for knowledge management and relations management.

The governance of issues related directly to the use of social media is outside the scope of this paper. We concentrate rather on inter-organizational cooperation. In academia, the term inter-organizational cooperation is most used to discuss critical cooperation between companies (Nooteboom 2000, 2004). Within this literature, the division between companies is not strictly defined and relationships are more than contracts between a buyer and a supplier.

Traditionally, the different business functions within a company were located close to where the business dictated, e.g., close to prospective customers, resources, or the decision making unit of the company. The emergence of information technology and the global spread of access to the internet have allowed much more unconstrained location of business functions and of the individuals contributing to those functions, and ultimately the delegation of responsibilities for certain business functions to other organisations (outsourcing) and/or collections of more or less unorganised individuals (crowd sourcing).
• Outsourcing: This is a fairly common practice, where typically non-critical business functions are handed over to an outside party. One of the advantages of outsourcing is that it allows a company to focus on its key business processes. One example of an industry branch that has made extensive use of outsourcing is the automobile industry, where the production of many of the components of cars has been outsourced to different companies. Deciding which business processes are key and which are not has led in extreme cases to companies that focus themselves on only one business process, e.g. Nike which is essentially a -- albeit very successful -- marketing & sales organisation.

• Crowd sourcing: An interesting phenomenon is the creation of products via the contribution of many -- often unpaid -- professionals. Examples are the operating system Linux and the internet encyclopaedia Wikipedia. In these examples, a task is outsourced to a -- often unspecified -- group of individuals, i.e. the crowd, who then each contribute according to his or her interests and abilities.

This paper focuses on situations where a business performs part of its business endeavours via a temporary collaboration with other businesses and/or individuals. The decision to perform a business task via a temporary collaboration in itself may not always be made explicitly according to traditional governance rules. The absence of guidance means that employees may enter informal collaborations outside of proper channels, simply because the “proper channels” have not been defined. In this paper, we discuss governance in view of the network economy from the perspective of one business, i.e. the primary business that ultimately makes the sourcing decision. In doing this, we build further on earlier work of McAfee (2010), which stresses the critical role of Network IT with these types of collaboration. Besides network IT, he defines functional IT and enterprise IT.

The network economy signifies a philosophy of innovation and entrepreneurship where multiple parties contribute according to their specific strengths. Although cost reduction is a typical primary objective of sourcing, other benefits derive from allocating functions to other parties according to respective strengths, such as quality and innovative strength. The latter provided one allows outside parties to become contributors to innovation processes. This opening up of innovation processes to outside parties is also termed “open innovation”, see for example the work of Chesbrough (2003).

The basic underlying assumption in “open innovation” is that there is more creative and innovative talent outside a company than inside. This talent can be tapped by making the innovation platform of a business transparent. By combining outside ideas -- including those of customers – with inside business models and development platforms, a business should be able to improve upon its innovative power. A current example are the IPhone Apps, where Apple has invited the general public to develop new applications for its IPhone and IPad products, resulting in literally hundreds of thousands of new applications developed by outsiders, but sold through Apple’s distribution channels. Key differences between open and more traditional “closed” innovation are given in Table 1.

<table>
<thead>
<tr>
<th>Closed innovation</th>
<th>Open innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>All relevant smart people work for the company</td>
<td>There are more smart people outside than inside the company</td>
</tr>
<tr>
<td>The company only profits from R&amp;D when the company explores, invents and develops in house</td>
<td>The company profits from other’s R&amp;D provided sufficient</td>
</tr>
<tr>
<td>If the company invents something themselves, they will be first to market</td>
<td>A company can profit from the inventions of others outside the company</td>
</tr>
<tr>
<td>Whoever communicates an invention first, is the winner</td>
<td>A good business model is more important than being first to market</td>
</tr>
<tr>
<td>Those who have the most and brightest new ideas, wins</td>
<td>Those who make the best use of anybody’s new ideas, wins</td>
</tr>
<tr>
<td>A company has to protect intellectual property to prevent others from benefiting</td>
<td>A company benefits from others using their intellectual property and a company should be able to use others’ intellectual property</td>
</tr>
</tbody>
</table>

Table 1 Differences between Closed and Open Innovation
These examples have in common that business results, specifically innovation, are achieved by collaboration between temporarily and loosely coupled entities (other businesses and professional workers). The question that arises is: how does a business manage its ongoing business and innovation while adopting ways of working from the network economy and how does a business benefit from the network economy?

Developments that are allowing businesses to allocate business functions to more suitable outside functions also are also responsible for a considerable change in the relationship between a company and its employees. Since the industrial revolution in Western economies, the role of businesses as primary providers of employment has been growing. Businesses had become by the end of the twentieth century relatively stable organisations with employees set on life-long employment. But the last decade, the number of self-employed professionals has been growing again (Van den Born, 2009). While – on the one hand – companies want to be flexible in hiring and firing employees as ever faster market developments dictate, professionals – on the other hand – are becoming more aware of their value and are increasingly seeking interesting projects irrespective of the company commissioning the project. As a consequence IT governance has to accommodate for an increasingly fleeting relationship between a business and the professionals it employs to pursue its business endeavours.

3. Network governance and application to inter-organizational cooperation and IT

When we assess corporate governance literature, governance is about the conflict of interest between various groups that are involved within a company. In 1932, Berle & Means discussed the development of the modern firm in the United States. These big companies where owned by a large group of shareholders, but controlled by managers that had an own interest. Between shareholders (principals) and managers (agents) a critical conflict of interest existed, as Berle and Means claimed. Governance mechanisms should enable to create an optimal balance between the shareholder and the manager. Distrust, control, contracts and the need for transparency which would enable shareholders to make the management accountable – are key elements in this perspective. This so-called agency theory is still guiding governments, managers and shareholders all over the world (De Graaf & Williams, 2009).

New societal and technological developments have led to the arisen of network governance. Within this perspective, not the conflict of interest between principals and agents is central, but companies operate in networks which enables them to create ‘products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges” (Jones et al., p. 914).

Network governance seems to make the world more complicated than described by Berle & Means. Critical distinctions in business, for example between the inside and the outside of the company, seem to disappear. For example, within corporate governance theory, a distinction is made between internal governance, how the various parts of the company are structured and where decisions are made, and the external governance, how the company is dealing with stakeholders, for example shareholders and the government (Gillan, 1998).

A new theoretical starting point seems to develop, as displayed in Table 2. Where traditional corporate governance focuses on tensions within a one-to-one relationship, network governance is all about groups and peers. Under external pressure, organizations are “forced” to a different governance strategy in which not the conflict of interest between the agent and principal is critical, but they have to “wheel and deal” with a network of actors, for example companies. Besides contracts, the concept of ‘reputation’ becomes a critical determinant for control on markets that are not stable and transparent, but instable and rapidly developing. Within exchange relations, the contributions of specific individuals have become critical which are not merely bound with contracts, but with personal commitment: only a particular specialist can do the job.
<table>
<thead>
<tr>
<th>Agency perspective on governance</th>
<th>Network governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit of analysis</td>
<td>Relation between principal and agent</td>
</tr>
<tr>
<td>Control system</td>
<td>Contracts</td>
</tr>
<tr>
<td>Market demand</td>
<td>Stable and transparent</td>
</tr>
<tr>
<td>Human Resources relations</td>
<td>Based on stable contract settings</td>
</tr>
<tr>
<td>Task characteristics</td>
<td>Well defined tasks that lead to accountable results</td>
</tr>
<tr>
<td>Boundaries of the firm</td>
<td>Clear and stable division of labour between customer and supplier</td>
</tr>
</tbody>
</table>

Table 2 The difference between traditional corporate governance and network governance

These arising new conditions are not relevant for all tasks and operations (Jones et al., 1997). Many can be standardised within contracts. Within innovation and complex processes, distributed among multiple collaborating parties, new governance conditions arise. The remainder of this paper will focus on when network governance is needed and how this would look like.

4. Network governance and inter-organizational IT

IT is pervasive in most companies, although in different roles and in varying degrees of requiring IT governance for their the company's health. McAfee offers a useful categorization of IT being used within companies (McAfee, 2010). McAfee distinguishes Function IT, Network IT and Enterprise IT. Function IT is the kind of IT that supports in the execution of a task. From a governance perspective, this type of IT is not very relevant, as long as it is dependable enough. Network IT is IT that supports collaboration, within or outside the company, such as email. Enterprise IT is IT that supports, and possibly coincides with, business processes.

Critical in this development is network IT: i.e. IT applications that enable users to share information, work together across borders, co-develop products, and off-shore and outsource business processes. All forms of knowledge transfer are directly affected by network driven IT in which it is not always clear who is the owner of what and related to that, who can control what. The platform, the software, the applications of the software, the exchange of information and the knowledge creation is in the hands of many. In this way Network IT may affect Enterprise IT. From a governance perspective, Network IT and Enterprise IT both require rethinking. Currently, academics and practitioners are struggling with how to create new interdependencies and, related to that, new coordinating mechanisms (Elsner 2004). Until now many popular authors focus on success stories, using examples based on crowdsourcing (e.g. Linux and Wikipedia) or social media on how companies use IT to innovate by co-developing products. There is much less attention, however, for the struggles and the failures.

Network IT on the one hand requires governance to set norms for the use of such IT and on the other to determine if and how Network IT can be used to perform tasks. Typically, employees start using Network IT such as social media and blogs on their own accord. When left unchecked completely, this may lead to undesirable leakage of information and damage to brand perception, for instance. Rules stipulating what can and what cannot be communicated will help to mitigate these risks. Furthermore, Network IT can be used as a tool to perform company tasks effectively, such as knowledge management and company-wide discussions towards developing a new strategy.

Network governance (Jones et al., 1997) deals with this type of collaborative work. Network governance takes input from social network theory and transaction theory to understand the mechanisms involved that allow networked communities to achieve results and to safeguard information exchanges. Key elements to network governance are social embeddedness (i.e.
relationships are not just dyadic, but embedded in a network of relationships, informal social contracts, and reputation (i.e., some form of social commodity participants in a network seek to maximize). An interesting question is whether these three elements can be tailored to “engineer” desired performance of a particular social network.

Enterprise IT performs business processes, i.e. coincides with the way a company is doing business, and warrants therefore considerable attention to IT governance.

Developments in IT and the network economy are also changing the conditions that drive the need for and approaches to IT governance. For long, IT governance would be considered as an internal governance issue. However, technical and economic opportunities make various IT solutions currently an issue of external governance also. For example, technical advancements allow processes such as customer relationship management and pay rolling increasingly to be implemented using solutions based on cloud computing. This introduces dependence on resources and functionality developed and maintained outside the organization. A step further is outsourcing of responsibility for executing processes to other organizations, possibly even abroad, to organizations not owned or controlled by those companies.

These examples also illustrate that there exist varying degrees of delegation in Enterprise IT. We argue that these varying degrees require also varying governance systems, ranging between agency governance and network governance. Certain outsourcing relationships dealing with clearly defined, compartmentalized business processes, are very well suited for an agency approach, including formal and stable contracts, well-defined tasks and accountable results, and a clear division of labour between customer and supplier.

On the other end of the spectrum, we see outsourcing relationships that are better suited for a network governance approach. These are relationships that cannot be captured in formal and stable contracts, but, for instance, require investing in social capital to make the relationship work (Rottman, 2008) or require a relationship based on collaborative innovation of business process to support continuously evolving market demands (Willcocks & Craig, 2009).

Although this model is focussing on a client-supplier relationship Kraljic’s portfolio purchasing matrix (Kraljic, 1983), can shed light on inter-organisational cooperation. Kraljic’s matrix uses the two axes supply risk and profit impact. In our adaptation, supply risk is exchanged for specificity. The rationale being that the more specific a task is, the fewer potential suppliers there are and the higher the supply risk is. Furthermore, specificity is a notion used in the theory on network governance. Profit impact is translated into added value to encompass benefits that are not purely financial and do require executive attention, thus governance. In Kraljic’s matrix, generic and low value contributions are related to commodities. Typically, those can be addressed well by formal contracts and an agency governance approach. Contributions that are specific, require substantial investment in a close collaboration which is only affordable if the contribution has sufficient added value. It could be argued that a task with high specificity, but low in added value should not be outsourced at all.

![Adaption of Kraljic portfolio purchasing matrix](image.png)
When a situation of high specificity is also characterised by task and demand uncertainty, e.g. typical for explorative, innovative processes, Jones stipulates that network governance becomes the automatic governance system for dealing with the ensuing interactions. When we use Kraljic's model in assessing inter-organisational cooperation, we could specify the governance mechanisms used by studying network theory. This will be done in the next section.

5. Making network governance work

Literature on the use of social media in an organization (e.g., Li, 2010) or on the evolution in offshoring (e.g., Willcocks & Craig, 2009) often state that managers should learn to relinquish control and to resort to trust. This is difficult to ask of a manager and also beside the point. Traditionally, agency-based governance does not offer total control: it does not guarantee business results, nor does it make information leaking or fraud impossible. Managers have learned to trust that the mechanisms involved in governance in general merely increase the likelihood of desired outcomes and decrease the likelihood of undesired outcomes to acceptable levels. It is the unfamiliarity with network governance that makes that “trust” in new mechanisms is not yet sufficiently developed and requires an uncomfortable leap of faith. We argue that adopting network governance requires learning to extend one's trust in one governance system with trust in another governance system. This becomes easier when one understands the mechanisms involved in network governance systems.

Jones et al. (2009) identify a number of reasons for networks to come into existence. These reasons lead, under certain conditions, to some kind of social structure, social embeddedness, in which four social mechanisms underpin the, so called, 'network governance system' (see Table 3).

<table>
<thead>
<tr>
<th>Drivers of network governance</th>
<th>Social Mechanisms within a network</th>
</tr>
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<tbody>
<tr>
<td>Human asset specificity</td>
<td>Restricted access</td>
</tr>
<tr>
<td>Task uncertainty</td>
<td>Macroculture</td>
</tr>
<tr>
<td>Demand uncertainty</td>
<td>Collective sanctions</td>
</tr>
<tr>
<td>Frequency of tasks</td>
<td>Reputation</td>
</tr>
</tbody>
</table>

Table 3 How Interaction of Exchange Conditions Leads to Structural Embeddedness and Social Mechanisms in Network Governance (Jones et. al. 1997)

Participants in a network endeavour seek to optimize their reputation, interacting according to norms that may be implicit, but are well accepted within the network community and that define the culture within the community. Access restriction and collective sanctions offer means for the network community to reward or sanction individuals which increases or decreases the individual's reputation.

The notion of 'reputation' may appear fairly soft from a business perspective. However, reputation has direct consequences for an individual's opportunities to participate in future business endeavours and provides, thus, a firm incentive to contribute constructively to business objectives. Reputation even may provide a stronger incentive in certain situations than traditional methods for rewarding and sanctioning employees in an agency setting. Therefore, trust in the effectiveness of a network governance system is – in the right circumstances – not that much of a 'leap of faith'.

Ibrahim and Robbers (2009) have introduced the two notions competence trust and openness trust. These notions help to understand better the concept of trust in a network governance system. Competence trust denotes the level of confidence one needs to have in the competences of, in this case, a supplier. Outsourced tasks that require only low competence trust are those tasks that are common and not very well developed.

Openness trust denotes the level of confidence that a counterpart will handle information relevant to the relationship with transparency and equity. Having openness trust in a partner means on the one hand trust that information is not shared outside the relationship and on the other hand trust that a partner is open and transparent to the partner with respect to information.
relevant to the collaboration and the relationship. Openness trust supports intensified collaboration and innovation. When only competence trust is critical, and the awareness of the needed competences is very critical, hierarchy and contracts will be the main governance mechanisms. When competences are important but it is not well known which competences are necessary, a certain level of openness is critical.

Network governance appears better suited for tasks with high competence trust and high openness trust requirements. Such tasks require partners with established, but rare competences that contribute in an open, explorative style on the development of systems and processes. Thus, the notions of competence trust and openness trust can be used to answer the question whether either an agency governance system or a network governance system is more suited for handling the relationship with suppliers or partners (see Figure 2).

Another question one can ask oneself is which type of activities need to be done within the hierarchy of the company and which type of activities can be sourced reliably outside the company. Competence trust and openness trust also provide some inside for this. We illustrate this via the example of publishing a newspaper.

The assumption is that a newspaper’s competitive edge is based on the quality of its editors and its columnists. Both good editors and distinguishing columnists are rather rare. This implies that there should be high competence trust in the abilities of both the editors and the columnists. There is a difference regarding openness trust between editors and columnists. Columnists derive much of their value for the newspaper from their role in the outside world and are supposed to interact quite freely with parties outside the newspaper. Therefore, the need for openness trust in this case should be low. Resorting to agency style contracts, requiring exclusiveness, can be used to mitigate the risks associated with a lack of openness trust. Openness trust regarding editors, however, needs to be high to guarantee the identity and competitive edge of the newspaper.

Other activities such as printing and distribution are more common and therefore lower on the competence trust scale than editors and columnists. Printing and distribution are both commodity type activities that require less competence trust (which does not mean that these activities shouldn’t be executed dependably). But printing does require a higher level of openness trust than distribution. When a paper is being printed, the contents are still confidential. Once the paper is being distributed, the openness trust is need for gone.

The four roles of columnist, editor, printer, and distributor can be placed in a trust matrix as illustrated in Figure 3. The activities in the lower left corner (low in both competence trust and openness trust) can most easily be sourced from outside the company and can be governed according to an agency style (as shown in Figure 2). Activities in the top right-hand corner, however, require, when sourced, a network governance approach.
A tendency would be to organise business activities that require high competence trust and high openness trust within the hierarchy of the company. However, there will be situations where this is not feasible, as suggested by the drivers of network governance as illustrated in Table 3. When tasks are characterised by human asset specificity and task uncertainty, there is a need for high competence trust. These are situations where activities require certain competences which are difficult to assess by managers or where the outcomes of the activities are so uncertain, that hierarchical management styles and contractual relationships will not lead to the needed outcomes. Furthermore, when tasks are characterised by demand uncertainty as well as a frequent recurrence of tasks, there is a high dependence on these resources while keeping the required resources standby permanently might be too costly. In such situations a company may decide to bring in certain specialists – that are known by the management – from outside the company to do these complex tasks, or to bring a problem into the outside world because it needs specialists that are not directly known. In such situations, openness trust becomes an issue.

Network IT facilitates the type of intra- and inter-organisational collaboration of a network governance system. There exist now social media platforms, both internal to an organisation (e.g. Yammer) and external. The advent of such platforms within companies has in many cases been ad hoc and unregulated. But sooner or later the question should arise whether Network IT and the network governance system it supports be turned into an purposeful instrument for performing business activities. Analogous to the discussion so far in this section, it would follow that those activities that are characterised by human asset specificity, task uncertainty, demand uncertainty and frequency are prime candidates for such an approach. An example of such a task is the formulation of a new strategic plan, or the development of a new product idea. By using the notions of competence trust and openness trust one can assess the suitability of a Network IT approach to any given task.

Based on our matrices, decision makers can decide how much competence trust and openness trust is necessary and what kind of governance measures are necessary. This can lead to actions and policies. When trust is necessary, the differentiation between openness trust and competence trust makes it possible to focus in decision making by asking the question: Am I able to approach the right people (could make competence trust necessary, if competences are not inside the company) and am I able to figure out what the solution should be (openness trust, if solutions, products are not inside the company)? Also, it makes clear what are critical items of network governance, so on which features managers/entrepreneurs should develop policies in a non-hierarchical context. Accessibility, cultural items, sanctions and reputational mechanisms should be developed together with the network partners. In these processes, these mechanisms are not only developed in formal arrangements but, more important they come into existence in cooperating, in developing something else. This is the real challenge of network governance. You do not develop a contract together, sign the contract and start. In network governance cooperation develops and as far as contracts exist, they are often implicit and developing. Only at certain stages within the process, contracts need to be made explicit.

Concluding remarks

We described when Network-IT (e.g. social media) enable opportunities for companies and when trust in openness and competences is necessary and when not. Precondition is that companies should know their core competences. Also we have assessed when network governance is needed and which mechanisms are relevant.
We have described changing practices in current economies, leading to the growing importance of networks in the development of companies. Emerging new IT-technologies lead to changing practices on markets. Outsourcing, crowdsourcing and open innovation lead to new corporate arena’s. For management it is often difficult to detect fads and business opportunities. Also it is difficult to understand what new forms of inter-organizational cooperation asks from management: When does governance need to change within IT and when is it possible to keep existing hierarchical structures in place?

Companies such as Apple seem to know when they have to act according to traditional business patterns, when to use hierarchy as critical governance mechanism and when more open-sourced approaches to governance need to be used. The company creates an environment in which trust can become the critical control measure, for example in developing new apps, when on other moments it uses traditional control modes and is focussing on contractual relationships, for example in production. We have demonstrated that trust and openness are critical in some situations, where on other product segments and on other moments in the lifecycle of a product, traditional approaches should be followed. This theoretical model could help practitioners to develop a strategy towards emerging business practices. Especially the conditions for network governance developed by Jones et. al (1997) seem to be helpful in this respect.

Researchers could draw on our model, when understanding why companies take a certain approach towards new practices such as open innovation and outsourcing. Why are some companies more innovative in certain markets than others. Why is Microsoft very hierarchical and why do big companies team up with smaller companies.

References
Elsner (2004)
Clusters and how to make it work: *Cluster Strategy Toolkit*

Policy Brief By Anu Manickam and Karel van Berkel

Clusters as the magic answer to regional economic development; firms in clusters have been proven to be more innovative; cluster policy dominates EU policy; ‘top-sectors’ and excellence are the choice of national policy makers; clusters are ‘in’. However, clusters are complex, ‘messy’ and there seems to be no clear logic about how clusters grow and thrive in practice. There are many theories and models but creating successful clusters remain a challenge. Everybody, policy makers, academics, urban planners, regional development agents, cluster organizations, businesses and industry, all have their own ideas and solutions about how clusters need to be developed. Some seek collaborations and networks as ideal ways to innovate, others seek answers in value chain approaches, others in research and development and often in the triple-helix collaboration model, and yet others in econometric benchmarks; consultants seem to offer a ‘one size fits all’ solution that cannot work. Silicon Valley’s success cannot be replicated elsewhere and this lesson has become painfully clear to many policy makers. This paper elaborates on an approach that takes into account the need for closer scrutiny of local settings of clusters in developing more customized strategies.

Clusters are diverse, complex and unpredictable. They each have a history and a cultural context that determine their development. There is need for more integrated approaches that explores different facets of clusters in their development. The cluster strategy toolkit supports strategy development from a deeper understanding of principles and patterns in cluster dynamics. The cluster strategy toolkit was developed as part of a larger research project. This policy brief is an adaptation of the findings of the research and captures the ingredients of the toolkit. The case of Karlstad in the Region Värmland, Sweden has been included in this policy brief to illustrate how the toolkit works and what policy inputs can be gained by such an approach.

**PART 1: CLUSTER ANALYSIS - ELEMENTS OF THE TOOLKIT**

The first part of the policy brief explains the Cluster Strategy Toolkit by describing the eleven elements of the toolkit. Information gained from these eleven aspects would provide insights relevant to mapping cluster (and regional) developments. Each element of the toolkit has been explained and where possible questions have been identified that could be raised during cluster analysis initiatives.

a. **Recognizing complexity and ‘wicked problems’**

Policy makers have since the global financial crisis recognized that they are increasingly faced with challenges that are complex and systemic in nature. These challenges are often multi-faceted and have different dimensions and can be found in different spaces and places in the system. These problems are often connected to other problems and they are ‘wicked’. The term ‘wicked problems’ has been used to describe problems that are complex and unpredictable and the following features characterize them:

- Problem definition: there is no agreement about the problem as multiple stakeholders with conflicting values and interests are involved and they all have their own versions.
- Solutions: No right or wrong answers, only better or worse solutions.
  - No test of success: No obvious test of a solution is available for wicked problems.
  - No end stop: the problems always continue and therefore is never resolved.
  - No repetition possible: wicked problems are unique.
  - ‘One-shot’ operation: each solution alters the problem, not solve it. Solutions create new problems.
  - Multiple pathways: There are many ways to ‘explain’ the problem, and each explanation determines possible resolution.
  - No clear-cut solutions palette: unclear directions for seeking solutions with unpredictable outcomes of solutions.
  - Wicked problems are often symptoms of other wicked problems (systems of problems).
- No turning back.
Identifying complex and urgent issues in the cluster is necessary and often the presence of wicked problems needs to be identified and understood. Information and perceptions of stakeholders on these major challenges in the cluster is necessary. There would be a greater need to seek solutions based on collective processes and judgements in order to deal with such wicked problems. It is important to realize that for the class of challenges identified as wicked problems, there are no expert answers, that each wicked problem is unique, and that high levels of uncertainty of outcomes needs to be appreciated. Cluster developments often encompass complexity that fringe on ‘wickedness’ as there are multiple stakeholders and views on strategy development. Mapping the views of stakeholders and their definitions of challenges and directions for the cluster is an important part of the analysis.

b. Understanding current economic landscape in the region

The economic landscape of the region and the cluster form an important part of the context of the cluster. The way businesses, industry, university and municipalities are connected to each other need to be mapped. Below are some questions that need to be part of the mapping exercise.

- How are value chains linked? Is this limited to the region, or is it connected to the ‘outside’ as part of global value chains?
- What horizontal and vertical linkages are present? Are sectoral structures dominant?
- Is there a dominance of large industries?
- Are there specific sectors dominating the region?
- How homogenous is the area?
- How is research and innovation linked to businesses? How are the triple-helix connected?
- What public policy support and funding incentives exist for economic development?

This part of the analysis needs to map the current landscape of the cluster and its region.

c. Understanding factors affecting development of the region – drivers of change

The next aspect of the analysis is mapping the landscape of the region and the clusters to understand how they are changing. Mapping the drivers of change, such as shifting geo-political powers and markets, EU internal market and policy directives, national and EU laws and regulations, digitalization of commercial and industrial processes, social network developments, etc. need to be understood. Drivers of change that specifically affect local, regional and cluster developments need to be identified. Key stakeholders and experts are good sources of information on the drivers of change.

d. Understanding past developments – history, geography and culture

Identifying key elements that shaped how the region to be what it is in the current situation is important. Understanding the history, geography, demographics of the region and critical events in the past would help understand issues about future developments. The local context of the cluster needs to be mapped. Questions on critical historical and geographical factors are asked. Cultural traits and other factors for the current situation are mapped in this part of the analysis.

e. Understanding how regions expect to deal with the changes and where the gaps are – changing competences for changing landscapes

Changes in the context of clusters and regions and how they perceive and react to these changes need to be analysed; levels of alertness to external changes and its impact on the region are important. Identifying the need for new competences and gaps in current competences and knowledge in the region need to be mapped to help become ‘future-proof’. Questions aimed at identifying competences, research and resources for future development need to be posed.

f. Identifying the reference framework of the region/cluster – scope, identity and rules

Definition and identity of the region and cluster are important reference frameworks that need to be verified. There may be a policy definition of a cluster but stakeholders in the cluster may have differing definitions and weightage given to the role and boundaries of the cluster. The firms in a cluster may be operating from their company perspective rather than a cluster perspective. There may be different and even conflicting expectations from the different stakeholders on the role of cluster organization, policy guidelines and interventions, etc.
Definitions and identities ascribed to a region/cluster are often unspoken and may have an impact on the development, particularly, if they are divergent. Issues need to be mapped from the different stakeholders’ perceptions:

- What is important to them and what are their priorities?
- Where are the boundaries of their ‘business’ and that of the cluster?
- How do individual stakeholders react to local changes?
- Is their focus international?
- Who is in the cluster and how is power distributed in the cluster?
- How does policy influence cluster development?
- What is expected of policy?

**g. Understanding the players and how they perceive, connect and act – stakeholders**

The way stakeholders interact and communicate in the region or cluster is relevant to understanding how the cluster will develop. Types of collaborations, perceptions on competition and collaboration, factual information on the interaction patterns can help map where innovation is being sought and where potential new clusters can be found. Consolidation of businesses (merges and acquisition) and equity flows in cross-sectoral collaborations are often indicative of new cluster development (PwC, 2012). Questions on linkages and collaborations amongst cluster members and other entities in the region are important to map.

**h. Understanding competitive advantage of the clusters - differences that count**

Recognizing the need for diversity in clusters in terms of thinking, knowledge, organizing, the degree of openness to new ideas, etc. need to be mapped to understand where complementarity and new innovation could be generated. Distinctive advantages and differences in the region and in clusters are important opportunities for innovation and growth. Information related to core competences and distinctive advantages and to inherent differences need to be explored.

**i. Understanding changes the interactions are bringing to the region – collaborations and interactions**

Exploring patterns of interaction in the cluster/region by asking about how often stakeholders meet, about who is taking part in collective strategy development, and if there is an increase in the number of meetings, and whether there are changes in the quality of such meetings, for example from informal networking to more focussed themes and strategy related sessions, etc. The outcomes from the meetings could indicate the transformations that are taking place between those involved and possibly the diffusion of knowledge and ideas beyond the meetings. Interactions in collaboration projects where new knowledge and businesses often result in innovation and these needed to be mapped. Specific examples of the nature and types of interactions and collaborations would give insights into changing interaction patterns. Outputs that reflect transformations need to be mapped to see the shifts in the cluster developments.

**j. Understanding new patterns that are emerging – emerging ideas and structures**

Changes in how stakeholders are interacting and the way business is done, who new players in the field are, new rules dominating economic participation and measures of success, new routines being established in business and innovation, are all indicators of emergent cluster development. Understanding these emergent patterns can help understand the direction and opportunities arising in clusters and their regions.

**k. Understanding where changes are coming from, whether they are centrally steered, or, bottom-up initiatives – self-organizing processes**

Exploring and mapping emergent local initiatives and the role of centralized steering through policy would help understand the dynamics of self-organization and the supporting role policy may be playing in shaping current cluster developments. The space for local initiatives in policy and the need for self-organization may be important to understand in cluster developments as they are often neglected in strategy development where only leading players participate in strategy and policy developments. The policy could fill gaps to facilitate cluster interactions and collaborations, to create conducive business environments, and to facilitate knowledge and skills development. Mapping current roles and impact of policy could help understand what is needed in the next steps.
Below is an overview of the cluster strategy toolkit and the eleven aspects that have been described in the first part of the policy brief.

PART 2: CLUSTER STRATEGY TOOLKIT APPLIED TO KARLSTAD REGION

Introduction to Karlstad and its changing context
The county of Värmland has a population of 273,000 people covering 17,586 square kilometers. There are 16 municipalities and Karlstad is the biggest town with 85,000 inhabitants. Värmland is situated in the Northern central part of Sweden bordering Norway. The region is also characterized by water (10,512 lakes) including Lake Vänern in the south that is the largest inland lake in Western Europe. There were four clusters, The Paper Province, The Packaging Arena, Steel and Engineering and Compare (IT). The Paper Province is the oldest of these clusters and this dates back to the paper and pulp industry that was established in the 17th Century in Karlstad, Värmland region.

Stakeholders described recent changes in the context of Karlstad and Region Värmland that posed new challenges for the region. Highlights of these changes and challenges were:
• Changes in global markets in the paper and pulp industry, leading position threatened.
• Caretaker role of paper and pulp industry in the region changing - patterns of patronage in the past still lingering.
• Rural-urban migration and brain drain issues.
• Expanding urban hubs, Stockholm, Gothenburg and Oslo, with Karlstad in the middle - threat of absorption or redundancy
• Shortage of technical personnel due to urban pull and lack of interest in technical careers.
• Sustainability agenda due to climate change and environmental pressures.
• Consumer demands for 'green' products.

Analysis based on Cluster Strategy Toolkit
The following description of developments in the Karlstad region and its clusters were based on interviews with key stakeholders and experts related to The Paper Province cluster. Although the case study was limited in its scope, different aspects of cluster and regional developments were identified and have been analysed and implications for policy have been identified. The purpose of the case description was to illustrate the use and value of the Cluster Strategy Toolkit. A more extensive study could provide
more details and insights into changes in cluster developments regarding its definition, interaction and directions, and that of Karlstad municipality and Region Värmland.

a. Recognizing complexity and ‘wicked problems’
The town and the region needed to deal with challenges of changing economic conditions and perspectives. There were many stakeholders: the paper and pulp industry, businesses in general, cluster organizations, local municipality policy makers, Region Värmland policy makers, local, regional and national politicians, university and research institutes, businesses, citizens, and technology institutes.

Stakeholders had their own views, interests, perspectives, and ideas about what the core issues were, how they needed to be solved, and what priorities were needed. To illustrate,

• The national government and ministry of education focused on prominent (academic) universities and allocated funds for fundamental research and development to support innovation and to develop national competitive advantages. Industry had a more urgent need for applied research but funds for applied research were limited and had less priority in national policy.

• The local Karlstad business sector were not happy with the education system and (developed together with the municipality of Karlstad a taylor-made) ‘technology centre’ to train young people to meet the specific labour needs of their industries.

• Local city council was seeking answers by demanding more efficiency and collaborations amongst the four cluster organizations.

• The paper and pulp industry were concerned about global market changes but it was ‘business as usual’ according to local experts.

• National and local governments did not seem to recognize the need to ‘save’ the paper mills for their innovation value – a lot of spin-offs were generated from the mills according to the cluster organization.

• There were complaints about the mill from local residents even though they were dependent on the paper and pulp industry but seemed not to appreciate its value to the community and its history.

• Spin-offs from the paper and pulp industry resulted in new clusters in the past, namely, Steel and Engineering cluster, Compare IT and telecom cluster, and The Packaging Arena cluster. These clusters were born out of the needs of the paper mills, knowledge and opportunities created as a result of the mills’ activities.

b. Understanding current economic landscapes in the region

• The tradition of the regions was one of small municipalities where one big plant dominated and many Small and Medium-sized Enterprises arose to serve the main plant.

• Paper and Pulp Industry was dominant in the Region Värmland and having an important position in the community. There were 3 other clusters besides The Paper Province, namely Compare (IT and telecom cluster), Steel and Engineering cluster, and Packaging Arena.

• Clusters were relatively independent and had a ‘comfortable position’. They had achieved success in the past and seemed to be complacent in their success according to the municipality.

• Bigger companies tended to use their own R&D facilities but were slowly changing and were collaborating more often with the local university.

• Karlstad University’s Service research centre (CTF) was one of the leading research centres in service innovation globally. Regional companies were not aware of the potential value of the research centre for them.

• Municipality and Regional development agencies funded and steered cluster development.

• There was no national and governmental level policy on clusters, only at the regional level at the time of the research.

c. Understanding factors affecting development of the region – drivers of change

• Internal drivers of change

• Businesses sought growth and innovation in products and areas adjacent to their own core business.

• The demands of the local municipality of Karlstad for more collaboration amongst cluster organizations to improve efficiency and reduce duplication.

• The need for SME to collaborate to vie for complex tenders and projects.
• External drivers of change
  ▪ Pressure of the urban cities of Oslo, Gothenburg and Stockholm were expanding around Karlstad and this created an urgency for Karlstad to survive and to be independent rather than become a satellite town of one of the other cities.
  ▪ National funding and attention were also more focussed on the bigger cities.
  ▪ EU policy was providing funding and stimulating local regional developments and clusters. The Paper Province was named a ‘world-class cluster’ by the European Cluster Observatory.
  ▪ EU policy was pushing for ‘bigger, multi-sectorial, high-tech, excellent clusters’ that breaks down barriers between segments and sectors.
  ▪ Environmental regulations related to sustainable forest resources, and pollution measures for both air and water contamination.
  ▪ Competition from Brazil and other up-coming markets.
  ▪ Technology innovations had led to spin-offs that became relevant for other industries. The scope of the clusters, Compare and Steel and Engineering, became larger serving not only the paper and pulp industry.

d. Understanding development of the region – history, geography and culture
Karlstad is a Swedish, provincial town, and the region had been dominated by its paper and pulp industry for more than three centuries. Small communities in the region were usually dominated with one main industrial player. For Region Värmland, it was the paper mills. The presence of the river and the lake enabled logging and transport of timber to paper mills, and they, in turn, had sufficient water to process the wood. Transportation of finished products was also served by shipping. Water and forests were important natural resources of the area. Skilled labour and technological innovation and service from ICT, engineering and machinery companies were also important to the growth of the industries and the region. However, the paper and pulp industry was huge, dominant, and in some ways, slow to change as it was a big investment industry (similar to many traditional industries in the world). The paper and pulp industry, and the steel and engineering (industry were both) heavy industry that was male-dominated. The mills tended to ‘take care of the region’ and citizens often responded to this by letting them dominate the region and to take care of them according to a cluster manager. Also, the communities in the region (as is in rural Sweden elsewhere) were often small and had a history of ‘trust’ and collaborations. Another historical and cultural value of Sweden was that of equality that affected policy and funding decisions as well as local collaboration patterns.

e. Understanding how regions expect to deal with the changes and where the gaps are – changing competences for changing landscapes
The region had grown by adapting to growing markets and offering specialized paper products through the help of technology, specialized machinery and skilled labour. The mills also consolidated over the years such that the 400 mills had been reduced to a few large mills that dominated the landscape of Karlstad region. The town and regions surrounding were dependent on the paper mills and their related industries. The wave of consolidation allowed economies of scales, efficiency and specialization.

Environmental demands by EU and national policy and in recent times by consumers meant that the industry had to meet these demands through new innovations. The industry had to change to meet market and environmental pressures to be competitive and viable. The region as a community served the industry and it grew with the industry. It was a locally driven development that had to change to meet new demands from outside. More recent developments in emerging economies had put pressure on the paper and pulp industry. Mills in Brazil, for example, were becoming competitors for the Swedish mills, also in Karlstad.

Some of the points raised by the interviewees related to the changes and the ability to change are highlighted below. Mills had a high technical knowledge component and a lot of innovation were generated by the mills although often in very specialized, narrow areas and were not ‘spilling over’ to the outside nor were these expertise used to create new businesses. Old industries, including the paper and pulp industry, suffer from inertia, which meant that they do not want to change, they keep existing rules, use current business models as a result of being traditionally self-sufficient and self-contained. The paper and pulp industry was the whole value chain.
  ▪ The self-contained culture was not helping them to think differently nor to use their knowledge and competences beyond their own borders.
• The demand to be clean and green required new competences and these needed to be developed and they needed to come from outside.
• New businesses and business models needed to come from the borders and through cross-sector collaborations. Examples mentioned were bio-medicine and waste deemed as a resource and with potential value.
• By joining other sectors to search for new products and industry, they could broaden existing knowledge to create new industry and businesses.
• Creative people were needed, as the region was strong in engineering and a new cluster related to packaging offered opportunities to broaden existing competences.

The industry and the region needed to get new innovation, business models and new competences and these needed to be sought at or across borders, or, from outside the industry.

f. Identifying the reference frameworks of the region/cluster – scope, identity and rules

The Paper Province

The cluster in Karlstad was an established cluster of more than 13 years (1999). The cluster organization served 90 organizations that were its members. The municipality of Karlstad funded this and other clusters. The recent developments in Karlstad involved funding rules aimed to increase efficiency of all clusters by reducing duplication of administrative and other aspects of cluster management by enforced collaborations. The cluster organizations needed to collaborate closely and their scope of activities would be influenced through these changes in funding structures. Cluster members were also demanding more value for their money, and were expecting more accountability from the cluster organization. New demands were being made of the cluster organizations.

Next level collaboration was demanded of the cluster organizations by the municipality but there were no precedence of this. The demand was more inter-cluster collaborations and sharing of resources, and efficiency through collective promotion. The municipality talked of ‘deeper’ collaborations but there were no clear insights about what this meant.

The role of cluster organizations, their degree of autonomy and performance in a more demand-driven context could change their scope, role and identity. The degree of collective and co-design possibility space and efforts would determine the new reference framework for cluster organizations and clusters.

The clusters were being pushed to expand their scope to a higher level of collaboration at the cluster level by local and regional government agencies but also due to EU policies supporting competitive cluster development through programmes that support cluster excellence initiatives, internationalization and inter-cluster collaborations, and professionalization of clusters. There was a shift in demands of clusters to extend their activities and scope to include intra-cluster and inter-cluster initiatives and collaborations.

g. Understanding the players and how they perceive, connect and act – stakeholders

The Paper Province

Stakeholders in the Paper Province were the businesses in the cluster, the cluster organization, the local municipality, the university, the regional government. New stakeholders were spin-off companies from the main business, for example in biomedicines from forests.

Different stakeholders had different interests: the big industry players focussed on keeping the mills running and being competitive and were focussed on international developments from competitors and needed global scale for their operations. The competitiveness drive resulted in highly specialized engineering and machinery innovations, knowledge and spin-offs. A separate engineering and machinery cluster was the result. The automation of the paper mills had also resulted in a highly innovative ICT service industry that was the second spin-off organized in a cluster. The Mills had to comply with environmental regulations when the lake was polluted and this created innovations and spin-offs that have added to the quality of life of the region and strengthened the traditional ties between the industry and the community.
The paper and pulp industry have had the role of ‘care taker’ for the local communities as their lives and livelihood were woven with the mills. The mills and the communities seem to live this role even though a lot was changing, and there were concerns about the local communities being too ‘complacent’ and not taking ownership of their own future.

The trust level in this region, the clusters and the community was high as reflected in the relations of ‘care taker’, interdependent and spin-off economic activities. This trust comes from the close community and culture of the region. All stakeholders recognized this.

The dependence and dominance of the paper and pulp industry extended to business communities, and clusters that emerged from the original paper and pulp industry. However, emerging developments of Small and Medium-sized Enterprises and the newer clusters looking beyond their own regions were increasing. Triple-helix stakeholders (policy, business and research) were essential to cluster developments and were present in the cluster and collaborations strengthened linkages and interactions in the clusters.

h. Understanding competitive advantage of the clusters - differences that count

The existence of new and old clusters in the region offered opportunities for new collaborations. The city municipality intended to use funding rules to demand more cross-cluster collaborations and to move such collaborations to the next level. The cluster also had top-level research done at the local university. There were limited collaborations between the university and local companies and between the university and the cluster organizations at that time.

Industry and businesses in the area needed technically skilled personal that were aligned to their needs. Schools were not producing students with these skills. Business needs pushed joint collaboration to set-up a technical education centre (together with the municipality of Karlstad) where expertise from businesses was brought into the classroom. Young students participated in the training programme because of the job prospects after the training. Schools were benefitting by getting new machinery and technology and improved education programmes.

Consumer demands for more sustainable and ecological sound products offered a new spin-off in forestry-based research and expertise to create a new business base, eco and bio based health products. Paper mills had traditionally generated innovation in processes and products that had value outside the paper and pulp industry. This potential is one of the main pleas for maintaining the remaining mills.

i. Understanding changes that interactions are bringing to the region – collaborations and interactions

The high level of trust existing in the region and the collective history of the different clusters coming from The Paper Province reflected close proximity and interactions. The need to collaborate to compete in complex project bids was mentioned as indicators of the flexible collaboration patterns and interactions in the region. Application of innovation spin-off from the paper and pulp industry to other sectors by the other supporting clusters was changing the scope and identity of these clusters. Seeking new business opportunities resulted in the creation of bio-medicines as a cross-sectoral initiative. There were also other initiatives emerging that intended to preserve the forests through more sustainable practices and this needed collaborations beyond the paper and pulp industry and the existing clusters.

j. Understanding the new patterns that are emerging – emerging ideas and structures

Karlstad's clusters are pushed to work together to create 'excellence' through collaborations by EU cluster policy and that of the local municipality. No one knew what this would entail but the willingness to explore new collaborations seemed to be present. Regional and local policy and the Swedish Innovation agency were constantly offering incentives and directions for further collaborations. A new programme to create new areas of excellence emerged after mapping local research competences and local business expertise. The regional agency, Swedish innovation agency and the local municipality were involved in seeking opportunities to create new future economic growth. The result was the creation of a long-term commitment to support 10 new professorships in new knowledge and innovation developments based on the competences mapping of the region. Policy interventions and support push to new developments seemed to be a new pattern in this region.
k. Understanding where the changes are coming from: centrally steered or are they bottom-up initiatives – self-organizing processes

Karlstad's funding rules of the city municipality was an example of policy driven change in cluster development. The changing demands of firms for more 'value for money' from the cluster organization and the green consumer demands were examples of bottom-up developments that pushed cluster organizations to re-think their roles. The cluster organizations needed to step up to challenges posed by businesses, local, regional and EU policies and ambitions.

Conclusions

The paper and pulp industry's history and economic developments that had dominated the region would continue to impact future developments of the region. Strong local linkages, interactions and collaboration patterns were part of the social and economic landscapes. Although there were shifts in the way Karlstad and the region were developing, in order to deal with the changes in its context and the new challenges, Karlstad may need to re-consider its strategy for its future. Below are some conclusions and recommendations to this end.

1. New paradigms for the region

Karlstad's need to shift policy away from salvaging the paper and pulp industry as the main economic activity towards supporting more diverse regional development was acknowledged, but there were feedback loops and processes in the current situation that could hinder broader regional development focus:

a) Lock-in effect of existing economic, technological and social processes and infrastructures – e.g. vested interests and complacency of dominant industry and dependence role of citizens and policy.

b) Lack of coherence and lack of consolidation of knowledge and market development efforts needed to be addressed – e.g. fragmentation of clusters and businesses trapped in own networks and value chains, fragmentation of university R&D and that of business and industry.

c) Lack of alignment in local, regional, national and European developments – e.g. diverse interests and focus of local, regional and national levels of policy contributing to dispersed efforts, duplication and inefficiency.

d) Silo thinking – e.g. cluster organizations served own members rather than focussed on larger regional development, universities focused on patents and publications instead of needs of industry & businesses, businesses focused on own innovation and profits instead of collaborative projects, etc.

2. New economic principles

Karlstad's shift from an industrial to cluster landscape had been successful in many ways but the dominance of the paper and pulp industry on the region meant that the sectoral approach had its impact on how the region was developing. A more explicit focus on new economic principles as organizing strategy could help break the lock-in effect of the paper and pulp industry's dominance.

a) Innovation as a driver of economic growth through new technology, products and services as reflected in the newly established professors.

b) Thinking in value chains beyond the paper and pulp industry. Creating new value chains (see next point).

c) Interdisciplinary and inter-sectoral collaborations and thinking. Examples were the bio-medicine and sustainable forestry initiatives.

d) Network and inter-cluster collaboration with more emphasis on triple-helix linkages. New collaborations between clusters were initiated, but these could extend to beyond the region and country as purported by the EU's cluster policy.

e) Local-global strategies for the region, as opposed to individual businesses and clusters.

Karlstad had embraced new economic structures but could enhance such efforts to realize the proposed diversified regional base. A different way of thinking about the region's future economic opportunities through its definition of its scope, borders and identity could offer new directions when guided by new economic principles that seek to unify fragmentation and mass where needed, and to break homogeneity where diversity is lacking.
3. New attitudes
Karlstad needed to cast off its dependence on the paper and pulp industries and its provincial town status to avoid being subsumed by the metropolitan spread of the three main cities surrounding it. The Karlstad region needed to join forces to create new value chains and collaborations to rise to its challenge of re-defining itself to overcome redundancy and economic malaise should the paper and pulp industry fail in a global competitive market. The presence of business that served the paper and pulp industry needed to take ownership of their future and to seek collective solutions through collaborations.

a) Networks and collaborations as essential for new business.
b) Regional scope needs to be replaced by local-global scopes.
c) Ownership of the region by all stakeholders instead of reliance on the dominant industry.

4. Different roles and behaviours
Ownership and creation of new business and economic growth by the region’s stakeholders meant that new and different roles and behaviours were needed. The need to collaborate more than in the past and the need for policy to take leadership and provide incentives in different ways needed to be established.

a) Facilitating and orchestrating role of policy that included raising awareness, offering incentives and creating new opportunities for new and different types of collaborations amongst stakeholders.
b) Collaboration instead of competition needs to be the main business mode instead of incidentally as in the past for complex projects. The realization that collaboration to create mass, to share risks and to create different and new opportunities to launch into new markets globally needs to be shared.
c) Test beds, pilots and new initiatives that would allow for collaborative learning and (open) innovation needed to be facilitated and become mainstream to accelerate new value adding and value chains. The creation of ecosystems of innovation that builds on latent trust in the region would enhance innovation capacities.

The Karlstad region has been described and the analysis offered insights into the interaction and patterns of developments in the cluster and region. The insights reflected underlying processes and systemic aspects of its developments. These, in turn, reflected the need for changes in the underlying structure and processes in the region.

PART 3: IMPLICATIONS AND APPLICATION OF CLUSTER STRATEGY TOOLKIT
The value of the Cluster Strategy Toolkit

1. Description of real complexity
The analysis does not only describe the pulp industry or only the regional development, but it includes the historical perspective, the forces at work from within and without the system, the roles of stakeholders, the (missing) competencies in the cluster, the opportunities that arise from thinking about inside and outside of clusters, visions, goals, plans, actions, collaborations, etc.

2. Sense-making
The systems alignment mapping, that includes mapping processes and patterns such as influence of history on current developments, dynamics between stakeholders, the way the container is used (enlarging or contracting the container could lead to different connections and strategies), the role of government and other stakeholders, etc. offer deeper insights of the system interactions and developments.

3. Capturing cluster development
The analysis captures how clusters develop, how perceptions evolve and influence emerging interactions and collaborations within and outside the cluster, how new stakeholders are engaged, how new strategies are developed, how new competencies and networks are created and how these lead to new actions and performance that in turn, influences thinking about the future (strategies).
4. **Successful ecosystems**
The cluster as an ecosystem is implicit in the model that makes explicit the successful and less successful developments in the system and thereby offering opportunities for learning about ingredients in successful collaborations, stakeholder involvements and the impact of such interactions, about competences and infrastructures contributing to new successes, and about distinguishing fertile and less fertile ecosystems. The case study offered insights into Karlstad as an ecosystem that encompassed The Paper Province as a cluster within a larger regional system that included other clusters, local and regional policy agencies, competences, knowledge developments, new opportunities and spin offs from within and outside the cluster, etc. Potential growth opportunities in Karlstad need to be further investigated by exploring the system's patterns of development in more detail.

5. **New insights leading to new research agenda**
The model has been applied to a limited number of clusters to uncover cluster developments and emergent patterns. Further investigation and application to new cluster studies would support refinement and use of the model to map and create growth strategies for context-specific developments.

**References**


Websites on Värmland and Karlstad clusters:
Hanze 2.0, towards a new website

By Jan Liefers

The Hanze University of Applied Sciences was facing a number of problems with regards to its internet and intranet. One was the change in communication culture, but also changes in legislation (transparency and visibility). Another one was the need to update to the latest technical developments and the desire to enable more cooperation between different users.

The entire project entails the integration of the www.hanze.nl which comprises over 15,000 web pages and 55,000 documents and the intranet with even more documents. All data will be migrated to a SharePoint Web environment as the first phase. In phase two the look and feel will be changed and in the last and third phase various new social components, like posts, blogs and timelines, will be added. All in all it will take three years to complete the project. The final situation should enable and support the Hanze University as a respected University of Applied Sciences. Important factors are user-friendliness, continuity, safety and performance as well as flexibility and adaptation to all kind of devices.

When the project is finished users will experience an integrated community which is much more accessible and open for all kinds of cooperation and sharing with internal but also external contacts.

In 2012 the project started with a functional analysis and an inquiry how to get the proper support from users. A video was made (http://vimeo.com/43909363) to inform users about the ideas. Various focus group sessions were organised to evaluate the response. The results were published in various ways, such as public presentations, articles and web announcements. In the migration phase the project group consists of 25 people. Finally a group of 500 people will be trained to migrate all the information. A separate project was the Project release SP2013 which entailed a technical migration from the old SP2007 platform which was the platform for the old intranet environment to the newer SP 2013 version. Once successfully completed this meant a go for choosing SP 2013 as the platform for the entire web environment.

The project group comprises of Omid Givi project-leader Hanze.nl 2.0; Akko Muskens - functional management; Arnold Boersma - SharePoint consultant; Bertus Dam - SharePoint consultant; Bruno de Vries - architect & SharePoint developer; Edwin Koehoren - designer & User Interface specialist; Erik Huisman - designer & User Interface specialist; Erwin de Beer - information analyst; Femke Nijhuis - Policy Officer; Hans Sissing - Lead developer SharePoint; Hayco Ottes - Technical SharePoint Specialist; Henk Hoff - information analyst; Jakob Boer - SharePoint consultant; Johan van Dijk - Google SEO / SEA specialist; Linda Rademaker - content manager; Marion van der Boor - project employee; Mark Winters - test coordinator; Nienke van Kekerix - communication advisor; Norbert Ploeger - architect; Pim Dieters - assistant new media; René Bosma - SharePoint developer; Rutger van Zuidam - advisor online media; Sjors Sevenhuijzen - usability expert; Stefan Feenstra - SharePoint developer; Tonny Brink - SharePoint Consultant.

It is common for change programs that directly influence daily work procedures and working habits to encounter resistance. The intensive relation with the users to gather there feedback is one of the ways in which The Hanze 2.0 project group wants to ensure a high as possible support. Another issue is whether or not the software needed for the entire project should be tailor...
made or based on from the shelve software. Finally the decision was made to use Microsoft SharePoint for reasons of continuity, safety and reliability. Preparation for the huge migration phase was done by informing on the progress of the project and preparing instructions and large crew so the process will proceed as swift as possible.

The week of August 25 to 29 2014 is an important moment in which all content managers will have to be trained to migrate all information because at the beginning of the new school year all information should be in place. At the 13th of October the new Website went live.

The biggest differences should be people can access more relevant information from multiple devices and can share this with all their relevant partners integrating a variety of social tools. Another big difference will be the shift in focus of offering all information to everyone to easy search and offering relevant information to individuals.
The innovative service delivery, using social media, implies higher engagement of clients in the service delivery processes and direct feedback that can be used for business improvements and innovation. By exploiting social media communication technologies, businesses can create contact and build relationships with their customers in a more effective way that leads to better satisfaction of customers’ needs and wishes.

Particularly the smaller SME’s in general are hesitant in using social media as a marketing and communication tool. It is unclear if there might be added value, although there are numerous good practices. Models are widely available, facts on engagement are rather scarce.

Various models were found and used to describe the variety in use and usage groups that is found with regard to engagement with SME’s.

In order to develop respective recommendations on how businesses can exploit social media opportunities, the research has been designed in order to examine the factors that influence the engagement of students of Groningen:

- The degree of engagement of students of Groningen with businesses on social media.
- Types of social media platforms used for different levels of engagement.
- The motives for the social media engagement.

The research combined several data collection techniques: desk research of the literature and web resources, a questionnaire completed by 250 students, a focus group interview and consultation with a field expert regarding the outcomes of the research and recommendations. The interplay of different methods applied to the research guarantees the validity and reliability of the provided information.

The poll questionnaire showed that social media platforms such as Facebook and YouTube are the most common for receiving information about products and services. Also, the focus group noted that social networks create the most of the exposure for promotional messages. Forums, blogs and journals have collected most of the responses for the question regarding the reception of information about products and services. The focus group discussion concluded that these social media platforms are regarded as trustworthy and reliable and appear to be the key sources of information for students.

It can be concluded that a proper procedure show have the following steps:

1. Defining clear objectives.
2. Conducting sentiment analysis.
3. Adjusting response system with customers.
4. Managing social media presence.
5. Searching for advocates and building relationships with them.
6. Driving collaboration by implementing social media technologies on companies’ website.
7. Measuring impact and results.
Social Media and SME's

1. GOAL AND RESEARCH DESIGN

Social media are everywhere, and are used for both personal and for commercial purposes. From market research to product development, to production, distribution, sales and after sales. Companies use Facebook, Twitter, YouTube, LinkedIn and forums to find out what clients want, to invite them to co-create new products, to improve services, to give aftersales service and to strengthen the bond with clients. But social media are being used for sales as well. In other words, social media are used in the orientation phase, the decision phase, the use phase and the loyalty phase of consumers.

In this project we try to find out what the effects are of social media campaigns on the involvement of customers towards companies and brands (see the model¹). We measure:
- social media activities of companies.
- the reactions of customers on social media (such as ‘likes’).
- consumer responses to brands.

We focus on SME’s in the Northern part of the Netherlands, and we focus of Facebook, since this social media channel is most widespread among these companies.

The three main questions are:
1. What do Northern Netherlands SMEs DO on social media?
2. What are the responses of these campaigns on social media?
3. What are the real world effects, what is the effectiveness of these ‘campaigns’?

¹ In this report we present a summary of the whole study. See for all results Alsem, Hoogendoorn (2014), Social Media Behavior of Dutch SME’s, Marklinq publication 8, Hanze University of Applied Sciences.
Block A: social media campaigns.
1. total number of posts in the last 12 months on the FB page of regional SMEs.
2. total number of posts in the last month on the FB page of regional SMEs.

Moderators:
1. number of posts in the last month that consisted of promotions (get a discount now", "like & share", "this week 25% discount" etc.).
2. number of post consisting of useful information about the product category (a fitness centre that gives health tips; an accountant firm that gives new information about taxes; a car company that gives suggestions for tourist trips or for driving safe etc.).
3. number of posts that contain an explicit invitation to followers to respond ("what is your opinion?" "please post your pictures" etc.).
4. type of product (cf Rossiter and Percy matrix).

Block B: social media sentiment
1. total number of fans.
2. number of people that 'talk about it' (this is a Facebook metric).
3. number of comments during the last month.
4. number of persons who these comments are from (are all comments from 1 or 2 very active fans? or do many people place 1 comment each?).
5. number of shared posts (last month).
6. total number of likes in last month.
7. total number of posts that contain 1 or more likes.
8. If there are other rating things: mention them. For instance, restaurant ratings.
9. Total Number of comments (last month) in which fans mention their experiences with the product/services ("I tried their cars, they are good!") for instance).
10. ...of which positive (if the comment is a picture, please interpret! A picture of a nice ice cream is usually a positive comment; a picture of a broken product is a negative comment).
11. ...of which negative (see above).

Block C: Effects on Brand
1. How often do you buy products of this company?
2. If not: do you consider buying the products?
3. Would you recommend this product to other people?

2. RESULTS

The research was conducted by students from the Institute of Marketing Research and further analysed by the authors.

<table>
<thead>
<tr>
<th>Number of analyzed companies</th>
<th>43</th>
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<tbody>
<tr>
<td>Number of analyzed Facebook posts</td>
<td>1,547</td>
</tr>
<tr>
<td>Number of interviewed customers who followed these Facebook pages</td>
<td>743</td>
</tr>
</tbody>
</table>

| Table 1 Analyzed Facebook pages in numbers |

Getting in touch with the customers turned out to be the hardest part. You cannot send direct messages to Facebook-fans on pages that are not yours. Yet, with perseverance we were able to contact 743 fans, an average of 17 per company. Fans see all posts of the company, as they receive updates in their Facebook timelines.

The focus of the research was on small and medium enterprises (72%). For contrast, we added some larger companies (28%). It turns out there are some interesting differences between large and small companies, which should be investigated further in future research.
Table 2 Analysed Facebook pages in numbers

While large companies have more fans and more likes, the fans of small and medium sized companies are more active: they are more likely to like a post and interact more with the page. 24% of all fans of small companies have shared a post, filled in a poll or engaged in a different way, compared to only 5% of the fans of medium and large companies.

This seems to indicate that fans of small and medium enterprises feel more connection to the company or its products, than fans of large companies.

Facebook wants to be a relevant and pleasant social medium, and it discourages using it for spam or promotional actions. Marketeers agree, since they know that social media's strength is the interaction with customers, not in 'hard sell'. Aggressive sales only attract bargain hunters and drives away loyal fans. The future of online marketing is in content: serving interesting and useful content to your fans, building a bond with them and gaining or maintaining them as clients.

The companies we investigated seem to follow these guidelines. Only 14% of all posts contain some form of promotions. Most of the posts contained information about the product category (24%; for instance a car dealer that posts car maintenance tips), and information about new products (22%). Next were posts that invited readers to respond (14%) (“please fill in the poll”) or that contained user made content (16%), such as pictures or videos.

The new marketing paradigm expects informational posts and posts with much user content to create the best response. And in fact we found one significant correlation: posting more user generated content leads to more response.

In our study, we did not find a strong relation between "having much likes and engagement on Facebook" on the one hand and "positive brand image" on the other hand.
Remarkable is that a large part of the Facebook fans does not buy the products of that brand. So: they are fans but don't have the product themselves.

Figure 2: How often do you buy the product or service?

16% never buys, 57% only sometimes. Despite this, 92% of all fans will recommend the brand to others.

We did not find a significant relation between the type of posts and the percentage of clients that recommend the brand.

3. CONCLUSIONS

We started the research with three questions. Let us answer them now.

1. What do Northern Netherlands SMEs do on social media?
The SMEs are active on social media. Nearly all companies have a Facebook page. The type of posts they put on Facebook are in line with modern marketing insights.

2. What are the responses of these campaigns on social media?
Small and medium sized companies have less fans than the large, well known companies, but their fans are more active than those of large companies. This indicated that, even moreso than for large companies, Facebook is a good communication tool for small and medium sized companies to interact with their clients and potential customers.

It turns out that posts with user generated content will lead to more engagement. We did not find significant differences between types of products.

3. What are the real world effects, what is the effectiveness of these campaigns?
92% of all Facebook fans would recommend the brand or company to others. This means that Facebook fans are valuable ambassadors of the company. Regarding the effectiveness of campaigns, our data did not show significant correlations between Facebook engagement and real world engagement. In other words, it is hard for us to tell which type of Facebook campaign is most effective.
SMEs seem to put the right type of posts on Facebook, and seem to make the transition from the old “hard sell” model to the new model of “conversation and cooperation”, in which companies and customers are on equal footing, share information and cooperate.

Our future research will be geared towards knowing more about this sharing of information and cooperating.

Limitations of our study are the small sample size of companies and the challenge of finding causal relationships. There is also the fact that we researched very diverse companies. Perhaps it would be better to focus on business to consumer companies of roughly the same size. Also, we would like to get into deeper details. If one would could response and effect per posting (instead of calculating an average effect per Facebook page as a whole), we would know more precisely which postings lead to Facebook engagement, and what this means for the real world brand attitude of fans.
Social Media (Work package 6) Social Media Lab

SETTING UP SOCIAL MEDIA LAB

By Frank Willems, Erwin de Beer, Corné Kox; Wolter Oosterhof & Dirk Peter van Dis, Eerde Jan Bijlsma; Tetiana Smeenge; Ferrick van Dongen en Jonathan Schaap

The reports are first of all written for the (possible) users of the Social Media Lab: the Hanze University, the municipality of Groningen and the police of Groningen but also for the other partners of the Opening Up project.

Anyone considering a Social Media Lab must have very substantial monitoring requests, skilled staff and funds to support hardware, software and maintenance.

To start your own Social Media Lab there needs to be a necessity for providing systematic Social Media analyses supervised by experts for professional interpretation of the findings.

A project plan was developed covering definition of specifications, needs -, cost - and risk analysis. After this a creative brainstorming session, with professional supervision was organised. Also three researches were conducted to explore both theoretical and conceptual as well as practical tooling issues.

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>What's the source?</td>
<td>How do you obtain the data?</td>
<td>What do you want to know?</td>
</tr>
</tbody>
</table>

Social Media Lab

Source collecting

Governance policy

Action

Platforms

Governance policy

Listen

Measure Analyses Understand

Engagement Response

1. Listen

2. Measure Analyses Understand

3. Engagement Response
The benefits of a Social Media Lab

By Wolter Oosterhof & Dirk Pieter van Dis

What is the Social Media Lab
A large majority of the Dutch population, 68 percent, is active on one or more social media. Under the young people this number is even higher: 91 percent. This means that millions of Dutch people are talking on social media on things that concern them. This could be about their daily life, but also about their university, their municipality, an event that they visited or worries about the safety in their neighbourhood. All these conversations on the social media could offer a lot of information. The SML offers a chance to not only to get that information, but also to analyse that information (Nederlandse jongeren, 2011. Tien miljoen, 2011).

The SML is an environment which consists of a set of Social Media Monitoring tools. These tools each have a different function. This could be for example collecting data, analysing the collected data or archiving the collected data. Combined these tools offer an environment in which the participating partners can collect and analyse data from social media. Different tools available which could be suited for the SML, but a total package tool offers the most options. The downside of such a tool is that it could be costly.

An essential part of the SML is of course the SMM tool. During this research several tools were reviewed, but we recommend a deeper investigation in the market of SMM tools in the follow up research. The tools reviewed in that research should be compared with the SMM tool Obi4wan, since one of the participating partners of this project (the municipality of Groningen) already uses that tool for its SMM needs.

After picking the right tool for the SML it’s time to look at the ethical and legal issues. It’s of course in the best interest of your organization that it obeys the law and that it keeps ethical issues in mind to keep the trust of the users of social media. In conclusion we can state and advise the following: -Define your social media monitoring strategy -Pick the right tool for monitoring social media (based on your budget and goals) -Take a look at the legal and ethical issues that play a role while obtaining data from social media.

The data obtained from social media could be used for several different ways. It gives your organization the opportunity to find out what your target group thinks about the services you offer, the events that you host(ed) etc. It gives your organization also more non-financial information, real-time reports and the opportunity to be proactive. It could also give you information about brand monitoring, competitive intelligence, industry monitoring, thought leadership, lead generation, customer service, search engine optimization, crisis communication, product development and marketing effectiveness. The SML will be active in the later stages of the social media adoption curve (phase 4 to 6).

In conclusion we can state that obtaining data from social media is valuable for your organization. It gives your organization new (real-time) opportunities and a chance to know your target group on a way that traditional market research cannot offer.

The following overview describes the kind of data or metrics that can be obtained from social media monitoring.

Social media metrics (overzicht social media monitoring tools, 2010)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure / volume</td>
<td></td>
</tr>
<tr>
<td>Message reach</td>
<td>The amount of people that where reached</td>
</tr>
<tr>
<td>Themes</td>
<td>Total amount of trends and discussions about your organization that weren't started by your organisation</td>
</tr>
<tr>
<td>Share of voice</td>
<td>Conversation volume compared with your competitors</td>
</tr>
<tr>
<td>Demographic metrics</td>
<td>Background information about the target group of your organization</td>
</tr>
<tr>
<td>Social reach</td>
<td>Total amount of your target group who are active on social media</td>
</tr>
<tr>
<td>Metric</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td></td>
</tr>
<tr>
<td>Conversation buzz</td>
<td>Amount of discussion about diverse topics concerning your organization</td>
</tr>
<tr>
<td>Topic frequency</td>
<td>Overview of all the subject that are mentioned combined with your organization. Gives an overview of how your target group see your organization</td>
</tr>
<tr>
<td>Level of engagement</td>
<td>Combination of metrics: seen, downloaded, recommended, tagged</td>
</tr>
<tr>
<td>Fans / followers</td>
<td>Amount of people who follow you on social media</td>
</tr>
<tr>
<td>Interaction</td>
<td>Is your target group active on your social media site/application</td>
</tr>
<tr>
<td>Registered users</td>
<td>Amount of registered users</td>
</tr>
<tr>
<td>Bookmarking</td>
<td>How many bookmarks or 'likes' does your content have</td>
</tr>
<tr>
<td>Shares</td>
<td>How many time is your content shared</td>
</tr>
<tr>
<td><strong>Influence</strong></td>
<td></td>
</tr>
<tr>
<td>Influence</td>
<td>How does your social media strategy influence your target group</td>
</tr>
<tr>
<td>Level of influence</td>
<td>The influence of your target group</td>
</tr>
<tr>
<td><strong>Action / conversation value</strong></td>
<td></td>
</tr>
<tr>
<td>Conversation value</td>
<td>The value of a conversation and the value it adds to your organization</td>
</tr>
<tr>
<td>Increased sales</td>
<td>The increase of sales due to social media</td>
</tr>
</tbody>
</table>
A research about the potential customers in the cultural sector in the city of Groningen

By Esther Johannes

The Social Media Lab (SML) started in the academic year 2011/2012 as an initiative of the research group New Business & ICT. This research group is part of the School of Communication, Media & IT, one of the schools of the Hanze University of Applied Sciences in Groningen. The Social Media Lab is set up by this research group in cooperation with students and teachers and aims at developing research on social media use for third parties and offering advice.

To be successful the Social Media Lab has to generate income. As a start-up the Social Media Lab wants to determine who the potential customers are and what are the reasons for using social media. For practical reasons the search starts with customers in the city of Groningen. Because of number of companies (28,800) located in the city, the Social Media Lab decided to split all this companies into sectors. This research focuses on organizations within the cultural sector in the city of Groningen.

The survey comprised 188 companies. It revealed several reasons for organizations within the cultural sector to use social media. In this study, the Social Readiness Model is used as a basis to determine the maturity phase for every organization. This Social Readiness Model gives an organization a view into how the organization can be a social business and determines in which phase the company operates with regard to implementing social media.

It was found that the number of employees of an organization affects the professionalism of social media use. Large organizations are more professional than small organizations. Interesting for the lab is also that if organizations want to change their social media organizational structure they should not only look at the rival organization, but also at the needs of the customer. Other results are:

- Organizations do not reflect on their own social media usage and behaviour. They often scored another maturity stage than they think they operate in.
- 45% of organizations that use social media indicate a higher desired phase of professionalism, then their current score. These organizations are potential customers for the Social Media Lab.
- Lack of time and the failure to recognize the importance of using social media are motivations why organizations are not using social media.
- Commercial and non-commercial organization uses both social media a lot.
- Non-commercial organizations use mostly free tools. Commercial organizations do not use these free tools.
- Organizations who do not use social media are often older than 15 years.
- Generally organizations with less than 20 employees aren't using tools.

This research can be used as a basis for further research, but also as a springboard to commercial activities of the Lab. The cultural sector should certainly not be ruled out for further investigation. There are organizations that want to improve their social media usage and there would certainly be able to offer support.
Social Media monitoring tools
By Tatiana Smeenge

Within the Knowledge Centre for entrepreneurship and the Knowledge Circle ‘directing Entrepreneurial Networks’ one finds it unclear how social media data streams can be analysed effectively and efficiently in the social media lab. As a result of this problem it was asked to start an investigation to the usefulness of social media monitoring tools.

The purpose of this bachelor thesis project is to give recommendations to the principal about social media monitoring tools that are appropriate for the effective and efficient analysis of a social media data streams and which to use for different companies and organisations for various issues by different social media monitoring tools to keys on the usability and to select using a multi-criteria analysis.

Using articles on various tools and existing rankings a collection is made of about 200 social media monitoring tools. The 200 tools are reduced to 70 because of their availability (freeware or free trial). The tools are tested on eleven criteria: user-friendliness, collecting, listen, analyse, respond, dashboard, sentiment analysis, searches, platforms and cost. The top 15 is divided into three different rankings, namely: free tools, semi-free tools and paid tools.

A multi-criteria analysis was used. The tools were tested on ten criteria. This list is compiled with the aid of experts in the field of social media and various articles on selection criteria for social media monitoring tools. The items were:

- User friendliness: How easy to use is a tool? Is a training necessary or are all functions and options easy to be found and used?
- Collecting data: how does the tool collect results for a search and does it present the findings in a structured way?
- Listen: Is the search correctly interpreted by the tool and does the tool present relevant results?
- Analysis: Are the results from the search analysed, is there signification? Or are the results merely summarised in a report?
- React: Does the tool have a possibility to react to social media from within the tool?
- Dashboard: Does the tool have a dashboard?
- Sentiment analysis: Can the tool attribute sentiment to messages? That is can it assign a positive, neutral or negative tone in a message.
- Search: Is it possible to perform multiple searches at one time? Or monitor multiple items at a time?
- Platforms: How many social media platforms does the tool support?
- Costs: Is the tool free, freemium or paid?

For preliminary research it’s best to use the free tools Bottlenose and SocialMediaCheck or the free functions of Coosto. For example, to specifically analyse results for Twitter Finchline is very suitable. To monitor a subject for any length of time one may best use Engagor, Radian6 or Obi4Wan.
Earthquake and social media

By Brenda Sanau

The Opening Up project seeks to unravel new approaches that can contribute towards improving service delivery of businesses and governments in the NSR to its citizens via social media. Evidently, the earthquakes in the Groningen gas fields as a result of gas extraction in the region is a seamless example. One which has seen the inhabitants of the region suffer the consequences of earthquake exposure for over a decade, up until the August 2012 earthquake, the worst of its kind, which was largely talked about on social media forcing the Dutch government to make a decision to reduce gas extraction by NAM. The epicentre of the August 2012 earthquake recording a magnitude of 3.6 on the Richter scale was near the village of Loppersum which is one of the worst hit villages in the region.

The aim of this practice-oriented research therefore is to provide knowledge that could be beneficial in finding new ways of using social media among their governments and businesses to improve service delivery to its citizens by using the Groningen gas fields as a case study. Service delivery in this case, is used in reference to how the government and NAM have handled the giving and receiving of information to and from the affected inhabitants. Therefore, an evaluation of service delivery of the government and NAM via social media to the affected inhabitants following the 2013 Groningen earthquake in the village of Loppersum is conducted.

The discovery of gas in the Netherlands has caused environmental consequences that jeopardize the safety of the region's inhabitants; due to the fragility of the region which is below sea level and protected from the North sea by vast dykes. Evidently, with over the 51 years of extraction of natural gas by NAM, Europe’s' largest gas field has not only succumbed to subsidence but also to a series of over 1000 recorded earthquakes in the northern Groningen region since 1986. Gas extraction in the Groningen gas fields by NAM has caused earthquakes and the region chosen for this practice oriented research is the worst hit village of Loppersum. The August 2012 earthquake, caused public debate due to posting and sharing of reports and news on Social media. What followed was a decision by the Dutch government to reduce gas extraction in the region, hereby indicating that social media played a role in policy changes. However, the actual problems of the affected inhabitants were not addressed by this decision prompted by the subsequent social media debate (see appendix B, p 71). This therefore poses a question to the effects of social media and the quality of service delivery by NAM and the government to its citizens of Loppersum. Throughout this research report, Facebook and Twitter are the two types of social media tools that are explored given their evident impact on the situation.

The areas worst hit by the earthquakes include Loppersum, Bedum, Middlestum and Scharmer out of the 23 municipalities of Groningen; according to CBS statistics. Loppersum for instance, has dealt with the earthquakes for over a decade; facing the most frequent quakes with 18 earthquakes recorded in the first six weeks of 2014 compared to approximately 20 quakes which occurred each year before 2011. Furthermore, experts at Government agencies predict an upward trend in the situation warning that the quakes might increase to magnitudes that range between 4 and 5.

Mixed methods of data collection are used for all central research questions and sub-questions thus increasing validity of the research.

Quantitative internet mediated, self-administered questionnaires with a depth approach are distributed to the affected inhabitants of Loppersum, seeking 56 responses which according to the calculations above will generate findings bearing a 90% level of confidence. The questionnaires are sent to the members of the GBB via email and the groups’ Facebook page. The demographics of the members of the GBB fit the selection criteria for the sample population bracket required for the research as according to Daniella Blanken, secretary of the organization, the average age of these members is 57. In comparison with the 56 responses that were needed to bear a 90% level of confidence for the research, a total of 359 responses were collected from the internet mediated questionnaires and are thus the basis of the analysis sections that follow.
Qualitative focus group interviews are also conducted with four out of six board members of the GBB to follow up on the survey questions. The board members are selected owing to their deep knowledge of the situation; their input is used for clarity of findings. The research questions guiding the focus group interviews are the questions which are also used to build the internet mediated questionnaires and thus, validity and clarity to the research findings are ensured.

Literature review is also carried out to generate theoretical knowledge which is the basis of defining concepts and evaluation of findings.

- A large number of the affected inhabitants do not make use of Social media despite its usefulness in staying informed about the situation, sharing of ideas and also having conversations on matters of common interest.
- The largest percentage of respondents is not involved with NAM or the government on social media.
- Those that are involved with NAM or the national government on social media believe that generally, the information provided by NAM and the government both on social media and off social media has been little and not useful information, following the August 2012 earthquake.
- Even though it is a good thing for the government to work towards improving the delivery of services through social media, the affected inhabitants’ trust in the government and NAM has been damaged.
- Having trust in NAM and the government determines how much the inhabitants will believe in the information offered by these organizations.
- More respondents believe that neither is the sharing functionality of social media important nor can social media be useful in facilitating the sending and receiving of information [service delivery] to and from the relevant organizations.
- However, a significantly high number of respondents believe that not only is the conversation functionality of social media is useful but also that social media could facilitate the service delivery of NAM and the national government.
Social Media for service delivery

By Selin Öztürk

Social media is integrated as a communication channel by many municipalities nowadays. The municipality of Groningen has the aim to use social media as a platform for service delivery. For instance for asking questions, or for provision of information. The municipality wants to listen to what its citizens have to say, and engage in dialogue with them through social media. Currently, the use of social media within the municipality of Groningen is still being developed, for example it has just recently created a municipal Facebook page and only one Twitter account (@Stadsbeheer050) implements web care very frequently. The municipality also created a smartphone application, MeldStad, through which citizens can report issues about the maintenance of the city, for instance reporting potholes. Before the municipality implements its social media strategy further, it needs to find out what the wishes and expectations are of the citizens of Groningen, on communicating through social media for service delivery with the municipality.

The overall objective of the research is to give policy recommendations to the existing social media strategy of the municipality of Groningen, by analysing the wishes and expectations of the citizens of Groningen on communicating through social media for service delivery and compare this to the social media strategy of the municipality. For this reason, the theoretical framework will be based on three domains: social media, government communication and customer behaviour (citizens). These theories will give insights into the research subject.

The municipality is an active user of social media. Twitter is a popular channel that is been used, next to some Facebook pages.

The research and statistics office of the municipality of Groningen has a city panel through which they send out surveys to their 9400 panel members. For the purpose of this research, the panel members received a survey in which they were asked about their use of social media, how they currently communicate with the municipality and what they expect in terms of communicating with the municipality for service delivery through social media.

The overall conclusion of the research is that almost half of the respondents (44%) expect the municipality to be present on social media. The majority motivates their answer by saying the municipality needs to provide its citizens as many ways to communicate with the municipality as possible. For instance, when there is the need to quickly ask a question through Facebook, this option should be available. Moreover, 75% of the citizens use social media, amongst which 84% use YouTube, 78% use Facebook and only 28% use Twitter.

However, the municipality is mostly active on Twitter, but its citizens on YouTube and Facebook. Therefore, the potential of reaching a large amount of citizens and being in dialogue with them can be realized more effectively via Facebook. 7% of the respondents have answered to communicate with the municipality through social media, and 90% has answered not to communicate with the municipality through social media. When the group of 90% was asked why they do not get in touch with the municipality through social media, 30% answered to be unaware of the municipality’s presence on social media platforms. The social media strategy of the municipality acknowledges to be in need of a clear corporate identity, which might increase awareness in its presence on social media. When citizens were asked through what social media platforms they would like to communicate for service delivery, the preference towards MeldStad was the highest, for all service delivery types. For this reason, citizens might be interested in contacting the municipality trough a smartphone application.

Due to the high amount of Facebook users amongst the respondents, it is strongly recommended to develop the municipal Facebook page further. Facebook is very multifunctional in its use, since it allows the municipality to realize all three communication objectives: sending, listening and interacting. Moreover, the creation of a YouTube account is advised as well, since YouTube can mostly function for “sending” information. The municipality could create informational videos in which it promotes its products, or for instance on participation issues. Furthermore, the preference of citizens on communicating with the municipality for service delivery was the highest for the smartphone application MeldStad. Their preference might implicate something about the need for another municipal smartphone app. Since the research results do not provide the adequate
amount of information in order to already say to create one, it is advised to consider conducting a research on this topic in the (near) future. Lastly, research results represent the group which is 35 years and older for 80%. In order to have an accurate idea of the wishes and expectations of all age groups, it is strongly advised to conduct an additional research amongst the youngsters of Groningen. However, approaching them might be difficult, since youngsters are not very keen in participating in municipal topics. The potential of reaching youngsters might be higher when they are approached through universities or other educational institutes, and perhaps when they are offered incentives.

The survey results gave an insight in the service delivery preferences of the citizens of Groningen, and provided some remarkable results as well. The municipality will hopefully use these results, in order to successfully implement its social media strategy. Aligning your channel strategy to the media use of your target audience seems like a logical thing to do, one just needs to know this use.
Facebook in education

By Wim Oostindier

Learning languages from a textbook does not always match the interest of students. It is perceived as tedious and compulsory studying and in this way motivation is mostly extrinsic.

Many students from International Business Studies want to do their third year of study, which always takes place abroad, in a Spanish speaking country. This means that many of them only have a year and a half to master Spanish to the B2 level, meaning they can produce a rather detailed text on a wide range of topics. Students are also 24/7 online communicating with their peers, the latter not necessarily about study related topics.

The main reason was to activate the students with all kind of topics that they would normally check via their social media, but now offer it in Spanish so it would increase their level of understanding and appreciation.

The teacher provided news feeds from sources and topics like Huffington Post and the like, Obama, Euro crisis, traveling, skiing, Catalunya, BBC mundo, specially selecting items with some relevance to the course content. Students also posted news feeds and commented on each other. The teacher also evaluated these contributions.

All 2nd year students of IBS who take Spanish as a second language were invited (on average 40-60 students per semester), but in the end there were 240 ‘likers’. There were two teachers active on Facebook and two others who were less active. The Facebook content did not contain not compulsory exam material, but was merely additional and inviting to further study and discussion. The concept has been explained at various international educational conferences (Berlin, Istanbul, Groningen).

A threat since one uses a personal social medium was avoiding ‘Big Brother Is Watching You’. It was noticeable that comments on the Spanish group pages were much less frequent than on their normal peer sites. In face to face contacts this seemed to be compensated. Teacher Feeds on the group pages ‘Likes’ very low, they are careful in involving their identity. ‘Comments’ are seen as very useful. Follow Post is frequently used. Note: students turn on ‘Notifications’ to track teachers Group Feed messages. There was very positive feedback during face to face contact in class.

Is Facebook to be seen as an educational Tool? Certainly, and wholeheartedly embraced by the students. Is it efficient? Like ‘classical’ teaching, highly dependent upon the didactics of the teacher. Does it improve study results? Hard to say, but at least it seems to have a positive effect on ‘study behaviour’.

This concept has been presented on various International conferences such as the EAIE 2013 in Istanbul, Turkey, held in Sept. 2013 (4800 visitors) and the Online Educa Berlin, held in November 2012 as well as internal occasions like the annual knowledge centre new years meeting on 28th of January 2014 and the blended learning session at the 10th of April 2014.
**Summer Academy Social Media**

By Marijke Lemal, Nancy Huttenga and Jan Liefers

**IDEA**

**Introduction**
At the start of the Opening Up program it was stated the partners would be interested in an accredited training for professionals with an interest in and basic understanding of Social Media.

The Summer Academy offers a train the trainer program Social Media Trainers in Local & Regional governments and businesses is a joint enterprise of Thomas More Hogeschool and Hanzehogeschool Groningen to deepen the knowledge on social media and to disseminate this knowledge to the partners of Opening Up and beyond.

Possibly there will also be offered a Summer academy program on Strategies and Social Networks for a business target group who is involved with economic development.

**Aim**
The aim of the summer academy is to train key persons from the Opening Up partners who will spread their knowledge within their organization and its network to become proficient users on, spreading it like a pyramid.
Marijke Lemal from the Thomas More Hogeschool conducted a research amongst communication professionals, managers and policy staff to find out the level of knowledge on social media as well as the areas of expertise these professionals feel they are still lacking. A summary of the outcomes can be found below.

**Communication professionals**
- Basics: why social media matters:
- Learning how social media changes the relationship between governments, citizens and businesses.
- Strategic and tactical training topics:
  - Integrating social media in the overall communication channel mix.
  - Social media monitoring (listen).
  - Creating a social media policy or guidelines.
  - How to develop a social media strategy.
  - Understanding your social media public.

**Managers**
- Basics: why social media matters:
- Gaining inside knowledge of social media and why it is important for local government.
- Using social media to transform the role of government.
- Learning how social media changes the relationship between governments, citizens and businesses.
- Strategic and tactical training topics:
  - Integrating social media into your organization structure.
  - Measuring the effectiveness of your social media strategy.
  - Understanding your social media public.

**Policy staff**
- Basics: why social media matters:
- Using social media to transform the role of government.
- Learning how social media changes the relationship between governments, citizens and businesses.
- Case studies and inspiring practices of gov.’s and businesses working with social media.
- Challenges:
  - Learning how social media can operate within the boundaries of government restrictions (rules, legal issues,..).
  - Learning about potential barriers for social media adoption.

**PLAN**
Since the program will be executed by both Hanze University and Thomas More the whole project was split in various elements like program, communication and facilities. We were very fortunate to welcome in our team Nancy Huttenga, who was doing a course on project management and took care of the entire facilities section. The project was kept well within budget.
DEVELOP

The content of the course was developed inspired on a graph representing social media as a roadmap. It was adapted based on interpretation of the research findings. It brought us the structure of the 4 days we were looking to use. We differentiated between a discovery line, dealing with the surroundings of an organization and the social media readiness of the organisation as well as the internal and external culture and how this effects the organization.

![Roadmap and Teachers](image)

The second line was the strategy and tactics: how do you define the proper social media goals, taking into account the audience and the corporate communication strategy. What media and tools can one choose from and how to define a content strategy for them.

The third line was the implementation line, dealing with what needs to be arranged and organized in order to implement a social media strategy.

The fourth line was the governance line: how to monitor and control the effects of an implemented social media policy.

We also developed assignments related to these lines to connect theory and best practice information to the world of the students. The assignment for day one was: perform a SWOT analysis of the social media readiness of your organisation (e.g. of employee support, organisation culture) and of your stakeholders (how ‘social’ are your target groups: businesses, citizens) and reflect on how this can be improved. Take into consideration in the confrontation matrix how you will see your role as a trainer. Present the findings to the group.

In search for appropriate teachers we looked for specialists in the various fields and who were at least experienced speakers on conferences. This lead to a list of 13 people from 3 nationalities.

PROMOTE

To promote the training the partners received the Program and were asked to select candidates. In order to receive a certificate on a Master level language requirements were set. (Ielts score of 6.5, minimal bachelor level job experience). A press release was sent, and it was announced on various websites. For further announcements Linkedin, Twitter and Facebook were used. Yammer was set up to be used during and after the training and Flickr was used to exchange the pictures. Finally there were 25 students from 13 different organizations.
The training was scheduled on 4 consecutive days with an additional evening program.

On **day 1** Davied van Berlo, writer of various books like ‘civil servant 2.0’ and ‘wij, de overhead’, talked about the changing role of public government and how this is affected by the network society. He expects vast changes in the way public servants will cooperate and communicate with the citizens. The relation between government and citizens can be expected to develop by co-creation and collaborative networking, as is already demonstrated by many initiatives.

Frank Willems, professor at the Hanze University of Applied Sciences, but also Director Leadership Development at Lean Management Instituut, talked about social sourcing with lean leadership. He described various cases with the help of social network theories from Christakis, Burt, de Ridder and many others (structural hole, groundswell ladder. This creates relevant insights like: when using social media make sure your message is about the ‘why’ you do things, instead of the ‘what’ or ‘how’. It shows that combining various theories can help us create the most promising opportunities and innovations.

**Day 2** was on strategy and tactics. Otto Thors, Social Media Strategist @ weGovernment and Sjef Kerkhofs, Co-Owner and strategist @DailyDialogues and author of ‘social marketing strategy’ and ‘social media marketing’ talked on social media strategies and social media phasing from their rich experiences.

The steps in the strategy might be common knowledge, but the various cases and examples clarify that choosing the proper objectives or selecting the right audience is still quite a challenge. The phases (Campaign, Content, Conversation & Care, Conversion) after one has chosen the objectives, audiences and channels require a careful organization.

**Day 3** was on implementation. Speakers were Gerrie Smits from the city of Antwerp and Erik Drenth and Marieke Hellevoort form the city of Utrecht, both cities are known for their active social media policy. Again there were many interesting cases on keeping track of the communication about their respective cities, how to get the co-creation of content going and how to generate positive spin-offs. It takes guidelines and control, without killing creativity.

**Day 4** was on governance and monitoring. As many as four different speakers presented cases and the participants also practiced on working with social media monitoring tools.

Rennie Hooi is a change manager and works a in the public sector. He elaborated on a number of cases. One being how the municipality of Zoetermeer (NL) managed to control the costs per media channel by a clear governance strategy. Renske Stumpel from the municipality of Groningen
showed how Groningen monitors the social media interaction by using Obi4one. Erwin de Beer used the case of Project X in Haren which has all the elements of how an event can completely go out of control when it is on social media. He was one of the researchers who reconstructed the social media history of a meanwhile worldwide known case. Corné Kox showed how Radian 6 can be used to monitor social media interaction and instructed all participants who were invited to set their first steps on the path of monitoring. Some participants were a bit disappointed that projects that they were working on were not commented on social media at all.

The course was completed in a final ceremony in which the certificates were handed over.

RESULTS

A survey was conducted to establish the overall satisfaction of the training. In total 20 questions were asked, covering all topics ranging from content, teachers, program, facilities etc. All in all the participants were pretty content although not all expectations could be met. A key success factor seems to be when the course content can immediately be linked to the practise. Some teacher did this excellently. The fact that all participants increased their network was particularly appreciated, as is also demonstrated by the use of the Yammer community. An additional follow up research will be conducted to see if the training has had a long term effect and whether or not the participants are taking up the role of training their colleagues.
Follow Up Summer Academy

By Jessica Kamphuis

The purpose of this research report is to discover what impact the social media training program has had on its participants, one year after delivery.

The research objective is to provide recommendations to the Opening-Up partners, regarding improvements and advice about the social media training program by making evaluations of the social media training program's effectiveness based on analysing the social media knowledge gained by the participants, the impact of the social media training on the participants' organisations and return on investments within the parameter: the local and regional government participants of the social media training program.

From the very beginning of the Opening Up project it was clear a training should be conceived, a social media readiness instrument was constructed and after the training an evaluation was done. The aims of the program however went beyond the individual learning experiences. Since it was designed as a train the trainer program, a second survey one year after the completion was designed to find out about the long term effects.

In order to gain evaluative knowledge about the training and to achieve the research objective, three main questions have been formulated. The theoretical question (What is known from theory and preliminary research about knowledge impact, organisational results and return on investments?) provides theoretical input to the above formulated research objective. The empirical question (What are the participants' views about the gained social media knowledge, the impact of social media training on the participants' organisations and the return on investments?) provides the participants' opinions and perspectives on the effects the training programme has had on them and their organisations. Finally the analytical question (What impact did the social media training program have on its participants one year after delivery regarding the social media knowledge gained by the participants, the impact of the social media training on the participants' organisations and the return on investments?) analyses the collected research results.

The empirical results of this research show that the social media training programme has improved the awareness of social media on the majority of the interviewed participants. However, since a knowledge assessment was not carried out prior to the training, the participants' own supposition on the matter will have to suffice, that is to say that the majority of the participants were affected by the training positively.

From the interview results, nearly all participants indicated that they were able to transfer some gained knowledge within their organisations. This means that the training programme had the desired effect (participants transferring gained knowledge within their organisations), although some participants were willing but unable to transfer knowledge within their organisations. The majority of the participants perceived the training as an investment. However, since only a small number of organisations have actually benefited from any significant changes as a consequence from the training, the return on investment is not noteworthy enough to consider it positive. The negative (no significant changes due to the training programme) in this case, outweighs the benefits (create more capable social media users in participants' organisations).

Recommendations for future social media training programmes are firstly that not only the participants but also their organisations are fully committed to the training programme and its goal. Only by having their full commitment, any real changes can occur within the organisations as a consequence from the training programme, thus creating a higher return on investments. Secondly, it is recommended for future social media training programmes to hold knowledge assessments prior to the training.
with the participants, in order to estimate the extent of the participants’ social media knowledge. The reason for this is to provide the participants with social media knowledge during the training, which would depend on their knowledge degree prior to the training.

Lastly it is recommended that a follow up social media training programme takes place. The majority of the interviewed participants expressed a desire for such. It is recommended to provide new knowledge on social media aspects such as: monitoring, engagement/involvement with target groups, mobile use of social media, technical aspects of social media channels and demographical aspects (social media network communities & target groups). The mentioned aspects are suggestions made by the interviewed participants.

These recommendations are meant to improve future social media training programmes, and to develop more positive impacts on the participant's organisations, thus creating more beneficial changes on their return on investments.

It is surprising that employees are sent of to training programmes and yet do not find themselves able to put the knowledge into practice seems like a waste of energy. Sharing this joint experience and discussing a follow up strategy seems the next step.
The fourth year specialisation of Information Management of the School of Communication, Media and IT has adopted the theme for its entire semester program. This program is open not only to the regular 4th year IDM students, but also for international exchange students. Therefore the group of students always comprises a variety of nationalities.

Yearly there is a so called Bobcatss conference, an international conference on the latest developments on Information services. Students prepare contributions to this event. For the last two years these contributions have been on open data.

Because of the impact this topic had on students many also choose to write their graduation thesis on open data.

First we present some research findings.
“Smarter in traffic with open data”

(Slimmer in het verkeer met open data) by Denny Boelens, Luuk Plasmeyer, Nick van Heesewijk, Tetiana Smeenge, Niek Hoekzema, Séamus McCreesh

Present situation
The municipality of Groningen would like to know how they can improve the public transport for students in and to the city of Groningen by using open data. It is important for the municipality the citizens and her visitors get in and out of the town easily using the bike, the car or the public transport. To guarantee this the municipality wants to know the about in town. What is going on where and when.

Since 30,000 students live in the city and on a daily basis 20,000 more come in from out of town it was decided to focus on students.

• Firstly it was investigated which data was available on students and bikes in the city of Groningen
The bike is the most common means of transportation in the city. Citizens on average take the bike 1,31 times a day. For shorter distances, up to 7,5 kilometres, 46% uses the bike.

There is also data available on the places where to park the bikes, as well as the times and places where it is most crowded.

• Secondly the availability of data on buses for public transport was investigated
Qbuzz is the biggest provider of services for buses. Their busiest lines are 11 and 15. These lines connect the main station to the Zernike complex, where most university buildings are found.
9292 is the company that brings together all data from public transporters and presents it on its website and app.

• Thirdly the availability of data on trains for public transport was investigated
The two relevant providers are NS and Arriva who have provided information to the province on the business in the trains, but this information was not openly available. The information on departure time is available online. The NS is conducting tests to equip apps also with information about how crowded the trains can be expected to be.

• Examples from outside the Netherlands
Ireland has a website with which one can request real-time information in Dublin and Cork City on buses, train and tram. This information is also used for a planner app.
In Zürich one can also plan trips using a website as an app. Both provide real-time information on all trains, trams, busses and boats. Id delays occur immediately alternatives are offered.
A similar service is offered in Philadelphia, US. Many more examples can be found worldwide.

Some figures on the app market
In December 2012 24,19 million apps were downloaded for Android, of which 24,10 million free apps. For the iPhone 27,12 million apps were downloaded. De Dutch NS Reisplanner Xtra can be found on position 111 in the list of most downloaded free apps for Android.

The choice for a mobile website or a mobile app depends on a number of facts.

A mobile website is in fact the smaller version of a standard website, adjusted for use on mobile devices. Such a solution can be advised when the organisations budget is limited. Scalable websites are relatively cheap in terms of maintenance and development costs. In general the production time is shorter an nowadays even GPS info from the receiving device can be used in a mobile website.
A mobile app is a piece of software that only works on specific operating systems and must be downloaded to be used. Production costs are higher since they have to be developed for at least the two major operating systems. The figures differ per country as can be seen in the table from BGR.com.

It shows from research apps for public transport are frequently used by younger people who are strongly influenced by the opinions of others whether or not to download the app.

Functional design

In the report we made a functional design for an app on bike parking spaces, de business in buses and trains and the advised routes for buses and bikes. The next figure shows an impression how they could look like.
“Well on the way with bus stops in Groningen”

(“Goed op weg met Groningse bushaltes”) by Ruchama Joël

This research was commissioned by the province of Groningen. The province of Groningen asked the question how the quality her bus stop data could be improved.

The province of Groningen is ultimately responsible for public transport. The public transport bureau is set up in 2005 to arrange bus transportation. The management of the bus stops, however, is in the hands of the regional and local authorities. The province manages the bus stops along the provincial highways. The municipalities are responsible for the other bus stops in the province. The staff who manage the bus stops are called road authorities. Also on this domain the County has to do with laws and policies. The province of Groningen states in its strategic Information plan that it will focus on the quality of its information in the coming years. The different activities within the bus stop management provide different, complex information flows. The complexity has to do with the province that distributes the tasks through several departments and works together with several external partners in the chain.

The province uses Haltescan.nl to monitor the bus stop accessibility data from herself and the Groningen municipalities. Stop scan is a dual system. At the ‘backend’, the province and the municipalities enter data in their bus stop information system. This is then returned to the province to check it out. After the review and approval, the data is processed in ‘Haltescan’ and pops up the information at the “frontend”. The frontend can be compared with the 9292 from the bus stop accessibility. The user, often a traveller, can click on a bus stop after which the features and specifications of the bus stop will be displayed. The bus stops are divided into three categories: Visual and motor accessible, visually accessible and motor accessible.

The province should on 1 January 2016 have made 47% of its bus stops accessible for people with disabilities. The bus stop management got a boost and a higher priority. This brought to light just how inefficient the province works with its bus stop data and proves the quality of the internal data bus stop is not good. There is no proper overview on all bus stop data and the province has difficulty responding to difficult questions that transcend departments.

This study examines the possibilities for the province to improve the quality of its bus stop data. For this purpose interviews were conducted in the start-up phase with County employees who manage the bus stop dataset and resources. Then a picture could be sketched of the current situation of bus stop dates. Because Haltescan is already in use, the extent to which Stop scan can contribute to improving the quality of data will be investigated. This concept will then be aligned with the public transport agency, Qbuzz (the transportation company) and the passenger platform. This showed the ‘ backend ‘ does not meet the needs of the partners.

The “frontend” is user friendly, but the information is not always compliant with reality. The road authorities are responsible for this, but the province carries the final responsibility. The erroneous information shows that the quality of the bus stop data of the province is not good. In addition, the traveller will be affected directly. There are complaints when the facilities for people with disabilities do not match what is on Haltescan. The province does not have the time and resources to physically check all its bus stops, but must find a way to check their own datasets on the bus stops.
Four advices are given. The first advice is to bring together the internal partners and bus stop resource holders, to get the communication going. By simply exchanging information on the bus stop data sets and the work activities one becomes aware faster and connections can be made. This would enable a kind of quality control. It will raise the awareness and increase the sense of responsibility of the internal partners.

The second advice is in line with the first advice. The province lacks clear agreements about managing bus stop data. The files are usually set up and managed to the sole discretion of the manager of the data. The province will have to put in time and energy to evaluate the work processes and the design of new data models. They are also advised to make a split between the information flows of the internal partners and information flows with the external partners.

The third opinion advice is on opening the accessibility of bus stop data. This means that the data is public, there are no rights granted and that the data are computer readable. This advice zooms in on a section of the bus stop data awareness. Sometimes you have to start small. Haltescan doesn’t provide any option to check the data. There are two groups who use a bus stop daily: the bus drivers and travellers. By making data public the province will soon find out whether the information is correct. It is likely errors will be found, but that’s no problem. It is worse when the province does not respond to these problems, especially when the province loses no time and money to the control.

Finally, there are already initiatives to check the bus stops. The passenger platform trains judges and starts a pilot in September in the city of Groningen. The province should welcome the report and think about how they can profit from this.
Open your city

By Daniël Bos, Ruchama Joël, Daniël Klaassen, Sybren Peereboom, Lene Blak Petersen

The ambition of the European Union to open up data is an important, external, driver for opening up data. Combining this with internal motives presents a true challenge to municipalities.

A whole series of obstacles was collected, ranging from technical issues with regards to the data formats, beliefs on open data from employees, citizens and SME’s and training the proper people. The entire content can be seen in the original report file as well as the presentation.

5 Students from Information Services investigated for the city of Groningen the possibilities for open data. What is the current situation, what information requests does the municipality receive, why could the municipality benefit from opening up their data and what would be the benefits for the other stakeholders?

The have looked at various best practices from Rotterdam and Amsterdam in the Netherlands and various ones from the United Kingdom. They interviewed eight different experts from these cities and governmental bodies.

The information that is most popular by citizens can to be categorized in 8 key words: parking, marriage, waste, requests, work and benefits, money and taxes and public transport.

The ambition of the European Union to open up data is an important, external, driver for opening up data. Combining this with internal motives presents a true challenge to municipalities.

A whole series of obstacles was collected, ranging from technical issues with regards to the data formats, beliefs on open data from employees, citizens and SME’s and training the proper people. The entire content can be seen in the original report file as well as the presentation.

Final report: Open Your City.pdf // Open Your City Prezi
Turning tables

By Information students supervised by prof. Annette Klarenbeek

Introduction

Today’s society is heavily depending on ICT. An overload of information is available from all kinds of sources like social media, (newspaper) articles and blogs. Governments would like to take advantages of these developments. Good use of ICT improves the use of governmental services, eases the operational management and could lead to significant savings. However, the media created a negative image around Governments and ICT in the last couple of years.

The negative attitude towards governments and especially the NSA was strengthened by whistle blower Edward Snowden in June 2013. By leaking secret documents of the NSA, tension between countries was created. Details of a global surveillance apparatus scared people all over the world, which led to questions of security issues and privacy infringement.

The doubt of citizens creates a situation in which insecurity is the key subject. Attitudes towards governments were under pressure. Anderson states: “being in the political majority or minority strongly affects attitudes toward the performance of the political system and the power of governments” (Anderson, 2001).

What Anderson is implying here, is the fact that the more respected information a government gives, the more trust they have on the political system. Of course it could also be the other way around. The critical and negative image created by the media causes a critical audience with less trust in governments. In able to prevent this, governments wants to know what is causing the negative image and how to react on it.

Governments want to be transparent to the outside and get rid of negative a frame which consists in the public opinion. The public demands transparency, including fiscal, safety, just like government concerns, and principled openness. Piotrowski and van Ryzin did research on factors which are influencing the public opinion regarding political confidence. They found several factors like age, political ideology, confidence in government leaders, frequency of contacting government etc. Unfortunately governments are not aware of these factors. A qualitative research is needed to see frames and react in a proper way. (Piotrowski; van Ryzin, 2007)

In this research project we did an online environment analysis. The research is aiming at discovering the frames which consists around ICT and Governments, in particular about the NSA. Our goal is to get an insight in the functions of these frames in conversations of stakeholders and professionals between June and December 2013.

The study will give us a closer view of which frames consisting around ICT and the NSA. Analyzing these frames will give us the consisting frames, an explanation of where these frames come from, how they work and most important the influence of these frames. Important to remember is the fact that frames are used by everyone, not only communication experts or journalists but also regular civilians. The NSA could be able to improve their services by anticipating and thereby create a more positive frame for themselves.

In order to get a close look into the subject, this research is focused on framing around ICT and the NSA of the United Kingdom, Hong Kong, Germany and The Netherlands, not the Government as a whole. The central question in this study will now be: Which frames live among stakeholders and professionals on ICT projects considering the NSA, and what function does it serve for the messengers in the period between June and December 2013.

The study is aiming to see different patterns within this central question which tells us something about the attitude towards the frames. Questions which were involved in our research were:

• Which frames are visible in the analysis of the NSA?
• By whom are the frames managed?
• How did the frames develop in time?
In the following chapters we will describe the method, explain our results and subsequently discuss what these results might imply and what other research might be necessary.

Method

The process of gathering and selecting data for the discourse analysis included quantitative as well as qualitative steps to narrow down the results. It is focusing on the period from 6th June to 12th December, though this varies a bit from country to country (see also individual reports). In overall comparisons however, the given period was applied.

Our proceeding is build up on 10 basic steps that will be described in detail in the following.

1. To prepare for the second step of gathering the items we defined our keywords based on a word cloud for each country. Those individual word clouds were created with the web tool Wordle based on few articles on the NSA incident.

2. We then used these keywords whilst collecting the data with different tools, respectively websites. Goal of this step was to get as many items as possible referring to our keywords and structure them in the same way including at least the URL, the date, the title in columns. LexisNexis as the first tool, was easy to use and already enabled us to get Excel files by importing CSV-files. Whilst here only few adjustments and formatting of dates had to be done, transferring search engine results into Excel turned out to be unexpectedly complicated. First we tried to find tools that scrape the search results pages of Yahoo News and Google News – except for the Chinese Google-Website no add-on or plug-in in Firefox or Chrome was available or working. Hence we copy pasted the results whilst using the add-on AutoPager to load all results in one page. Since all tools to refine unstructured data like Google Refine did not work for our data, we did this step manually. Using Word to delete superfluous content like page-elements, format it including separators and using a Macro to extract URLs to then save it as raw text-files and import it to Excel, similar to the LexisNexis proceeding. For Radian6 we used the export-function to get CSV-files we could then easily import to Excel, for Coosto we already received the results in Excel. As for LexisNexis we also only had to format the date-column and unify the structure of the file to be able to work with the data in the next step. Whilst combining the data in one file we used the Excel function to delete duplicates.

3. Based on the dataset resulting from step two, we created a timeline for each country and used this for a longitudinal analysis. This was aiming at finding the peaks – meaning periods of time in which the discourse on NSA was very active – within the countries. The assumption behind this step is that frames appear when many viewpoints appear (top of the peak) and consolidate when some of those viewpoints stick (period after the peak). We got the timelines by cumulating the items per day. We also calculated the average amount of items per day in this step.

4. We used these timelines to select the peak periods (including the top of the peak, but also the period of consolidation). The definition of peak we followed in this step was: a peak relevant for the following steps exceeds at least the double average amount of items per day. The peak ends when it reaches the foot of this peak. After identifying the peaks we attached the basic news facts of the articles within the peaks.
5. In order to find out the dominating themes on a global or at least European level, we matched the results of each country. From the resulting six peaks we decided on three key themes we wanted to focus on. Criteria for this step were that there is a broad worldwide coverage and that the theme was not too specific (following the criteria stated in the assignment). The dominant news facts resulting were:

- Bugs in EU-buildings cause tensions between Europe and the US (global theme).
- NSA tapped 35 world leaders, including Angela Merkel, leading to Merkel and Hollande wanting to negotiate on an agreement on limiting and collaboration between secret services (European theme).
- US justifying the spying with the argument of avoiding terrorism (security versus privacy) (global theme).

We used those peak periods for narrowing down the results in a later step.

6. To be able to achieve a first quantitative selection we identified the most influential publications, respectively websites within the individual datasets. We selected only those authors, who published more than a certain number of items over the total period of time.

7. For the first qualitative selection we attached metadata to the publications with the most impact within our datasets. We added if it is a regional, national or international website, if it is specialist or generalist and if it fits. In this case, fit is ensured if the overall focus of the website implies NSA related subjects and reliability.

8. To finally narrow down our total amount of results we first selected only the items of national, generalist as well as specialist media (following the criteria stated in the assignment) and fitting outlets. This was followed by deleting all articles except those in the core peaks, as defined in step 5.

9. Since comments and replies on Forum entries and Blog posts are part of the discourse, but are not framing it, we deleted those and thereby got our final dataset.

The next steps to get to the fragments that could be object of a discourse analysis would possibly be:

10. To get the relevant articles we would screen the articles taking the following criteria included in the assignment into account:

- Items must represent a strong subjective position.
- The controversy that the article raises.
- The number of reactions it evokes.
- The variety of sources in which it comes back.

11. Within those articles we would search for recurring sub-themes and find fragments that represent or illustrate those themes from different perspectives.

Within the results, differences in methods and country specific parts of the method will be explained.
Results
In the following part we will outline the results of our research and subsequently have a more in-depth view on the proceeding results and analysis in each target country.

Based upon the results of all four countries, a combined timeline was made to visualize the overlapping or following of the different peaks.

![Figure 1 Timeline made on publications about the NSA](image)

To make a more fair comparison between the countries, we decided to also make a second timeline, based upon the percentages of the results (as a percentage of the total amount per country).

![Figure 2 Timeline made on publications about the NSA, in percentages](image)

As a result of the peaks, we figured out what the basic themes per country were. We compared these themes, to find out overlapping ones. After this comparison and a narrowing down, three global (or at least European) themes were defined.
Bugs in EU-buildings cause tensions between Europe and the US (global theme)

<table>
<thead>
<tr>
<th>Country</th>
<th>Dates</th>
</tr>
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<tbody>
<tr>
<td>Germany</td>
<td>12-6/20-6</td>
</tr>
<tr>
<td>China / Hongkong</td>
<td>11-6/15-6</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>10-6/11-6 + 6/7</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>29-6/1-7</td>
</tr>
</tbody>
</table>

NSA tapped 35 world leaders, including Angela Merkel, leading to Merkel and Hollande wanting to negotiate on an agreement on limiting and collaboration between secret services (European theme)

<table>
<thead>
<tr>
<th>Country</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>24-10/3-11</td>
</tr>
<tr>
<td>China / Hongkong</td>
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</tr>
<tr>
<td>United Kingdom</td>
<td>25-10</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>24-10 + 26-10/28-10</td>
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US justifying the spying with the argument of avoiding terrorism (security versus privacy) (global theme)

<table>
<thead>
<tr>
<th>Country</th>
<th>Dates</th>
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<tbody>
<tr>
<td>Germany</td>
<td>12-7/20-7</td>
</tr>
<tr>
<td>China / Hongkong</td>
<td>18-6/21-6</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>12-6</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>9-6/13-6</td>
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Based upon this finding of global themes, a new timeline was made to visualize the different time paths of the themes within the countries.

Figure 4 Timeline of the shared themes
THE NETHERLANDS

In the case of The Netherlands, the global methodology was being followed. Other than the other countries however, in the research within the Netherlands the tool Coosto was used instead of Radian6. Coosto has an archive going back to 2009 and it focuses specifically on the Netherlands. We were able to receive data retrieved from Coosto via Jan Maessen, for which we thank him.

The other results include items from LexisNexis in the time range from June 6th 2013 to December 12th 2013, and search results from Yahoo News and Google News in the time range from November 12th to December 12th 2013. For all sources the following set of keywords was used: NSA (Snowden OR privacy OR Amerikaans OR documenten OR dossiers OR spionage OR afluisteren OR tap OR monitoren OR veiligheid OR beveiliging OR bewaking OR Guardian OR inlichtingendienst OR Assange OR PRISM OR klokkenluider OR partner OR Obama OR veiligheidsdienst OR samenwerken)

They were derived from a wordcloud, generated from five articles of big and powerful news websites in the Netherlands, such as Volkskrant, NRC and TROUW.

All results from different sources, after using the set of keywords, were then combined in one Excel sheet and clear duplicates were deleted. This resulted in a number of unique results of 24,900 in the Netherlands. These results were found in LexisNexis (738 results), Coosto (24,030 results), Yahoo News (47 results) and GoogleNews (304 results).

These results were cumulated per date and were used to make a timeline, so we could see the peaks of the discourse. These peaks were used to find the most active themes about the NSA, within the Netherlands.
Using the steps as stated in chapter 2, Method, these results were narrowed down to an amount of 1.180 results.

It is clear that further research is needed to draw conclusions about the framing on the NSA in the Netherlands. After step 9, articles must be analysed thoroughly on fragments. By doing so, the results could be filtered and discourse analysis could then show the frames that are existing about the NSA in the Netherlands.

Based upon these first results, there are a few assumptions that might be made. It is for example clear, based on the themes within the peaks, that within the Netherlands there is said a lot about other countries rather than about their own situation. Most of the headlines refer to the situations in other countries within Europe, other world leaders wanting to negotiate or demanding answers and news about the United States and Snowden. This might imply that the Dutch are less worried about their own situation or it might imply that this is part of a frame that is being made about the NSA. Again, to make any real assumptions, further research is necessary.

UNITED KINGDOM

For The United Kingdom, we were not able to follow the global methodology as a whole. Due to lack of time steps 6 till 9 are not completed. The other steps were taken as described in the global method. The results consist of Yahoo, Google News, Radian 6 and LexisNexis sources. The results are taken from June 6th till December 12th.

In contrast to step 2, described in the global method, the dates of the results of the United Kingdom from all sources had to be adjusted manually. Excel doesn't recognize the English dates, so they had to be inserted manually, to make sure it would be possible to cumulate the dates for further research. The keywords used for our research in the United Kingdom were: NSA (Snowden OR privacy OR American OR documents OR affair OR government OR spying OR media OR security OR Assange OR monitoring OR PRISM OR whistle blower OR surveillance OR guardian OR secret services OR Obama OR partnership OR Cameron)

The keywords were derived from a word cloud which consists of three articles from different, but influential news sources. All articles were closely linked with the NSA, but did all have a different theme.
Within the UK news we found 45,013 unique results. These results were found in LexisNexis (497 results), Radian6 (43,744 results), Yahoo News (999 results) and Google News (169 results).

Preparations for narrowing down this amount were taken, however as described earlier we did not have time for step 6 till 9. As described in the global method, peaks (global and national) were chosen.

Further research is needed in order to draw conclusions. In general, according to the peaks, the focus of UK news goes to the relationship between UK and their ‘big brother’, the United States.

It is clear that further research is needed to draw conclusions for the UK. After step 6 till 9, articles must be analyzed for their informative information. By doing so, the results could be filtered and a clear picture of UK’s main interests, concerns and preferences will appear.

In general, the results are mainly about the effects of the Snowden disclosures on the UK and US. Big concerns in other (smaller) countries are almost not published or spoken of in the United Kingdom. A possible explanation is the position of the UK in Europe. In most publications and comments Europe is described as a continent in which the UK doesn’t fit. The comparison with the United States is more present. The collaboration between these two countries make the articles even more confederate.

**GERMANY**

For Germany we basically followed the global methodology. The results include items from LexisNexis, search results of Yahoo and Google and Radian6 in the time range from June 6th 2013 to December 12th 2013. For all four sources the following set of keywords was used: NSA (Deutschland or Merkel or Kanzlerin or Snowden or PRISM or USA or Regierung or Datenschutz or Affäre or Geheimdienst or EU or Europa or Berlin or Brüssel or Daten or Sicherheit or Aufklärung).
They were derived from a wordcloud generated from five articles of big and powerful news-websites in Germany (tagesschau.de, spiegel-online.de, ...).

To get more reliable and complete results all searches were executed month wise. However, the Google News and Yahoo News only go back one month in time. All results were combined in one Excel sheet and clear duplicates were deleted. The number of original results for Germany was 197,537.

These results were cumulated per date and were used to make a timeline, so we could see the peaks of the discourse. These peaks were used to find the most active themes about the NSA, within the Netherlands.

Following the ten basic steps described in chapter 3.1.2, the results were then narrowed down to an amount of 7,999 items.

These results show that the NSA incident was part of a very broad debate. Already in the step of attaching themes to the peaks of the timeline it became obvious that the news were mainly focused on the role of Germany and the consequences for German citizens and relationships to other countries – especially to the U.S. The global implications played a minor role.

In Germany the NSA coverage was overlapping with the election campaigns. That might be one reason why Angela Merkel as “victim” of the US-tapping and her party but also the opposition took a very clear position and made their opinion on overall data security topics part of their electoral program.

Another reason why the discourse in Germany was bigger than in the other countries the analysis was focusing on might be due to German history. Few articles and comments were referring to past periods when Germany was suffering from spying and tapping – the dictatorship in times of National Socialism and the spying of the repressive Ministry for State Security in times of GDR.
Within Hong Kong and China we found 13,795 unique results. These results were found in LexisNexis (160 results), Google News and web search (1645 results), Baidu (666 results) and Radian 6 (1125 results).

For Hong Kong and China, the method used is almost the same as the global one. The main differences are the choice of search engine, the number and related method of narrowing down the data, and the search query.

Firstly, Google and Baidu were used to do the web and news search. Baidu was used instead of Yahoo is that, Yahoo is no longer exist in China but only Hong Kong. Thus, Baidu, the largest search engine in China, was used. The main problem of Baidu was that it cannot sort the search results by date so many manual work was required.

Secondly, as the amount of Chinese and English results in Hong Kong and China was little compared to other countries, a more general search query was used. It is “NSA and Privacy and/or Snowden”(in the Chinese search “國安局 和 私隱 和/或 斯諾登”) The Chinese search query was done in both traditional Chinese (Cantonese) and simplified Chinese (Mandarin). The former indicates that the data is from Hong Kong and the latter is from mainland China. In this project, the data collected in Chinese was mainly from China and that in English was mainly from Hong Kong.

From the peaks in the graph compared to other countries, the number of peaks in Hong Kong and China is almost the same. However, the themes in the peaks are mostly very different or delay. The themes are mainly about the detailed of the NSA incidents, the relationship between China and other countries etc. The critical analyses about privacy, Snowden or human right are a small proportion.
Discussion
As already stated in the individual parts, it is clear that further research is necessary before conclusions can be drawn about the differences in framing in the countries. After step 9, articles must be analysed thoroughly on fragments. By doing so, the results could be filtered and discourse analysis could then show the frames that are existing about the NSA.

Early assumptions imply that there is quite a difference between Asia and Europe, since there have been fewer publications within China and Hong Kong and the themes are less specific than in Germany, United Kingdom and the Netherlands.

Mainly in the beginning of the time path, it seems like a lot of peaks are following each other. This might imply that some subjects arose in one country, being followed by the others. It might also imply that some countries are influencing the others, this might have consequences for the frames that are consolidated about the NSA.

We also did discover that there exist many differences between the themes within the countries. In Germany for example, publications mainly involve the situation within Germany itself, while the UK focuses more on their partnership with the US. These differences in themes, might have big impact on the different frames.

These differences might also be caused by governments that are already framing, did Merkel for example, react different than Cameron on the NSA debate? These are all new questions or additions to the already existing questions about the visible frames and the managing of them. This makes it clear that the research is not finished, but there has been laid a foundation that can lead to interesting results, when researched further.

References

Hanze - Visit to Twitter and Google

By Jelle de Boer

From 12–15 January 2014 a group of 8 staff and 29 students from the School of Communication, Media and IT of Hanze University of Applied Sciences made a study trip to Dublin (Ireland). The groups comprised of staff and students from students of Communication Systems and Information Management.

The visit was to Twitter, Google, University College Dublin and Trinity.

College Dublin
The study trip was organised to explore the future job possibilities at the big information giants Twitter and Google and to explore cooperation with two Dublin Universities Trinity college and University college.

Students uploaded their cv’s to Twitter and Google and received comments. At Trinity College Dublin the options on possible cooperation as students and staff exchange and entrepreneurship were discussed. Currently many investments are made in facilities for start-ups. Research cooperation options were discussed for the work of professor Wouter van der Hoogen on User Experience/User Centred Design. After visiting the University College Dublin it was agreed student and staff exchange is possible as well as sharing information on developments in education.

Google and Twitter are two of the major players when it comes to open data. 255 million active users send 500 million tweets a day making it a formidable source for sharing news and opinion. Twitter employs 3000 people and is expanding. Google has become synonymous with information and employs now 50.000 people. And developments continue. One of the latest update to the search algorithm, called Hummingbird, shows Google takes steps in learning the nuances of communication. Interpreting a search as ‘restaurant neighbourhood’ as ‘present restaurants in the neighbourhood of your device’. It also shows the development from a search engine presenting links towards an answering machine giving you the answer, understanding human communication. Virtual assistants like Samantha form the film Her are closer than some might think.

All good reasons to explore the world of working for these two giants of information. In their search for new products both companies are searching for new employees and they present their approach in doing so. The capacity for innovative thinking and proven ambition is key.

All participants had to sign non-disclosure agreements about the information that was shared. It shows these giants of information are very careful. To put it in a metaphor: you will not hear the commands from the bridge to know where the vessel is going to, but you can tell from a distance. Universities do well in working together and keeping closely connected to the developments in the field, to prepare their students for the world out there.
Study visit at Pixolution (Berlin)  

By Kees Westerkamp

On 11th of October 2013 a international group of 25 fourth year students and staff of Information management from Hanze University of Applied Sciences, Groningen, Netherlands paid a study visit to the company Pixolution in Berlin. The vision of Pixolution, as they mention on their website is to “Manage visual content visually. Our technologies allow a completely new approach dealing with visual digital content.” (http://www.pixolution.de/index.php?id=9).

Searching the web for images is a very popular activity. The way in which this happens is strangely enough more a textual issue. Images are indexed based on their file name, alt text, a possible caption and text on the webpage pointing to the image. Pixolution is a German search engine indexing images on the world wide web in a different way than other search engines do. It was developed as a start up in 2009 by Prof. Dr. Kai Barthel and his students of the THW Hochschule für Technik und Wirtschaft in Berlin. Barthel is focused on Image processing, visual and semantic image search. Their aim is to provide a more accurate search based on the actual pixels in the image.

Searching on the pixels could be interesting for many sorts of professionals, such as journalists, designers, stock image agencies. Creating new applications and finding new clients is the real challenge here.

Students received an overview of the various products and possibilities that were developed over the last years. They were also challenged to come up with new ideas.

Although Pixolution, at this moment, mainly focusses on finding clients in the e-commerce market and photo stock field, it is a very interesting tool for museums, archives and other cultural heritage organisations for opening up historical images. Because most search engines and websites present their search result with images in an unsorted way and web users are not able to view more than about 20 to 50 pictures at one moment and consumers only look at the first two of three results pages, relevant pictures are not viewed at.

Pixolution is another example of the major changes that are going on in the way we can gather, search and use the data that is available, with promising possibilities for developing new products and applications, possibly even new jobs.
Preparing students for new business models: A case on Dataprovider

By Kees Westerkamp

On the 13th of November 2013 in total 45 staff members and 2nd and 4th year students of Information management visited a conference organised by students and staff of Information Services. The purposes was to challenge students to come up with new business models based on the presentation of Dataprovider, a company that provides new ways to search and present open data information.

The program is a success when the students show an understanding and sensitivity for the business opportunities and come up with new prospects and target audiences.

Data provider programmed web crawling bots that search for all kinds of company information and they present this in a very structured way. By now their web crawlers have indexed 68 million websites (July 2014), and counting. The current number is presented at www.dataprovider.com. The kind of information they collect is divided into 7 different categories like name, place, contact information and keyword search. So you could search for all Italian companies that sell a specific product like lawn mowers an shoes, or show all restaurants in a town of your choice that accept Master card. This structured way is incomparable to the usual way of googling your way to this answer. It opens up great opportunities to marketing and E-commerce.

For the students is appeared to be rather difficult to come up with business models that incorporate in some way to making money. To come up with new target groups like journalists or researching students or collectors was not that hard. Presenting the desired data in a way that ‘saving time’ could be converted to ‘spend some money’ shows that nowadays people are very much used to acquiring data for free, not knowing that the selection of free data already meant someone made some money in filtering the information.

To approach the process of developing new applications for products from a commercial perspective is a valuable addition. Even though it shows the promise of Euro commissioner Neelie Kroes, who claimed billions could be earned in open data and social media is not that easily established.
Looking back at the results and focusing on the effects or validation, we can state the following:

1. The researches by Hanze staff have offered interesting perspectives on various items with regard to business and networking.

2. The Social Media Lab is in place. There is a facility open to students and researchers and there is expertise developed to coach people in the use of it. Already quite a number of students use it in their research. (9 graduation projects, 3 placements and over 20 students on smaller projects). Also 3 guest lectures have been provided to potential users. It is also open for researchers from the Hanze University of Applied sciences and on request to others. (j.homans@ph.hanze.nl).

3. Unfortunately the group members were not that enthusiastic about the Hanze contribution on Cluster development, that is to say only two partners saw the usefulness of this theme. Most partners focussed more directly on Social Media. Nonetheless we consider the results a valuable outcome of the project, since many people were confronted with the layout on various international conferences.

4. The Social Media Training was a great success. It established a good level of knowledge as well as a new network (still active on Yammer). The content is still open to be used for “Leven Lang Leren” or the Master program of International Communication.

5. The concept of Open Data has been adopted by Information Services, The entire fourth year program is focussed on this topic and many students have also chosen their thesis in this area. It also became clear the initial hope and goal of Euro Commissioner Neelie Kroes is not that achievable. It did not turn out to be so easy to make a profitable business model out of available data. In fact the world of open and big data may have created some serious downsides.

6. The INNNL site was a technical success, but not in terms of reaching as many people as hoped. We must therefore conclude the idea did not have the added value as was hoped or there is not a great demand for another new social network.

7. The various researches by students delivered many promising outcomes as could be seen in the summaries. It also gave the students a feeling of being connected to a real European project.

8. Initially, after a rather laborious process a candidate was found to do a PhD research on Social Media within the project. After some "Social media curse or cure: how is it adopted and used, The relationship between social media and organizational processes".

9. All in all it brought many people together, often no more than a click apart from one another.
### Hanze participants at OpeningUp project

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<tr>
<th>Name</th>
<th>Role</th>
<th>Participation</th>
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<tr>
<td>Alsem, Karel Jan</td>
<td>Professor</td>
<td>participates in research SME</td>
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<td>Willems, Frank</td>
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<tr>
<td>Annette Klarenbeek</td>
<td>Professor</td>
<td>Professor Communication Sustainable Society</td>
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<td>Liefers, Jan</td>
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<td>Sennekool, Josef</td>
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<td>Teaches Facebook supported Languages</td>
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<td>Manickam, Anu</td>
<td>Researcher / project manager</td>
<td>participates in research SME &amp; Organization</td>
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