And we Shall Spend the First Million Together.
Narrative as basis for a case study research process.

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Abstract: This work depicts the methodological rationale of a research about open innovation in SMEs. The general objective of the study is to understand how identity strategies determine the adoption and success of interactions among innovation practitioners, enabling open innovation to succeed among small firms and becoming an essential part of their business and informational strategy. The article aims at describing the choice of a specific qualitative approach, case study, linked to actor-network-theory epistemological background, as the study involves a series of innovation actors, and how narrative inquiry is chosen to be the most adequate approach to retrieve the information a case study needs to set its methodological pillars.

Introduction

In *Laboratory Life*, Latour and Wolgar ask a significant question related to causal relationships: "(…) does the formation of social groupings give rise to the pursuit by scientists of certain intellectual lines of enquiry, or does the existence of intellectual problems lead to the creation of social networks of scientists?" (Latour and Woolgar,1986: 25). We can bring in the same issue related to open innovation (OI) in SMEs: do certain social groups enable the development of OI processes; or instead, are those processes and their objectives the reason why certain networks of open collaboration come up and work? And *how do these networks structure themselves, which identity issues allow for an OI - collaboration process*. This is the general frame for this study, and the present work is a debate on the methodological structure chosen to approach the issue. In 1, a brief review in OI is presented; in 2, we describe the qualitative settings chosen, introducing actor-network theory (ANT) and its adequacy to methodological needs, related to case study approach; in 3, a short review is presented about narrative and the way it is useful to that proposed case study approach; in 4, basis both to case study development and narrative, an unstructured interviewing' debate is issued; in 5 we discuss triangulation and analysis implying a set of different approaches to the same discourse; 6 presents two exemplary stories retrieved through one single case, selected as foundational narratives for certain identity issues; in 7 discourse analysis is proposed for those stories; 8 presents conclusions.

1.   A brief review

Open innovation (OI) is originally an open-system' approach defined as "the use of purposive inflows and outflows of knowledge to accelerate internal innovation and to expand the markets for external use of innovation, respectively" (Chesbrough, 2003: 2). It seems framed by the *Zeitgeist*[1], though probably it has always been indispensable to industrial SMEs. While building a proposition for OI research pathways, West, Vanhaverbeke and Chesbrough say that "Open innovation is both a set of practices for profiting from innovation, and also a cognitive model for creating, interpreting and researching those practices. Some of these practices are not new." (2006: 3). OI implies the need to face a global economy, competition and alternative markets (Dahlander and Gann, 2010; Herzog, 2011), technological complexity (Herzog, 2011), but it also means facilitating standards and collaborative technologies (Dahlander and Gann, 2010) allowing for information flows; If closed innovation implies control (Chesbrough, 2003a; Herzog, 2011: 19), OI accepts interesting human resources might be outside the firm, in a reference to work changing patterns (Dahlander and Gann, 2010), knowledgeable to create complex outputs (Herzog, 2011). Pénin reinforces the concept based in knowledge flows, and calls for a voluntary release of knowledge by firms, open and available to all

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[1] Spirit of the time.

those participating, collaboration which is continuously reproduced through interactions among stakeholders (Pénin, 2008).

External innovation must be followed by an inside process, so ideas can be best used (Herzog, 2011); Intellectual property rights (IPR) call for an adequate management among all parts involved (Herzog, 2011) explored as well as venture capital (Dahlander and Gann 2010). Strategy and business model have to be enhanced prior to reaching the market (Chesbrough and Schwartz, 2007; Chesbrough and Appleyard, 2007; Herzog, 2011). While seeking for a more precise definition of openness, Dahlander and Gann also conclude that innovation itself has always been somewhat open, and that there's a need to know openness better through qualitative and quantitative methods, to know how decision processes work, exploring product/ technology life-cycles and their relation to an OI framework - and, finally, how different forms of openness combine.

Saguy tells us about a needed change not only in strategy but also mindsets, if we want to understand OI issues related to the approach done to academia-industry relationships, IP and other entities involved (Saguy, 2011). This implies considering key elements such as the close academia participation in industrial development, which networks set the stage, support for fundamental and applied research, unravelling intellectual property (IP) issues, managing human resources. The present work focus is on these *value generating networks* (Hall; 2001) or *interorganizational value networks* (West, Vanhaverbeke and Chesbrough, 2006: 15), forms "of open innovation (...) in several configurations or typologies" (Skandon, 2011: 85), integrating public and private sector "across fields, sectors and technologies" (OECD, 2008: 5). Preceding Pénin and is knowledge perspective, Hall says that "If the network is to replace the firm as the unit of analysis, perhaps we should be concerned with a knowledge based view of the network" (Hall, 2001: 150).

Skandon states that "trust-based relationships" in innovation networks reduce risks and costs and can prolong relationships (Skandon, 2011: 85; see also Lee et al., 2010). In SMEs collaboration, "(…) personal relationships play a crucial role, collaboration rules are usually informal, and trust oils the cooperation." (Vanhaverbeke, Vermeersch and De Zutter, 2012: 11) in which the intermediaries participate. An intermediary is "an organization or a body that acts as an agent or broker in any aspect of the open innovation process" (Howells, 2006: 720). Though Hossain refers to OI intermediary platforms (Hossain, 2012), ours depart from human actors in each network, but not only, as in OI "a wide range of heterogeneous actors interact through formal and informal alliances" (Pénin, 2008: 2). The whole approach relates to SME and micro-firms' networks, the relevant economic tissue in Portugal (considering OI in SMEs an urgent issue, as already described by other authors[2]).

2. A way to a case study: each case a network

While Yin describes case study as a research strategy, more adequate to *hows* and *whys* (Yin, 2003), authors like Schrank (2006) consider it a research design; different data sources become implicated, as well as different strategies for information retrieval and analysis are gathered. This means triangulation, to "confirm and deepen understanding by using multiple sources all focusing on the same process/ event" (Woodside, 2010: 1). This means it can be difficult to circumscribe units of analysis: as Yin states, case study approaches contexts, so "the boundaries between phenomenon and context are not clearly evident" (Yin, 2003: 13).

Case study is defined in many different ways, but methodological principles are indispensable to frame cases through concept formation (it is based on theoretical sampling) and causal mechanisms underlying the case. The epistemological need to establish a distinction among qualitative and quantitative approaches, no matter both can be used (Schrank, 2006a), doesn't avoid misunderstandings when regarding quantitatively to qualitative approaches (see also Woodside, 2010 for this matter):

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[2] See references to this urgency in research report by Vanhaverbeke, Vermeersch and De Zutter (2012); for a work about SMEs in other context, see for instances Jahja, H. and Wirawan, C. (2012) "Open innovation implementation to sustain Indonesian SMEs", International conference on small and medium enterprises development with a theme "Innovation and sustainability in SME development" (ISCMED 2012), *Procedia Economics and Finance*, 4: 223-233.

"[quantitative] fundamentalists tend to assume (...) that [qualitative] researchers can adopt - or at least mimic - their preferred mode of analysis by examining ever larger samples of cases.(...)" (Schrank, 2006: 22).

This derives from a fundamental misinterpretation of case-based research objectives, which in fact relates to a deeper understanding, an inside perspective of processes (Schrank, 2006), a number of factors influencing contexts and actions, such as identity-related ones, as in the present study.

Case study can focus on a specific setting, such as interorganizational networks: that is the case. An actor-network theory approach is chosen (Latour, 2003), as a coherent ontology to join network-based cases, with narratives that allow for their structuring and identity as a central issue. ANT seems particularly adequate to give significance to OI processes, as essential network actors. Elements can become actors and also withdraw from the network: actants can become actors, but actors can be "reduced to the role of an actant (an object of the network's action)" (Czarniawska, 2009: 429). Discourse becomes, then, the narrative basis for these networks' evidence.

3. Clues for reassembling

Boje (2001) describes a set of narrative methods, retrieving information of antenarrative as "*the fragmented, non-linear, incoherent, collective, unplotted, and pre-narrative speculation, a bet, [on which] a proper narrative can be constituted*" (Boje, 2001: 1). Author refers to Aristotle's definition of the so-called proper stories as linear, coherent and based on one narrator (Boje, 2008a). But he chooses his perspective according to Czarniawska's non-linearity, fragmentation, distribution and collectiveness. In 'antenarrative' (Boje, 2001), storytelling becomes a promise, something Latour (1996: 119) shapes as a 'whirlwind' (maybe thinking of a spiral-shaped narrative?), including a chronological and causal sense, often implying uchronic beneficial reviews of the protagonist's path (Woodside, 2010). While building one "scientifiction", Latour states the importance of contradictions (Latour, 1996a: 7). Retroaction and translation are relevant to understand the social context for technology, reassembling social meanings over different contexts (Latour, 1996a) and using a method assemblage which selects what will be kept in-here and what will be absent out-there - as a complexity-survival kit (Law, 2004: 13 and following).

Boje signals a set of analytical tools to understand a story, such as deconstruction analysis; the search for a "regime of truth" (Brown, 1991: 192-3) and the logic of specific social contexts; and a network analysis, where the author states "it's not about mapmaking, it's about the living relations" (Boje, 2001: 62). All stories imply a certain network analysis, when trying to translate links behind discourse. But Boje also explores d) intertextuality, antenarrative understood as fragments referring to each other and to other texts; e) causality, search for links between thoughts, understanding results but also looking for the "why"; f) plot analysis, seeing the underlying pattern hidden in a set of events or in a network of relations, which altogether defines a narrative structure and theme analysis, as "theme analysis without antenarrative would divest story of time, place, plurality and connectivity." (Boje, 2001: 122).

If we depict discourse in a spiral way, from categories to their significance, from significance to a frame for our study as some authors propose for the method process itself (see Gobo, 2008, on ethnographic method) - it allows us to unravel juxtapositions of evidence portraying complexity. So we propose to assemble methods on the same discourse basis, digging its significance from categories to context. This implies that discourse produced has the minimum boundaries possible, so the "hinterland of indefinite, necessary but hidden Otherness" (Law, 2004: 14) can be explored. Narrative is expected to allow for the outlining of OI actor-networks, as well as their determining identity features.

4. Some good reasons for long unstructured interviews

Should discourse analysis be an "umbrella term resulting from a multidisciplinary set of theoretical-methodological approaches" (Tracy and Mirivel, 2009: 153), it implies in any case an interview, a conversation

among the research participant and the researcher. We can find a triangulation process, related not exactly to ways of information retrieval, or sources of information, but related to the built up of the epistemological nature of the object of study. It is in fact based on assumptions; a discourse related to them and finally analysis, which supposedly brings together two previously parted information chunks: that in our head and the one laying in our subject's head and life path. "Discourse (…) refers to actual instances of talk (or written texts)" (Tracy and Mirivel, 2009: 154) expected to expose how subjects think about the social.

What is coded and analyzed are cultural and social practices; episodes related to stories told; encounters, social roles, relationships, contexts and groups, etc. (Saldaña, 2009). In our study, due to the choice of a non-structured interview approach, coding becomes a more relevant issue to drive the research case as thematically needed.

5. Triangulation, assemblage, translation

About fact-production status in a narrative, Czarniawska states

> *"It is (…) up to the researcher to check the production certificate (by many well-known method like comparing stories, checking written documents, doing source analysis, etc.) or else take part in the production – that is, making this checking process part of the research results." (Czarniawska, 2004: 132).*

Triangulation is indispensable to case study methodology: can be that of data (different sources), of researchers (different interviewers), of theories and Denzin's method triangulation, within or between methods (Flick, 2004). The intrinsically relational condition of ANT (Saldanha, 2003) also adds for the need of triangulation, as a condition to perceive relations among actors (humans and nonhumans) of a network. All these are applied in this work, including source triangulation - interviews, documents available online, accessory information given by people; method triangulation - worked in several different ways, providing either a narrative of events, stories, or the basis for a different comprehension of processes, through discourse analysis.

Besides the ANT definition for translation, as previously mentioned, we can figuratively associate translation to coding (Saldaña, 2009) and interpretation, or (more) literally associate it with languages, implicit and explicit as in the current work, considering authors are Portuguese, and most interviewed people are Portuguese or at least interacting in Portuguese during interviews. Anyway, translation reinforces its centrality in this work, and strengthens the epistemological principle that researchers consider themselves network actors.

6. DaFRM, an open innovation practitioner[3]?

We have two research questions for the whole study: *How does an SME adheres to open innovation practices to improve its business activities*? And *how relevant and complementary are different identity-determined processes aiming at open innovation practices*? Both were tested in a first exploratory case about an industrial SME, working in waste management industry: Rvolta[4], a case published in 2012 (Cardoso and Ramos, 2012). Case shows a network of SMEs and includes research institutions, PT and US labs; associations and customers, besides other elements determining the OI process itself. Issues raised include details about business management, context, work processes and IT; also interaction, where we found specific references about trust, business friendship for R&D, a reference to a "business-customer relation that allows for a R&D

[3] Key definition adopted: "A player who introduces ideas, shares knowledge, risk, transfers contexts and occasionally earns business profits in open innovation grounds" (Cardoso and Ramos, 2012: 98).
[4] Rvolta case research participants authorized disclosure and reviewed all information chunks resulting from interviews.

user-driven test over an innovative issue" (Cardoso and Ramos, 2012: 98).

This case is about another industrial SME, DaFRM[5], working with lightweight engineering structures and having recently won a prize at one of the most important Portuguese innovation contests. DaFRM was established in 2006 to make R&D on lightweight structures based on a proprietary sandwich panel technology. The company is established at the same time its owner invents a specific lightweight panel. Among its partners we can find an important aircraft manufacturer, or a European OEM[6] of global impact. From information retrieved through interviews two stories were produced, based on two interviews to BC, about DaFRM, together with other information gathered, having a specific value to our analytical basis. Both episodes are temporally and causally connected (Czarniawska, 2004).

6.1 Stories told and the network establishment

6.1.1. Total risk

In the first story, we can observe the unfolding of a specific translation event, as risks are a requisite for the SME to become an actor in the center of a macro actor, the network (Latour,1996). This story substantiates an alternative definition for OI, already proposed in the Rvolta case: the "development of risk-taking knowledge share among firms, so dynamic interactions based on mutual trust allow for shared innovation" (Cardoso and Ramos, 2012: 98).

> Well, I have two possibilities of finding a partner with whom to develop this technology… either he is a raw material producer, or instead he is what we call an integrator, meaning a technology user… so I decided to approach the raw material producers, why? because that way I would have a larger range for potential application… if I chose a train manufacturer as a partner, I would only be able to fabricate trains… on the contrary, raw material can be converted into a lot of things… but then I hesitated, what would be the best cultural context to approach, in an open way, at this rather delicate stage? Cultural context meaning country, business… because for instances… their country is quite aware of open innovation, there is respect and business ethics… and companies are reluctant of being unethical there… so I decided, there are huge enterprises for raw material, that would be very interesting, but what if I got there not having previously my IPR, my patents, my contracts, my lawyers… and then one day I got frightened because I understood the idea was of an extraordinary value, a prospective impossible to determine, it is a platform technology with a lot of connections, because companies I'm telling you about are 7 billion' and 10 billion' companies… suddenly we're not talking about 300 million' or 500 million' companies anymore… they're global companies… and at the heart of this whole mess, while deciding if I would talk to aluminum or steel's OEM, because it could be either of them… well, I made some contacts but people aren't always easy to get to, and I told myself "I have a month to decide this issue, I cannot take six months"… I didn't even have a patent… so it was a total risk, when I decided to share the information, well… it was at my own risk, I talked to people I knew, companies I already had relations with, some awarded me, and so there was common respect, confidentiality, I didn't even know what a NDA[7] was at that time … I started as an entrepreneur without the faintest training, and what I have nowadays is experience… but I've been an entrepreneur all my life, so… inside the companies I worked in … I've been an innovator all my life, and everybody listened to me…

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[5] The research participant asked for complete anonymity; names are aliases and all information chunks retrieved from the interviews were previously validated by DaFRM research participants.
[6] Original Equipment Manufacturer.
[7] Non-disclosure agreement: "is a legal contract [between partners], not to disclose information [shared] for a specific purpose, allowing businesses to approach potential partners, suppliers, customers, etc., knowing that information cannot be legally passed on. This can be used to share intellectual property, commercial information, business plans, etc."", in http://europa.eu/youreurope/business/competing-through-innovation/protecting-intellectual-property/united-kingdom/index_en.htm, [14.2.2013]

and all my life I co-created with costumers, so I found two or three names related to KTK[8] and sandwich technology and I took an enormous risk, I sent a jpeg with my idea, something you can understand in three minutes, any guy knowing anything about this looks at it and says "Jesus"… and I sent an email saying, "Dear friends, I believe you should want this, tell me about it"… and I just knew I chose the right partner when I read the answer: "the last ten emails we got… we were lucky enough to read yours, the idea is so evident, of course we had to answer you… you should come here, we should meet, we want to talk to you".

6.1.2. Belonging

The second story shows us another translation moment, where thanks to previous risk-taking event and therefore the increase of trust as an essential element, DaFRM becomes a *pilot enterprise*, meaning a "partner firm working as R&D platform" (Cardoso and Ramos, 2012: 98), from this moment on, to another company, KTK.

After taking a total risk contacting them, they called me. I took a plane and went there, people were expecting me: the ones who work with these structures, the company vice-president - and R&D chief -, we had a meeting whit an official record minute, and so they just tell me: "We want this"… and I answered, "well, its yours"… we shook hands and then talked details, and afterwards we started an intellectual protection deal, made the invention assignment… anyway, we had some issues to solve, because I wasn't their employee, I wasn't a national, so neither ruled by their company in IPR and invention matters, nor by their laws like one of their citizens (innovation is an issue quite detailed in their work laws, as a matter of fact)… so we had some difficulties to bend, they applied the employee process without me being one, I didn't give a damn about financials, they paid me a small amount as they would to one of their own, and so I told them: "this becomes your invention, you invest in intellectual property, basic technology, so you'll finance it… so you're going to finance it and we shall spend the first million together, I'll share it with you… and in return I want a royalty free license, for my own future companies, for all materials".

7. Info generation and analysis

Broom, Cheshire and Emmison stress that qualitative data is generated instead of collected, "being co-produced by the researcher and research participants" (Moore, 2007; Broom, Cheshire and Emmison, 2009: 1165). So being, data generation is also produced through the researcher participation in this network, if we understand it as an actor-network where every actant can be implied (Latour, 2003). It is a relevant epistemological standing point to sanction a certain degree of freedom in discourse structuring and narrative, as a contribution for translation. Each network generation process is associated to Latour's translation as transformation, mediation, the actor-network formation, the way by which strategies intertwine so to adapt to a network where some degree of common sharing gets established: the object of study. Referred by Latour (1996), and implying this ANT approach, translation becomes a rather important issue for this case, as narratives set up translation moments for an interorganizational OI network, in its most crucial aspects - including actors, risks, intellectual property, trust and the whole network itself, as previously mentioned.

The primary coding method used (Saldaña, 2009) was a simple word cloud (through IBM word cloud), and the second coding was also based on theme information from the first coding, working the transcription discourse

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[8] Another alias, this time a company in DaFRM network.

through Cmap and NVivo[9].The process of generating (in the course of an interview, for instances) and afterwards analyzing discourse, mediated through researchers, is evident in Figure 1, where Portuguese words aren't yet language-translated.

Figure 1: A word cloud in Portuguese, prepared to anticipate themes for discourse analysis over the first interview (before the second one). We can observe words such as "*fazer*" (to do), "*inovação*" (innovation), "*empresa*" (business company), "*tecnologia*" (technology), among others we dare suggest the reader to *google-up*.

Discourse analysis can be based on ethnographical methods (Atkinson, Okada and Talmy, 2011). It shows adequacy to this specific object of study, but also to the relational perspective proposed by ANT. The fact that either ethnography and ANT look, at least partially, for an *emic*-based approach meaning "as understood by [actors] themselves" (Atkinson, Okada and Talmy, 2012: 86) makes it particularly adequate. Even if that means a reification exercise... every ethnographer spends a share of his/ her courses dismantling reification tricks, so reification as an ontological proposition (related to the essence of actants, that can be nonhumans as well as humans), will only be a daring exercise.

After the first analysis shown in the word cloud, pointing some of the issues to approach in a second interview, discourse categorization shows other relevant issues. One is the voluntary release of knowledge mentioned by Pénin (2011), mixed with trust (Skandon, 2011; Cardoso and Ramos, 2012) through the partnership choice - *I have two possibilities of finding a partner* (BC1: 1) and confirmed –"*Dear friends, I believe you should want this, tell me about it"… and I just knew I chose the right partner when I read the answer* (BC1: 32). Participants state the importance of having a strategy (Chesbrough and Schwartz, 2007; Chesbrough and Appleyard, 2007), as in *[If] I chose a train manufacturer as a partner, I would only be able to fabricate trains* (BC1: 5); perceived relevance of cultural factors is also apparent (Herzog, 2011): *what would be the best cultural context to approach, in an open way, at this rather delicate stage?* (BC1: 7), including some specific cultural issues such as time - *I have a month to decide this issue, I cannot take six months…* (BC1: 18).

The value of the idea is evident to our eyes: *I got frightened because I understood the idea was of an extraordinary value* (BC1: 12) and the need to safeguard it, including through IPR such as in what *if I got there not having previously my IPR, my patents, my contracts, my lawyers (*BC1: 11), or *I didn't even have a patent… so it was a total risk, when I decided to share the information* (BC1: 19) and *I didn't even know what a NDA[10] was at that time* (BC1: 22) (all OI authors normally debate IPR), associated with the risk perception and inherently with trust (Skandon, 2011; Cardoso and Ramos, 2012) as in *I took an enormous risk, I sent a jpeg with my idea, something you can understand in three minutes* (BC1: 28); the entrepreneurial capacity - *I*

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[9] Cmap is a concept mapping freeware, created by the Florida Institute for Human & Machine Cognition, at http://ftp.ihmc.us/. NVivo is a qualitative and mix-methods research software from QSR international, at http://www.qsrinternational.com. IBM Word Cloud generator works offline, what is quite adequate for confidentiality and information safety purposes.

[10] Non-disclosure agreement: "is a legal contract [between partners], not to disclose information [shared] for a specific purpose, allowing businesses to approach potential partners, suppliers, customers, etc., knowing that information cannot be legally passed on. This can be used to share intellectual property, commercial information, business plans, etc."", in http://europa.eu/youreurope/business/competing-through-innovation/protecting-intellectual-property/united-kingdom/index_en.htm, [14.2.2013]

started as an entrepreneur without the faintest training (BC1: 23) and associated with credibility, the innovative capacity, *I've been an innovator all my life, and everybody listened to me* (BC1: 25) - also as co-creator all *my life I co-created with costumers* (BC1: 26).

The second story reinforces the strategic approach together with investment issues, in *this becomes your invention, you invest in intellectual property, basic technology (…) and in return I want a royalty free license, for my own future companies, for all materials* (BC2: 12). But it also reinforces trust issues, through the meeting episode: *we had a meeting whit an official record minute (…) we shook hands and then talked details, and afterwards we started an intellectual protection deal, made the invention assignment* (BC2: 3), again clearly mixed with IPR issues. This story comprises a curious cultural process, related to the way innovation can be framed (hardly): *I wasn't their employee, I wasn't a national (…) so we had some difficulties to bend, they applied the employee process without me being one* (BC2: 7).

8. Concluding on case-based grounds

Both stories retrieved seem almost aristotelic in their linearity; they introduce two relevant moments for DaFRM case, translation moments, meaning those which constitute and give structure to an innovative macro network, which essentials are presented. But the DaFRM case also demonstrates matters previously approached by Rvolta case, including issues such as trust (Lee et al. 2010, Skandon, 2011; Vanhaverbeke, Vermeersch and De Zutter, 2012; Cardoso and Ramos, 2012) and strategy (Chesbrough and Schwartz, 2007; Chesbrough and Appleyard, 2007). The following analysis depicts category replication between the exploratory case and the present. Czarniawska states (when analyzing the emergence of the London School of Economics) that a network as a macro actor can comprise "entrepreneurs, a name, rented rooms, a prospectus, money, staff, students, media testimony: a set of actants in place" (2009: 429). So like in a spiral process, these analytical levels also seek to display the set of actants in place.
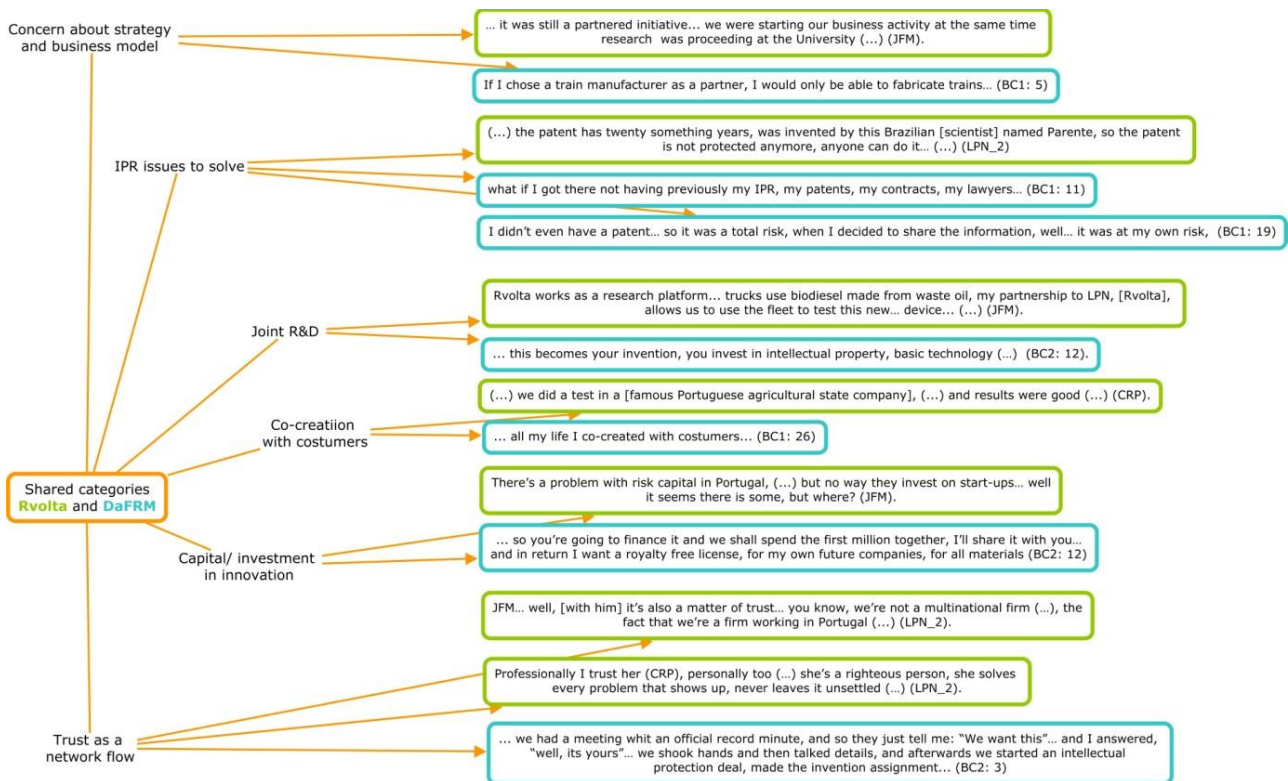

Figure 2: Some shared discourse categories between Rvolta (green) and DaFRM (blue) (Cmap).

Though not all exploratory in nature, all case studies end up including some sort of exploratory input, because different issues are at stake concerning methods and sources for triangulation. As each case brings up a core of concepts needed to understand its narrative, these imply the whole case structure. The first case was really exploratory for factors' and methods' sake, concerning Rvolta network, even testing the adequacy to a case study methodology for this work. This second case is not exploratory anymore, but includes renewed conceptual and data issues (DaFRM network), implying narrative relevance and interviewing strategy adequacy as well as a specific ontological affiliation to ANT. Finally a third case yet to be worked should confirm previous information, but new actants are expected, substantiating the approach affiliation adequacy to ANT.

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