The antecedents of e-learning adoption within Italian corporate universities: a comparative case study

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Abstract

The implementation of Information and Communication Technologies (ICT) in business education appears to be influenced by a number of organizational issues, such as culture and technological sophistication. However, extant research has had very little to say about the antecedents that shape the adoption and diffusion of ICT across companies. In order to shed light on the phenomenon under investigation, this paper presents a comparative case study between five Italian companies that have instituted a corporate university. By distinguishing companies in typical cases and deviant cases with regard to the extensive use of e-learning technologies, our findings provide some useful insights about the antecedents that make companies more or less prone to employ the new frontiers of technology in their CUs.

1. Introduction

Since 1950s Corporate Universities (CUs) have had a pervasive diffusion across organizations. Such diffusion is consistent with the prominent issue of matching the creation of distinctive organizational skills with the opportunities of workers' employability [1]. According to Taylor [2], the boundaries between education, business and educational institutions are becoming more and more blurred, so that the rise of Corporate Universities might be included in this process. To that regard, the essential aim of CUs is to increase exchanges between the corporate world and education [2]. Over the last decade, the number of CUs has doubled and today they are about 4 thousand, according to statistics released by the Global Council of Corporate Universities [3]. Alongside the pioneers of the Western world (e.g. General Electric and Siemens) are the Russian, Brazilian, Chinese and Indian multinational, which have adopted a tool whose value overcomes the concept of pure training center [3]. Interestingly, from classical training centers we have arrived in many cases to

centers of cultural melting pot, as crossroads of international expertise [3].

A key attribute of the modern CUs is their high technological sophistication to the extent that the so-called "third generation" of CUs makes an extensive use of IC technologies [4]. The diffusion of Internet and Information Technology has offered CUs new opportunities for improving their training processes. In detail, the use of technology-based training tools, especially e-learning, net-learning, and mobile devices, presents two main implications: 1) the presence of higher levels of cost savings and flexibility in time and space of learning; and 2) the opportunity of adopting more social and collaborative learning methods [4-11]. However, the extant literature suggests that their actual implementation might depend on several organizational features, in a way that e-learning strategies might be not always the most popular in CUs [4, 12].

Unfortunately, very little research has dealt with the rationales and antecedents that shape the actual adoption and diffusion of Information and Communication Technologies in Corporate Universities. This study aims to address this gap. To that end, it presents a comparative case study between five Italian companies, which were

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preliminary distinguished in typical and deviant cases with regard to the extensive use of e-learning technologies in their CUs. Through both within-case and cross-case analysis, we provide a deepened investigation of the characteristics that make companies more or less prone to employ the new frontiers of technology in their CUs.

The paper is organized as follows. Section 2 reviews the main arguments about the diffusion of ICT and e-learning technologies in business education. Section 3 provides some evidence related to the impact of organizational issues on the adoption of e-learning methods and technologies. The fourth section describes the research methodology adopted in this study and the process of cases selection and data collection. In section 5 we provide a brief excursus on the five selected organizations, designed on their histories, characteristics and the results of our investigations, in order to set the ground for final considerations. Last sections include the discussion of the cross-cases analysis, concluding with the main contributions of this research.

2. Theoretical background and prior literature

2.1. Corporate Universities: definition and main traits

By continuously empowering individual skills and competencies [13], learning improves corporate competitiveness, since "continuous learning is essential for surviving in dynamic and competitive environments" [14:186]. It is widely acknowledged that companies and countries that invest in human capital can generally reach a better position to acquire long term benefits [11, 15].

Among the others, formal training methods are considered the most important factors for achieving the strategic objectives of companies and for sustaining their competitive advantage [16]. Formal learning refers to all training activities and programs where learning is generally highly planned and structured [8, 17]. Generally, it is based on formal classroom, off the job, and it aims to provide employees with job-related knowledge and skills [17, 18]. A key characteristic of formal training approaches is that they ensure the same learning for every employee in organization, and, when they are well designed and implemented, they can foster employees' commitment and the overall productivity of the firm [19, 20, 21].

Over the last decades, companies have implemented overarching designations for the formal learning activities of the organization, with the aim to connect learning initiatives to organizational objectives [22, 23]. The majority of literature refers to such structures as Corporate Universities. Despite this literature has provided multiple definitions for CUs, what primarily emerges among them is their role as entities strategically devoted to the development of individual and organizational learning [24]. As noted by Fresina [25], CUs have three main strategic roles: 1) reinforcing and perpetuating behaviours and values of organizations; 2) managing organizational change; and 3) driving and shaping the future direction of organizations. As an effective channel to communicate culture and knowledge within organizations, training is necessary. Starting from this consideration, companies need to update their methods, since people inside and outside organizations are becoming more and more active. As a consequence, the starting point is represented by people, and companies must re-think new ways of involving, connecting and interesting these individuals, stimulating personal learning and improvement always considering their culture. Moreover, when examining the role of CUs, it is improper to only refer to training, while we must consider its role of promoter of organizational culture and learning in line with the strategy [26]. According to Castellani [27:181], we can summarize CU's main characteristics as follows: 1) plurality of the agents involved (single employee, groups of employees, clients, suppliers, partners and teachers); 2) delocalization (networking); 3) use of Information & Communication Technology tools (adopting a more dynamic point of view of participation within companies' communities); 4) action learning (as a methodology); and 5) connection between employees' needs, training process and business strategic aims (to be coordinated).

Interestingly, the evolution of CUs has been classified into three generations. Walton [28] refers to the first generation (e.g., the Disney University) as the generation of CUs that were generally based on traditional classroom attendance and devoted to the adoption and diffusion of the organizational culture. With regard to the second generation of CUs (e.g., the Motorola University), its distinctive trait can be attributed to the more strategic orientation toward organizational learning, generally attained through partnerships with other institutions or with the broader community [4, 23]. Finally, the third generation of CUs stands out for: 1) making the best use of technology for learning activities; 2) likely possessing virtual elements in their learning processes; and 3) having a great strategic importance in integrating individual training with the objectives of the organization [4, 23]. Clearly, such considerations underline an increasing level of sophistication of CUs in both learning technologies and their strategic orientation.

According to Bell, Lee and Yeung [28], when considering the role of emerging technologies, it is possible to underline some common challenges for both organizations and employees, driven by the interaction between the following factors: 1) the properties of emerging technologies; 2) the changing character of both employees and customers; and 3) the changing character of organizations in managing their human capital. As a consequence, Corporate Universities are facing both opportunities and challenges for improving their training activities. Whilst new technology and e-learning are particularly suitable to reduce expenses and increase

flexibility of training initiatives, however, technology should be used to facilitate, and not replace, traditional classroom-based learning, because learning, instead of technology, is the goal of CUs [30]. Moreover, in order to be really effective, Information Technology should be implemented along with significant changes in teaching approaches and learning processes, rather than used merely for automating the information delivery function in classrooms [5].

2.2. E-learning in business education

When discussing learning models, we refer to Herbert Simon's meaning of "knowing", that no longer refers to being able to remember and reproduce information, but it means being able to find and use information. In line with this statement, technology can play a specific role in learning, through the sophistication of tools for enhancing the process of knowledge.

The concept of e-learning traditionally refers to training activities that are delivered online through the use of Information and Communication Technologies (ICT) [16]. At the same time, some forms of learning can also be offline, such as watching online videos or exercising on assignments [11]. Overall, through ICT companies can significantly reduce expenses for class-room-based training and reach a larger audience, thus attaining higher cost effectiveness. Moreover, ICT enables flexibility in time and space of learning, in a sort of 'just in time' formula, and it allows employees for learning whenever and wherever they want [10, 7, 16]. Furthermore, technologies facilitate the access to learning content and materials [7] and they can foster the adoption of more social and collaborative learning methods, especially with the rising of social media and virtual communities. To that regard, it is important to note that the adoption of e-learning technologies may also imply a revisiting of the traditional teaching and learning models [31, 32]. While the benefits of e-learning are well known (cost advantages, flexibility, training customization), its main drawbacks arise from the problem of low interaction among peers and from the fact that learning depends on the action of learners, rather than teachers [11, 16]. Moreover, it can lead teacher to simply put written material on computer without any interaction with students [16]. In addition, the introduction of tools such as social media, may also affect both individuals' ability to focus on their tasks at work, and their ability to maintain a balanced relation between work and private life [33].

Another form of distance learning consists of net-learning or Asynchronous Learning Network (ALN), which refers to a collaborative and personalized learning experience through people-to-people communication and interaction [1, 34]. Some ALN components are computer-based training (lab simulations, author ware, macromedia constructed systems), self-learning (reading, browsing, test taking), asynchronous interacting (e-mail, news group, threaded conferencing systems), and synchronous interacting (chat systems, telephone, video systems) between people [34]. Alternatively, blended learning offers the opportunity of integrating classroom face-to-face learning with online learning experiences [35]. Its major advantage is to simultaneously exploit the benefits of technology with the high quality of the face-to-face classroom, ensuring a continuous learning [1]. However, blended learning is more about different mechanisms and techniques in which learning activities might be conducted [36]. According to Chang [11], we refer to interactive learning when the focus is on dynamics interactions between learners and teaching programs can be tailored on different learners' needs. In this case, the introduction of a tutor becomes essential, since he is both a teacher in the classroom, a motivator in the online and classroom space and a guide within online forums and learning activities.

More recently, mobile learning offers companies the opportunity of supporting and delivering learning "solely or mainly by handheld and mobile technologies such as personal digital assistants (PDAs), smart-phones or wireless laptop PCs" [37:13]. In this way information and learning materials are available anywhere and at anytime. In a similar vein, massive open online courses (MOOCs) allow for bringing together thousands of learners into a common event of free training [38], generally through specific service platforms [39]. Lastly, multimedia communities and virtual worlds have transformed significantly distance learning, by allowing e-learning environments to incorporate multimedia content and to stimulate learning through simulations, games, and interactions, in a way that facilitates freely knowledge sharing among group members within organizations [37, 33].

Deepening the main factors that influence effective implementation of e-learning systems, Bates [40] developed the ACTIONS model. This acronym stands for: 1) access, since all the people involved should have an easy access to the system; 2) costs, since each e-learning system is supposed to be cost-effective; 3) it should also provide effective "teaching functions" both for learning and training; 4) interactions and user-friendliness are also essential for a lively e-learning system; 5) organizational issues must be considered in order to improving knowledge and support the organization; 6) the system needs novelty; and 7) speed of course development and adaptation should be quick [40].

3. The influence of organizational issues on the adoption of e-learning methods and technologies

The actual implementation of ICTs in business education may be influenced by several organizational issues. With reference to knowledge management (KM) literature, an appropriate culture is one of the key factors necessary to have organizational knowledge management efforts successful [41]. According to Hislop [41], culture is able

to facilitate knowledge management in different ways: 1) creating a strong collective identity; 2) enhancing the level of trust and respect within individuals and to management; and 3) organizational processes are considered fair. However, despite some conceptual models of the relationship between organizational culture and knowledge management exist, very few studies have empirically examined the role it can play in shaping KM initiatives. Moreover, culture is strictly connected with HRM [41]. In this way, an organizational culture which encourages an active participation in knowledge management initiatives can be reinforced by HRM practices, such as development programs and training. As noted by Ruggles, [42] culture and incentives are two factors that can facilitate knowledge growth. Moreover, differences across cultural values might also conduct to different perceptions and approaches in considering and developing information systems [43]. In a study conducted by Dubé [44], he demonstrates that a correct fit between values embedded in the software development process and the overall organization's values, is able to activate a successful implementation of IT initiatives. At the same time, of course, organizational culture can inhibit knowledge management, since some approaches do not fit to individualistic or competitive cultures [41].

Davel and Snyman [12] underline that organizational cultures can also influence the adoption of particular KM technologies. The authors show that, generally, task-driven culture (e.g., consultancy organizations, which focus on value expertise rather than position, on creativity and variety, flexibility and high employee autonomy) and character-driven culture (e.g., specialist groups such as lawyer partnerships, with focus on the individual and equal opportunities) are associated to a more extensive use of KM technologies, including e-learning, web-based file sharing, tele- and video- conferencing software. On the contrary, power-driven culture (e.g., small entrepreneurial organizations with autocracy, without many rules and regulations, where employee learn by trial and error) or role-driven culture (e.g., large and bureaucratic organizations, with focus on long-term careers, stability and predictability) are found to be associated with less extensive use of KM technologies.

Looking at the use of ICT in corporate universities, Abel and Li [10] find that most of CUs utilize technologies in CU operations, especially distance learning technologies and comprehensive Learning Management System (LMS). Conversely, Homan and Macpherson [4] reveal that e-learning strategies are not always the most popular in CUs. According to the authors, it depends on the organizational context, with regard to both the level of technological sophistication and to the need of integrating e-learning approaches with corporate and HR objectives. In view of that, the authors suggest that the focus should be on the strategic potential of e-learning tools, rather than only on their flexibility and cost-efficiency [4].

This state of affairs shows that the insights about the antecedents of the adoption of ICT in corporate universities are rather unclear and often inconsistent. Clearly, the adoption and diffusion of e-learning technologies may depend on a number of organizational issues, such as culture, companies' technological sophistication, and CU's strategic objectives. The present study aims to shed light on the phenomenon under investigation by addressing the following research question: why and under what conditions are companies more or less prone to employ ICT and e-learning initiatives in their CUs? To that end, we perform a comparative case study between five Italian companies that have instituted a corporate university.

Several reasons make Italy a suitable scenario for the purpose of this research. First, prior evidence has shown that Italian companies do not make an extensive use of ICT in their corporate university [45, 46]. Although Italian CUs have shown a great interest in e-learning initiatives in order to improve training programs and attain cost savings, their diffusion has been rather limited in time [26, 47], thus resulting in an asymmetrical development of e-learning strategies [39]. Second, national literature has neglected to deepen the reasons underlying this phenomenon, with very few exceptions [e.g. 27, 48]. Compared to the high level of technological sophistication that are predicted for the most recent generation of CUs, this evidence reflects a sort of "deviant" behaviour across Italian companies. Accordingly, these issues need further investigations. Finally, Italy is one of the European Countries that have a greater number of CUs, with the coexistence of both older and younger CUs [48]. Therefore, such heterogeneity is very challenging to explore the antecedents of the diffusion of ITs and e-learning initiatives across companies.

4. Research methodology

In order to address our research questions, we conducted a comparative case study between five Italian companies that have instituted a corporate university. Companies were distinguished in "typical" and "deviant" cases with regard to the adoption of e-learning technologies in their CUs. This selection was based on the results of a previous survey conducted across 35 Italian companies, which were recruited according to their participation and/or formal membership to *Assoknowledge*, the Italian association for education and knowledge of *Confidustria*'s innovative and technological services. The survey was implemented in collaboration with *Assoknowledge* to carry out the annual report about the development of the Italian CUs [45]. Among other issues, it aimed at investigating the main learning models adopted in the Italian CUs (section 8), and the role of ICT, with a particular focus on the adoption and diffusion of innovative e-learning technologies in training methods (section 10). Self-administered questionnaires were completed by both CU's managers and heads engaged in training and development processes. They were collected

from February to April 2015. Of all the surveyed companies, 22 completed the questionnaire (response rate of 63%), but two companies were excluded due to partial responses. Therefore, a total of 20 complete responses were coded for descriptive data analysis, aiming at identifying which companies made (or did not make) an extensive use of e-learning technologies in their CUs.

Overall, results reveal that the majority of the surveyed companies shows a clear inclination for traditional training methods and that e-learning and mobile learning are adopted in very few cases. In detail, 38% of the respondents employ online training in very low percentages (from 5% to 10%) and only in the 6% of companies, e-learning initiatives provide more than 50% of the total training. The main area of training in which companies employ e-learning tools is compliance (i.e., legal, HSE), while they are little or never used in the training of commercial figures or in supporting change management. Looking at the use of mobile devices for business education, about 76% of the respondents affirm to not use mobile devices to support classroom-based learning (47%) or they plan to make use of them in the next future (29%). Mobile devices are actually employed for learning only in the 24% of companies [45, 46]. In contrast to the distinctly technological sophistication of the third generation of CUs, this finding has uncovered that Italian corporate universities do not make extensive use of ICTs. Compared to the dominant literature, this has appeared as a rather "deviant" behaviour.

4.1. Case selection

Starting from such evidence, we clustered these companies in "typical" and "deviant" cases with reference to the adoption of e-learning technologies in their CUs. According to the main methodological literature, while typical case sampling refers to the selection of cases that typify the phenomenon at hand, deviant cases sampling aims at investigating any departure from a specified norm [49], thus allowing for a better explanation of the phenomena under study [50].

In order to maximize the validity of the comparative case study, such classification followed three main criteria: 1) the typology of learning models that companies employed; 2) the perceived importance that companies attributed to e-learning approaches; and 3) the percentage of use of the instrument of e-learning, compared to total training activities.

Typical cases represent companies that, according to the high technological sophistication predicted by dominant literature for modern CUs, make an extensive use of ICT and e-learning technologies. In detail, these companies employ e-learning models, and adopt e-learning technologies in very high percentages (from 30% to over 50% of the total training activities), by considering them of great importance for their training goals. On the contrary, deviant cases consist of companies that do not make an extensive use of ICT and e-learning

technologies. They were selected according to the scarce presence of e-learning models in training programs and their low percentages in adopting e-learning technologies (from 0% to 10% of the total of training activities). Moreover, deviant cases consider e-learning approaches of little or average importance compared to traditional learning methods.

4.2. Data collection

In addition to survey data, we used multiple source of evidence [51]. In particular, information was collected from documentary analysis, direct observation of companies' websites, and in depth semi-structured interviews. This triangulation ensured a major strength of case study data collection [51].

With direct observations and documentary analysis, we analyzed all documents directly available on companies' websites, and collected several information related to companies, such as characteristics and functions of their corporate universities, their organizational structures, and the main attributes of their economic activity.

With regard to in depth interviews, potential respondents were informed about the objectives of the study and they were invited to participate to the research by telephone. Overall, five companies confirmed their participation: three companies represented typical cases, and two companies represented deviant cases. Afterward, the outline of the interview was sent to them by email and it was divided into four sections: (1) Organizational culture; (2) Characteristics of KM systems; (3) Information about the use of e-learning methods and technologies; and, (4) Interviewees' structural data. Clearly, some questions were adapted according to the typology of cases (typical or deviant).

The interviews, which lasted approximately 30 minutes, were conducted by telephone or personally with CUs' heads, training managers and HR managers, at the presence of at least two authors. They were recorded and then entirely transcribed in January 2016. Data from the transcripts were coded through a qualitative content analysis [52, 53]. In order to identify recurring themes related to the experience of each company, both descriptive and interpretative encoding was performed [54]. This analysis was first conducted separately and then jointly by the authors, and lastly the results were compared with the existing literature [51].

5. Case studies

In this section we provide a brief excursus on the five selected organizations, designed on their histories, characteristics and the results of our investigations, in order to set the ground for final considerations.

5.1. Case study A

A is an Italian industrial company, the fifth global player in its sector, with a consistent number of plants and its commercial presence in over 160 different countries. It can be considered is one of the global leaders in high tech products, with almost 40.000 employees.

Its approach to knowledge management (KM) provides the actual presence of a digital platform, which is based on Microsoft technology, not only for repository purposes, but also for social purposes. However, although it is believed that the company has adequate IT support, this is still not used to its full potential, and the technical skills of individuals who work behind it, are not very thorough. The organization aims at making KM as characterized by an extensive use of technological tools, supporting the use of the platform for sharing ideas and innovative projects, for which, however, they find resistance. One hardiness that mainly impacts on the exploitation of the potential of technological tools is the organizational culture of company *A*. According to the definitions provided by Davel and Snyman [9], *A* considers itself as a company with a task-driven culture, so that it gives relevance to the value of the skills rather than position, as well as it pays considerable attention to creativity, variety and flexibility. Moreover, it provides a wide autonomy to employees. At the same time, the fact of being an industrial company, and not a service company, is reflected in everyday behaviour of individuals within the organization. In fact, its Corporate University's specific objectives are very related to the challenges that the company is facing, but they are also linked to the development of technical skills and individual talent. This is considered a limitation to an extensive use of technological tools and e-learning in the CU. This happens also because the new adoption of instruments which require approaches to distance learning, should imply a re-definition of the CU's strategic objectives. To date, *A*'s objectives remain consistent with the organizational culture, focusing on the development of professional skills and participation in sessions, where people from different parts of the business interact in a functional way. According to *A*, this system is defined in order to develop some behavioural areas that with distant learning would develop less. In line with these considerations, the relative absence of technological tools for education is primarily influenced by the culture of the company.

Moreover, we emphasize other limitations to the use of the e-learning in society *A*. One of these is the necessity to make too high investments within the organization. Moreover, a more extensive use of this tool would require a consequent adaptation of business processes, and this is not considered as a necessary intervention, despite the good level of technological implementation of the company. To conclude, e-learning is considered instrumental to the teaching of basic content.

5.2. Case study *B*

B is an Italian parent company of a number of organizations in the banking and insurance sectors, with about 2000 employees. Its approach to KM employs rather varied tools for the transmission of knowledge, experiences, skills and values.

On the one hand, from a physical point of view, the CU structure encompasses the approach to KM of the company, with the possibility to visit a *museum* that, through guided and planned tours, involves hundreds and thousands of people (employees, contractors, as well as customers). On the other hand, since last year *B* is promoting the development of a "digital *agorà*", to encourage experience and knowledge sharing, through a *Google-like* search, which makes it possible for all operators to study and go quickly to resume critical information. Clearly, the attempt is to go beyond the simple closed system of the current LMS, linking integrated learning groups, through the use of digital platforms. However, certain business areas of the company face some resistances in the adoption of such technological tools as instruments of KM. This is mainly due to their intrinsically commercial nature. In this case, company *B* still fosters the use of personal testimonials in sharing experiences of best practice (see also techniques of storytelling), believing that listening to physical individuals is the best way to stimulate learning in this field. In line with this discussion, *B* makes an extensive use of traditional instruments, such as classes, to foster the transmission of knowledge, experiences, skills and values. Although *B* is introducing parallel online courses, the use of e-learning and enterprise social networks is considered a support of traditional learning tools, since the company still faces resistances from employees in using technological tools. Its knowledge management system still does not have a sufficient level of computer support, even though it is evolving, especially when looking at recent investments. The overlap of both classes and e-learning is a part of the CU's objectives, but physical proximity is seen as a fundamental moment for learning cultural values, and it offers the possibility of doing necessary insights. Among the main drawbacks in shifting to e-learning, *B* pays attention to the work-life balance of its employees, considering the extensive use of technology as a risk of overexposure to work-related issues, far beyond their working hours, and to the high investments that are necessary for introducing sophisticate activities (and their supports) of distant learning. According to *B*, introducing e-learning instruments for different purposes (their actual use is dedicated to basic and compliance matters), may have the effect of upsetting the *status quo*, not being cost-effective at all, as well. At the same time, the company notes that the amount of investments shows some steps ahead that have been done this year in fostering technological learning.

In line with these considerations, the actual CU's objectives are not influenced by distant learning tools. In order to create synergies between traditional learning systems and digital systems is starting to consider new training for people who were traditional trainers, and who

will become facilitators and enablers in digital learning Also in this case, as well as in *A*, organizational culture massively influences the relative absence of technological and distant approaches to education. Several variables, such as age, willingness to use and to learn of individuals within the organization, impact on the strategic use of distant learning and technological tools.

5.3. Case study *C*

C is an Italian company that operates in the telecommunication sector, with an operating presence in Europe, North America, South America, Africa and Asia and about 65,000 employees. When looking at its KM approach to the transmission of knowledge, experiences, skills and values, there is a clear emergence of the phenomenon of digitalization. Accordingly, the KM model of the company *C* includes the following instruments: 1) the development of a virtual identity of people, that is a sort of identity card with which the virtual person is presented to others, characterized by its skills, professional experience, interests and hobbies. This will allow each one to find the person to be referred to in the case where there is need for a support; 2) networks of knowledge, or professional communities across all functions of the company, in which individuals come together to share patterns, ideas, practices and identify solutions; 3) virtual team spaces, i.e. working groups to support project managers, who come together to share information and documentation, in order to formalize and capitalize knowledge developed during the project; 4) knowledge objects which is nothing else that the knowledge structured in the internal and external organization, which is formalized and made accessible to all; and, 5) cultural and cross initiatives, where a culture of collaboration and knowledge sharing clearly emerges within the entire organization, with the appreciation of contributions of individuals through crowdsourcing campaigns and repositories of best practices.

The organizational culture of the company has been defined both task-driven and role-driven, giving attention to creativity, flexibility and autonomy of instruments and individuals, but considering the dimension of the organization as well. As a consequence, *C*'s KM system has got an appropriate computer support, although some implementations are required, in order to make the work environment increasingly interconnected, with diversified instruments. In addition to the previously introduced applications, *C* is working to implement a multi-channel user experience, crowdsourcing platforms for internal collaboration, a reporting system and some KPIs.

As emerges from the experience, *C* puts a special attention to e-learning in its CU, and more generally to digital training, in order to be always updated with the market and meet the internal and organizational necessities, and external as well. With regard to the opportunities associated with these tools, *C* especially includes the ability to provide a methodologically evolved level of education, which is flexible both in content and mode, as well as cost efficient. *C* is clearly aware also of the presence of some associated limitations, such as those related to the technological adaptation of all its companies, as well as the resistances that individuals generally have toward these new tools. In line with such considerations, in fact, its approaches to teaching and learning have had to evolve to meet the increased flexibility and automation of tools for distance learning, especially with respect to digital skills for all the trainers within the company.

Likewise, both the level of technological sophistication of the organization and the organizational culture have influenced the presence of e-learning instruments. Interestingly, the culture of the company is permeated by digital skills, since a number of technological instruments have been there for a long time. The duty of ensuring that this is possible, it is also (and above all) of the HR department, which spends particular attention to digital skills, to be able to pass them on to all the staff, favouring tutoring and e-learning systems.

5.4. Case study *D*

D is one of the most important Italian companies that deal with the management of postal, financial, insurance and mobile services. It employs about 150,000 employees and holds several international partnerships around the world.

In general, the KM system of the company includes several tools for the transmission of explicit and implicit knowledge, as well as experiences, skills and organizational values. To that effect, the most commonly used tools consist of: an intranet dedicated to operational staff, document management in virtual environments, FAQs, blogs and forums, which enable the employees not only to share knowledge, but also to build it all together. The choice of computer tools that are applicable on a large scale is a crucial element for the KM of *D*. Hence, it emerges the need to set up an adequate IT support that is widespread throughout the territory in which it operates. The point is that, by providing extremely differentiated services within the different offices of which the company is composed, this technological support may be not uniformly distributed. For this reason, *D* makes use of vertical solutions adapted to its specific needs.

Moreover, in this period, *D* is undergoing radical changes and transformations, and this involves a necessary adaptation of technological tools and a largely cultural change: a more extensive use of certain technologies will improve the effectiveness of KM and work processes, and then it accompanies the cultural transition itself.

When considering the technologies for distance learning, *D*'s CU seems to be more inclined to the use of e-learning, compared to other Italian companies, in a context that is also evolving. In practice, training with e-learning had been relegated in the past to fulfil obligations in the areas of legislation and compliance, while at

present, there is a real online channel, able to meet *D*'s new needs. Specifically, the goal of the CU of the company is to strengthen the digital channel, by providing its complementarity with the traditional channel, represented by classroom training. This process seems to go beyond the traditional blended learning, where the online can also enter in the classroom, and classrooms themselves can become online. *D*'s CU also believes that digital training may leave the narrow burdens of normative issues, to be applied to managerial, technical and tutorial issues. In fact, the adoption and implementation of tools for distance learning have a strategic importance to *D*, which stands in a position to reach effectively, rapidly and efficiently, the whole reference population. In this way, the CU promotes a kind of social and collaborative learning that not only makes workers more responsible, but also activates mechanisms of constructive competition within the company. These are also considered part of the opportunities related to e-learning, where the individual voluntarily chooses to train, compete, and pass the formal organization, to be the protagonist of his/her own personal and professional growth. However, limitations emerge as well. They are linked to the use of these instruments, including the impossibility to grasp the emotional dimension of individuals, as well as some questions related to privacy and anonymity. Moreover, similarly to the company *B*, company *D* also takes care of the work-life balance of its employees. At the same time, however, *D* is working for the promotion of these instruments, through the communication of positive messages, with the aim to tie the concept of trust to participation to distance learning. Clearly, over the years, this approach has required some changes in the CU, in both teaching and learning methods, with particular attention to the new role played by trainers.

Finally, a key role is played by culture. If we wanted to frame the culture of *D* in the framework proposed before, *D* defines itself as a company with a role-driven culture, tending to a task-driven culture. The initial choice is mainly linked to the size of the company. However, because of the radical changes which have been previously mentioned, *D* is moving gradually towards a task-type. Distant education seems to be strongly influenced by corporate culture, dedicated to the principles of transparency, simplicity, speed and strength, which are all translated into digital key. In the same way, even the familiarity of the HR department with IT tools seems to positively impact their development and dissemination.

5.5. Case study *E*

E can be defined as a network of professional services companies, specialized in auditing, accounting, management consulting, tax services, legal and administrative issues. The entire network covers 152 countries around the world, with over 150,000 employees.

When examining its KM instruments, the most frequent ones used to foster knowledge, experiences, competences and organizational values, are distributed in various educational activities. The company employs a corporate intranet, which is used both as a repository and as a source of specific information and training materials. With regards to values, they are transmitted with either traditional instrument, such as classrooms and daily meetings, and through the most modern channels of formal and informal communication. One of them is certainly the digital format. *E* emphasizes the very close link between the development of competences and training. For this reason, the performance management system is linked to the competence model.

The dissemination of knowledge and expertise is ensured by another instrument promoted by the CU of the company: the virtual classroom. In this case, as in the previous one, virtual classrooms aim to overcome the simple blended education, also including the use of chats. They allow individuals for interacting and asking questions, and they encourage constructive debates, potentially enabling the generation of insights and new ideas.

According to such considerations, *E*'s KM system is provided with an appropriate IT support, with the aim of increasing the real value of the knowledge of individuals within the organization. At the same time, there are some limits to the usage of these tools, essentially linked to the circulation and dissemination of not validated knowledge. Then, it is not a 100 % social environment, but platforms and other digital devices are carefully checked and validated by experts.

When considering *E*'s CU, it is possible to identify some factors that have facilitated the introduction and spread of distance learning and e-learning. Firstly, the large number of people to be reached simultaneously. Secondly, the geographical distribution of the company. Thirdly, the characterization of *E* as a professional services firm, which requires a high need for training of key technical content, compliance and updates. In such a case, for example, distance learning is considered extremely effective and efficient, because it allows the company to promptly train a large number of people. This fact, transposed in physical classrooms, would require huge efforts, in terms of money, time and space. To have an education of "just-in-time" type can make a difference in terms of content knowledge and technical training. Moreover, documents are always consultable and this allows e-learning to overcome effectively "the paper". Among the reasons that make *E* more inclined to the use of digital tools, there is also the average age of his employees (extremely young), since they can be considered mainly "digital natives", who are accustomed to and prefer the use of digital.

For all these reasons, the implementation of distance tools is considered as a factor of strategic importance for *E*, for which both opportunities and limitations can be identified. Among the opportunities, we just mention: 1) timeliness; 2) flexibility; 3) efficiency; 4) widespread;

and, 5) content consistency. When considering limitations, we find: 1) limited interactions; 2) limited comparison between people (both between learners, and between teachers and learners); 3) minor relationships; 4) brevity; and, 5) limited abilities for insights.

Looking at the CU, the adoption of e-learning tools has required some changes in teaching approaches, given the need to form new internal skills for trainers. Moreover, it has led to design new educational offerings for learning. In this case, the objectives of the CU, already oriented to the implementation of skills, were further enriched to accommodate new and different competences, with a focus on autonomy and responsibility of learners. In detail, training activities are often planned "ad hoc" with reference to the profile of employees. The cultural aspect has a major impact on everything. Regardless of the age-factor, culture itself has evolved over time, favouring the consolidation and the continuous improvement of technologies to support the CU, creating a sort of virtuous circle.

Moreover, according to the definitions provided by Davel and Snyman [9], *E* considers itself as a company with a character-driven culture, as well as a role-driven culture, given the importance they put on personal careers. Considering that it has been already 12 years since the company introduced for the first time Digital Media within its CU, technology has completely affected the way of working. As a result, training approaches appear to be consistent with this aspect.

Information systems to support *E*'s business processes and functions are promoted from its CU consistently with its increasing level of sophistication, and the familiarity of the HR department with the technology itself, clearly favours the presence of e-learning tools.

6. Discussion

Starting from a lack of a deepened investigation about the rationales and antecedents that shape the actual adoption and diffusion of Information and Communication Technologies in Corporate Universities, the results of this study offer some support to our reflections.

Despite the mainstream literature highlights an extensive use of technological tools in distant education, we question this perspective, given the reality of Italian companies. The distinction between typical and deviant cases allows us to investigate the effective use of e-learning technologies within Corporate Universities, through both within-case and cross-case analysis.

Typical cases are company C, D and E, which result to be consistent with the extant literature. In contrast, A and B represent an example of Italian corporate universities that do not make extensive use of ICTs, not belonging to the distinctly technological sophistication of the third generation of CUs.

By highlighting the existence of two separate categories of companies, the results of this comparative case study confirm that several organizational features

have impact on the adoption of distance learning methods, and therefore e-learning strategies are not always the most popular in CUs. One of the few common points of both typical and deviant companies is the attention to the overlap between working time and private life, due to the possibility of using digital devices in different places, outside the workplace as well. In addition to that, we emphasize several similarities within the two distinct groups of reference, which confirm and provide authority to our investigation.

In line with the aim of this study, the following sections deepen the distinctive characterizations of the two groups of companies, as well as their similarities.

6.1. E-learning in deviant cases

Looking at the analysis of deviant cases, it is interesting to explore their similarities in both opportunities and limitations leading to a lack of consideration of distant learning tools, despite they operate in different sectors and for a significantly different referent market. In detail, even though the desire of adopting new learning approaches, culture, situational context and specific objectives limit the extensive use of technology for business education. More exhaustively, culture has the main impact on the adoption of e-learning, rather than technological sophistication, and it actually represents one of the most important barriers to the introduction of IT tools for distant education. Interestingly, in contrast with typical cases, for these companies e-learning appears to be suitable only for basic education.

In these situations, e-learning does not seem to have a strategic role, since traditional and face-to-face interactions are considered more effective in sharing cultural values and shaping relational behaviours. The main purposes of the Corporate Universities are strongly linked to the development of technical competencies and individual talent, and this is translated into A and B's corporate cultures. Moreover, both the companies consider the trade-off between investments in e-learning implementation and expected results as a reason to continue to make an extensive use of traditional educational instruments, first of all physical classrooms. Moreover, they encourage meetings, daily discussions, workshops, simulations and, in the case of B, storytelling, believing that listening to physical individuals is the best way to stimulate learning, in line with their CU's strategic objectives. Interestingly, both the companies do not consider HR familiarity with technological tools as being important in communicating the value of digital learning. This circumstance is highly consistent with the idea to not make e-learning a pervasive instrument of education.

Finally, in both cases we underline the coincidence of a task-driven culture, with some aspects of character-driven culture in company *B*. This result is quite in contrast with the arguments reviewed in the previous sections. Nevertheless, they should not mislead. In fact, the extant literature reports that task-driven culture and character-

driven culture are expected to be associated to an extensive use of KM technologies, as e-learning tools are [9]. When talking about their organizational culture, *A* and *B* mainly focus on their strategic competences, which do not seem to be linked or improved with distant learning. Their attention to the value of skills rather than the position within the organization, their focus on creativity, variety, flexibility and the high level of autonomy of employees, does not pass through the implementation of digital distance learning, such as e-learning, since it is not considered to have a strategic value.

6.2. E-learning in typical cases

Concerning typical cases, they also present consistent similarities in our results, in line with the mainstream literature. Among the overall opportunities they link to e-learning, we find autonomy, flexibility, cost-efficacy, efficiency, ubiquity and timeliness. However, it is interesting the importance given to face-to-face interactions. Altogether the companies believe it is necessary to combine digital education, with traditional moments and personal interactions, overcoming the traditional concept of blended education, and promoting interactive learning [11].

Contrary to the deviant cases, e-learning gains a strategic role in fostering the adaptation to new digital markets. This is particularly due to the presence of distinctive digital competencies in the three companies, which find a solid base on social collaboration [4-11]. In line with these considerations, both culture and technological sophistication have a significant influence on the adoption of e-learning. The main difference is that here we face a digital culture. In fact, *C*, *D* and *E* highlight the role their culture have in leading to the consolidation and the continuous improvement of technologies to support their Corporate Universities, as a consequence of a contextual development through the years. Moreover, the familiarity with digital tools of their HR departments is considered as a lever for reaching the strategic objectives of their Corporate Universities, in line with the ruling culture. Also in this case, we want to specify the role of organizational culture, in the light of the literature reviewed.

As summarized in Table 3, each of the companies starts from a role-based culture. This common evidence might be linked to the old traditions of the companies and to their big dimensions. The second important result is represented by their recent shifts to a task-drive culture (company *C* and *D*), and to a character-driven culture (company *E*). This circumstance fits well with the reviewed literature [9], since the adoption and implementation of tools for e-learning have a strategic importance for their KM systems and their CUs.

Table 1. Literature

Main Theme	E-learning in extant literature
Opportunities	Cost-savings, rapidity, flexibility, reachness, autonomy, customization and learning improvements [7,10,11,16]
Limitations	Impersonal learning, low interactions, lower learner and teacher's engagement, privacy, high investments required, changes in the CU's strategic objectives and organizational culture [11,30,32]
Strategic value	When examining the role of CUs, we must consider learning in line with the strategy [26], connection between employees' needs, training process and business strategic aims [27]
Culture	When examining the role of CUs, we must consider its role of promoter of organizational culture [25, 26, 27, 42, 43]. Organizational cultures can also influence the adoption of particular KM technologies. We refer to task-driven cultures, character-driven cultures, power-driven cultures and role-driven cultures [12]
Technological sophistication	Increasing level of sophistication of CUs in both learning technologies and their strategic orientation [4,23]
HR familiarity	An active participation in knowledge management initiatives can be reinforced by HRM practices, such as development programs and training [41]

Table 2. Deviant cases

Main Theme	Deviant Cases	
	Case A	Case B
Opportunities	Depend on situational context and objectives; e-learning is suitable for basic education	E-learning may foster the definition of new strategic objectives for the CU
Limitations	Organizational culture; high investments required	Overlap between work and private life; no cost-saving tools (high investments required)
Strategic value	No; e-learning requires a change in CU's strategic objectives; e-	No; strategic role of face-to-face interactions in sharing cultural

	learning is not suitable for the development of technical skills and individual talent (main CU's purpose).	values, and relational behaviours; e-learning is a tool and it does not require a change in the CU's strategic objectives
Culture	Task-driven culture	Task-driven culture, with some aspects of character-driven culture
Technological sophistication	Culture has the main impact on the adoption of e-learning, rather than technological sophistication	Culture has the main impact on the adoption of e-learning, rather than technological sophistication
HR familiarity	No; The trade-off between investments in e-learning implementation and expected results has the main impact	No; The high investments in e-learning implementation and organizational culture have the main impact

Table 3. Typical cases

Main Theme	Typical Cases		
	Case C	Case D	Case E
Opportunities	High quality, ubiquity, and flexibility of learning; Cost effectiveness	Willingness, autonomy, overcoming of the formal organization	Flexibility, efficiency, timeliness, widespread and content consistency
Limitations	Technology: both firm and employee need to change their approaches to learning	Impossibility to grasp the emotional dimension of individuals, privacy and anonymity	Limited personal interactions, limited comparison between people, brevity, and limited possibilities for insights
Strategic value	Yes; strategic role of e-learning in adapting to new digital markets; e-	Yes; strategic role of e-learning in reaching widely, effectively,	Yes; strategic role of e-learning for updated, rapid and

	learning is highly consistent with the distinctive digital competencies of the company	rapidly and efficiently the whole reference population; Promotion of social and collaborative learning	accessible contents
Culture	Role-driven culture, shifting to task-driven culture	Role-driven culture, shifting to task-driven culture. Culture has the main impact on the adoption of e-learning: cultural principles of transparency, simplicity, speed and strength, which are all translated into digital key	Role-driven culture, shifting to character-driven culture. Culture has favoured the continuous expansion of ICT to support the CU, creating a sort of virtuous circle
Technological sophistication	Digital culture and technological sophistication have a significant influence on the adoption of e-learning	Yes, Impact of technological sophistication on e-learning	Contextual diffusion of technological sophistication and e-learning tools
HR familiarity	Yes; HR familiarity with digital tools is fundamental for e-learning	Yes, HR familiarity with IT is associated to e-learning development and dissemination	Yes, active training of the HR department

7. Conclusions and future research

This paper aims to analyse the antecedents of e-learning adoption through a comparative case study between five Italian companies that have instituted a Corporate University. For privacy reasons, we called them company *A*, *B*, *C*, *D* and *E*.

This study reveals the dependence of distant learning tools on several organizational features and, in contrast with the mainstream American literature, it highlights that

e-learning strategies are not always the most popular in Corporate Universities. Starting from this literature and from the *Assonowledge*'s annual report about the development of Italian CUs, our analysis led to the identification of two different approaches to distant learning, which were classified into two resulting groups, with regard to the extensive or not extensive use of e-learning technologies: 1) typical cases, and 2) deviant cases.

In typical cases (company *C*, *D* and *E*) e-learning gains a strategic role in fostering the adaptation to new digital markets. The presence of distinctive digital competencies in the three companies can be considered an antecedent to the adoption of distant learning tools. Moreover, a large number of opportunities, such as rapidity, cost-effectiveness, autonomy in teaching and learning, a wide richness, a sophisticate level of technological instruments, organizational culture and the HR familiarity with ITs, can also be considered effective antecedents to the adoption of e-learning.

In deviant cases, a main barrier to the implementation of digital learning has emerged (followed by the high level of investments required to adapting their structures): organizational culture. This is an interesting result, since for both the resulting groups, culture occupies a prominent position, when considering the strategic value of e-learning in their knowledge management systems and CUs.

In line with these considerations, this paper contributes both to the advancement of literature and it presents several managerial implications. From an academic perspective, it advances the debate about the actual role of ICTs in CUs, analysing antecedents and possible reasons that make companies more or less inclined to the use of digital training tools. Moreover, it confirms the existence of important differences between national and foreign literature. Finally, it enriches national literature, by analyzing in depth the Italian scenario, where the simultaneous presence of both "historical" and younger CUs [29] is really interesting in order to address the rationales and antecedents of the adoption of ICT in business education. From a managerial perspective, this paper allows companies to identify their progress in the adoption and use of e-learning initiatives within their CUs, with reference to both the extant literature and other companies. Furthermore, it allows companies to cluster themselves into one of the identified cases, in order to plan developing initiatives.

However, the paper has two limitations. Firstly, the number of companies analyzed is quite small. Secondly, it does not take into consideration employees' perspectives, both when conducting the in depth semi-structured interviews and when results are commented. To overcome these limitations, it is possible to replicate the analysis by involving a larger number of organizations, over a more extended period of time. Moreover, further studies might replicate the same analysis by involving the whole representation of the organization.

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