

The Synergy of Causation and Effectuation in Entrepreneurial Networking: Implications for Opportunity Development

Abstract

The resource-based view of entrepreneurial networking demonstrates how relationships are formed instrumentally through the goal-driven decision-making of causation. At the same time, evidence shows that under conditions of uncertainty, entrepreneurs' networking follows the non-predictive decision-making of effectuation. However, little is known about how entrepreneurs combine these two logics, that is, causation and effectuation, for opportunity development. This study identifies four hybrid combinations of causal and effectual networking behaviour. The outcome of this hybrid networking is a synergistic effect on opportunity development. The study contributes to the entrepreneurial effectuation research, the studies on entrepreneurial networking, and the literature on entrepreneurial opportunity.

Key words: entrepreneurial networking, causation, effectuation, opportunity

1. INTRODUCTION

Entrepreneurial networking is recognised as a powerful behavioural mechanism for opportunity development (Ardichvili, Cardozo & Ray, 2003; Jack, Moulton, Anderson & Dodd, 2010; Zheng, Ahsan & DeNoble, 2020). Research in this area has been significantly influenced by the resource-based view (Hoang & Antoncic, 2003; Slotte-Kock & Coviello, 2010), according to which involvement in various relationship structures gives entrepreneurs access to a variety of tangible and intangible resources that positively affect new venture performance and growth (Neergaard, 2005; Sullivan & Ford, 2014; Semrau & Werner, 2014). Thus, relationship formation is defined by certain venture resource needs, and follows goal-oriented causal decision-making. From this perspective, entrepreneurs establish connections in a deterministic, instrumental and deliberate way, because they are driven by their venture's strategic goals¹ (Stuart & Sorenson, 2007). This makes entrepreneurial networking appear selective, and directed towards the *exploitation* of known opportunities (see Stuart & Sorenson 2007; Hallen & Eisenhardt, 2012; Vissa, 2012).

¹ In this article, we understand venture goals as end desired outcomes (both monetary and non-monetary) of venture strategies articulated in the mission and visions (see York, O'Neil & Sarasvathy, 2016). Entrepreneurs' networking goals are therefore subsequently aligned with venture goals, and become apparent in desired partnerships and structures of entrepreneurial relationships, through which venture goals can be achieved.

However, there is growing evidence that under conditions of high uncertainty, and unspecified goals, which unavoidably characterise the venturing process, desired connections and networking outcomes cannot be identified in advance. Entrepreneurial networking is therefore largely non-predictive, and enacted through effectual logic as opposed to causal decision-making (Sarasvathy, 2001; Engel, Kaandorp & Elfring, 2017; Kerr & Coviello, 2019a, b). Under these conditions, network opportunities are vague, as there are no clear goals in terms of accessing and acquiring certain resources from relationships (Sarasvathy & Dew, 2003; 2005; Sawyerr, McGee, & Peterson, 2003). Hence, (potential) entrepreneurs engage in experimentation, and the exploration of opportunities that emerge unpredictably from these networking interactions. Overall, even though the literature suggests that causation and effectuation are constantly intertwined in entrepreneurial activities (Sarasvathy, 2001; Smolka, Verheul, Burmeister-Lamp & Heygens, 2016), we still know little about how entrepreneurs can adopt these essentially different behaviours simultaneously. This is an omission, as both goal-driven and non-goal-driven decision-making are essential to establishing entrepreneurial relations (Prashantham, Kumar, Bhagavatula & Sarasvathy, 2018). Hence, we need to know more about how entrepreneurs simultaneously reconcile networking consistency, routines and plans, while maintaining the ability to continue and re-route networking activities, if needed. Without this understanding of how entrepreneurs simultaneously combine a linear and instrumental approach to forming partnerships with a more experimental and effectual approach, our knowledge on entrepreneurial networking will be incomplete.

Given this research gap, this article addresses the following question: *How do entrepreneurs simultaneously use causal and effectual decision-making in their networking behaviour to develop opportunities?* We conduct a qualitative study on Finnish start-up entrepreneurs, and unveil hybrid networking activities that combine characteristics of both logics. In so doing, this study makes a three-fold contribution. First, reacting to Alsos, Clausen, Mauer and Sarasvathy (2019), we advance effectuation research by explaining the nature of the relationship between causation and effectuation (Smolka et al., 2016; Andries, Debackere & Van Looy, 2013), examining their simultaneity in entrepreneurial networking, and how they are mixed in one hybrid behaviour at a time. Simultaneity here means ‘*the fact of something happening or being done at the same time as something else*’ (Oxford Learner Dictionary, 2021). Further, it goes beyond a simple parallel co-existence of causation and effectuation, where they can still be separated in time through iterative switching from one logic to another with observable turning points (Nummela, Saarenketo, Jokela

& Loane, 2014; Reymen Andries, Berends, Mauer, Stephan & van Burg, 2015), in relation to different tasks (Yang & Gabrielsson, 2017; Reymen, Berends, Oudehand & Stultiens, 2016), and/or organisational space/managerial levels (Galkina & Lundgren-Henriksson, 2017). Here, we emphasise the hybridity of causation and effectuation, which implies their “*effecausal*” interaction and inseparability in time and in relation to a single activity. We argue it is this hybridity that enables us to unveil the interaction and interconnectedness between the two logics, which the existing literature has yet to grasp in full. Hence, this study serves as a response to calls ‘*to spell out in more detail [...] useful ways to mix and match predictive and nonpredictive strategies [...]*’ (Read, Sarasvathy, Dew & Wiltbank, 2016: 531), and understand ‘*how entrepreneurs resolve the hybridity of these two objectives*’ (Reuber, Fischer & Coviello, 2016: 538).

Second, this article contributes to the entrepreneurial network research (Hoang & Antoncic, 2003; Slotte-Kock & Coviello, 2010; Vissa, 2011; 2012). In particular, the effectuation lens enables explanations of entrepreneurial networking through associated behaviours. This behavioural perspective allows for highly nuanced explanations of specific partnering activities and mechanisms at the micro level of the individual entrepreneur (Chell & Baines, 2010; Kaandorp, van Burg & Karlsson, 2020; Zheng et al., 2020). Additionally, we add to studies on how entrepreneurs enrol stakeholders and network under uncertainty through effectuation (Burns, Barney, Angus & Herrick, 2015; Kerr & Coviello, 2019a, b; Galkina & Atkova, 2019). We show how this effectual networking is intertwined with a more instrumental and calculative logic of partnering with targeted actors. It is essential to understand this combination, since networking environments often bring together elements of the known and unknowable (Engel, Kaandorp & Elfring, 2017), and thus demand hybrid decision-making and behaviours (Smolka et al. 2016).

Third, our study has implications for research on entrepreneurial opportunity development, which emphasises social interactions and tie formation as its essential enabling mechanism (Ardichvili et al., 2003; Wood & McKinley, 2010; Clausen, 2019; Camelo-Ordaz, Diáñez-González, Franco-Leal & Ruiz-Navarro, 2020). Given that causation logic dominates exploitation, and effectuation corresponds with exploration (Sarasvathy, 2001: 254), our findings demonstrate how opportunities emerge as a result of combining exploitative and exploratory behaviours in networking.

2 THEORETICAL BACKGROUND

2.1 Entrepreneurial networking as an opportunity development behaviour

While the notion of entrepreneurial networks emphasises their '*patterned, predictable exchange structures*' (Larson, 1991: 173), entrepreneurial networking is of a different nature, and relates to activities and associated behaviours that result in forming entrepreneurial networks (O'Donnell, Gilmore, Cummins, & Carson, 2001; Shaw, 2006; Jack, 2010). It refers to the dynamics of '*creating and shaping network ties and may therefore include tie formation and maintenance behaviours as well as any assemblage of such behaviours into unique networking styles, strategies or processes*' (Engel et al., 2017: 37). Thus, in this article, we follow the research emphasising behavioural attributes of entrepreneurial networking as activities and abilities to form ties (Johannisson & Mønsted, 1997; Neergaard, 2005; Jack, Dodd & Anderson, 2008).

The existing research on entrepreneurial networking has been largely influenced by a resource-based perspective (Starr & Macmillan, 1990; Hansen, 1995; Anderson & Jack, 2002). This suggests entrepreneurs form relations instrumentally to access resources such as financial capital, human capital, knowledge, new customers, outlets, and internationalisation (Keating, Geiger & McLoughlin, 2014; Coviello & Cox, 2006; Neergaard, 2005). This view links entrepreneurial networking to strategy, known opportunities, and goal-driven decision-making, as it is essential for entrepreneurs to have a developed business idea before the relevant relations can be established (Audretsch, Aldridge & Sanders, 2011). Thus, goal-oriented partnerships are evident in studies stating that a new venture's opportunity recognition and growth depend on an entrepreneur's ability to establish and coordinate various relations according to venture goals (Larson, 1991: 174; Hansen, 1995: 17; Ardichvili et al., 2003). For instance, Larson and Starr (1993) suggested that throughout the entire process of venture formation, entrepreneurs establish relations according to the emerging firm's resource needs. This idea implies that entrepreneurs exploit a predefined opportunity and can estimate what relations and resources will be essential to their venture (Brand, Croonen & Leenders, 2018; Arenius & De Clerq, 2005). The roots of this goal-oriented thinking in the entrepreneurial networking literature arise from the traditional theories of entrepreneurial action, which view entrepreneurs as '*heroic architects who strategically search, plan, and pursue their pre-defined goals*' (Engel et al., 2017: 36).

Given the idea of 'fit', entrepreneurs need to decide in which 'forest' they will find the useful 'trees', or where and from which existing network structures (industries or markets) they want to

select new contacts. Predictive decision-making suggests the pre-existence of these network structures and resulting opportunities, and penetrating them requires first identifying their boundaries and dependences. Axelsson and Johanson (1992) called this process orientating, and argued that *‘in a network, actors have fairly clear views of their own relations with, and dependences on, other actors and of some relations of these actors to third actors’* (p. 231). Similarly, Hallen and Eisenhardt (2012) described a process of systematically scanning the environment, and argued that is how entrepreneurs find information about potential partners, allowing them to reduce the risks of unsuccessful networking.

Once entrepreneurs have decided in which network arena to act, they identify core partners. According to Casciaro, Gino and Kouchaki (2014), choosing the right partners starts with an in-depth search, where entrepreneurs explore the real track record of potential partners, resources and skills, determine their number and combination, and identify what role each potential partner might play in relation to desired benefits. This partner selection also assumes that entrepreneurs assess opportunities that might result from a partnership. In this process, the predefined venture goal and known opportunity determine the networking goal, and guide the choice of selecting some contacts but not others (Hallen & Eisenhardt, 2012). Likewise, Larson and Starr (1993) suggested that diverse potential connections are opportunistically evaluated and culled, with only essential ties exploited to implement the concrete plan underpinning the business concept. In addition, before the entrepreneur starts building strategic networks, they need to evaluate whether trust can be created among the actors, which requires an understanding of partner rationales and organisational culture (Koon & Low, 1997). Jarillo (1988) expressed a similar idea that careful partner selection implies an awareness of their values in order to assess whether they match your own.

Once the core partners have been selected, the networking continues with an investment of various resources in those relations (Johanson & Matsson, 1992). Axelsson and Johanson (1992: 233) termed this process ‘positioning’, and argued that it relates to the development of a firm’s identity with regard to the strength and content of relationships with other actors. Theoretically, each actor occupies a position within a network. However, strategically significant positions are not just given but require time and resources. Thus, a network position can be obtained through strategic actions, for instance, building alliances, buying another firm, entering or exiting established networks, and changing or defending an extant position (Johanson & Matsson, 1992). Various exchange relations can be layered according to operating functions (finance, marketing, production, etc.) (Larson & Starr, 1993). Thus, an advantageous strategic position allows a firm

access to valuable resources, to exploit given opportunities, and share possible risks (Jarillo, 1988; 1995; Gulati, Nohria & Zaheer, 2000).

Overall, this debate reflects the ideas of Kerr and Coviello (2019a: 372), who pinpointed recent studies on entrepreneurial networking ‘*adopt causal language wherein entrepreneurs strategically pursue network connections (ties) to secure the resources required to achieve predefined goals*’. However, under conditions of uncertainty, when ‘*desired ties cannot be identified in advance, networking outcomes cannot be predicted, and ongoing social interactions fuel the emergence of new objectives*’ (Engel et al., 2017: 35), and goals and hierarchies are unspecified, networking entrepreneurs follow a different decision-making logic, namely effectuation (Sarasvathy, 2001; Kerr & Coviello, 2019a).

2.2 Entrepreneurial networking and opportunity development under effectuation

Even though effectuation has been subject to criticism (Arend, Sarooghi & Burkemper, 2015; Kitching & Rouse, 2020), it remains a powerful theory to examine entrepreneurial decision-making. According to Sarasvathy (2001; 2008), effectuation differs from predictive, goal-driven rationality or causation. While ‘*causation processes take a particular effect as given and focus on selecting between means to create that effect*’, under conditions of uncertainty, goal ambiguity and information isotropy, ‘*effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means*’ (Sarasvathy, 2001: 245). Effectual entrepreneurs are the explorers of uncharted waters; instead of working from a recipe, they start by discovering the ingredients and utensils, and then consider what ‘dish’ they can make using them (Sarasvathy, 2008: 74).

In a similar vein, networking under effectual decision-making implies establishing relations under uncertainty, and unspecified goals in a non-instrumental and non-predictive manner (Sarasvathy & Dew, 2003; 2005; Read, Dew, Sarasvathy, Song & Wiltbank, 2009; Kerr & Coviello, 2019a). Effectual networking starts by scanning for available means: entrepreneurial identity, knowledge, and existing relations (Sarasvathy, 2001; Engel et al., 2017). The entrepreneur’s network identity relates to the perceived attractiveness of an actor in exchange relations, depending on their connections with other actors (Partanen, Kauppila, Sepulveda & Gabriellson, 2018; Anderson, Håkansson & Johanson, 1994). In addition, the “What I know” aspect of networking means can include network competence, which refers to a person’s skills in maintaining and exploiting existing relations (Ritter & Gemünden, 2003; 2004; Chiu, 2009).

Assuming that effectuation is a cognition theory (Sarasvathy, 2001; Fischer & Reuber, 2011), it is worth noting that effectual means can create a variety of effects. The fact that entrepreneurs may choose to start from means (pre-existing networks) does not necessarily make their networking effectual; it is also about the further activation and emergence of relationships, and seeking pre-commitments in order to reduce uncertainty, create opportunities, and for experimentation and flexibility (Kerr & Coviello, 2019b).

Furthermore, instead of establishing relations with some actors but not others, networking entrepreneurs following effectual decision-making start to experiment with and explore opportunities through interacting with all interested stakeholders (Sarasvathy & Dew, 2005; Sarasvathy, 2001, 2008; Read et al., 2009a; Wiltbank, Read, Dew & Sarasvathy, 2009: 117). Thus, they increase their chances of developing novel combinations (Dew, Read, Sarasvathy & Wiltbank, 2009; Read et al., 2009a) and validating their ideas (Clausen, 2019). In line with this, various studies demonstrate that network size and diversity of contacts positively correlate with developing opportunities and new venture growth (Hansen, 1995; Greve & Salaff, 2003; Camelo-Ordaz et al., 2020). Hence, networking with a certain goal in mind would imply a pre-conceived structure of a future network, which, in turn, would restrict entrepreneurial experimentation, flexibility and available alternatives (Dew et al., 2009; Read et al., 2009b). If entrepreneurs do not immediately know the purpose of establishing a certain relation, it can be reserved in the “inventory” of means and activated when needed; hence, entrepreneurs iteratively re-evaluate their networking means. Irrespective of how entrepreneurs get involved in relations (random chance, path-dependency, or activation of existing relations), they cannot predict the motives of other actors (Sarasvathy & Dew, 2005). Therefore, the nature of opportunities, goals and product markets may change depending on which stakeholders and network actors participate in the venturing process (Sarasvathy & Dew, 2008: 729; Read et al., 2009a: 3, 14; Dew et al. 2009: 293).

Subsequently, the interactions and continuous effort to find common ground lead to concrete commitments to co-create opportunities; these commitments are the ‘atomic elements’ of effectual networks (Sarasvathy, 2008: 105). Actors who commit cannot be sure about their potential role in the relationship or its outcome. Thus, their decision is not about the result but participation in the process of opportunity exploration and creation, even in something that neither party can imagine at the point of commitment (Sarasvathy, 2008: 104). Further, these commitments are negotiated and renegotiated, and some may be rejected (Wiltbank et al., 2009; Read et al. 2009a: 14). This formulation and re-formulation, and choosing from alternatives, forms the basis of the self-

selection mechanism. It is different from the causal process of partner selection; *‘in effectuation, clear goals do not drive the stakeholder selection process—i.e., the goals of the new venture or the predicted features of the opportunity do not drive who comes on board. Instead, who comes on board drives what the goals of the enterprise will be...’* (Sarasvathy & Dew, 2008: 729). Actors self-select into the chain of effectual commitments and the entrepreneurial process by staking something they can afford to lose (Dew & Sarasvathy, 2007: 275). Since no one can predict the opportunity outcome, venture success or return on investment in such relations, intelligent altruism becomes a rational criterion for self-selection (Sarasvathy & Dew, 2005: 556; Wiltbank et al., 2009: 117, 120). Effectual networking with different actors can occur at different stages; some negotiations may result in commitments, others not. Hence, entrepreneurs loop back and forth between networking with existing committed stakeholders and networking with all and any new stakeholder (Sarasvathy & Dew, 2003).

After accumulating a critical stock of effectual commitments, effectual decision-making becomes inherent not only in the active creation of contacts by entrepreneurs, but also in the emerging networks. Numerous stakeholders begin co-creating and designing the network through new relationships and resource combinations to leverage the elements within their control (Read et al., 2016). Hence, this co-creation increases the social and reputational value of the resulting relations (Read et al., 2009a: 14). Later, these relations may become the available means for the next cycle of the effectual process (Sarasvathy, 2001; 2008). They may also become the basis for more goal-oriented networking (Sarasvathy & Dew, 2005: 548; Sarasvathy, 2008: 106).

Our theoretical discussion shows that entrepreneurial networking can embrace two rather different decision-making logics. However, given that causal and effectual decision-making *‘can occur simultaneously, overlapping and intertwining over different contexts of decisions and actions’* (Sarasvathy, 2001: 245), it remains unclear how entrepreneurs employ them as *‘a duality rather than a dichotomy’* (Reuber, Fischer & Coviello, 2016: 537), and simultaneously.

3. METHODOLOGY

3.1 Methodological choice

A qualitative methodology is appropriate for this study. First, it fits research of an inductive and exploratory nature (Gumesson, 2000; Smith, McElwee, McDonald & Dodd, 2013) that aims to answer “how and why” type questions (Pratt, 2009; Denzin & Lincoln, 2000; Patton, 2002). Second, it works well when studying dynamic phenomena (Patton, 2002; Cassell & Symon, 1994),

such as entrepreneurial networking behaviour and decision-making. Third, the choice was supported by the network perspective in this study, which suggests that actors are not autonomous units but involved in composite interdependent relations (Halinen & Törnroos, 2005; Wasserman & Faust, 1994; Scott, 1991). A qualitative approach allows actors to be seen in the particular real-world context of venture creation, and gives a certain meaning and purpose to the object under study (Sayer, 1984: 117; Patton, 2002).

3.2 Sampling

We followed purposeful sampling (Gartner & Birley, 2002) in selecting cases. As this study focuses on entrepreneurial networking, we applied the criterion of age (Cassar, 2004; Vaznyte & Andries, 2019), and selected start-ups that were no more than three years old at the time of data collection. This approach also helped us ensure that we would find both non-goal-driven and goal-driven networking behaviours, as according to Sarasvathy (2001), and Sarasvathy and Dew (2005), early start-ups are likely to display effectual decision-making. We did not consider there to be risk of observing predominantly effectuation, since both causation and effectuation are present in entrepreneurial actions (Sarasvathy, 2001; Smolka et al., 2016; Reymen et al., 2015). We did not use the criterion of entrepreneurial expertise, as novice entrepreneurs can also adhere to effectual reasoning (Laskovaya, Shirokova & Morris, 2017).

To ensure data access (Marshall & Rossman, 1999), we attended two entrepreneurial events deemed realistic settings for the current research: Slush (www.slush.org), and seminars organised by Helsinki-based entrepreneurship-supporting organisation Arctic Start Up (www.arcticstartup.com). The sample of entrepreneurs found through these events fitted the purpose of our study since the events were purposefully arranged for business founders whose ventures were at the very early and uncertain stage of development and who were actively networking. During these events, 42 start-up entrepreneurs were approached and invited for interview. After exchanging business cards and sending e-mails with a more specific description of the research project, 10 entrepreneurs expressed their willingness to participate in the study and confirmed interview meetings. The other co-founders were identified through these initial contacts; thus, during the interview meetings, we sought respondents' permission to interview other members of their founding teams for verification purposes, in order to give a more profound picture of their networking activities and enhance the richness of data.

Following Patton (2002), we chose entrepreneurs from a single industry, namely ICT/smart-phone applications. However, we do not claim that entrepreneurial networking behaviour varies across industries. What influences this networking is not the industry *per se* but how entrepreneurs perceive its uncertainty and isotropy (Sarasvathy, 2001; 2008), and how specified their goals are in terms of goal hierarchies (Read et al., 2016: 532; Kerr & Coviello, 2009a). Table 1 provides detailed information on respondents and data collection.

3.3 Data collection

In approaching the complexity of entrepreneurial networking, our main tools for data collection were interviewing the selected respondents, non-participant observations, and secondary document data (Steyaert, 1997; Galloway, Kapasi & Whittam, 2015). The combination of these techniques allowed us to develop thick descriptions of how a given person, in a given context, makes sense of a given phenomenon, namely entrepreneurial networking. Each technique is covered in more detail below.

3.3.1 Interviews

A short description of the research project was sent to each respondent via an e-mail that also requested an interview. They did not, however, receive the interview guide in advance. The interviews were to be semi-structured, that is, loosely structured questions intended to reveal situational context and the respondent's subjective opinion on the phenomenon (Marshall & Rossman, 1999: 108; King, 1994; Mann, 1985: 117; Gummesson, 2000: 127), in our case entrepreneurial networking. This method enabled us to generate additional emerging insights during the conversations (Patton, 2002). The study draws on a total of 23 personal interviews with the founders of the selected start-ups. Each interview was recorded, to which all of the informants consented, and subsequently transcribed.

During the interviews, some respondents wanted to draw a picture of their network relations to make the information more visually illustrative. These drawings were used as a visual support tool for the interviews, and hence assisted the course of the conversations *vis-à-vis* interview guides. We returned to these notes when we transcribed our interviews in order to recall the precise nuances of interviewees' responses. However, we did not use them as data for analysis because not all informants presented them and, in many cases, they were highly unstructured and messy in terms of content. To validate the accuracy of the data generated, the transcripts from the interviews were sent back to the interviewees for an additional check (see Table 1).

Insert Table 1 here

3.3.2 Observations

To bridge the gap between our informants' claimed and their actual networking behaviour (Minzberg, 1970), we asked them for permission to shadow their networking through structured non-participant observations at several events. As recommended by Bryman and Bell (2015), and Zikmund (2013), we developed an observation schedule that specified the following networking behaviours to be observed in the entrepreneurs: contact initiation, checking the background of a contact, establishing common ground, agreeing on next meetings, and more. The observations were recorded in the form of field notes and later used in the data analysis.

Also, we asked our informants in short informal conversations to reflect upon the observed networking episodes straight after they occurred, in order to ensure that our interpretations were correct, to understand the decision-making logic of networking during these episodes. Accordingly, specifications, explanatory amendments, and corrections were made in the respective notes, augmenting our interpretations in three of the ten observation notes (see Table 3, about F2, SU2 and Table 6 about SU8, F2). Initially, these notes were assigned open codes related to causal networking. However, the founders' post-observation comments added further information that contained codes related to effectual networking. This correction added new nuances to our analysis, and allowed for an emerging theme of hybrid networking.

3.3.3 Document analysis

The reliability of the accounts from the interviews and observations was checked using techniques proposed by Huber and Power (1985). Besides the primary data sources, the study also incorporated document analysis (Glenn, 2009) of information from websites, blogs and press releases about the interviewees, the history of their company, core businesses and products, and the key clients and suppliers. This information was used to prepare for interview meetings and validate information obtained during and after interviews (Cassel & Symon, 1994). Together with purposeful sampling, combining data from interviews, observations and documents served as a technique for data triangulation (Campbell, 2005), which cross-validated the data and allowed for nuanced descriptions (Patton, 2002). For example, when respondents mentioned some connections during the interviews, the exact content of these relations was double checked through social network websites such as LinkedIn and Facebook. Also, interviewees gave numerous examples of how they got to know some of their partners; similar stories were sometimes available in their blogs. Hence, we had the opportunity to obtain more details about the same stories. While this

combination of techniques permitted data triangulation and verification, it also allowed us to derive detailed understandings of networking undertaken by the entrepreneurs.

3.4 Data analysis

We followed the Gioia approach in the data analysis, which fits the inductive nature of our study (Corley & Gioia, 2011; Gioia, Corley & Hamilton, 2013). First, we ran the ‘*initial data coding, maintaining the integrity of 1st-order (informant-centric) terms*’ (Gioia et al., 2013: 26). Excerpts from the interviews and observation notes were analysed using an open coding technique (Glaser, 2016), meaning that the way in which we defined, labelled and categorised our codes on the hybridity of entrepreneurial networking under causation and effectuation could not be driven by the prior theoretical knowledge. However, we still followed Fisher’s criteria for causation and effectuation (2012) to recognise the elements of two types of decision-making in observed networking behaviours. Our analysis was supported by NVivo (version 11); however, we also used manual techniques, such as matrices, tables and idea maps, to find patterns and themes in the data to drive the analysis process. Table 2 depicts our data structure, and tables 3-6 demonstrate how we inductively moved from the raw data excerpts towards categorising first-order concepts and more general second-order themes, which were then distilled into overarching aggregate theoretical dimensions. The next section presents our findings.

Insert Table 2 here

4. FINDINGS

Our findings² show that the studied entrepreneurs’ networking activities unfolded through causal and effectual decision-making. In addition, we identified another mixed behaviour, where networking comprised the aspects of both causation and effectuation simultaneously. Following our data and the interviewees’ specific terms, we have named them to reflect their paradoxical and hybrid nature. Our main focus lies on these hybrid networking behaviours, which we evidence below and discuss in more depth in the Discussion and contributions section.

² The text below describes our findings and supports them with the most powerful and illustrative quotes from the interviews; more evidence quotes can be found in tables 3-6.

4.1 Looping between networking means, needs and goals

Our data show (see also Table 3) that in less uncertain situations which allowed planning, where predicting the future was less challenging, and where the attributes of opportunity could be specified ex ante, entrepreneurs followed causal decision-making. They aligned networking goals with the identified goals of their ventures:

SU1, F2: “It’s easy to approach people, they see the fit for a particular person when you already know what’s potentially needed from them. And this you can know when you know where your business is going, when the strategy’s clear. Then networking complies with this direction.”

However, when the venture goals were hard to specify and put into hierarchies due to a changing business environment or internal uncertainties, and when an opportunity was vague or did not yet exist, they were more effectual and started with their networking means: network identity, network competence and existing relations:

SU 7, F3: “When we started, everything was so open... in the making, we just talked to everybody. Our network was what we already had, the existing relations... further networking developed from there. It also required staying alert and open to new connections, and their establishment required good networking skills.”

In addition, we identified hybrid networking where the elements of both decision-making logics were present. First, entrepreneurs scanned their networking means very carefully; they described this activity as strategic and rational. Second, identifying what they had to hand also allowed them to recognise gaps. Networking at different entrepreneurial events and benchmarking with potential partners helped in realising these resource gaps. Thus, they not only asked “What do I have?” but also “What don’t I have?” and “What don’t I know and want to know?” and “Who don’t I know and want to know?” These “asks” allowed them to see gaps in identifying an opportunity, and subsequently their networking needs, which became evident in relation to known means. Further, these identified needs became the basis for informing directions to proceed, and the actions that had to be undertaken in order to meet these needs, or, in other words, to understand what to do to get what they do not have. These were manifested as causal goals of their networking activity. Hence, this convergence of means, needs and goals was an iterative and self-reinforcing activity of both resource seeking and mobilisation, where each of the components cannot be understood separately:

SU10, F1: “It’s very important to realize what connections you have in your network, how they can be used. It’s like mapping your own network. It’s a good exercise to see also the missing components. So, starting with what you have allows you to see what you don’t have. This basis allows you to see what’s missing, so to say, where you need to network more, where to concentrate your efforts. When you know it, it guides your further networking.”

Insert Table 3 here

4.2 Networking through rational improvisation

The data show (see also Table 4) that at times respondents were focused on targeting network structures to find and exploit desired connections; this happened in situations where these structures were identifiable. Often, this knowledge of where to network came from experience and utilising predefined knowledge. For example:

SU4, F1: “When you work in a certain business for a while, you get to know the central actors and the people who you need to be connected to. Then, you just try to get to know them. So, it’s rather direct and clear.”

However, in some cases, the respondents developed relations with all who expressed some interest in their firm, and explored opportunities emerging from these relations. Despite the high uncertainty, they did not associate this effectual networking with risk-taking behaviour because it was impossible to estimate any kind of monetary loss. Instead, their entrepreneurial mindset allowed them to see more opportunities than risks in effectual decision-making on networking:

SU10, F1: “Networking is the cheapest way to get to develop your business. It costs nothing, you lose nothing, you don’t risk anything. You just need to be active and send the message to as many people as possible, talk to whoever is interested to listen to you because you never know who can be an important connection in future, what opportunity can emerge.”

We also found networking practices that originated from the hybrid mixture of causal and effectual logics, and had features of both. While selectively and purposefully choosing events and places for networking, our respondents at the same time improvised on how they approached people and established connections when there. Thus, they simultaneously exploited the pre-existing knowledge and relied on experience about where to network, and were able to come up with new creative combinations, explore and improvise. This combined behaviour allowed for new opportunities to emerge. Given this was neither a purely non-goal-driven discovery, nor a calculative and instrumental activity, we cannot interpret this form of networking as purely causal or effectual. It unfolded as a mixture of both through a hybrid combination, which we describe as rational improvisation, because it combined both goal-driven and non-goal-driven decision-making.

SU1, F2: “We carefully select different events... like industry exhibitions, conferences... you need to be selective because there are so many of them, and not all are good. But once you get there the magic starts. You just meet new people, try to make new connections and deals, it’s very unpredictable. You can’t know where an opportunity may come from. But it definitely comes because you’re there [at the event].”

Insert Table 4 here

4.3 Intuitive excerption

The data indicate (see also Table 5) that in some cases entrepreneurs behaved causally, selectively choosing the most suitable and favourable partners for exploiting a known opportunity. Partner selection was driven by the predefined and specified venture goal, hence reducing uncertainty. Our findings show that some entrepreneurs even had a list of partners to contact, for example:

SU2, F3: “After we decide on some networking event, we try to investigate who else will be there. So, we make a list of those people and try to estimate whether they’d be useful. If so, we set the goal to meet them at the event.”

However, the interviews also indicated that entrepreneurs did not always evaluate the potential benefits of a relationship, and selected their partners following predictive causal decision-making. Often, they were committed to certain relations because of their future potential, non-redundancy, and the emerging opportunities they may bring. The self-selection mechanism unfolded through non-monetary ‘investments’ in the form of time spent, emotional involvement in the relationship, and/or information shared to build mutual interest, as illustrated in these interview quotes:

SU1; F2: “I don’t know how it happens... you just meet the person, try to establish some common ground and see what happens. You can’t know in advance what this relation can bring, you just sense the potential.”

SU6, F: “Networking requires a lot of emotional involvement, but besides that and time you don’t lose anything.”

We also identified a hybrid networking activity that manifested as a mixture of the two decision-making logics. For instance, entrepreneurs could intuitively sense the fit of a certain person for their start-up team, without having a particular task or role in mind, which may relate to the under-specification of goals and/or their hierarchies. Selecting this person for a team was based on the potential partner’s known personal characteristics and/or prior experience and expertise. So it was still based on some pre-existing knowledge about them. However, it was a non-goal-driven choice, which may seem paradoxical but reflects the “*effecausal*” nature of networking. Therefore, on the one hand, entrepreneurs carefully picked partners based on personality-related criteria, but on the other this selection was intuitive, not to fulfil the known need or task but precisely for their potential to enact the unknown possibilities and design the task together. For example, one of the entrepreneurs stated:

SU5, F2: “I met Sami, we just talked and discussed our ideas, I knew his background... and then it was that special fit, intuitive...and in the next couple of days both of us decided to quit our consulting jobs and start business together. We couldn’t know and guarantee that things would work. We only had a very preliminary idea of what we wanted to do together, but what we knew for sure was that we wanted to do it together because we felt a great opportunity from our partnership. This selection is very careful but not strategic. It’s a drive and commitment to something that is only in the form of an idea.”

We see both an intended and intuitive approach in this form of partner selection, combining causation and effectuation enabling opportunity development. We term this hybrid logic of partner selection an intuitive exception.

Insert Table 5 here

4.4 Routinized collective creativity

Our findings show that the interviewed entrepreneurs looked to instrumentally manage and coordinate their networking activities, and develop the most favourable network position for their firm to exploit for known goals. This was seen in the visual maps respondents drew, where they identified their own position in the network. Thus, some tried to rationalise their networks causally, and comprehend their own place in these networks (see also Table 6). In the case of SU8, the interviewed founder F2 had a picture of the company's networks on the office white-board; it looked like a web of different relations drawn with different colours, and with numerous sticky notes attached. The respondent said that the picture helped see their place in relation to other actors, to systemise and classify different connections. They did this in situations where they could estimate their rational self-interest, as well as the fore-known benefits to be obtained from other actors. For example, one entrepreneur explained:

SU4, F2: "I always have the picture of our network in my head; it's like a constellation of all the partners we're connected to... I think I know where we are in that picture even though it's always changing."

We also saw that the business founders we studied re-shaped and reformulated their networks and networking goals together with other actors. This behaviour resembles effectual co-creation of opportunities, and reflects the opposite of the coordination and control of existing relations according to some predefined goal. Some respondents said that this co-creation was an important mechanism in validating their business ideas and exploring new opportunities. They also indicated that some relations could not be managed, and there was no need to manage them:

SU9, F2: "What's fascinating is that in the end you can't know where the final shape of the idea came from. Is it yours? It's constant iteration, validation and co-creation. And you can't control this process. You shouldn't!"

We also detected a combination of coordinated routines, a disciplined approach to networking, and the collective, creative activities of entrepreneurs and their partners. This hybridity points to the dynamic interdependency of causal and effectual decision-making, and shows how one logic intensifies the other in developing opportunities through networking. Interviewees described these activities in almost self-excluding terms of "organized chaos", "directed experimentation", "systemised improvisation", and a "need to plan to be creative". One entrepreneur described it as follows:

SU6, F: “I have a rule to catch up with people from my network on a regular basis. For example, I meet Outi every two months for lunch. It’s our routine. But through these discussions we create a space for creativity and opportunity to emerge. Creativity sessions that are systemised and even routinized... paradoxically... This way, we welcome the unknown and are ready to react. Often, to be creative and even spontaneous you need to be prepared, to plan for it.”

Insert Table 6 here

5. DISCUSSION AND CONTRIBUTIONS

We started this study with the important but under-examined question of how entrepreneurs combine goal-driven causal decision-making with non-goal-driven effectual decision-making in their networking behaviours to develop opportunities. Our study shows that entrepreneurs can employ both of these very different decision-making logics in their networking, not only separately but also simultaneously in different hybrid combinations. Hence, entrepreneurial networking behaviours can have features of both logics at the same time in one behavioural episode. **It is important that we understand this hybridity, because earlier research has acknowledged the need for both types of networking in venture creation and opportunity development (Prashantham et al., 2018), but not depicted how exactly they are combined. Our study reveals the true interactive mechanisms for combining instrumental and experimental networking, and how both synergistically contribute to entrepreneurial opportunity development.**

Even though all four hybrid behaviours deal with entrepreneurial networking, each represents a different mechanism for opportunity development. Thus, **looping between networking means, needs and goals** depicts resource leveraging through networking. It is an organic activity, whereby entrepreneurs simultaneously scan what network means they have; these include their network identity, network competence, and existing contacts (elements of effectuation). At the same time, they start to realise what means they do not have but need, through a series of questions such as “What am I not but need to become?” and “What don’t I know but need to know?” and “Who don’t I know but need to know?” Through this juxtaposition, they recognise their goals for what they need to do to acquire missing elements and resources (elements of causation) (Sarasvathy, 2001; Read et al., 2009a), which can trigger further networking and bring new means. In fact, understanding this gap and the actions required to fill it may increase the specificity of goals and actions (Kerr & Coviello, 2009a). This mechanism allows to control the reality and creatively link available and exploitable means with exploratory actions and emerging goals, which corresponds

with the literature on opportunity development (Ardichvili et al., 2003). This allows entrepreneurs to gain flexibility for opportunity development.

Our second hybrid networking behaviour, **rational improvisation**, delivers a different opportunity development mechanism. On the one hand, the entrepreneurs were highly selective in choosing appropriate networking events (elements of causation). On the other, that purposeful selection gave them exposure to the contexts necessary to leverage contingencies more effectively and let the unexpected happen (elements of effectuation). Thereby, they combined deliberateness and randomness in their networking, where both are recognised as important components (Slotte-Kock & Covello, 2010). This hybrid networking behaviour represents a distinctive attitudinal mechanism for increasing alertness and responsiveness to opportunities, and creating conditions for them to emerge. Consistent with the opportunity-development research (Clausen, 2019; Camelo-Ordaz et al., 2020), this simultaneous exploitation of known circumstances and exploration of unknown results derived a conscious and deliberate practice for the entrepreneurs, to create the essential conditions for experimentation, attracting opportunities, and being prepared to react to the unexpected. In this synergistic hybridity, goal-oriented reasoning paradoxically reinforces non-goal-oriented reasoning, and they are inseparable (Smolka et al., 2016).

Third, the hybrid behaviour of **intuitive excerption** represents the opportunity development mechanism of involving new partners in a network. On the one hand, it is based on the careful selection of partners, which points to goal-driven networking (elements of causation) (Hallen & Eisenhardt, 2012; Larson & Starr, 1993). On the other, partners are intuitively selected based not on their known fit but potential to co-create an as yet unspecified venture opportunity (elements of effectuation) (Sarasvathy, 2001; 2008). Thus, entrepreneurs simultaneously exercise exploitation of pre-existing expertise and explorative ideation, envisaging future paths for their venture, which is in accordance with the exploitation-exploration discussion in the literature (Ardichvili et al., 2003; Wood & McKinley, 2010). It presents a natural and synergistic way of being adaptive to external changes and proactively seizing emerging opportunities, which cannot be achieved by employing either of the decision-making logics separately.

Finally, the behaviour of **routinized collective creativity** is the opportunity development mechanism that deals with governance and coordination for networking. This paradoxical and mixed activity allows entrepreneurs to deliberately ensure and exploit the necessary conditions for the collective exploration of new ideas when there are diverse opinions. This behaviour manifests itself through the combination of repetitive and coordinated routines (the element of causation)

and unconventional experimentation and improvisation with creative ideas (the element of effectuation). This is attained, for example, through scheduled brainstorming sessions or planned ideation meetings with partners, which points to the mixture of both logics (Smolka et al., 2016). This combination, in turn, keeps them open-minded in terms of exploring new opportunities. Hence, this hybrid practice allows for the simultaneous and synergistic exploitation and exploration of opportunities (Ardichvili et al., 2003; Clausen, 2019).

The above discussion also indicates that the four categories of hybrid entrepreneurial networking behaviour differ. Our study shows that this is caused by combining different aspects of causal and effectual decision-making, focusing on different networking aspects, which, in turn, represent distinct opportunity development mechanisms (see Table 7). Importantly, they do not result from a simple overlap of two logics but intensify each other as unique hybrid behaviour. As our findings show, these behaviours organically combine controversial and even paradoxical networking activities. However, this mix allowed each decision-making logic to be reinforced, and created a synergistic effect; this cannot be achieved just by their imposition. This hybridity enabled entrepreneurs to control reality both through actions and goals, flexibly align the known with the unknown, and be prepared for and resilient to unexpected changes and emerging opportunities.

Insert Table 7 here

The results of our study make several important contributions. First, we contribute to the effectuation research, and more precisely to understanding the interplay of causation and effectuation. We show that each of the four hybrid combinations of these decision-making logics in networking are more than just their sum; they are blended in a self-reinforcing interplay. Because the four hybrid behaviours have elements of both causation and effectuation, they represent the true interaction between the two decision-making logics. This is an important step forward in understanding the causation-effectuation synergy discussed by Smolka et al. (2016). While the study by Smolka et al. (2016) examined this synergy, their point of departure was to view causation and effectuation as separated in time and relating to different tasks and functions (p. 8). Our findings, in turn, present causal and effectual decision-making logics as inseparable “*effecausal*” mixtures unfolding at the same time and in a single networking episode. Thus, we unpack the inherent mechanism of interaction and synergy between causation and effectuation. Also, while Smolka et al. (2016) quantitatively examined the joint effect of the two logics on performance, we depict this synergy through detailed qualitative descriptions of four hybrid

networking behaviours. Hence, we show specific and nuanced micro mechanisms of how this synergistic interaction takes place.

This study also extends our understanding of the temporal aspect of causal-effectual interplay in entrepreneurial networks (McKelvie et al., 2019). While this has been viewed as a process of re-occurring iterative shifts (Nummela et al., 2014; Reymen et al., 2015), we emphasize the presence of both logics at the same time. We believe this distinction is important, as it is exactly the inseparable nature of these logics which unveils the true hybridity of causation and effectuation that enables opportunity development.

Second, this study has implications for the entrepreneurial network research (Hoang & Antoncic, 2003). Understanding entrepreneurial networking as a behaviour and through the lens of decision-making, which can be causal, effectual and hybrid, has allowed us to grasp the micro-level nuances involved. This perspective is important (Kaandorp et al., 2020; Zheng et al., 2020), and has been downplayed in the entrepreneurship literature in favour of structural attributes of entrepreneurial networks (Slotte-Kock & Coviello, 2010). The behavioural perspective allows us to show in detail the specific actions, efforts and practices of simultaneously adopting goal-oriented causal and non-goal-oriented effectual partnering. The four hybrid networking behaviours derived add more understanding on how and with what reasoning entrepreneurs establish relations, thus answering recent calls in the literature (Jack, 2010; Hoang & Yi, 2015). **Further, we add to the network-based approach to entrepreneurial opportunity (Ardichvili et al., 2003; Arenius & De Clercq, 2005; Zheng et al., 2020), showing how combining goal-oriented and non-goal-oriented networking behaviours serves as an effective opportunity development mechanism.** Our hybrid perspective also advances the literature on effectual networks and networking (Engel et al., 2017; Kerr & Coviello, 2019a, b; Galkina & Atkova, 2019). We demonstrate how entrepreneurs establish connections effectually under conditions of uncertainty, and also how they combine this with more goal-directed causal networking.

Third, by showing four hybrid networking behaviours as distinct mechanisms for opportunity development, this study unpacks how exploitation and exploration are blended, and mutually reinforce each other (Volery, Mueller & von Siemens, 2013; Klonek, Volery & Parker, 2020). At first glance, the activities involved in the hybrid networking behaviours may seem somewhat controversial; indeed, we emphasise their paradoxical nature in how we name them. However, the simultaneity of causation and effectuation in entrepreneurial networking allows for the blending of exploitation and exploration. This, in turn, creates an opportunity development effect. Hence,

we see opportunity exploitation and exploration as a combined organic activity rather than a trade-off, which adds to the existing dialogue on the exploitation-exploration amalgam (Gupta, Smith & Shalley, 2006; Sirén, Kohtamäki & Kuckertz, 2012; Venkataraman, Sarasvathy, Dew & Forster, 2012; Lavie & Rosenkopf, 2006).

6. CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

This study has identified four hybrid combinations of causal and effectual decision-making logics in entrepreneurial networking behaviour, each representing a different synergistic mechanism of opportunity development. These findings offer directions for further studies. Since we follow a qualitative research strategy in a specific context, the robustness of our findings could be tested through a quantitative survey-based study in different national and cultural contexts, to ensure the statistical generalisability of our results. Further, this study examines the entrepreneurial networking of individual entrepreneurs at the micro level. Hence, future research could investigate how these four hybrid networking behaviours influence network composition. Also, it is important to examine how opportunity development through hybrid networking translates into firm-level actions and entrepreneurial firm performance (Clausen, 2019). Whereas this study provides explanations on how entrepreneurs network, why they network as they do is an interesting avenue for future work. Hence, research could examine the antecedents and initiation of this hybridity in terms of: networking competencies needed to combine causal and effectual decision-making logics, organizational situations (change, crisis, merger, divestment), and/or institutional norms.

In addition, our study unveils the positive synergy between two paradoxical networking behaviours. Assuming that causation and effectuation require different types of decision-making (Sarasvathy, 2001), we encourage scholars to explore whether the mixture of goal-driven and non-goal-driven networking may lead to inconsistencies, tensions and dissonant decisions inside start-ups and/or in relation to other stakeholders. This perspective of paradoxical tensions is important in understanding how entrepreneurs develop their capability to be simultaneously consistent, focused on profit and process alignment, while remaining flexible, agile, and focused on process adaptability.

Our findings also extend understanding on entrepreneurs' resource environments, and how they transform the means at hand into resources (Read et al., 2016), and also on bricolage (Nelson & Baker, 2005). This transformation of inputs/means into resources is closely related to the change of one logic into the other. Realising the inputs/means at hand is associated with bricolage and

effectuation, while understanding how available means can be combined and recombined for use as a resource implies the need for more strategic and causal thinking. On this point, our discussion on hybrid looping between means, needs and goals provides novel insights. That is, asking “What do I have?” helps understand “What don’t I have”, and supports entrepreneurs in outlining the actions they need to take to acquire the missing components. We see this as a self-reinforced mechanism of linking means and needs, where effectual means may become causal resources to fulfil those needs. It would be important in future studies to conduct an in-depth exploration of the mechanisms to activate those means. For instance, if some of them remain latent and unused in an “inventory” of reserved means (Galkina & Atkova, 2019), how do entrepreneurs determine which to use? What is the relationship between “I have it but don’t need it/cannot use it” and “I don’t have it and I need it”? Addressing these aspects would help understand the complexity of means-driven reasoning.

Also, our hybrid practice of routinized collective creativity provides interesting insights on the duality of creative and habitual routinized responses that occur in entrepreneurial behaviour (Reuber et al., 2016). We show that mindful and mechanical activities can be integrated organically in start-ups. This finding can serve as a stepping stone for further research exploring how entrepreneurs can learn to be creative through routines and disciplines enacted on a regular basis; for example, through scheduled brainstorming sessions and/or rituals (Tharp, 2003).

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Table 1. Data collection

Start-up	Core business	Date of registration	Respondents	Background	Time and duration of the interviews	Time of observations
SU1	Web application for connecting people	December 2016	F1: 34-year-old male F2: 32-year-old male	Environmental engineering; Marketing and Biology	F1: 3.12.2016 (47 min.) F2: 3.12.2016 (50 min.)	Observing F1 talking to another entrepreneur; 3.12.2016 (duration: 30 min.)
SU2	Web application for reading codes on documents, letters and mailers	October 2016	F1: 55-year-old male F2: approx. 55-year-old male F3: approx. 60-year-old male	Printing technologies; Postal equipment; Sales specialist	F1: 4.12.2016 (87 min.) F2: 4.12.2016 (61 min.) F3: 4.12.2016 (72 min.)	Observing F2 talking to a representative of a start-up support organization; 4.12.2016 (duration: 6 min.)
SU3	Web application for restaurants	November 2016	F1: 25-year-old female F2: 25-year-old male	Brand developer; Architecture and programming	F1: 5.12.2016 (45 min.) F2: 5.12. 2016 (65 min.)	Observing F1 talking to a consultant; 5.12.2016 (duration: 17 min.)
SU4	Web application for video content creation	May 2016	F1: 35-year-old male F2: 36-year-old male	Marketing expert, serial entrepreneur; Video content and advertising developer	F1: 7.12.2016 (56 min.) F2: 20.1.2017 (74 min.)	Observing F2 talking to another entrepreneur; 20.1.2017 (duration: 9 min.)
SU5	Spray printing and web application for spray printing	January 2016	F1: 34-year-old male F2: 37-year-old male F3: 32-year-old female	Serial entrepreneur; Information technologies; Sales and printing	F1: 12.12.2016 (49 min.) F2: 12.12.2016 (47 min.) F3: 5.1.2017 (62 min.)	Observing F1 talking to a potential marketing manager; 12.12.2016 (duration: 22 min.)
SU6	Web application for eco food-delivery	September 2014	F (only founder): 28-year-old female	Studies business, worked as a flight attendant	F: 15.12.2016 (45 min.)	Observing F talking to a person from an entrepreneurship-supporting organization; 15.12.2016 (duration: 25 min.)
SU7	Web application for creating digital publications	January 2016	F1: 27-year-old male F2: 32-year-old male F3: approx. 30-year-old male	Software engineering; Programming; Software engineering	F1: 21.12.2016 (45 min.) F2: 22.12.2016 (70 min.) F3: 22.12.2016 (85 min.)	Observing F1 talking to a potential business angel; 21.1.2016 (duration: 7 min.)
SU8	Web application for finding a pet-sitter	April 2015	F1: 32-year-old female F2: 39-year-old male	Sales and marketing; Programming	F1: 10.1.2017 (80 min.) F2: 9.1.2017 (73 min.)	Observing F2 talking to a potential investor; 9.1.2017 (duration: 31 min.)
SU9	Web application for customer profile creation	November 2015	F1: approx. 55-year-old male F2: approx. 50-year-old male F3: approx. 50-year-old male	Serial entrepreneur; Marketing; Serial entrepreneur	F1: 10.1.2017 (88 min.) F2: 20.1.2017 (71 min.) F3: 27.1.2017 (77 min.)	Observing F1 talking to a potential client firm; 10.1.2017 (duration: 7 min.)
SU10	Smart phone tool for tailoring shoes	January 2016	F1: 28-year-old male F2: 29-year-old male	Serial entrepreneur; Background in sales	F1: 16.1.2017 (90 min.) F2: 17.1.2017 (68 min.)	Observing F1 talking to a potential investor; 16.1.2017 (duration: 16 min.)

SU – start-up; F – founder

Table 2. Data structure

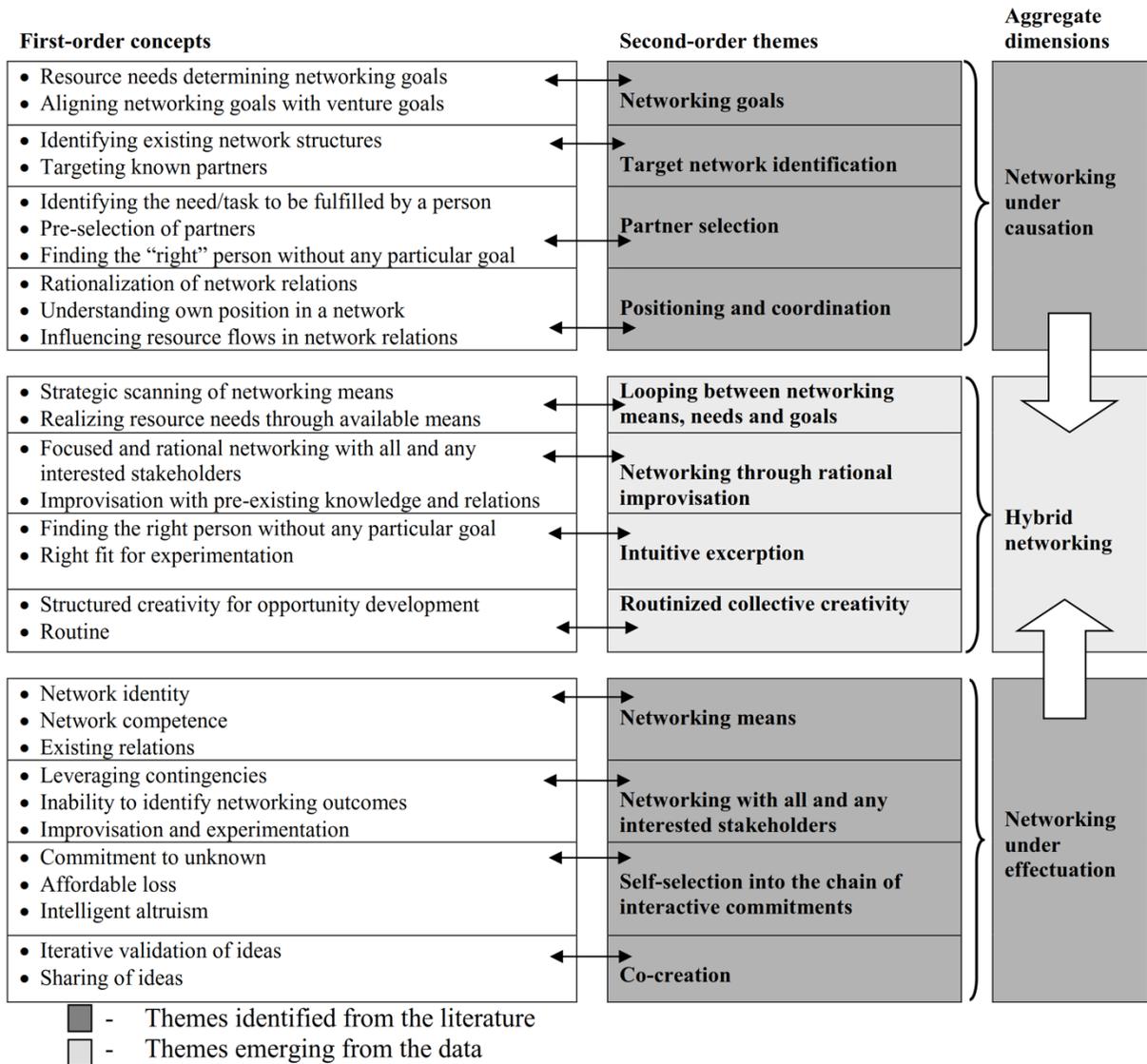


Table 3. Inference from raw data to aggregate dimensions - 1

Raw data excerpts	Code	First-order concept	Second-order theme	Aggregate dimension
SU9, F3: "...for example now we need to find a person who will be responsible for sales, so we network in this direction... checking"	Resource need Networking goal	Resource needs determining networking goals	Networking goals	Networking under causation
SU2; F2: "I have an idea, the vision of my business in my head, and it guides, directs my networking".	Business idea Networking direction			
SU4, F1: "I try to see who else I can know through my contacts; and this search is rather rational and strategic". SU6, F: "I use a lot the contacts I have in my immediate surrounding... friends, former colleagues... This is what I have. But I also know whom it would be great to know in relation to my our business. So, I constantly think whom I can know through them [existing relations]".	Checking "whom I know" part of means Rational Strategic Whom I don't know Gap	Strategic scanning of network means	Looping between means, needs and goals	Hybrid networking
SU5, F3: "Knowing what you are and what you have also shows you what you don't have, then you see what you can do to fill these gaps and what opportunities to develop". SU1, F1: "I have some knowledge from my past education and work experience. But with this knowledge I understand that there are so many things we don't understand yet. So, I attend various entrepreneurial events to fill these gaps. This not-knowing also shows me where to go". SU3, F1: "Knowing where you're not yet is already a step to that direction". Observation note: SU2 F2 talking to a representative (R) of a start-up supporting organization: F2 approaches R who is preparing equipment for making video. F2:Hi, I see you'll be doing some filming here... R:Yes! How are you? Introduce each other and talk about what each of them is doing here. F2: Oh, as I understand you also help start-ups with gaining publicity, and it is free! I didn't know that! We have our web-site, I am constantly blogging, that's what we have and it is working, but it would be also great to have some published article about our firm, I think we need it. R:Yes, sure! What about we set up a meeting next week? I'll tell you more... Both start checking their calendars and finding a time to meet. Post-observation dialogue: Researcher: "Did you have any specific goal and intent why you approached this person now?" Informant: "Well, yes and no. It is also an improvisation at the same time. I know what we have in terms of publicity. And this is easy to know because this is what we have. We started working with it and understood it was not enough. Because I know it, I also know what we don't have ...meaning that I know the gaps to fill and directions to go. It is very emerging way to see opportunities".	Means, what I have What I don't have What should I do to get what I don't have Goal Opportunity development Resource gap Direction Means, what I have Resource need Networking goal Goal No goal Simultaneity Improvisation Means, what I have What I don't have What should I do to get what I don't have Gap Direction Emerging opportunities	Realizing resource needs and networking goals through available means		
SU1, F1: "It is hard to know how attractive we are for potential partners, where are we now in relation to others, this business is very news and everything changes so fast..."	Perceived attractiveness Realizing oneself in relation to others	Network identity	Networking means	Networking under effectuation
SU8, F1: "Networking requires outward thinking, staying open and listening to people..." SU7, F2: "I think the main thing about successful networking is the ability to give. Giving is on the first place, not gaining..."	What is needed for networking Competences	Network competence		
SU2, F2: "I use a lot of my existing contacts for networking. This pool of relations is a great resource". SU3, F1: "Contacts from my past studies and work have helped me a lot finding other important contacts".	Means Whom I know	Existing relations		

Table 4. Inference from raw data to aggregate dimensions - 2

Raw data excerpts	Code	First-order concept	Second-order theme	Aggregate dimension
<p>SU4, F1: "Our industry is a small world. I think I know the forest in which to find trees..."</p> <p>SU9, F1: "I have been working in sales for about 20 years; I also know our industry rather well. Also, Finland is a small country; so, everyone knows everyone... So, when there is a need in some expertise or advice, I know where to look for. Or at least I know who can know."</p> <p>SU10, F1: "This area is new and developing, but because of my past entrepreneurial experience, I know how relations are structures and what threads to pull".</p>	<p>Known Relationship structures Past experience</p>	<p>Identifying existing network structures</p>	<p>Target network identification</p>	<p>Networking under causation</p>
<p>SU9, F3: "Now I work with people whom I know from my past, and whom I can trust. I know who is connected to whom, all these structures and how they work. Now my network is solid and I don't think I need more of new partners... at least not now... I want to stick to it; networking is cool and important but it takes so much emotional energy...I would like to get rid of half of my contacts".</p>	<p>Known structures Targeting existing relations Stick No new partners Past experience</p>	<p>Targeting known partners</p>		
<p>SU9, F1: "I network everywhere, but it is not random. I don't go out an scream "Hey, who wants to hear my idea?" No. Still, you find the right people in the right places".</p> <p>SU5, F1: "It is really hard to define what is goal-driven and what is not. I think it is both in many cases. When I select an event to participate, I select it because it has a theme, a certain known content, and I know that other people like me will be there. So, some intent, direction is there. It is rational... the intent of networking in a right place. But at the same time there is so much improvisation during these events. It is impossible to know in advance who will come to your booth, who will listen to your pitch. Many unexpected opportunities come because you're a right place".</p> <p>SU10, F1: "I am disciplined to stay open-minded; I have a goal to meet at least three new contacts a week".</p>	<p>Networking everywhere Not random Networking focus Intent Direction, goal Goal-driven Non-goal-driven Rational Improvisation Unexpected opportunity Openness to new</p>	<p>Focused and rational networking with all and any interested stakeholders</p>	<p>Networking through rational improvisation</p>	<p>Hybrid networking</p>
<p>SU2, F2: "I rely a lot on my previous knowledge and relations; but they are the basis for new combinations and new connections".</p> <p>SU4, F1: "The difference is in creativity and desire to do something and improvise. Everyone has some relations that are given... but the question is: What to do with them and together with them?"</p> <p>SU5, F2: "Existing relations are perfect, they give confidence, but they are not enough, you need to build on them, bring new insights through knowing more people".</p> <p>Observation note: SU7, F1 talking to a potential business angel (BA) BA: "...as I understand, you work closely with X and Z." F1: "Yes, right. I started working with them already when I worked at [name of the company]". BA: "I also worked with them and also with Y (long explanation about their work together). I will introduce you to Y. I think it is a good idea for all of us to meet and think of how we can join forces". F1: "Sure! It can be a good opportunity. Let's arrange a meeting". Post-observation dialogue: Researcher: "Can you reflect upon what you have just discussed with BA?" F1: "Oh, it was very unexpected, but good that he also knows X and Z. These are my contacts from the past. But he also knows Y who is very professional in a certain technology... He might help us. But I don't know yet, let's experiment!"</p>	<p>Reliance on past knowledge and relations New combinations Creativity Given relations Unexpected Improvisation Experimentation Opportunity</p>	<p>Improvising with pre-existing knowledge and relations for opportunity development</p>		
<p>SU10, F1: "As an entrepreneurs, I am always on duty... 24/7. I always tell people about my business... in bars, on a plane, everywhere... I just tell and see what happens. It is the cheapest way to get feedback, it costs nothing, just your time and energy."</p>	<p>Let's see what happens Openness for new Unexpected</p>	<p>Leveraging contingencies</p>	<p>Networking with all and any interested stakeholders</p>	<p>Networking under effuetation</p>
<p>Observation note: SU1 F1 talking to another entrepreneur (AE): One of the authors of this article is having a talk with F1 at the cafeteria. Suddenly a man turns to them. AE: High guys, I've just heard a word "start up" from your talk... I am a start-up founder, and everything related to entrepreneurship interests me! F1: Hi! Good to know! (Open for dialogue, interested) They introduce each other and discuss each other's business for about 25 minutes going into specific details. It turns that AE has a possibility to invite F1 to an entrepreneurial hackathon type of an event. F1 is delighted to come. F1: See you in a month! Let's see what we can do there together! Post observation comment from F1: "You see how it works! You never know when good networking happens! Some events are closed for wide public but are important to attend. And now through this guy I can go there!"</p>	<p>Unknown results of networking Openness for new Unexpected Experimentation Improvisation</p>	<p>Inability to identify networking outcomes Improvisation and experimentation</p>		

Table 5. Inference from raw data to aggregate dimensions – 3

Raw data excerpts	Code	First-order concept	Second-order theme	Aggregate dimension
<p>SU9, F2: "Now we need to find a good back-end programmer". SU8,F2: "Now, when we launched our product and started to have first sales, we have some on-going routines, some stability... Now, for our product development, we need to find a good graphic designer and a specialist in video content. So, I am very selective and search for them carefully".</p>	Resource need Task Routine Careful selection	Identifying the need/task to be fulfilled by a person	Partner selection	Networking under causation
<p>SU2,F3: "I've made a list of people whom I want to contact. I did my homework".</p>	Pre-made Selection	Pre-selection of partners		
<p>SU 8, F1: "We hired X because I knew he was the right one, but I didn't know the exact task for him". SU4, F2: "You know how it happens in a team... we just had this personal chemistry with [name of F1] and a mutual feeling that we can do something together. There was no clear goal in the beginning. But I felt he was the right person... intuitively he was the right fit to get engaged in something unknown... to some opportunity". SU5, F1: "It is like from that book "Good to Great"... If you have right people on the bus, the direction, the goal doesn't really matter, it can be changed many times. They will stay with you because they fit together...". SU6, F: "For now I am alone, I don't have any team... I want to find someone who will be ok with the fact that [name of SU6] is so open and fresh, that we can explore directions together".</p>	Right person Unknown task Mutual No goal Unknown Opportunity Direction Intuitive Right fit Explore	Finding the right person to explore unknown without any particular goal	Intuitive exception	Hybrid networking
<p>SU7, F2: "X is so good in programming but he also happened to be great in content marketing, and he's committed to help although it wasn't an initial goal". Observation note: SU5, F1 talking to potential marketing manager (MM): MM has been just introduced to F1 by a third person. After a this introduction and some small talk this person leaves; F1 and MM stay at a hall where they start more specific discussion. F1: "... so you have said you have a marketing background and have been involved in developing sales strategies for [name of the company]. MM: " Yes, it has been for several years and I still do some minor projects with them. Now I work more as a freelance consultant for them with all the stuff related to social media". Explains in details what he does. F1 asks specifying questions. F1: "It would be good if you do the same for us. We really need it! All firms need it nowadays!" Post-observation conversation: Researcher: "Was it what you were looking for?" F1: "Well... yes, this guy is exactly what we need for our marketing now! Even more. He told me many new things and we'll meet to discuss more of them. So, I want to experiment here, to try this opportunity out to see how what he described can work for us". Follow-up note: Three months after, MM joined the team of SU7 to work on social-media marketing project.</p>	Commitment Known task No goal Specific Resource need Right fit Experiment Trying out an opportunity	Right fit for experimentation		
<p>SU1,F1: "You know how I found X, who is now the partner on our firm... He worked for this entrepreneurial organization and we met at the seminar; we talked, developed a mutual interest... he has an expertise in sales... and he is just so full of energy and enthusiastic. He wanted to join and I said "yes"; I am not losing anything, and I am happy that someone want to join "for free". I am not paying him salary, he hasn't invested any money to us... but he is so committed, works hard every day to make it all happen without knowing exactly if it's going to be a success...".</p>	Mutual interest Not losing Not investing Commitment Unknown	Commitment to unknown Affordable loss Intelligent altruism	Self-selection into the chain of interactive commitments	Networking under effectuation
<p>SU4, F1: "Talking to people costs nothing, you don't lose anything". Observation note: SU4 F2 talking to another entrepreneur at a start-up event: F2 finds the seat in the room where a seminar will take place; he start a small talk with a man at the near seat. His neighbor happens to be another entrepreneur. They have a conversation but it turns out that they don't find any mutual interest. Post observation comment from F1: "I don't think I had this "click" with that guy...no personal chemistry. He is in another area of business. But it didn't hurt to have this talk, I only "lost" several minutes of my time... or maybe "lost" is a wrong word; I didn't lose anything. I can treat it as a way not to get bored while waiting for the seminar to begin".</p>	No fit Not losing Losing time	Affordable loss		
<p>SU6, F: "You need to be ready to offer something without being sure if it will pay off." SU1, F2: "I joined just like this, as a partner... didn't invest any money. Only my time and skills... If you ask me "Why?" I'll say "It will be cool if we make it". I am trying hard to attract investors, to improve the design... but of course I don't know if it is going to bring us money. Nothing is sure at this point".</p>	Commitment Not investing Investing time and skills Unknown	Affordable loss Intelligent altruism		

Table 6. Inference from raw data to first- and second-order codes and aggregate dimensions - 4

Raw data excerpts	Code	First-order concept	Second-order theme	Aggregate dimension
SU8, F2: "Do you see these yellow stickers on the white board? It is how I see our network ". Also shows the list of potential contacts to target to.	Reflection on network Rationalization	Rationalization of network relations	Positioning and coordination	Networking under causation
SU4, F2: "We need to find our place in this big picture". SU4, F1: "I try to rationalize our network as much as I can... maybe it is a tool just for me, and no one will make sense out of this picture. But I want to comprehend our connections... all these flows and how we can improve them... maybe adding something".	Understanding own place in network Rationalization Tool Making sense			
SU9, F2: "I constantly think if we sign a contract with X, how it would affect Y [a client firm]". SU1, F1: "It was an important contract for us. Then they [name of the company] chose our application... so they didn't buy from others..."	Understanding how change in one relation will change the other relation Relations influencing resource flows	Influencing resource flows in network relations		
SU10, F1: "This creative co-creation requires being structured and disciplined.. There should be routines that allow to be creative, and co-creative". SU10, F2: " We always experiment within our network; but it is not for the sake of experimenting only, it has direction... and helps to see opportunities. We improvise, but because we know each other it is structured in a way..." SU9, F2: "I think our regular meetings with clients is a good example of a routine that creates a room for creativity and opportunity". SU4, F1: " We need to plan to be creative". Observation note: SU8, F2 talking to a potential investor (PI): F1 and PI are discussing some technical improvement of the web-application. PI suggests incorporating additional functions that would improve it. Post-observation comment from F2: "What you've observed now is exactly a co-creation! And I try to have this kind of things regularly to have an input for my idea. We do something together, improve... but we improve what is already existing, so it is based on something given. But we improvise based on this given."	Directed experimentation Creativity Co-creation Structure Opportunity Discipline Regularity Plan Given Structured improvisation Together	Structured creativity for opportunity development	Routinized collective creativity	Hybrid networking
SU2, F1: "I don't think it [networking] is a chaos... I would call it an organized chaos... So, it is both... an improvised activity, with a lot of experimentation, collective sharing of ideas. But at the same time, it is has a direction, a vector... so it is systematized somehow... organized in routines... But I cannot tell you who is the organizer..."	Organized Chaos Improvisation Experimentation Sharing Systemized Routine Direction No organizer	Routine		
SU6, F: "I talked to people that were close to me to get feedback. So, I was getting some small but very concrete pieces for my idea". SU1, F1: "It is the constant process of validating your ideas and changing them according to what information you get. In the end, it is hard to know who really got the idea because everybody participated. And it is cool to see how it gets together as a mosaic... I don't think there is even a need to control and coordinate this [process]... You just have to let it go... then some good opportunity may come..."	Feedback Validation No owner of ideas No need to control and coordinate Opportunity	Iterative validation of ideas	Co-creation	Networking under effectuation
SU1, F2: "When you feel there is something, then you just throw this idea into the public; and immediately get a lot of feedback". SU4, F2: "Staying open minded is the key to doing something together".	Willingness to share Feedback Together Openness	Sharing of ideas		

Table 7. Differences between four hybrid entrepreneurial networking behaviours

