Social supply: a personal network perspective

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Abstract

Social networks are key to drug markets as they are for many other types of human interaction. Rooted in both anthropology and sociology, network analysis is increasingly adopted in drug market research. Supply side studies to date mainly focus on large organised networks, and make use of police reports or telephone taps to describe the composition of these networks. This perspective holds important opportunities to study other topics of supply, more specifically *social supply*. Already included in the name, the social aspect is deemed very important when studying supply relationships. But, at the same time this relationship still includes an exchange of a good, which implies that a certain material or immaterial goal might be intended. This chapter discusses how a network perspective allows sketching the nuanced nature of supply relationships by placing them in a relational context. First, the way a network researcher views the world in general and drug markets in particular is discussed. Drug markets are then defined as a fluid collection of personal networks of different types of actors (e.g. users, suppliers, brokers, non-users…). It is in these particular personal networks that social supply is situated as a specific relationship between two actors that combines an aspect of exchange with an aspect of closeness.

1   Introduction

How do users and suppliers relate to each other? To what extent are they friends? To what extent do they have a consumer-client relation? This chapter puts social supply in its relational context and develops a view on supply as a tie in a wider social network in which cannabis is present. That way we aim to unravel some of the complexity of different supply patterns.

Patterns of supply have been studied extensively in drug market research. Several studies describe retail-level suppliers as friends, acquaintances or relatives and suggest supply has an important social side (Coomber & Turnbull 2007; Duff 2005; Hough et al. 2003; Parker 2000; Potter 2009; Werse 2008).

This type of social supply is considered different from a more traditional form of *dealing*, which is associated with a commercial transaction between strangers. As a concept, social supply contributes to our understanding of the social aspect of supply. However, it is unclear what this social aspect is all about. One way of putting it is to consider suppliers as friends or friends of friends who supply cannabis. A definition of who these friends or friends of friends are is very subjective (Crossley 2010). Therefore, it is particularly difficult to compare different accounts of the social aspect of supply.

The concept is further complicated because of different interpretations of the goal of supply. There is a wide range of possible rewards that can be exchanged, ranging from cannabis, money or other material goods to even immaterial goods (Coomber & Turnbull 2007; Duff 2005; Hough et al. 2003; Parker 2000; Potter 2009; Werse 2008). This leads to different interpretations on what is social supply and what is considered commercial supply. For example, Coomber and Moyle (2014) extend social supply to *minimal commercial* supply.

This chapter argues that social network analysis can provide a more profound insight and understanding of the nature of cannabis supply. I argue that research on the structure and composition of social networks not only offers insights on various criminal organisations but also would benefit our understanding of supply. Drug market research, as well as criminology in general, increasingly uses network analysis to describe different types of organisations as well as to further nuance existing concepts. That said, several studies applied network analysis to explore the social organisation of drug markets (Morselli 2009). In recent years, the initiation and continuance of substance use is also further explored through analysis of friendship networks. For example, several studies into peer influence not only question the number of friends an individual has, but also study how structure and composition of the network influence substance use (Bauman & Ennett 1996; Michell & Pearson 2000).

Social supply seems to refer to a specific relationship between two people as a so-called user and a supplier. This chapter argues that further understanding of supply patterns should include a detailed view of the personal network that surrounds both user and supplier. As argued below, this leads to the definition of supply as a complex tie between two people. This tie combines a social relation with an exchange relation and is shaped by individual attributes as well as the relational context. A supply interaction is then characterized by a commercial as well as social motivation. However, the supply relationship can include multiple and different types of supply events with one or more network member(s). The first part of this chapter describes what is meant by a networked drug market. Second, I focus on the multiplex nature of supply ties between individuals, be-

fore thirdly exploring the embedded character of this tie. The concluding part proposes a network conceptualization of social supply.

2   A networked drug market

Social network analysis is used to describe the composition and structure of *dark* or *covert* networks (Morselli 2009). Drug market research mainly adopts social network analysis to describe the social organisation of drug trafficking organisations. Based on mainly secondary data, network studies explore the composition and structure of these organisations. Network measures like density inform on the presence of connections between members that is actually present. On the other hand, measures of centrality can give insight in the positions of certain individuals in the network.

However, across studies the term networks is used in conceptually different ways. Dorn et al. (2005) argue that there are three common uses of this term. First, one can see the drug market as a whole, meaning that the drug market is *one large social network* in which participants have to interact with each other (Dorn et al. 2005). In doing so, they actually construct the drug market. This perspective is in line with a traditional view of the drug market as a vertically structured supply chain. Second, drug markets can also be described as a sum of small groups of individuals, sometimes called *disorganised crime* (Paoli 2002; Reuter 1985), sometimes *networks*. In this context, some authors doubt the existence of larger criminal organisations. The concept of disorganised crime challenges the traditional hierarchical view of drug markets in exchange for a networked view (Paoli 2002). A third perspective refers to drug markets as *fluid networks*. The concept of networks is then used as a way to describe the durability of the organisation. As opposed to fixed structures which last over time, fluid networks refer to an ever-changing market. Dorn et al. (2005) argue that the first perspective is not contradicted by any author, whereas the second and third perspectives, which often co-exist together, are subject to debate.

Network studies confirm the idea of flexible and dynamic organised groups, rather than strict hierarchical groupings. Criminal groups do not follow a strict hierarchy, but are flexible and organised in an informal way. McGloin and Nguyen (2013) for example point to the finding in literature on criminal networks that networks consist of varied structures, and therefore treating all groups similarly is not realistic. Drug market studies have regularly pointed out their flexible and dynamic nature (Calderoni 2012). The traditional *corporate* model, arguing that criminal organisations are centralized, with a strict division of labour and a strict hierarchy, is challenged based on the research mentioned

above (see Giménez-Salinas Framis 2013). In recent years, social network analysis focuses on the nodes and links of members of these networks to provide a more profound insight and understanding of connectedness and patterns of organisation. From this point of view, some authors argue illegal networks adopt a more horizontal structure, with interchangeable roles, and flexible rules (see Giménez-Salinas Framis 2013). In comparison to a more strictly organised structure, these networks are considered more resilient to external threats.

However, this does not mean that criminal groups cannot be centralized around one or two actors. For example, in an ongoing police investigation. central individuals are tempting individuals to focus upon. Centrality is studied in terms of direct connections (i.e. degree centrality) or indirect connections (i.e. betweenness centrality). The latter expresses to what extent some people are brokers through whom other actors must go to connect with each other (McGloin & Nguyen 2013). Centrality is assumed to relate to influence and control. Morselli (2009) measured both density, the number of contacts with whom a participant is directly connected, and betweenness centrality. As such, he studied not only how many connections a person has, but also focused on individuals which have less direct contacts but hold an important intermediary position. Morselli (2009) analysed 6 Canadian cases: a terrorist network, three drug trafficking organisations and two groups that export stolen luxury vehicles. In order to visualize the network and to measure centrality, he analysed physical surveillance and electronic records as well as conversations obtained through telephone tap. The main conclusion confirms the hypothesis that criminal groups consist of loose partnerships rather than hierarchical relationships. A remarkable conclusion is the crucial position of brokers, which contrasts with the more popular view of criminal groups as a rigid organisation and supports the idea of criminal groups as fluid structures in which individuals with large brokerage capital can position themselves better than other individuals.

Social network analysis aids in exploring two aspects of collaboration in covert settings: trust and secrecy (Morselli et al. 2007). Morselli (2007) describes two particular interesting studies: Erickson's (1981) study of six different covert networks[1], a network of marihuana users being one of them, and the study of Baker & Faulkner (1993) into conspiracies in a heavy electrical equipment company. Erickson (1981) stresses the importance of trust in a covert social network under risk. Organisation-wise, these networks will on the one side rely on long-existing relationships; on the other hand the organisation will

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1 Erickson (1981) studied the following six cases: the Auschwitz underground during World War II; a rebellion group in 19th century China; a New York City Cosa Nostra family; a heroin market in San Antonio, TX; a sample of marijuana consumers from Cheltenham, England; and a Norwegian resistance group during World War II.

place security over efficiency when acting. In their study of conspiracies, Baker and Faulkner concluded that peripheral players are crucial to the network. These players stay at the periphery on purpose in order to protect themselves. These networks lack a clear-cut core, which has a negative effect on efficiency. Without a clear core, transmission of information takes longer. However, knowing that detection highly increases the risk of termination, this lower efficiency is a price they are willing to pay for security. Morselli (2007) further argues that this security-efficiency trade-off is also influenced by the network's objective and the frequency of actions. Especially in the case of drug trafficking, peripheral actors bring security to the network (e.g. by acting as brokers between otherwise disconnected traffickers). They also insulate participants at the core (Dorn et al. 1992; Pearson et al. 2001).

Network perspectives also contribute to our understanding of the nature of organised crime. Papachristos and Smith (2012) analysed relational data between nearly 3,000 individuals connected to Al Capone's syndicate and explored the way this crime syndicate interacted with legitimate social institutions. He argues that criminal networks are *embedded*, meaning that social networks, be they criminal or non-criminal, overlap and intersect so that individuals exist in multiple social circles at the same time. Moreover, he also found ties to be *multiplex* in nature, meaning that they consist of several types of relationships simultaneously (e.g. social relation, exchange relation). Although theories accept this interdependent nature of ties, most research does not include these complexities due to data-related or methodological limitations (Papachristos & Smith 2012).

Furthermore, a growing amount of research indicates that the network perspective aids in developing guidance for law enforcement practices.

Besides the social organisation of drug trafficking organisations, social network analysis is argued to help further nuance the concept of peer influence. The relationship between peers and delinquency is one of the key themes in criminology and it is generally assumed that peers are likely to behave in similar ways as their friends. The assumption of peer influence is based on a one-dimensional concept of peer influence as *exposure to delinquent friends* (Haynie 2001; Papachristos 2011). Accordingly, peer influence is often measured by the number of delinquent friends an individual has. Social network analysts however argue that peer influence is a multi-faceted concept. The number of delinquent friends is an incomplete measure of peer influence as it fails to recognize structure and patterns within one's network. Papachristos (2011) for example argues that centrality and density of a network are important as well. In a dense network, all members are linked to each other which increases the likelihood of tendencies towards similar behaviour.

One of the key issues is the assumption that substance users mainly have substance-using friends who influence an individual's using behaviour and attitudes. Network analysts explore this issue via measures of *homophily*, the extent to which actors in a network share a pre-defined attribute (e.g. gender, age, substance use). The findings are not unanimous however some research indicates cannabis networks are formed based on prior homophily of age and gender, rather than on homophily related to substance use (Kirke 2006). Furthermore, people in a substance-using social network are more likely to start using themselves (Galea et al. 2004).

Besides homophily, some studies also use measures of centrality to study the network position of users. Three positions have been most frequently identified: *members* , who belong to dense networks, *liaisons,* who are loosely connected to peers, and *isolates,* who are relatively unconnected with others (Kobus & Henry 2010). Some studies being a user is mostly connected with being a *member* of a dense group, while other studies argue users are predominantly rather *liaisons* who are loosely tied to the network(Kirke 2006; Kobus & Henry 2009). As Kobus and Henry (2010) suggest a possible explanation might be that these *liaisons* have more social ties than *members* or *isolates*. Having more social ties might make it easier to obtain cannabis as well (Kobus and Henry 2010). Network studies including positional analysis point to the importance of brokers in the search for information or goods (Granovetter 1973; Burt 1992). To date, no research focuses on the position of suppliers in these networks. *Social supply* research suggests suppliers can take multiple roles, one of which being a *go-between* or *broker* (Werse 2008).

3   Supply as a tie formed by supply interactions of ego-alter and alter-alter

A network view on *social supply* discusses *social supply* in terms of a tie between users and suppliers. Previous research indicates that supply can take different forms, ranging from *dealing* to *sharing*. Therefore, I argue that *social supply* is but one variation of a broader supply tie (e.g. Coomber & Turnbull 2007; Hough et al. 2003). In order to further explore the concept, I study the complete tie between respondents (further referred to as *ego*) and members of their personal network (further referred to as *alters*). This tie combines both a social relation and some form of exchange relation. This tie is situated within a wider personal network which encompasses all people that are involved in cannabis use or supply. The ties between these alters, besides their ties with ego, form the relational context which also influences ego's attitudes and behaviour.

3.1 Social relation

Literature suggests that not only the existence of the relation but also the strength of a social relation shapes the structure of a network. Existing research refers to suppliers in terms of *friends, family* or *acquaintances*, but remains vague on further nuancing what is meant by friends or acquaintances or even family (Potter 2009). Social network analysts suggest concepts like *friends* or *acquaintances* are far too subjective to use as they may take different meanings for different actors or even for the same actor under different circumstances (Crossley 2010). Instead, I focus on closeness indicators like intimacy and support (Mashek & Aron 2004).

3.2 Exchange relation

The exchange relation refers to the exchange of cannabis and the reward that is given. This type of relation is inherently part of the *cannabis network*, the part of the *complete network* where which cannabis is used and exchanged[2] An exchange relation is founded in complementary needs (in this case cannabis and a reward) that should be satisfied by the exchange. Literature on *social supply* indicates that this reward sometimes seems to be absent or non-monetary (Parker 2000; Harrison et al. 2007; Coomber & Turnbull 2007; Werse 2008; Hough et al. 2003; Potter 2009). Network analysts refer to these relations as *communal relations* where benefits are given in response to a need and out of concern for the welfare of the other person. In such relationships, receiving benefits does not create a specific obligation to return a comparable benefit, as it

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[2]In my study names of network members of the personal network of respondents are generated in two steps. The first name generator focuses on the *complete network*. Respondents name exactly 25 people who they spent leisure time with (e.g. going to pub, playing sports, family members…) during the three months prior to the interview. The second name generator focuses on the *cannabis network*. This particular network includes any person who was present when respondents used cannabis during the three months prior to the interview. This network includes suppliers, people as well as people who do not supply, users as well as non-users. Respondents can add any number of people. As such, *cannabis networks* include members of the initial *complete network* and/ or new people respondents mainly interact with in the context of cannabis use and supply.

does in exchange relationships (Clark & Mills 1993). However, Batson (1993) already suggests exchange principles might be present in both exchange and communal relations. The difference between these two types of relations might be less clear-cut than anticipated (Batson 1993). However, there is a wide continuum between communal and exchange relations. In order to explore the existence of this type of relation, different types of supply patterns are examined: gift giving, receiving, selling, buying, sharing your own cannabis and sharing someone else's cannabis.

3.3 Structure

As described above, the composition of the personal network of ego is studied through individual attributes as well as the study of the tie between ego and alters. Network analysts argue that behaviour and attitudes are not only shaped by ties between ego and alters but also by the ties among alters, or structure (Marin & Wellman 2011). To gain further insight in this relational context of supply ties, the internal structure of both the *complete* and the *cannabis network* is studied.

Personal network studies make very limited use of structural measures due to the fact respondents are often not able to adequately remember ties which they are not part of (Bell et al. 1998). However, studies that do integrate structural measures argue that density and centrality measures give valuable information about the social world of the network (Snijders et al. 1995; McCarty & Molina ; McCarty 2002). To gain some knowledge about the structure of the *complete network*, respondents are asked to indicate whether, to their knowledge, alters know each other apart from ego. Additionally, the structure of the *cannabis network* is examined by questioning whether, to the knowledge of ego, alters use cannabis together without ego being present. Besides these alter-alter relations, the position of key actors is further explored. Based on the above described research on the position of users, and the description of social suppliers as "brokers", I explore how respondents describe different roles they or other network members adopt. In doing so, these interchangeable roles are examined further.

4   Supply as a process of exchanging cannabis and reward

Social supply, as described above, is considered a specific pattern of supply. The supply tie between users and suppliers encompasses a social relation and an

exchange relation. In line with Crossley (2010), we argue that this supply tie is neither absent or present, nor uniform because ties are not passive, but involve a unique history of interaction and take on different meanings for different actors (Mische & White 1998). This history of interaction created and continues to create a "social world" of shared meanings and knowledge which affects the way network members interact. This way we explore the nature of the supply tie between users and suppliers.

4.1 Process of exchanging cannabis

As both the social and exchange aspects are intertwined in one tie, I opted to explore this tie through a study of supply experiences. Therefore, the actual process of exchanging is examined. This process includes the initial motivation, the different actions undertaken to exchange cannabis as well as the result of these actions. Possible results include exchanging cannabis and rewards as well as being referred to a different person. As such, social supply, or any kind of supply in that matter, can benefit from studies into network agency (Giuffre 2013) as well as Kirke's (2006) network study into the diffusion of illicit drug use in networks of teenagers.

Drug market literature as well as network studies indicate that both motivation and the process of acquiring are shaped by aspects of individual rational actions as well as a complex peer-influencing process (Aloise-Young et al. 1994; Bauman & Ennett 1996; Coggan & Mckellar 1994; Cullen 2010; Kirke 2006). My study acknowledges this, but does not aim to disentangle the extent to which peers and/or individual ratio influence the decision to obtain or to supply cannabis. In order to study social supply in depth I focus on the actual process. I acknowledge that motivation is an important part of this process, but aim to describe the process as a whole, ranging from motivation till the resulting exchange.

The process of obtaining cannabis for example encompasses a search for information which can result in a further forwarding to other people, a positive answer or a negative answer. Although dating back to the seventies, Lee's study into the search for an abortionist is an important example of how issues of access, issues of agency as well as issues of trust come together when looking for information about something you perceive as not accepted by the society as a whole (Giuffre 2013; Lee 1969). In case of the last option, the process is repeated until a positive outcome, in our case cannabis, is received. During this search, individuals can use information provided by other sources or take initiative themselves. For example, basic factual information and gossip is information

provided by other sources (Lee 1969). In our study this entails for example all factual information about cannabis, its use and its supply. The second level refers to the shared stories about technical knowledge and sensible use (Pearson & Michell 2000; Duff 2005; Aldridge et al. 2011). It is this process that creates the network, and meanings and shared histories are further diffused. In dense networks where a lot of information on how to obtain cannabis, individuals are less likely to search for information within their network. If there is little or no information present, individuals will have to find a way to enter into another network in order to find information (Giuffre 2013). As described above, I do not consider users to be purely rational actors nor completely influenced by their peers. Rather, I explore the process of being influenced by existing meanings and shared stories as well creating further histories through interactions.

I study this process through supply experiences. In line with the discussion of the exchange tie above, this includes a discussion of possible outcomes.

From the cannabis user's point of view, the process is visualized as follows:
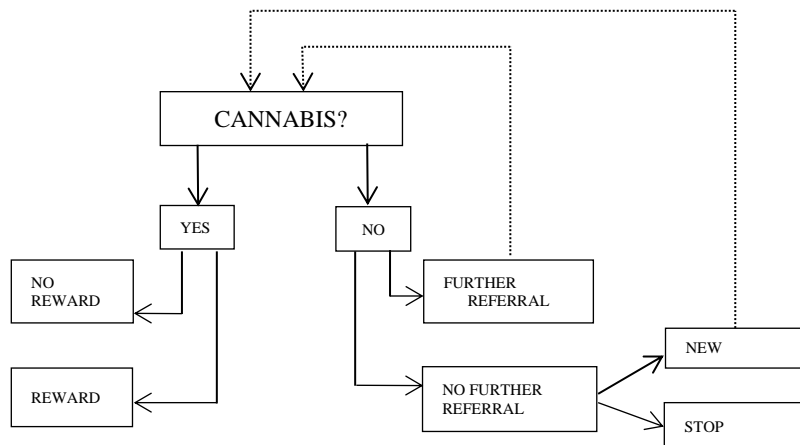

Figure 1   Exchange process of cannabis

The illustration above depicts several outcomes. When cannabis is present, a user can either obtain cannabis or not. Not obtaining cannabis can result in a new question to another person or a *further referral*. Based on the above described research on the importance of brokers (e.g. Morselli 2009), personal experiences as a broker or go-between will shed a further light on the position of key actors in the personal network of the respondent. If respondents describe a

specific alter or alters as go-between, we also address the reasons why certain people are contacted and why certain other people are not. This informs on the barriers of communication as well as about who respondents perceive or appoint as experts concerning supply (Lee 1969).

Obtaining cannabis can follow different patterns: dealing, swapping, gift giving, sharing or something else. Besides a description of these different patterns, I focus on the issue of *dealing*. Supply studies indicate respondents differentiate between suppliers and "real dealers" (Potter 2009; Hough et al. 2003; Coomber & Turnbull 2007; Coomber 2006). A key element in the discussion of supply patterns concerns the issue of a *reward*. This reward can be monetary or not. Coomber and Moyle (2014) studied the issue of exchanging money. According to them, a *social supply* relationship can involve a transaction of money but only to the extent this money is intended to cover the costs associated with the own procurement of the drug or the growing process (if the supplier sells home-grown cannabis). Profit therefore is defined by the intention to make money to cover other costs of living (e.g. hedonistic lifestyle, rent, food…). In this context, Coomber and Moyle extend the concept of *social supply* to *minimal commercial supply*. Personal perceptions on rewards and different types of supply can be explored through a discussion of personal experiences.

4.2   Context of supply experiences

Supply experiences are situated within the context in which they take place. In line with previous studies on the social context of smoking, the circumstances in which current supply came to being and takes place now are discussed (Amos et al. 2004; Michell & Amos 1997; Cullen 2010; Highet 2004, 2003; Bell et al. 1998). These circumstances are situated within a *social setting* as well as a *collaborative setting* where the actual exchange takes place.

Drug market research further argues that informal controls are part of the *social setting* that shapes the way how cannabis use is experienced. *Social supply* research situates supply in a *social* setting and cannabis use should be considered as a *social* event (Coomber and Turnbull 2007; Harrison et al. 2007; Parker 2000). One way to address this social setting in a personal network study is through a discussion of the actual physical location where cannabis is used.

Obtaining or supplying cannabis takes place in a *collaborative setting* where secrecy and security are evaluated against each other. Research also indicates that particular places can be associated with a feeling of safety or can be avoided because of fear of detection (Shewan et al. 2000). To date, little network research integrates this aspect in the study of substance use (Oliver et al.

2014). However, network research of drug markets does indicate that the trade-off between secrecy and security influences the focus of their social organisation (Morselli 2007). Especially at the moment when there is activity, meaning when substances are acquired or supplied, the level of trust and secrecy will be balanced against efficiency in what Morselli describes as "*risky collaborative settings*" (Morselli et al. 2007).

5   Conclusion

Social supply contributes to our understanding of the social aspect of different patterns of supply. However, to date there remains room for debate on what this social aspect is actually about. One way of putting it, is to consider suppliers as *friends* or *friends of friends* who supply cannabis. A definition of who these friends or friends of friends are is very subjective (Crossley 2010). Therefore, it is particularly difficult to compare different accounts of the social aspect of supply.

Aiming at understanding and clarifying the grey area that still surrounds *social supply*, I argue that supply research could benefit from the network perspective. This network perspective implies a particular view on drug markets in general, but also on more specific supply patterns.

Network studies on drug markets argue networks in drug markets exist in multiple forms (Dorn et al. 2005). Some consider networks as a specific form of social organisation within the traditional upper, middle and lower level of drug markets. Others argue drug markets also can take the form of one large network, that combines loose partnerships. Network studies on the position of go-betweens or brokers confirm that drug markets rather exist of loose partnerships than as a strict vertical organisation. One characteristic of such an organisation is the interchangeability of roles (Giménez-Salinas Framis 2013). Accordingly, we situate supply in an ever changing, dynamic market where suppliers are not only take the role of supplier at one moment, but take on one or more different other social roles (e.g. user, 'not being a user', friend, family member, colleague) at a different moment or even simultaneously (e.g. a friend who is also a supplier takes on both these roles at the moment cannabis is exchanged).

A network view of the nature of supply is further completed by an understanding of networks as embedded and multiplex (Papachristos 2012). In line with the two sides of social supply –the social and commercial aspect– we argue that a supply relationship is multiplex in nature. Furthermore, the mere presence of a social aspect supports the argument that supply ties are embedded in more than one social circle at the same time. For instance, suppliers are, besides being

in an exchange relation, sometimes also family members who participate in other social activities. That way supply ties overlap personal as well as what Papachristos (2012) refers to as *criminal* social circles. Furthermore, the tie between these egos is multiplex as the exchange and social relation exist simultaneously.

Studies of users' networks also deepen our theoretical understanding of the composition of networks in which cannabis is present (Haynie 2001; Papachristos 2012). Research into the multi-faceted nature of peer influence indicates that networks are composed based on prior homophily of age and gender, rather than substance use (Kirke 2006). Studies into the position of suppliers and users, again, point to the importance of brokers or go-betweens in the process of exchanging cannabis (Werse 2008; Burt 1992; see also Werse & Müller and Werse & Bernard in this issue).

Based on the above considerations, I propose a conceptualisation of supply as part of a broader multiplex tie:

> Supply is a *transaction moment* which is the result of an *exchanging process* and can take *multiple forms*. Supply is part of *multiplex ties* between *two individuals, embedded* in multiple social circles, part of a *collaborative setting* and shaped by the wider *relational context*."

- *It is a moment*: Supply basically is the moment where a "good" (e.g. cannabis) is transferred from person A to person B. The roles of person A and B are interchangeable, at one time person A is the supplier, at another moment person B is the supplier.
- Which is the result of an *exchange process*: supply is the result of a process, which can be instigated by person A asking person B for cannabis or person B offering cannabis to person A. In both cases the answer of the other person can be either yes or no. If the answer is no, one can be referred further, start a new search or decide not to use or supply.
- Which *can take multiple forms*: This moment can take different forms. Each of these forms is described in terms of motivation, location and people involved. As a result, a reward might be exchanged. This reward can be monetary or non-monetary.
- This moment *is part of multiplex ties*: The relation between those involved is characterized by a relation that has a certain level of closeness and is to a certain level goal-oriented. The social relation can exist outside of the transaction. Sometimes this "relation outside of the transaction" barely exists.

- Between *two individuals*, at that time user and supplier. However, these are not the only roles these individuals occupy as they often are friends, colleagues or family at the same time. Sometimes this relation takes place through a referral. These intermediary people are often users who happen to know somebody in a different network and arrange for other users.
- *Embedded*: Supplier and user are part of different social circles at the same time.
- Part of a *collaborative setting*: At the time when cannabis is exchanged, the perceived level of trust and secrecy can be balanced against efficiency and influence the process of exchanging cannabis.
- *In a wider relational context*: It is part of a wider context which consists of existing stories about how to use, how to get or grow, which amount should be bought and what is an acceptable price. Actors in the network have relations among themselves. Sometimes these are also supplier-user relations.

To conclude, I would like to emphasize that this concept is the result of an elaborate literature study. At the time of the publishing of this chapter, the author is has developed a computer-assisted personal interview to examine the composition and structure of personal networks in which cannabis is present. A group of 50 respondents created together with the researcher their network in a software programme. Simultaneously, the meaning of supply ties was explored.

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