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Bayerisches Staatsinstitut für  
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## IHF Working Paper 1/2021

# Innovative Business Models for Higher Education

## An Exploratory Analysis on Education Technology Start-Ups in Selected Countries

Manuela Jäger, Susanne Falk & Thorsten Lenz



## Innovative Business Models for Higher Education: An Exploratory Analysis on Education Technology Start-Ups in Selected Countries

Manuela Jäger<sup>1</sup>, Susanne Falk<sup>2</sup>, Thorsten Lenz<sup>2</sup>

### Abstract

There have not been any (breakthrough) innovations in education in the past 100 years. We mostly teach and learn the same way as our ancestors have done and there haven't yet been any innovations that allow for faster or better learning or teaching. As a result there is a growing need for enhanced education technology (edtech) in the field of education. As innovation often comes from startups, this article examines which innovative business models are developed outside higher education institutions (in the edtech field), especially by entrepreneurs. Previous research has discussed the need for edtech innovation in educational institutions and has given concrete examples of how to improve present higher education models, technologies and procedures. Yet, only a few studies have analysed and compared edtech firms between different countries. The goal of this study is to analyse the core elements of innovative business models in the field of edtech start-ups in higher education and to identify the most original practices in teaching and learning. Our analysis of innovative business models in the edtech sector may inform higher education institutions about how to address their future challenges, for instance, by cooperating with edtech companies.

Keywords: edtech, business model, digital revolution, disruption, resilience

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## 1. Introduction

The COVID-19 pandemic has triggered a digital revolution in academic and higher education institutions and greatly increased the force and speed of disruption already ongoing in the education industry. As a result of the crisis, breakthrough innovations in academic and higher education are now being introduced worldwide within only a few weeks.

A pioneer in this field is the Edtech start-up company Coursera, which cooperates with Stanford University and MIT. Initially, they offered free "massive open online courses" (MOOCs) for a global audience of learners. From 2015, Coursera changed its business model to paid, accredited online courses and full degrees (Thomas, & Nedeva, 2018). Previous studies focus on new digital solutions and challenges developed in the universities themselves (Wannemacher et al. 2016; Orr et al., 2018; Posselt, et al. 2019) or analyse the edtech sector for selected countries (Escueta, Quan, Nickow, & Oreopulos, 2017; Thomas, & Nedeva, 2018; Wilner, 2016). Unfortunately, they have not yet looked at existing edtechs developed by start-ups from a comparative country perspective. But considering this issue is relevant since the characteristics of start-ups provide the optimal basis to facilitate disruptive change (Christensen, & Overdorf, 2000). Higher education institutions can use these characteristics by understanding the organisational structures and capabilities of those start-ups and by adapting and integrating existent edtechs rather than coming up with new solutions on their own. For instance, Posselt, Abdelkafi, Fischer, and Tangour (2019) refer to strategic partnerships as an option for universities to address future threats of new markets and new competitors.

By identifying start-ups in five selected countries acting as digital pioneers, by identifying innovative best practices, and by analysing these best practices using an adapted Business Model Canvas (BMC), this paper provides an overview of the existing edtech innovation outside of higher education institutions. Higher education institutions can use this overview to get an idea of what is being developed in this area and adopt best practices to integrate edtechs into their teaching models. To provide this overview, the paper is guided by the following research questions: Which start-ups using edtechs are (being) established in countries acting as digital pioneers? What are the targets and key components of business models of start-ups that can equally be used by higher education institutions to build up resilience against upcoming threats?

To identify the countries that are pioneers in edtech, a keyword search was conducted based on the Crunchbase database.<sup>1</sup> The search revealed that beside the USA, India, Great Britain, China, Canada and Israel are very active in the field of edtech start-ups. Since the US American start-ups in the field of edtech have already been discussed in several studies (Thomas, & Nedeva, 2018; Escueta, Quan, Nickow, & Oreopulos, 2017), it has been excluded from this research.

This paper is structured as follows: First, it gives an overview of the new trends and challenges in the higher education sector in selected countries along with presenting an analysis of edtechs, their key components and their disruptive potential. Second, the methodological approach of researching edtech start-ups is explained after presenting an

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<sup>1</sup> More information on the dataset can be found at: [www.crunchbase.com](http://www.crunchbase.com)

adjusted BMC as a framework to characterise the later identified best practices. Third, our list of start-ups is analysed before selecting five innovative best practices from India, Canada, and the UK which are then further explained using the adjusted BMC. Lastly, the implications and limitations of this analysis are outlined.

## 2. Literature Review

The emergence of MOOCs in 2012 by the opening of Peter Norvig's and Sebastian Thrun's course at Stanford University marked the beginning of a wave of discussion around digital innovation and disruptive technology in the higher education sector. As Meyer (2010) stated even before the MOOC wave, the consequence to any disruptive technology must be a rethinking of the usual patterns in higher education institutions in order to enable changes.

In the report by the High Level Group to the European Commission, McAleese et al. (2014) emphasise different trends and challenges in the higher education sector. These are, amongst others, the development of technological innovations to enhance learning and teaching, an increasingly diverse student population and consequently, the need for more flexible study opportunities as well as the need for higher levels of skills in order to meet future job demands. Casner-Lotto and Barrington (2006) list skills such as critical thinking, problem solving, teamwork, leadership, or creativity when referring to 21st century skills. The European Parliament (2006) adds lifelong learning which relates to a continuous update and development of the key competences throughout life in order to respond to the list of ever new trends and challenges. The NMC Horizon report by Becker et al. (2017) also emphasizes the need for active learning methodologies and a shift to more student-centred learning in higher education which in consequence requires educators to take over new roles, for example such as guides and facilitators. Posselt et al. (2019) see the need for more structure in universities, especially for orientation of students regarding career options.

The trends and challenges arising in the education sector increase the need for higher education institutions to identify technological innovations, or rather edtechs, to address associated problems and challenges. Wendler, Stumpf-Wollersheim, and Welpé (2017) state that "education technology is defined as the use of any technology to facilitate learning and to improve the performance of students in higher education" (p. 2). This definition gets extended by Wendler et al. (2017) as they also define it as an enabler of digital education which allows for a new way of delivery. The characteristics of edtech, such as the higher personalisation of education, can be used to address and solve the problems and challenges that arise due to the trends explained above (Wendler et al., 2017), which also requires higher education institutions to be aware of other players in the field due to growing competition. Some of the edtechs that emerged over the last years beside MOOCs are badges, learning analytics and adaptive learning, and open educational resources (OER). All these edtechs can be seen as pioneers and potential disruptions to education as it is today since they address the trends and challenges as well as give potentials to solve them.

Not only higher education institutions, but also intergovernmental organisations and governments invest in efforts to develop guidelines or support options for institutions in general or lecturers on how to adapt their way of teaching. Besides the Sustainable

Development Goals with its fourth goal of quality education established by the United Nations (United Nations, 2015), also the European Union shows efforts in providing recommendations to governments, politicians, or other people in charge with the help of the already above mentioned High Level Group on the Modernisation of Higher Education (McAleese et al., 2014).

Since not only higher education institutions but also governmental institutions are addressing the new trends and challenges in higher education, there are several studies on how exactly higher education institutions are applying edtechs in their organisations. Wannemacher et al. (2016) find blended learning scenarios already in practice whereas Orr et al. (2018) notice that most of the investigated higher education institutions are only at the beginning of developing and implementing new technologies.

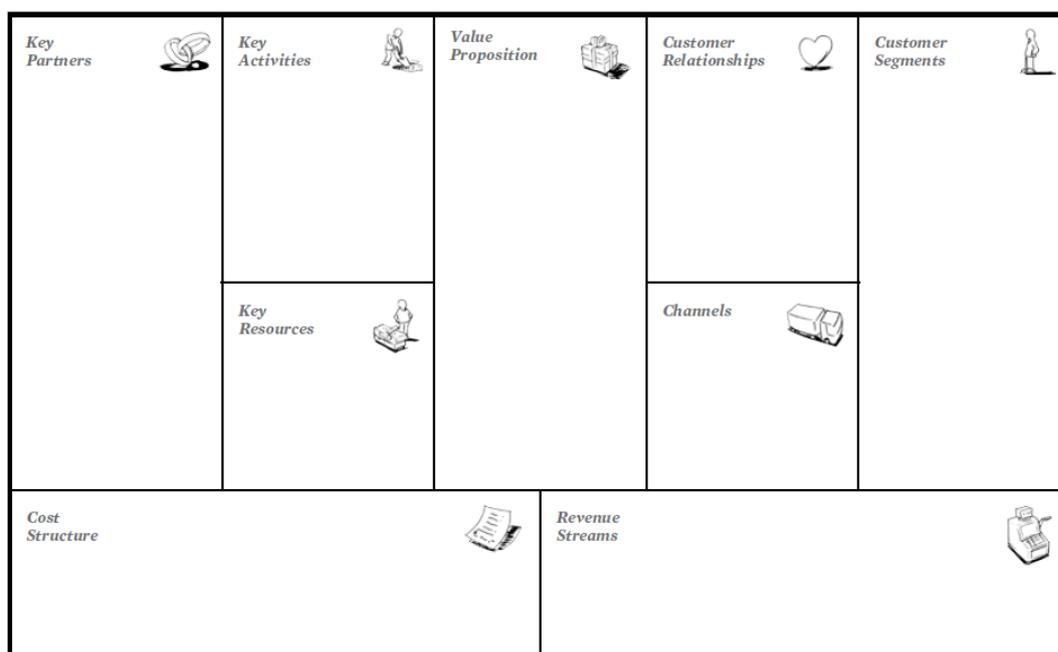
These two studies are both comparative analyses, which address the digital solutions originated in higher education institutions themselves. Christensen and Overdorf (2000) state that besides creating new organisational structures or capabilities, organisations can also respond to disruptive change by acquiring or adapting business models. Since the values, resources, and cost structures of start-ups “add up to the ability to embrace and even initiate disruptive change” (Christensen, & Overdorf, 2000, p. 7), it is also essential to look at start-ups addressing the new trends and challenges in the education sector.

Therefore, this study focuses on the research of different edtech start-ups of countries acting as digital pioneers in the field of education, on identifying innovative best practices, and on presenting their business models. The study is supposed to give higher education institutions an idea of what is being developed by start-ups, outside the boundaries of higher education institutions, and to give them the option to adapt and integrate the business models presented to build up their resilience to respond to the digital revolution.

### **3. Conceptual Framework**

A business model is used to demonstrate the most important characteristics of the identified start-ups below. As a basis, the BMC (Osterwalder, 2004) was chosen, because its framework provides a picture of how an organisation creates, delivers and captures value. Main features of BMC's are key partners, key activities, key resources, value proposition, customer relationships, customer segments, channels, cost structure and revenue streams (see figure 1).

**Figure 1:** *Main features of Business Canvas Model (BCM)*



Source: Osterwalder & Pigneur 2010, 44.

With contributions from other sources, such as the higher education business model canvas by Cawood et al. (2018), we adapt the BMC to best represent the selected edtech start-ups. This extension provides a more detailed analysis of edtech organisations and offers a better overview regarding the education and the technological aspects.

The value proposition, namely organisations’ product offers, describes in which areas value is created by the product or service (Cawood et al., 2018). In the case of edtech, value propositions could be in the areas of teaching, research, further education, organisation, and communication. Other relevant aspects of value propositions are whether the services provided are either broad or narrow and whether the organisation issues certifications. In the development of business models in the edtech industry, Wendler et al. (2017) differentiate between the offering, which can be either a type of service innovation itself or a platform to enable service innovation, and the types of services provided, for example the support or the possibility to customise the values.

Customer segments refer to the different groups of people or organizations an enterprise aims to reach and serve (Osterwalder & Pigneur, 2010). The customer segments could be additionally characterised by entrance limitations or access controls. Furthermore, the customer segments can be distinguished between the target learner and the target customer; the former profiting from additional education, while the latter is responsible for the payment (Wendler et al., 2017). Following this, customers can generally be separated into students, governments or industry (Cawood et al., 2018). The dimension “procedural openness” which was introduced by Orr et al. (2018), is also another aspect to be considered here.

The integration of the client in the development of the technology forms a relationship and can be considered as a type of service (Wendler et al., 2017). Referred to as a form of distribution by Wendler et al. (2017), the type of channels provided also result in an

organisational flexibility (Orr et al., 2018), which can be an advantage or disadvantage for the customers and the organisation itself. Cawood et al. (2018) list nine different ways in how customers can get access to the offered services.

For the key resources of business models, it is important to know three main aspects of the organisation: how it supports the values provided (Cawood et al., 2018); whether it places a focus on the technological product itself or on the service provided; and whether the focus lies more on higher education or on edtech (Wendler et al., 2017).

The key partners contribute to delivering the value, they can take over different roles in the organisation and they can have different impacts. Thus, the features “role” and “impact” are added here as well as the differentiation whether the cooperation is made with governments, other educational institutions, private organisations in the industry, or outsourcers (Cawood et al., 2018).

In summary, a few aspects can be added to the original nine criteria, which results in an adjusted business model. These adjustments help the model to be more apposite for the edtech industry and the description and understanding of organisations acting in this field.

#### **4. Methodological Approach**

To identify the most innovative edtech start-ups in different countries, an exploratory research design was chosen. That is because no broad overview of existing edtech start-up activities in key countries has been compiled so far, which results in insufficient available data. This paper does not intend to offer final solutions to the new trends and challenges in the higher education sector but rather to give an overview of existing innovative best practices developed by edtech start-ups. It is supposed to be a counterpart to the theoretical papers dominating literature on edtechs by giving a new, more practical insight into the topic of digitalisation in higher education.

As a first step, countries were selected to narrow down the richness of sources and data and to focus on regions which are acting as digital pioneers in the edtech sector. For this purpose, the number of organisations active in the field of education within one country was researched in the CrunchBase databases. Two different rounds of searches for edtech companies were conducted, the first one with one keyword, followed by another one with four keywords, to be more certain that the right countries were selected. The words were “education” for the first round and “education”, “learn”, “online course”, and “digital course” for the second round. These words were chosen to cover not only specific edtechs which are already known but also to discover new developments in edtech. The same five countries were at the top of the list for both searches: USA, India, UK, China, and Canada. A large number of search results could not be attributed to a specific country and were thus neglected for the selection. Although the USA was the country with by far the most start-ups active in education, this country was excluded from further research. That is because prior research has already identified most innovative edtech start-ups in the US, for example the MOOC wave which was born at Stanford University with the founding of the platform Udacity as well as the platform EdX, a cooperation between Harvard University and MIT (Weller, & Anderson, 2013). Israel was selected as a fifth country even though it was only listed in 14th place in the

single term search and 12th place in the 4-term search. That is because Israel is a very innovative region - even considered a rival to the Silicon Valley in the USA - and which forms an optimal environment for edtech due to the diverse setting by which it can recreate different global needs (Wilner, 2016).

After the selection of the countries, a search for edtech start-ups per country was conducted. A web search using Google was realised with specific keywords such as “edtech startup”, “edtech startups”, “edtech higher education”, “education technology”, “education technology startups” and “edtech conference”, always followed by one of the five country names. Every resulting webpage was examined in search for start-ups. The idea behind this is that start-ups which are mentioned on the internet must have raised attention for some reason.

Each mentioned edtech start-up was individually inspected and excluded if it was not active in the edtech sector and/or not in a start-up phase anymore. Following standards in the research, all edtech start-ups must be younger than 10 years. Only the edtech start-ups identified in this way were subsequently gathered in a list of edtech start-ups. After that, a short description of what the respective start-up does or which problem it tries to solve was added. The resulting list consisted of 67 start-ups in India, 90 start-ups in the UK, 65 start-ups in China, 57 start-ups in Canada and 56 start-ups in Israel.

To get a better overview of the identified start-ups, they were classified using different criteria. One criterion refers to the age group addressed, for example mostly pre-school students or mostly higher education students. Of all start-ups, some were found to be transferable to the higher education sector although they were originally not created for it (Figure 2). The other classification differentiates between the underlying value proposition, for example help with school content or tool for communication. If a start-up addressed more than one proposition, it was counted for each of these propositions (Figure 3).

With the help of these classifications, the list could be reduced by excluding start-ups which were not thought to be suitable for higher education students or institutions at all, resulting in 211 start-ups. These were then further analysed to identify the start-ups whose short description sounded new and innovative or different from the others in the list. 39 edtech start-ups could be identified and were assorted into four different phases of the study life cycle which corresponds to the addressed age group: schools, transition between school and higher education, time in higher education, and transition between higher education and work life. The first phase was added to the list since some of the start-ups addressing mainly primary and secondary school students sounded very interesting and could be suitable for higher education. Additionally, the start-ups were differentiated by target group, mainly students, teachers, or institutions.

In a next step, these 39 start-ups were analysed in greater detail by reading more about them, for example on their websites, with the goal of identifying the most innovative ones which try to address the new trends and challenges in the higher education sector. The analysis was done by starting to fill out the adapted BMC and excluding the start-up if it was not really innovative in comparison with the other start-ups.

Finally, five different start-ups from three different countries could be identified as innovative best practices which covered the last three study life phases. To describe these five start-ups in greater detail, the adjusted BMC was used. The information needed to complete

the started BMC was drawn from the respective websites of the start-ups or from social media channels such as Facebook or LinkedIn.

## 5. Results

The following sections describe the business models of the identified edtech start-ups. It is worth mentioning that since start-ups' websites and social media channels do not contain any information on firms' cost structures, no statements about these can be provided in this paper.

### **CareerGuide.com**

This Indian start-up is acting as a facilitator for making more informed career decisions, especially before taking entrance exams. The start-up also has a high organisational flexibility by offering access to diverse services: personal assistance by career counsellors, self-assessment by Psychometric Career Assessments, or access to various online communities to provide a balance between passion and skill. As the services are accessible on the website as direct channels, the main responsibility lies in maintaining the platform accordingly and keeping pace with an evolving sector. The innovative character is generated through the offering of service types suitable for a range of customer groups and especially in different career stages. Here, the target learner and the target customer form the same group, and the service is offered through an open network without any access controls after the appropriate payment is made.

CareerGuide.com forms strategic alliances with private firms and schools to spread the word about their value propositions. Furthermore, these cooperations serve as a linkage to other supporting or career guidance options for customers. Lastly, the career counsellors are a key to personal engagement with the customers, and CareerGuide.com even offers its own certification courses to become a career counsellor.

All in all, CareerGuide.com serves a wide range of customer groups with the aim of preventing them from making wrong career decisions in life by offering multiple service packages in exchange for a fee. With the help of strategic partnerships, they raise awareness throughout their customer groups and meet the new, changing, and specific needs in different branches.

### **Wize**

This start-up claims to be the new standard in exam preparation for universities and is based in Vancouver, Canada. The young company stands out because of its uniqueness in offering tailored courses for individual universities with on-demand tools to give students the opportunity to learn and practice the material and content at an individual pace outside of their university. Due to a limited number of university courses available from selected higher education institutions, Wize only covers a niche market with the target customer and target learner being students from those higher education institutions.

The services provided range from technical to personal service through Wize Profs, i. e. experts that design, manage, and monitor the courses and to which the students can keep contact to. All of those are accessible through one website. The level of relationship is solely depending on the customer's choice.

To keep the value propositions on a high level, the key activities for Wize are mainly to keep the platform and the offered courses up to date and to launch new courses to serve a wider range of customers. Furthermore, it is the main task for the experts and tutors to perform problem solving tasks.

In conclusion, Wize provides students from selected universities with additional education, such as online courses, to enhance their grades or to solve specific content related problems after paying the fixed usage fee to access the individual courses. It has the potential to offer students who struggle in courses a way to keep up with the content and to improve their performance additionally to the university's offerings.

## **Top Hat**

The Canadian company Top Hat is an all-in-one teaching platform that can be used by teachers to make their courses more engaging and to enhance their students' success through active learning. Its goal is to inspire and motivate students to discuss the course content as well as support teachers in following and understanding the level of knowledge gained. The innovative factor is that Top Hat serves as a tool that combines products used before, during, and after class in one single platform or app that is used on the devices brought by students themselves. The products are categorized into self-service tools for engaging classroom activities, creating interactive textbooks, generating assignments, and administering tests, and are marketed to institutions and professors. These tools operate as services where institutions or professors can customise and adjust the content to match the favoured requirements. Students are getting access to tailored content through their institution or professors whereas the subscription fees for the different products are purchased by the students. Only if an institution is acquiring the services, an individual pricing model is built. In both situations, the professors can use the tools free of charge.

Top Hat's key activities are the active co-creation with institutions, the customer support for all customer segments, and lastly the maintaining and optimising of the platform and the products offered.

To sum up, Top Hat's products, especially the assessment tool, are an important factor for detecting knowledge gaps and content problems within the whole class as well as for each student individually, so that professors can address these problems and offer struggling students additional individualised help.

## **Potential.ly**

As a London based start-up, Potential.ly bridges higher education and career by addressing the lack of 21st century skills needed for a successful job entrance. The start-up runs a platform in collaboration with higher education institutes for higher education students to develop these skills. By identifying strengths and development areas of students, the

university's staff gets insight about the career readiness of their students and their progress. Students benefit from personalised events and resources matched to their personal profile.

Potential.ly only offers the platform and co-creation for the integration and customisation into the higher education institutions' or companies' framework. Companies are targeted for training in management and development. Since the institutions themselves are responsible for monitoring the content, the key activities for Potential.ly are maintaining the platform as well as the network of current and potential customers.

The organisational flexibility for higher education institutions or businesses is high since Potential.ly does not offer fixed service packages, but rather a customizable service offer of the services and options chosen by their customers.

In total, Potential.ly offers a platform to enhance students' career readiness and employees' career development. By customising the platform to the individual needs of the customer, it aligns with the given framework to provide students and employees with the best resources and activities as well as with continuous professional development.

### **Knowledge Officer**

Founded in 2016, the London based start-up Knowledge Officer uses artificial intelligence to organise knowledge required for specific jobs on a webpage or app free of charge and without any entrance limitations or personal interaction. The innovative factor lies in the sourcing of learning materials matched to this knowledge and the displaying of a personalised learning path corresponding to the preferred job. This developed path produces a career-oriented learning with the aim of closing the knowledge gap between the dreamed-of career goal and the reality of achieving it. This qualitative new approach not only allows students, graduates, or professionals to gain an overview of the necessary skills for a specific job but also presents options to learn these exact skills in a personalised way.

Currently, the platform offers their service to founders, product managers, growth managers, machine learning engineers or those who intend to become one of them. No certificates or awards are issued after the completion of external courses, but the platform does display current job offers aligned with the core skills learned. This type of service innovation provides customisation, but no individual support options are visible.

In summary, the start-up Knowledge Officer is highly useful for people who want to overcome skill or knowledge gaps to achieve a desired career goal or for those who are aiming to advance within their current position. This is an important factor when considering the broad range of offers existing to acquire new knowledge.

## **6. Discussion**

The goal of this study was to give an overview of developments in edtech by looking at start-ups active in this field in different countries, and by demonstrating the business models of innovative best practices among the start-ups. Five innovative best practices were identified amongst the screened 335 start-ups which address the new trends and challenges in higher education. This analysis is particularly important for higher education institutions, on the one

hand, due to the disruptive potential of edtechs raising the importance of resilience and the need for change in traditional institutions (Weller & Anderson, 2013) and on the other hand, to support the shift to entrepreneurial universities of the future (Posselt et al., 2019).

The five selected innovative best practices originated from India, the UK, and Canada, and cover different phases of the study life cycle. They address the problems of career indecisiveness, active learning and learning analytics, support of slow learners and of students in need of extra tutoring, 21st century skills, and skills gap or knowledge gap. The research and its results also demonstrate that there is space for development in the higher education sector since there seems to be a lot more progress going on in the primary, secondary, and high school sector.

The best practices show that some of the new trends and challenges arising in the higher education sector are being addressed in innovative ways which are standing out as examples on how to use edtechs to enhance teaching and learning in higher education. It also indicates the shift to student-centred teaching as the identified best practices are mainly enhancing students' performance and helping them gain more knowledge rather than optimising the institutions' capabilities and structures or even professors' research tasks.

It is interesting to see that the best practices originate from only three of the five countries chosen at the start of research. No start-up from China was selected, for example, since the support offered was rarely intended for the higher education sector but mostly for helping students with school content. Thus, these services are very country specific and can most likely not be transferred to institutions in other countries. For Israel, the situation was different. Here, a lot of interesting start-ups were founded but most of them are in such an early stage that almost no more specific information could be gathered.

## **Theoretical and Practical Implications**

The presented results complement the existing research on edtechs and have several practical implications for edtechs in higher education. Disruptive technologies are giving way to new educational approaches and in doing so forcing the traditional higher education institutions to change. This study is the first to give an overview of existing start-ups in this field rather than giving a simple summary of possible edtechs (Becker et al., 2017) or an analysis of the efforts taken by higher education institutions themselves (Orr et al., 2018; Wannemacher et al., 2016). This approach follows the argument by Christensen and Overdorf (2000) that start-ups' values can embrace and initiate change and organisations can also acquire a different set-up to sustain their business. The presentation of start-ups with the adjusted BMC enables higher education institutions to get insights and adapt or integrate new organisational structures or capabilities on their own, as well (Christensen & Overdorf, 2000).

Overall, mostly higher education institutions can use the results gained from the conducted research to get an overview of existing practices in the edtech sector, to gather knowledge on how to respond to the new trends and challenges, and on how to profit from the many advantages edtech can bring. Additionally, the best practices presented can help higher education institutions to change or adapt their business models to reply to the potentially disruptive innovations affecting this sector and thus, to build up their resilience.

## Limitations and Future Research

Due to the chosen method and assumptions being made, this study has limitations that could be discussed in further research. The assumption that by looking at the numbers of organisations active in education results in the identification of countries acting as digital pioneers neglects other factors influencing this, such as the number of new organisations developing edtechs or the number of active higher education institutions developing solutions by themselves.

The chosen exploratory research method, however, has some limitations as a comprehensive analysis of all start-ups in the chosen countries could not be conducted. It cannot be said for sure that the start-ups mentioned on the websites used during the search represent the most innovative ones in the country. Aside from that, the decision on the innovativeness of start-ups was drawn on an individual basis and not after the initial analysis of the start-ups. To get a full overview of established start-ups in the edtech sector and to identify innovative best practices after analysing every facet of the start-up, more research would need to be conducted.

Furthermore, it could be of interest to explore whether new innovative approaches can be formed by combining ideas. For example, the combination of online lab simulations and online tutoring could be an interesting attempt to use online learning out of the classroom and at the same time to remove obscurities right away. Also, the combination of learning analytic systems and online courses of higher education institutions would provide support for slower learners and the opportunity to implement an early warning system for institutions and students to reduce dropout rates.

Lastly, the transferability of the results, especially of the identified best practices, to European higher education institutions need to be further elaborated on. It is to show how exactly they can adapt to and implement the presented business models without acquisition into their existing business models to effectively respond to the new trends and challenges with the help of edtechs.

## 7. Conclusion

In conclusion, the new trends and challenges in higher education and the selected edtechs working to meet those challenges show the high movement in this field which causes potential disruptive innovations to emerge. This study adds to the analysis of established start-ups in the study life cycle and the business models of innovative best practices from the UK, India, and Canada to the existing literature on edtechs in higher education. This gives higher education institutions the opportunity to build up their resilience by adapting and integrating edtechs into their own business models. To respond to the edtech movement and to remain competitive, especially when facing the new competition with private e-learning providers who are for example delivering MOOCs, higher education institutions need to look beyond their own boundaries for start-ups addressing the new trends and challenges. Most of all, the conducted research reveals the rapid developments in the emerging market of edtech especially in the school sector, which is raising the need for change and adaption. For

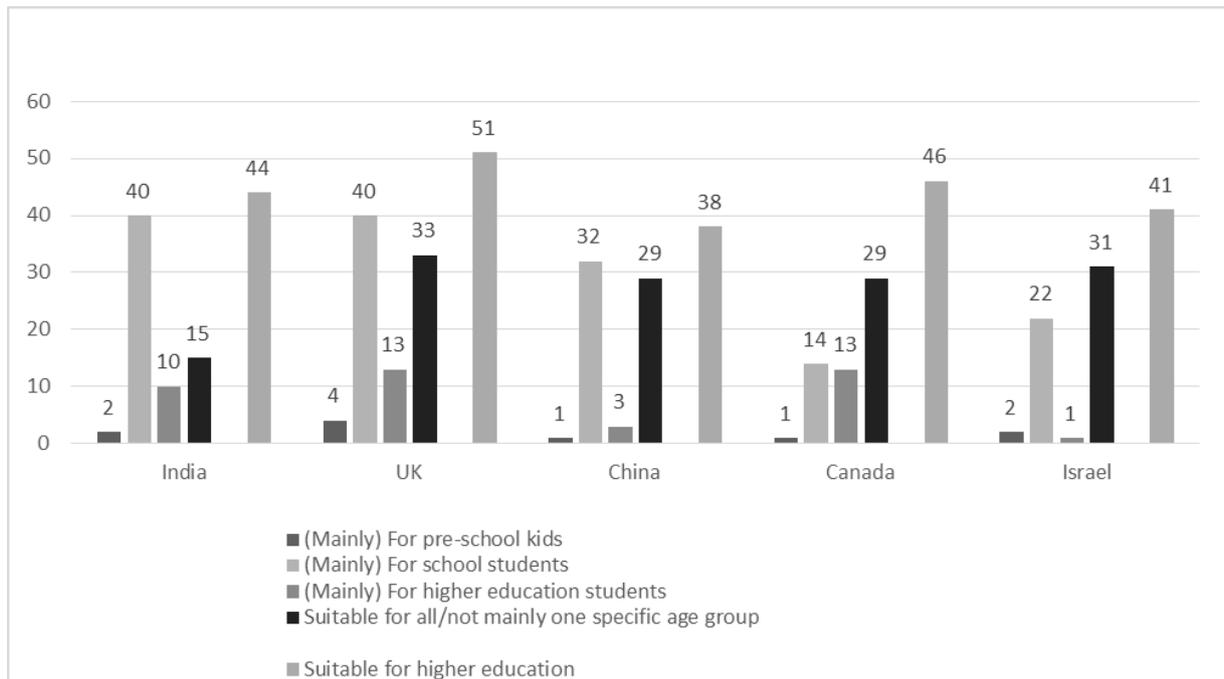
traditional higher education institutions, this development means scrutiny and adjustment of their business model to sustain in this environment that could become disruptive.

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**Figure 2:** Summary of addressed target groups by start-ups in the five different countries



**Figure 3:** Summary of underlying value approaches by start-ups in the five different countries

