

Title: Development of corporate university evolution scenarios

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Abstract: In the changing profile of corporate education and learning, corporate universities are a major force for aiding organizations to actively embrace technological change and upgrade their human capital. This study examines how corporate universities adapt their techniques to keep up with fast-changing technology, making the learning process universal yet personalized. This study also examines the linkages between corporate and traditional academic institutions in terms of strategy, aiming to produce a blending of theoretical knowledge with practical skills (Rhéaume & Gardoni, 2015; Prince & Beaver, 2001). Such combinations increase the relevance and applicability of education programs, helping them to achieve greater conformity with business objectives (Singh et al., 2019; Rademakers, 2001; Philipp et al., 2013). Twelve experts from large companies were chosen for two iterative foresight sessions. With this paper, we report the factors, which affecting the development of corporate universities and which were identified and ranked through a survey of experts (Dealtry & Rademakers, 2005; Rademakers, 2004). Moreover, these factors were combined into a matrix of development 15 scenarios, the main risks that could negatively affect the development of this phenomenon were identified and strategies were provided to prevent these threats. This study not only reflects the current trends of corporate university in the company but also lays the foundation for understanding the factors influencing companies' development.

Keywords: leadership, leadership in higher education, innovation, foresight, corporate universities

1. Introduction

In the process of organizational evolution, corporate universities are new and rapidly developing phenomenon. Currently, corporate universities are playing a role in terms of competitive advantage, behind which lies a multi-level concept transformed by technology (Singh, V., Verma, S., & Chaurasia, S. S., 2019). Over the past 30 years, interest in the study of corporate universities has increased markedly. The topics addressed in this research include various issues, such as: the organization format of corporate universities in large companies, comparisons with traditional universities, and the integration into company strategy of educational content. However, factors affecting the development of corporate universities frequently vary widely from one set of circumstances to another. Potential development possibilities are things that have received insufficient attention. These points make this work highly relevant.

This article looks at these two topics, showing how companies have to manage specific elements if they want their own corporate universities to become key drivers behind company strategy, this is a need noted in Gardoni's article (Rhéaume & Gardoni, 2015). In addition, the article develops a matrix on development scenarios; identifies which major risks could affect negatively the phenomenon and provides response strategies for prevention and mitigation. All strategies are illustrated using the example of Eastern European IT company as to show the practical significance of these results.

2. Literature review

Various studies provide an overview of the factors that need to be monitored for a corporate university to remain relevant in changing business environment: (1) strategy and human resources; (2) knowledge management; (3) technology and e-learning (Sherer & Shea, 2005). In support of aforementioned statements, for developing the competitive advantages of corporate universities requires significant resources, documentation of curricula and strategic goals of the company (Rhéaume & Gardoni, 2015).

We are seeing how the learning process continues under many traditional methods, but also embraces advanced digital tools, outsourcing content and design personnel while moving gradually away from formal classrooms into increasingly flexible and personalized learning environments (Alonso-Gonzalez et al., 2018; Furstenau et al., 2020; Djeki et al., 2022). Corporate university deliberately trained programs that develop its graduates to tolerate the absence of orders or prohibitions. It puts them first, strengthening in them imagination and insight. Moreover,

surveys show that graduates from corporate universities not only have stronger abilities for self-management and teamwork, but also enjoy faster promotion within the company. More than half of top management positions in American firms come from corporate universities (Meister, 1998; Rademakers & Huizinga, 2000; Blass, 2001), while others doubt it. There are those who see the difficulties of its data base entering into policy studies after all, and still more actually measure those strategic impacts to find that they are unpredictable in outcome (Garavan, Costine, & Heraty, 1995).

The debate on whether or not corporate universities and traditional higher education institutions are fundamentally alike persists. Corporate universities bring in to focus learning strategies that become part of corporate change and development, while navigating change remains one of the main success factors (Bagrationi & Thurner, 2023; Bagrationi, Thurner & Gordienko, 2021; Bagrationi, 2023). This phenomenon is clear work education, or work-learning, which trains staff while they are still informally at their desks, as opposed to traditional education (Côté & Allahar, 2011). In recent years, corporate universities have begun to affect efficiency and productivity of the organization that spawned them, some researchers suggest that this is a momentous development (Barley, 2007). Yet, some studies, such as those by Nguyen and Fan (2022), argue that corporate education tends to hinder creative thinking and critical ability; whereas its traditional counterpart emphasizes the socialization of individuals into their work and ways of thinking in particular.

There are studies which ignore the cultural dimensions of the corporate university's success in practice, and given that this is an important part of the overall picture, most of them suffer from methodological shortcomings, especially with regard to providing sound evidence linking cause and effect. The literature lacks reliable models to directly test or measure the direct and indirect benefits of corporatized education on an organization (Tan F. Z., Olaore G. O., 2021). There is thus a need for more locally oriented studies which are able to examine distinct cultural, economic and legal contexts from a Vietnamese perspective (Blass, 2007).

Supporting this idea, developing the competitive advantages of corporate universities with a few resources was written up as a real problem by Schaie and Johnson (1998), however, research about it has often been small and narrow in scope. In support of aforementioned statements, for developing the competitive advantages of corporate universities requires significant resources, documentation of curricula and strategic goals of the company (Rhéaume & Gardoni, 2015). However, this topic has not received all the attention it deserves, yet and the Rhéaume's and Gardoni's study also highlighted the need for further research, and that is why this direction is considered promising for research.

3. Methodology

Through two iterations of foresight sessions, the research identified 20 factors influencing the development of corporate universities and narrowed them down to 5 critical ones through expert validation. The study also involved developing scenario matrices for these factors, with practical application using the corporate university of an Eastern European IT company, including risk analysis and the development of response strategies to mitigate these threats.

In this study, 12 experts working in the strategic departments of corporate universities in major companies across various sectors were selected for the foresight session. After calculating the expert competence coefficient K, an analysis was conducted on 20 experts to develop the method and form this expert group (Almenara, J., Romero-Tena, R., & Palacios-Rodríguez, A., 2020). This tool incorporates both objective and subjective competence indicators, which increases the method's accuracy. To facilitate its organization, this analysis should make it easier for us to work with an expert group in the future foresight session and on top of that indicate whose professional opinions are most pertinent to the subject of corporate universities.

The study utilizes the Rapid Foresight method, a modified Delphi technique (Williams, P. L., & Webb, C., 1994), which allows for forecasting potential solutions to the problem in a moderated group communication process among experts.

Experts were divided into 3 subgroups, each led by a separate moderator. The mini-groups were formed based on preliminary distribution in this study. The described session followed the most common sequence, from identifying factors to exploring threats and opportunities, with the project changes forecast (scenario prediction) conducted in the second session.

During the joint plenary of the first iteration of foresight session, the experts put the proposed factors on different time frames. Their influence was divided into near, medium and distant horizons; and they didn't just list future threats but potential interconnections among different factors as well as opportunities.

The proposed indicators were transformed to a Likert scale to find out which factors were most important; this was then put into a questionnaire format for review. In this scale, experts are given six choices for each question — 1 (strongly disagree) to 6 (strongly agree). To confirm the degree of concordance in experts' opinions, we use Kendall's concordance coefficient, which characterizes the degree of agreement among experts through ranking. This calculation of the expert concordance coefficient was necessary to assess the correlation and relevance of expert opinions, as previously demonstrated. Based on these data, the experts selected the 5 most important factors using a questionnaire.

During the second iteration of the foresight session, experts proposed three development scenarios for corporate universities for each 5 factors: positive, realistic, and negative, which were consolidated into a comprehensive matrix. In large companies, corporate university plays a more important role than conventional universities. It is also hard in the development phase of expected scenarios for these corporations to avoid potentially large negative consequences caused by this approach. However, while generating factors and subsequently development scenarios for corporate universities, experts also considered the threats at each point that could turn positive scenarios into negative ones.

To assess the cited risks, a risk register was created. The register came from a survey of five employees from the corporate university at a typical Eastern European IT company. Based on evaluation, three matrices were constructed to appraise the impacts of risks on parameters such as cost, quality and time. This instrument helped to identify the 9 highest-risk factors for the subject.

In order to offset these risks, response strategies were formulated and generalized recommendations for reducing them were put forward.

4. Results

Thus, as part of the research, following the first iteration of the foresight session with 12 experts, 20 factors influencing the development of corporate universities were identified, with experts' qualifications confirmed by the K coefficient. The results of the calculations of the expert competence coefficient are shown in Table 1.

Table 1. Determination of the expert competence coefficient

Expert	Coefficient of subjective assessment of competence (K_s)	Coefficient of objective assessment of competence (K_o)	Coefficient of assessment of competence (K_t)
№1	7,375	0,095	0,700625
№2	6	0,11	0,66
№3	7,75	0,06	0,465
№4	5,875	0,085	0,499375
№5	8	0,07	0,56
№6	8	0,135	1,08
№7	6,375	0,035	0,223125
№8	8,625	0,18	1,5525
№9	8,25	0,065	0,53625
№10	7,25	0,04	0,29
№11	7,5	0,075	0,5625
№12	8,125	0,14	1,1375

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According to the methodology (Almenara, J., Romero-Tena, R., & Palacios-Rodríguez, A., 2020), this study involves 4 highly qualified experts, 6 specialists with medium to high expert competence coefficients, and 2 junior experts.

As a result of the foresight session, 46 factors were proposed: 21 from the first group of experts, 12 from the second, and 13 from the third. After outlier cleaning and joint analysis for semantic repetitions, the number was reduced to twenty.

During the session, the experts put the proposed factors on different time frames. 14 factors are on the near horizon of the future, meaning they are currently in various stages of active development and are expected to have a significant impact by 2025. These factors include: the implementation of artificial intelligence trainers in education; product practices from other companies in the external market; following trends and new teaching methods; adapting education to a blended format (online & offline); motivating employees to learn; implementing a buddy system in training; customizing education to the company's processes and technologies; promoting the value of education at the company level; showcasing the importance of learning through top management examples; rapid creation of educational courses tailored to company needs; convergence of traditional universities and corporate universities; company employees teaching at universities; competition with external universities and the free course market; and results of team-barometer surveys.

Two factors are on the medium horizon, expected to develop by 2030: personalization of content and training primarily tailored to the corporate culture of the company.

The last four factors—implementing training for specific new tools in the company; positioning work and learning as inseparable processes; focusing employees on self-development; and developing meta-skills among employees—are on the distant horizon of 2035.

In order to define the most influential factors, a Likert scale was used, with the help of which experts selected the 5 most significant factors, with which further research was conducted. In this instance, the following five subjects received highest marks: adaptation of training to a blended format (online & offline) influences the development of corporate universities – 69 points; positioning work and learning as inseparable processes influences the development of corporate universities – 68 points; employee motivation for learning influences the development of corporate universities – 65 points; content personalization influences the development of corporate universities – 65 points; customization of training to the company's processes and technologies influences the development of corporate universities – 64 points.

The collected data were validated using Kendall's concordance coefficient: $W = \frac{14985.5}{\frac{1}{12} \times 12^2 (20^3 - 20) - 12 \times 1366.5} = 0,19$, this indicates a low level of agreement among the experts' opinions. The supposed reason for this fact is that the experts were selected from different fields, each with its own specific characteristics. However, in order to confirm or reject the hypothesis of expert agreement and in particular the significance level coefficient, Pearson's concordance index must be calculated: $x^2 = \frac{14985.5}{\frac{1}{12} \times 12 \times 20 \times (20+1) + \frac{1}{20-1} \times 1366.5} = 43.05$. The calculated x^2 must be compared with the tabulated value for the degrees of freedom $K = n-1 = 20-1 = 19$ and at a given significance level $\alpha = 0.05$. Since the calculated x^2 $43.05 \geq$ is greater than or equal to the tabulated value of (30.14353) [34], $W = 0.19$ is a significant coefficient. The ranks are consistent at the given significance level, thus the obtained results and the small value of the concordance coefficient are meaningful, and the hypothesis of a statistically significant relationship between the variables is accepted.

The second stage of the foresight sessions produced 15 different alternative development scenarios between corporate universities: for each of the 5 factors identified earlier optimistic, pessimistic and realistic (Table 2)

Table 2: Generalized development scenarios matrix for corporate universities

Factor	Optimistic Scenario	Realistic Scenario	Pessimistic Scenario
Adaptation of training to a blended format (online & offline)	Scenario 1.1: Growth of distributed teams, balanced integration of online and offline programs, combination of synchronous and asynchronous (self-directed) learning.	Scenario 1.2: Dominance of one format over the other, development of separate online and offline groups for training.	Scenario 1.3: Poor development of the online format, low engagement of online employees, decreased focus of online participants.
Positioning work and learning as inseparable processes	Scenario 2.1: Continuous and rapid learning, increased employee awareness, mechanism for assessing skill improvement.	Scenario 2.2: Development of a totalitarian regime of integrating training into work, training as part of the job description, creation of required courses post-review.	Scenario 2.3: Devaluation of training, employee resistance, rejection of routine processes without achievements.

Employee's motivation for learning	Scenario 3.1: Increased employee interest, mentorship and buddy system, mutual assistance and deep immersion in learning.	Scenario 3.2: Development of employee vision to understand their true motivation, awareness of development prospects.	Scenario 3.3: Dominance of monetary motivation, lack of desire to learn without incentives, motivation driven by management, sanctions for not attending courses.
Content personalization	Scenario 4.1: Individual courses tailored to personal preferences, use of AI, recommendation algorithm.	Scenario 4.2: Long-term development of a platform for selecting personalized content, high workload on the HR department, prolonged automation process.	Scenario 4.3: Poor platform development, unsuitable personal recommendations, low content relevance.
Customization of training to company processes and technologies	Scenario 5.1: Employees quickly adapt to new tools in the company, courses tailored to specific company needs, external market courses adapted to the company culture.	Scenario 5.2: Mixed format of corporate university work and external market courses, balance of in-house educational courses and external market courses.	Scenario 5.3: Corporate university purchases courses from the external market without adapting them to the company culture, programs are not popular among employees.

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During the session, experts also considered the threats at each point that could turn positive scenarios into negative ones. 15 risks were identified: (1) low employee engagement in online training within a blended format; (2) drop out from courses during training; (3) lack of adaptation of external market training to organizational specifics; (4) outdated educational content in the corporate university; (5) drop in internal employee motivation for learning due to material and non-material rewards; (6) simplification of content in educational programs for conducting courses in a blended format; (7) rejection of long-format training and large conferences by employees due to the trend for quick and short training programs; (8) poor selection of materials in the corporate university due to a bad structured program database; (9) competition with external market courses; (10) high financial costs for customizing training to the company's processes and technologies; (11) decreased work efficiency and increased time for completing tasks; (12) wrong use of artificial intelligence in educational programs, requiring content validation and verification; (13) mismatch between the educational courses offered by the corporate university and the expectations and needs of employees; (14) difficulty in assessing the development of employees' soft skills; (15) lack of motivation among employees to perform routine tasks that do not teach them new skills.

In order to select the most dangerous of these risks, these threats were ranked. As a result, the most dangerous risks are: (1), (2), (3), (4), (8), (9), (10)(11) and (13). In order to offset these risks, response strategies were formulated and generalized recommendations for reducing them were put forward. These include: conducting a thorough analysis of employee motivation before launching courses; integrating training with the company's existing tasks and goals; effectively monitoring course adaptation to the company's current process; regularly updating established courses to suit the requirements of company demand in educational programs designing a detailed curriculum for each program and integrating it into staff work schedules setting clear criteria which specify where in the corporate university learning materials are to be acquired; analyzing trends and educational courses from the external market to gather best benchmarks; creating a gamification system to enhance online employee motivation; integrating the corporate university with major traditional universities; and validating artificial intelligence to generate relevant content for the corporate university.

Another significant result of the research is its practical value: all threats identified could be discussed in terms of an Eastern European IT company's corporate university, and risks were thus determined. For the most critical risks strategies and proposals for response were developed.

5. Discussion

In order to fully consider the results, it is necessary to fit them into the body of existing works written on the topic of corporate universities, comparing the findings with those made by scholars earlier.

For example, a Boston Consulting Group (BCG) report states that one of the main success factors for the long-term existence of a corporate university is (1) **an implementation model** that helps to create a learning environment in line with the needs of the organization (BCG, 2013). The highlighted factor is confirmed by this paper, as many of the factors identified by the experts during the first iteration of the Foresight session relate specifically to the tendency to match the needs of employees and the organization with the creation of educational programs, such as: training adapted to the company's corporate culture, implementation of training for point new tools in the company, personalization of content, customization of training for processes and technologies in the company. Moreover, the Vanderbilt University study states that (2) **meta-skills** - basic human qualities, on the basis of which all other skills are formed - are an important component of quality deep learning (Smith, B., & Brame, C., 2014), which was confirmed by the results of the first iteration of the Foresight session, where the development of meta-skills also became one of the factors for the successful development of a corporate university in the company.

The scenario generation process also revealed that (3) **the use of artificial intelligence** is currently at an early stage of development, resulting in irrelevant content selection for employees (scenario 4.3), but a BCG article states that the use of artificial intelligence tools, to create personalized content allows corporate universities to offer more relevant learning materials, which helps to improve learning effectiveness (Silvio Palumbo, Mario Simon, Will Cornock, Chris George, Yohei Shoji, 2021). During the discussion of the scenarios, an important clarification emerged: this content must be both qualitatively validated and moderated in order for it to remain relevant. One of the scenarios derived from the second phase of the Foresight Session is also (4) **employee resistance to change** (scenario 2.3), which supports the hypothesis from Gardoni's study, which states that there are organizational barriers to learning among employees in a corporation that include internal resistance to change and difficulty integrating external ideas into the corporate culture (Rhéaume & Gardoni, 2015). Resistance to change constitutes a major factor in change management (Aksiutin et al., 2022; Bagrationi, Volkov, 2022; Thurner & Gordienko, 2022). Authors, such as Burnes (2011), speak of a staggering 70 per cent of all change initiatives that fail. Evidence to support this claim is weak, especially as only a few contributions build on own data analysis (Burnes, 2005; Bagrationi & Thurner, 2020). The pessimistic scenario 1.3, which describes the negative situation of online format development, correlates with the results of a study that states that the implementation of blended learning faces (5) **technical difficulties**: lack of competencies among faculty and staff in the use of technology, and problems in accessing the necessary resources and activities during the workshop (Ashraf, M. A., Mollah, S., Perveen, S., Shabnam, N., & Nahar, L., 2021).

6. Conclusion and further recommendations

As a result of this study, the following tasks were accomplished: within the foresight session's first committee iteration, 12 experts identified 20 factors influencing the development of corporate universities. The 12 experts were assessed for competence using the K coefficient, including 4 highly qualified experts, 6 specialists with medium competence levels, and 2 junior experts. Using the Likert scale, the experts identified the 5 most significant factors: adaptation of training to a blended format (online & offline); positioning work and learning as inseparable processes; employee motivation for learning; content personalization; customization of training to the company's processes and technologies. With the survey results redirected as an initial input to Kendall's concordance coefficient (0.192) and Pearson's concordance coefficients (43.05), assessment of difficulty on recognizing something nontrivial is now increasing in both importance and severity. During the second iteration of the foresight session with 12 experts, three scenarios for each of the 5 identified factors were developed: optimistic, realistic, and pessimistic, resulting in a custom scenario matrix. For each of the 9 risks identified in the danger zone of the matrices, response strategies were developed using the example of the corporate university of an Eastern European IT company, along with generalized recommendations for risk minimization.

With regard to limitations, the expert sample was limited in size to 12 people from 9 industrial sectors. The 8 major Eastern European companies were not direct business competitors because they are now also predominantly IT firms. The study was limited to Eastern Europe, with emphasis on qualitative analysis and less emphasis on quantitative analysis.

As mentioned earlier, the research field of corporate university is seen as a promising area for future study. The results of this paper lay the foundation for forthcoming research into effectiveness and strategic alignment of corporate universities. This paper invites scholars for further research in this field

7. References

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