Corporate Entrepreneurship in Higher Education:

The Digital Learning Challenge

Mara Soncin[a], Michela Arnaboldi[b]*

[a,b] *School of Management, Politecnico di Milano*

**Corresponding author: mara.soncin@polimi.it*

This is post-print of a paper published on the International Journal of Public Administration. Suggested citation: Soncin, M. & Arnaboldi, M. (2022) Intrapreneurship in Higher Education: The Digital Learning Challenge, International Journal of Public Administration, 45:2, 135-146, DOI: 10.1080/01900692.2021.2011919

Abstract

Digital learning is challenging traditional higher education structures by enabling new strategic directions and entrepreneurial stimuli. The paper explores this corporate entrepreneurship approach in the context of digital learning, focusing on Massive Open Online Courses (MOOCs). The three stages of corporate entrepreneurship – formulation, deployment and evaluation – were explored through a multiple case study, alongside the duality between individual freedoms and organisational goals and constraints. Detailed results show the interaction and conflicts arising during the three stages of corporate entrepreneurship, providing a framework of reference. The paper offers management and policy implications in the designing and monitoring of these organisational processes.

Words count*: 7,003*

Keywords: *digital learning, MOOCs, corporate entrepreneurship, higher education, case study research.*

1. Introduction

Higher Education Institutions (HEI) are facing increasing uncertainty and the need for worldwide sustainability. In a picture of growing competition, the ability to offer a distinctive value proposition is becoming more deeply embedded in the debate on the role of technology (Christensen et al., 2011). Digital learning is now one of the leading issues in the discourse on the future of higher education (HE) (Ghemawat, 2017), prompting universities to take a range of innovation measures. Innovation of this kind is only marginally a technological problem; it is primarily a cultural shift that involves the faculty. Digital learning requires comprehensive systematic innovation, but it must also be driven by individuals embracing an entrepreneurial mindset and be open to new forms of teaching and learning. This dual level of innovation brings in all the elements of corporate entrepreneurship (Sadler, 2000; Kearney and Morris, 2015; Kuratko and Morris, 2018), a process defined to be strategic transformation as the consequence of entrepreneurial orientation - thought and action - which changes the way in which resources are employed (Ginsberg, 1988; Guth and Ginsberg, 1990).

The studies on digital learning together form a massive body of work, but the main focus is on its impact on students and other users (Bernard et al., 2014; Kumar et al., 2019). Researchers have been less active in investigating the actual deployment of digital learning, a process that combines organisational and individual goals, and a matter critical to HE, given that the provision of education is ultimately in the hands of the faculty (Nicoll and Harrison, 2003). Forcing innovation can be counterproductive, leading to opposition, superficial adoption and, lastly, a drop in user performance (Dess et al., 2003; Rahim, 2017). The same risk can stem from giving excessive freedom to the faculty, resulting in a patchwork of initiatives, an outcome seen in other managerial contexts (Langfred, 2004).

The current study explores corporate entrepreneurship driven by digital learning within HEIs, presenting an analysis of how an entrepreneurial orientation is formulated, deployed and evaluated. Specifically, the research aims to address the following three research questions:

(i) In what way is corporate entrepreneurship driven by digital learning formulated by HEIs?
(ii) What elements affect entrepreneurial deployment in digital learning?
(iii) How do HEIs evaluate individual and systemic deployment?

The framework of corporate entrepreneurship is suitable to the context of HE, given the dichotomy that has emerged in the literature between the role of the individual-entrepreneur and that of the

organisation-corporate (Stopford and Baden-Fuller, 1994; Sadler, 2000; Kuratko and Morris, 2018). This dichotomy also combines well with the many roles present in HEIs (i.e. governance, managers and administrative staff, and academic staff).

While there are several digital learning options, the focus of this paper is on Massive Open Online Courses (MOOCs), this being the tool where, given their feature of massiveness, there is most likely to be tension between the individual-lecturer and the organisation-promoter, with potentially heavy impact on the organisational side (Ghemawat, 2017). At the empirical level, three European technological HEIs were the subject of a previous multiple case study (Yin, 1994).

The paper is organised as follows. Section 2 contains a review of the literature, providing the background to the contribution given by this paper, while the reference framework and case study methodology are presented in Section 3. The results are described in Section 4, which are then discussed in Section 5, together with the main policy implications.

2. Related studies: corporate entrepreneurship and digitalisation in higher education

The literature reviewed in this section determines the state-of-the art on the concept of corporate entrepreneurship in HE, analysed by retracing the various stages of formulation, deployment and evaluation. In addition, the analysis also explores the specific challenges having to do with digital learning in HE.

The idea of corporate entrepreneurship originates from Schumpeter's (1934) concept of the entrepreneur as a person who "carries out new combinations", and has been defined as a strategic organisation-wide transformation in the allocation of resources to new activities, in a turnabout that reflects entrepreneurial behaviour (Ginsberg, 1988; Guth and Ginsberg, 1990). Corporate entrepreneurship is about "people - either individually or collectively - using innovation to exploit new opportunities and create value" (Sadler, 2000, p. 25). This tension between the entrepreneurial drive of individuals and the organisations in which they work is the distinctive element of corporate entrepreneurship, and it fuels the academic debate (Sadler, 2000; Stopford and Baden-Fuller, 1994; Kuratko and Morris, 2018). The digital learning transformation and MOOCs in particular have injected this corporate entrepreneurial frame into HEIs. Digital technology has created a learning setting that stresses the seminal tension between organisation and faculty, whose individual freedom of action gives the HE sector a special place within public administration.

The strategic change embedded in corporate entrepreneurship has been described as a three-stage strategic process: formulation, deployment and evaluation (Andrews et al., 2011; Poister et al., 2014). The literature has focused on corporate entrepreneurship deployment (i.e. the implementation

process) and its results (Dess et al., 2003; Andrews et al., 2011). Fewer investigations have been carried out into the formulation and evaluation of corporate entrepreneurship, defined as the stages before and after deployment, despite their importance in any strategic process of change (Poister et al., 2014). This may be particularly relevant in a context like HE, where business-oriented components are intertwined with the provision of public services (Bleiklie et al., 2017), making them a sort of hybrid organisation. Moreover, hierarchies in the HE sector are less defined than in other public sector administrations, and the interaction between the administrative body and the faculty creates an additional level of complexity.

In the context of HE, the concept of corporate entrepreneurship was previously endorsed as a means to analyse the specific process of technology transfer (Powers and McDougall, 2005; Rippa and Secondo, 2018). Although technology transfer is a distinctive HEI process, these studies underline the potential of the entrepreneurial university, where high quality faculty is critical and digital technologies foster innovation. From this perspective, the process of digitalisation which is taking place in HEIs presents new opportunities for studying corporate entrepreneurship. The wide level of individual freedom enjoyed by the faculty is intertwined with the need for strategic organisational guidance and this, in turn, is generated through financial and technological investment (Card and Card, 2007). MOOCs are the most visible example of this transformation and have been steadily gaining in popularity since 2012. Universities deciding to tackle the challenge of innovation are required to rethink their strategic models for managing digital learning in general, and MOOCs in particular, stimulating, on the one hand, the necessary individual initiative taken by the faculty members and, on the other hand, implementing a systemic turn in strategy.

Faculty members have expressed a mixed reaction to this kind of innovation. The interviews conducted by Bacow et al. (2012) in a USA context showed that the faculty resisted the introduction of online courses due to their concerns about a reduction in number of professors, combined with the time needed to prepare the new courses and uncertainties surrounding the intellectual property of the material. Lofstrom and Nevgi (2007) also observed this high heterogeneity in faculty reaction when describing the strategic planning and implementation of a digital technology plan at the University of Helsinki. Blin and Munro (2008), however, described a virtual learning environment introduced in Ireland, finding little disruption to teaching practices, despite the broad diffusion of the digital tool.

All these points considered, the literature highlighted several lines of thinking on the adoption of digital learning in HEIs, which will form the basis for further discussion throughout this paper. To start with, the study of corporate entrepreneurship has always focused on its deployment, neglecting the stages of formulation and evaluation. In this respect, there is no comprehensive overview of the

phenomenon. Second, corporate entrepreneurship in HE has mostly been studied from the angle of technological transfer and not as an internal strategic phenomenon. Lastly, the heterogeneity in implementation and organisational reactions are central to the corporate entrepreneurship process and could potentially result in barriers raised against its adoption as well as internal tension. All these considerations will be applied when framing our study in the next sections.

3. Methods

This study is structured as an exploratory multiple case study (Yin, 1994), where the unit of investigation is the HEI offering MOOCs. The reference framework is presented in following section, with case selection and data analysis being discussed later.

3.1. Reference Framework

Throughout the study, the framework provides a holistic interpretation of what HEIs mean by corporate entrepreneurship driven by digital learning. The framework implies an overlap between two layers, presented graphically in Figure 1. On the one hand, we investigated the stages of corporate entrepreneurship, which consist of (i) formulation, (ii) deployment and (iii) evaluation. On the other hand, we studied these stages along three organisational levels, composed of individuals (lecturers), groups (administrative or academic organisational units) and organisation (governance). The organisational levels, therefore, create an organisational connection between corporate and individual entrepreneurship (Stopford and Baden-Fuller, 1994). In addition, our interpretation of the different organisational levels, at each stage of corporate entrepreneurship, is backed by a number of elements considered to be relevant in the literature on corporate entrepreneurship, and presented below.

Regarding the process of formulation, for each case examined, the study is set within the framework of a mature organisation pursuing an entrepreneurial objective (Kearney and Morris, 2015). In this study, the organisation's approach to corporate entrepreneurship was interpreted by discussing two factors (i) centre of power, i.e. the individual or organisational unit at the origin of the entrepreneurial drive, and (ii) how corporate entrepreneurship was spread throughout the organisation, i.e. its strategic governance. Both these factors are relevant in the transition from individual to corporate entrepreneurship (Stopford and Baden-Fuller, 1994). Moreover, these features influence the form taken by entrepreneurial leadership, as the way in which roles and organisational units are empowered enables a shift from one set of operating routines to another (Dess et al., 2003).

The second element of analysis is deployment, which, in this study, is understood as the implementation style and the flows whereby corporate entrepreneurship is translated into actions (Andrews et al., 2011), while also considering the possible forms of conflict arising when the new

digital tools are implemented (Rahim, 2017). As proposed by Andrews et al. (2011), the concept of implementation style, as adopted in this study, reflects the duality between a rational approach to implementation, with centralised control and separate phases of formulation and implementation (Fernandez and Rainey, 2006), and an incremental approach, where the model is decentralised and flexible (Mintzberg, 2000). In addition, as lateral elements enriching our considerations about the implementation style, the study also examines the - more or less centralised - level at which responsibility for implementation is set, and also explores the relationship between formulating and implementing a strategy, which may be sequential or combined, i.e. juxtaposed (Thompson, 2000). Within the analysis of entrepreneurial deployment, the study also considers the implementation flows, such as resources and procedures, that enable and characterise this stage of corporate entrepreneurship (Poister et al., 2014).

As the final element in entrepreneurial deployment, the literature stresses the importance of gaining consensus on a certain line of actions (Dess et al., 2003). The coexistence of formal and informal behaviour during the strategic deployment process may result in a discrepancy between reality and expectations across management levels, as well as in a lack of trust, which could undermine the prediction of results. When roles involved in strategic deployment are in conflict, friction takes the form of strategic role conflict, as defined by Floyd and Lane (2000). According to West (2006), conflict is a crucial dimension of how HEIs work. One of the reasons for the longevity of universities is their ability to combine opposites, defined as "the 'intrinsic' qualities such as the value of fundamental search for truth and disinterested pursuit of knowledge together with an 'extrinsic' capacity to respond to changing economic needs" (West, 2006, p. 191).

The third stage of corporate entrepreneurship is evaluation, defined as the step in a strategic process where results are monitored and feedback provided, in order to maintain alignment between individual initiatives and corporate goals (Poister et al., 2014). This stage has been found to be crucial to the process of digitalising public services (Yang and Rho, 2007) and, in this study, is addressed by analysing (i) the control centre in charge of strategic evaluation and (ii) the use to which collected information is put.

[Figure 1 around here]

3.2. Case Selection

Cases were selected on the basis of comparable settings and objective criteria. For these reasons, the focus is on the European Union (EU) as a supra-national context where HE systems are becoming increasingly homogeneous. Moreover, the study concentrated on technological universities, which

have a common background and where digital innovation is presumed to be highly strategic. Because entrepreneurial orientation towards digital learning is our main interest, the institutions we selected were offering digital learning at the time when the selection was made. In particular, the focus is on MOOCs, the digital learning tool that has attracted most attention in recent years. Our three cases were chosen among the leading technological universities in the EU offering MOOCs. As a proxy for university quality, we selected three universities of the four specialising in engineering and technology listed among the top 40 universities in the QS Ranking 2017 (www.topuniversities.com), as 2017 was the year when case selection took place, which additionally are not located in the UK or Switzerland, countries excluded because of their very different funding and governance systems. The three cases, labelled Tech A, B and C are heterogeneous in terms of staff and student numbers, and are described in detail in Table 1.

[Table 1 around here]

3.3. Data collection and analysis

The primary source of data consisted of interviews carried out with the main actors involved in the digital learning strategy at the three universities, using purposeful sampling (Kumar et al., 1993). The complete list of interviewees is given in Table 2. Data were collected over two years, from 2017 to 2019, and were supported by an analysis of publications, institutional presentations and websites, which were screened to triangulate information (Miles and Huberman, 1994). The interviews were in three parts covering the three stages of corporate entrepreneurship. The questions in some of the blocks were more or less specific, depending on the interviewee's position and expertise. In general, the first part of the interviews focused on defining their institution's strategy on digital learning and its evolution over time, while the second part covered the implementation of the strategy and the procedures and roles activated during its deployment. The final part then focused on the evaluation stage.

In order to analyse the data, the interviews were transcribed verbatim, followed by in-vivo (Strauss and Corbin, 1998) or first-order (Van Maanen, 1979) coding. The codes obtained were further grouped so that we could work back the meta-variables in the reference theoretical framework. At the meso level, the researchers created categories in order to assemble and set out the core findings and theoretical contribution discussed below (Saldana, 2013). A category was only created if a certain group of codes could be traced across more than one informant. The process can be clarified through this example. As mentioned in the theoretical framework, one of the meta-variables under investigation was the implementation style. The in-vivo coding highlighted groups of words such as "standardised", "quality assurance", "planning on time" and "constraints and rules" in both Tech A

and Tech B. The meta-variable describing a procedural approach to implementation was then created on the basis of these groups of words. To ensure the trustworthiness of the results (Lincoln and Guba, 1985), one of the researchers was in charge of the transcription and primary coding, while the other took on the role of discussant, proposing alternative interpretations that were further explored before defining the findings. Lastly, the analysis of co-occurrences prompted us to carry out empirical testing on the theoretical framework and the relationship between meta-variables.

[Table 2 around here]

4. Findings

The results highlighted the differences in approach to digital learning, with respect to the formulation, deployment and evaluation phases. The findings have not been presented case by case, but they follow the flow of the theoretical framework relating to the study.

4.1. Formulation of corporate entrepreneurship

The strategic decision to offer MOOCs was taken on the basis of different intentions in the three HEIs, as presented in Table 3. In Tech A, their goal to improve on-campus education through a blend of online (MOOC-based) and face-to-face education was intertwined with their desire to undertake outreach activity and gain visibility by "teaching the world". In Tech B, the focus was more strictly internal, in the sense that the strategy was strongly guided by the needs of university students, but the university's desire to serve the wider population pushed it towards providing courses, in the form of MOOCs. Differently from the other two cases, the entrepreneurial goal in Tech C evolved partially in response to an evaluation metric showing a not-as-expected outcome (see Section 4.3).The initial aim of gaining visibility through MOOCs evolved towards an internal focus, with attention turning on university students and also on reducing the faculty's workload.

In two cases (Tech A and C), the driving force for entrepreneurial change came from an organisational unit, while governance set the tone in the other case (Tech B). In Tech A, the digital learning office in charge of developing the digital learning strategy, in line with the university's strategic plan, was set up by the governing bodies to manage a sort of lateral programme running in parallel with the traditional educational offer, with an autonomy over a budget of nearly 3.5 million euros per year. The digital educational offer was created within this operational centre, but it was also a centre of power with great influence on the turn in digital education. The short chain of decisions between formulating a strategy and putting into operation meant that university was highly reactive in responding to the environment, increasing organisational alertness towards digital learning. The group (digital learning office) and governance levels were very close and in continuous interaction.

In Tech C, the centre of power was again an organisational unit, specifically one of the five schools making up the academic structure in the university. In this case, however, the centre of power was placed within the organisational hierarchy (i.e. one of the five schools) rather than being a "lateral" unit. Moreover, the driving force in this case was the personal commitment of several people in the faculty, who were personally engaged in developing the MOOCs. This is why theirs can be considered a bottom-up approach to entrepreneurship, in that it was driven by a group of highly motivated academics. The strategy so designed was then institutionalised at governing level, and later cascaded down to the rest of the organisation. Because of the high initial enthusiasm among the academic staff, the approach taken by the HEI was highly experimental, based on a sort of "digital rush".

An opposite approach was taken in Tech B, where Rector's office made the initial decision to offer MOOCs, supporting the entire strategic formulation process. As is typical in a bureaucratic approach, the governing and executive/management roles are very distinct, and the strategic approach was closely based upon the governing body members' individual entrepreneurial orientation, and they then empowered the digital learning office as the operational arm of the strategy. In this sense, governance was crucial during the formulation stage. In terms of strategic governance, this translates into a top-down approach, and readily identifies both the strategic formulation process and its deployment, as explained in detail in the section below.

[Table 3 around here]

4.2. Deployment: The Implementation Process and the Rise of Conflict

Entrepreneurial deployment, intended as the process of bringing strategy into action, was studied by focusing on two dimensions of interest, implementation style and conflict among roles, as summarised in Table 4. Implementation style relates specifically to how corporate entrepreneurship is put into operation (Andrews et al., 2011). Tech A's approach to implementation was incremental, in the sense of being highly reactive to stimuli from the external environment. The implementation took the form of an adaptive process, where the actors were active participants in the incremental change. This is visible in how the range of "products" evolved. They quickly moved from providing single MOOCs exploiting the core competencies of several committed faculty members to the area of professional education with complex and profitable online courses. This highly reactive implementation style was set out by the head of the digital learning office:

The guys at EdX (the MOOC platform) came up with the idea of professional education courses and we said "Hey, this interesting, let's do it". […] So that's why we changed our model for professional education, and it worked quite successfully (Director of the Digital Learning Office – Tech A).

The responsibility for implementation lay ultimately with the digital learning office, although the actual implementation model placed the lecturer in the central role, under the grounds of "making it personal", i.e. making lecturers responsible for their MOOC as the path for successful implementation. The faculty also played a crucial role in relation to conflict. In Tech A, conflict was a latent concept, and one on which the HEI partially built its success. In the HEI, conflict was particularly related to the concept of the lecturer's personal prestige versus the prestige of the HEI as a whole. This is a point that the organisation addressed by leveraging on faculty engagement and creating a sort of "clan" effect, at the same time as providing teachers with all the necessary resources (technical and financial) to turn the organisational commitment into empirical results.

In Tech B, the approach to implementation was rational, in the sense that it was highly centralised in the governing body and then deployed to the rest of the organisation – in line with the university's strategic formulation. Thus, the implementation process was designed at governance level and then put into operation by the digital learning office (i.e. at group level). In this process, the digital learning office received the necessary financial resources from governance to realise the MOOCs jointly with the lecturers, who were, in turn, given technical support and the operational procedures required to design the MOOCs. In this case, the procedures were used to counter the risk of low faculty commitment, somehow "squeezing out" the less engaged lecturers. The leading role was played by the Vice-Rector, who was also the academic delegate for digital learning. The main source of tension arose between governance and individuals (the lecturers). The vice-Rector did not select the actual lecturers, but was very definite in choosing the topics on which to focus. The combination of selected topics and procedures acted as the drive to recruit lecturers. The following quote gives a good indication of the central role played by the Vice-Rector:

We didn't publish an open call for proposals because I didn't want to. There was the very real risk of lecturers thinking it was an easy task or wanting to increase their own visibility, so they wouldn't have been really committed. And it takes a lot of work to make a MOOC, especially for lecturers, as we need a storyboard for each lecture and they must respect time limits; all in all, it is a long iterative process (Vice-Rector, Tech B).

Conflict is also perceived by the governing body as a form of frustration against the faculty's initial lack of knowledge (those not directly involved as MOOC instructors) about the digital tools in play. Despite activating an internal communication process, the new vision took a long time to get through.

In Tech C, despite having a central committee for digital learning, the implementation process was unstructured, with no clear procedures. We observed a certain overlay between formulation and implementation, as actions were taken in juxtaposition, at the same time as the decisions on how to

proceed. Although, according to the literature, this approach to implementation was more troublesome than a rational or incremental approach (Andrews et al., 2011), in the case of Tech C, the absence of a structured implementation was replaced by evident enthusiasm among the group of lecturers initially involved. This worked in the early stages, giving an emotional boost that played out in favour of the implementation process. The production of MOOCs was intended as a sort of experiment to attract international students and was followed by further analysis and then a final formulation. Throughout the process, the actions taken at individual level formed the key component in the implementation process. Individuals (lecturers) were directly empowered and given appropriate financial resources, which however turned into a bone of contention. The budget allocated was felt to be insufficient to ensure adequate technical support, and this was flagged up as a critical point of debate. Moreover, several enthusiastic lecturers felt that the reluctance of faculty not directly involved in the strategic deployment process was a barrier to the organisational change, and governance was also perceived as being passive in its response. Both these aspects had a negative effect on the engagement of the MOOC instructors towards governance. As one academic member of the digital committee reported:

Even though we would like to drive the digital transformation and we rely on education to transform, this [digital transformation] is set centrally at Tech C. As they don't give us the opportunity to do so, it's difficult. And the infrastructure is not there (Member of the digital learning committee – Tech C).

As the conflict gradually opened over time, the debate move up to central administration, and the governing bodies decided to shift the focus towards digital learning as a means to increase quality and efficiency internally, giving the faculty greater autonomy in taking decisions about the use of digital learning tools.

[Table 4 around here]

4.3. Evaluation: A support for decision-making

During the analysis of the evaluation stage, the first step was to investigate the presence and type of control centre (i.e. the unit in charge of the evaluation). In Tech A, the digital learning office included, among its staff, data analysts who systematically collected data on the MOOCs. These data were then given to the lecturers, who used them to evaluate the course and for research purposes. In this latter case, the analysts working in the digital learning office collaborated with research groups within and without the university to cutting-edge research on online learning. This information was, however, rarely used to support high-level decision-making.

In Tech B, data were collected by the digital learning office, but there were no data analysts among its staff. Some course-level aggregated data were, however, shared with the lecturers, while occasional research collaborations were established with university research groups. Lastly, there was no proper control centre for strategic evaluation in Tech C, in the sense that data were collected as and when needed. Despite this, data were highly valued when available. The process of evaluating performance was able to support a shift in strategy, when its initial aim - gaining visibility and attracting international students - was not achieved, alongside the costs were higher than expected. Despite this purposeful use, no systematic measurement system was observed.

Overall, the findings highlighted a certain difficulty in evaluating and using information to support decision-making systematically, regardless of the different forms of control systems. Performance evaluation was mainly seen as a means to review the courses, while the evaluation of the overall MOOC initiative was limited to a few aggregated measures, such as the total number of people registering on the MOOCs and their growth over time.

5. Discussion and Conclusions

The paper addresses the issue of corporate entrepreneurship driven by digital learning in HE, specifically focusing on MOOCs. The results highlight the fact that there are different models of corporate entrepreneurship, which in turn are related to different ways of formulating, deploying and evaluating the strategy. Moreover, these models were found to generate different forms of conflict and information flows across the various organisational levels.

Starting from this matter, Figure 2 provides a conceptualisation of the relevant variables, where the theoretical framework was complemented with elements that emerged from the investigation. The main finding relates to the role of digital learning within HEIs, which can be defined as “relational”, meaning that it enables implementation flows, as well as different forms of conflict. In particular, three key elements emerged from the analysis, all highlighting how the interchanges across the organisational levels play a crucial role in corporate entrepreneurship driven by digital learning. The first element consists of the organisational level for decisional autonomy (i.e. the centre of power), and how far this autonomy is strategical or operational. The second element concerns the implementation flows and, in particular, the flows in empowerment and resources from governance to either the management infrastructure or directly to the academic body, depending on the centre of power enabled. Conflict, the third element, emerges by way of contrast primarily between organisational levels, but also horizontally, between individuals. We observed a form of tension whenever the strategy as formulated was detached from what was implemented at the lower levels or as understood by the individuals at a different organisational level.

[Figure 2 around here]

The contribution of the paper covers three points. First, the empowerment of a certain organisational unit is relevant for the ensuing deployment process (Stopford and Baden-Fuller, 1994). The literature stressed that entrepreneurial organisations tend to be more participative and decentralised than traditional entities (Sadler, 2000). However, the centre of power identified in a decentralised unit caused, in the case of Tech C, a sense of distance between governance and faculty. On the contrary, when the centre of power was identified with the governing body (as in the case of Tech B), the selection of topics and people to be involved took place in an efficient manner, but it also diminished the sense of sharing within the organisation. On this point, where corporate entrepreneurship moved away from individuals, at either the governance or academic level, the organisation found it more difficult to create an organisation-wide way of thinking, as in the cases of Tech B and C. Whenever the approach was systemic from the very beginning, the general involvement was less laboured, as in the case of Tech A.

Secondly, a number of elements emerged as central throughout deployment in all the cases. These elements enabled interaction between different levels, by creating a "relational" exchange between the organisational levels, the groups and the individuals. In detail, these variables are financial resources, transfer of power (empowerment), operational procedures and technical infrastructure. The identification of these dimensions can open the way for future research, to test the relationship between variables. Relations are central to the dynamics across organisational levels, in a sort of duality between system and individuals that recalls the characterisation of the HE system (West, 2006).

Lastly, the evaluation of corporate entrepreneurship was found to be heterogeneous in terms of the composition of the control centres, which became gradually less structured moving from Tech A to Tech C. Information is used sparingly as a means to support the organisation, while its use is more intense when supporting individuals, creating a "quality cycle", a term used by Tech A to mean the use of data to evaluate MOOCs. Nevertheless, none of the three organisations made a systematic use of information, and data could move from supporting individuals to supporting the system, making this an aspect for further improvement (Poister et al., 2014).

The study poses management and policy implications concerning how to analyse the formulation, deployment and evaluation of corporate entrepreneurship in digital learning. On the one hand, the study highlighted the elements that potentially have the greatest influence over how corporate entrepreneurship is pursued within digital learning, and these insights may be useful for university managers intending to implement similar strategies. On the other hand, the evidence emerging from

the study could inform policy-makers about applications in different national contexts concerning the design of evidence-based policies or in terms of preparing guidelines to implement digital learning in HE.

As a limitation to the study, it is not possible to generalise the results with the methodology applied in this study. However, the internal validity of the findings is ensured by its solid theoretical basis, as well as through data source and investigator triangulation (Denzin, 1984). Furthermore, during the study we focused on internal formulation, deployment and evaluation, without stressing the external context, which may have played a role in influencing corporate entrepreneurship (Sadler, 2000; Kearney and Morris, 2015). Investigating these dynamics could help us to gain a greater understanding of the phenomenon, and hence this issue is deserving of further research.

Declaration of interest statement. No potential conflict of interest was reported by the authors.

References.

Andrews, R., Boyne, G. A., Law, J., & Walker, R. M. (2011). Strategy implementation and public service performance. *Administration & Society*, 43(6), 643-671.

Bacow, L. S., Bowen, W. G., Guthrie, K. M., Long, M. P., & Lack, K. A. (2012). Barriers to adoption of online learning systems in US higher education (pp. 39-51). New York, NY: Ithaka.

Bleiklie, I., Enders, J., & Lepori, B. (2017). *Managing universities: policy and organizational change from a Western European comparative perspective*. London: Palgrave Macmillan.

Card, M. A., & Card, K. A. (2007). Public sector competitive strategies: Understanding post secondary distance education in South Dakota. *International Journal of Public Administration*, 30(5), 461-481.

Christensen, C. M., Horn, M. B., Caldera, L., & Soares, L. (2011). *Disrupting College: How Disruptive Innovation Can Deliver Quality and Affordability to Postsecondary Education.* Boston, MA: Innosight Institute.

Denzin, N. (1984). *The research act*. Englewood Cliffs, NJ: Prentice Hall.

Dess, G. G., Ireland, R. D., Zahra, S. A., Floyd, S. W., Janney, J. J., & Lane, P. J. (2003). Emerging issues in corporate entrepreneurship. *Journal of management*, 29(3), 351-378.

Fernandez, S., & Rainey, H. G. (2006). Managing successful organizational change in the public sector: An agenda for research and practice. *Public Administration Review*, 66, 1-25.

Floyd, S.W., & Lane, P. J. (2000). Strategizing throughout the organization: Managing strategic renewal and strategic role conflict. *Academy of Management Review*, 25: 154–177.

Ghemawat, P. (2017). Strategies for higher education in the digital age. *California Management Review*, 59(4), 56-78.

Ginsberg, A. (1988). Measuring and modelling changes in strategy: Theoretical foundations and empirical directions. *Strategic Management Journal*, 9(6), 559-575.

Guth, W. D., & Ginsberg, A. (1990). Guest editors' introduction: Corporate entrepreneurship. *Strategic Management Journal*, 5-15.

Kearney, C., & Morris, M. H. (2015). Strategic renewal as a mediator of environmental effects on public sector performance. *Small Business Economics*, 45(2), 425-445.

Kumar, P., Kumar, A., Palvia, S., & Verma, S. (2019). Online business education research: Systematic analysis and a conceptual model. *The International Journal of Management Education*, 17(1), 26-35.

Kumar, N., L. W. Stern, & J. C. Anderson. (1993) Conducting interorganizational research using key informants. *Academy of Management Journal*, 36:1633–1651.
Kuratko, D. F., & Morris, M. H. (2018). Corporate entrepreneurship: A critical challenge for educators and researchers. *Entrepreneurship Education and Pedagogy*, 1(1), 42-60.
Langfred, C. W. (2004). Too much of a good thing? Negative effects of high trust and individual autonomy in self-managing teams. *Academy of management journal*, 47(3), 385-399.
Lincoln, Y. S., & E. G. Guba. (1985). *Naturalistic Inquiry*. Beverly Hills, CA: Sage.
Löfström, E., & Nevgi, A. (2007). From strategic planning to meaningful learning: diverse perspectives on the development of web-based teaching and learning in higher education. *British Journal of Educational Technology*, 38(2), 312-324.
Miles, M., & Huberman, M. (1984). *Qualitative data analysis: A source book for new methods.* Beverly Hills, CA: Sage Publications.
Mintzberg, H. (2000). *The rise and fall of strategic planning*. New York, NY: Free Press.
Nicoll, K., & Harrison, R. (2003). Constructing the good teacher in higher education: The discursive work of standards. *Studies in continuing education*, 25(1), 23-35.
Poister, T. H., Aristigueta, M. P., & Hall, J. L. (2014). *Managing and measuring performance in public and nonprofit organizations: An integrated approach*. 2nd ed. San Francisco, CA: Jossey-Bass.
Powers, J. B., & McDougall, P. P. (2005). University start-up formation and technology licensing with firms that go public: a resource-based view of academic entrepreneurship. *Journal of business venturing*, 20(3), 291-311.
Rahim, M. A. (2017). *Diversity, Conflict and Leadership*. New York, NY: Routledge.
Rippa, P., & Secundo, G. (2019). Digital academic entrepreneurship: The potential of digital technologies on academic entrepreneurship. *Technological Forecasting and Social Change*, 146, 900-911.
Sadler, R. J. (2000). Corporate entrepreneurship in the public sector: the dance of the chameleon. *Australian Journal of Public Administration*, 59(2), 25-43.
Saldaña, J. (2015). *The coding manual for qualitative researchers*. Third edition. London: Sage.
Schumpeter, J. 1934. *The theory of economic development*. Cambridge, MA: Harvard University Press.
Shah, D. (2018). By The Numbers: MOOCs in 2018. Retrieved from https://www.classcentral.com/report/mooc-stats-2018/
Stopford, J. M., & Baden-Fuller, C. W. (1994). Creating corporate entrepreneurship. *Strategic Management Journal*, 15(7), 521-536.
Strauss, A., & J. Corbin. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 2d ed. Thousand Oaks, CA: Sage.
Thompson, J. R. (2000). The reinvention laboratories. Strategic change by indirection. *American Review of Public Administratio*n, 30, 46-68.
Van Maanen, J. (1979). The fact of fiction in organizational ethnography. *Administrative Science Quarterly*, 24: 539–550.
West, P. W. (2006). Conflict in higher education and its resolution. *Higher Education Quarterly*, 60(2), 187-197.
Yang, K., & Rho, S. Y. (2007). E-government for better performance: Promises, realities, and challenges. *International Journal of Public Administration*, 30(11), 1197-1217.
Yin, R. (1994). *Case study research: Design and methods* (2nd ed.). Thousand Oaks, CA: Sage Publishing.

Table 1. Description of the cases under investigation.

Dimensions	Tech A	Tech B	Tech C
Country	Netherlands	Italy	Sweden
# of students	22,369	42,665	13,633
# of professors	930	1,400	287
Explicit reference to MOOCs or online courses in the strategic plan	Yes	Yes	No
Number of MOOCs or online courses	84 MOOCs 31 prof. ed. courses 10 online academic courses 11 MOOC-based programmes	51 MOOCs	16 MOOCs
Starting year	2014	2014	2016
Offer typology	Outreach On-campus education Professional education	Outreach On-campus education	Outreach
Main Platform	EdX	Open EdX (personalised)	EdX

Note: Number of students, number of professors and strategic plans retrieved from institutional websites. Number of MOOCs and target audience analysed from the MOOC platform and retrieved in July 2019.

Table 2. Sources and typology of data analysed.

Interviews			
Job Title	**Role in Digital Learning**	**Contract typology**	**N. interviews**
Tech A			
Professor	Academic delegate for digital learning	Academic staff	1
Manager	Director of digital learning office	Administrative staff	2
Manager	Marketing manager in digital learning	Administrative staff	2
Manager	Research manager in digital learning	Administrative staff	1
Manager	Business manager in digital learning	Administrative staff	1
Professor	Lecturer	Academic staff	1
Professor	Lecturer	Academic staff	1
Tech B			
Vice-Rector	Academic delegate for digital learning	Academic staff	1
Manager	Director of digital learning office	Administrative staff	3
Manager	Business manager in digital learning	Administrative staff	1
Professor	Lecturer	Academic staff	1
Tech C			
Professor	Academic delegate for digital learning	Academic staff	1
Manager	Manager of digital learning office	Administrative staff	1
Professor	Delegate of the digital learning committee	Academic staff	1
Professor	Delegate of the digital learning committee	Academic staff	1
Professor	Lecturer	Academic staff	1

Table 3. Results on the formulation of corporate entrepreneurship driven by digital learning.

	Tech A	Tech B	Tech C
Power centre for digital learning	Managers (digital learning office)	Governance (Rectorate)	Individuals (School)
Strategic governance	Distributed	Top down	Bottom up
Corporate strategy for digital learning	1.Teach the world (i.e. outreach and professional education) 2.Improve on-campus education	"MOOCs to bridge the gaps" 1.For students, without overlapping with curricular content 2.For citizens, to encourage open education	1.Original (decreasing) goal: Gaining visibility to recruit international students 2.Subsequent (increasing) goal: Digitalisation as a means for internal efficiency and quality
Sample of explanatory quotations	"And in 2012 MOOCs became popular: we looked at them and said "hey, this is in line with our idea of sharing our knowledge and it is an interesting innovation, so we should be part of it" […] From the beginning we said "we have different programmes, some are open, really focused on educating the world, some are focused on lifelong learners and part of it is also giving back to the university, so it means improving on-campus education", and that has actually worked really well." (Head of the Digital Learning Office)	"To come up with innovative teaching it is not necessary to design MOOCs. I was very strict about this. The fact is that we do not have many resources, so we have to make something useful and unique […] I have to put my students first, that is the first goal, given that they (the government) give us money for them and not for external people". (Vice-Rector)	"There was enthusiasm but not really a clear idea about why we were doing this. […] We tried to experiment without thinking about what we were actually trying to achieve". (Professor and MOOC lecturer)

Table 4. Results on the deployment of corporate entrepreneurship driven by digital learning.

Dimension	Element analysed	Tech A	Tech B	Tech C
Implementation style	Approach to implementation	Incremental	Rational	Unstructured
	Responsibility for implementation	DL Office and MOOC instructors	Roles in governing bodies	MOOC instructors and DL internal committee
	Formulation/implementation relationship	Partial overlapping	Separated	Partial overlapping
Implementation flows	Organisation --> Group	Empowerment; Financial resources	Financial resources	
	Group --> Individuals	Procedural operations; Technical infrastructure	Procedural operations; Technical infrastructure	
	Organisation --> Individuals			Empowerment; Financial resources
Type of strategic role conflict	Individuals - Individuals			Reluctance
	Organisation - Group		Limited awareness	
	Organisation - Individuals	Prestige		Financial resources; Technical infrastructure
	Group - Individuals		Challenging the planning	

Note: DL stands for Digital Learning.

Figure 1. Theoretical framework used to interpret the cases.

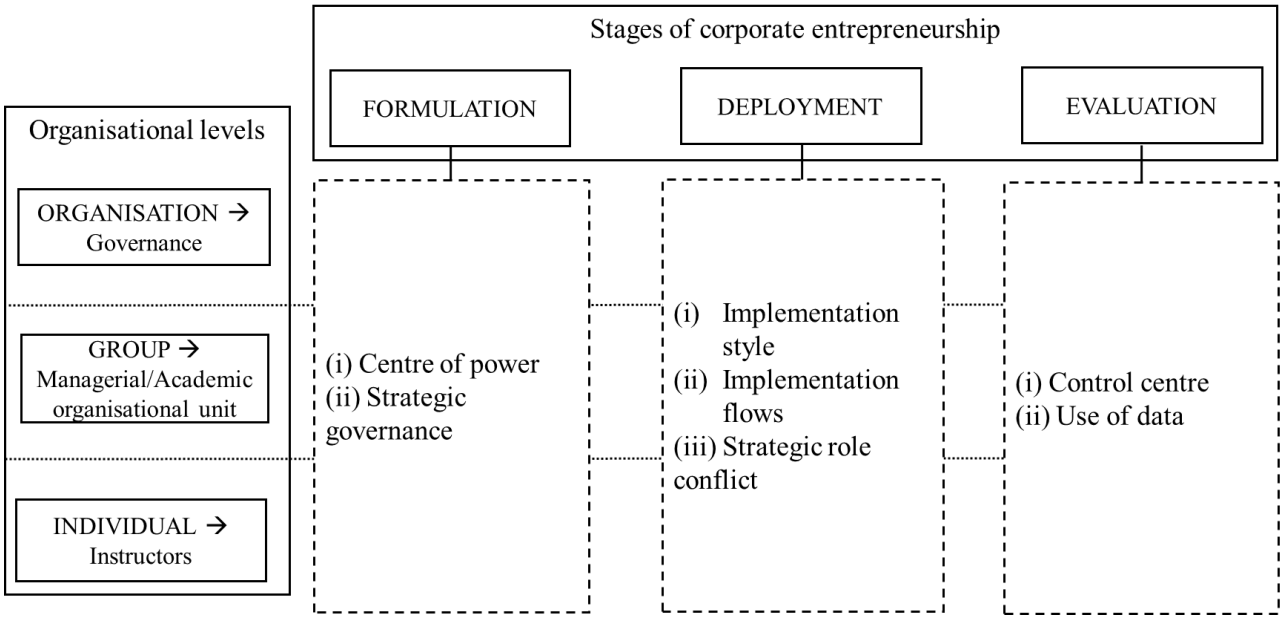
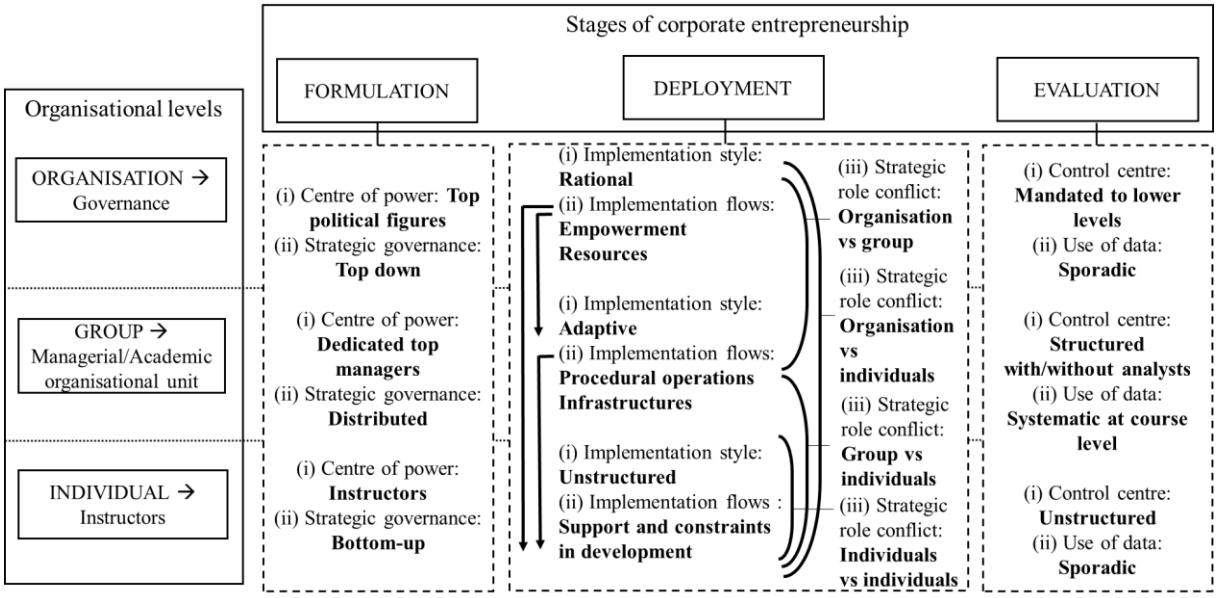


Figure 2. Conceptualisation of the meaningful variables enriching the theoretical framework.



Note: Variables in bold are those highlighted by the current study, plus the relationship across the organisational levels.