



Article

Intellectual Capital Change Management in the Construction Industry—The Case of an Inter-Organisational Collaboration

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Abstract: Nowadays, due to the complexity of the relationships with external entities, along with the importance that traditional media and the innovative social media have in creating competitive advantages, it is necessary for companies to collaborate in order to create Intellectual Capital (IC). Although collaboration is crucial to create IC, there is a paucity in literature regarding the effects that a specific type of collaboration may have on the IC of an organisation, specifically a franchising with a mediatic actor. Moreover, literature addressing IC creation and destruction over time is scarce, especially when applied to the construction industry. This paper’s goal is twofold: understanding the longitudinal changes of a construction SME’s Intellectual Capital, regarding its creation and destruction; analysing the impact that a specific inter-organisational collaboration franchising—with a mediatic actor may have on such IC. A single in-depth case study was conducted, allowing to conclude that the actions of an organisation can develop both Intellectual Assets and Intellectual Liabilities. It was also concluded that inter-organisational collaboration, through a franchise with an actor with experience in communication, can generate, in the long term, positive and innovative effects regarding the different IC components, namely the Relational one. More specifically, the paper allowed to ascertain that an organisation’s IC changes over time in a dynamic fashion, i.e., Intellectual Liabilities which emerged before an innovative collaboration can be transformed into Intellectual Assets and create competitive advantages. This paper contributes to stress the importance of managing IC, not only when it is created, but namely in when it can be destroyed, in a context of inter-organisational collaborations applied to a construction SME.

Keywords: Intellectual Capital; Intellectual Assets; Intellectual Liabilities; collaboration; franchising



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1. Introduction

Due to major changes in the political, economic, social and business areas, knowledge has come to play a key role in organisations. In the present knowledge era, a crucial concept emerged: Intellectual Capital (IC). IC research has been evolving, namely in the past 25 years, and different stages can now be distinguished [1]. The first stage aimed at raising awareness about the importance of IC to “create and manage sustainable competitive advantage” [2] (p.155). A second stage of research on IC was focused on its measurement, management and disclosure. Several IC models were created, addressing different components according to different perspectives [1]. However, the most widely used classification decomposes IC into three components: Human Capital (HC), Structural Capital (SC) and Relational Capital (RC). This so-called “traditional IC taxonomy” is adopted in this paper.

Although most definitions consider Intellectual Capital as a means to create value for organisations, it is also possible that investments in Intellectual Capital may result in value destruction. The factors that lead to a reduction in the value of intangible resources and organisational competitive advantages are considered Intellectual Liabilities (IL). Research on IL is still scarce. On the one hand, there is a need to develop more studies focused on the negative effects of IC. On the other hand, this negative side of IC tends to be absent from management decisions [3,4]. Moreover, the process of IC creation or destruction may vary over time [4,5].

Nowadays, due to the highly competitive and dynamic business environment, it is more necessary than ever that organisations collaborate with each other to be competitive [6]. Furthermore, collaboration with external innovative partners can allow the development of new products or services. Chesbrough [7] named this new paradigm as Open Innovation (OI). In fact, many researchers consider value creation as the main reason for inter-organisational collaboration [7–9]. However, it is challenging for firms to collaborate with each other due to their different objectives [10].

Finally, it is important to stress the scarcity of literature focused on researching IC, as well as its effects, in the construction industry [11]. Hence, this paper aims to assess the effects of inter-organisational collaborations on the creation and destruction of IC in the context of a Small and Medium Enterprise (SME) pertaining to the construction industry. More specifically, it aims to understand the longitudinal evolution of the IC of a construction company, in terms of its creation and destruction. Furthermore, it aims to assess the impact that an inter-organisational collaboration, through a franchise with a mediatic actor, can have on such IC. In fact, there is a gap in literature regarding the relationship between IC and traditional or social media. Accordingly, the following research questions were formulated:

Q1: How is the Intellectual Capital of a construction company created or destroyed over time?

Q2: What effect does an inter-organisational collaboration with a mediatic actor have on the Intellectual Capital of a construction company?

Finally, this paper also explores the relationship between the IC concept and open innovation. Although research on open innovation has increased in recent years, it is still scarce within the context of SME [12].

To answer the above questions, a single in-depth case study was carried out and applied to an SME pertaining to the construction industry, in a context of inter-organisational collaboration through a franchise.

The next section is devoted to the literature review and the third section depicts the adopted methodology. In the fourth section, the findings are presented and discussed and, finally, in Section 5, some concluding remarks are offered.

2. Literature Review

2.1. Intellectual Capital and Its Components

Nowadays, Intellectual Capital is crucial for developing organisations' competitive advantages. Defining IC is a complicated task, since thoughts, areas of interest, qualifications, professional experience, or strategies differ from one author to another [13]. In this paper, we consider IC as the sum of intangible resources and knowledge-related resources that an organisation can use with the aim of creating value [14].

Research in IC, which is somehow recent in the academic literature, has been evolving over time [15] and can be divided into four distinct stages. The first stage, which had its origins between the late 1980s and 1990s, served to raise awareness about the importance of IC in creating sustainable competitive advantages [2]. The works of authors such as [16,17] stand out. For example, [17] considered Intellectual Capital as the difference between the accounting value and the market value of a company. The second stage of IC research was focused on developing different approaches to measuring, managing and disclosing IC. During this stage, more than fifty methods were created, helping to shape the

different components of IC [1]. Such as the IC definition, IC components have been diverse according to the perspectives of the different researchers. The division of IC into different components aims to represent the various origins of intangibles [14]. Currently, there is some consensus on dividing IC into three components: Human Capital, Structural Capital and Relational Capital (see [18]). This taxonomy has been applied to most organisations, including construction companies, which this article contextually focuses on.

According to [18], Human Capital (HC) consists of knowledge, innovation, experiences, and skills pertaining to the organisation's employees. Regarding the construction industry, HC refers to the knowledge and experiences of the companies' engineers and employees needed to perform their daily work [11]. The organisation's HC potentially decreases from the moment the worker leaves the company [19]. Structural Capital (SC) represents the skeleton and glue of an organisation [20], i.e., it refers to the intangible elements that directly support it, such as systems, procedures strategies, routines or the organisational culture [21]. Likewise, these elements are present in construction companies [19]. Relational Capital (RC) refers to the knowledge embedded in the relationships with people and external entities that influence the life of the organisation [20]. This is an important dimension for many organisations. As Chesbrough [7] puts it: "companies need not reinvent the wheel, since they can rely on external sources to do the job effectively" [7] (p.49). In a construction company, RC refers to its relationships with different actors, such as customers, outsourcing companies, material suppliers or guarantors [19]. Long-term relationships established in consortium situations are also a good example of this type of capital in the construction industry [11]. It is important to note that each of the components that make up the IC has little or no value when analysed independently. IC results from the interaction of the three IC components [20].

The third stage of IC research seeks for studies on IC applied to practice, i.e., it is focused on how to use IC in managing a company [22]. To preserve their competitive advantages and create value for themselves and their partners, organisations must develop and manage Intellectual Capital in an effective and innovative way [23]. The aim of this article falls under this stage of IC research: to assess the effects of inter-organisational collaborations on the creation and destruction of Intellectual Capital in a construction SME. Regarding SMEs, IC plays an important role in maximising their performance, as global trends have forced them to increase productivity, expand into new markets, adopt new technologies as well as attract new workforce and protect their own [24]. Finally, a fourth stage on IC research suggests the application of the concept to broader ecosystems, such as countries, cities or communities. It seeks to understand the impact of IC on society and the environment [25].

2.2. *The Process of Creation and Destruction of Intellectual Capital*

There is an increasing interest in understanding how IC can be used to create organisational value. In fact, IC is often seen as synonymous with Intangible Asset (IA), something which is supported with literature showing that IC is related with high organisational performance. For example, IC's characteristics have been considered as important drivers of the so-called Open Innovation [23]. However, it is also possible to invest in IC and cause value destruction. The elements that diminish the value of Intangible Assets and the competitive advantage of companies are called Intangible Liabilities (IL). On the one hand, IL can refer to all non-monetary obligations, related to stakeholders, that the company must fulfil to avoid the depreciation of its IA [26]. On the other hand, they can be interpreted as "potential non-physical causes of organisational deterioration" [27] (p. 95), which is the definition adopted in this paper. Literature on IC focuses mostly on IA, underestimating the importance of IL, i.e., ignoring the negative side of IC [26,27]. Just as IA such as knowledge, patents or brands can create value for the organisation, the negligent use of IA, non-fulfilment of monetary obligations, lack of commitment and skills or even the loss of key employees are examples of possible causes of value loss [26].

Harvey and Lusch [27] presented a model to classify the different types of Intellectual Liabilities. Based on this study, [28] presented a new classification distinguishing external IL from internal IL, and decomposing the latter into Human, Structural and Relational Liabilities. Human Liabilities refer to the decrease in the value of workers' knowledge, experiences or motivations. Structural Liabilities refer to the decrease in the value of the organisation's procedures, processes and culture. Relational Liabilities refer to the decrease in the value of the relationships with entities outside the company [28].

Regarding the construction industry, the various construction processes, relationships with contractors, subcontractors, customers, suppliers or banks create value when fulfilling the agreed performance requirements. However, construction organisations face several challenges in order to create value, such as a lack of communication between suppliers or the withholding of warranties whose deadlines are rarely met by clients. Most of these problems are caused by inadequate planning, inadequate supervision, weak management structures and unethical practices [29]. According to the adopted definition of IL, such facts suggest that in a construction company, intangible factors can potentially decrease organisational value at different levels. In fact, IA can turn into an IL and vice versa, at different levels of analysis (e.g., at the level of a company or a group of companies) [4]. However, time is needed in order to assess the effect of IC on organisational value creation or destruction [3,29]. The time aspect allows considering both static and dynamic properties of IC [3]. For example, some IC components may be relevant at a given time, but not at others. Hence, it can be claimed that IC creation or destruction is a process that may change over time [30].

2.3. Inter-Organisational Collaboration

Today's complex and highly dynamic business environment makes it crucial for organisations to collaborate [6]. The philosophy underlying collaboration is that of working with others to achieve a common goal [9]. More specifically, collaboration can be defined as an "interaction between participants who work together to pursue complex goals based on shared interests and a collective responsibility for interconnected tasks which cannot be accomplished individually" [10] (p. 391).

Three distinct levels of goals can be differentiated in collaborations. The upper level, which refers to the overall goals of the collaboration; the middle level, which focuses on the specific goals of each participating organisation; and the lower level, concerning the personal goals of each individual involved in the collaboration. Consequently, conflicts between goals may emerge since individual or collective goals change over time [31]. Participants need to relinquish some autonomy in order to make collaboration possible [10]. To deal with these conflicts, organisations may use formal mechanisms, such as developing joint decision-making rules, or informal ones, based on personal relationships or shared understandings [31].

When companies pertaining to the same group engage in collaborative processes, it can be challenging to define policies and procedures between them, due to their different missions and objectives. A group of companies can be considered as an organisation per se, using resources, providing opportunities for knowledge to flow and stimulating innovation [32]. Collaboration involves combining scarce resources, exchanging knowledge and developing procedures to create synergies and competitive advantages for the different partners [6,32]. Companies are increasingly seeking out opportunities to create value through inter-organisational relationships [8]. In fact, according to the new paradigm of Open Innovation, organisations should seek to collaborate with or rely on partner organisations with the specific purpose of exchanging knowledge [33]. Therefore, organisations are increasingly becoming dependent on external collaborations to secure competitive advantages and improve their innovative capabilities [33,34].

Regarding the IC components, organisations should start to define if they want to change their SC, such as its culture. Then, the next step is to develop RC, starting by selecting the sources of new ideas and knowledge, i.e., the right partners [35]. Thus, it can

be argued that collaboration may affect an organisation's RC. Relationship management in collaborations is crucial for partners to maximise the likelihood of success [6]. Relational Capital can be developed through different dimensions such as trust, interdependence or participative communication [5]. The higher the level of such dimensions, the better the collaboration outcomes are likely to be [6].

In the construction industry, collaborative relationships are complex, involving a wide diversity of participants. However, to foster innovation in this industry, it is important to commit to collaborative relationships from a group perspective [32]. Franchising is one way of developing partnerships. Franchising involves a franchisor, which sells the right to use its trademark, operating systems and product specifications to a franchisee. The latter is authorised to sell the product/service under the franchisor's name within a region and period of time [36]. Regarding the partner selection, different aspects that may fit the organisation's characteristics and goals should be taken into account. When needed, franchising can be seen as a means to develop new competencies and skills (i.e., HC) for the employees, since the franchisor may provide adequate training. However, this contribution is likely to change over time, since it is normal that in early stages of the collaboration, investments in training will be more significant than in later ones [37]. Therefore, franchisees should seek other benefits from other IC dimensions. Regarding structural capital, when the franchisee joins the franchising system, he also gains access to the intangible resources that allows the organisation to function properly, such as "the management philosophy, the corporate culture, management processes, information systems, networking systems and financial relations [37] (p. 341), although some franchisees may not value this component of franchising due to the restrictions it imposes to its independence [37]. For example, changing organisational embedded values can be a difficult task. structural capital can also encompass the so-called innovative capital. This form of capital can be attractive for franchisees who enter inter-organisational collaborations. This type of capital refers to the successful use "of an invention, or some novel administrative use of a previously established body of knowledge" [37] (p. 342). Finally, franchising can allow franchisees to access to an already developed relational capital, namely by using a brand which has some recognition among customers. In fact, the value by which franchisees perceive the value of the brand is one of the main reasons they enter the franchising system [37].

Organisational reputation is an important dimension to assess brand value. Companies seek to work closely with partners having a better reputation than their own, considering the potential benefits that such reputation can bring. The business reputation of a company is the prestige which is maintained over time and ensures its sustainability and differentiation through the management of its Intellectual Capital [38]. Thus, it becomes crucial to assess the changes of an organisation's IC in a context of inter-organisational collaboration, namely when the other partners possess a greater reputation and media weight, which is the focus of this paper.

The exposure to media, and specifically to social media such as Facebook, Instagram or YouTube, contributes to accelerate the communication flow between organisations and their stakeholders [39]. Social media has changed the way we communicate, how we interact and even how we collaborate, at both individual and organisational levels [40]. Due to the easiness of its use, social media is increasingly being adopted by organisations as an interaction and relational tool with their stakeholders, so that value can be created and engagement with their consumers can be developed. This engagement allows organisations or brands to be better recognised, thus increasing their relational capital [41]. Furthermore, social media is more cost-efficient than other traditional types of media (e.g., television advertisements; billboards) [39]. Therefore, this type of media is extremely important for organisational networks such as franchising systems. It should be noted that, through this means, organisations can better guide their communication efforts towards their targets [41]. High levels of media can foster a closer collaboration between companies, allowing them to develop an intense knowledge exchange and creation, which can be later applied to open innovation [42].

Finally, it should be noted that not all inter-organisational collaborations are successful [34]. Despite the need to align the goals of the different members to achieve an effective collaboration, in some circumstances, they may be incompatible and IL may emerge [30].

2.4. Intellectual Capital and Open Innovation

In almost two decades, the Open Innovation (OI) paradigm has been gaining an increased attention by entrepreneurs. Chesbrough [7], who can be considered as the “father” of this paradigm, considered it as a method which allows organisations to develop new products or services by collaborating with external innovation sources. According to this paradigm, there is a shift from developing innovations internally to accessing and integrating external knowledge [33]. Therefore, when referring to strategic partnerships, the organisation can use their partners’ resources (such as knowledge) to foster OI processes [43]. This paradigm is grounded on the fact that “interaction with other subjects is likely to reduce the risks embedded in pursuing innovation, while increasing the odds of success thanks to the partners’ competencies” [44] (p. 261). In other words, companies can commercialise knowledge developed by external entities besides their own R&D departments [45]. Moreover, in open innovation, “value extraction from knowledge through intellectual property rights is possible on a broad scope, e.g., by selling, licensing or donating intellectual property rights and by collaboration with external partners” [45] (p. 1385). This is especially important in the case of SMEs, which typically lack crucial resources such as marketing capabilities [12]. Furthermore, the innovation process can be different according to the industry to which the organisation pertains [33]. For example, service organisations “are more concerned with marketing opportunities which are also identified as an innovation of using services to sell more products” [33] (p. 2). OI can bring benefits when there is a need for organisations to spend significant costs in accessing new ideas such as market know-how [33]. This can be realised through inter-organisational collaboration such as franchising.

More recently, some researchers have established a relationship between OI and IC [35]. On the one hand, some suggest that OI processes, which include inbound and outbound knowledge flows, can affect the resources pertaining to an organisation, thus encompassing its IC [35]. Enkel [46] defend the existence of a third innovation process (the coupled). The inbound process refers to the process of knowledge transfer from external entities, the outbound refers to the opposite and the coupled refers to a co-creation process [46]. This paper is focused on inbound open innovation processes. In fact, the implementation of inbound OI instruments may involve the acquisition of external resources such as knowledge, trademarks or licenses [47]. On the other hand, others such as [48] consider that IC can positively affect OI. According to [48], the results from OI processes can be potentiated if the organisation’s IC (and its dimensions) is efficiently managed. In this case, its relational capital plays a crucial role by fostering interaction, supported by HC and SC [44]. An effective use of the organisation’s relational skills can allow knowledge, new ideas or technology to be successfully transferred and embedded in the form of HC and SC, something which can potentially lead to innovation [44]. In fact, the final aim of OI processes is to foster organisations’ innovation processes and the organisation’s structural capital can help achieve such aims when it encompasses an appropriate culture and new procedures [35]. Moreover, by making use of their absorptive capacity, organisations need to develop their HC in such a way that it can represent the knowledge and skills that the organisation needs to develop so that external ideas can be internalised [34,43,49]. The absorptive capacity plays a crucial role “in enhancing firms’ innovation, such as the management capability of intellectual capital” [33] (pp. 2–3). Finally, it should be stressed that IC not only can develop OI processes, but it can also impede or delay such processes [35].

3. Methodology

3.1. Contextualisation of the Organisation

Company X is a Portuguese construction SME, whose headquarters are located in Guimarães. It provides several services such as new construction, rehabilitation or public works, operating in various fields such as schools/hospitals, housing, buildings, infrastructures, industrial facilities, pavilions, rehabilitation of built assets and urbanisation. It was founded in 1999, starting its activity with 5 employees, including the two shareholders. By 2008, that number had increased to 24 employees. With the purpose of diversifying and growing, company X underwent a restructuring and, in 2011, Group X was created, comprising four companies: three construction companies (company X, company Y, and company X France) and one engaged in the real estate industry (company W) (see Figure 1). Since then, there was a growing trend. By 2018, the group employed 41 workers.

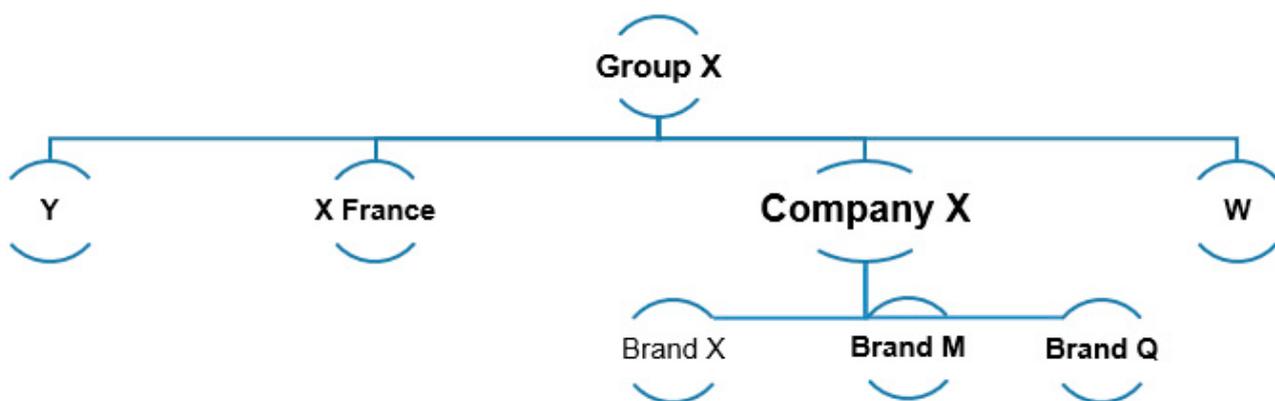


Figure 1. Group X.

Currently, there is a collaboration through a franchising contract involving company X and two franchisors pertaining to the construction sector (companies' M and Q). These franchisors are pioneering brands in the construction sector, due to their strong investments in different marketing initiatives. Advertising on television, billboards, radio and social networks are examples of such investments. Company X is a franchisee since 2011, using not only their own brand, but also representing M and Q brands. However, while under its own brand, company X carries out any type of works, when using the M and Q brands, the company only undertakes building rehabilitation, remodelling, repairs, restorations and completions.

3.2. Methodological Framework of the Research

This article aims to improve comprehension about the effects of inter-organisational collaborations on IC creation or destruction in a specific and complex context. Hence, the single in-depth case study method was adopted to understand such effects on company X' IC. More specifically, the collaboration between the different companies is focused on a franchising relationship where two companies (M and Q) possess high communicational/media exposure. This media exposure is carried out through several means, such as a television programme or social media. Both companies have a very strong presence in Facebook, Instagram and YouTube.

Furthermore, there is no deep understanding about the complex phenomenon in question [50]. One of the advantages of this research method is to provide an assessment and understanding of unique, rare and atypical organisations, as well as complex and dynamic events and processes [51].

3.3. Data Collection and Analysis

The complexity of the organisation under study and the diversity of the participants required the use of different sources for collecting data, specifically: semi-structured interviews and informal discussions, document analysis and direct observation. In fact, Yin [50] considers interviews, document analysis, and observation as three of the most commonly used data sources in case study research. Semi-structured interviews have a conversational nature, following a previously elaborated script [50]. The analysis of documents (either in paper or electronic format), such as emails, memoranda, letters, minutes or even mass media articles, is also considered an important source of information [50]. Finally, direct observation is very often used in case studies to assess not only the context, but also potential behaviours that occurred during the interviews or in other circumstances [50].

Data were collected between April and September 2018.

Five semi-structured interviews were conducted with the two company X shareholders (SHH1 and SHH2) well as with three employees: two civil engineers (ENG1 and ENG2) and a certified accountant (CA). All the semi-structured interviews were conducted with the aim of providing illustrations about how the IC of company X was created or destroyed over time, as well as how such IC was affected by an inter-organisational collaboration (franchising) with the M and Q brands. Regarding this latter case, it was firstly intended to assess the need for a franchising, as well as on what led the company to carry out inter-organisational collaborations with companies' M and Q. Therefore, the shareholders were chosen to be interviewed since they had a general perception of the business since the company was created. Over time, they were responsible for many decisions, namely entering the franchising system. Therefore, they were considered as key to illustrate the reasons regarding such engagement. The two civil engineers were chosen considering that they were in the company for some time and knew it well enough to provide potential illustrations from a different angle: one which is "closer" to the construction sites. The interview with the certified accountant aimed to assess the opinion of someone who would possibly be more familiar with the IC concept. These interviews had an average duration of 25 min. In order to address the longitudinal changes in company X, IC and the effect of franchising, 10 informal discussions with different employees were also conducted to capture the workers' different perspectives. These discussions lasted, on average, about 45 min. The interviews were supported by previously elaborated scripts. At this point, it is important to stress that all the scripts had the same contents, although the ones used in the interviews conducted with the shareholders also addressed three additional points, namely referring to the future of the partnership with brands M and Q. All the interviews were recorded (with the interviewees' consent) and, later, transcribed. Notes were also taken during the interviews. At the beginning of the interviews, a short presentation of the theme and the objective of the interview was delivered.

To complement the interviews, document analysis was also conducted with a focus on personnel records. The company allowed us access to different types of documents such as minutes, official training documents, circulations or old questionnaires, which were important to understand the context under study. However, for the main purpose of the study, the data collected from the company's management software were crucial. More specifically, through this software, it was possible to obtain data referring to company X's number of employees, their qualifications as well the turnover rates since its inception until 2018. Direct observation was another source of evidence, particularly to assess the personnel's' behaviour, as well as the work techniques used in company X.

The qualitative data were subject to a content analysis, and MAXQDA software was used to assist in organising the different types of data and categorising them. Table 1 depicts the proposed categories and sub-categories.

Table 1. Codification.

| Theme | Categories | Sub-Categories |
|--|--------------------------------------|-----------------------------------|
| Creation and Destruction of Intellectual Capital | Human Capital | Human Assets |
| | | Human Liabilities |
| | Structural Capital | Structural Assets |
| | | Structural Liabilities |
| | Relational Capital | Relational Assets |
| | | Relational Liabilities |
| Time | Its relevance | |
| Inter-organisational Collaboration | Collaboration | Selecting the type of partnership |
| | | Partner selection |
| | | Managing the collaboration |
| | Intellectual Capital | Human Capital |
| | | Structural Capital |
| | | Relational Capital |
| Goals | Defining the priority goals | |
| Time | Forecasting the collaboration length | |

4. Findings and Discussion

The case study presents evidence of IC creation and destruction over time. On the one hand, the findings suggest that company X created HC. According to SHH1, employees have always presented “vast knowledge, [namely] technical skills”. This interviewee has also claimed that such knowledge has increased over time. ENG2 emphasised the sharing of knowledge between the company members, considering that “the personnel always try to improve their technical skills among each other”. Additionally, SHH2 stresses the “personnel’s interest and motivation in carrying out the jobs, especially the large ones”. ENG1 also considers that employees are satisfied and motivated with the type of work that the company provides. Informal discussions with some employees corroborated these facts and the good conditions provided by the company were highlighted. However, although most employees are able to work as a team, according to the CA “(...) for personal reasons, there are guerrilla fights between employees in the workplace”. This is harmful to the company as some employees refuse to work with other colleagues. In informal discussions, some employees confessed that there is some difficulty to work as a team due to some personality clashes and individual objectives incompatibilities. Through direct observation, it was confirmed that employees needed to improve the way they communicate with each other. Therefore, findings showed that company X creates HC through different ways, such as hiring staff with extensive technical knowledge, improving their skills along the construction works, fostering knowledge sharing, or motivating them. Motivation usually arose from carrying out large and complex jobs, as well as from the good conditions provided by the company. However, there is also evidence of IC destruction. Human Liabilities, such as inappropriate behaviours in the workplace or discrimination between co-workers, have also emerged [27,28]. Regarding the SC component, several implemented management processes can be stressed, such as the way documents are organised. The whole Group X presents a very organised documentation service. According to the CA: “I have always had at my disposal a good IT structure as well as [effective] IT support from one of our suppliers”. For example, company X France required French accounting support. It was possible to verify these illustrations through direct observation. The efficient management process was also mentioned by ENG2, who emphasised the quality management. Through informal discussions with four employees, it was possible to

confirm the great documentation services, the importance of using dedicated management software, as well as confirming the good quality management. Conversely, these same employees have mentioned the need to update the organisational structure due to a lack of task and responsibility allocation. Thus, it can be inferred that company X creates SC through means of effective administrative and management control services. However, Structural Liabilities have also emerged, namely when referring to the “problem” with task and responsibility allocation between employees [27,28].

Regarding the RC, the company always had good feedback about the services provided. SHH1 considers that the company has a “good image among suppliers, customers, government and banks”. In informal discussions with employees, some referred to the good relations and reputation with external entities such as subcontractors. However, although the company has a good image, it always had some difficulty in implementing marketing concepts. From another point of view, SHH2’s considers that “nowadays we feel more pressure from clients not paying as agreed. This leads to delays in paying suppliers, something which has weakened our relationship with them”. ENG2 and the CA also agree that the company has a good relationship with all external entities. However, the CA shares the view of SOC2, claiming that some “suppliers are unhappy with the company due to late payment”. These examples illustrate how RC has created and destroyed value for the organisation. On the one hand, through comments, recommendations and positive feedback from outside parties, the company created intangible assets. On the other hand, the value of customer relations decreased due to non-compliance with deadlines for finishing the works and thus, Relational Liabilities emerged (see [28]). Furthermore, it was found that HC had a negative effect on the company’s RC, namely due to a lack of knowledge and capabilities in marketing. Such example stress the importance that the interconnection between the different IC components can have [20].

These illustrations were longitudinal grounded, i.e., the “time” factor was crucial to undertake the empirical study. In general, there is some consensus about the importance of time regarding IC creation and destruction. According to SHH1, there was an increase in employees’ professional experience and knowledge. SHH2 mentioned that company X’s personnel are likely to improve, stressing the importance of hiring skilled employees, as well as creating and sharing knowledge. However, the documentary analysis showed a high personnel turnover, mainly between 2012 and 2016, which is an indicator of an Intellectual Liability [27,28]. Moreover, it allowed us to compare employees’ qualifications between 2011 and 2018. Findings showed that, although there was an increase in the number of employees, the level of education remained low. Several reasons for IC changes were mentioned: ENG1 argues that HC evolves due to changes in employees’ behaviours on the construction sites, while the CA considers that time provides more experience among the employees and allows the company to implement more advanced management software. These claims are in line with [52] who consider that IC requires time in order to create and develop value. On the other hand, it was found that, over time, the relationship between employee and employer becomes more “familiar” and, due to some “overconfidence”, employees become sloppy in their tasks. This is in line with [52], who also state that CI requires time to destroy value. In general, it is crucial to understand the evolution of IC in company X, considering the positive and negative dimensions of IC [25,27].

This paper also addresses the effect that an inter-organisational collaboration (through an inbound open innovation process) with a mediatic actor has on the Intellectual Capital of a construction company. In 2011, the dimension (SME) and scarce resources of company X were limiting the number of new business proposals. Consequently, it decided to start a franchising with companies M and Q. Gyamfi and Sein [47] considers that the acquisition of external resources such as trademarks are viable option for implementing inbound OI instruments. According to [45], from the franchisor point of view, in open innovation, franchising (as an intellectual property right) can be considered as a way to extract value. However, this paper focuses on the franchisee perspective, who can also extract value through collaboration with external organisations [45]; i.e., it focuses on

the inbound open innovation process [43]. According to SHH1, “due to the crisis felt in our country in 2011, the company had no option (...). Moreover, the construction industry in Portugal changed considerably. It shifted from doing new constructions to rehabilitations (...) an area to which company X was not accustomed”. Document analysis showed that in 2012, the number of employees decreased by 30%, as one of the consequences of the 2011 crisis. However, from a group perspective, the number increased not only due to the creation of company X France, but also due the aforementioned franchising, something which is in line with [6], who claims that the highly competitive business environment stresses the importance of collaboration between organisations. Such importance is also underlined by Chesbrough [7], who claims that collaboration is an important driver of Open Innovation in organisations, contributing to maintain and develop their competitive advantage. Franchising allowed company X to use a mediatic brand (which can be considered as structural capital *per se*), and thus to absorb new knowledge through different means such as trainings. Open innovation was a way to access a new market and simultaneously decrease costs [33]. It is important to stress that this paper only assesses the so-called inbound open innovation [43].

SHH1 and SHH2 suggested that the decision to engage in this type of partnership—franchising—was primarily based on the possibility of using the M and Q brands. The company considered that would be profitable to invest in relational capital, even though it would have to change its structural capital, namely its culture. This is line with Matricano [35], who considers that a new and more suitable culture with new procedures can help developing the organisations’ open innovation processes, which in the case of company X, translates into the provision of differentiating services. In fact, company X started to offer new services such as rehabilitation due to a collaboration with external innovation sources (Brands Q and M), something which is in line with Chesbrough’s [7] definition of open innovation.

Thus, franchising has brought several changes. For example, the Q and M brands were then placed in the company’s cars or in the employees’ shirts working at the construction sites. With regard to the selection of the type of partner, SHH1 and SHH2 claimed that, apart from being one of the first rehabilitation franchising networks in Portugal, the partners’ reputation was the key criterion. According to SHH1, brand Q has a great reputation in Portugal. In fact, they possess a great mediatic weight, which is grounded on advertising through television (namely through a programme broadcast on a generalist channel), radios as well as through social media. In fact, social media was seen as an important way to increase company X’s reputation, something which is in line with Pakura and Rudeloff [39], who stress the importance of using social media and its influence to create, develop and maintain a company’s reputation. For example, annual meetings between organisations using the M and Q brands were held. The goal was to assess the current situation of the entire network, which encompassed company X. These meetings, as well as other events such as prize-giving ceremonies, were then disseminated through social media, such as YouTube. Company X’s option for this partner took into account their marketing capabilities, as well as other intangible assets such as brand, reputation, previous alliance experiences or technically qualified employees, something which is line with [53]. According to SHH2, “we are able to attract larger orders and use M and Q’s image to carry out decoration jobs”. It can thus be inferred that “an increase in firm interaction with other organizations translates into a growing ability to gather external ideas, competencies, knowledge, technologies, and other intangible assets, which in turn offers better chances of innovation” [44] (p. 262), in this case, through the provision of a new service.

With regard to Group X’s goals, there were different perceptions. SHH1 considered that personal objectives prevailed over those of companies M and Q. However, although it has contributed significantly the network’s main goal—to be the largest rehabilitation network in the country—the shareholder also pointed out that these collaborations are temporary. In the same line, ENG2 considered that Group X’s goals prevailed. Conversely,

according to SHH2, ENG1 and CA, M's goals prevailed since Group X needed to give up some autonomy for the collaboration to be possible, something that is in line with [10].

Inter-organisational collaboration, through a franchise, has not only led to IC creation in company X, but also to its destruction. As for HC, SHH1 stated that "there was more training, both at the administrative and operational level" and mainly at the "marketing level". SHH2 remembered that, initially, the new partners were not very welcomed by the company's technicians. This interviewee also considered that employees who started working with the brand perceived a lack of equality when compared with their colleagues who carried out works for other companies within Group X, such as for company Y. ENG1 agrees, stating that at first "it became difficult for them to enjoy carrying the M and Q brands, as they did not really identify with a 'feminine' brand" and that "many employees did not have the 'patience' to be called 'the Qs'". ENG2 also mentioned that the change in the type of job led to a decrease in the employees' motivation, stating that "I think everyone likes a big and complex job". The CA also mentioned the employees' dissatisfaction regarding the changes, and particularly some apprehension related with the new tasks. However, over the course of several months there was an increase in training courses sponsored by M, which were free and motivating, with some of them addressing unfamiliar themes such as the importance of the brand or the adequate behaviours on the construction sites. Hence, ENG1 believes that in 2018, employees already enjoyed being called "the Qs". Additionally, ENG1 mentions that "the fact that the partner advertises the brand on popular TV shows, radios, magazines, flyers and billboards, or appearing on cars, results in customers approaching and fully trusting us without even knowing our company". In addition, over time, there has been an increase in staff experience and knowledge regarding the new type of work (rehabilitation). By 2018, some employees were already specialised in rehabilitation. Thus, findings suggest that over time, what were initially Intellectual Liabilities have been transformed into Intellectual Assets, which is line with [4]. According to these authors, over time, an Intangible Asset can be transformed into an Intellectual Liability and vice versa, at different levels of analysis.

Regarding SC, SOC1 and ENG2 only mentioned the improvements in the budget processes and in the drafting of contracts with suppliers and customers arising from the inter-organisational collaboration. SHH2 and ENG1 highlighted the implementing of a new CRM. Therefore, it can be inferred that collaboration led to SC creation. Furthermore, according to the interviewees' perception and based on the informal discussions, Structural Intellectual Liabilities did not emerge over time.

As for RC, according to SHH1 and considering informal discussions with two employees, the collaboration has raised the company's awareness of marketing issues and the importance of using a brand with great media influence. According to SHH1 and ENG1, the company started to be more focused on the client's satisfaction and on the way of dealing with them. This "new" type of client has a different profile when compared with those the company was used to (the goal is now the remodelling and the focus is no longer the work but the client). ENG2 mentioned that "clients started to contact us to carry out jobs, also suggesting others to do the same". Thus, the company's image and reputation increased. Therefore, Brand Capital increased significantly after the inter-organisational collaborations, something which is in line with [38]. Through informal discussions, some employees stated that the collaboration allowed the company to conduct better businesses with suppliers and customers due to a new business power. Thus, it can be stated that, with regard to RC, only Intangible Assets resulted from the collaboration.

Additionally, SHH1 stressed the importance of "trust", as well as the increase in information sharing (namely through regular meetings). He also mentioned the "interdependence" dimension, exemplifying it with the cost sharing regarding radio advertising, billboards, or the access to technologies such as the new CRM software. These perspectives are in line with [5], who suggest that collaboration can develop RC through trust, interdependence and participatory communication.

In summary, the fact that company X entered into a partnership, through a franchising, with companies M and Q, which had great media weight by advertising the brand on television (including through a programme broadcasted on a generalist channel), positively affected the three components of IC, namely RC. Such is in line with [6], who argue that collaborations directly affect the RC. Regarding the time variable, the case study shows that time is crucial to assess IC, something which is in line with [3]. In fact, over time, inter-organisational collaboration allowed IC to be created in all its three components. According to SHH1, franchising with companies M and Q was worthwhile in terms of IC. However, SHH2 pointed out that, even considering the potential positive changes which affected the company's IC, the collaboration was neither well executed nor successful. This is in line with [34], who claims that not all inter-organisational collaborations can be successful. According to this interviewee, despite the benefits provided by the alliance in terms of IC, the company faced difficulties in adapting to new demands, namely regarding the procedures and rules imposed by franchising [54]. Financial difficulties were also emphasised. Although, in general, the collaboration had positive effects in terms of IC, according to different interviewees (SHH1, SHH2, ENG1 and the CA) the company did not achieve the expected financial return.

5. Concluding Remarks

This paper aimed to analyse the effects of inter-organisational collaboration on the creation and destruction of Intellectual Capital of a small and medium-sized construction company over a period of time. Two research questions were formulated: "How does the Intellectual Capital of a construction company is created or destroyed over time?" and "What effect does an inter-organisational collaboration with a mediatic actor have on the Intellectual Capital of a construction company?"

The first research question sought to assess the actions and means employed by company X that positively or negatively affect its IC. In terms of HC, it was found that different factors allowed company X to create IC. The hiring of staff with technical knowledge, the employees' experience, the knowledge sharing between colleagues, the motivation caused by carrying out complex works or the attractive conditions provided by the company are some examples of IC creation.

Conversely, there was also IC destruction caused by inappropriate behaviour by some employees in the workplace or by incompatibility of personalities (negatively affecting the capacity to work as a team). There was also creation of SC. The documentation process, the use of a highly qualified management information system or the detailed quality management of the constructions are some examples of such creation. Structural Intellectual Liabilities also emerged [27,28] namely due to inappropriately distributed, organised and coordinated tasks. Finally, regarding RC was both created and destroyed.

The good relationships with external entities allowed the company to create IA. The company had a positive image, complemented by comments, recommendations and positive feedback from such entities.

With regard to Relational Liabilities [28], there was a decrease in the value of customer relationships, namely due to the fact that the deadlines of some projects were not met. Although the results are not unanimous regarding the interviewees' perception of IC creation and destruction, it can be concluded that any IC assessment must consider the existence of both IA (which provide competitive advantages) and Intellectual Liabilities [28].

The second research question aimed at understanding how an inter-organisational collaboration (through a franchising) with an entity with a great reputation could affect the company's IC (as well as its components). When the franchise began, Human Liabilities emerge from the collaboration between company X and companies M and Q. The new brands raised drastic changes in the employees' workplace, dissatisfaction among them and lack of motivation. However, over time, HC was developed. Employees came to respect the partnership due to several factors, namely the new skills provided to them by the new brand through various means such as trainings. Regarding Structural Capital,

the new brands provided a new tool to search and manage orders from its clients, new budget processes and an updated to the contracts with suppliers and clients. Finally, it is important to stress the drastic changes in terms of Relational Capital. The lack of marketing knowledge has been overcome through the partnership with company M and Q. Consequently, the relationship with clients improved significantly. In fact, it was found that Relational Capital was the IC dimension that developed the most over the specific time period since collaborations have a direct effect on this IC dimension [6]. It can be claimed that company X's Brand Capital increased [38]. Potential customers started approaching the whole Group X due to franchising with M and Q. For that to happen, the adoption of inbound open innovation processes was crucial, which allowed the company to access to a new market. The collaboration with other brands M and Q allowed knowledge to be transferred to and absorbed by company X, fostering a new culture and potentiating value creation. Thus, this paper suggests that, in the long term, inter-organisational collaborations with mediatic actors can provide IC creation, namely Relational Capital. Company X is an example of such argument. Its awareness greatly increased due to the media exposure which result from franchising, namely through the broadcasting on a television programme and through an intensive use of social media. Thus, collaboration with other partners, namely mediatic ones, can foster knowledge sharing, something which allows the organisation to attain an innovative final result (company's X service) and develop its competitiveness [33].

According to [34], not all inter-organisational collaborations are well executed and successful. Although the research's findings show that inter-organisational collaborations allow IC to be created, four interviewees agreed that the possible renewal of the contract (in 2018) with company M and Q would be unlikely, due to the poor financial return.

The present case study contributes to enrich the literature on IC in construction companies. Research on intellectual capital and its effects on the construction industry has rarely been carried out [11]. This study also contributes to highlight the importance of managing IC, not only when it is created, but especially in situations where it can be destroyed, taking into consideration a context of inter-organisational collaborations applied to SMEs. Finally, it also contributes to literature relating the concept of IC and the one of open innovation. Consequently, important practical contributions emerge from this study. On the one hand, managers should not underestimate the importance of managing IC. On the other hand, and regarding decision-making aspects, the study suggests that before entering a franchising system, companies should: (1) assess the franchisor brand recognition and (2) assess the potential cost/benefit of investing in a strategic inter-organisational collaboration such as a franchising. This fact can be potentially important to decide whether to invest or not in relational capital for the company. Managers have to be aware that such investment will be translated into to a different culture, with different values (i.e., affecting the structural capital), also needing different competencies (i.e., human capital). Therefore, managers have also to be aware that a bad idea can become an intellectual liability for the company.

This study is not without limitations, being important to highlight that a single in-depth case study was undertaken and, consequently, findings can only be generalised in a theoretical fashion. Therefore, this study should be extended to other organisations. Further research should address the impact that a particular type of collaboration—franchising—might have on the IC of any type of organisation. It should also focus on the negative effects of Intellectual Capital [3] in SMEs.

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