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Collective intelligence and co-dependent organization: the role of chartered accountants in *crowdlending*

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Abstract:

What role can chartered accountants (CAs) play in the use of collective intelligence in crowdlending and under what conditions? This article studies a failed attempt to use chartered accountants to exploit collective intelligence in a partnership between a crowdlending platform and the professional body for chartered accountants in France. Our results describe some of the actions used by CAs to activate various collective intelligence functions on the forums, both upstream and downstream of collection campaigns. We also reveal two organizational factors that explain the failure to exploit this resource, namely non-compliance with the co-dependence principle and organizational hypocrisy. Based on this analysis, we propose an extended co-dependence model between the platform, project owners, crowd, and chartered accountants, enabling an “engineering” of collective intelligence, i.e. its expression, transformation and exploitation.

Keywords: chartered accountant, collective intelligence, peer-to-peer lending, partial organization, co-dependent organization

Introduction

“Can the crowd make intelligent decisions?” ask Bertrand and Jakubowski (2016) in their study of the crowdfunding sector. The emergence of crowdlending, i.e. crowdfunding in the form of an interest-bearing loan, gives a crowd of contributors the opportunity to lend money, and receive interest, to projects run by very small businesses or SMEs. Online crowdlending platforms put contributors and project owners in direct contact with one another. The crowd is thus at the heart of this type of financing, as it is within the digital economy more generally, with TripAdvisor for example (Kremer, Mansour, & Perry, 2014). The crowd interacts with, evaluates, and rates the actors of this “collaborative economy”. However, the crowd can be misled in this digital relationship, which worries the regulator and consumer associations. On the other hand, it can also constitute a resource to be exploited, via the principle of collective intelligence (CI).

Crowdfunding involves two new types of actors in the financing of business projects – the crowd and the platform, in competition with or in conjunction with experts (Bessière & Stéphanie, 2014; Nielsen, 2018). In this sector, the platforms therefore rely on the crowd’s investment decisions, i.e. on CI. According to Nielsen (2018), crowdfunding can succeed because the platform, the project owners, and the crowd are partially organized in a “co-dependent organization”. These three types of actors share partial decision-making power over membership (who has the right to participate in crowdfunding?), hierarchy (which decision-making source prevails over the others?), participation rules, the monitoring of members’ practices, and the sanctions that can be imposed on them. Respect for the principle of co-dependence between the platform, crowd, and project owner ensures that financing will be successful. However, this model of co-dependent organization as conceived by Nielsen would seem to exclude the chartered accountant (CA) from the outset.

Nevertheless, in France, some platforms have tried to rely on CAs (Calme, Onnee, & Zoukous, 2018) as sources of detailed information about SMEs, thanks to their intimate relations with the owners of the projects to be financed (Chapellier, 2003). In its current form, the crowdlending model as a type of co-dependence between the platform, project owners, and crowd reflects neither the place of CAs, nor their potential interconnection with CI. Our research question is therefore formulated as follows: what role can chartered accountants play in the use of collective intelligence in crowdlending, and under what conditions?

Literature examining the place of CAs and CI in crowdlending is largely at the fledgling stage, given that the sector is itself emerging, with empirical data remaining limited. The stakes are high, however, since this activity has begun to challenge the banking monopoly on credit, thus paving the way for individual contributors (Souchaud, 2017). In addition, the CA profession must continually adapt to an ever-changing environment (Cormier & Magnan, 2005; Frey & Osborne, 2017; Susskind & Susskind, 2015). In this article, we examine the CA's role in the expression and use of CI. Our ultimate objective is to enrich the co-dependent organization model of Nielsen (2018) by exploring the possible role of the CA.

To do this, we conducted an in-depth case study in the French crowdlending sector. We focused on a failed partnership between "PeerUnion"¹ and the *Ordre des Experts-Comptables*, the professional body for chartered accountants in France. We spent more than three years collecting rich material, combining interviews with the actors, with exchanges between the crowd and project owners collected from the platform's forums. Our results reveal the importance of CAs in the expression of CI's multiple functions. Our results also show PeerUnion's deviations from Nielsen's model, which produced organizational hypocrisy. PeerUnion introduced an imbalance in the relationships between actors, disrupting the co-dependence principle. Based on this analysis, we propose an extended co-dependence model between the platform, the project owners, the crowd, and the CA, enabling CI to be used, through an "engineering", i.e. CI's expression, transformation and exploitation.

Our study contributes to the literature in several ways. Our identification of two factors contributing to the breakdown of the partnership – the non-compliance with co-dependence and a form of organizational hypocrisy – completes Calme, Onnee, and Zoukoua's (2018) recent analysis of partnership logics in crowdlending. We also contribute to organizational theory by expanding Nielsen's (2018) model to include CAs. More generally, our use of the concepts of partial organization and co-dependence enriches existing crowdfunding studies mobilizing agency theory, theories of platforms or CI. Our work also has practical implications, opening up avenues for the renewal of the CA profession in the contexts of digitalization and the collaborative economy.

In the next section, we provide a brief review of the literature on the relationship between the crowd and experts, particularly in crowdfunding, which is presented as a

¹ The name of the platform has been anonymized.

type of “co-dependent” organization. After describing our case study methodology, we describe our results, which are then discussed in the light of the co-dependent organization model.

1. Review of the literature

The development of participatory platforms is based on the principle of crowd empowerment and a potential weakening of traditional, i.e. professional, expertise. This empowerment raises the issue of CI and its expression, especially in crowdlending, an emerging crowdfunding sub-sector that can be thought of as a partial organization formed of co-dependent relationships.

1.1. The rise of the “participatory society” and the interconnection between expertise and collective intelligence

Enabled by digitization and platforms, the rise of the participatory society is leading to profound transformations. Digitization, and more specifically the platform, is the main instrument of crowd empowerment (Dunleavy, Margetts, Bastow, & Tinkler, 2006). The empowerment and contribution of the crowd find their most well thought-out applications in crowdsourcing, i.e. a participatory approach based on the intelligence or know-how of a large number of people (Chanal & Caron-Fasan, 2010) or on open innovation (Chesbrough, 2003).

The traditional theory of collective intelligence (CI) (Galton, 1907) shows that the group is more effective than the individual (when predicting market events or geopolitical scenarios, or crowdsourcing ideas). In that perspective, studies have investigated the accuracy of CI in relation to individuals (Surowiecki, 2004) or the relative performance of aggregating multiple estimates from several people compared to aggregate estimates from a single individual (Dolder & Assem, 2017). Becker, Brackbill, and Centola (2017) also reveal that the crowd becomes more intelligent if individuals communicate with one another.

Many devices based on new technologies exploit this CI power (Bonabeau, 2009). This is the case with networks or online communities such as Wikipedia, which successfully manages a massive number of contributors (Bonabeau, 2009), or Google, which relies on the evaluation of millions of users to produce intelligent responses to queries (Malone, Laubacher, & Dellarocas, 2009). From this perspective, a central issue

raised in the literature is the balance between diversity and expertise, and the performance of one versus the other (Bonabeau, 2009; Malone et al., 2009).

1.2. The place of the crowd and the expert in crowdfunding

Crowdfunding is based on a key hypothesis, namely the existence and possible mobilization of CI (Bertrand & Jakubowski, 2016). This hypothesis raises information asymmetry issues (Bessière & Stéphany, 2014), since project owners may hide information or provide false information to the crowd, for example. One of the most significant effects is adverse selection, as formulated by Akerlof (1970). Several recent studies explore this issue, examining the evaluation criteria used by the crowd when investing in crowdfunding projects (Mollick, 2013) or the degree of divergence between the crowd and experts (Mollick & Nanda, 2015), for instance. According to Mollick (2014), it is not a foregone conclusion that crowds of individual contributors are able to make investment decisions based on an analysis of project quality. However, his quantitative study does show that the majority of contributors appear to react to project quality signals. The author concludes that crowds therefore form their funding decision based on a rational assessment of the project's chances of success, as do experts.

Kim and Viswanathan (2014) go further by stating that a form of expertise may reappear among the crowd of investors in crowdfunding. The authors question the notion that crowdfunding may completely eliminate expertise-based decision-making mechanisms. On the contrary, they show that forms of expertise are being rebuilt within crowds, and that this expertise influences decision-making. Furthermore, Mollick and Nanda (2015) find significant agreement between the decisions taken by crowds and by experts in their study of the financing of theatre projects. According to these authors, when there is disagreement, it is often because the crowd has decided to finance a project while the expert refuses to do so (Mollick & Nanda, 2015).

Focusing on the funding processes themselves, Bessière and Stéphany (2014) show that equity crowdfunding works in a sequence of steps, with actors being mobilized at each funding stage to evaluate projects. The authors note that although differences may exist between the platforms, the funding decision always stems from the opinion of the crowd. Although the authors do not study the dynamics of crowd evaluation, and the potential CI generated, they note that various elements can reduce the risk of adverse selection: syndication, due diligence, and the role of expertise.

Relatively few studies, however, explore the organizational conditions for the use of CI in crowdlending.

1.3. Crowdfunding as co-dependent organization

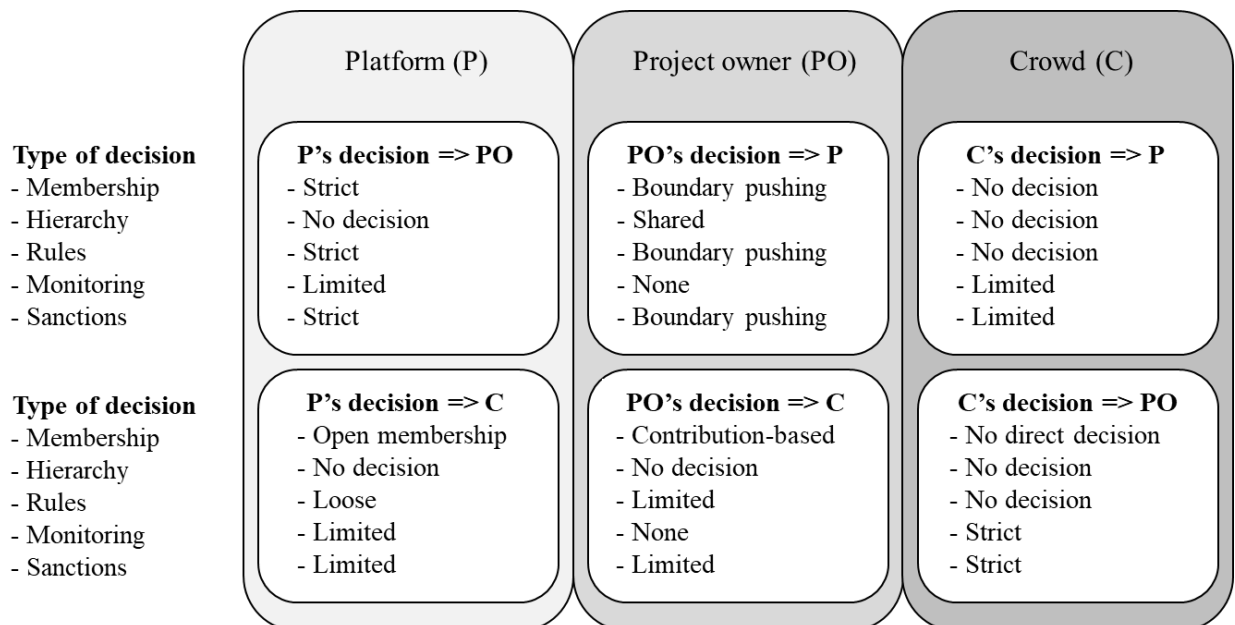
Building on the seminal work of Ahrne and Brunsson (2011), Nielsen (2018) develops an original theoretical approach by showing that crowdfunding is only successful if the platform, the project owners, and the crowd of contributors are *partially* organized into a “co-dependent organization”. According to the author, crowdfunding mobilizes diverse logics – networks, social communities, market, and organization. Nielsen accordingly employs Ahrne and Brunsson’s notion of “partial organization” to study the interactions and coordination between the platform, project owners (“campaigners”), and contributors (“crowdfunders”).

Ahrne and Brunsson (2011) developed the notion of partial organization to explain the world outside formal organizations such as firms, a world which is neither necessarily a form of network nor a form of institution. The two Swedish sociologists conversely argue that many phenomena are part of a decided but incompletely organized social order. Complete organization, according to Ahrne and Brunsson, is defined as a decided social order combining five elements: membership, hierarchy, a set of rules, the monitoring of compliance with these rules, and sanctions. The selective combination of one or more of these elements constitutes partial organization (Ahrne, Brunsson, & Seidl, 2016). In line with recent studies that have developed this concept (Ahrne & Brunsson, 2011; Grothe-Hammer, 2019; Järvi, Almpanopoulou, & Ritala, 2018; Nielsen, 2018), partial organization relates to:

- 1) Membership decisions, defining an organization’s members and how they contribute to or participate in the organization;
- 2) Hierarchy decisions, defining which bodies or actors have central power over others within the organization;
- 3) Decisions on rules concerning the parameters that will govern interactions between actors and that will define common objectives to be achieved;
- 4) Monitoring decisions, which are intended to establish whether compliance with these rules should be verified or not, for example via the existence, or not, of an accounting system;
- 5) Decisions on the introduction of sanctions intended to reward, or punish, members who respect, or fail to respect, common rules and objectives.

This is precisely the case with crowdlending: the financing process and the mechanisms for coordinating the three types of actors (platform P, crowd C, and project owners PO) are based on a form of partial organization. In this partial organization, the three types of actors make decisions, in an incomplete manner, on the five components identified by Ahrne and Brunsson: membership, hierarchy, rules, monitoring, and sanctions. In this model proposed by Nielsen, and summarized in Figure 1, the platform has, for example, a strict right to control the selection of project owners and their membership in the crowdfunding arrangement. On the other hand, the hierarchy is often lacking or is shared between the platform and the project owners. The level of monitoring varies from one actor to another. While the crowd does not make decisions on the rules defining the platform’s participation, it does have strict powers to monitor and sanction the project owners (see Figure 1). Some decisions, in particular those of the project owner regarding the choice of a particular funding platform, qualify as what Nielsen calls “boundary pushing”. This means that by putting crowdfunding platforms in competition with one another, the project owner can shift the membership boundary, i.e. affect a platform’s participation in the partial organization.

Figure 1:
Definition of a “partial organization” analysis grid applied to crowdfunding
(diagram adapted from Nielsen, 2018, p.10)



It should be kept in mind that in Nielsen’s model, it is crowdfunding itself that is analyzed as a partial organization; the platform is not examined separately, for example.

The combined set of interactions and decisions between the platform, the project owners, and the crowd constitute a decided order. Nielsen's analysis shows that the relationships between the three types of actors are deeply interconnected and interdependent. The author demonstrates that crowdfunding is doomed to failure without this organizational inter- or "co-dependence". If the platform does not exercise its strict decision-making power over the membership of the project owner, for example, i.e., if it does not select correctly, the whole crowdfunding process may fail.

However, this approach neglects at least two key aspects of crowdfunding: the diverse functions of CI in this partial organization, and the role of expertise in the form of the CA. Recent work has nonetheless shown that the CA can sometimes play a central role in crowdfunding (Calme et al., 2018). The question is therefore what role can chartered accountants play in the use of collective intelligence in crowdlending and under what conditions?

We are particularly interested in CAs because the development of new business models or entrepreneurial ecosystems, including crowdlending, raises important issues for the profession. Although many studies have focused on the impact of new technologies on management control (Ebondo & Pigé, 2002; Meyssonier, 2012; Trébucq, 2006), relatively few have examined the evolution of the chartered accountancy profession and its place in a participatory society based on CI. The CA remains a key figure, however, particularly in the relationship with very small businesses/SMEs (Chapellier, 2003; Vézina & Fortin, 2002), a figure forced to continually adapt to an ever-changing environment (Cormier, Lapointe-Antunes, & Magnan, 2012; Frey & Osborne, 2017; Ndao & Charles-Cargnello, 2015; Susskind & Susskind, 2015).

2. Research methodology

In order to better understand the role of the CA in the expression and use of CI, we conducted an in-depth case study. The case study method seems the most appropriate approach for exploring this issue in an emerging sector such as crowdlending (Eisenhardt, 1989). Although many studies have focused on CI, improving our understanding of its expression in crowdfunding in general, there have been insufficient data to date to clarify the role of the CA in the use of CI in crowdlending.

2.1. Empirical context: the failure of the partnership between the *Ordre des experts-comptables* and the PeerUnion platform

This article examines a partnership signed in September 2014 by a crowdlending platform, “PeerUnion”, and the *Ordre des experts-comptables*, the professional body for chartered accountants in France. The objective of this partnership was to provide the public with robust and certified financial data for each project proposed for funding, in the hope that the public would take this information and discuss it publicly on the forum and that a form of CI would emerge in the selection of projects. This partnership, which ran for only 18 months, was experienced as a failure by its signatories. Studying failures is of methodological interest since it can be used to highlight mechanisms or characteristics that are difficult to identify elsewhere and to propose theoretical improvements (Borins, 2001).

2.2. Data collection

Our data collection comprised three main phases (see Appendix A). In a first exploratory phase, we started by meeting PeerUnion in order to develop an initial understanding of the platform’s operations and philosophy in the French context. At that point, we became aware of the importance of the partnership with the *Ordre des Experts-Comptables*. We then began our second data collection phase by conducting additional interviews in order to analyze the actual functioning of CI at PeerUnion and the role of the partnership with the *Ordre des Experts Comptables*. In a third phase of consolidation interviews, we focused on the chartered accountants in order to obtain their feedback on the partnership and on crowdlending more generally. All of our interviews, throughout the different phases, were conducted face-to-face, recorded, and transcribed. Their average duration was 50 minutes. At the same time, we also collected the accounting and financial data made available to the crowd for all the projects proposed on PeerUnion as well as all the textual exchanges on the forums between the crowd and the project owners.

2.3. Data analysis

To process this rich material, we first employed thematic content analysis (Miles, Huberman, & Saldaña, 2013). After the interviews had been transcribed, each author individually read the material several times to gain an understanding of the case.

We then selected and extracted the most relevant verbatim extracts and texts for our analysis of CI and the role of the CA.

Our aim was to understand the functions of the crowd in crowdlending and the role of the CA in this empowerment of the crowd. To do this, we proceeded in three stages. We began by studying the theoretical functioning of the partnership defined between PeerUnion and the *Ordre des Experts-Comptables*. To this end, we mapped the decisions, actions, and functions of the different actors: platform, project owners, crowd, and CA (Figure 2).

In a second step, we analyzed the practical implementation of this theoretical approach by identifying cases of funding success and failure in order to highlight whether these failures were due to incompetent CI. To this end, we built a database of all past or ongoing PeerUnion projects (215 projects), collecting the data made available to the crowd and all the interactions on the forums, where CI is expressed. We classified the projects into six categories: 1) repaid project, 2) in the process of being repaid, 3) fraudulent project, 4) failed collection, 5) default, or 6) late repayment. For each project, we listed the qualified financial interactions (based on data certified by the CA) between the crowd and the project owner, categorized as: a) owner failed to respond to a question from the crowd, b) irregularity noted by the crowd, c) incomprehensible response provided by the project owner, or d) intelligible, but unverified, response provided by the project owner (see Table 2 below).

In a third step, we applied Ahrne and Brunsson's (2011) partial organization concept and the model of Nielsen (2018) to the case of crowdlending at PeerUnion. In line with recent studies based on the work of Ahrne and Brunsson (Grothe-Hammer, 2019; Järvi et al., 2018), we therefore used the concepts of partial organization and co-dependent organization as "sensitizing concepts" (Järvi et al., 2018), in other words as a frame of reference with which to generalize our analysis. This allowed us to identify certain organizational factors that could explain the failure of the partnership, but also to rethink the way crowdlending works (Figure 4) and develop a theoretical model of extended co-dependence.

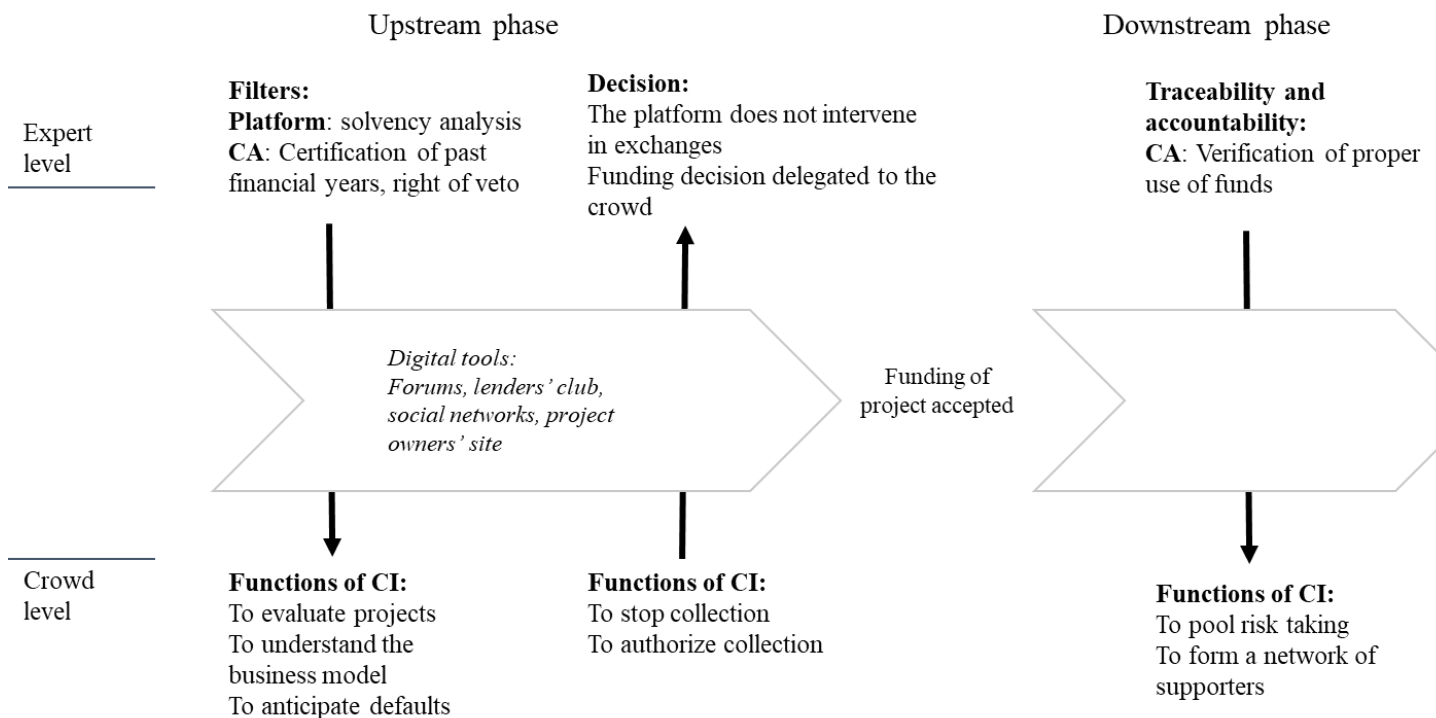
3. The partnership with the *Ordre des Experts-Comptables*: a defective deviation from the principle of co-dependence

In this section we describe how the partnership worked and study its failures in the light of the co-dependent organization model.

3.1. An operation that aimed to delegate decision-making to the CA and the crowd

The partnership between PeerUnion and the *Ordre des experts-comptables* sought to meet two main challenges: 1) the correct assessment of the default risk of companies applying for funding, and 2) the implementation of a framework allowing the expression of CI. The theoretical functioning of this partnership is summarized in Figure 2: it involved delegating the discretionary power to accept a project to the CA and delegating the investment decision to the crowd.

Figure 2:
Crowdlending operations at PeerUnion under the partnership with the *Ordre des Experts-Comptables*



It is difficult to assess the risk of default of very small businesses, structures that are by nature fragile, and whose financial sustainability is generally largely dependent on the actions of the person in charge of the business. Very small businesses also lack internal control, and the tax returns they file do not capture the dynamics underlying their economic activity. Their business forecasts must also be treated with a degree of caution:

“Most SMEs [...] don’t have a CFO. So the guy can potentially put anything [in] his forecast [...].” [PeerUnion]

Because CAs are the first, and sometimes the only, advisors to very small business heads, PeerUnion saw them as a partner capable of helping it to meet the challenge of assessing the default risk of the very small businesses that were candidates for funding. CAs could also, through their intervention, provide a framework for the expression of CI on the platform.

The founders of PeerUnion primarily conceived their partnership project as a philosophical project rather than as a financial project. At the heart of this philosophy was the concept of CI, according to which a crowd of individual contributors can collectively express a form of superior intelligence, capable of 1) improving project selection *upstream* of fundraising campaigns and 2) participating *downstream* in their development or bearing the cost of default in a relatively painless way.

“Our true innovation is in collective intelligence – because if a crowd comes on board with a project and that crowd is smarter than an analyst, then we will know whether a project is risky or not.” [PeerUnion]

The CI of contributors thus has a multitude of functions in crowdfunding, via the interactions between the crowd and project owners on PeerUnion’s online forums (see Figure 2). Upstream of the fund collection, the function of CI is to evaluate projects, to understand their business model, and to anticipate the risk of default. The crowd can therefore, alone, choose to stop the collection, or to authorize it, at least in theory. Finally, downstream, CI makes it possible to pool risk taking and to set up a “network of supporters” that will help to disseminate the project on social networks, for example.

The functioning of the partnership, summarized in Figure 2, introduced the intervention of a CA at two stages in the project investment process: 1) the mandatory certification of the forecast by the venture’s CA, accompanied by, as we discovered in

the interviews, the CA's informal and non-public right of veto on the online launch of the project; and 2) an optional verification of the proper use of the funds collected on the platform. By having to validate that the current year results were as expected and that the three-year forecast was coherent, the CA effectively signed off the forecast.

“There is still moral labeling.” [PeerUnion]

Certifying a forecast should make it possible to explicitly indicate a project's risk areas and to communicate robust financial data to the crowd of potential contributors. These data should then serve as a basis for the set of public questions and answers on the forum with the project owner (Figure 2).

With PeerUnion, the CA could refuse to certify a forecast. The platform nevertheless considered that the CA would be unlikely to do this since a refusal could jeopardize the CA's commercial relationship with its customer. In addition, a forecast does not enable a CA to transmit all the information it has on a project and its owner to the crowd. This is why PeerUnion's selection procedures included the possibility of an informal right of veto for the CA on the online launch of projects submitted by their clients:

“The instrument is designed so that, during our exchanges, the chartered accountant, who often has a relational history with the company head, has [...] a right of veto. [...] And it doesn't jeopardize the commercial relationship between the chartered accountant and his or her client, because if the chartered accountant vetoes the project, the platform shoulders the decision and assumes it in the client's eyes.” [PeerUnion]

For PeerUnion, this secret right of veto allowed the CA to transmit part of the implicit information it had acquired in the context of a long-term relationship with its client when such information could not be explicitly included in the forecast, either because the information was extra-financial or because, to preserve its commercial relationship with its client, the CA did not want to, or could not, include the information in the forecast (hypothesis maintained by PeerUnion).

Ultimately, PeerUnion delegated an informal and secret discretionary power to the CA, who could hence reject a project without needing any further justification than that of the free exercise of professional judgment.

“They are the one who have all the elements to hand. Either they believe in the project or they don’t. It’s red or green.” [PeerUnion]

This right of veto, which was not officially recorded anywhere, was indeed systematically integrated into the project selection procedure during the 18 months of the partnership.

3.2. The failure of dual delegation

The functioning of the partnership stumbled on two obstacles: the massive rejection of the partnership by chartered accountants and the platform’s ineffective exploitation of CI.

To begin with, Peer Union thought that the right of veto would be an astute way to draw on chartered accountants’ knowledge while protecting their business relationships. But in reality, PeerUnion’s unofficial mechanism failed to recognize the ethical and professional requirements of this regulated profession, including its public interest role. Far from mobilizing the profession, the mechanism was perceived as dangerous and troublesome. The CAs refused the delegation of this informal and secret right of veto, which was moreover not officially provided for in the partnership agreement.

“I’m very uncomfortable with this right of veto. From a professional ethics perspective, it’s very borderline, isn’t it? I don’t feel valued by this right of veto – quite the opposite. What right do I have to say ‘stop’ to a project, on the sly, on the phone with someone who isn’t even a chartered accountant, without telling my client who pays me and to whom I have ethical obligations?” [Chartered accountant]

“It’s not for nothing that the right of veto is implicit and that you don’t see it anywhere officially. It is simply illegal and unethical. Saying green on a forecast sent to the client and red on the phone without the client being informed...” [Chartered accountant]

In addition, for PeerUnion, this right of veto was part of a low-cost strategy that aimed to delegate project selection to a regulated profession, without saying so officially, and without paying the professionals in any way.

Beyond the right of veto issue, CI was only partially exploited by the platform. Admittedly, the financial elements and chartered accountants' certification of the forecasts were effectively used by contributors to initiate a public dialogue with the project owner. As a result, extremely precise and relevant financial questions were raised:

-*"I am surprised by the average basket amount because I don't understand how you can order 800 euros worth of dietary supplements in one go."* [Question from an Internet user]

-*"Our average basket amount is high because these programs last for an average of eight months."* [Response from the project owner, category: intelligible, but unverified, response]

Table 2 shows that internet users did indeed take advantage of the information certified by the CAs to initiate exchanges with project owners. These exchanges produced a form of CI, i.e. interactions on information-generating forums that could be used to make investment decisions. For example, a collection failure occurred in 11 out of the 15 cases of interactions where the project owner provided an incomprehensible answer to contributors' questions: the crowd therefore chose not to invest based on negative signals from the project owner.

Table 2:
Summary of Crowd-Owner interactions based on information certified by chartered accountants

Type of project / Type of interaction	No response to a relevant question	Financial or accounting irregularity noted by the crowd	Incomprehensible or irrelevant response from the project owner	Intelligible, but unverified, response from project owner	Total qualified financial interactions	Number of projects
Repaid projects	4	1	0	13	18	20
Projects in the process of being repaid	13	6	0	39	58	141
Fraudulent projects	1	1	0	0	2	2
Failed collections	1	1	11	0	13	8
Default	1	4	4	16	25	32
Late repayment	2	0	0	6	8	12
Total	22	13	15	74	124	215

Nonetheless, the platform believed that the crowd should decide on its own whether to suspend a collection or not. The crowd had access to certified data but then had no support in its discussions with the project owner, who could therefore easily mislead the crowd.

For example, in a case of interaction with an *intelligible, but unverified, response from the project owner*, an individual intervened on the forum to question the trade receivables line item, which had increased significantly in 2015. The individual asked for details of the average customer payment term as well as the amount of trade receivables with a maturity of more than one year or that could be considered doubtful. The project owner replied that customer payment term, while significant at the end of 2015, had since been halved, from 120 to 60 days, and that there were no doubtful receivables or unpaid invoices subject to specific proceedings. This answer was not verified by the platform or anyone else. The contributors believed the answer and fully funded the project. Two months later, the project failed and its owner revealed that 123,000 euros of unpaid receivables were going to force them to cease their activity.

More generally, the platform's failure to control the responses given to the crowd by the project owner was accompanied by payment defaults in 16 cases. Even more blatantly, in four cases out of 13, the crowd's identification of a financial or accounting irregularity was correlated with the project owner defaulting on a payment.

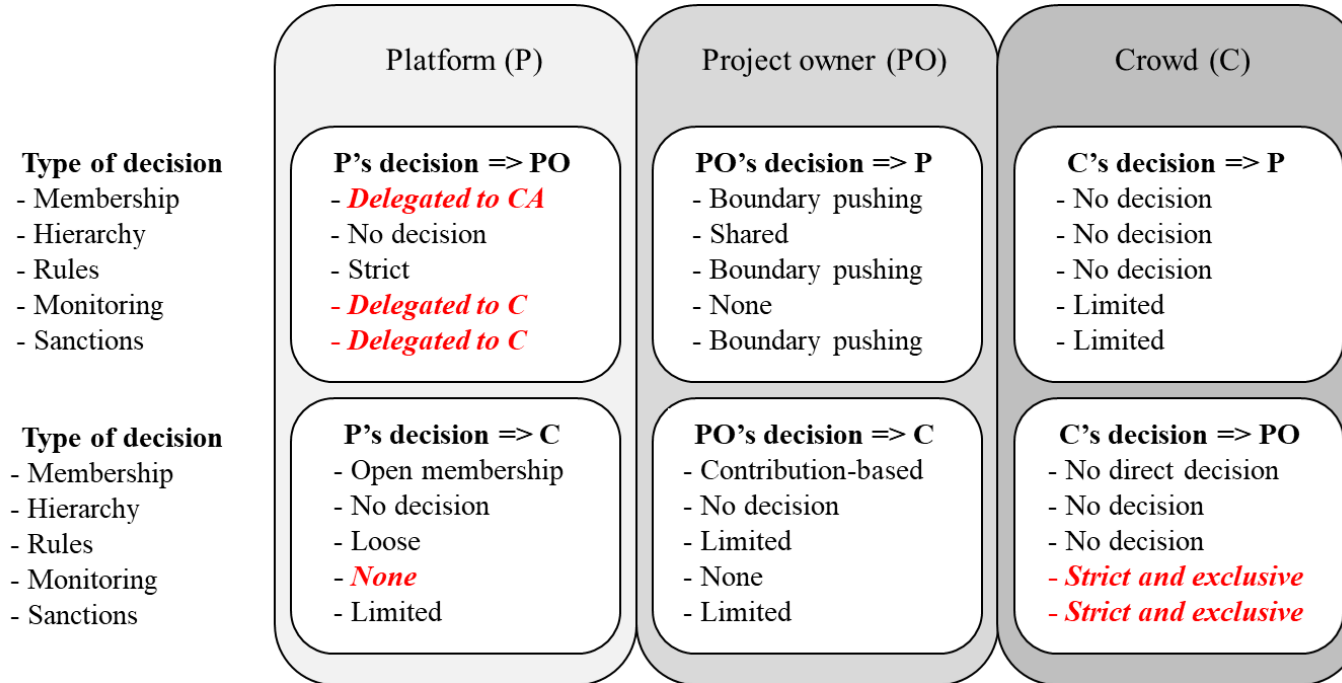
The CI expressed on the forums was therefore neither robust nor utilized. What do we mean by that? The information produced on the forums by CI was controlled by neither the platform nor the CA, who was in any case not mandated by the platform on the forum. There was no interaction between the crowd and any kind of expert on the forum. The platform did not monitor exchanges, did not take them into account, and did not draw any necessary conclusions from them. In particular, the platform completely failed to react to the financial irregularities identified by the crowd, when it could in fact have chosen to interrupt the collection.

3.3. Deviations from the co-dependent organization model

PeerUnion's operation in its partnership with the *Ordre des Experts-Comptables* introduced some deviations from the Nielsen model of co-dependent organization, as summarized in Figure 3. We explain how these changes may have contributed to the failure of the partnership.

Figure 3:

PeerUnion’s method of functioning through the lens of the co-dependent organization model (deviations from Nielsen’s model are shown in italics)



Tables 3a to 3c provide more detail on the deviations from the co-dependent organization model by studying, for each aspect, the organizational decision-making power (i.e. on membership, hierarchy, rules, monitoring, and sanctions) of one actor over the other: platform, project owner, or crowd. It should be remembered that these decisions relate to crowdfunding as a partial organization bringing together the platform, project owners, and crowd.

Table 3a:

Comparison of the Nielsen model and the PeerUnion case – the platform’s (P) organizational decisions towards project owners (PO)

Type of decision	P towards PO (Nielsen)	P towards PO (PeerUnion)
Membership	Strict	<i>Delegated to the CA for project selection</i>
Hierarchy	No decision	No decision
Rules	Strict	Strict
Monitoring	Limited	<i>Delegated to the crowd during the campaign</i>
Sanctions	Strict	<i>Delegated to the crowd during the campaign</i>

Table 3b:

**Comparison Nielsen/PeerUnion – the platform’s (P) organizational decisions
towards the crowd (C)**

Type of decision	P towards C (Nielsen)	P towards C (PeerUnion)
Membership	Open membership	Open membership
Hierarchy	No decision	No decision
Rules	Loose	Loose
Monitoring	Limited	<i>None</i>
Sanctions	Limited	Limited

Table 3c:

**Comparison Nielsen/PeerUnion – the crowd’s (C) organizational decisions towards
project owners (PO)**

Type of decision	C towards PO (Nielsen)	C towards PO (PeerUnion)
Membership	No direct decision	No direct decision
Hierarchy	No decision	No decision
Rules	No decision	No decision
Monitoring	Strict	<i>Strict and exclusive</i>
Sanctions	Strict	<i>Strict and exclusive</i>

As shown in Table 3a, the platform diverged from the Nielsen model by delegating decision-making power with respect to project owners: a) decision-making power over project owner membership was delegated to the CA, and b) decision-making power over the monitoring and sanctioning of project owners (PO) was delegated to the crowd. The platform’s influence over PO membership is strict in the Nielsen model because the platform conducts an initial study of a project’s solvency before it is put online using scoring algorithms and KYC tools. Nielsen considered these checks necessary in order to prevent fraud. On the other hand, even if PeerUnion itself carried out an initial solvency analysis of the projects, the platform asked the CA to take responsibility for the membership decision, not only by certifying the forecast, but above all via the informal right of veto that the CA could arbitrarily trigger without informing the project owner. However, this right of veto did not work, as mentioned above, for at least two reasons: it was ethically impossible for chartered accountants to implement the system and the platform did not remunerate the chartered accountants for the service.

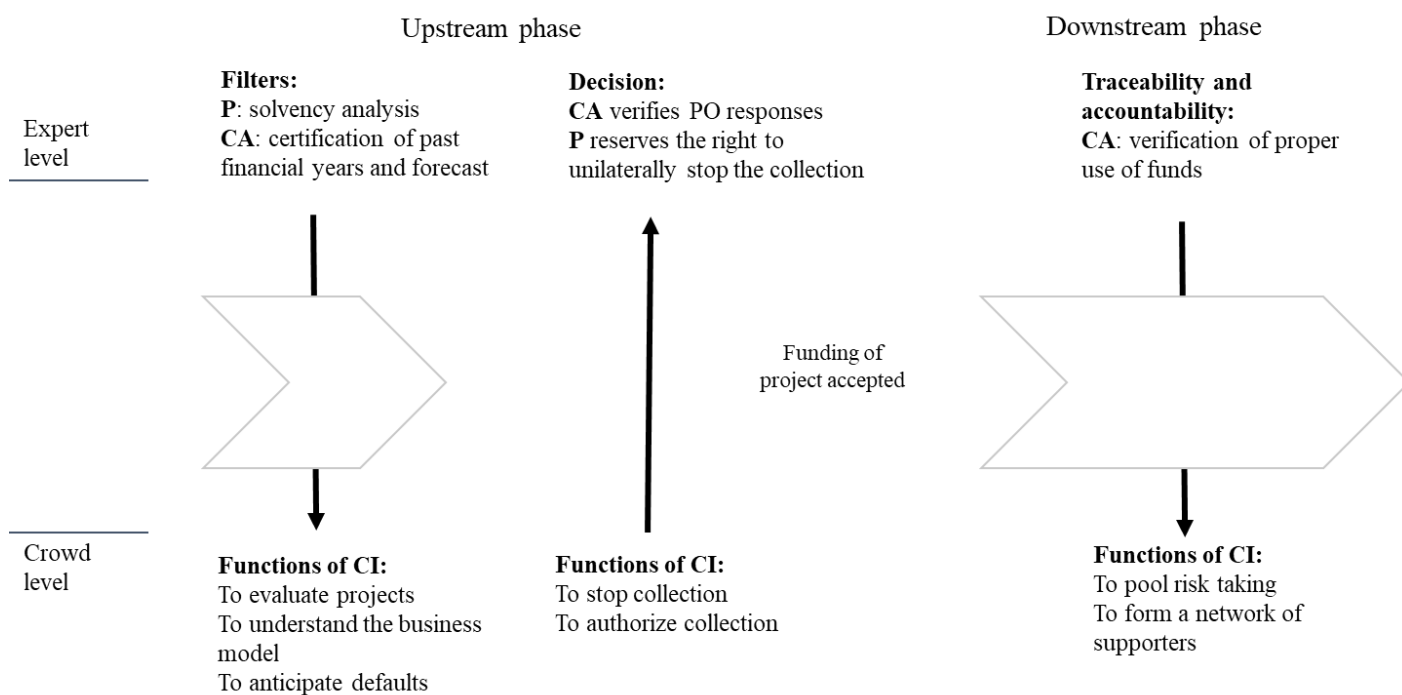
Table 3b shows that the PeerUnion platform had no control over the crowd, while in Nielsen's model this control exists, even if it is limited. Finally, Table 3c, a kind of mirror image of Table 3a, shows that the main changes compared to Nielsen's model concern monitoring and sanctions. The crowd exercised strict and exclusive power over the monitoring and sanction of project owners, since PeerUnion had delegated this power to it (3a). PeerUnion did not intervene in any way on the forum, and refrained from terminating a fund collection in progress on its own initiative.

PeerUnion ultimately introduced several imbalances into the co-dependence model: 1) the platform introduced the CA as a new actor in its own right whose actions were not co-dependent on other actors; 2) the platform delegated decision-making power to the CA and the crowd; and 3) it did not control the CA, the project owner, or the crowd.

4. Towards a broader model of co-dependent organization including the Chartered Accountant (CA)

Based on this description and on Nielsen's model, it is possible to define a new model of co-dependence in crowdfunding based on a fourth figure, that of the CA. To do this, we propose revisiting the crowdfunding process applied at PeerUnion (Figure 4), based on our analysis of the process, interviews with chartered accountants, interactions between the crowd and project owners, and Nielsen's model. In this new process, the CA's right of veto disappears. The filtering of project owners is now based on solvency analyses and other due diligence, as well as on the CA's certification of past financial years and the forecast.

Figure 4: Proposal for a revised form of crowdlending



CI maintains the same functions as previously, both upstream and downstream of the collection, enabled by the CA: evaluating a project, understanding the business models, pooling risks, etc. On the other hand, in this revised model, we suggest that CAs should play a verification role on the forums. In order to consolidate and activate CI, the interactions between the crowd and the project owners need to be monitored, with the aim of verifying the coherence and accuracy of the project owner’s responses to the crowd. New information from the forum that calls into question the initial solvency analysis must also be forwarded to the platform. It seems appropriate for the platform to mandate one or more CAs to carry out this verification in conjunction with the project owner’s CA. This would involve some form of incentive: recruitment by the platform, subcontracting, or other form of remuneration. Finally, downstream, the project owner’s CA maintains the same function of certifying the proper use of funds in order to ensure traceability and accountability. A convergence of interests is necessary for the model to function correctly, but the project owner’s CA can benefit from it:

“The huge advantage of all of this for us is that if a prospective client comes to see us, and if we give him or her the idea [of crowdlending] and support her during the campaign, then the client will never leave us, never. She will always be grateful.”
 [Chartered accountant]

This decisive role for the CA is an amendment to the Nielsen model and must now be conceptualized (as summarized in Figure 5).

Figure 5:
Revised model of co-dependence between the platform, project owners, the crowd, and the chartered accountant (CA) (our proposals are shown in italics)

	Platform (P)	Project owner (PO)	Crowd (C)	Chartered Accountant (CA)
Type of decision - Membership - Hierarchy - Rules - Monitoring - Sanctions	P's decision => PO <i>- Strict, shared</i> - No decision - Strict <i>- Strict, shared</i> <i>- Strict, shared</i>	PO's decision => P - Boundary pushing - Shared - Boundary pushing - None - Boundary pushing	C's decision => P - No decision - No decision - No decision - Limited - Limited	CA's decision => P <i>- Boundary pushing</i> <i>- No decisions</i> <i>- Strict</i> <i>- None</i> <i>- Boundary pushing</i>
Type of decision - Membership - Hierarchy - Rules - Monitoring - Sanctions	P's decision => C - Open membership - No decision - Loose <i>- Strict, shared</i> - Limited sanctions	PO's decision => C - Contribution-based - No decision - Limited - None - Limited	C's decision => PO - No direct decision - No decision - Loose <i>- Strict, shared</i> <i>- Strict, shared</i>	CA's decision => PO <i>- Strict and shared</i> <i>- No decision</i> <i>- Strict</i> <i>- Strict, shared</i> <i>- None</i>
Type of decision - Membership - Hierarchy - Rules - Monitoring - Sanctions	P's decision => CA <i>- None or strict</i> <i>- No decision</i> <i>- Strict</i> <i>- None</i> <i>- None</i>	PO's decision => CA <i>- Boundary pushing</i> <i>- No decision</i> <i>- Boundary pushing</i> <i>- None</i> <i>- Boundary pushing</i>	C's decision => CA <i>- No decision</i> <i>- Shared</i> <i>- No decision</i> <i>- No decision</i> <i>- No decision</i>	CA's decision => C <i>- No decision</i> <i>- Shared</i> <i>- No decision</i> <i>- Strict, shared</i> <i>- None</i>

The extended co-dependence model that we propose integrates the CA as a fourth actor in its own right. For each decision, we therefore present either a return to Nielsen or a transformation of the PeerUnion model, as summarized in Tables 4a and 4b.

Table 4a:
Comparison of decisions in the three approaches

Type of decision	P towards PO Nielsen	P towards PO PeerUnion	P towards PO Nielsen revised
Membership	Strict	Delegated to the CA for selection, but right of withdrawal never actually used by PeerUnion	<i>Strict, shared with CA</i>
Hierarchy	No decision	No decision	No decision
Rules	Strict	Strict	Strict
Monitoring	Limited	Delegated to the crowd during the campaign	<i>Strict, shared with CA and C</i>

Sanctions	Strict	Delegated to the crowd during the campaign	<i>Strict, shared with C</i>
Type of decision	P towards C Nielsen	P towards C PeerUnion	P towards C Nielsen revised
Membership	Open membership	Open membership	Open membership
Hierarchy	No decision	No decision	No decision
Rules	Loose	Loose	Loose
Monitoring	Limited	None	<i>Strict, shared with CA</i>
Sanctions	Limited	Limited	Limited
Type of decision	C towards PO Nielsen	C towards PO PeerUnion	C towards PO Nielsen revised
Membership	No direct decision	No direct decision	No direct decision
Hierarchy	No decision	No decision	No decision
Rules	No decision	No decision	<i>Loose</i>
Monitoring	Strict	Strict and exclusive	<i>Strict and shared with CA and P</i>
Sanctions	Strict	Strict and exclusive	<i>Strict and shared with P</i>

As explained above, the right of veto disappears because it disconnects discourse and practice and does not respect the professional ethics of the chartered accountancy profession. The CA must nonetheless certify past financial years and the forecast. If the CA does not provide these certifications, it could effectively lead to the PO being rejected on the platform. In this revised model, the decision-making power over PO membership is shared between the P and the CA. Another distinction we make is that the platform strictly verifies the PO, with this verification process being shared with the crowd and the CA. Similarly, the P and the CA together control exchanges between the C and the PO on the forums in order to trigger CI and to stop a collection even if the crowd would be willing to fund the project.

Table 4b:
Integrating the CA into the co-dependence model

Type of decision	CA towards P
Membership	Boundary pushing
Hierarchy	No decision
Rules	Strict rules (be registered with ORIAS (French association that certifies insurance intermediaries), comply with the regulatory framework, have legal status as an IFP (crowdfunding intermediary), CIP (crowd equity investment advisor), or PSI (investment services provider)
Monitoring	None
Sanctions	Boundary pushing on membership
Type of decision	CA towards PO

Membership	Strict and shared with P
Hierarchy	No decision
Rules	Strict rules (the PO must not lie about financial data, etc.)
Monitoring	Strict and shared monitoring with the C and P during the campaign
Sanctions	None (the CA does not make the decision to stop the collection)
Type of decision	CA towards C
Membership	No decision
Hierarchy	Shared hierarchy because the CA provides information to the C. The C makes its decision using this information, so multiple hierarchies are created.
Rules	No decision
Monitoring	Strict and shared monitoring with P on forums
Sanctions	None
Type of decision	P towards CA
Membership	No decision on membership by the PO's CA or strict if the CA is engaged by the P
Hierarchy	No decision
Rules	Strict (the CA must certify past financial years and the proper use of funds, as well as verifying exchanges with the crowd)
Monitoring	None
Sanctions	None
Type of decision	PO towards CA
Membership	Boundary pushing, the PO's CA participates
Hierarchy	No decision
Rules	Boundary pushing
Monitoring	None
Sanctions	Boundary pushing
Type of decision	C towards CA
Membership	No decision
Hierarchy	Hierarchy shared between the CA and P: the C produces information, the CA verifies it, and the P then uses it to make decisions. There are therefore multiple hierarchies.
Rules	No decision
Monitoring	No decision
Sanctions	No decision

Similar to the PO towards P case, the CA has decision-making power over the platform's participation, in other words, its membership of the partial organization, i.e. of the crowdlending process. We categorize this decision-making power as "boundary pushing" i.e. the decision category is not fixed and can evolve according to the decisions. The CA may in fact advise the PO to go to a competing platform. Consequently, the decision on sanctions is itself a form of boundary pushing, i.e. change of platform.

Finally, as shown in Tables 4a and 4b, the co-dependence between the platform, project owner, crowd, and CA results in some organizational decisions being shared, including on PO membership, monitoring, and sanctions. The objective of this extended co-dependence model is twofold: 1) to provide the CA with a greater role that is acceptable ethically and financially, 2) to exploit CI by using the CA's and the platform's controls of the forums to activate it.

5. Discussion of results

In this article, we sought to understand the role of the CA in the use of CI in crowdlending, as well as the conditions for the integration of the CA into the co-dependent organization model. To do this, we conducted an in-depth case study of the operations of the PeerUnion platform. This case is particularly relevant because the PeerUnion crowdlending platform developed a partnership with the *Ordre des Experts-Comptables*, the professional body for chartered accountants in France. The partnership was not extended, enabling us to explore in detail the reasons for its failure and to suggest potential improvements.

The article shows that the partnership between PeerUnion and the *Ordre des experts-comptables* had two objectives: 1) to properly assess the risk of default of companies applying for funding, and 2) to set up a framework where CI could be expressed. The theoretical operation of this partnership was based on delegating discretionary power over project selection to the CA, and on delegating the decision to invest in the project to the crowd.

Our analysis of the projects revealed both the importance of the CA in the expression of CI, and the diversity of the CI functions that the CA could activate under certain organizational co-dependence conditions. The financial elements and forecast certifications provided by the CAs enabled the crowd and project owners to interact, leading CI to perform several very specific functions both upstream and downstream. Upstream of the collection, interactions were enabled by digital tools and the role of the expert. The resulting functions of CI were to evaluate the project, to understand the project owners' business models, which could sometimes help to enhance them, and to anticipate potential defaults. The crowd therefore not only reacted to project quality signals, as shown by Mollick (2014), but also to risk signals. Downstream from the collection, CI enabled risk to be pooled, making it individually painless for contributors if it were to materialize (i.e. through a default). CI could also take the form of a network

of supporters, who assisted the project owner after collection. Finally, at this stage, the CA ensured traceability and accountability.

However, the partnership was effectively rejected by the chartered accountants and the exploitation of CI was unsuccessful. The implicit and secret right of veto that we have highlighted was part of a low-cost logic of delegating project selection to a regulated profession, without declaring it officially, without paying the professionals directly, and without anticipating that this delegation would go against the profession's ethical framework and would therefore be poorly received by its members. In addition, some interactions between the crowd and project owners appeared to highlight problematic situations that potentially required the platform to stop collecting funds. These interactions were neither controlled by the platform nor taken into account when they clearly should have been. The platform therefore failed to fully exploit the CI that was being expressed in the forums, contrary to the intentions expressed in the partnership discussions. The platform thus introduced a form of organizational hypocrisy (Brunsson, 2002), a decoupling between discourse and practice.

With this dual transfer to the CA and the crowd, PeerUnion also deviated from Nielsen's model, which for its part implies strict control of project owners, both during selection and during the campaign. The platform therefore unbalanced the principle of co-dependence without setting up a compensation mechanism. This failure to respect co-dependence and the resulting organizational hypocrisy were organizational factors in the failure of the partnership.

Based on this analysis, we propose an extended co-dependence model that includes the CA. This model eliminates organizational hypocrisy while aiming to ensure the expression and exploitation of CI through crowdlending, i.e. CI engineering. In this co-dependence model, the CA, whether mandated by the platform or the project owner, must verify online exchanges between the crowd and the project owners. This verification is necessary for CI to be used, and must then be taken into account by the platform, which must also perform monitoring actions and share strict sanctioning powers with the crowd.

5.1. Theoretical contributions

Our article contributes both to the literature on crowdlending and to organization theory. The article first provides additional explanations for the failure of the partnership logics in the crowdlending ecosystem, as analyzed by Calme, Onnee, and

Zoukoua (2018). These authors attributed the failure of PeerUnion's partnership with the *Ordre des Experts Comptables* to the weakness of network externalities and the failure to enhance the business model. On the other hand, their study identified neither the informal veto mechanism nor the platform's failure to monitor the forum. As explained above, these elements led to two key factors of failure, in addition to the elements highlighted by Calme et al. (2018): organizational hypocrisy (Brunsson, 2002) and non-compliance with the principle of co-dependence (Nielsen 2018).

Organization theory therefore enables us to better understand the limits of PeerUnion's partnership logics by identifying deviations from the decision-making model regarding membership, monitoring, and sanctions (Nielsen 2018). It is interesting to note that Brunsson's (2002) concept of organizational hypocrisy also remains relevant in a partial organization context (Ahrne et Brunsson 2011) such as crowdlending. We also revisit Nielsen's co-dependent organization model by integrating a fourth figure, the CA, and by proposing potential partial organization modes between the four actors. This model makes it possible to rethink, from an organizational perspective, the balance and co-dependence between expertise and the crowd (Bonabeau, 2009; Malone et al., 2009).

This organization theory perspective therefore brings new insights to crowdlending studies, which have previously mainly mobilized agency, platform, or CI theories (Bertrand & Jakubowski, 2016; Calme et al., 2018; Mollick, 2014; Mollick & Nanda, 2015). By mobilizing the partial organization concept of Ahrne and Brunsson (2011) and the co-dependence principle of Nielsen (2018), we have changed the level of analysis, focusing instead on the interdependencies and control mechanisms between the four types of actors that make up crowdlending: the platform, project owners, crowd, and CA.

5.2. Implications for the chartered accountancy profession

Very few studies have focused on possible developments in the CA profession in the context of collaborative and platform economies. The meeting of new technologies and CI in crowdfunding encourages us to rethink not only the content of the CA profession but also its usefulness. The profession has already been profoundly disrupted by new technologies, particularly in its relationship with SMEs and very small businesses (Chapellier, 2003). It faces transformation challenges (Ndao & Charles-Cargnello, 2015) and threats such as automation (Frey & Osborne, 2017; Susskind &

Susskind, 2015). Some studies already show potential developments towards providing increased advisory services to business leaders (Cormier et al., 2012). However, the digitalization, the development of platforms in the profession, or their *uberization*, raises new challenges. Our study offers a complementary evolutionary path for the CA profession in what we call “CI engineering”, i.e. the transformation of interactions on platforms into resources and the exploitation of these resources. Crowdlending may therefore provide a possible future, not only for very small businesses and SMEs to obtain funding, but also for chartered accountants to renew their activities.

However, this implies that the interests of the platform and of chartered accountants converge, and that the role of chartered accountants in the co-dependent organization is better thought-out. This also requires the modernization of an ever-changing professional qualification (Degos, 2002) in order to train chartered accountants in the challenges of digital technology, new sources of funding, and, more broadly, the new professions of the collaborative economy. This article could contribute to this modernization of the professional qualification by being discussed during the mandatory training modules for trainee CAs, for example. The aim is to stimulate reflection in order to analyze the developments in the profession.

This article also shows that the *Ordre des experts-comptables* was unable to detect, and even less able to request the termination of, a right of veto that was not provided for in the officially signed partnership agreement but that was effectively incorporated without the *Ordre* being notified. Strict monitoring of agreements with third parties would prevent unexpected, and potentially professionally unethical, developments in the profession. In concrete terms, this would require the *Ordre* to formalize procedures for real-time feedback from chartered accountants approached in the context of a partnership, as well as periodic checks of the terms and conditions used to implement such partnerships. Furthermore, the occasional failure of this form of partnership does not necessarily imply the general abandonment of the partnership approach between the collaborative economy and the profession. On the contrary, it should be possible to rethink interactions and to correct dysfunctions, as we propose in this article.

6. Conclusion

This article shows the importance of chartered accountancy in the engineering of collective intelligence in crowdlending, i.e. expression and use of collective intelligence. By proposing an extended co-dependence model that includes the chartered accountant, we no longer focus on platforms, project owners, or crowds individually, but instead focus on the partial organization that brings together platforms, project owners, crowds, and chartered accountants. The interdependence between these four actors appears to be one of the conditions for using collective intelligence as a resource in crowdlending. This extended model also opens up avenues for developing the profession, which is currently facing the challenges of digitization.

Nevertheless, these results cannot be understood without taking into account the limitations of our study, which all represent areas for future research. The study is based on a single case, that of PeerUnion, whose partnership with the *Ordre des Experts-Comptables* failed. This failure, revisited in the light of Nielsen (2018), allowed us to develop a suggestion for a new co-dependence model. It nonetheless appears essential to test this model theoretically and empirically, either by varying certain parameters (interaction time on the forums, number of chartered accountants, their positions with respect to the platform) or by applying it to other cases. The proven and potential importance of crowdlending and of the collaborative economy more generally, but also the emerging nature of these sectors, call for further study to better understand the relationship between the crowd and experts in what we have called the engineering of collective intelligence.

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**Appendix A:
Summary of data collection**

Year		2015				2016								2017							2018																								
Monthly tracking		9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12				
Phases		Phase 1: Exploratory interview phase				Phase 2: Inductive phase of archive collection and analysis												Phase 3: In-depth research phase																											
		PeerUnion				3								1				1				1				1				2				9											
		Platforms' chartered accountants								1								1								1				1				5											
Interviews		Borrowers' chartered accountants																				4				3				3				10											
		Other chartered accountants																				5				1				2				8											
																																		Total				32							
Other data		Data collection on PeerUnion projects (statistics, accounting data, forum exchanges)																																											