Corporate Universities as Knowledge Management Tools

1. Introduction

In the last decades, continuous learning and lifelong education has been considered a key issue not only for policy makers but also for companies. Indeed, the capability to keep workforce reactive to challenging changes in markets and technologies is deemed vital for a sustainable business environment (Marquardt, 1996). This explains why Corporate Universities (CUs) have become a popular arrangement to facilitate business education and training, organizational learning, and circulation of knowledge inside a firm. Especially (but not only) used by large firms, CUs are now diffused in numerous countries and industries (Andresen and Lichtenberger, 2007; Guerci *et al*., 2010; Abel and Li, 2012; Antonelli *et al.*, 2013; Ayuningtias, 2015). Although created for different reasons, usually they have similar goals, i.e.: systematic organization of human resources training, retaining employees and reducing negative effects of turnover, facilitating the introduction of fresh workforce, aligning competences around the company, and improving the sense of membership and loyalty of workers (Hearn, 2001).

CUs are not only a peculiar educational or training arrangement, but can also be regarded as a means for managing the knowledge possessed by an organization. For this reason, some authors consider them to be a knowledge management (KM) tool (Crocetti, 2001; Rademakers, 2005) or even a part of the organisation's knowledge infrastructure (Wiig, 1997). Thus, analysing such organisms under a KM perspective should help to understand key practical issues related to their implementation and management and, more generally, to achieve better comprehension of new modes of implementing business education and training in companies. In spite of this potential relevance, the KM literature on CUs is still scarce.

In light of this, the present paper contributes to fill such gap by understanding how CUs can be framed into a KM perspective. In particular: a) it discusses the place of CUs in the KM literature; b) it examines relevant KM aspects that emerge in CU implementation and management; and c) it provides preliminary classifications of CUs based on the fundamental notions adopted in the KM literature. Point a) derives from an analysis of relevant literature, with a special focus on KM Journals, while points b) and c) are based on the information collected by means of a preliminary multiple-case analysis of CUs implemented in a number of medium-sized Italian companies.

The structure of the paper is as follows. Section 2 provides basic definitions and notions that will be used in the study, and section 3 analyses the place of CUs in the KM literature. Section 4 describes the research questions and method, while section 5 summarises what emerged from the empirical investigation. Section 6 discusses the findings of the

investigation and proposes a categorization of CUs based on KM notions and processes. The last section discusses possible implications for future research and for management.

2. CUs: basic definitions and notions

The CU phenomenon is not new: just to mention a popular case, General Motors launched its CU, the "GM Institute" in 1927. CUs cannot be considered just another "management fad" (Ayuningtias, 2015): indeed, in the United States alone, their number doubled between 1997 and 2007 (from 1,000 to 2,000), and currently there are more than 4,000 CUs worldwide (Kolo *et al*., 2013). CUs are especially diffused among large multinational companies of various sectors (well-known enterprises that have established CUs are: GDF Suez, Unilever, Daimler, MacDonald, Eni, Credit Suisse) but are also present in companies of smaller size. During the years, CUs have evolved from mere "training departments" to real vehicles of "integrated knowledge transfer, exchange and innovation" – both within and between organizations (Rademakers, 2005; Abel and Li, 2012).

A universal definition of a CU is still lacking in the literature (Guerci *et al*., 2010; Alagaraja and Li, 2015): numerous definitions have been proposed that change significantly from a case to another since they often tend to emphasize particular characteristics. The "formal" definition provided by G-ACUA (Global Association of Corporate Universities and Academies – www.g-acua.org) states that a CU is a management tool designed to assist organisations achieve their strategic goals by conducting activities that foster individual and organizational learning and knowledge. It provides company-specific training for an organisation's personnel, in connection to the strategic needs. As previously recalled, CUs pursue some basic objectives, as follows (Hearn, 2001, Allen, 2007):

- organising training activities;
- starting and supporting change in organizations;
- bringing a common culture, loyalty, and sense of belonging to a company;
- boosting competitiveness in today's "knowledge" economy;
- retaining employees;
- promoting key employees;
- driving job growth.

Different form the traditional methods that tend to be "reactionary" since they just focus on the delivery of technical skills in classrooms, where training is seen as a "special event", a CU takes a more proactive approach, where learning becomes integral part of the corporate business strategy (Kolo *et al.*, 2013). Hence, CUs aim to develop competencies, and often make use of a mix of teaching/learning methods, that range from traditional to innovative learner-teacher interactions, and include both face-to-face and online learning technologies.

Andresen and Lichtenberger (2007) consider a CU as a company-owned learning institution that must fit the nature of the particular business and strategy. They also claim that CUs have so many different variations in the real life, that their formal definition becomes just an abstract exercise that can be, at most, used as a general reference. Each single CU is made of several "building blocks" whose features differ from company to company, according to the organisation's needs, business environment, and strategy. They are: educational level of employees; target groups; strategic directions; partnerships, alliances with external vendors; accreditation needs; focus on internal versus external job market; and structure.

Also Kolo *et al*. (2013) identify six strategic blocks that form the foundation of a (successful) CU, as follows (Figure 1):

1. *Ambition and Objectives* concern the purpose and vision of the organization. While, in the past, CUs focused just on training design and delivery, now their role is expanding to support overall corporate strategy and culture;
2. *Scope* concerns the role played by a CU (see later);
3. *Target Audience and Content* are about the recipients and the content of the educational activity;
4. *Delivery Model* concerns the ways used by the CUs to deliver their services. In this respect, Web 2.0 is now seen as a promising technology that will foster ongoing knowledge creation through communities of practice and networks of peers and experts;
5. *Governance and Structure* relate to the organisational form assumed by the CU and its governance;
6. *Branding and Alliances* refer to the creation of a strong "CU brand" that can also facilitate new partnerships.

< INSERT FIGURE 1 HERE >

About their scope, the authors underline that today's CUs can act as:

- *Training Center*, when they provide training to regular employees and company leaders, with the goal of achieving operational excellence and aligning key business processes and standards;
- *Leadership Accelerator*, when they target at middle and top management for fostering a companywide leadership culture;
- *Strategy Platform*, when they focus on senior and top management and deliver contents that are directly relevant to the company's strategy. Here the goal is to tie professional development to specific challenges and embed the learning process into strategy development;

- *Learning Network*, when they aim to create a learning culture and ongoing learning opportunities beyond the classroom. These CUs target at a broad base of management and employees to strengthen their functional, technical, or management skills.

Although a project of a CU requires enough financial and human resources, CUs are not only suitable for large multinationals, but they can be used also by medium-sized companies, having at least some hundreds of employees. In this case, CUs tend to have a more focalized goal, because they are often devoted to the training, updating, development or sharing of technical know-how, professional competencies, or operational skills, both for internal employees and external partners (for example, sales networks or customer services). Additionally, in smaller entities, a CU is rarely an independent organization: employees participating in the CU (as trainers or managers) keep their ordinary job in the company and, hence, they tend to be "part-time" members of the CU.

3. CUs in the KM literature

In order to understand if and what place is reserved to CUs by KM scholars, a literature review was conducted. Authoritative KM journals were considered, based on the Serenko and Bontis' (2004) list. Only journals having a recognized bibliometric impact were selected, in particular those included in the Scopus database (www.scopus.com). Papers with key phrases "corporate university" in "abstract", "keyword" or "title" fields were then detected. The retrieved papers (Table 1) were examined, and those that really focus on the topic of CU were taken into account.

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Papers were classified based on simple criteria, i.e.: context of application of the study (namely very large companies with more than 5,000 employees, companies with less than 5,000 employees, or studies where the context of application is generic); perspective from which the implementation of CUs is considered (i.e. learners, teachers, or company in a general meaning); kind of research (namely conceptual or literature review, design or assessment of a system, model or framework, empirical), and approach (qualitative or quantitative/formal). Table 2 summarises the findings; the last column reports the two main keywords or key phrases that better represent the paper. Some papers have a double classification: this is explained by the fact that some studies have an empirical and a conceptual part, some use a mixed approach, etc.

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As can be noticed, only 7 papers from 1996 were found in the major KM journals. This apparently indicates that CUs have not been at the centre of attention of the KM research community. However, a search into Google with keywords “corporate university“ and “knowledge management” returns more than 27,000 websites and online resources, which witnesses that there is interest in this topic at least in real life and practice.

As regards the classification of papers reported in table 2, there is a substantial distribution of papers in relation to the various dimensions, with the only exception is that almost all papers adopt a qualitative approach. It is also remarkable to see that a key topic of studies is that of Virtual CU, i.e. the use of new media for business education and professional training.

In what follows a more thorough analysis of the literature is presented. Given the limited number of papers found in the specialized KM literature, other relevant sources have been considered.

Generally speaking, CUs are seen as an ingredient of KM-based learning organizations. For instance, Dove (1999) frames the use of CUs in the broader context of “new” models of companies based on KM-related activities and continuous learning. Ellis (1997, p. 189) states that *“Corporate universities and learning centres are natural extensions of the Knowledge Management revolution currently sweeping industry and academia”,* because they are a concrete implementation of some key principles of KM like e.g. the distinction between explicit and tacit knowledge, or the realization that learning implies more complex cognitive processes than a centralized “broadcast” of knowledge from instructor to learners. Indeed, it is recognized that these structures have special features compared to traditional educational or training arrangements. In this regards, Trondsen and Vickery (1997) find a correlation between CUs and the effectiveness of a “learning on demand” approach, which is seen as an appropriate way to share useful and pertinent knowledge across a company. At the same time, these peculiarities raise new challenges. Matthews (1997) underlines the special features of CUs and particularly the need to structure their activities in a way that balances the freedom to develop individual knowledge directly “from the experience” by single employees, with the necessity to find consistency of that knowledge with the real needs of the company.

There are studies that explicitly mention CUs as a key component of a possible “KM toolbox” (Wiig, 1997; Crocetti, 2001; Andresen and Lichenberger, 2007). Some scholars, indeed, highlight the importance of CUs as a way to implement vital KM processes (da Costa *et al*., 2011), for example knowledge sharing (Allen, 2007, 2010; Sandelands, 1997), knowledge creation/production (Prince and Stewart, 2002), knowledge transfer (Clinton *et al*., 2009). With specific reference to the last process, Antonelli *et al*. (2013) underline how CUs can

facilitate the exchange of tacit knowledge, which is considered to be essential in organizational training. CUs are often seen as "soft" KM techniques, capable of improving the quality of human capital, as opposed to "hard" technology-based KM methodologies (Zuber-Skerritt, 2005); this function becomes especially critical in knowledge-intensive firms and in relation to the so-called "knowledge workers" (Prince and Stewart, 2002). A key aspect, especially addressed by the KM literature, is the centrality of new media in the implementation of CUs, and in particular their role in facilitating knowledge sharing and learning processes (Sandelands, 1997; Trondsen and Vickery 1997; Stonebraker and Hazeltine, 2004). As Ellis (1997) underlines, new media can enable innovative models of learning on demand, which seem particularly appropriate for corporate training.

To sum up, it can be argued that there is a connection between CUs and KM, but this connection is still underdeveloped. In other words, it is not rare that papers that treat CUs as a topic also mention notions and concepts that pertain to the KM literature, but this often occurs in generic and non-systematic way. This means that many questions concerning the KM-related aspects of a CU are still open, like e.g.: what kind of knowledge can be transferred through a CU, and how? What KM processes are or should be implemented by means of a CU? How a CU can be used to engage employees in sharing their knowledge within a learning/teaching program with colleagues? How can it promote the spreading of organizational knowledge but, at the same time, protecting corporate intellectual capital so that unintentional disclosure to competitors is avoided (Bolisani *et al*., 2013)? How can educational programs be implemented that combine tacit components of knowledge with those that, being more explicit, can be treated as a sort of "tangible object" (Bolisani and Oltramari, 2012)? How can new web-based platforms (and, especially, social media systems) be effectively used to support knowledge exchanges in a CU program (Iannotta *et al*., 2016)?

4. Research questions and methodology

The main goal of this paper is to contribute to answering some of the above mentioned questions, or, in other words, to explore the functioning of CUs in terms of typical KM issues. In particular, the research intends to investigate the following aspects:

- the kind of knowledge that is the object of the CUs learning/training activities;
- the cognitive goals and the recipients of the CUs programs;
- the KM processes that are activated in different application contexts;
- the roles of people involved in CU functioning and management;
- the ICT applications that are used to support the CUs activities.

Given the exploratory nature of the research, it was carried out using a multiple case-study methodology (Yin, 2003). Furthermore, a qualitative study seemed especially suitable in this case since it allowed researchers to take into account the context-specific features of the issue (Bamberger, 2000), as well as to explore the behaviour of companies within their real-life environments (Yin, 2003). As regards the generalization of findings, the idea is not to draw conclusions of universal validity, but rather to derive some suggestions for further and deeper analyses of CUs as KM tools.

Accordingly, a multiple case-study investigation was conducted concerning a number of CUs implemented in medium-sized companies in the Northeast of Italy. The investigated CUs were identified thanks to local Industry Association that supported some companies in creating the CU teams and launching their activities. Furthermore, they were selected following the approach of 'maximum variation sampling', which aims at generating maximum meaningful heterogeneity within the sample, in order to highlight similarities and differences (Miles and Huberman, 1994). Therefore, companies of various sizes, active in various industries and with different cognitive needs were chosen. Data collection was conducted in the second part of 2016 by employing Yin's (2003) typical case-study techniques, i.e. interviews to key observers (and specifically to the consultants that supported the launch and the first steps of the investigated CUs), interviews to company managers directly involved in the creation, development and management of CUs team, and analysis of documentary materials. The interviews generally lasted up to one hour and a half each. They were tape-recorded and transcribed in order to facilitate the subsequent analysis. The data collected from the interviews were displayed in a "conceptually clustered matrix" (Miles and Huberman, 1994) and then analysed, with the main purpose to identify recurring issues and regularities as well as differences.

5. Empirical evidence

This section summarises the main findings of the case-study investigation. An outline of the companies is presented in Table 3. Names are disguised for reasons of confidentiality.

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5.1. Alpha (A)

This company works in the field of drug packaging and related products. Originally located in the city of Vicenza, now it has five production plants (three in Italy and two abroad), and about 500 employees. Several goals have prompted Alpha to launch a CU. First, to collect and diffuse, by means of internal trainers, production-related knowledge, which is available or developed in the various plants but is not always shared in the entire company. Second,

to align operations to the best practices of the company. Third, to face the problem of retirement and turnover: employees that leave the company take their tacit knowledge with them, which can be a big loss for the company. Fourth, to rapidly introduce in the production departments the many temporary workers that are employed. Fifth, to promote a quality-oriented culture in all employees. In this regard, it should be underlined that clients of company Alpha, i.e. pharmaceutical companies, require extremely high quality standard from their suppliers.

Launched in 2015, the CU team consists of a project leader (the head of the Human Resources Department) and a group of operative managers of various areas (customer service, quality control, and production departments): eight people in total belonging to the different production sites. The CU has selected 35 internal trainers to be involved in its activity: they are generally young workers that, however, possess relevant knowledge. They must attend a course of half a day where the cycle of knowledge and learning is explained. They are also requested to put in writing the fundamental elements of the knowledge they possess.

Trainers have the double function of training new hires and of collecting the production knowledge that is available inside the company, and transferring it to the CU. This makes it possible to build a common repository of the different pieces of crucial knowledge that are dispersed in the various plants. This central repository should become the main reference for learners and trainers.

Initially, the CU has directed its efforts towards standardization of definitions of the terms used in the various parts of the company, needed to collect the knowledge available in the different plants. This activity is still engaging the CU team. Once the agreement about a topic (for example, the employment of a particular printing process) has been reached, the relevant pieces of knowledge are turned in written format and uploaded into the company wiki by a member of the team. The wiki is based on an open source platform (Google Sites). At the moment, it is used as a dynamic repository, populated and updated by the CU team and then made available to all production workers for consultation. Wiki pages are also used by trainers during their activity. It is important to remark that, while wikis are often seen as collaborative repositories where everybody can edit contents, here it was decided that the organization, selection and uploading of contents can be done by the CU team only. Indeed, many workers (including trainers) do not have a PC to connect freely, and are not comfortable with writing a document. The CU team also uses an internal social network, based on the Yammer platform, just for informal communications. Its use is limited to the CU management team, and not to the trainers and mainly regards organizational aspects (i.e. not pieces of knowledge related to courses).

A last point regards the time devoted by the members of the CU and by the trainers. For the latter, training activities (i.e. coaching the new hires) are part of their ordinary working hours, and no extra work and time are required. Instead, the members of the CU team face a mixed situation. On request of the HRM manager, they have got from their manager the authorization to devote a certain number of days to the formal activities of the CU. Nevertheless, they must spend extra work time to collect knowledge and put in writing, which is considered to be additional to the regular working activities.

5.2. Beta (B)

Beta, the Italian subsidiary of a German group, has 170 employees and a network of 1,200 partners. It sells complete systems of windows, doors and facades for buildings. Products have a highly technological and innovative content, so the company devotes great attention to technical training of external resellers and installers. Regardless the intrinsic quality of products, the satisfaction of the final consumer strictly depends on the quality of the service provided by these people. The CU has been created four years ago after a survey among installers, from which it resulted that only one tenth of them had attended the technical courses delivered by the company in the past. It also resulted that participants were satisfied with training contents but much less with the quality of teaching methods. At that time, trainers were people of the technical office who were considered the maximum experts on a particular topic, regardless their communicative and training capacities. Consequently, two intertwined aims were assigned to the CU. The first, and most important, was to increase the number of installers to whom training is provided. The second was to promote and support the development of an internal team of trainers, and to create a climate of participation and commitment.

The project started four years ago, and the CU team now consists of 28 members from different departments. The key focus is on “training the trainers” that, in their respective offices, should help the other employees to get useful elements of knowledge for their job and to improve the quality of customer relationships. The main target is the design office and the marketing department. The knowledge that is transferred especially concerns technical aspects related to the installation of a complete system at the end user. The CU uses an internal repository of files (i.e. a shared folder) that stores elements of explicit and structured contents (for instance, course materials). Company Beta external training activities are very formal and accurate, and take place in a classroom with an extensive use of slides. Producing slides implies transforming implicit knowledge into explicit, and this is done also by means of a discussion between trainers on what to tell to the installers. In this way, they have a discussion that, otherwise, would not have occurred. A last notation concerns a tool

that has proved very useful, i.e. the feedback on training activities that has allowed the CU team to develop brand new and more effective communication manners.

5.3. Gamma (Γ)

The company manufactures heating systems, and is part of a group with more than 6,400 people across Europe and more than 700 in Italy. The Italian plant has thirteen production lines that are based on a lean production method.

The CU was launched in 2015 by the HR department as a tool to improve the training activities offered to the company's external partners. Indeed, Gamma has always devoted attention to the professional growth of resellers, installers, and centres of technical assistance, to which a package of technical training about the sold products is offered. This implies a big effort, given that the service network is made up of about 2,000 small firms. Accordingly, the goals of the CU are: improving effectiveness of training activities and training competence; connecting and disseminating pertinent elements of knowledge dispersed in different parts of the company; strengthening the image of the company; increasing the number of external partners attending courses; creating a CU team with people from different areas and, by this means, promoting trust and cooperation.

Concerning the first point, since there were many trainers from different areas (marketing, logistics, production, safety, etc.) and with different methods and teaching styles, the earliest need was to provide them with communication and teaching skills, and to align the different approaches. The second need concerned a quicker and more effective sharing of the organizational knowledge. Consequently, the CU team was made of people belonging to different departments.

The CU team was "recruited" after a brief presentation of the project: people who were interested in could participate and submit their application. Clearly, some people were practically obliged to take part in the project given their role as internal or external trainers. The first team was compounded by 22 people (including six of the existing "training department"). As generally occurs, CU members devote to relevant activities also extra work time.

These people have been subjected to a "train-the-trainer" set of activities, aimed to develop their team working abilities, transversal competencies, abilities concerning the management of a classroom and the design of a course. Later, they will have to provide courses to external partners. The company has extended the physical rooms devoted to training, and these are now more comfortable and innovative. Also, an electronic repository (a shared folder) is used to store and retrieve course materials and related contents.

The CU has supported a big change in the way Gamma delivers its training courses to external partners. In the past, courses were free of charge, while now partners have to pay a

fee. The idea is that a paid course is perceived, by participants, as more valuable that a free-of-charge one. Clearly, this strategy is sustainable only if the quality of the course is high. Thanks to the CU this goal was achieved, as testified by the fact that the number of participants has increased despite the fees.

5.4 Delta (Δ)

Delta designs software solutions for public services and trade associations, and also stores and provides public business information (for example, the official balance sheets of Italian companies) to requesting professionals. It has about 700 employees, distributed in three main sites. The CU was launched in 2015 as an initiative of the Human Resource Department. The idea was to develop a sort of "think tank" to support the starting of a development program focusing on "soft" managerial skills and advanced leadership approaches. The ultimate goal is the internal diffusion of a new organizational culture. The CU is essentially targeted to internal employees, especially those that play the role of project leaders in different departments. It mainly acts as developer and disseminator of "good management practices". At the very beginning, the members of the CU team were indicated by the Company Board in order to represent the different functional areas. Now, the team consists of 13 people locating in the different geographical sites of the company: these are all volunteers and devote additional working time to collect, develop and structure teaching/learning contents on the mentioned topics. Occasionally, the team meets during the social events that may take place even at the private home of a member.

Each member of the CU aims to learn how to organize the activities of people she/he heads with a new approach, less oriented to mere technical aspects and more to social, behavioural, experiential elements. In doing this, a continuous dialogue between CU team members occurs, in order to exchange their experience and further develop an approach that tends to emphasize the soft managerial skills that each employee possesses. The main difficulty faced by the CU is the intangible nature of soft skills, which are more difficult to be defined, and hence to be "taught" to others.

The CU team has no formal leader, and is mostly a self-organized group that collaborates and shares ideas, knowledge contents, and learning materials, with the purpose to disseminate good practices in their respective departments. Some kinds of ICT supports are also being tested, such as: an internal cloud repository of materials, informal communication systems (like e.g. a WhatsApp group), a wiki system (which, however, has not been used much so far), and a website with two editors to collect links to files and other contents. The website is only open to CU members, and is managed by a person who is in charge of uploading documents but without being a "real editor".

5.5 Epsilon (E)

The Company is part of an American multinational corporation, with about 9,400 employees worldwide, 3,500 in the EMEA market and 60 in Italy. Epsilon specializes in the production of stored energy solutions for industrial applications. The CU was created in 2015, after a survey on employees that revealed a low satisfaction with career improvement and personal development. With the support of the EMEA executives, it was decided to improve the internal approach to education of employees which was, at that time, organized in independent and different ways by the single operation sites, with no consistency and with a substantial lack of strategy. The CU was launched with the purpose to create a standard and uniform teaching/learning approach across the different areas and sites of the company.

The CU team was set up with a leader (who is also the head of the EMEA Human Resources Department) and other four people of various nationalities and areas that were in charge of the training projects in their respective countries. These people have been selected, after an internal call, among those that showed attitude and skills for teaching.

The first goal of the team was to define a catalogue of training courses to be provided to employees on demand. Now the "first version" of the catalogue is available which includes twelve courses. For the most part, the subjects are "soft skills" of general interest such as e.g. leadership, negotiation, public speaking and business communication, elements of marketing and finance, ethical code, time management, and similar. All courses are provided in English and are targeted to middle or top managers. Trainers can be the CU team members (according to their expertise and knowledge) or, if they are not competent in a particular subject, external teachers. As said, courses are provided to employees who request them once a minimal number of registrations have been reached. Therefore the management of the courses is a difficult and time spending activity, also because participants come from different locations. The numerous registrations testify that the offered courses have raised the interest of many employees.

Lastly, it should be underlined that all the training activities concerning products and environmental and safety regulations are not addressed by the CU, but they are delivered by local trainers due to the country and product specificity of the related topics.

Cultivating the commitment of all the CU members is not a simple job and this for a twofold reason. Firstly, the participation in the CU team is an additional working duty and a specific motivation, even if is attractive because it can improve the recognition of participants across the Company. Secondly, the members of the team report to their local HR manager, whose priorities can conflict with the priorities of the CU. In this regards, the leader make use of weekly Skype calls to preserve the enthusiasm of the CU members.

The use of ICT platforms is intense. An Intranet portal has been setup, with a discussion forum, links to downloadable materials and external resources (e.g. e-books or videos), etc.

In particular the platform is used to describe the courses and to collect online registrations of participants. A private section of the portal contains a library where all the documents created and used by the CU members are stored. The same solution has not been adopted for the teaching materials (especially slides) presented to course participants: indeed these are sent to them by email. Also, the company has contracted an external service firm that provides an e-learning platform that currently has been made available to 150 employees.

5.6 Zeta (Φ)

The Company designs and produces electric motors and micro-motors for Automotive and Household appliances industries. It has around 400 employees, some of them on a seasonal basis. It is part of a larger group with operations and sales offices all over the world.

The CU was created in March 2015 for the initiative of top management, in order to face the high turnover of seasonal workers. Temporary workers usually stay at the company for no longer than two years, and must learn to operate very complex production machinery as quick as possible. At the very beginning, the CU was formed by production workers coming from different areas (manufacturing, service, safety, and so on) and having particular traits (i.e. seniority, experience, training courses attended, and communication skills). They were selected by the production director, who has a deep knowledge of the staff.

The first activity of the CU was to write a sort of guidebook with the basic and general information needed by new entrants to start working. This required a big effort of standardization of terms and notions by the CU team of 15 people. Indeed they discovered that different individuals used different terms in the company, even to mean the same object. Also, before the creation of the CU, a new employee might have been coached by different instructors and provided with inconsistent information. Now, thanks to the effort of the CU, all trainers (now 39) use a common language and a common teaching method.

Today, new workers attend a seven days training on–the-job program, and a shorter classroom activity more oriented to their particular task and delivered by specialists (as e.g. production engineers, laboratory technicians, metrologists, etc.). These also produce their teaching materials that are later made available in folders of the CU website. In principle, all employees can access and download the teaching materials, although this rarely happens because today production workers don't have a computer or a connecting device.

A particular role is played by the "CU tutor", who works at the production department and acts as interface between on-the-job trainers and specialists. In particular, she plans training activities and, especially, collects and forwards to specialists all feedbacks coming from trainers. This is useful to produce, integrate or revise teaching materials for the future courses.

After the initial launching efforts, now the CU revolves around two people, the CU tutor and an employee who works in the Quality Control Department. They stimulate, coordinate and serve as a reference for specialists and trainers. Finally, it is important to mention that all the time devoted to CU activities is considered ordinary working time by the company, because it is assumed that these activities are part of the job of people. The same is for on-the-job trainers (who, for example, have reduced productivity goals to take into account this task).

6. Discussion: CUs under a KM perspective

The collected evidence shows that CUs can take different forms in accordance with both their goals and the organizational settings where they are implemented. A common trait of the investigated CUs is that, as usual in case of medium-sized enterprises, they are not independent organizations, but teams of employees who act as "part-time" members of the CU.

As concerns the KM-related aspects indicated in section 4, the empirical findings suggest that they can be the dimensions of a classification of CUs based on the typical KM notions, as follows (Table 4:)

- *Knowledge domain and typology.* This dimension regards the main subject matter of cognitive actions of the CU. It is *technical knowledge* for companies that need to disseminate operational skills to younger or unskilled workers, and *non-technical knowledge* and "soft skills" in case training regards middle or top managers. This distinction is particularly crucial since it involves the nature of knowledge and the mechanisms that can be used for its transmission. A technically oriented CU has to deal with "hard" knowledge that can be more easily codified and transferred by means of documents, as e.g. the knowledge related to standard procedures or operative instructions. On the contrary, a non-technically oriented CU deals with "soft" (tacit) elements that are more difficult to codify and can be better transmitted through a direct contact between sender and recipient, as in the case of entrepreneurial skills.
- *Cognitive goals*. CUs can directly aim to train the final recipients of knowledge contents (i.e. employees, trained to do their job), or to "train the trainers", i.e. to help other people in the company whose task is to transfer their knowledge to others. In the latter case, it can be said that CUs have a sort of indirect role in business training.
- *Recipients.* Depending on the cognitive goals and the nature of knowledge involved, recipients can vary. As mentioned, some CUs (especially those that treat soft skills and managerial knowledge) are targeted at middle or top managers, while CUs focusing on technical knowledge are for operative people. Also, CUs can be *internal* (i.e. oriented towards the employees of the company) or *external* (i.e. when knowledge transfer is performed to external partners, for example resellers or customer services).

- *KM processes.* Some CUs are mainly aimed to the *collection, dissemination and transfer* of existing knowledge. In this case, the goal is just to provide unskilled people with specific knowledge elements (concerning e.g. new products, production processes) that have already been developed. In other situations, CUs intend to stimulate *knowledge creation* by single individuals: in such case, its role is mainly to facilitate processes of individual learning.
- *KM functions*. The members of the CU team can be directly involved in the training activities (i.e. they play as *knowledge transferors*) or can just act as *promoters, organizers and coordinators* of the activities that are later performed by others. Hence, it is possible to distinguish between *training* and *coordinating* CUs.
- *CU Management*. The governing mechanisms of the CU can range from situations where there is a sort of *self-management* by the individual members, to circumstances where a *formal head* acts as a promoter and coordinator. Thus, we can distinguish between *self-managed* and *with-a-leader* CUs. The first case is probably more typical of CUs that don't have clear and pre-defined contents to transfer, and where there is the need to create new elements of knowledge before transferring it to others.
- *Members selection*. As regards the selection mechanisms used to recruit the CU members, at one extreme there is the situation where members participate on a totally voluntary basis, at the opposite extreme they are selected by the CU coordinator or by the top management of the company. Thus, we can distinguish between *voluntary* and *non-voluntary* CUs.
- *Knowledge Management Systems*. The use of ICT platforms and tools can vary, in relation to the KM goals and contents. Repositories of course materials and related contents can be useful when the kind of knowledge treated is clearly defined and can made explicit; in other cases, interactive technologies, which facilitate knowledge sharing and interactions, may be more appropriate.

< INSERT TABLE 4 HERE >

What emerged from the empirical investigation highlights some other interesting points that deserve to be mentioned.

First of all, most of the investigated CUs have been promoted by the Human Resources Department of the company. This seems distinguish such initiatives from the usual KM initiatives that often involve the IT Department heavily. Furthermore, the diffused presence of a formal leader could derive from the fact that the creation of the CUs was promoted by the company executives.

Second, in almost all the cases the members of the CU team have been indicated/nominated by the top management, even if this role is not formally recognized and generally requires extra work time. A possible explanation is that nearly all the analyzed CUs have been established to reorganize and improve a set of training activities already in place.

Third, the number of the team's members can change over time, according to the evolving programmes of the CU. In particular, the initial composition of the team is very wide when the first initiatives of the CU aim at collecting and make available the crucial knowledge dispersed inside the company. Afterwards, the number of members tends to slack off. Furthermore, the CUs that aim at the "train the trainers" goals take care of creating and cultivating a selected group of knowledgeable trainers who act as their operating arm.

Four, concerning the KM systems, the investigated cases show that CUs dealing especially with technical knowledge use simple repositories, while CUs dealing with non-technical knowledge make use of more interactive tools. This seems to be related to the KM processes activated by the CU: repositories are useful and efficient tools when it is a matter of transmitting existing and easy to codify knowledge, while interactive tools are needed when it is a matter of creating new knowledge.

Five, it is worth noting that all the investigated CUs have no relationships with Academic Institutions. This appears to be reasonable in the case of CUs that deal with operational knowledge, but not when conceptual knowledge is involved.

Lastly, CUs devoted to transfer technical knowledge to external partners share some common traits, which do not occur in the other cases. Therefore our investigation doesn't allow to affirm that given a certain KM goal there is a certain type of CU that fits best with such goal.

7. Conclusion

A CU is both an increasingly important organizational setting for providing professional training to employees, and substantially a tool to manage knowledge effectively inside an organization. For this reason, as the paper highlights, employing a KM perspective to analyse CUs can help to understanding the nature and functioning of such structures, and provides useful suggestions for their management in real life cases.

Implications for research. An important lesson from the empirical analysis is that it is necessary to go deeper into the KM characteristics of CUs for understanding their key features and processes. So far, the literature has just connected CUs and KM in a generic way, while it is now necessary to use KM notions and concepts more thoroughly and punctually. Also, the topic of CUs provides a clear link between two logically related fields that are sometimes treated disjointedly, i.e. training and education on the one hand, and KM on the other hand. Future research should be devoted to test the interpretative capacity of

the developed taxonomy, as well as to deepen the issues raised by the points discussed at the end of the previous section.

Implications for management. CUs can be categorized based on the different KM elements and issues that characterize them. This is an important result of this study, because it can help their implementation and management and to better frame them in the real context of application. In other words, to implement a successful CU, it is important to identify the KM goals, processes, and contents that characterize the organizational context. Clarifying the KM issues and the different options of CU design can provide useful suggestions for executives that are willing to invest in this organizational solution. Furthermore, the analysis offers some insights concerning the possible use of KM systems to support the functioning of the CU.

Limitations. This paper presents just the preliminary findings of an initial case-study research that is currently underway. Hence, there is the need to extend the sample of analysed cases. Also, the collection of data should be enriched by involving not only the management teams of CUs but also the final recipients of their programmes.

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Table 1. Examined journals

Journal	Acronym	Papers found
International Journal of Knowledge and Learning	*IJKL*	0
International Journal of Knowledge Management	*IJKM*	1
International Journal of Learning and Intellectual Capital	*IJLIC*	0
Journal of Intellectual Capital	*JIC*	0
Journal of Knowledge Management	*JKM*	5
Knowledge and Process Management	*KPM*	0
Knowledge Management Research and Practice	*KMRP*	0
Learning Organization	*LO*	1
Journal of Information and Knowledge Management Systems	*VINE*	0
TOTAL		7

Table 2. Retrieved papers

Paper (authors)	Year	Context (firm)			Perspective			Kind of research			Approach		Keywords
		large	small	gen.	learner	teacher	firm	conc.	model	emp.	qual.	quant.	
Clinton et al.	2009			X		X		X			X		Knowledge transfer Media richness
Stonebraker & Hazeltine	2004	X			X					X		X	Virtual CU Certification
Dove	1999			X			X	X			X		Agile enterprise Collaboration
Matthews	1997		X				X			X	X		Case study Descriptive
Ellis	1997		X				X			X	X		Case study Virtual CU
Trondsen & Vickery	1997			X	X				X		X		KM system Virtual CU
Sandelands	1997			X	X			X			X		Virtual CU Knowledge creation

Table 3. Outline of the investigated cases

Company	City (main site in Italy)	Company size (employees)	CU size (members)	Industry/production
Alpha (Α)	Vicenza	500	8	Drug packaging
Beta (Β)	Padova (subsidiary of German company)	4,800 (total) 170 (Italian workers only)	28	Doors and windows
Gamma (Γ)	Vicenza	6,400	22	Heating systems
Delta (Δ)	Rome (operational HQ: Padova)	700	13	Information services
Epsilon (Ε)	Vicenza (Italian HQ)	9,400 (total) 3,500 (EU and Middle East) – 60 in Italy	5	Special battery systems
Zeta (Φ)	Padova (partner of an international group)	400	15	DC micro and gear-motors

Table 4. KM dimensions of CUs

Dimension	Options	Empirical cases
Knowledge domain	Technical (hard) knowledge	**Α Β Γ Φ**
	Non-Technical (soft) knowledge	**Δ Ε**
Cognitive goals	Training employees	**Α Ε Φ**
	Training trainers	**Β Γ Δ**
Recipients	Operative people	**Α Β Γ Φ**
	Middle or top management	**Δ Ε**
	Internal people	**Α Δ Ε Φ**
	External partners	**Β Γ**
KM processes	Dissemination and transfer	**Α Β Γ Φ**
	Creation	**Δ Ε**
KM functions	Direct transfer	**Β Γ Ε**
	Promotion and facilitation	**Α Δ Φ**
CU management	Self-managed	**Δ**
	Formal leader	**Α Γ Ε Φ**
Members selection	Volunteers	**Δ Ε**
	Nominated	**Α Γ Φ**
KM systems	Simple repositories	**Β Γ Φ**
	Interactive tools	**Α Δ Ε**

Figure 1. Strategic build blocks of a successful CU (from Kolo *et al.*, 2013)