

Using a Network Approach to Transform from a Municipality to Municipal Community

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Abstract: This paper presents a social network approach to help the government in their transformation to a leaner organization. We will first explain how social network analysis can contribute to this transformation. After that we will present some results from a pilot study that was conducted in Enschede Zuid in the Netherlands. We will conclude the paper with some remarks regarding our experiences and a future outlook for this approach towards a lean local government that acts as a director, rather than as a player in the field.

Decentralising government

A large part of this paper is not devoted to the *e* in *eGov* but is closely connected to the governmental desire to create a more lean organization. The paper focuses on how civil servants, organizations and citizens communicate and collaborate in a network on the local level. Consequently, the paper does not directly connect to municipal IT-services and strategies. However, the paper does form the basis of how to transform from a municipality to a municipal community. Future IT-strategies and services in a decentralized and networked environment can be built on these fundamentals. We will address this possibility in the final section of the paper.

The economic crisis has underlined the need to become smaller and more effective. In The Netherlands, this desire is implemented by creating a government that functions more decentralized. As a consequence of this objective, the central government transfers an large number of tasks to municipalities. Municipalities will get the chance to build a coherent system of social support [Th12] ranging from child welfare to public transport. At the same time, the central government asks municipalities to perform those tasks with a smaller budget.

Many municipalities are struggling to find a way to deal with the combination of these new responsibilities and a small budget. Municipalities are forced to limit themselves to their core tasks and to collaborate with the organizations in their community. Local organizations and citizens will also need to become more responsible and independent for their own wellbeing.

In sum, as a consequence of the central governments' plans for a lean, strong and efficient governance, municipalities have a need to act more as a director, a facilitator rather than as a player in the field. Questions that need to be answered are:

- Who are the key players in the field?
- How are these key players connected to other organizations in the field?
- How do citizens relate to the key players in the field?
- How do civil servants (government officials) relate to the key players in the field?
- Where should the network be strengthened and where can the municipality withdraw?

In order to find answers to these questions, we need to obtain insight into the social network of the municipality.

Social Network Analysis

In theory, Social Network Analysis [WF94] provides an excellent method to obtain these insights. The relationships between organizations (companies, institutions, municipal departments) that collaborate and/or communicate are the core of such a network analysis. We propose that five different networks should be mapped in order to gain insight into the local playing field:

- **Network of collaboration.** In this network we focus on how organizations within a municipality communicate or collaborate. We measure the intensity of the relationship (i.e. the strength of the tie) on the basis of the frequency of the contact. We can also map the channels through which the contact occurs (phone, email, face-to-face) and the nature of the relationship (trust, obligation, service). Based on the structure of this network, conclusions can be drawn regarding the question who the key players in the field are and how these players relate to other players. This provides insight into the parties that the municipality can contact to realize specific tasks. Data is collected through an online questionnaire directed towards local organizations.
- **The online network.** This network shows how organizations are connected through hyperlinks on the World Wide Web. This shows which organizations are each others 'sisters'. Organizations will only link to each other if they are indeed closely connected. This network provides insight into the organizations that can already find each other. The other way around, the municipality can contact organizations that have not found ways to collaborate. The data for this network is gathered through a webcrawl.
- **The network of similarity.** This network shows which organizations resemble each other regarding the domain in which they work, their target groups and the way in which they relate to the municipality. Organizations that resemble each other a lot are connected to each other. Consequently, the network shows which

organizations resemble each other, or, in other words, which organizations are each other's competitors. These results will help municipalities to target organizations not only based on traditional groupings such as domain. Instead, it becomes possible to target organizations based on (a combination of) criteria such as size, attitude towards the government, target groups etc. This helps the municipality to work outside existing structures. This network is mapped through a number of closed questions in the online survey we referred to earlier.

- **Network of citizens.** This network shows how citizens are related to organizations in the municipal community. The network shows which organizations are important from the perspective of the citizen. It is possible to map different relations such as compulsory, trust, frequency of contact. Insight into this network can help when the municipality needs to communicate a specific message to its citizens. The other way around, this network can also be used to listen to citizens. In some cases it might be useful to engage a network partner. This can for example be relevant when an organization in the field is trusted when the government is not trusted with regard to a specific issue. The network shows what partners and channels (e.g. social media) can best be chosen in which situation. This will help the municipality to support the community. Insight into this (two-mode) network can be obtained through an (online) questionnaire among a representative sample of citizens within a municipality. The way in which citizens are connected among each other is not mapped in this way.
- **Network of officials.** This network shows how municipal officials connected to the organizations in the municipality. By means of an online survey among municipal officials, the network of the municipality is mapped. Any gaps or duplications in the 'Address Book' of the municipality become clear. The relevance of this network lies in the possibility to direct civil servants to those parts of the network where the action is, thus making their work more focused, effective and efficient.

In order to find out if and how insights from these networks can contribute to the transformation of the local government a pilot study was performed. In the next section we will describe the pilot and present some of the results.

Pilot case in Enschede Zuid

Early summer 2012 a pilot study was conducted to get some initial insights with regard to the local network. As a case Enschede Zuid was used. Enschede is a municipality and a city in the eastern Netherlands in the province of Overijssel and in the Twente region. The research focuses on one of the city areas: Enschede Zuid. Over 37,000 people live in this area which makes it the second largest city area of Enschede. This city area consists of three neighborhoods with different social-economic profiles.

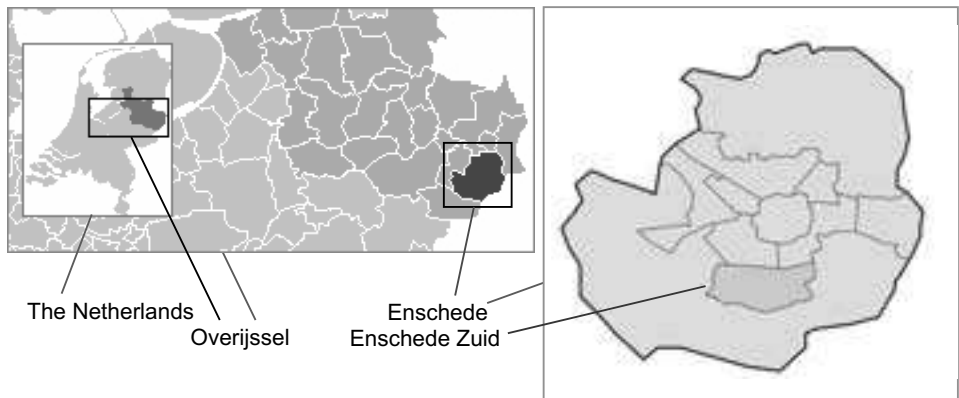


Figure 1: Pilot in Enschede Zuid

As a first step a list organizations relevant to the Enschede Zuid community was made using the local directory service. A list of 135 organizations from six domains (Art & Culture, Work & Income, Government, Community, Education, Health & Well being, Religion and Sport & Recreation) was found. For this case study three datasets were collected: the online network, the organization network and the citizen network.

In collaboration with the local authorities URL's and contact persons were found. Issue Crawler was used to create the online network based on the URL's of the organization. The contact persons received a letter through traditional mail in which they were invited to either participate in an online questionnaire or face-to-face interview. In the final dataset 35 organizations, with representatives from all domains, participated. Participants were asked to respond the whole organizations. Citizens were approach using the civilian-panel of the city area. 344 citizens participated in this survey.

In both questionnaires the contact with the local private and public organizations was central. Respondents were asked which organizations they were in contact with, what characterized the relationship (formal, trust etc) and through which channels contact took place. The data was analyzed by making use of Excel, SPSS, UCINET and NETDraw [BEF02]. In the following two sections we describe two small pieces of results to illustrate the type of information that can be gained by using the proposed network approach.

Organizational collaboration

The organizational network in Figure 1 shows which organizations in Enschede Zuid are in contact with each other. The network shows how governmental organizations such as the Municipal Service Center and the police have a central position. In addition, organizations in the Health & Welfare domain are mentioned often. There are many connections within and between the clusters. The Art & Culture, Sports and Religion domains are a little bit less connected.

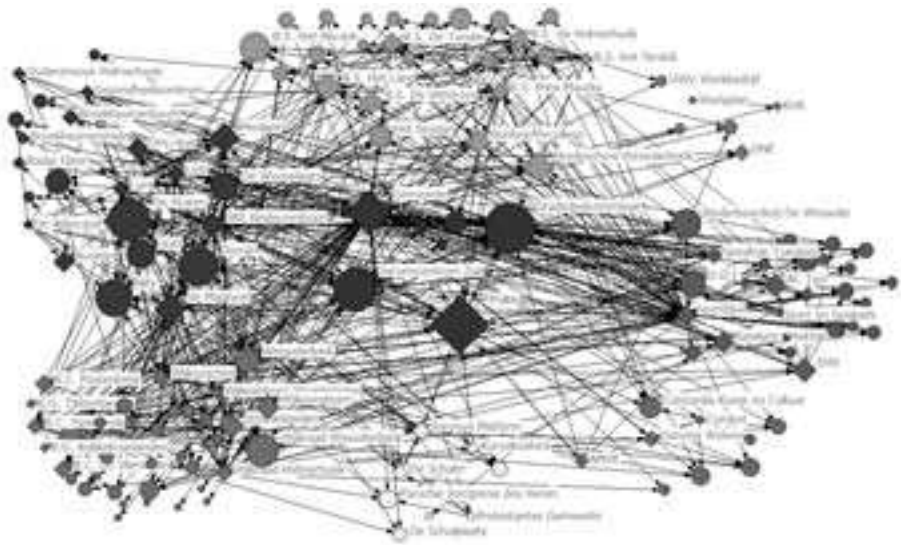


Figure 2: Organizations in Enschede Zuid: Contact¹

Figure 2 shows only those relations in which organizations are in contact on a monthly, weekly or daily basis. This network is much sparser. Governmental organizations are less visible. The Art & Culture, Sports and Religion domains are hardly connected at all. Health organizations and schools in contract have strong communicative bonds with other organizations.

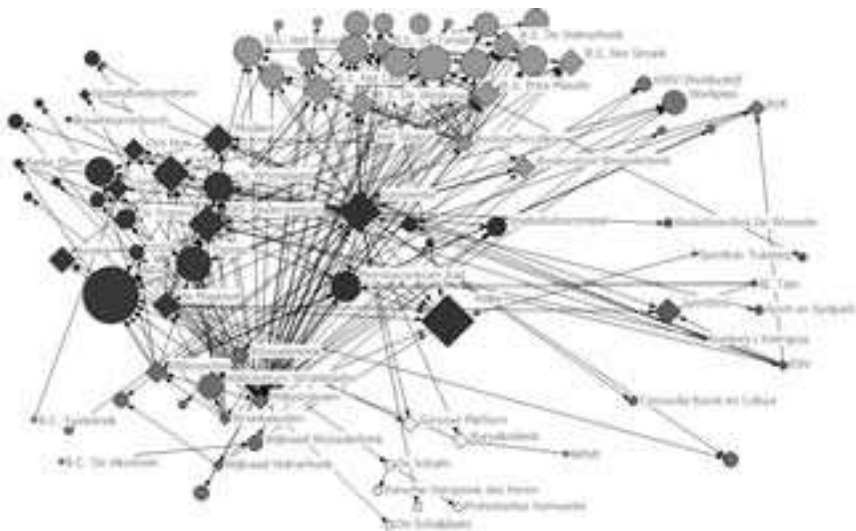


Figure 3: Organizations in Enschede Zuid: Frequent contact¹

¹ Legend: Art & Culture = light blue; Work & Income = grey; Government = blue; Community = Pink; Health & Welfare = purple; Religion = yellow; Sport & recreation = green.

Based on these results we conclude that many organizations are able to find each other. However, organizations from some clusters are hardly in contact with the rest of the network. As a director, the local municipality could address this by stimulating contact within and between these organizations.

Connecting to citizens

Figure 3 and 4 show two visualizations from the citizen dataset. The red dots in the middle represent the individual respondents. The two pictures show how citizens are connected to local organizations. Figure 3 shows the organizations respondents have a formal relation with, Figure 4 shows which organizations they trust. The size of the organization depends on the number of times an organization is mentioned. The colors refer to the domains¹. Figure 3 shows how governmental organizations have a central position when it comes to formal relations.

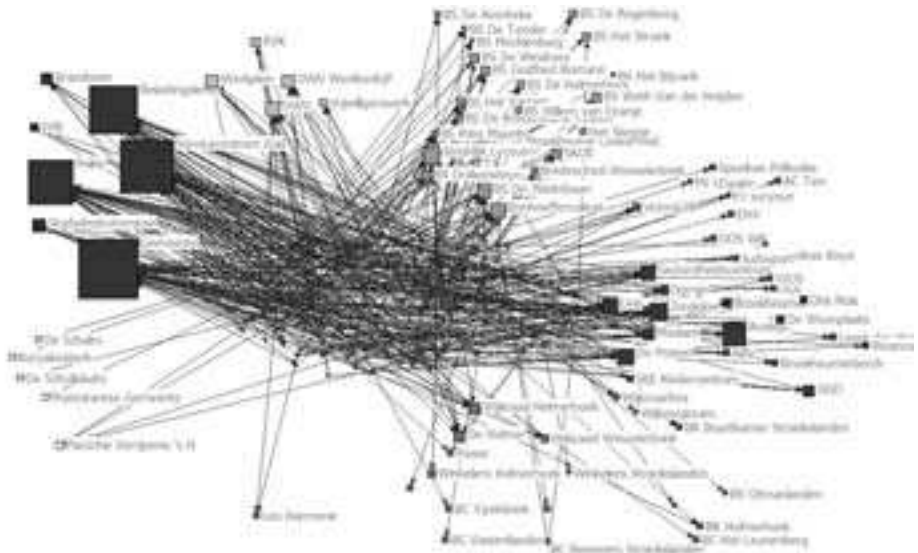


Figure 4: How citizens are connected to organizations in Enschede Zuid: Compulsory relation¹

Figure 4 shows that the trust network looks very different. In this network governmental organizations play a much smaller role. Instead (some) churches, schools and health organizations play a much more important role. We also see that the network is less dense. A trusted relationship is harder to come by.

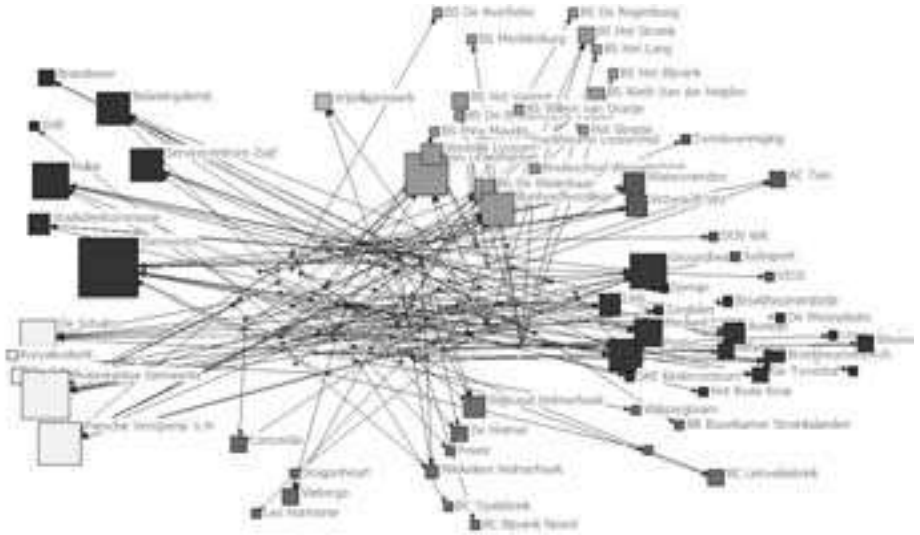


Figure 5: How citizens are connected to organizations in Enschede Zuid: Trust¹

The conclusion that can be drawn is that relations in the formal network are very different from the relations in the trust network. Based on these results the municipality can draw conclusions with regard to the question which organizations they can contact when it comes to issues in which trust plays an important role.

Apart from these visual impressions, network analysis also allows for more statistical analyses. Table 1 shows QAP correlations [Kr87] between the networks of motivation for contact and channel preferences.

		Channels						
		Frequency	Satisfaction	eMail	F2F	Mail	Telephone	Website
Motivations	Frequency	1.00	0.70	0.18	0.45	0.06	0.26	0.12
	Satisfaction	0.70	1.00	0.23	0.58	0.05	0.33	0.18
	Ease	0.07	0.11	0.03	0.14	0.00	0.05	0.03
	Expertise	0.13	0.16	0.04	0.07	0.00	0.10	0.10
	Familiarity	0.17	0.15	0.02	0.08	0.00	0.05	0.04
	Formal	0.31	0.35	0.18	0.21	0.10	0.24	0.15
	Closeness	0.16	0.35	0.08	0.29	0.00	0.14	0.07
	Social influence	0.08	0.06	0.01	0.08	0.01	0.02	0.02
	Trust	0.16	0.12	0.01	0.09	0.00	0.03	0.02

Table 1: How citizens are connected to organizations in Enschede Zuid: Trust

Table 1 shows that the organizations that people contact on a regular basis are also the organizations people are satisfied with. In addition, the table shows that these are also the organizations people go to for expert information, the organizations they have a formal relation with, that are nearby and that they trust. The most important channel is

face-to-face, followed by phone and email. Using these results, both public and private organizations can develop communication strategies.

Conclusions and discussion

In the previous section we have shown only a few of the results from the analyses that were done for this pilot project. Results from the online network, the network of civil servants and the connections between these networks were all left out of this short paper. Results provide insight into what the local network of public and private organizations looks like. Now, how can these insights contribute to a transformative, lean government?

There are two answers to this question. The first is specific for this case. One of the conclusions that can be drawn is that the municipality itself has quite a central position in the network. Although that may seem nice, it is also expensive and far from being lean. The network pictures may provide the incentive that is needed to transform. The network also gives clues as to which organizations could be excellent partners. Health organizations, schools and churches could be stimulated to develop a more central position in the network. In addition, organizations from the domains of Sport, and Art & Culture could be stimulated to participate more in the network.

The second, and more generic answer to the question is that these results are not only relevant to the municipal organizations. The whole community could interpret the networks and learn from the insights. The municipality is the party that can and should organize these meetings that can form the basis for a strong municipal community.

Last but not least, in the very first section we addressed the fact that this paper hardly addresses the *e* in *eGov*. Why then submit a paper like this to the *eGov* conference? The answer to that question is as simple as it is fundamental. Imagine the emergence of a community as described above. How would an information system support such a community? Before we can describe the requirements of such a system, we would first need to have insight into the community itself. Hence, the network analysis.

References

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