Causal Mechanism in Social Network Sites under Consideration of the Social Capital Theory

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Abstract: The paper gives a theoretical framework for social capital theory under the consideration of social media. Three components exist to explain the causal mechanism in social network sites under the consideration of the social capital theory, which is the technological design, institutional design and the process design. Additionally, it is mentioned that social network sites creates social capital and social capital enables social network sites to be beneficial for the member of virtual networks. The limitation of the paper is the absence of empirical confirmation at the moment but it illustrates the empirical construct to test the existence of social capital in social network sites. The objective of the paper is to describe the framework of social capital theory under the consideration of virtual networks. That provides an insight in the development of social network sites, besides giving the frame to explain changes in social network sites and the behaviour of individuals and processes.

Keywords: Social capital, social network,

1   Introduction

The new phenomena of social network sites and the permanent technological change needs a new framework to describe the processes in networks to give an answer on the effect of social network sites on the society and the causal mechanism of social networks sites. The social capital theory can explain social network sites phenomena with the new framework developed with this paper (Haythornthwaite & Kendall, 2010).

Social network sites are web pages to create social networks (e.g. maintain ties with friends or business partners or to share information and resources). For instances Linkedin or Facebook, they have the same processes and provide the opportunity to create social capital as a result of joining a social network site. The objectives of social network sites are different and influence the operations at social network sites and the kind of relationship e.g. private or business relationships (Caers & Castelyns, 2010).

The creation of social capital needs a process. Social network sites enable network members to create a process to produce social capital. The creation of social capital is only possible if network members have a direct tie between each other. This paper describes the different parts that are needed to create social capital with social network sites. There are different designs involved. The different designs are engines for social networks, that social networks can operate and to describe the process to create social capital.

Social network sites are an institutionalized product with rules and cultures. There are clear processes, technical requirements and institutions which influence and control social network sites. This framework helps social network sites to share information and to give individuals the opportunity to influence each other. The behaviour of the individuals in social network sites and the result of their behaviour create and develop social capital. The network has norms and culture that support the designs (Melody, 2006).

The designs help to structure the scientific work and to provide a framework for future work. The points of the diagram shown in Figure 1 have to be tested to give a clear picture of the framework e.g. technical design for social network sites. The framework is needed to explain the processes and mechanism in social network sites to give further information about social capital. The first step is to define the actors in the construct. One actor needs resources and the second actor has access to the resources or can provide needed resources via social network sites. Which means, if the first actor is an individual who is looking for a new position and is applying for an open position; while the second actor is an employee of a company which is looking for new employees; thus, both actors would use this social network sites for their advantage. The applicant is keen to find a new position and the company employee needs a new member for their organization. Both are keen to use the resources of the other party. This explains the social capital theory because they have access to the resource and can provide resources with the support of their network. Both parties have a benefit with this design and as long as anybody can use the social network site to reach their objectives then anybody can take part and support the social media construct. The important point to keep in mind is the collective goal of the social media networks, which has to give beneficial advantage to all members of the social network sites. The second step is to define the environment and pre-conditions of the network site to explain the operation of social network sites (Koppenjan & Groenewegen, 2005).

Technological Design of social network sites	Institutional design of social network sites
Internet, software and web based platforms to share information, social network sites to create and maintain relationship, access to the world wide web.	Norms for relationship, access to resources and information, providing information and resources, creating a culture of exchange.

Design process of social network sites

The three designs describe the creation of social capital in social network sites that network members have a benefit (or disadvantage).

Process design of social network sites

Social network members, accepted network members, obligations, rules and regulations to share information and resources, regulation of the access to resources and information of other network members.
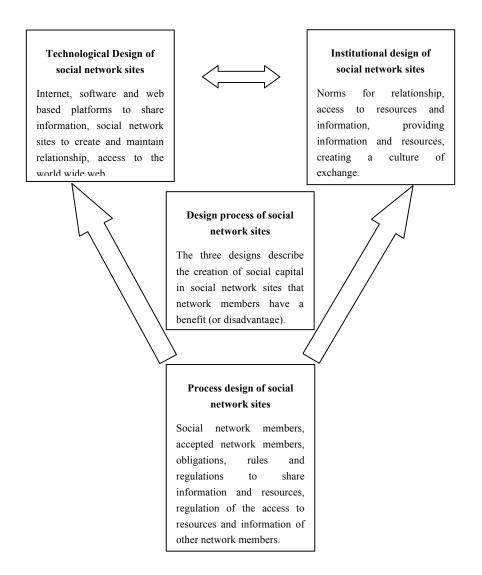
Figure 1

The relation between technological, institutional and process design to create social capital in social network sites cf Koppenjan & Groenewegen, 2005

2   Institutional design

The coordination of the system in social network sites is explainable with social capital. Michael Woolcook and Deepa Narayan for example argue "that the vitality of community networks and civil society is largely the product of the political, legal and institutional environment." (Woolcock & Narayan, 2000). The tie between the individuals and the structure of social network sites gives a frame that coordinates social network sites. In addition in social network sites there exist rules, culture and norms which give borders and advantages to the members of social network sites (Adler & Kwon, 2002). The frame is given by the government, members and culture of the specific social media platform. The government gives policies to control and regulate the rules which influence the institutional design (Melody, 2006). They have clear rules to share content. The relationship in the social network is clearly institutionalized, that means organized, controlled and regulated (White, 2002). Social network sites gives an orientation to the user of social network sites and helps individuals to share and exchange resources. The mechanisms in social media guarantee that social media works. It is an advantage for the user and member. That is the reason for people to be members of social network sites (Koppenjan & Groenewegen, 2005).

The rules and norms are the reason that social networks reduce costs, uncertainty and provide a stable environment. A typical example for cost reductions with social capital are transaction costs because the framework of social networks helps to save time and reduce misunderstandings. All members of social network sites follow the rules to optimize their benefits and create more value with the advantages of social network sites. That means that more social capital is possible by social networks sites optimizing the processes and improving the rules or norms. Furthermore, the rules help to make the exchange between members easier and faster e.g. reducing time to transfer resources (Melody, 2006) (Tatarchevskiy, 2010).

Lin and other authors describe as a norm for social capital in social networks obligations. That means network members invest their resources and information because they share their capital. They expect to get for this reciprocity to get something back later. This can be a typical rule in networks and is described in the norm and culture of the network (Lin, 2001) (Mandarano, Meenar, & Steins, 2011).

The environment of social network sites has to be taken under consideration. The exchange between the different social network sites has to be seen as bridging between two networks. This is a further kind of social capital and explains the advantage of someone who has access to two networks. This access gives opportunities to reach more or different resources. The applicants are members of the network of applicants and social network sites. The employees are members of the company organization and they have their network in the company. This

means social network sites fills the gap between the network of employees and applicants (M. S. Smith & Giraud-Carrier, 2010)(Beugelsdijk, 2003)(Burt, 2000).

The disadvantages of the processes are the discrimination against non members and the transparency which is not given by a network with a strong cohesion e.g. Mafia. Further processes are not flexible and open for new circumstances which can be a disadvantage. The risk is the misuse of social networks to damage other individuals or to abuse people. This negative effect is possibly protected by rules, norms and relationships in a network. The social capital in this case has a negative impact on individuals and organizations. Individuals or organizations use their social capital for their advantage and it can be a disadvantage for other people who are not members of the network. Another disadvantage for social network sites members can be that the membership discriminate them. That means that member of an ethical group are member of a network and their membership of this ethical group network is a disadvantage (S. S. Smith, 2005) (Labianca & Brass, 2006).

Another point is the responsibility for social network sites. Mainly the member of the network is responsible for the content. They are providing their opinion, information or other content to share information and to use information from other users. They have the responsibility of how to use the content and to take the content, which gives them an advantage. They are in charge of using the network and to improve social media that they and others have a benefit. The content has to be reliable and accurate so that the network has an advantage for the user. This responsibility is important because without these benefits social network sites would not work. Another responsibility of the members are rules and regulations that the achievement of the network is not misused or the resources of members are destroyed. This is the soul of social network sites which is important for the success of social media (Li & Bernoff, 2011) (Bernoff & Schadler, 2010).

3   Technological design

The technical basis for social capital is the network. Social capital cannot exist without a network or ties between individuals. In some cases the social network sites with their technological opportunities substitute real networks (Tatarchevskiy, 2010). The networks have to be created to generate relationships between individuals. Portes write in his article:

"Social networks are not a natural given and must be constructed through investment strategies oriented to the institutionalization of group relations, usable as a reliable source of other benefits" (Portes, 1998).

Social network sites are a kind of social networks and have a similar basis. A network can only exist because technological development gives members of social network sites the opportunity to share, react and create content. The

individuals who take part in social network sites need a computer and access to the internet. That allows individual to take part in social network sites. The most important component of social network sites is the internet with the opportunity to take part in social network sites of anytime from anywhere. This represents the new circumstances of communication and exchange processes which makes social network sites and new opportunities to share information or resources possible (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011) (Mandarano et al., 2011). Social capital takes part in the benefits that social network is given to the social capital theory. Individuals who take part in social network sites need the access to social network sites. They need the ability to use social network sites e.g. educated to read or to use the internet to identify social network sites. That means the technical components that have to be given that the individual can take part in social network sites. Social network sites as a platform gives users and members the opportunity to share resources and information but the platform needs the technical requirements to give this opportunity to the member. This enables the member to create social capital. The social capital theory has new opportunities with the new technology. There exist new possibilities to explain social network sites with the social capital theory. Transparency is a new consequence of social network sites because technical components enable individuals to make resources and information visible for anyone for example. This means the technology support to spread information and uphold the ability to share information quickly and easily. This is a revolution for social capital theory that the power of the network is increased because the number of network members is increasing in social network sites or social network sites improves the opportunity to present information to a large audience. Social network sites can destroy or improve reputations of individuals and organizations. That is only possible because the technical development improves the opportunities of the members of social network sites to share, store and create content. The content of social network sites is the resources and information that are needed to have a benefit. This is only possible because programmers develop software that allows processes to use social network sites to create social capital e.g. sharing beneficial information (Li & Bernoff, 2011) (Wasko, 2005).

The structure of social network sites can be more open than real networks. The virtual network has more opportunities for members to take part in the network. The binding of members can be less in social network sites than in real networks. In addition the communication is via a technical medium in social network sites which may influence the relationship between the members (Ganley & Lampe, 2009).

The maintenance and creation of new ties in social network sites is supported by software and technologies. That support individuals to create social capital and social networks with less effort. Further supports social network sites to reduce barriers e.g. distance to maintain social relations and gives opportunities to create faster and easier strong and weak ties (M. S. Granovetter, 1973).

There are different factors that influence the relationship of the network. These groups have an impact on the result and their influence is depending on the relationship and situation. The mechanism of the relationship depends on external factors and internal symbiotic factors. That is important to know to create a comparable group of individuals and networks. Only networks and individuals who are comparable can be investigated to get reliable results. The perspective depends on the individual who takes part in the network but his / her perspective is governed by his / her environment and situation e.g. financial situation or frames given by institutions (Fransman, 2008)**.**

The development of new technologies for example smart phones change the use of social network sites and influence the behaviour of social network site user. The technology enables the members to use the social network site more flexible and more individual for their needs and benefits.

4   Process design

The process design influences the institutional and technical design. The processes use the technical preconditions and institutional requirements to create the process in social network sites. The process design combines the technical design and institutional design. That combination creates a new form of social network sites for example and this influence the society.

There are different actors who take part in the processes. There are members of social network sites and they can take part actively or passively. They use the network to present their resources or to identify new resources. The network members have different objectivises that make it more difficult to describe the mechanism in social network sites (Tatarchevskiy, 2010). They can influence each other with their behaviour and create new circumstances. Some social network sites enables non members to take part in the communication and gives them the opportunity to increase the resources of the network, other networks are closed and only members can take part and last but not least open networks give the opportunity for everyone to take part in social network sites and gives anyone the opportunity to share and create content to build social capital. Social network sites can have criteria's to decide about membership. That makes the network more exclusive and network members are aware that new members have a similar interests or another valuable indicator for the network. The process depends on the objectives of the social network sites and the given technical opportunities. The conditions in terms of the rules and regulations are given by the members and environmental influence e.g. culture. The members are interested in their own objectives and take part in the network to reach their objectives. The resources and information of the individual design the processes. Individuals with interesting resources have more power to influence the processes than individuals with less

resources or information. The process in a network is the input of the individual to show his or her benefits to the group and to build a reputation. This reputation gives the individual the power to influence other individuals for example. Another power in the processes of social media is "gatekeepers" who can give or deny access to resources or information. There processes influence the benefit for the individual in social media.

5   Design process

The design process summarizes and explains the relationship between institutional, technological and process design. The combination of the three parts describes the process to create social networks, social capital and the operation of social network sites. All three factors are needed to create a social network site and to build up social capital. The design process is the basis to explain the behaviour of member of a network and the operations of social network sites. These bases processes influence the technological and institutional design by giving a framework. The technological design depends on the technical opportunities and enables people to use and create processes for their advantage. The institutional design is the opposite of the technical design and is influenced by moral and ethical standards for the processes. Social media has technical borders and is influenced by institutional processes. These three components, technical design, institutional design and process design give the framework to design processes in social environments like social network sites for example. The processes for social network sites are needed to explain the mechanism and the reason for behaviour. There processes are creating social capital and give a framework to test the theory.

Already mentioned above are the example of social network sites and the influence of social network sites on social capital. There are processes to improve social network sites and to give opportunities to individuals in social network sites. The frame is important to control and organize successfully social network sites so that the members of social network sites have an advantage and can create social capital. The system gives a frame and enables people to have benefits. The designs are changing and flexible. Each system has its own design and uses different parts of the framework. This makes the result unique and gives the individuals opportunities to create beneficial results. The three designs are compared in different ways to develop new services and results. The designs give the opportunity to members to enable them to reach new objectives and to develop new things for example job advertisements on web pages (Melody, 2006)(Koppenjan & Groenewegen, 2005).

Further the process can be described as a relationship between different components which influence the process or enables the process in social network

sites. One explanation for the processes in social network sites are the environment and society. The diagram below describes the main different indicators, which influence the relationships in social network sites. The relationship is an important factor for the processes in social network sites and is influenced by many factors, which are mainly similar to the processes in social network sites. With the indicators is it possible to explain social network sites and the behaviour of individuals who use social network sites.

The influence of symbiotic relationships in social network sites can be explained with the expanded concept of Fransman for example under consideration of a social network site (Fransman, 2008). This framework explains the differences between social network sites and the behaviour of individuals at social network sites. Social network sites are part of the community and influenced by many external and internal factors. That has to be under consideration for the research process (Haythornthwaite & Kendall, 2010) (De Donder, De Witte, Buffel, Dury, & Verte, 2012).

Competition

Groups / network members have different interests. They use their social network site to generate a benefit or to reach an objective.

Economical Situation
The economy enables individuals to buy computers or to provide the infrastructure to use the internet.

Symbotic realtions hips under consider

Culture and Norm of the society
The social environment influence the use of social network sites and the behavior. of network members.

Regulation and Laws
The government disables individuals to use social network sites with negative impact for the society for example.

Technological Institutions
The technology enables individuals to use social network sites in different ways.
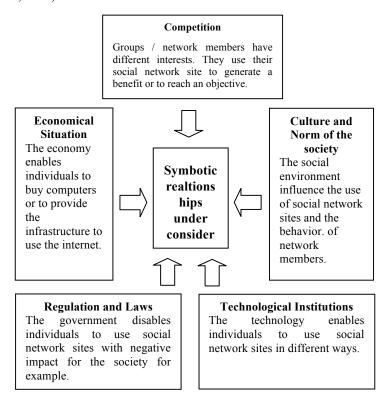
Figure 2

The environmental influence on the causal mechanism and behaviour of social network site member in social network sites cf. Fransman, 2008

In addition is to observe risk and trust of an exchange to explain the process in social network sites. The experience and history of the network and their members is important for the process. The exchange of resources and information in social network sites creates new social capital and increase the benefit of network members. The maintenance and creation of social ties is supported with exchange and gives further explanations for the causal mechanism and processes in social network sites (Mandarano et al., 2011).

Conclusions

This paper gives a framework to understand the different parts to explain the processes at social network sites and to analyze the function of social network sites. The three designs are needed that social network sites can operate. Without one of the designs, it is impossible to benefit the society. Different combinations of the designs create different social network sites. The technical design is defined by the technological development, the institutional design is designed by the culture, society and environment for example and the process design is influenced by the technical and institutional design under consideration of the objectives of the social network site.

The institutional design describes the norm and culture of social network sites. This norm and culture provide the network members a frame to create relationships or to exchange resources for example. That is needed that individuals can trust the network site and that social network sites are used by individuals (M. Granovetter, 2005).

The process design uses the institutional design and technical design to explain the behaviour of network members and changes of societies under consideration of development of technology or institutional design. These processes are created to regulate networks and the regulations are given by the other two designs.

The internet and social network sites effects the society and develops new processes which can be described and analyzed with the presented expanded framework (Haythornthwaite & Kendall, 2010).

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