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**Buddies or foes: the importance of personal proximity and personal  
?(dis)clicks? to cluster governance**

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**Abstract**

The rationale for cluster development rests on advantages that may be derived from integration of geographical proximity as well as various relational proximities. However, recent advances in cluster thinking have indicated cluster advantages are not obtained spontaneously under such conditions. The impact of cluster governance, and thereby also particular persons involved in governance, may have been taken too lightly in the past. Individual level factors may improve or hamper clusters? development prospects: what happens when cluster actors cannot get along or, instead, get along a little too well? This paper aims to improve our understanding of the role of personal level factors in cluster governance and development. Our multiple-case study of 3 Dutch cluster initiatives uncovers the role of personal proximity in cluster governance and development and extends conceptualization of the personal proximity concept.

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## **Abstract**

The rationale for cluster development rests on advantages that may be derived from integration of geographical proximity as well as various relational proximities. However, recent advances in cluster thinking have indicated cluster advantages are not obtained spontaneously under such conditions. The impact of cluster governance, and thereby also particular persons involved in governance, may have been taken too lightly in the past. Individual level factors may improve or hamper clusters’ development prospects: what happens when cluster actors cannot get along or, instead, get along a little too well? This paper aims to improve our understanding of the role of personal level factors in cluster governance and development. Our multiple-case study of 3 Dutch cluster initiatives uncovers the role of personal proximity in cluster governance and development and extends conceptualization of the personal proximity concept.

## **Keywords**

Personal proximity, cluster governance, cluster development, cluster policy, proximity

**JEL Classifications:** O32, O33

## 1. Introduction

The benefits of both geographical and relational proximity to cluster development have long been apparent (Gilly and Wallet, 2001; Boschma, 2005). Unfortunately, the literature herein has seemingly fallen victim to, what Lagendijk and Pijpers (2012) have coined, the endogeneity trap; a conceptualization of the role of ‘proximities’, ‘embedding’ and ‘relational assets’ as automatic levers of regional wealth. Such a deterministic outlook, however, overlooks the all-decisive role of governance. Just as the magic of haute cuisine lies not in the employed equipment *an sich* but in the chef and his/her culinary skills, choices and acts, it is governance that allows for capitalization of endogenous potentialities (the latter being anything but a *fait accompli* given the seemingly omnipresent troubles of inertia, distrust, faltering commitment, parochialism and institutional misalignment in cluster reinforcement practice). The actual added value of operating as a cluster, thus, is the outcome of an ongoing cluster governance process – as a ‘moving target’ – enacted by individual agents. Research on this topic, however, remains in its infancy. Available publications do emphasize the importance of individual agency and personalities in cluster development, regional innovation and collaborations (Fromhold-Eisebith and Eisebith, 2008; Sotorauta, 2010; Sydow et al., 2011; Ritvala and Kleymann, 2012; Rutten and Boekema, 2012; Ebbekink and Lagendijk, 2013; Caniëls et al., 2014).

We wish to add to the debate by pointing at the role of personal proximity and ensuing ‘(dis)clicks’ (cf. Caniëls et al., 2014) in cluster reinforcement. Personal proximity refers to the degree of similarity between individuals in intrinsic characteristics (e.g. tenure, traits, professional practices, behavioral patterns, and preferences). Personal proximity is a determining factor in establishing ‘(dis)clicks’ between individuals – whether or not an emotional, psychological or practical bond is forged (i.e. feelings of affection, acceptance, appreciation, empathy and interest, as well as mutual involvement). Both are said to influence initiation, maintenance and success (e.g. efficiency, robustness, scope) of collaboration(s)/collaborative behavior (Caniëls et al., 2014; Werker et al., 2014). Where personal proximity does not exist, collaborative processes may be obstructed because of a mismatch in, for example, working routines or attitudes. Personal proximity could very well tip the scale towards a durable relationship in spite of geographical and/or relational distance. However, it is not all roses here. Too much personal proximity can be detrimental as it can lead to clique-formation, partisanism, groupthink, immoral conduct, whitewashing, inertia and

intellectual blind spots. It may also make individuals more vulnerable to opportunistic behavior from the trusted partner.

Cluster development is considered to be a key mechanism for policy makers to enhance regional or national competitiveness, particularly in more advanced ‘innovation-driven’ economies (Sala-i-Martin et al., 2012). Given its importance, ‘cluster missionaries’ could greatly benefit from a better understanding of how challenges in cluster reinforcement and specifically cluster governance could be traced back to suboptimal personal proximity and lack of personal ‘clicks’. Using extensive qualitative case study evidence, this study explores the importance of personal proximity and ‘(dis)clicks’ to cluster governance in three Dutch cluster initiatives. Our analyses show how occurrences of ‘(dis)clicks’ affect cluster governance and leadership and, thereby, impact cluster reinforcement.

The paper is organized as follows. Section 2 sets out the theoretical background, discussing the dynamics of governance processes in cluster reinforcement and the possible impact personal proximity and (dis)clicks may have. The context of our case studies (Dutch cluster initiatives) is described in Section 3.1, followed by a detailed account of our case study approach in Section 3.2. The results of our case study analyses are presented in Section 4. In Section 5 we discuss the implications for theory. Finally, conclusions, recommendations for cluster policy and future research directions are discussed in Section 6.

## **2. Personal Proximity and (Dis)Clicks in Clusters: Theoretical Background**

### **2.1 Cluster Governance to Achieve Cluster Reinforcement**

#### *The rationales for cluster development*

The increased competitiveness and productivity that firms and their host regions may derive from the dense clustering of industrial actors, research organizations and universities explains policy makers’ encouragement of cluster development (Malmberg & Maskell, 2002; Martin & Sunley, 2003). Clustering creates geographical proximity and may consequently spur the development of relational proximities (Gilly and Wallet, 2001; Boschma, 2005). Relational proximity is a ‘compendium’ of a plethora of variables that allow for realization of specialization/localization externalities and collective learning opportunities and knowledge spillovers, including shared (in)formal institutions, knowledge bases, beliefs/mental models,

goals etcetera. The cluster concept, although its theoretical notions were not necessarily new-to-the-world, has gained widespread academic and policy interest since the seminal works of Porter (1990; 1998), who defines clusters as “critical masses - in one place - of unusual competitive success in particular fields. [...] geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition” (1998, p.78).

Despite its uptake, the concept has faced criticism from various scholars. Notably, Martin & Sunley (2003) have criticized the concept for its conceptual ambiguity, the absence of a synthesized theoretical foundation and its lack of attention for different types of clusters and their evolution over time. For example, they illustrated how the cluster concept appears to rest upon theoretical insights from literatures on regional innovation systems (e.g. Asheim et al., 2011), learning regions (e.g. Morgan, 1997; Rutten & Boekema, 2007) and industrial districts (e.g. Markusen, 1996; Caniëls & Romijn, 2005), but neglects to integrate or position itself amongst such theories explicitly. The different historical foundations and theoretical arguments were later set out systematically by Vom Hofe & Chen (2006). Moreover, empirical work has since addressed the issue of characterizing different types of clusters (e.g. Sydow & Lerch, 2007). The evolution critique has sparked academic activism as well. As this body of work is particularly relevant to the themes addressed in this paper, it will be more fully elaborated upon below, as well as linked to this paper’s premise.

#### *Cluster development and governance*

More recently, a significant strand of cluster literature is occupied with the study of development or reinforcement of clusters. The development of clusters over time is commonly conceptualized in a cluster life cycle, where clusters organically move between different stages of maturity. For example, Menzel & Fornahl (2010) describe four stages of cluster development by characterizing clusters’ states as either emergent, growing, sustaining or declining. Other classifications basically follow a similar generic path of development, although some authors recognize that industrial clusters are likely to transform, rejuvenate or evolve rather than completely decline or disappear (e.g. Belussi & Sedita, 2009; Arthurs et al., 2009; Brenner, 2005). Enright (2003) offers an alternative perspective by looking at the level and nature of activities displayed by clusters as well as their degree of self-reinforcement. This exercise is particularly relevant to distinguish clusters that are (potentially) able to organically develop themselves (‘working clusters’, ‘latent clusters’ and ‘potential clusters’)

from clusters that are driven by policy ('policy driven clusters' and 'wishful thinking clusters'). The latter kind of cluster may not even be recognized as one in terms of other life cycle conceptualizations, although many cluster initiatives are erected as a result of political pressures despite a lack of critical mass or sources of cluster advantages (Enright, 2003). Cluster development is of particular interest as clusters should progress through the different stages of the cluster life cycle in order to reap the benefits associated with clustering. That is, clusters that remain in their infancy may never be able to exploit collective learning opportunities or enjoy localization/specialization externalities. Growing along the cluster life cycle requires specific triggers (Belussi & Sedita, 2009). These may be exogenous events, such as the entry of multinational companies to the cluster, or endogenous triggers, such as technological innovation and diversification. However, these triggers are unlikely to occur by chance; decisions to (re)locate to a cluster are made by the actors within those organizations and diversification may only occur when cluster agents opt for such a strategy together. As Benneworth (2002, p.324) concludes: "clusters are about people, their inter-relationships and their exploitation of particular opportunities." Indeed, "action in general and leadership in particular tends to be attributed to persons rather than organizations or social systems" (Sydow et al., 2011, p.340). Hence, the development of a cluster is dependent on the actions of individual cluster actors.

This view is acknowledged in research devoted to the role of "cluster facilitators" who can support or intervene in cluster development. Cluster facilitators are individuals purposefully and formally tasked with managing a cluster. Such individuals may have a significant impact on a cluster's development, for example, they are tasked with organizing small-scale cooperation projects and business idea workshops that encourage interactions that could help a cluster move from a "latent" to a "working" state (Ingstrup & Damgaard, 2013). During a cluster's lifetime different sets of roles, foci, competencies and tasks are required from a cluster facilitator (Ingstrup & Damgaard, 2013). A survey among European cluster facilitators sheds light on the typical tasks and areas of competence of cluster facilitators (Coletti, 2010). Tasks regularly include encouragement of exchanges between cluster actors, networking and lobbying, strategic development, event organization, cluster expansion, etcetera (Coletti, 2010). To perform these tasks cluster facilitators have to be competent communicators and team leaders who are not merely knowledgeable about the cluster's industry, but also familiar with the available innovation policies and subsidies at different levels (Coletti, 2010). According to Ingstrup & Damgaard (2013), facilitators are further tasked with the cluster's

branding, maintenance of external linkages, knowledge sharing and portfolio management. This requires them to balance competencies with which one can operate both within and across the boundaries of clusters. For example, the facilitator has to be able to credibly sell the cluster's story to outsiders such as politicians and potential new entrants – i.e. create legitimacy – while performing day-to-day management by analysing and solving problems that may arise internally among cluster actors. Ebbekink & Lagendijk (2013) advocate that clusters may also fare well with the support of actions and leadership exercised by so-called “civic entrepreneurs” or “clusterpreneurs” (Andersson et al., 2004; Stoerring, 2007; Feldman et al., 2005). Whereas civic entrepreneurs are proficient in skills that resemble those mastered by the cluster facilitator, their position is often less purposeful and formal. Rather, these individuals “emerge accidentally from both the public and private sector in the process of cluster development” (Ebbekink & Lagendijk, 2013, p.748). As employees of the relevant institutions they constitute an integral part of the system (and, as such, should not be conflated with the aforementioned popularly appointed cluster facilitators as ‘presiding officers’). Empirical evidence on cluster development in Scandinavia (Hallencreutz & Lundequist, 2003; Ritvala & Kleymann, 2012), the Netherlands (Mangematin et al., 2005; Horlings, 2014), Spain (Ahedo, 2004), Ireland (Crone, 2009) as well as the United States (Miller, 2006; Stough, 2010; Sydow et al., 2011) and Canada (Tremblay and Roussea, 2005) illustrates how specific individuals from firms, universities and municipalities evolve into civic entrepreneurs fed by a variety of motives and thereby help grow the cluster. Hence, the role of the civic entrepreneur is not one that is assigned or assumed *a priori*, but one that is recognized during or after a cluster's emergence. Considering the vast amount of roles, tasks and competencies both cluster facilitators and civic entrepreneurs must master, one may wonder whether any individual could possibly live up to these demanding jobs. If not simply impossible, it is certainly not necessary for an individual cluster facilitator or civic entrepreneur to possess all these qualities (Ebbekink & Lagendijk, 2013). It would be a misconception to assume that individual agents in clusters can make strategic decisions and employ triggers singlehandedly and without prior deliberation. Whereas civic entrepreneurs and cluster facilitators may hold more responsibility and agency within clusters, cluster governance and leadership is distributed among a larger network of actors (MacNeill & Steiner, 2010; Chetty & Agndal, 2008).

In summary, we may establish that cluster governance is a process that involves some mixture of appointed cluster facilitators, emerging civic entrepreneurs and a broader

representation of cluster actors. Actions by these individuals and their organizations, as well as the decisions they make in interaction, affect cluster development. The role of personal proximity and (dis)clicks in the governance of clusters is still an academic blind spot. Findings in recent studies warrant further inquiry into the role of the personalities of those involved in cluster governance. Smith (2003, p.1367) states that “the personalities of individuals willing to engage in agenda-setting discourses have set in train locally specific endogenous processes by producing new and important local discourses around enterprise and innovation”. Ritvala & Kleymann (2012, p.493) conclude that “different phases of cluster emergence seem to require the involvement of different types of personalities [...] not just anyone has the entrepreneurial ability and personal character to contribute to cluster formation.” Indeed, some traits have popped up in the literature over the years, for example, a dogged and diligent nature (Miller, 2006) and charisma (Nauta et al., 2009). (Dis)clicks have occasionally sprung up in the cluster development literature as well. Raagmaa (2001) mentions “Bund”-ship, while Benneworth (2002) finds that two clusters work because people know and like one another and Fromhold-Eisebith & Eisebith (2008) uncover established personal friendships. Whenever cluster facilitators, civic entrepreneurs and the broader array of cluster actors do not get along this may obstruct cluster governance and, thus, cluster development. This is illustrated in studies of German automobile clusters where “new staff [i.e. cluster facilitators] can at times ‘turn around’ the entire setting for the better or worse” (Fromhold-Eisebith & Eisebith, 2008, p.1354). Hence, this paper will examine whether and how personal relationships among actors involved in cluster governance may affect cluster reinforcement.

## **2.2 Personal Proximity and ‘(Dis)Clicks’**

### *Theoretical foundations of personal proximity*

Various forms of proximity – e.g. geographical, organizational, social, institutional and cognitive proximity (Boschma, 2005; Knoblen and Oerlemans, 2006) – are shown to affect cluster development. In fact, the argument to form industrial clusters rests largely on the advantages derived from geographical proximity between relationally close firms and other actors (Porter, 1998; Doloreux and Shearmur, 2012; Martin and Sunley, 2003). However, merely fostering geographical and relational proximity between actors is not a formula for cluster success. Lagendijk and Pijpers (2012) warn us of the ‘endogeneity trap’ and argue that

fixed inputs – the different proximities – in isolation cannot be expected to make cluster initiatives work. Rather, it is about what the organizations and people involved in clusters do to exploit these proximities. The impact of certain micro-level dimensions of proximity<sup>1</sup> in cluster governance is underestimated (Rutten and Boekema, 2012).

We suggest that one particular dimension of proximity is overlooked: *personal proximity*. It offers a unique theoretical lens to study the effect of different personalities collaborating in cluster governance processes. Moreover, because of its link to the proximity literature, it integrates easily with the theoretical base of cluster thinking. Schamp et al. (2004) are the first to hint to the role of personal proximity in the sense that it may affect suppliers' bargaining power in the acquisition of orders in regional networks of the German automobile industry. The concept was later conflated with social proximity in Knobens and Oerlemans (2006), although social proximity is derived from relational embeddedness in social communities, whereas personal proximity is inherently derived from closeness in terms of features that are more endogenous to the individual. Caniels et al. (2014, p.227) acknowledge that its endogenous nature distinguishes personal proximity from other forms of proximity and define the concept as: “[similarity] between individuals in terms of their specific personality traits, the resulting behavioural patterns, and the degree to which they enjoy each other's company.” Moreover, they illustrate how personal proximity between collaborators may result in a ‘click’ between individuals (Caniels et al., 2014, p.227): “a mutual feeling of acceptance, appreciation and interest in each other's ideas.” In line with Werker et al. (2014), we delineate personal proximity based on closeness regarding personal features, traits, attitudes/beliefs and behavioural patterns and regard of feelings of affection, acceptance, empathy, appreciation, and interest, as well as mutual involvement as an indication of the ‘click’ that has developed. Accordingly, where personal proximity is suboptimal clustered actors are less likely to develop these feelings and associations and ‘disclicks’ may occur.

Although the term was not coined as such, the concept of personal proximity is rooted in the organizational psychology literature as well as in work from the realm of business ethics. Theories about the ‘homophily’-principle assume that similarity between individuals causes them to bond (McPherson et al., 2001). Particularly, it is found that behavioural and intrapersonal characteristics dictate many kinds of relationships, such as friendship ties

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<sup>1</sup> Proximity is a multi-layered concept. That is, geographical and institutional proximity operate at the macro-level and interact with dimensions of proximity at the meso-level, organizational and social proximity, as well as the micro-level, cognitive and personal proximity (Werker et al., 2014).

(Verbrugge, 1983), group membership (McPherson and Smith-Lovin, 1986), entrepreneurial networks (Aldrich et al., 1989) and creativity in social networks (Zhou et al., 2009). Our conception of personal proximity bears resemblance to the concept of ‘psychological proximity’ that one encounters in the literature on business ethics and moral decision-making. Psychological proximity is concerned with perceived nearness to others and expresses through feelings of empathy and identification (Jones, 1991). For example, Ghorbani et al. (2013) find that psychological closeness affects the experience of guilt and shame after wrongdoing and, thus, has consequences for the compensation offered by the offenders in return. Conceptual and empirical studies into ethical decision-making processes pose that increased psychological proximity causes individuals to experience increased moral intensity and influences their moral behaviour (Jones, 1991; Burger, 1981). The observation that people attribute less responsibility to accident perpetrators who are personally close, despite accident severity, serves to illustrate this (Burger, 1981). Additionally, the theory of planned behaviour finds that traits, attitudes and beliefs predict both aggregated and specific behavioural choices, although more immediate factors may attenuate the impact of personal factors in specific situations (Ajzen, 1991). Adjacent support for the notion of personal proximity is found in organizational studies. Interpersonal affect – personal like and dislike – is shown to overrule task competence when selecting partners on a task (Casciaro & Lobo, 2008). In practice this implies that people dodge partnerships with competent but disliked individuals and will prefer to partner up with others whom they like despite their incompetence. A wide array of studies is devoted to investigating interpersonal affect in organizations. For example, studies on transnational virtual teams (Zimmermann, 2011), emotional contagion at work (Barsade, 2002; Sy et al., 2005; George, 1991) and leader and follower affect (Gooty et al., 2010; Totterdell et al., 2004).

#### *Personal proximity and ‘(dis)clicks’ in clusters*

The theoretical foundations of the personal proximity concept suggest that it may have significant consequences for behaviour in many organizational contexts. One of the areas in which personal proximity may be expected to influence behaviour is cluster governance. Hence, where clustered firms depend on a variety of proximities to realize cluster advantages, their ability to exploit any forms of proximity at all may hinge on micro-level factors related to personal proximity and the resulting ‘(dis)clicks’. Where personal closeness increases creativity (Zhou et al., 2009), smoothens research collaborations (Werker et al., 2014; Caniëls

et al., 2014), and opens up networking opportunities (Aldrich et al., 1989) in different contexts, one may expect similar positive forces to be at play when ‘clicks’ develop amongst cluster leaders. In particular, because clusters often involve actors from the public, private, associative, and community sphere – such as universities, municipalities, firms, professional associations, vocational schools and cluster organizations – of variable sizes (Ahedo, 2004; Lundquist & Power, 2002; Tremblay & Rousseau, 2005). Personal proximity, as an endogenous factor, may prove one of a few mechanisms to overcome the likely exogenous differences that exist between these diverse actors and to align their interests for further cluster reinforcement.

There is another side to the story though. Personal proximity is potentially also a source of trouble in cluster governance in two respects. One, there may be too little personal proximity. This imposes a burden on governance processes and results in ‘disclicks’. Similar to what was found in Casciaro & Lobo (2008) regarding interpersonal affect in task-related ties, a ‘disclick’ may cause certain cluster actors not to interact even though their interaction would be most efficient or effective in terms of cluster governance and development. Two, there may be too strong personal proximity amongst cluster leadership. Strong personal proximity may hamper cluster governance and reinforcement as it causes clique-formation, partisanism, groupthink, immoral conduct, whitewashing, inertia, intellectual blind spots and increased vulnerability. For example, immoral conduct was illustrated by Burger (1981) in his study into attribution of responsibility after accidents. The ‘defensive-attribution’ hypothesis that explains this immoral though self-protective behaviour, may hold in the cluster context as well when cluster actors are too close on the personal level. To elaborate, existent ‘clicks’ between a network of cluster actors may lead to clique-formation and individuals in cliques are more likely inclined to cover for one another’s actions, even when this is at the expense of overall cluster development. Also, as with social proximity – which is also argued to generate trust – the trust that is generated through personal proximity may expose individual cluster actors to the threat of opportunistic behaviour by their trusted relations (Granovetter, 1985; Uzzi, 1997). Strong personal proximity may lead to strong trust which “results in a position far more vulnerable than that of a stranger” (Granovetter, 1985, p.491). Should one actor in cluster governance choose to abuse this trust, then his actions could impede cluster governance and reinforcement.

Following Caniëls et al. (2014) and Werker et al. (2014) we suggest that an inverse U-shaped relationship exists between personal proximity and cluster reinforcement. Too little

and too strong personal proximity is proposed to inhibit cluster reinforcement. However, there is also a ‘sweet spot’ where cluster actors ‘click’ because they are sufficiently close on the personal level to gain acceptance, affection, appreciation, empathy, interest and involvement. When such ‘clicks’ occur it is likely to smoothen cluster governance. For example, because organizational and social distance between diverse actors is more easily overcome or because actors are more readily mobilized. Thereby, personal proximity enables cluster actors to jointly and successfully reinforce the cluster.

### **3. Cluster Development and Governance in The Netherlands: Research Design**

#### **3.1 Cluster Development and Governance in The Netherlands**

In the Dutch context cluster initiatives are regarded an important tool to realize a national economic development policy (“Topsectorenbeleid”). This policy proposes a sectorial focus on nine sectors (chemicals, creative industries, energy, high tech systems and materials, life sciences & health, agro & food, logistics, horticulture and water) in the Dutch economic fabric that is targeted to help The Netherlands reach the top 5 of global knowledge economies, increase Dutch R&D efforts to 2,5% of GDP and stimulate knowledge generation by consortia composed of public and private parties (Topsectorenbeleid, 2011). This policy programme was preceded by the place-based cluster policy “Peaks in the Delta” (OECD, 2010) that held that regions were to identify their natural strengths and further exploit these through specialization. Policies like these have inspired a great uptake of initiatives to cluster firms, universities, research organizations and government bodies in campuses. Buck (2012) counted 74 self-proclaimed campuses in different states of development. Apart from clusters that initiated in response to political pressures, the Netherlands also harbours clusters that developed more organically over time, most notably the Brainport region around the city of Eindhoven and Food Valley in the vicinity of Wageningen (Ebbers, 2013). The former gained global exposure as 2011’s “smartest region in the world” and its potential was emphasized in Fortune magazine (Het Financieele Dagblad, 2013). Horlings (2014) studied the importance of leadership and governance to the Brainport area. As tendencies towards clustering have dominated in national policy for well over a decade and organic cluster development is also apparent in the Netherlands, it may serve as a rich and inspiring context to study the dynamics of cluster governance and development.

### **3.2 Case Studies of Cluster Governance in Three Dutch Cluster Initiatives**

This study into personal proximity and ‘(dis)clicks’ is based on extensive qualitative evidence from a multiple-case study (Yin, 2009) of three Dutch cluster initiatives. Our cases were selected using a theoretical sampling strategy (Eisenhardt, 1989). Each case operated in a wholly different sector (water technology, healthcare and energy) and the cases differed in their roots (either initiated mostly by private or public sphere actors). Data were collected in three six-month periods during the years of 2010 to 2012. Triangulation of data collection methods was realized by combining in-depth interviews with key actors in the cluster governance process and other relevant stakeholders, observations of governance-related meetings and field notes. Various actors participated in a series of in-depth interviews to be able to trace and understand governance processes unfolding over time. The interviewees in our sample are from organizational backgrounds that span a range of actor types (universities, industry, government, and intermediaries). We maintained a case study database containing all interview transcripts, observation transcripts and field notes for the purpose of establishing reliability (Gibbert and Ruigrok, 2010).

We adopted a 3-step process of data analysis. First, for the purpose of data reduction and selection, we performed a broad lexical search in over 150 transcripts of in-depth interviews, observations and field notes. Given the open character of the interviews, this search allowed us to systematically tease out transcripts that covered the theme of personal proximity and direct data analysis to relevant sections. Second, an elaborate coding strategy was applied. Deductive coding was the starting point to analyse the selected transcripts, while additional inductive coding was used during the process (Miles et al., 2014). For analytical purposes filters were set-up and weights were assigned to coded segments. Filters enabled to study differences in code occurrence between different actor types. Weighting allowed the researchers to count the precise number of occurrences of ‘clicks’ and ‘disclicks’. The starting list of codes was distilled from the theoretical framework (Section 2) on cluster development and governance, personal proximity and ‘(dis)clicks’, which was derived from previous literature in order to establish internal validity (Gibbert et al., 2008). The coding strategy was able to identify aspects and triggers of personal proximity and ‘(dis)clicks’ as well as the negative and positive consequences for cluster governance associated with these. The coding process followed a well-documented protocol. Coding was reviewed twice by both

researchers. In order to maintain openness the researchers assigned additional labels to segments once these were coded. For example, labels were used to register specific behavioural patterns and traits observed (such as ‘conservatism’, ‘enthusiasm’, ‘arrogance’ and ‘modesty’). This four-layered coding process (deductive coding, inductive coding, filtering and weighting) enabled fine-grained analysis of the data. The coding process was assisted by the MaxQDA 11 software tool for qualitative data analysis. In a third step the coded data was summarized per case in a case study report. These reports included qualitative case descriptions, but were also informed by tabulated data on code (co-)occurrence, label counts, filters, weights and coding queries. In this step, we performed cross-case analyses to establish apparent patterns and ensure external validity of our findings (Gibbert et al., 2008).

#### 4. Results: Personal Proximity, (Dis)Clicks and Cluster Development

The Results section of this paper is structured according to the cases studied and culminates in a cross-case summary. Table 1 discloses information about the number and nature of our interviewees. Names of clusters, municipalities, organizations and individuals are disguised as to maintain their anonymity.

Table 1 – Distribution of interviews, observations and field notes\*

Cluster	Firms	Research & Education	Government	Inter-mediaries	Various**	Total
Water	16	4	18	4	11	53
Health	11	5	15	8	10	50
Energy	3	6	2	3	1	15

\*: for each case the majority of transcripts is of interviews.

\*\* : transcripts of interviews/observations with multiple respondents from different backgrounds.

Apart from the within-case and cross-case analyses, this case study helps us to identify relevant aspects of personal proximity and pinpoint the instrumental triggers that feed the development of (dis)clicks. Hence, from a theoretical point-of-view, we not only get to better understand the dynamics between personal proximity, (dis)clicks and cluster development, but also get deeper insight into what personal proximity entails in practice. In terms of instrumental triggers the data refers to a mixture of formal and informal triggers, such as: informal encounters (of the ‘coffee machine’ type), formal sessions and meetings, social outings, formal visits, one-on-one meetings and formal assemblies. Table 2 gives an overview

of the relevant aspects of personal proximity distilled from the case study data. This overview may further be helpful to interpret the specificities of the different cases.

**Table 2** – Aspects of personal proximity in clusters\*

<b>Personal features</b>	<b>Personality traits</b>	<b>Personal attitudes/beliefs</b>	<b>Behavioural patterns</b>
Shared employment history	Networker / co-operator	Resolve	Helpfulness
Shared history	Pragmatism	Conviction	Knowing when to speak up
Position	Self-interested	Philosophy	Decisiveness
Task	Modesty	(agreed/disagreed)	Opportunism / Self-interest
Authority	Realist	Personal interest	Concretization
Seniority / tenure	Leader or follower	Sense of urgency	Accessibility
Time	Go-getter	Commitment	Taking the lead
Staffing change	Entrepreneurial	Recognizing importance	Networking
Political affiliation	Perseverance	Drive	Reciprocity / cooperation
Network size and richness	Self-critic	Ambition	Picking
Experience	Initiator	Personal opinion	Conservatism
Study past	Independence	Altruism	Urging
Gender	Outspoken	Priority	Asking for help
Age	Goal-oriented		Delegation
	Arrogance		Timing
	Supportive		Showing involvement
	Enthusiast		Openness
	Patience		Mismatch words and actions
	Optimism or pessimism		Playing
	Distrustful		Acting (instead of talking)
	Creativity		Outside, future and
	Self-protective		helicopter perspectives
	Greedy		Giving feedback
	Able to let go		Accepting vulnerability
	Boastfulness		Devotion
	Perfectionist		Striving for involvement
	Visionary		Proactivity
	Revengeful		Listening
	Integer		Bestir oneself
			Getting the word out
			Taking responsibility
			Wait-and-see
			Initiating
			Flexibility
			Nagging
			Proofing
			Isolating
			Improper conduct

\*: in descending order of occurrence for labels assigned  $\geq 5$  times.

#### 4.1 The Energy Cluster: Walk the Talk

In essence, our data analysis implies that the Energy Cluster's governance runs smoothly and contributes to its success and further growth. Actors in the cluster click based on

‘involvement’ and ‘interest’ most often (resp. 39 and 33 occurrences). ‘Interest’-based clicks are strongly associated with the ease of mobilization of actors for the cluster’s cause (it intersects with ‘initiation of collaboration’ in 25 instances). Although ‘personal attitudes / beliefs’ show no association with clicks based on interest(s), they do directly relate to the cluster’s ability to mobilize its actors (41 co-occurrences) as well. Hence, it would appear that this particular type of click is not one derived from personal closeness, yet it is evident that like-minded people are likely to initiate a collaboration. As such, we observe that aspects of organizational proximity (expressed somewhat in clicks based on ‘interest’) and personal proximity both affect mobilization of cluster actors.

“*[Person VDK]*, in the 1980s, felt that entrepreneurship was very important to the future of his university. [...] This view persisted among university staff, they continued to think it was important, and therefore started to generate knowledge on how to support young entrepreneurs.” (*Interviewee EC-R9*)

“That *[people proudly advocating the Energy Cluster brand]* helps them to become more than the sum of the separate parts. [...] And I think that people who do this actively, the amount of energy they invest in this, that projects onto yet others. That contributes to what the cluster is today *[in terms of actors involved]*.” (*Interviewee EC-R7*)

It is not all roses in the Energy Cluster though. A particular disclick of a truly personal nature manifests itself negatively in the process of cluster governance. Table 3 illustrates that clicks are dominant on all aspects of (dis)clicks except for that of ‘appreciation’, where 68,8% of the coded segments refers to a disclick. This disclick is the result of a mismatch in ‘behavioural patterns’ (32 intersections). Revisiting the qualitative data shows us that entrepreneurs in the cluster are dissatisfied with the behavioural patterns displayed by civil servants involved in cluster governance. In general, various interviewees explain how the civil servants fail to live up to promises made through concrete actions. Moreover, whenever they do fulfil promises they do so at a pace too slow to the entrepreneurs.

“...but civil servants are not my favourite target group, because they always tend to focus on why something *cannot* happen. There are only a few, honestly there are some good ones really, but there are only very few that start from the perspective of what *can* happen. It is one of my frustrations. Luckily I have had a number of good colleagues who did have the ability to deal with this and the patience and knowledge of procedures necessary to get things done. But still, the starting point is always to point out what cannot be done. They are people who resent the success of others, that’s my impression. Whenever it is going well with another person, your business is successful and you want to expand, they experience that as a tough job. They have two conflicting agendas.” (*Interviewee EC-R11*)

This somewhat attenuates the positive assessment of the Energy Cluster’s ability to mobilize actors and achieve the desired successes. ‘Behavioural patterns’ (20 intersections) and, to a lesser extent, ‘appreciation’ (6 intersections) are associated with the negative consequence of ‘inertia’ (40 occurrences).

Additionally, two ongoing issues in cluster governance of the Energy Cluster are disputes between two large municipalities that harbour the cluster and between certain large firms. This is expressed in 15 occurrences of the code ‘partisanism’.

With respect to the role of personal proximity and (dis)clicks in the Energy Cluster the findings are clear. Both personal closeness (in terms of attitudes and beliefs) and organizational closeness (expressed in clicks based on interest) ease the mobilization of cluster actors for collaborative efforts that are important to the cluster. Personal proximity in terms of attitudes and beliefs as well as behavioural patterns also associates directly with perceived success of the cluster (resp. 11 and 14 intersections). Hence, personal proximity appears to be strongly linked to cluster development. Nevertheless, a deeply rooted personal dislike between actors from the private side and municipalities – the latter apparently not ‘walking the talk’ – attenuates the cluster’s ability to prosper to its fullest.

## 4.2 The Water Cluster: Prosperous Old Boys Network

In the case of the Water Cluster two conflicting stories emerge from the case study data. These conflicting perspectives on the process of cluster governance and development in the Water Cluster are rooted in the strong personal proximity that appears to exist among key individuals in the cluster. Many of the entrepreneurs affiliated with the cluster are gathered in a confined geographical area with one building as its centre. The personal proximity that exists between the entrepreneurs rests on their personal features and, more specifically, their employment history. Our data illustrates that entrepreneurs were employed by the same firm or at least in the same sector prior to the cluster's emergence.

“Come to think of it, what has been crucial, also for the further expansion of the cluster is that *[large water technology firm]* was here. The firm was acquired by *[large energy provider]* at one point. In my opinion, this turned an entrepreneurial firm into a bureaucracy, because the owner-director stepped down. He was the entrepreneur and in a sense the firm is now run by a manager. Some people working there must have felt the entrepreneurial mindset completely disappeared. I think that is why *[Person K]* and *[Person J]* left. Take the church and the firms that have their offices there, it makes *[large water technology firm]* look like an exploded confetti factory. Very many of the people who worked at *[large water technology firm]* now have their headquarters in the church. As matter of fact, I would dare say that more than half of them were once employed at *[large water technology firm]*.”  
(*Interviewee WC-DI-R13 and R18*)

Studying aggregated data about the coded segments reveals that behavioural patterns and personal features are the most prominent source of personal proximity in the Water Cluster (resp. 124 occurrences and 118 occurrences which is 29,% and 28,2% of all coded segments for personal proximity). For personal features the labels of ‘shared history’ and ‘shared employment history’ occur most often. People who enjoyed each other’s company while

working at a large regional firm or in its sector – the firm is still active and provides technologies to process wastewater – still seek out each other in their current business ventures. This is captured by the co-occurrence of personal features and ‘(dis)clicks’ based on mutual involvement (23 out of 84). These ‘old buddies’ are highly mutually involved. Their personal acquaintance helps them to mobilize other cluster actors. ‘Initiation of collaboration’ intersects with ‘personal features’ in 34 instances. Successful coordination of the collaborations also shows relation to various indicators of personal proximity.

“...these fellows have known each other for very long, because they are all from [*large water technology firm*]. It is possible [...] that they have thought of this cluster while they were still at [*large water technology firm*].” (*Interviewee WC-DI-R25*)

“...and those men have left [*owner of large water technology firm*] and all transferred to [*the Water Cluster*]. Like, 5 or 6 of them had a row with [*owner of large water technology firm*]. [...] The cluster came from their school-of-thought for a bit.” (*Interviewee WC-DI-R140*)

The antithesis in this respect is that strong personal proximity between a number of actors relevant to the cluster makes it difficult for others to affect cluster governance. In turn, this may impede decisions and actions that could potentially be interesting to cluster development. Our data reveals that while personal proximity between ‘old buddies’ has been instrumental to the emergence of the Water Cluster, the tightknit network of friends endangers the cluster’s further growth. Despite its apparent success the Water Cluster faces some serious governance problems. First and foremost, clique-formation (53 occurrences) fragments the cluster actors into groups associated with the network of old buddies (12 intersection with personal features) and groups who do not affiliate with this history. The clique tends to exploit its personal proximity at the expense of outsiders and is accused of groupthink in governance actions, favouring friends over viable alternatives (partisanism) and acting purely out of self-interest (opportunistic behaviour).

“You know, it is [*large water technology firm*]. It is all from one area, as if there is only one place where they know about water. We need input from a much broader base. [...] I am not saying that they do a poor job, these guys deliver good work, but like anyone they serve their own interests and are all befriended. [...] Are you not prepared to do it on their terms? Then it will be very difficult, they do not have an open mind. [...] You shouldn’t want to get all your key individuals from one area. [...] Looking at where everybody is from, how they are mutually involved and how they favour each other – and the authorities tolerate this – it is just bound to go wrong once. [...] [*Person TH*], [*Person GS*], [*Person TR*], [*Person HM*]: they are all horses from the same stable. [...] Whenever the one gets funding, the other is on board. [...] It is one large block of power. The advantage being that they can initiate and mobilize, the disadvantage however...” (*Interviewee WC-DI-R139*)

In Table 3 one can see disclicks are slightly dominant on the aspect of appreciation. These disclicks can be retraced to suboptimal personal proximity as both ‘behavioural patterns’ (56/140) and ‘traits’ (32/140) intersect extensively with ‘appreciation’. Further, ‘behavioural patterns’ (11 intersections) and ‘appreciation’ (7 intersections) are somewhat associated with ‘inertia’ (26 occurrences) in the Water Cluster. Hence, one may conclude that cluster actors are not always well-aligned in terms of their behavioural choices and therefore do not get along well. Whenever this is the case, it leads to standstill.

The results for the Water Cluster show a clear connection between personal proximity and (dis)clicks on the one hand and positive and negative consequences for cluster governance and development on the other. This case raises the question whether the Water Cluster may be at a crucial crossroads. Should the core of cluster actors continue to rely on its initially so helpful ‘old boys network’ or is this original group of personal acquaintances about to become a liability to the clusters further development?

### 4.3 The Health Cluster: Diagnosed with Paralysis

Although the Health Cluster develops technologies meant to provide better healthcare to people, the cluster's own condition is rather questionable. Our analyses show that 'inertia' is a core issue in the governance and reinforcement of the Health Cluster (115 segments are indicative of this negative consequence). There is a direct association between the inert state of the cluster and some aspects of personal proximity. 'Behavioural patterns' intersects with inertia in 69 instances and 'traits' as well as 'attitudes and beliefs' each do so in 21 instances. Mismatches in behavioural patterns and characters evoke uncooperativeness among relevant cluster actors. They simply do not get involved with one another. Although there are not many direct intersections of behavioural patterns, (dis)clicks rooted in appreciation and inertia, this particular set of codes does appear in each other's nearness (within one paragraph) 151 times. This association is direct as there seems to be no co-occurrence of 'personal proximity' or 'negative consequences' with particular types of '(dis)clicks'. The following two interview segments serve to illustrate how personalities and behaviour obstruct cluster governance and development:

“R256 is uncivilized and plain rude, he is the type that acts on impulse. He has a large network, many contacts in The Hague [*i.e., with the national government*], but he is a downright liability to the local organization. The Health Cluster has worn out many executives, R203 is the fourth already! R256 has been one of the people to sack executives. I truly hope R203 will manage to do it, but it [*cluster reinforcement*] is damned complicated. Stimulating cluster development is extraordinarily complex.” (*Interviewee HC-DI-R269*)

“Those are the people who – and, trust me, the municipality knows this as well – we like to refer to as ‘the bookkeepers’. Their perspective is: as long as you deliver satisfactory numbers, it is all good. These people do not have the ability to broaden their scope and participate in strategic decision-making. This frequently slows

business down. Sometimes they are a true repressive factor in the cluster. I think that's a shame." (*Interviewee HC-DI-R274*)

Our analyses do not only surface inertia as a concern for the Health Cluster, many related problems were identified during the coding process: not initiating collaborations, fragmentation, mobilization issues, a lack of legitimacy, misaligned interests and hidden agendas, reserved behaviour, gossip, limited success of the cluster and ignorance regarding potential areas for improvement. One can argue that many of these issues are likely to coincide with inertia, for example, fragmentation of cluster actors may be the root for some inertia as individual cluster actors do not align strategic decisions that may be of importance to the cluster's development. The negative consequences coded as 'other' (101 occurrences) also intersect with 'behavioural patterns' (56 intersections).

"Everyone goes their separate ways. You try to take what you can get and there's nothing wrong with that. But lifting it to a higher level, the meta-perspective of "how can our individual interests serve our collective interests"... Not just the interest of that one firm, knowledge institute or municipality... That is what it [*the Health Cluster*] lacks, that those types of opportunities are being considered."(*Interviewee HC-DI-R266*)

"...so without deliberation they picture us as a top of the league cluster, while many of us think that, realistically, we should be mid-table [...] I haven't been able to state this view of mine everywhere yet, because you have to be cautious not be taken for a whiner." (*Interviewee HC-DI-R290*)

Evidence on 'clique-formation' in the Health Cluster (27 occurrences) highlights that inertia and the other problems that face this cluster are not only grounded in personal proximity or a lack thereof. Rather, the higher level organizational dimension of proximity accounts for much of the problems identified. Interviewees report (1) cliques between similar types of actors (government, universities, firms / large actors and small actors) and (2) that the formal cluster governance organization operates as if it were a clique. Clearly, this serves to

illustrate organizational distance. Further, various interviewees state about themselves that they confide their true stance regarding strategic issues of the cluster only in small groups of trustees, thus, implying that they are part of cliques themselves. Organizational distance is also observed by comparing the number of times specific groups of actors reported certain negative consequences. In doing so, we find that all actors report ‘inertia’ and ‘other’ negative consequences extensively (i.e., actors from firms, intermediaries and research and education), but that government actors hardly report any negative consequences at all. Only 30 out of 468 coded negative consequences were found in interviews with government actors. Although actors from firms show to have a stronger tendency to report negative consequences in the Water Cluster as well, the oblivion to any negative aspects to cluster governance and development seems exclusive to government actors in the Health Cluster case. This is remarkable since this group of actors represented the majority of interviewees in this case. We conclude that, alongside personal proximity, organizational proximity in the Health Cluster is suboptimal.

“That side of the [*street name in cluster*] versus this side of the [*street name in cluster*]. They tend to mind their own business and run in their own circles, also in their representation towards the municipality.” (*Interviewee HC-DI-R257*)

“I think the smaller entrepreneurs should receive more recognition from the larger firms. As I said before, the university in particular tends to favor their own ‘daughters and daughters-in-law’.” (*Interviewee HC-DI-R281*)

Given the results, we choose to typify the cluster as being in a state of paralysis. The inter-related problems of inertia, fragmentation and clique-formation are rooted, first and foremost, in a lack of organizational proximity. Local authorities and formal cluster management try to exercise control but their attempts are not accepted by many of the actors from business. In turn, the health technology firms do not, or sparsely, interact with the university and academic hospital and vice versa. One could argue that the central nervous system between the brains (say, the municipality and cluster management organization) and the vital organs (i.e., various firms, the university and the academic hospital) of this cluster is dysfunctional. Micro-level issues of personal proximity go hand in hand with meso-level issues of organizational

proximity as one can clearly see that, for example, specific private actors cannot get along personally with particular cluster managers or city workers.

**Table 3** - Counts of Clicks and Disclicks

	Case TW		Case NY		Case LW	
	Clicks	Disclicks	Clicks	Disclicks	Clicks	Disclicks
<b>Acceptance</b>	<u>19</u> (82,6%)	4 (17,4%)	84 (41,0%)	<u>121</u> (59,0%)	<u>31</u> (88,6%)	4 (11,4%)
<b>Appreciation</b>	15 (31,2%)	<u>33</u> (68,8%)	<u>133</u> (51,2%)	127 (48,8%)	68 (48,6%)	<u>72</u> (51,4%)
<b>Interests / identification</b>	<u>34</u> (85,0%)	6 (15,0%)	<u>73</u> (59,8%)	49 (40,2%)	<u>21</u> (65,6%)	11 (34,4%)
<b>Affection</b>	<u>11</u> (64,7%)	6 (35,3%)	25 (37,9%)	<u>41</u> (62,1%)	<u>38</u> (62,3%)	23 (37,7%)
<b>Involvement</b>	<u>39</u> (62,9%)	23 (37,1%)	<u>263</u> (76,7%)	80 (23,3%)	<u>49</u> (58,3%)	35 (41,7%)

#### 4.4 Cross-case Summary

Contrasting the patterns found in the three case studies we may observe that particularly the Energy Cluster and the Water Cluster are well-governed to the benefit of their overall development. This is a world of difference compared to the Health Cluster, it faces some severe governance issues and cluster development is impeded. The root of both good and poor cluster governance (and consequently development) is found partly in personal proximity and the resulting (dis)clicks and its interplay with some other dimensions of proximity. The latter is illustrated by contrasting the Water Cluster with the Health Cluster, as these are conflicting extremes on the continuum of personal proximity. The Water Cluster owes its existence and relative prosperity to the tightknit network of personal acquaintances. The common denominator between the people involved in this entrepreneurial network is that they enjoyed each other's company while working at or with a specific water technology firm located in the cluster's region. The case study analyses warrant the claim that personal proximity has been highly conducive to effective governance and growth in the Water Cluster. Commonalities, shared histories or complementarities in behaviour do not exist in the Health Cluster. Nevertheless, its malfunctioning governance processes and consequently stagnating growth are not directly caused by its relatively low personal proximity. Instead, the Health Cluster's inertia is the result of distance on a higher level dimension of proximity: organizational proximity. Case data illustrates how various types of actors simply do not interact with or understand each other. This a great impediment to cluster governance and development, as it seems important to the cluster that, for example, policy makers from government are on the

same page about cluster development as the cluster entrepreneurs or that entrepreneurs interact about their technologies with other experts in health (i.e., the academic hospital and university). The aversion between organizations transcends the level of organizational proximity and is also linked to issues of personal proximity. This is expressed, for instance, in the general dislike of the cluster organization's executive and the lack of appreciation towards certain civil servants and university staff. Thus, although organizational proximity is the primary cause of problems in the Health Cluster's governance, a lack of personal proximity further worsens the situation. Personal proximity may also be part of a solution to the governance problem that exist: various instrumental triggers could be applied to get individuals from different organizations to – at the very least – get involved with one another, assuming that it is less complex to get two individuals to like each other than to make many large organizations get along. In this way, personal proximity could act as a substitute of, or attenuator for, organizational proximity. Instrumental triggers show to be associated with various aspects of personal proximity as well as with initiating collaborations and overcoming cognitive and organizational distance.

Action is fundamental to cluster governance and development. Aggregating data from all cases reveals that cluster actors appreciate behavioural patterns that show action. For example, 'conservatism' and 'decisiveness' are the two labels that occur often in relation to behavioural patterns. Of course, the former label implies inaction, whereas the latter is indicative of action. Whenever behavioural patterns mismatch (one party strives for decisiveness yet the other opts for a slower pace) this is likely to cause a lack of appreciation. Appreciation is the only aspect of (dis)clicks for which disclicks are more often reported than clicks. Both behavioural patterns and disclicks in terms of appreciation appear to be the number one root of clusters' inertia.

Collectivism also emerges as key themes from the case studies. Positively appreciated behavioural patterns involve 'reciprocity and cooperation', 'helpfulness', 'networking', 'showing involvement', 'openness' and adopting 'outside, future and helicopter perspectives'. Likewise, matching personal attitudes and beliefs that breath an air of collectivism are particularly associated with initiation of collaborations, such as: 'conviction', 'commitment', 'altruism' and 'agreeing on a philosophy'. In contrast, one may also observe attitudes and behavioural patterns that conflict with the idea of collectivism, for example: 'opportunism / self-interest', 'conservatism', and 'mismatching philosophies'. Clusters where individuals

actors are characterized by collective beliefs and attitudes and display reciprocal behaviour that is in the collective interest are more strongly able to mobilize their actors to their benefit.

Finally, cross-case result show that the role of ‘personal features’ (an aspect of personal proximity) is ambiguous. On the one hand, it is one of two major drivers for initiation of collaborations within the clusters and mobilization of actors for collective efforts. On the other hand, it is the source of many problems in cluster governance, most particularly of clique-formation. The case of the Water Cluster is one that neatly illustrates the double-natured role of personal features. There are some indications that proximity in terms of personal features may be ripe for exploitation particularly in earlier stages of cluster development, whereas it increasingly turns against cluster growth as time passes.

## 5. Discussion

It is a well-established idea that personalities and personal level factors may have a significant impact on processes of cluster governance and the overall development of clusters (e.g. Fromhold-Eisebith & Eisebith, 2008; Ritvala & Kleyman, 2012; Smith, 2003). Our study reaffirms that personal proximity is an important factor in cluster governance and development. Despite this common conception about there being *a certain* role of personalities and personal level factors, the question of *how exactly* individuals and their relationships affect cluster development remains unanswered to date. This paper contributes significantly to our understanding of personal proximity in governance and growth of clusters.

In essence, some degree of cognitive proximity and geographical proximity was observed in all cases studied. Cognitive proximity and geographical proximity are regarded more or less prerequisite for cluster’s emergence. Hence, the people involved in cluster governance rarely stumble upon issues in this area. Rather, they face issues of an organizational and personal nature in their attempts to effectively govern and develop clusters. Our results reveal three broad patterns that help explain the role of personal proximity in clusters.

First, where little personal proximity exists between cluster actors, governance processes are inefficient and clusters struggle to grow. Particularly in cases where there is a mismatch in behavioural patterns and traits we observe that clusters come to a standstill. Simply because actors cannot get along on the personal level, strategic as well as day-to-day operations of the

cluster are fragmented efforts. Actors are not easily mobilized as they do not wish to work with others in the cluster. With these major issues come a variety of other challenges to cluster governance and development. For example, inertia and fragmentation limit the success of clusters, prevent clusters from developing credibility or legitimacy to in- and outsiders, create an ignorance to areas of improvements, and the lack of mutual involvement causes actors to pursue misaligned interests rather than collective benefits. Parallel to these problems, typical behaviours come into play that uphold or worsen the existing situation: reserved behaviour due to a lack of trust leads to further inaction and gossip confirms and amplifies organizational distance and personal dislikes.

**P1 Personal distance and the resulting disclinks are associated with problems indicative of inertia and fragmentation in cluster governance and development.**

Second, when cluster actors identify with each other on the personal level governance processes are often well-organized and effective and contribute to the cluster's development. Being personally proximate appears to be of great value particularly in cluster emergence. Groups of personally proximate actors are conducive to the initiation of various collaborations in light of the cluster and have the ability to mobilize actors for the collective good. Mobilizing actors and initiating collaborations is, however, not only important to cluster emergence but of continuous relevance to enable cluster development from one stage to another. As clusters mature they are likely to focus but also upon to diverse actors that are increasingly essential to achieve further growth (e.g. Menzel & Fornahl, 2009), this implies that organizational distance and cognitive distance between increasingly different actors has to be overcome. Our case study results provide clear indications that personal proximity helps cluster actors to set aside or appreciate organizational and cognitive differences.

**P2 Personal proximity and clicks are associated with successful attempts to govern and grow clusters during different stages of the cluster life cycle.**

Third, an important reservation has to be made regarding Proposition 2. Personal proximity and clicks are not necessarily associated with good cluster governance and development. The results illustrate that an overreliance on strong personal proximity may become a liability over time. Where strong personal proximity may initially be an important lever for cluster emergence and development, it starts to hinder further growth at a certain point. Clique-formation occurs in such situations and is detrimental, for example, to

expansion of the cluster. Existing cluster actors will act as partisans to ‘their own’. In line with clique-formation and partisanism, clusters built upon groups of great personal acquaintances tend to get trapped in groupthink, where they are unable to think outside of the scope of ‘tried and tested’ cluster strategies. Hence, there may be strong personal proximity, but at the expense of opportunities for growth and renewal, making the cluster vulnerable to competition. Cliques of personally proximate actors may even exploit their agency in cluster governance in an unethical manner and fall victim to opportunism that individuals in the clique can more easily display.

**P3 Strong personal proximity and clicks may be a liability to ethical cluster governance as well as to growth and renewal of the cluster. This association becomes increasingly stringent during the cluster’s life time.**

The proposed relationship between personal proximity and cluster reinforcement is pictured in Figure 1. The figure also lists the most apparent positive and negative consequences to cluster reinforcement.

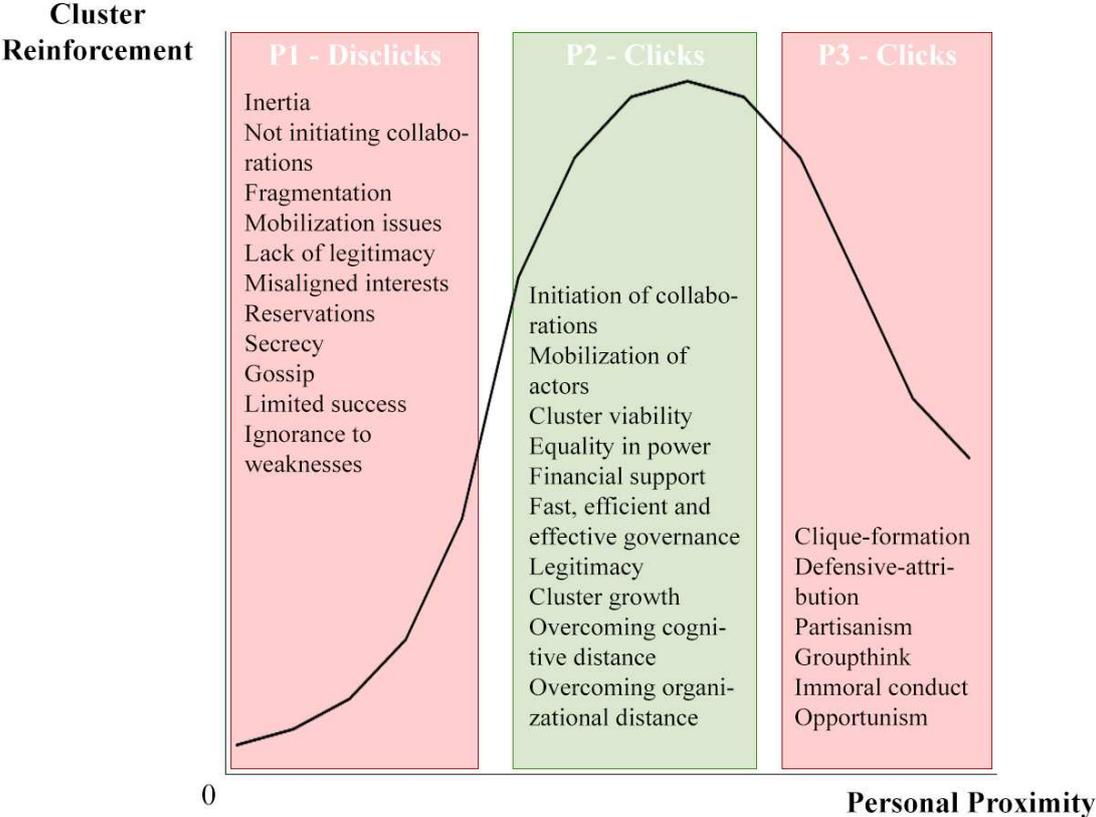


Figure 1 - Personal Proximity and (Dis)Clicks: Implications for Cluster Reinforcement

## 6. Conclusion

‘Buddies’ and ‘foes’ are extremes. Yet, these extremes *are* observed in our case studies. Certainly, clusters composed of only ‘foes’ are immensely difficult to govern let alone grow. ‘Buddies’ are better able to build and run clusters, but reliance on networks of good friends may also turn against clusters. The theoretical contribution of this study is twofold. One, it adds to existing cluster literature by systematically revealing the impact of individual’s personality and relationships between these individuals on cluster governance and development. Individual level factors were often reported to affect cluster governance and development (e.g. Fromhold-Eisebith & Eisebith, 2008; Ritvala & Kleyman, 2012; Smith, 2003), but theory development with respect to the ‘how’ and ‘what’ of these factors has been very limited. We clarify this unresolved mechanism. Two, in improving our understanding of personal factors’ role in clusters, we also extended the proximity literature. Particularly, we helped to better ground earlier conceptualizations of personal proximity (Caniëls et al., 2014; Werker et al., 2014) with empirical data. Our study provides an insight into which personal features, attitudes and beliefs, traits and behavioural patterns determine one’s personal proximity to another and how particular dimensions of personal proximity feed (dis)clicks.

Practitioners involved in the governance of clusters or policy makers designing and implementing cluster policies may adopt various lessons from this study. Section 3.1 illustrated the cluster focus contained in current policy for economic development. We encourage this policy broaden its scope and to seek not only proximity of a cognitive or geographical nature for clusters to be erected. Instead, policy makers may seek proximity at the personal level to complement other proximities, giving policy driven clusters more leeway to emerge successfully. In existing clusters, any actor may employ instrumental triggers (e.g. a variety of formal and informal events including – but not limited to – breakfast sessions, social or business outings, conferences, documents and projects) to allow cluster actors to familiarize with one another and assess and develop personal proximity as well as clicks. Such triggers may well attenuate the negative effects of a lack of personal proximity as well as those caused by too strong personal proximity.

We sampled three cases that can argued to be in different stages of their respective life cycles (Menzel & Fornahl, 2010; Enright, 2003) and obtained unrestricted and broad access to these. Future studies may choose to sample additional cases for other life cycle stages.

Further, our study set out to delve into the role of personal proximity specifically. Ample attention was given to other dimensions of proximity in the analysis, however, conducting a study taking stock of all the proximity dimensions superseded this study's aim and is hardly feasible. Related to this, a drawback of the proximity concept is that it proves an analytical challenge to disentangle its different dimensions in qualitative data. Our elaborate coding procedure allowed us to keep our focus on the personal dimension.

With respect to promising avenues for further research, our study gives major hints that clusters require different sets of governors over time to fully develop. However, our study only uncovers what governance structures cease to function as time passes, but doesn't illuminate our understanding of what *will* work from that point onwards (as the cases studied are not in that stage of development). Comparative case studies of clusters in stages of sustenance, decline and rejuvenation may further enhance our understanding.

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