Innovators Funding Needs For Education Innovations

What kind of funding is needed for scaling up education innovations?

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Foreword from HundrED

HundrED.org is a not-for-profit organization, which seeks and shares inspiring innovations in K12 education. Our goal is to help education through pedagogically sound innovations. Annually, we select 100 education innovations to our Global Collection, as well as leading research Spotlights, either on a thematic basis or highlighting innovation within a geographic region.

Once a year we invite all selected innovators to celebrate their work to HundrED Innovation Summit. When we were collecting feedback from participating innovators in 2017, we asked "what would help you the most?".The need for funding was mentioned in almost every answer – whether innovations were looking for donations, risk investments, or new income streams.

Therefore we decided to research education innovation funding more deeply. We wanted to gather information to show the current status of education funding when we look at both donations and risk investments, and we wanted to understand what kind of innovations usually receive funding. So we surveyed innovators selected for the HundrED Global Collection 2019 to understand their needs and experiences with funding.

Within this report you will find insights into education funding and some frameworks to help plan impactful funding. Based on our findings innovators could be better placed to describe how potential funding could impact innovation outcomes, while funders should be able to better understand the timeline of progress, which is slower than in many other areas.

Our hope is that this research report can help both education innovators and funders to identify practical solutions to improve their probability for successful funding projects.

We would like to thank the many innovators from our Global Collection 2019 who contributed to this research. Your passion towards the future of education is clearly visible also through funding – the third biggest funding source for education innovations is self funding by innovators. It's something that shows your commitment to building a better education for all.

Lasse Leponiemi

Executive Director, Co-Founder
HundrED

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Executive Summary

Overview

The purpose of this study was to collect information about funding needs for scaling up K12 education innovations. HundrED 2019 Global Collection innovators were asked about their current funding status, future funding needs, and their experiences of the funding process in general.

The survey was carried out with an electronic questionnaire in fall, 2018. Out of 100 innovators 61 responded to the survey, representing a range of education innovators around the globe. The research used a multi-method approach, by doing first an in-depth theory analysis and then a quantitative study and content analysis. Results were analyzed by using quantitative methods like average values, dispersion of data and percentage values. Open questions were analyzed by using content analysis methods. The theoretical section explores education innovation and education innovation funding.

The majority of education innovations are made by not for profit organizations, followed by educator-led practices and for profit organizations, social enterprises and whole school models. None of the innovations in this research were made by

government initiatives. The majority of innovations (62%) were not profitable at the time of the study. The respondents stated that their primary need for all external funding is to scale up their innovation. The results show that most of the education innovators combine donations and grants (51%), service or product related income (26%) and self financing (23%) to keep their innovation operational.

The findings indicate that a combination of quick user growth with increased resource needs is difficult for education innovations. Even though the majority of innovations were able to operate with the current monetary resources for over 12 months they were finding it difficult to remain sustainable long-term. Venture funding needs were usually explained through outcomes whereas actions were explained when looking for grants and donations. Innovators' competencies to explain their funding need and the impact of the received funding differed. The majority of the education investors and grant-givers were expecting to have return of investment or impact measurements which are not always met by education innovations. In general, 39% of innovations were evaluated internally, 25% had an external evaluation.

Further research is required to understand how funding needs and their impact requirements differ between different education innovator groups. Based on the results of this survey the differences between innovation groups can be divided in the following way:

Educator-led Classroom Practices are working with the smallest resources. They are looking for smaller investments to keep their operations running and their impact outcomes are still developing.

Not-for-Profits have already reached a more stable working environment, however many of them find it difficult to keep their operations sustainable. They often combine multiple grants and donations together and they may invoice their services, but they seldom look for venture capital.

For Profits and Social Enterprises are eagerly scaling up their work. Therefore most likely these organizations are investing more resources for growth than other respondent groups. This becomes visible through the shortest operational runaway of any other groups in this survey.

Whole School Models have the most stable status of operations. Most likely this is because of their business model; tuition fees and governmental budgets are decided annually. Based on this more secure and long-term aspect of funding these organizations know their available resources well beforehand.
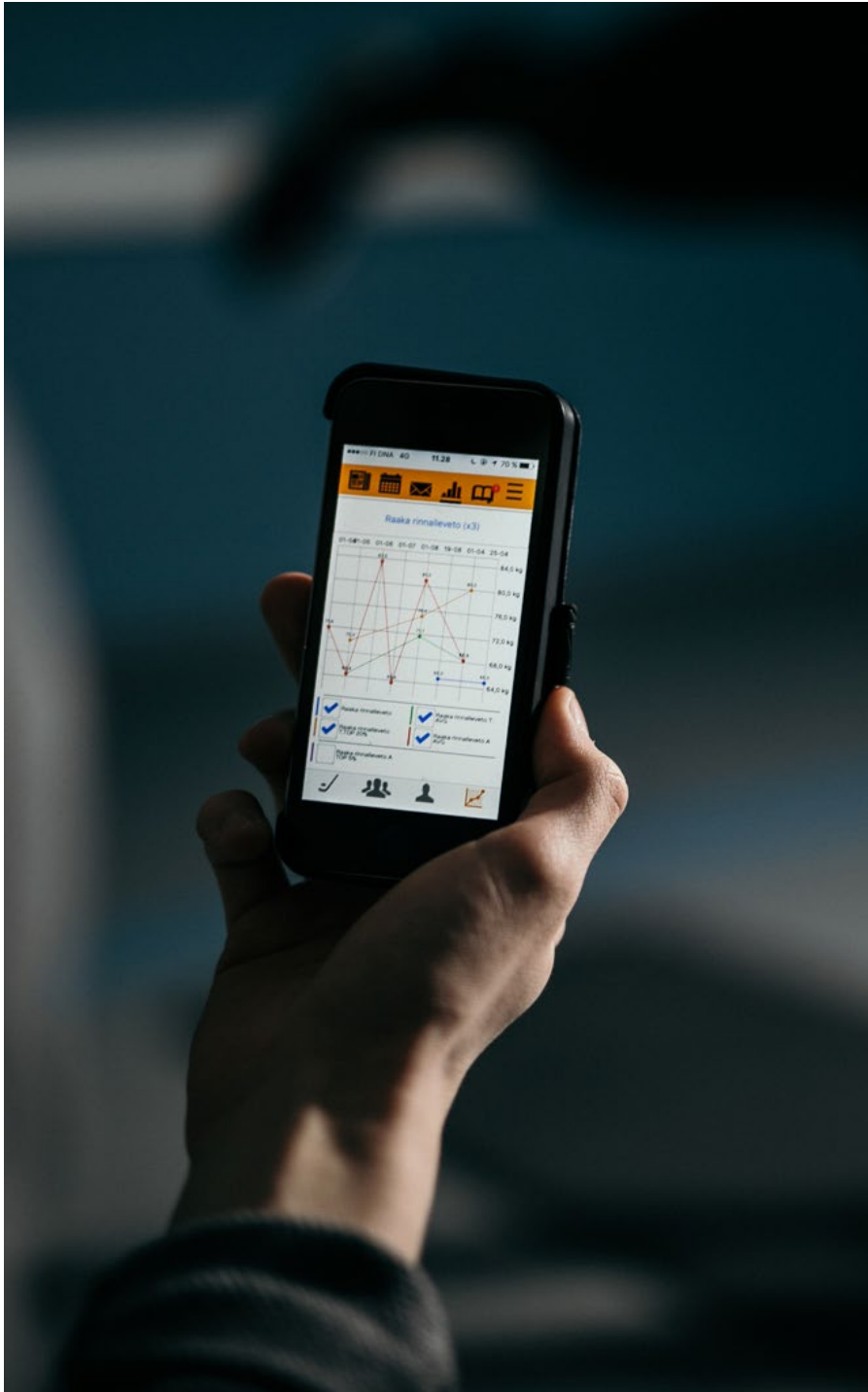
Introduction

The world of education is full of innovation. Education systems globally face a sea of new products, practices and models that have the potential to enhance learning in different ways for their students. However, often these innovations are stuck in their site of origin.

There is over a decade's worth of literature and evidence how and why innovations scale. Our understanding of the mechanisms and tools to support innovation spreading are more effective through online environments than ever before, but still education innovations struggle to scale up and practices do not travel between classrooms too easily. (OECD 2015)

Often the process of scaling innovations can be seen as slow and laborious, causing frustration and disappointment. Also there is a significant amount of resistance; for example, teachers' attitude towards teaching new skills like coding can be negative and they can be reluctant to learn new skills by themselves (Multisilta 2017).

Despite a sometimes hostile environment some education innovations have been spreading successfully. Something that may have started as a practice of one teacher have grown into education innovations used by millions of educators across the world. In many of these success cases external funding have been needed to scale up the innovator's work.

The aim of this research is to provide further information about K12 education innovation funding globally. The research question was stated as

What kind of funding needs are identified by innovators to scale up their K12 education innovations?

To be able to understand the needs of education innovators the research questionnaire was created based on the theory findings. In the questionnaire the focus was on the funding needs, the urgency of the possible funding needs and from which sources and how that funding would be used by the innovator (Appendix 1).

The research was conducted to innovators selected by HundrED for their Global Collection list of 100 innovations in 2019. HundrED is a Finnish education organization which researches all kind of K12 education innovations, from public innovations to private innovations, from for-profit to not-for-profit innovations around the world. Their goal is to help improve education and inspire a grassroots movement through encouraging pedagogically sound, ambitious innovations to spread across the world. All HundrED insights and selected innovations are documented, packaged and shared with the world for free. Submitting innovations for HundrED is always free-of-charge, and HundrED selection criteria is published on innovation toolkit pages. (HundrED 2018b.)

HundrED has conducted its research since 2016, and the research practices identifies innovativeness, impact and scalability as main factors. These main factors are then furthermore divided in 14 sub-factors which are then assessed for every researched innovation (HundrED 2018a). The HundrED sub-factors can be interlinked with indicators from 'Journeys to SCALE' (UNICEF 2016), which is looking for factors like potential to spread, contextual outcomes and possibilities for adaptations based on local needs:

- **Innovativeness**: Valuable improvement within the context

- **Impact:** Established for at least a year with demonstrable evidence

- **Scalability:** Adaptable in new environments with commitment to scale

Furthermore, HundrED research practices can be interlinked with Rogers' theoretical framework of innovation diffusion. Rogers see innovativeness as the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than the other members of a system. HundrED looks the innovativeness factor more from the innovator's point of view; how well innovator has been able to identify and implement factors which correlate positively to the education outcome compared to other innovations in the given context. Therefore, innovativeness is highly context oriented like OECD (2017) report have clarified.

Rogers (2003) sees that demonstrable evidence is one of the most efficient ways of reducing uncertainty, which may slow down the innovation adoption. In the innovation development process the impact occurs "from recognition of a need or problem, through research, development and commercialization of an innovation, through diffusion and adoption of the innovations by users, to its consequences" (Rogers 2003).

HundrED is only selecting innovations which have been operational at least for a year, and which are able to provide demonstrable evidence how well the innovations is solving a problem or a need in the education. In the 2019 selection 7 innovations are within a 1+ year pilot stage, 52 innovations class themselves as small scale with less than 5000 users, in 2 or less countries and only 1 continent and 41 innovations class themselves as large scale with more than 5000 users, in more than 2 countries and 1 or more continents. The final innovation selection is made by HundrED Academy, a group of over 100 education experts around the world, who review the research. (HundrED 2018b.)

HundrED states that education can be improved by introducing innovations which are adaptable, flexible and provide positive outcomes for learning. Therefore the third factor is scalability which looks the adoption process from the system level and from the innovator's competencies to boost the adoption rate (HundrED 2018b). The rate of adoption is the relative speed with which an innovation can be adopted by members of a social system - in this case the education systems, educators and other education stakeholders. Based on the Rogers' innovation diffusion theory the innovation adoption always starts slowly, but when more adopters are reached the speed accelerates quickly until the late majority is reached and then again slowing down when most of the possible adopters have been reached (Rogers 2003).

It is believed that there are lots to learn from innovators to understand what kind of resourcing is needed for scaling up in K12 education environment. The research has been made to understand what kind of differences there might be based on innovators site of origin, field of operations and scaling phase.

The main goal for education systems and schools are to ensure quality education for all learners (Sahlberg 2018). Innovation may play a crucial role in creating equity between the learners and in creating opportunities to develop flexible learning environments and supporting approaches to teaching, ensuring that every student can realise their potential (OECD 2016).

There is no single definition of innovation in terms of school practices and pedagogies. Béchard (2000) clarifies educational innovation as an improvement which is an intentional action that aims to introduce something original into a given context. This change have to be also pedagogical as it seeks to substantially improve students' learning.

In this thesis education innovations are seen according the framework of Kozma and Anderson (2002) who see the innovation as a new pedagogical practices which are spreading in schools and which involve changes in learning process for both teacher and students.

Based on the OECD (2014a) report these applied practices can affect students directly (through a new syllabus) and/or indirectly (new ways of engagement in a school community). The OECD (2015) authors describe an 'ecosystem' approach to learning and innovation emphasizing the importance of mutually beneficial relationships between schools and their environments for innovation to sustain – to make innovations reach their full potential they should be seen as collaborative efforts which are not happening in isolation or do not stay static. Innovative Learning Environments report (OECD 2013) lists three principles which are important for collaborative implementation of new practices:

1. **Innovate the pedagogical core;** To be able to renew practices the organization has to have an ability to innovate both the core elements (learners, educators, content and learning resources) and the dynamics that connect those elements (pedagogy and formative evaluation, use of time, and the organization of educators and learners).

2. **Become "formative organizations" with strong learning leadership;** Strong vision and strategies are needed to support the change of learning environments and systems. Leadership needs to be constantly informed by self review and evidence on learning evidence.

3. **Open up to partnerships;** Isolation seriously limits the improvement possibilities of learning systems. Growth-oriented learning system or environment will constantly be creating synergies and finding new ways to enhance professional, social and cultural capital with others.

The OECD (2015) authors describe school innovation as any dynamic transformation towards the creation of innovative learning environments or innovative 'learning ecosystems'. This process can be understood by using the diffusion of innovations theory (Rogers 2003), which explains the process through five progressive stages; knowledge, persuasion, decision, implementation and confirmation.

Beginning with initial knowledge and awareness, adopters are first learning about the innovation; they need to know its elements as well as how and why it works and which are its intended outcomes. The knowledge part is followed by persuasion of the value or importance of the new practice, and the decision to implement it. (Rogers 2003.) Rogers (2003) states that peers are often the best influencer in decision making process.

When decision has been made to adopt the innovation, the implementer begin to use the new practice including possible customization to meet specific needs and then confirms their decision (Rogers 20013). The length of time required to move through the innovation-decision process can vary across individuals and circumstances Rogers (2003) described this quality as innovativeness, or earliness in relation to others in adopting an innovation. Adopter categories range from innovators (the small number of risk-takers who are first to adopt) to laggards (the small number who are the last to adopt or never adopt an innovation). In between these two extremes are the early adopters who follow the lead of innovators and play an important role by adopting the innovation and furthering dissemination to peers in their local network. (Rogers 2003.)

In the context of this thesis research is aiming to find what kind of a factors educational innovation needs to have in order to reach the tipping point in scalability. Tipping point (Gladwell 2000) is a moment when critical mass is achieved and innovation or practice start spreading faster.

The research hypothesis is that the Implementers of the most rapidly spreading innovations can be seen as a group of people forming a community of practice; they work together with other implementers and innovator(s) to share their knowledge and develop the practice further.

DATA ACQUISITION METHODS

The research was conducted as an independent study with HundrED Global Collection innovators. The research was made after the innovators had been chosen to the Global Collection list, and it was stated that answering to this research survey would not affect in any way their status being chosen to the Global Collection List.

The research was conducted by using a survey questionnaire, which included a group of structured questions. Survey research is based on a theoretical framework and the questionnaire is conducted based on the existing models and theoretical findings (Järvinen & Järvinen 2004). In the context of this research the questionnaire was created based on the findings of the theory analysis, especially the Brookings report (Winthrop 2017) which presented the largest sample size from the field of education innovations. The questionnaire was tested with native and second language English speakers before sending to respondents. The electronic survey questionnaire was used because the respondents were located around the world, and the electronic web-based survey provided them an easy way to respond to the questions.

The data was acquired by using an electronic questionnaire which was sent via email to all 100 selected innovators on 17th of September 2018. Out of 100 innovators 61 replied to the questionnaire until it was closed on October 3rd, 2018. The results were collected by using the online questionnaire which is attached to the report (Appendix 1). In research results answers to open questions have been modified in such a way as to ensure that innovations remain anonymous.

The statistical response rate of 61% can be seen as exceptionally high. In the research questionnaires the response rate is usually between 30% to 40%, and it is very likely to have a response rate less than 60%. The average time which was used for answering was 17 minutes. The high response rate may identify high interest and motivation towards research results, or the respondents in general are finding it important to be able to conduct some new data from the field. (Hirsjärvi, Remes & Sajavaara 2005; Heikkilä 2005.)

RESEARCH ANALYSIS

The research had been made as multi-method research by doing first in-depth theory analysis and then a quantitative study and content analysis for HundrED 2019 selected innovators. The reason to select a multi-methods approach is to get a more diverse understanding of how the funding of education innovations is actually affecting to scaling them up (Spratt, Walker & Robinson 2004).

The strategy of this research was to use survey-research methods, which can be analyzed by using quantitative or qualitative methods. The research data in this study has been presented by using quantitative methods like average values, dispersion of the data and percentage values. Tables and data visualizations were used to analyze the data. The quantitative material was analyzed by using descriptive statistics analysis and the qualitative material by forming themes (Saaranen-Kauppinen & Puusniekka 2006.).

In the content analysis the data was compressed based on the words mostly used the answers to get condensed understanding of the themes mostly mentioned in the open answers. The basic idea of the content analysis is to understand which are the most common themes in the answers and how the information can be categorized. The content analysis relies on logical reasoning and interpretation. First the content needs to be split into pieces and then built again based on the meanings of the open answers. (Sarajärvi & Tuomi 2009.)

The analysis was based on three different stages. In the first stage the content was reduced based on the themes and words mentioned in the answers, in the second stage the content was clustered into groups, and in the third stage the content was turned into theoretical abstracts. This method is used to condense the lengthy open answers into clear themes or abstracts which reveal the nature of the answers (Sarajärvi & Tuomi 2009).

STRUCTURE OF THE REPORT

This report consists of five different parts which are partly interlinked. The first chapter is giving an introduction to the research and to the theme of this research by clarifying how to define innovation as a part of this research, what are the general interests in the innovation funding research, what is the purpose of this research and what is the research question being solved in this report. In addition, the methodological approach, data acquisition and analysis methods are explained.

The second and third chapters are a part of theoretical framework. In the second chapter a literature review seeks understand how innovations are seen in the education context, what kind of innovation research have been conducted and why innovations are seen as important change factors in the field of education. The third chapter is deepening the theoretical framework into education investments. Education innovation funding is looked at through investments reports to understand funding trends, the different sources used in the education investments and how the impact of these investments can be measured based on different frameworks.

The fourth chapter consists of research overview. The fifth chapter is used to analyze the results from the research question point of view, and some interesting differences between innovation groups are pointed out.

The discussion of results is done in the final sixth chapter. The data is compared to existing research, and some similarities and differences are pointed out. Furthermore, the research process is also being evaluated. References are listed in alphabetical order in the seventh chapter, which is then followed with the appendix.
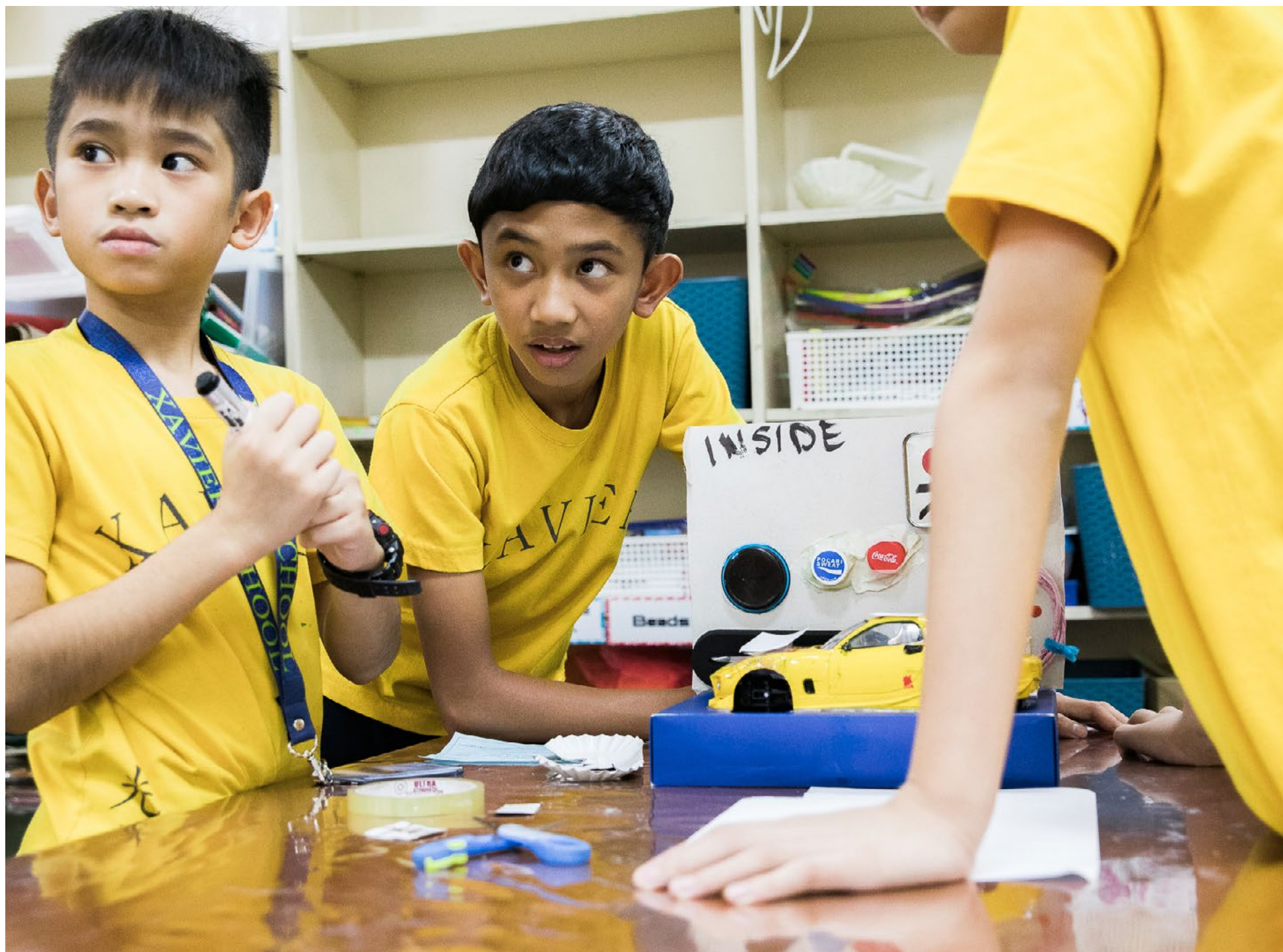
Innovation in education

In the context of this report, education should be understood in its wider sense. Education can be defined as learning opportunities that can happen at home, in school, or with members of one's community. Learning is knowledge, skills and values acquired through education (formal or informal), and is a lifelong process critical for success and empowerment. It occurs both inside and outside of the school or education system. (UNESCO 2013)

DEFINING INNOVATION IN EDUCATION

There is no single definition of innovation in terms of school practices and pedagogies, and innovation itself is not a guarantee of a positive performance. However, countries with greater levels of innovation have seen increases in certain education outcomes. For example, their mathematical performance have increased, they have got more equitable learning outcomes and more satisfied teachers. Interestingly, even though teachers were more satisfied, students were not more satisfied than those in less innovative systems (OECD 2014b).

Béchard (2000) defines educational innovation as an improvement which is an intentional action that aims to introduce something original into a given context.

This change must also be pedagogical as it seeks to substantially improve students' learning.

The OECD (2014a) refers to innovation school organizations as those organizations implementing newly applied practices that can affect pupils directly, for example through special programs,and/or indirectly, for example through new leadership or human resource practices. Furthermore, OECD (2015) employs an 'ecosystem' approach to learning and innovation, underlining the importance of a supportive relationship between schools and their environments for innovation to be sustained.

In this report, education innovations are seen according to the framework of Kozma and Anderson (2002), who see innovation as a new pedagogical practice which spreads in schools and which involves changes in the learning process for both teacher and students.

THE CASE FOR INNOVATION IN EDUCATION

Based on the Brookings Leapfrogging report (Winthrop 2017) the need for innovations in education is two-fold. There is an increasing concern about what children learn in school, and the traditional academic skills are seen as only part of the skills young people need to thrive in this ever-changing world. Secondly, based on the new pedagogical thinking, newer learning methods could benefit students, allowing them to develop the full range of skills they need to flourish in their lives.

The Commission on Financing Education Opportunity, chaired by the UN Secretary General's Envoy for Global Education, argues that education systems need to innovate and change rather than just replicate past success. Education systems must be strengthened and be better at capitalizing on innovative approaches, since innovation is seen as essential to any acceleration of progress (Winthrop 2017).

Education systems are more than ever required not only to provide their students with appropriate skills and competences to match national priorities, but also foreseeing what kind of capabilities are needed in the future. Many national priorities are economic driven, and schools are kept accountable for providing a foundation for achieving them (Bell & Stevenson 2006).

Education innovations have a potential to create positive outcomes and advance education opportunities when done well – regardless of the type of engagement and rationale, whether philanthropic or commercial (UNESCO 2013).

THE RANGE OF INNOVATION IN EDUCATION

The Brookings Center for Universal Education analyzed 15 innovator spotter organizations, including HundrED, in their Leapfrogging Education Report in 2017 (Winthrop 2017). The report analyzed nearly 3,000 innovations from 166 countries.

The vast majority of innovations (81%) focused on improving learners' skills. Nearly three-quarters of these innovations support pedagogical approaches that involve playful learning (Winthrop 2017), when children develop their imagination and physical, cognitive and emotional strengths, through mind-on, hands-on and body-on activities as a part of learning process (Kangas 2010).

In the Brookings report (Winthrop 2017) the predominant goal of education innovations is to improve 21st-century skills like critical thinking, confidence, and global awareness and academic skills in areas like literacy, numeracy, and science. A smaller number focus on improving vocational skills, including business skills or those associated with specific trades.

This same insight was stated in the OECD (2014b) report, which found that there "have been large increases in innovative pedagogical practices in areas such as relating lessons to real life, higher order skills, data and text interpretations, and personalisation of teaching".

Only a small amount of innovations focus on teacher professional development or teacher training (23%), even though unburdening teachers is one of the big discussion points in the Global North, and the lack of trained teachers is seen as one of the main bottlenecks to providing high-quality basic education in the Global South (UN 2018).

However, this might be subject to change. Based on the OECD (2014b) report educational organizations have started to innovate in the areas of professional learning communities for teachers, evaluation and analytics, relationship building with parents and other external stakeholders, and special education. Teacher collaboration has also increased at the OECD level; teachers may improve their professional practice by reflecting on good and bad practices and learning from others. An average of teachers takings part in peer observation was 13%.

Although it has been argued that education improvements mostly benefit middle-income students (United Nations Global Compact 2015), 57% of the innovations were focused on marginalized populations, including low-income children, out-of-school children, orphans, girls, students with disabilities, ethnic minorities, child

laborers and children in crises (Winthrop 2017).

The innovations are delivered through a mix of education actors. The Brookings report (Winthrop 2017) stated that the innovations spotted by 15 innovation spotters were run by following organizational types:

62 % NGOs; the most common type of actor in education innovation space.

Based on the Winthrop (2017) findings many non-profit organizations have created public-private partnerships (PPP).The research found that 78% of these kind of collaborations were established by NGOs which were at least partly financed through governments.

26% Private sector companies; including many companies working in the ed-tech space.

Many countries have experienced a rise in the percentage of students with access to laptops or notebooks at school. In an OECD (2014b) country, the share of students having access to a digital device has increased by 18 points on average. In 2015, the share of students having access to laptops ranged from 92% in Denmark to 27% in Japan.

12% Government; the result of government policy or initiatives and implemented by ministries of education, including government schools.

Although government related innovations represent the smallest amount of all innovations in education, the education sector has significantly higher levels of innovation than the public administration on all OECD indicators, and it is at least as innovative as the health sector on each measure (OECD 2014b).

IMPLEMENTATION OF EDUCATION INNOVATIONS

The education sector has always been considered as a pragmatic example of a non-productive sector. Symptomatic of this kind of sector is limited productivity growth, which tends to be very sporadic and slower than in progressive sectors of the economy. Creating an education sector in which valuable innovations are continuously created and efficiently adopted and used is a major challenge to "re-invent" (public) education by creating a new complementary ecosystem for the innovation decision process (OECD 2016, 126).

The innovation-decision process is the process where an individual (or other decision-making unit) makes a decision to adopt an innovation. This process involves different stages which eventually lead into an innovation implementation (Rogers 2003).

OECD have used two factors to measure education innovation adoption. The first approach has been to adapt existing national innovation surveys, which offer well established tools for measuring innovations, and which have been used for a long period of time. The second approach is based on surveys of organizational change – how well the new or significantly changed method was implemented as a part of the education system (OECD 2014b).

Based on OECD (2014b) insights, the education sector is at or below the average in terms of the speed of adoption of innovation. 38% of survey respondents reported that their educational establishment was mostly at the forefront in adopting innovations, new knowledge or methods (against 41% on average in the economy). Higher education stands out in terms of speed of adopting innovation, above the economy average, and well above primary and secondary education.

According to Rogers (2003, 5), "Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system". Rogers underlines the importance of communication as a part of the innovation adoption; the better innovation outcomes and benefits are understood, the more likely the innovation is implemented.

One reason why some education innovations have not spread effectively may lay in this area. Education innovators do not often publicly share their own data about innovation effectiveness, which would potentially increase innovation implementation. The effectiveness of education innovations are publicly available only to 33% of education innovations mapped by Brookings (Winthrop, 2017, 97).

This might be problematic, since when measuring innovation effects in education it is important to link them to specific social and educational objectives. Examples of objectives can be, for example, learning outcomes, public satisfaction, and equity, according to different stakeholders' perspectives (Vincent-Lancrin 2017). These objectives can be communicated through five progressive stages to support innovation adoption; knowledge, persuasion, decision, implementation and confirmation (Rogers 2003):

Knowledge occurs when a decision-making unit gets to know about innovations existence and gains basic understanding of how the innovations works.

Persuasion happens when a decision-making unit forms a favorable or unfavorable attitude towards the innovation. This happens through communication and involves both parties. As a part of the persuasion stage, the uncertainty factor lowers.

Decision occurs when a decision-making unit begins to complete actions which either leads to innovation adoption or rejection.

Implementation happens when the innovations is put into use. Re-invention or innovation modifications are especially likely to happen at this stage

Confirmation stage happens when a decision-making unit has made the decision and seeks reinforcement for it. In some cases reinforcement is not received and the decision needs to be re-evaluated.

Whereas innovation can be defined as a significant change in selected key practices in education, there is no definitive answer as to what counts as a significant change. This is heavily contextual, and can depend on factors such as the type of innovation and the location. When 10% of teachers adopt a new practice in a country, where such pedagogical thinking has not been used before, the change is substantial. If the same happens in a country where the pedagogical thinking has been used by the majority, the innovation diffusion is on a different level (Vincent-Lancrin 2017).

Innovation implementation is always complex and takes time, because beginning to use a new method usually means at least a partial culture change. The slow rate of diffusion highlights the struggles any innovation faces. Rogers suggested the following five factors that affect the rate of innovation diffusion:

Relative advantage: How much better the innovation is than the old one it replaces

Compatibility: How well the innovation is compatible with existing values and experiences

Complexity How difficult it is to understand and use the innovation

Trialability: How easy it is to experiment or trial the innovation

Observability How well the innovation outcome and impact are made visible

When innovators understand these factors, they may support the implementation phase of their innovation. The adoption of innovative new products is far from certain. Oosterlynck (2016) pointed out that innovations need to be flexible and adaptable to survive in the education world; the new practices have to be easily modified to the local context from curriculum requirements to school practices.

The innovation implementation in Rogers' (2003) model happens within five adopter categories. The adopter categories classifies their members of a social system on the basis of innovativeness. These five categories are:

1. **Innovators**
   Innovators actively seek new ideas. They have a high degree of media exposure and their interpersonal networks cover a wide area, usually reaching out to their local systems. This group is able to cope with a higher level of uncertainty than other adopter groups. (Rogers, 2003, 22)

2. **Early Adopters**
   The early adapters are local opinion leaders in most social systems. They are a more integrated part of the social system than innovators, and potential adopters look for advice and information from them. This adopter category is seen as a change agent or innovation ambassadors who speed up the diffusion process. The role of the early adopter is to decrease the amount of uncertainty about a new idea by adopting and using it. This also means they are usually respected by their peers in their localities (Rogers, 2003, 248).

3. **Early Majority**
   The early majority's decision process is slightly longer than that of the innovators or early adopters. In general they are willing to adopt innovations, they interact frequently with their peers, but seldom hold leadership positions. Therefore, they hold an important role of creating interlinkedness in the system. (Rogers, 2003, 249)

4. **Late Majority**
   The late majority approaches innovations with a cautious mindset. The innovation needs to be very stable and well documented; almost all uncertainty factors need to be removed before the late majority feels that it's safe to adopt an innovation. They can be persuaded of the importance of new innovations, but peer pressure is necessary to motivate adoption (Rogers, 2003, 249-250).

5. **Laggards**
   Laggards keep their reference point in the past. They are the most localite of all categories, and they mainly interact with others who also have relatively traditional values. When laggards finally adopt a new idea, it may have been outperformed by a new innovation. Laggards are the last in the social system to adopt innovations. However, the resistance towards new innovations from laggards' point of view may be totally rational; they usually have limited (economic) resources, which forces them to be extremely cautious in adopting new innovations (Rogers, 2003, 250-251).

Education Innovation Funding

With the world changing ever faster, education systems are under constantly increasing pressure to change. The need and demands of change vary, from ensuring high quality basic education, to providing more advanced skills to students. In both cases new innovations are welcomed to strengthen the education systems, and scaling them requires investment.

Many innovations are financed by multiple sources, and each of the financing sources support a large range of innovations, from after-school programs to in-school labs. In the Brookings report (Winthrop, 2017, 95) the innovation financing is divided in the following way:

· **25-30%** of innovations are supported by philanthropic foundations, governments, for-profit investments and user fees

· **20%** of innovations are supported by donations from individuals and/or from communities

· **11%** of innovations are supported by international aid dollars

The next chapters look at both sustainable development investments and for-profit investments in education innovations.

Sustainable Development Investments In Education

United Nations Sustainable Development Goals on Education underline the necessity to achieve inclusive and equitable quality education and promote lifelong learning opportunities for all. The targets are divided into ten different items, each with their own indicators. The 2018 global indicator framework was agreed as a practical starting point at the 47th session of the UN Statistical Commission, held in March 2016. The UN Statistical Commission is the highest decision making body for international statistical activities (UN 2018). The current targets are for the year 2030.

Achieving the goals will require increasing efforts, especially in sub-Saharan Africa and Southern Asia, and for vulnerable populations, including persons with disabilities, indigenous people, refugee children, and poor children in rural areas. Brookings report (2013) shows an annual $38 billion external financing gap for basic and lower secondary education in these regions, between governmental funding and what international aid donors are likely to support.

In 2017, there were 264 million children and youth around the world not going to school (UNESCO 2017), and at least 250 million children and youth who cannot read or write (UNESCO 2014). According to current trends, half of the upcoming youth generation, 800 million young people, are projected not to have basic skills by 2030.

Of these, 58 million children remain out of primary school and 202 million teenagers are not attending secondary school, missing out on vital basic skills needed for future employment (UNESCO 2017).

The situation has remained similar for the last five years. For example, based on a UN report on the progress of Goal 4 in 2017, in the sub-Saharan countries only 40% have access to computers and the internet for teaching purposes. The average rate in developing countries is above 60%.

A similar trend is visible for trained teachers. Sub-Saharan countries have a relatively low percentage of trained teachers in pre-primary (44%), primary (74%) and secondary teachers (55%). The lack of professional teachers can be seen in students' learning results; even though more children than ever are going to school, many do not acquire basic skills in reading and mathematics in these regions (UN 2018).

The moral and economic problem posed by this failure in education is given a fierce urgency by demographics: the population of the African continent is set to double in the next thirty years to 2.5 billion. Already, 60% of Africans are 24 or younger (Martin 2017).

Learning crises do not only affect the quickly developing parts of the world. In OECD countries, for example, 15-year-old boys are more likely than girls, on average, to be overall low achievers (OECD 2015). Young men are twice as likely to report school as a waste of time than young women (Economist 2015), and young women do not see that they have similar possibilities in science related professions as men – despite young women are outperforming boys not only in academic subjects but also on vocational training (WISE 2014).

In both developing and developed countries education is the greatest equalizer – it offers all children, youth and adults opportunities for success (United Nations Global Compact 2015).

Based on the global situation in education, at least four reasons can be pointed at as to why private sector companies invest in education (Brookings 2013):

1. **Education systems in emerging market economies and low-income countries need improvements.**
   Looking at the world population trend, companies will be recruiting the population from these countries at a growing rate by 2030. The vast majority of the future recruitments will have been educated in weaker education systems in Asia, Africa or Latin America.

2. **Companies need to be able to secure future talents with the right skills.**
   Access to a good-quality education is a vital element for strategic growth in companies. When education does not meet the needs of companies, they must invest themselves to compensate the low skill levels of graduates. For example, in India in one five-year period (2007-2011), information technology companies almost doubled their investment to $2 billion on training employees. Already companies see the talent constraint as a main reason why they can't pursue new marketing opportunities (PwC, 2014, 3).

3. **Every investment made to education gives significant return on investment.**
   With modest early-stage investments, it can be ensured that each child attends school, remains in school, and learns in school. This can have significant economic returns (OECD 2016). The higher the education of the graduate student is, the higher, on average, the value of their work is for society in terms of impact, taxation, and consumption. In contrast, every drop-out from education causes not only a loss for increased annual economic input, but also adds costs for society (Ball 2004, 6-7).

4. **There are new possibilities and tools for business investments in the social sector which allow private sector resources to solve public problems.**
   UNESCO (2013) and PwC Impact Report (2014) suggest that companies should see education investments as a part of their talent pipeline thinking – providing better skills for students will reduce the need of employee training. According the Brookings (2017) governments should think about how to attract and reward companies willing to support education without privatizing public education, but rather supporting it through collaboration. However, this is a very delicate area of education system improvement; it may lead to negative consequences of neoliberalism, e.g. more polarized education systems, decreased equality, and decreased overall learning outcomes (Ball 2004).

Corporate social responsibility has become more important in the era of globalization, and attitudes toward corporate social responsibility have also become more positive. A philanthropic movement which is giving profits back for social good (for example, the likes of Gates, Omidyar, and Dell) is forming a philanthropic landscape (Ball 2012). In the beginning of 2000, most senior executives saw sustainability reporting and corporate responsibility as a way to enhance corporate legitimacy, even though some managers felt that sustainability work might be counterproductive (Adams et al., 2007).

In the Global Corporate Sustainability Report, the UN Global Compact – one of the world's largest corporate sustainability initiatives with over 7,500 private sector participants globally – education is ranked the most urgent sustainability challenge by their business community (UN Global Compact 2015). These donations are usually used in a businesslike manner, as 'investments' with good returns. The receiver of the money will be accountable to build schools, start education programs, or do some other actions the money was granted for. This brings a new level of education policies, where money brings power. When these social responsibility actions are partnering with governments in solving social problems, sometimes they can also work over and against the wishes of governments, in local and transnational arenas (Ball 2012).

59% of companies believe that they can have a positive impact on education sustainable development challenges, and education achieves the second highest score, after 'growth & employment' (83%) and before 'energy' (57%) (UN Global Compact 2015). Even though businesses have shown a great degree of interest in investing in education, they have not always acted accordingly. Brookings (2013) report shows that corporate giving to global health is 16 times more than it is to global education. However, CECP "Giving in Numbers 2017 edition" analysis of 2016 corporate giving shows that education has been the biggest recipient, with 29%, leaving health and social service programs on the second highest spot (26%).

In the 2010s, donors (to nonprofits) and investors (to for-profit social enterprises) have shown increased interest for greater accountability for the money intended to be used for social purposes (PwC 2014). New money is flowing into the sector as business leaders have earned large sums from their activities and want to give back to society. It's typical for these donors and investors that their demands toward their investments are higher; they want the accountability and performance excellence that they expect in the for-profit world. Furthermore, they want evidence that their investment has an impact (Epstein et al. 2014)

CORPORATE SUSTAINABILITY CAN BE SEEN FROM TWO PERSPECTIVES:

1. **How an organization is operating in a sustainable way.**
   "To be sustainable, companies must do five things: Foremost, they must operate responsibly in alignment with universal principles and take actions that support the society around them (1). Then, to push sustainability deep into the corporate DNA (2), companies must commit at the highest level (3), report annually on their efforts (4), and engage locally where they have a presence (5)," (United Nations Global Compact 2015).

2. **How an organization is carrying out philanthropic efforts towards sustainability goals.**
   "Using the wealth of business to support societal causes has made a difference on key sustainability issues like health and education. Employees and customers often value company's philanthropic work, both through financial giving and volunteering," (United Nations Global Compact 2015).

The company's philanthropic efforts can often be mistaken for a corporate responsibility approach. The main difference between the two is that the first is about how an organization is able to do its core business in a sustainable way, and the latter about what kind of additional tasks the company may do within society.

Many organizations are taking a more strategic approach to their philanthropic work. According to the PwC (2014) research, organizations want to implement investment and measurement strategies to understand the impact for investment beneficiaries.

Companies can offer social investments and philanthropy to communities, NGOs, and to different programs. Companies can also contribute the efforts of their workforce through volunteering, through leadership and in-kind contributions of talent (UNESCO 2013).

There are many reasons for companies to invest and they can select the most efficient way to contribute, whether that involves improvements to the communities where their employees or consumers live, or addressing new business opportunities through talent development (PwC 2014). Companies can also connect their philanthropic actions to their core business to create sustainable activities in the long term. In these cases companies are more cautious not to duplicate the effort of others and take more comprehensive responsibility also on the unintended effects of their funding in areas like religions, traditions, and local habits and customs. (United Nations Global Compact 2015).

For-profit Investments In Education

Education services are being targeted by business as an area where considerable profits are to be made. Starting from early 2000s, the education service industry as a whole has been growing fast. For example, the UK City Finance House Capital Strategies stated that the education service industry has been growing at 'impressive rates of 30% per annum'. At the same time it was predicted that there will be need for an increased amount of ideas with proven track record to reshape the market – traditional education for-profit actors like publishers were going to get more competition (Ball 2004).

Policy development is a continuous and engaging process in which those with competing values and differential access to power seek to form and shape policy in their own interests (Bell & Stevenson 2006). For example, according to Spencer-Keyse et al. (2018) state of debate analysis, promoting career skills for education is the most demanded educational need for labor related organizations, whereas breadth of skills are more underlined by educators.

Education policy-making has become highly politicized, and policy making costs money. After the 2008 financial crisis, one of the responses has been to make savings in public spending, and education has not been left out. Marketization and privatization are taken to be one way of doing (education) policies cheaper. The expansion of market relations and principles, in theory, allows the level of public spending to be lowered. This neoliberal movement in education has led to a situation in which education policy and education reform are no longer simply a battleground of ideas, they are also a part of the financial sector, increasingly infused by and driven by the logic of profit (Ball 2012).

In the education sector, a too-visible collaboration between public authorities and the private sector is sometimes perceived as problematic. However, most curricular reforms or expected changes in teaching practices ultimately benefit from this kind of collaboration as it is generally private companies that produce textbooks and pedagogical resources for teachers. On average, over 60% of students have teachers who use textbooks as a primary resource for their instruction (OECD 2014a). Collaboration is needed to ensure that the education industry has enough incentives to develop new or significantly improved resources for teachers and students. Furthermore, all stakeholders should be engaged as a part of education policy and explicit innovation policy discussions for education and training (OECD 2016).

For-profit investments are having a positive and a negative effect on education. On one hand the disciplines of profit are what is needed to reform and re-energize the public sector (Ball 2012), but on the other hand market mechanisms do not increase equal access to high-quality schooling. The research has shown that when equity of access decreases, so does the quality of education (Sahlberg 2018).

Innovations in general can breathe new life into slowing or stagnant markets, and act as a mechanism to enhance an organization's ability to change and adapt to a new environment. Businesses need to innovate in order to keep up with their competition, by introducing new products or services, improving the efficiency of their production processes and organizational arrangements, or enhancing the marketing of their activities in order to guarantee their survival (OECD 2016).

The education material market has been dominated by education publishers. The International Publishers Association (IPA) states that "Publishing's most important market sector is education, ie the production of materials for schools, colleges, universities, training courses and so on. The biggest publishers in the world today are educational publishers" (IPA 2018).

During the last decade digital services such as Spotify and Netflix have forever changed the business of music and movies. Both the entertainment and education market are content oriented. To understand the magnitude of education publishing, in the US alone more than $7 billion is spend on K12 textbooks annually. Education technology companies are using the same approach as other digital services for the education market, and they are affecting how education content is distributed, used and updated (Hicks 2018).

At the same time IPA has been forming a coalition between education publishers to affect this business environment transition. In their policy paper (IPA 2015) they are addressing policy makers to follow certain principles before contemplating interventions in the provision of learning materials, especially digital. This can be seen both as a way to control new products coming to the market, to '…avoid subsidizing digital projects that distort the competitive environment…', but also as a contribution to provide objective learning materials for the market, as 'A healthy and sustainable educational publishing industry is an asset to any democratic society and essential for a competitive knowledge-based economy…'. (IPA 2015)

Traditionally the big education publishing companies have been able keep the key business areas for themselves, and this is still the case. In 2015, market leader Pearson Education division alone brought in almost 3 times more revenue (€6.1 billion) than the second biggest education publisher China South (€2.6 billion) (Wischenbart 2016).

Hicks points out that textbooks are almost out of date upon publication, so it is not a surprise that a new breed of education-technology companies is targeting this market by offering software solutions to get huge volumes through highly scalable business models (Hicks 2018). Simultaneously every education publisher knows that the biggest growth opportunities are digital products and services, expansion into global markets, and efficient investments in education content-based enterprises (Carmody 2012).

The policy statement given through IPA (2015) therefore feels more like an attempt to slow down open-source platforms and peer-based contributions in the education market. Each of the education publishers are working on end-to-end solutions; not just textbooks and testing, but software-based learning delivery platforms (Carmody 2012).

Working in the education sector might be difficult for an innovator entrepreneur or NGO to reach a sustainable operating model. When the education market is seen to be slow to adopt innovations and to adapt new practices, creating and sustaining a commercialized innovation may take more time than in other fields of the economy.

Publishers giant size, resources and extensive reach in the education and media landscape gives them a big advantage over smaller providers like start-up organizations and teacher-led practices; they can carry out bigger investments and wait for the market to develop (Carmody 2012). From start-up organizations' point of view, the speed of development is essential; when the organization starts to operate on risk capital it eventually will run out of funds if its product does not reach profitability (Ries 2011).

Vedrenne-Cloquet (Karzunina et al. 2017) explains the slowness of the market in the following way:

"Think of a long, rising tide - not an avalanche. Distribution and timing of adoption are key. Digital transition in education, although a powerful trend, is five times slower than in other sectors undergoing a digital transition. What this means for start-ups is that they have to brace for a slow and long sale cycle unless they operate in the direct to consumer space."

A lean start-up organization is trying to maximize its ability to pivot their offering as many times as needed to find a market fit; when the market fit is found, the organization will be less dependant on risk funding and can reach profitability (Ries 2011). From the diffusion of innovation point of view, when the market fit is reached, the innovation has compiled enough evidence to reduce uncertainty within adopters, and the adoption rate will increase (Rogers 2003).

Business-driven innovation in education is expected to close the productivity gap by disseminating new tools as well as bringing new practices, organizations and technology. At the moment, the educational tool industry is emerging. There are small firms specialized in inventing and commercializing mainly ICT-based technologies. New practices for knowledge generation and accumulation have also

emerged. However, the main target of these tools is not the huge public school system (OECD 2016). The education market probably does not fully satisfy the conditions for attracting and sustaining strong entrepreneurial activity. This can be also seen from the Brookings (Winthrop 2017) report, in which only 26% of innovations were run by private sector companies.

Even though most of the for-profit investments are steered for edtech companies, and public education has made massive investments in ICT in schools, this has not yet resulted in the hoped-for transformation of educational practices. Even though digitalization offers huge potential for fostering and enhancing learning, the impact of it on education has been shallow (OECD 2016).

Transformation might not have happened because there have not been powerful strategies for increasing teachers' ICT skills, improving teachers' professional development and reforming pedagogies (OECD 2016). All of these factors were pointed out as categories missing educational innovation by Brookings (2017).

Based on Metaari's analysis, education technology investments rose to a new record of $9.52 billion in 2017. 813 different companies received funding, and edtech investments were up 30% from 2016. Since 1997, education technology companies have received $37.8 billion of investments, and 62% of those dollars were invested during the last three years (Schulman 2018).

Most of the investments targeted education markets in US and China, as expected, but there was also a dramatic spike in the investments made to companies in the UK, the Nordic Cluster, and Israel (Metaari 2018). The Global South is also seeing a substantial increase in edtech investments in Africa, particularly for start-ups in South Africa, Kenya, and Nigeria (Puskar 2018). The lack of an affordable or accessible formal education sector means the people of Africa can be the most enthusiastic adopters of learning technology (Martin 2017).

Yet although 2017 was a record year for investment in edtech, only a small amount went towards primary and higher education. Pre-K12 companies got 13% of the overall investment ($1.2 billion), and higher education companies received 8% ($682 million) (Puskar 2018). This same insight was stated in the OECD (2015) report. Higher education shows the greatest innovation intensity, where secondary and primary education have approximately similar lower levels of innovation.

Investments made to Pre-K12 companies spiked in 2015, but then leveled off in 2016 and 2017. Investors have focused on companies selling legacy products and managed services in this academic segment (Metaari 2018). Given these numbers

are a small fraction of total investments, small education start-ups may find it quite challenging to get in front of the right people in a school district (Schulman 2018).

These findings reveal a focus shifted from education occurring in schools and classrooms, with a large sum of the investment going instead towards "consumer-" and "corporate-focused" learning companies. Products designed for consumers are the most concentrated revenue opportunities for suppliers and investors are clearly aware of this. For example, Metaari analysis pointed out that Chinese educational robot company ROOBO have attracted over $500 million of funding during the last two years. They produce consumer products which can help cognitive development and encourage young children to be proactive learners.

Furthermore, Metaari's (2017) analysis show that there are the following investor preferences:

1. Edtech companies that are selling products that integrate a range of new technologies including cognitive science, artificial intelligence, mixed reality (augmented reality & virtual reality), and neuroscience interest investors the most.

2. Many investors are looking for products and services which incorporate brain plasticity and the latest findings in cognitive science.

3. Mixed Reality Learning products are still relatively new for the market and they are incorporated with advanced simulation (mostly in higher education and corporate learning products).

4. Mobile learning and location-based learning products have been on the market for over 10 years and they are now benefiting from current device capabilities.
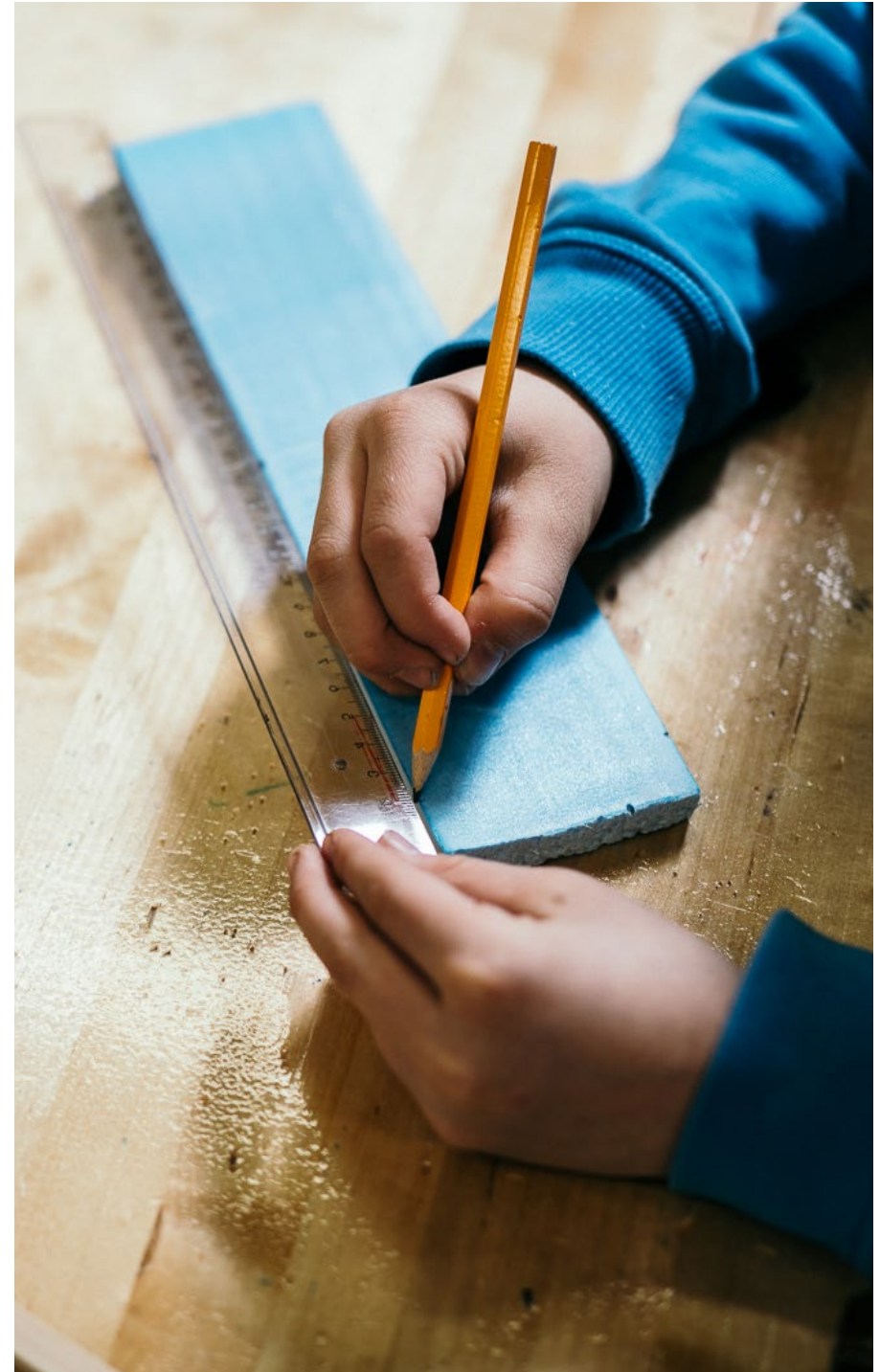
The Impact Of Education Investments

Investments in education tend to be small, short-term, and uncoordinated. Furthermore, they often are directed towards children and youth in middle-income societies, with few investments benefitting the most marginalized groups. (United Nations Global Compact. 2015).

Only 23% of companies measure outcomes and impacts of all their education investments and grants. Based on CECP 2014 'Giving in Numbers' report, 76% of companies track the societal outcomes and impacts of their grants, with only 18% tracking these outcomes for more than five years.

Still, most corporations are do not evaluate outcomes for every single investment, but rather focus on the ones which are aligned with company priorities or meet a specific threshold amount. The most common threshold value in the CECP 2014 survey was $100,000. The companies that measured outcomes and impacts worked with fewer nonprofits and approved less grants than others. (CECP 2014).

Percentage of Companies that Measure Outcomes/ Impacts for All Grants

Percentage of Companies that Focus on Outcomes/ Impact Evaluation on Spesific Grants

23%

77%

METHODS FOR FOCUSING EVALUATION

12% — Only grants to a spesific cause area

47% — Only grants made for a strategic philanthropic program

17% — Only grants larger than a threshold AND to a spesific cause area

24% — Only grants larger than a spesific threshold

Figure 1: CECP 2014: Evaluation Techniques

According to UNESCO (2013), companies can affect education on three different levels:

1. Core Business

2. Social Investment & Philanthropy

3. Advocacy and Public Policy Engagement

Companies can make their contributions by themselves or they can work more efficiently through partnerships – education itself is seldom a part of the company's core competencies. The investment strategy should include the nature of the potential long-term impact. Immediate evidence might be difficult to show, therefore investments need to be sustained in the long term in order to achieve the intended impact (PwC 2014).

THREE-PART PROCESS FOR ENGAGEMENT

The UN suggests the following 'Three-Part Process For Engagement' for companies interested in investing in education (UNESCO 2013). The model consists of parts titled 'Make the business case', 'Identify activities' and 'Be smart', and begins by making the business case. The idea is that the reason to engage in education should align with a long-term growth and business strategy, and also focus on the company's core issue areas for (social) investments. The UN model offers the following five drivers to support education while benefiting business. Every driver creates business value (e.g. growth, cost-reduction, profitability) from engaging in education activities. After each driver, the company should identify activities that realize business benefits and solve education challenges in line with local needs. The third part of the model is 'to be smart'. In general that means that the company ensures responsible social engagement. Activities should be sustainable, scalable, and aligned with local needs.

Some examples of value creation based on the UNESCO (2013) guiding document are listed below:

Foster innovation in education, including for example:

a. Identify activities that help deliver social and business values. Pilot new, open source practices and technologies that may improve education for hard-to-reach communities

b. Apply design thinking and develop low-cost learning materials which can be used by under-resourced schools

c. Identify innovative products by supporting competitions for educational entrepreneurs and commercializing successful ideas.

d. Support innovative teaching methods and tools that foster creative and entrepreneurial thinking

e. Leverage analytical expertise to develop tools that measure the impact of education programs.

Address operational risks, for example:

a. Do not utilize child labor in any form

b. Consider the impact of business operations on education

c. Leverage business expertise or share inner talent to support public education

d. Ensure that learning environments are clean and safe

e. Partner with local school meal programs which provide support poor households to send their children to school

Improve brand leadership and enhance corporate reputation, for example:

a. Use cause-related marketing campaigns to align your brand with education

b. Invest in programs that support socio-economic movement inside your company, such as those that prepare individuals from marginalized groups to take on leadership roles

c. Share the company's education activities and outcomes in corporate responsibility reporting

d. Offer cash donations to education organizations that reflect the company values and demonstrate a record of sustainable social impact

Boost employee morale and retention, for example:

a. Create employee gift matching through giving campaigns to subsidize & support education needs

b. Permit employees to innovate products and services for education during work hours

c. Encourage employees to coordinate volunteering opportunities that advance education causes

| Develop the capacity of future employees, for example:

a. Identify current and future skills needed in the labor market, and design and implement appropriate training programs

b. Expand apprenticeship opportunities

c. Invest in basic education in emerging markets to improve the future talent pool

IMPACT ANALYSIS FRAMEWORK

The PwC Impact Analysis Framework (2014) addresses the education investments more from the company's point of view than the UN Three-Part Process For Engagement. Its main target is to outline the intended impact the company wants to achieve.

Organizations define 'impact' in various ways, and they measure different indicators depending on their definition of the impact. Some organizations may see impact in education as more of a 'philosophical' term, while another organization may define impact in terms of project assumptions and objectives. The PwC (2014) framework defines the impact more in business terms:

"Impact is the direct tangible difference on business and society by an education intervention".

The implementation of the framework is based on four questions with set indicators.

1. What is the impact companies want to have by investing in education?

Potential Types of Impact on Society	Potential Types of Impact on Society and Business	Potential Types of Impact on Business
1. ACCESS TO EDUCATIONAL OPPORTUNITY	4. DEVELOPMENT OF A SKILLED WORKFORCE	7. BRAND DIFFERENTIATION
2. LEARNING OUTCOMES	5. EFFICIENCY OF EDUCATION COLLABORATIONS	8. EMPLOYEE RETENTION AND MORALE
3.STRENGTHENED EDUCATION SYSTEMS	6. COMMUNITY SOCIAL AND ECONOMIC DEVELOPMENT	9. PROFITABILITY
		10. BUSINESS RESILIENCE

2. Which investment opportunities can achieve these types of impact?

Organizations can steer their investments in different ways. Examples of these possibilities are:

a. **Direct Programming**;
Interventions that directly deliver education with the goal of improving learning

b. **Educator Training**;
Training and skill development of educators

c. **Product Development**;
Physical goods, products and services developed to improve learning. The product may also be sold on the market, but it's not the intention or main objective of this investment.

d. **Infrastructure**;
The built environment and technology for accessing education

e. **Policy Change**;
Investing in education policy change through support for advocacy. Who are the intended beneficiaries of the company's investment?

What are the potential indicators to assess the impact of investment?

After the company has made its decisions for the first questions, it has to choose what kind of indicators can be used to assess and understand the impact of the investment. Indicators should be chosen carefully so that they lead to a macro-level understanding of the impact, so that the company can achieve strategic, data-driven results in the long term.

Sample indicators can be, for example:

1. **Access to educational opportunity**
These can vary from access rates to number of out-of-school children, from the the distance to the nearest school for students to overall financial contributions towards increased access to education. The main idea of these indicators are to measure how the educational opportunity is happening in the specific context or in the region (PwC 2014.).

2. **Learning Outcomes**
Learning outcomes can be understood through evidence of high-quality teaching and learning materials and by assessing how suitable the learning materials are for the context (PwC 2014). Access to high-quality educational materials and innovations are not enough alone, but they should be accompanied with demonstrable evidence of implementation and learning results (HundrED 2018b).

3. **Strengthened education systems**
The weaker education systems are usually under resourced, might not have up to date curriculums or system-wide educator training (Brookings 2013). To support this kind of a system organizations can support educator certifications or accreditations and demand transparency of financial allocations to schools. System level performance can be also improved through knowledge sharing within education systems. However, this kind of activity should be then also further tied up with similar factors than in the first group, like student enrolment rates and number of out-of-school children, to fully understand the effect. (PwC 2014.)

4. **Development of a skilled workforce**
   OECDS (2017) skill surveys indicate that there are challenges providing sufficient skills for students prior to them entering working life. Some students even indicate that they do not find school meaningful for their future needs. From an employer point of view, mastery of knowledge and skills are relevant to meet labor demands when students eventually enter working life. The PwC framework suggests that organizations look into school completion rates and job placements rates for graduates if they are interested in supporting this kind of an initiative. (PwC 2014.)

5. **Efficiency of education collaborations**
   Most of the education innovations are made by not for profit organizations. These organizations depend on financial contributions shared by public and private organizations. (Winthrop & McGivney 2017.) The efficiency of these organizations is suggested to be measured through the number of beneficiaries reached through investments and by looking into the change in perception and attitudes. In some cases brand recognition or reputation can also be used as a part of external evaluations. (PwC 2014.)

6. **Community social and economic development**
   Social impact can be very difficult to measure. If an education investor or grant-giver supports this kind of approach they should be very mindful of their actions not to be seen affecting education in a neoliberal way (Ball 2004). Suitable measurement factors could be, for example, attendance of the community members in education decision making, the number of (positive) changes in community policies and also the amount of money co-invested by the community for education (PwC 2014).

7. **Brand differentiation**
   The CECP 2014 and 2017 reports highlight education as one of the most important grant-giving areas for organizations. The benefit is explained through positive brand visibility and awareness. Furthermore, organizations can showcase their employee (volunteer) participation rate in education investment processes and show their business leaders as education champions (PwC 2014.).

8. **Employee retention and morale**
   In the PwC 2014 framework the employee retention and morale section is very similar compared to the UNESCO 2013 guiding document. In addition it mentions changes in the employees' individual commitment towards the employer's values and possible improvements to their own performance through this positive impact (PwC 2014).

9. **Profitability**
   Even though most of the education innovations are not for profits, their profitability should not be overlooked. If education innovators are not able to reach long term sustainability they are always dependent on external funding. Therefore, the PwC framework suggests investors look into business factors like revenue growth, key markets and how they are utilized, and also research and development factors to reach growing revenue and increased number of students benefiting from the product or service. (PwC 2014.)

10. **Business Resilience**
    Business resilience should be look at from investor and beneficiary point of view. Transparency of community engagement efforts and compliance with regulations for health and safety are crucial. Also the adherence to government policies and frameworks should be advised. (PwC 2014.)

    From education innovator point of view, it's important to understand what kind of factors education investors and grant-givers are looking for with their investment. In the literature review it can be found that there are suitable and well thought impact factors for different education innovations, however there seems to be a gap in the implementation. Simultaneously education investors do not always measure the impact of their investment (CECP 2014), the impact can be understood in multiple ways (PwC 2014) and education innovations do not have in-depth models for measuring their outcomes (Winthrop & McGivney 2017). In the following chapters researched education innovations are analyzed from these factors.

Research Results

Overview To The Innovations

38% of respondents to our research questionnaire identified themselves as not-for-profit organizations, forming the biggest group of respondents in the survey. In the Brookings report, 62% of education innovations were identified as NGOs (Winthrop 2017, 95), but the comparison can't be made directly, since the Brookings report categorized innovations in only three categories; NGOs, Private sector companies and Governmental initiatives,whereas this report identifies other niche groups among such organizations.

The second largest group responding to the survey were educator-led classroom practices (16%), which can be seen as micro-entrepreneurs or micro-NGOs, depending on their funding strategy. If we combine NGO and educator-led classroom practice respondents together they represent 54% of all innovations.

When looking at the companies contributing to education innovation (29%), their responses are divided between for-profit organizations (18%) and social enterprises

(11%), whereas 26% of all education innovations listed by Brookings were made by private sector companies (Winthrop 2017, 95). Therefore, the results relating to private companies are well aligned with the Brookings findings.
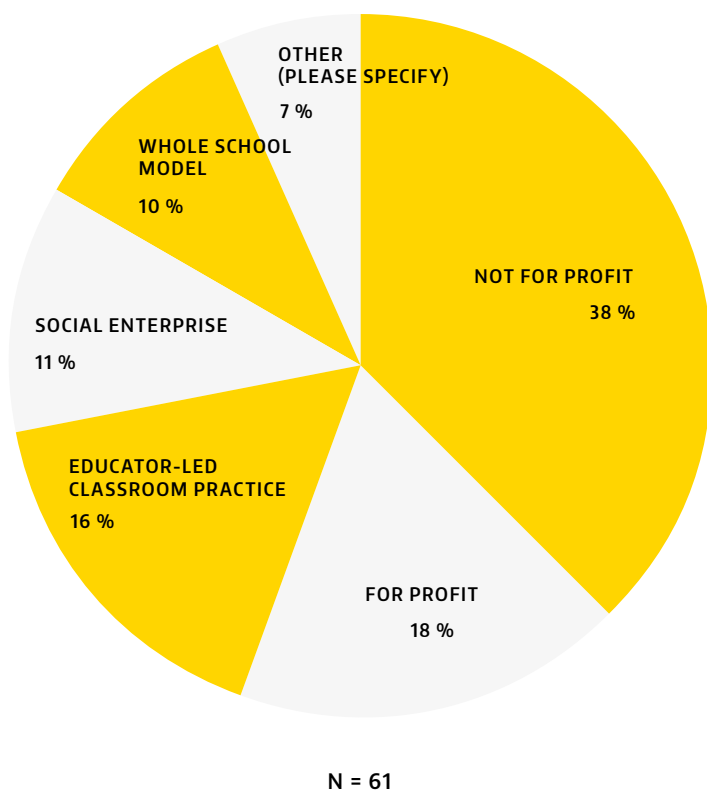
The fifth biggest group among the respondents were whole school models (9.84%) executed by both private and public schools. A whole-school model integrates the key aspects of school together and seeks to minimize the gap between planning and implementation. In practice, this means integrating teaching (curriculum) with the social and organizational (culture) and technical and economic aspects of school (campus) and community practices (Sterling 2013).

7% of respondents categorized themselves as something 'other'. These respondents described their organizations in the following way: United Nations Agency, a combination of not-for-profit and social enterprise, government initiative taken from (based on) innovation,

One respondent also found it difficult to be identified as 'for profit', commenting:

"'For profit' sounds wrong – we are on a mission to change behaviours in the way we learn."

(Other)

Figure 2: Innovation type

OTHER
(PLEASE SPECIFY)
7 %

WHOLE SCHOOL
MODEL
10 %

SOCIAL ENTERPRISE
11 %

EDUCATOR-LED
CLASSROOM PRACTICE
16 %

NOT FOR PROFIT
38 %

FOR PROFIT
18 %

N = 61

The HundrED Global Collection 2019 included 7% government led innovations, but none of these innovators responded to the research survey. This can be seen from two perspectives; considering the small amount of such innovations all of them might have missed the survey or as these innovations are resourced as a part of government their interest towards further funding needs is small. Since governmental initiatives did not provide any answers to this survey, the results can't be used to analyze or understand the funding needs of these organizations at all.

In the HundrED Global Collection 2019, all selected 100 innovations are categorized in the following way; 51 not for profits, 27 innovations for profits, 17 education led initiatives (this could be class/school/research based) and 7 government led initiatives (HundrED 2018). Comparing this information to the survey responses (Figure 2), it can be stated that the results follow a similar pattern to the Brookings report findings (Winthrop 2017, 95); with the largest group creating education innovation being not-for-profit organizations, followed by private companies.

The 61 respondents represented innovators from around the world. Asian education innovators formed the biggest group (31%) followed by European (28%) and North American (18%) education innovators. The smaller amount of education innovators replied from Australia/Oceania (8%), South America (8%) and Africa (7%).Respondents represented altogether 31 different countries. None of the HundrED selected innovators from the Middle East responded to the questionnaire.
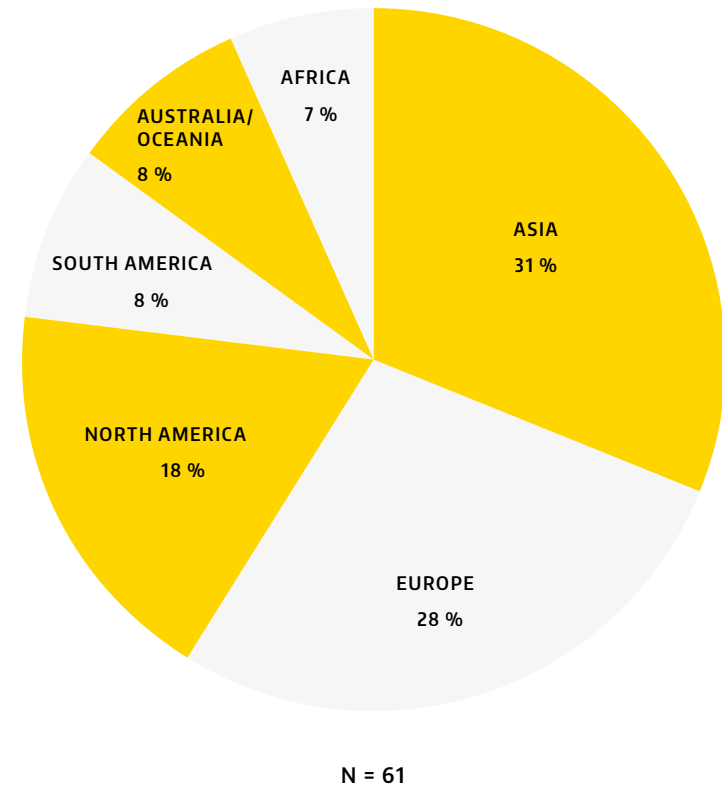

AFRICA 7 %
AUSTRALIA/ OCEANIA 8 %
ASIA 31 %
SOUTH AMERICA 8 %
NORTH AMERICA 18 %
EUROPE 28 %

N = 61

Figure 3: Continent

The Diffusion Phase of Innovations

The HundrED Global Collection list research criteria includes the 'scalability' factor. HundrED seeks to identify education innovations which have potential to be scaled up to further classrooms around the world. The findings of this report support a successful identification of such innovations. The biggest group of respondents identify their user acquisition phase as 'Getting new users quickly' (56%), followed by the second biggest group 'Getting new users slowly' (30%) (Figure 4).

The group 'Getting new users quickly' can be matched to the law of diffusion of innovations between early adopters and early majority; this period of innovation diffusion can be seen as a tipping point, where user implementation is significantly increased (Rogers 2003).

A smaller amount of innovators are in the earlier phase of the innovation diffusion spectrum; 8% of innovators are trying to identify their first pilot implementers, while 2% are starting to get their first customers. Approximately 5% of the innovations have a more stable clientele which is not changing in either direction. Interestingly, none of the innovations are losing users at the time of the survey (Figure 8).

On average, the respondents' innovations have scaled to 16 countries. Two out of 61 respondents have scaled to 100 countries, whereas some innovations were only used in their origin country of origin at the time of the survey (Figure 5).
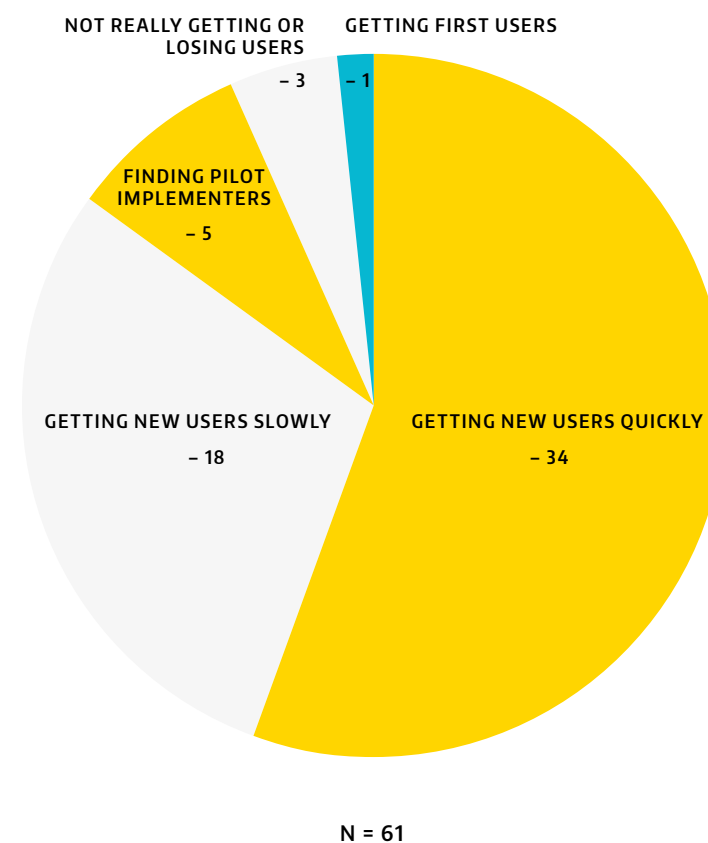

NOT REALLY GETTING OR LOSING USERS – 3

GETTING FIRST USERS – 1

FINDING PILOT IMPLEMENTERS – 5

GETTING NEW USERS SLOWLY – 18

GETTING NEW USERS QUICKLY – 34

N = 61

Figure 4: User acquisition phase

**AVERAGE NUMBER OF COUNTRIES
THE INNOVATION HAS SCALED TO**

16

Figure 5: Countries the innovation has scaled to

When innovators were asked to estimate the current amount of users the answers and their type varied a lot. Mostly whole school models calculated their users as school or classroom units, whereas other innovations calculated them as numbers of students or educators, or both. Out of 61 responses, four answers also mentioned indirect beneficiaries, like families and students influenced by the innovation, even though they were not seen as users.

Out of 61 respondents, 54 innovators also estimated the current number of new monthly users. The average number of new users was 44 in a month. However, this data can't be used for any further analysis since the units differ between innovations; some innovators calculate new users as individuals, whereas some as classrooms or schools.

For example, one innovator describes their user acquisition by saying:

"We're going through a boom at the moment – 50+ new schools join every day. We've also got a very exciting roadmap ahead to allow us to continue growing."

(For profit)

And another one:

"Starting in one school in East London, we have now established a national network of over 300 schools and 3,500 teachers covering all parts of the UK and beyond."

(Not-for-profit)

Where it seems that the user target group is clear for every innovator, some of them need to provide the biggest possible number to showcase the excellence of their work. For further studies questions 7 and 8 need to be reformed by identifying the primary user group to get better quality data, which can be compared together.

The PwC (2014) and UNESCO (2013) framework for education investment impact suggest strong interlinking between innovation monitoring and evaluation in order to steer education investments. Innovations selected for HundrED Global Collection 2019 are resourcing for monitoring and/or evaluating their work. Out of 61 respondents, only one has stated not to do any monitoring or evaluation.

Most of the respondents (39%) are carrying out internal evaluation, while 25% use independent external evaluation. Anecdotal evidence is used by 15% of innovators. The 'Other' group is interestingly big here, and shows further combinations of all stated ways of doing monitoring and evaluation for innovations, for example:

"A combination. Anecdotal evidence and research by our end users!"

(Whole School Model)

"Anecdotal evidence & Independent external evaluation"

(Social Enterprise)

"Internal evaluation (SAT, IB, AP scores) and also anecdotal (educators/learners/parents)"

(Educator-led Classroom Practice)

NO MONITORING OR EVALUATION
– 1

ANECDOTAL EVIDENCE
(E.G. QUOTES FROM
EDUCATORS / LEARNERS)
– 9

OTHER (PLEASE SPECIFY)
– 12

INTERNAL EVALUATION
– 24

INDEPENDENT EXTERNAL EVALUATION
(E.G. PUBLISHED RESEARCH)
– 15

N = 61

Figure 6: How is the innovation being monitored and/or evaluated?

Some innovations have created in-built monitoring and evaluation tools as described below:

"It has live-data reporting built into the program, capturing the students answers at a year level scale and providing educators with graph snapshots of their year level cohort"

(Social Enterprise)

"Anecdotal, qualitative and quantitative measuring of academic progress, confidence levels, teacher ability etc, semi structured interviews, teacher observations, white board forums, external evaluation."

(Not For Profit)

"1) Through the academic success of the graduates 2) Through the social approval that permits the use and expansion of the project 3) By the constant growth of the program"

(Not For Profit)
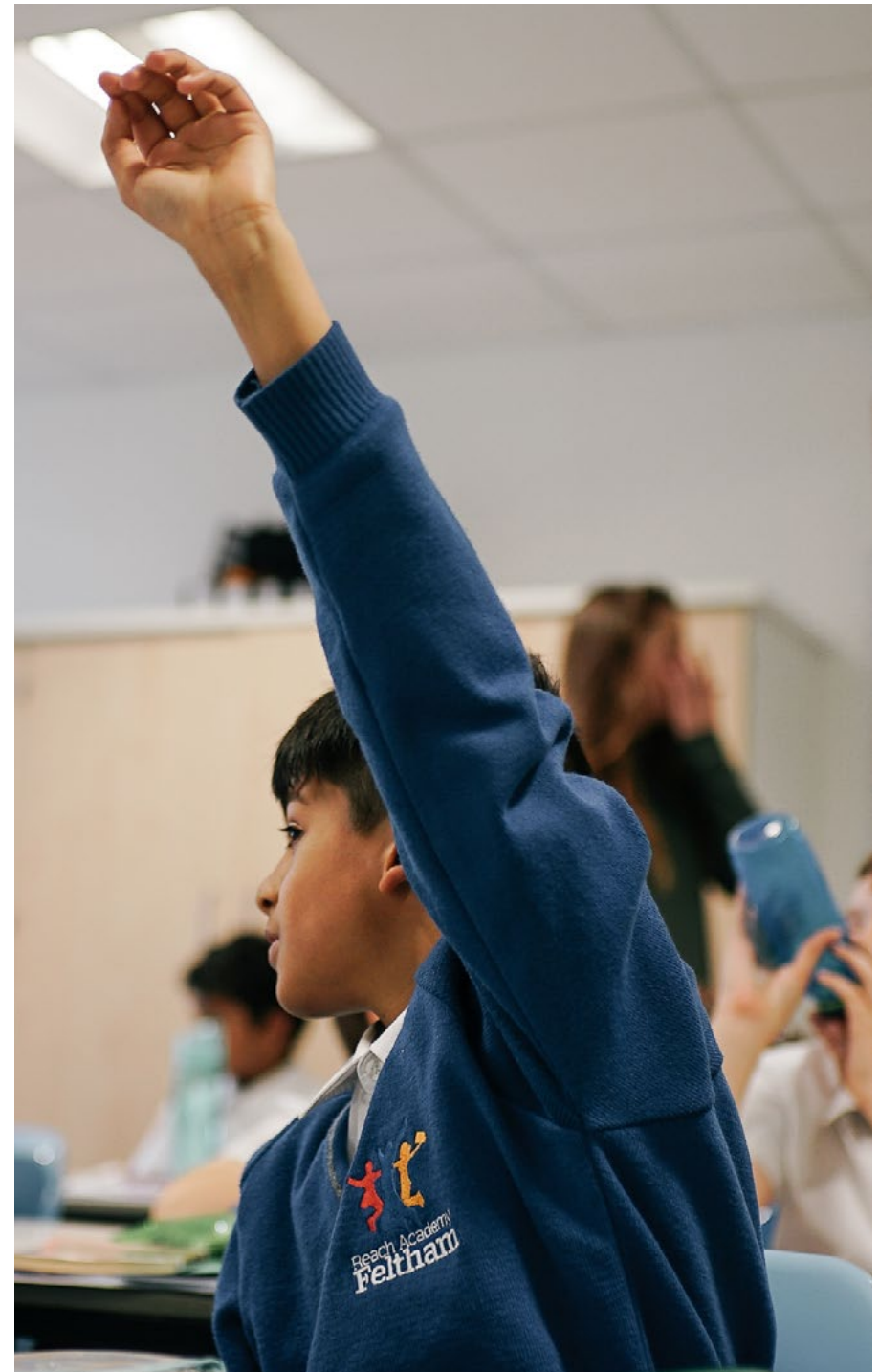
Funding Needs of Innovations

Most of the innovations are in the need of external funding. Based on the research results 62% of innovations were not profitable at the time of the survey. Only 38% of innovations have been profitable for five years at the most. None of the innovations have been profitable for over five years (Figure 7).

Innovations selected for HundrED Global Collection 2019 combine a variety of funding instruments together in order to keep operations ongoing. The majority of innovations (51%) are funded through donations/grants, followed by income from services and products (26%), and self financing (23%). Some innovations are funded through internal budgets as a part of a parent organization (13%). Only a small minority of innovations are using venture capital investments (7%) or governmental funding (5%) (Figure 8).

INNOVATION HAS BEEN PROFITABLE MORE THAN 5 YEARS – 0 ANSWERS
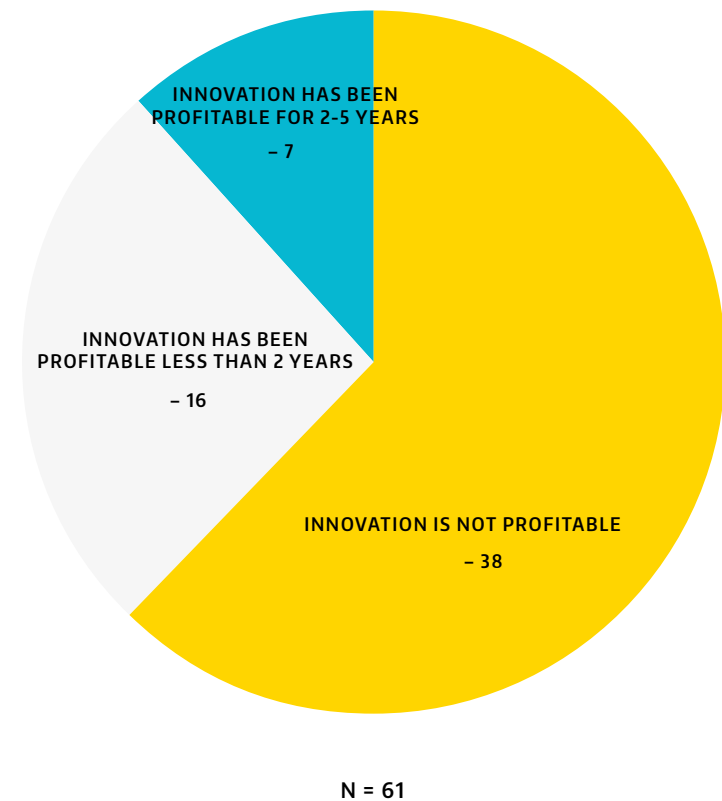
INNOVATION HAS BEEN PROFITABLE FOR 2-5 YEARS – 7

INNOVATION HAS BEEN PROFITABLE LESS THAN 2 YEARS – 16
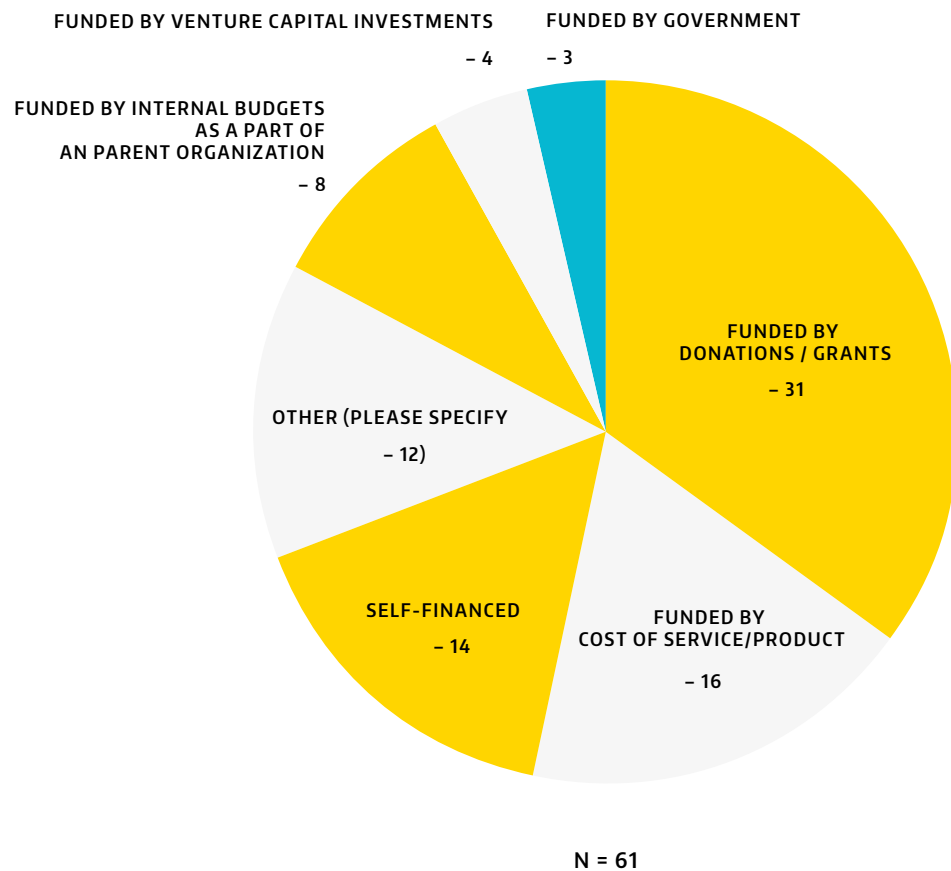
INNOVATION IS NOT PROFITABLE – 38

N = 61

Figure 7: Is the innovation profitable at the moment

In the Brookings report (Winthrop 2017, 95) it was stated that most of the innovations were combining 3-5 funding sources together. A similar kind of funding strategy can be witnessed by the innovators selected by HundrED. These complex funding structures are well presented in the 'Other' section, when innovators were asked to specify their current innovation funding situation:

"By government, Inter American Development Bank and by voluntary work."

(Other)

"Scholarship funds provided by external philanthropic/academic organizations."

(Other)

"[Innovation]'s income is split roughly evenly between governments (~33%), foundations (~33%), and unrestricted income from individual supporters, corporate partnerships, and fundraising campaigns (~33%)."

(Not For Profit)

FUNDED BY VENTURE CAPITAL INVESTMENTS
– 4

FUNDED BY GOVERNMENT
– 3

FUNDED BY INTERNAL BUDGETS AS A PART OF AN PARENT ORGANIZATION
– 8

FUNDED BY DONATIONS / GRANTS
– 31

OTHER (PLEASE SPECIFY
– 12)

SELF-FINANCED
– 14

FUNDED BY COST OF SERVICE/PRODUCT
– 16

N = 61

Figure 8: How is the innovation funded at the moment?

However, some innovations have more straight forward models:

"Through tuition - we are a private, non-profit international school."

(Educator-led Classroom Practice)

"Self financed and funded by cost of service."

(For Profit)

"As a social enterprise, we generate revenue from traded services in order to fund our educational programmes."

(Social Enterprise)

N = 61

Figure 9: Monetary resources

Most of the innovations (51%) were able to continue their operations for longer than 12 months. 23% of the innovations were able to operate over six months but less than 12 months, and 20% over three months but less than six months. Only 7% of innovations are in the immediate need of external funding with an operating window of less than three months (Figure 9).

Although the funding situation is not critical for half (51%) of the innovations, the other half of the innovations are looking for external funding within the next six months (49%) (Figure 9). 66% of innovations are looking for venture capital and 87% innovations are looking for grants and donations (Figure 10).

Furthermore, 40% of all innovators are looking for both venture capital and grant and donations within the next six months. When the groups are compared together, 92% of innovators who are looking for venture capital are also interested in grant and donations, whereas only 70% of grant and donation seekers are also interested in venture capital.
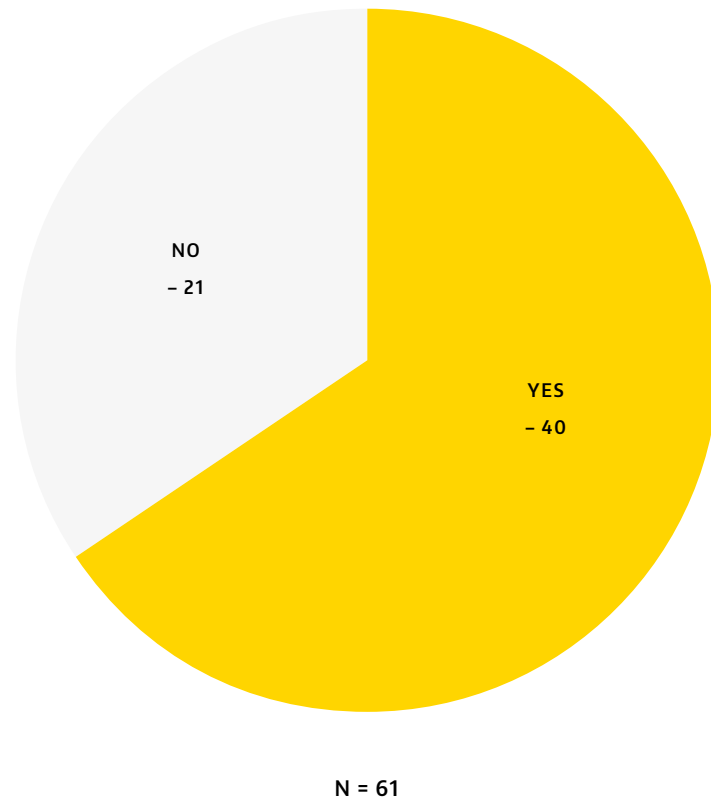

NO
– 21

YES
– 40

N = 61

Figure 10: Is the innovation looking for venture capital?

NO
– 8
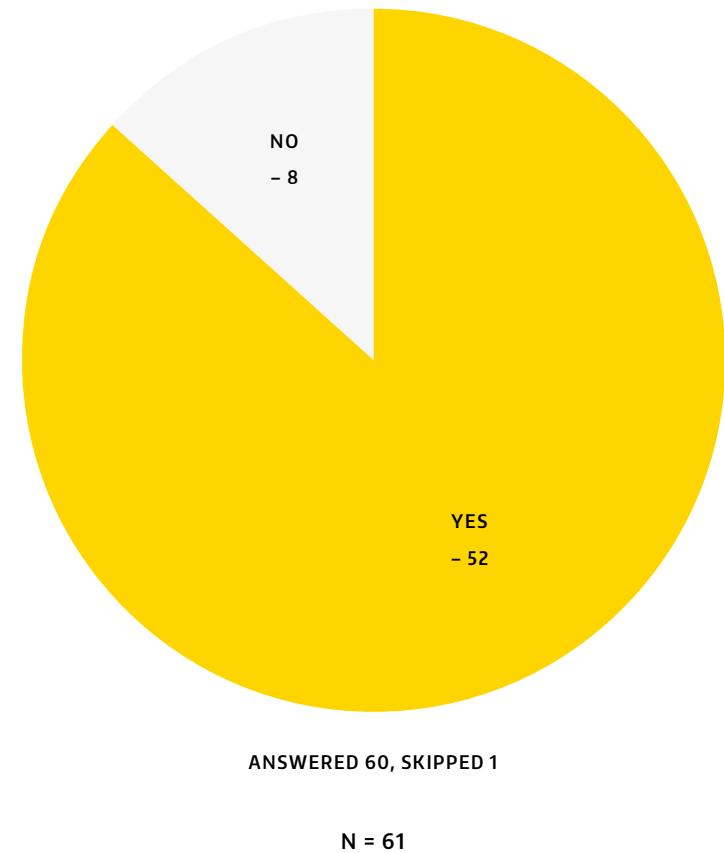
YES
– 52

ANSWERED 60, SKIPPED 1

N = 61

Figure 10B: Is the innovation looking for grants or donations within next 6 months?

Venture Capital Needs

The main reason to secure venture capital is to scale up the innovation (56%) or to develop the innovation further (13%), or for some other reasons (13%). A minority of the innovators are looking for resources for sales and fundraising activities (8%), or to gain additional resources to scale the innovation (5%). Market research, piloting, and lack of other income has been stated as a main reason by one innovator (Figure 11).

Based on the specified answers in the 'Other' section, most of the innovators are looking for venture capital to develop the innovation further, e.g:

"Development of new material, training and capacity building especially in the developing countries, set up of online learning platform."

(Not For Profit)

"Developing a new resource to underpin the present materials."

(For Profit)

The majority of investments (36%) looked for are between 100,000 to 499,999 USD, the second biggest group (28%) is for investments less than 100,000 USD. Interestingly, the third biggest group of investments (23%) looked for are between one million to five million USD, but none of the innovators are looking for moonshot investments over five million USD (Figure 12).

The investment need is divided in two majority groups of the same size; 44 % of innovators needs the investment within the next six months, and 44% after six months, but in less than 12 months.13% of innovators need the investment after 12 months (Table 1).

NO OTHER INCOME / FUNDING   MARKET RESEARCH & PILOTING
                      – 1   – 1

SCALING IS TAKING UP MORE
RESOURCES THAN PLANNED
– 2

SALES / FUNDRAISING
DO NOT COVER EXPENSES
– 3

OTHER (PLEASE SPECIFY)

– 5

SCALING UP INNOVATION

– 22

INNOVATION NEEDS
FURTHER DEVELOPMENT

– 5

ANSWERED 39, SKIPPED 22

N = 61
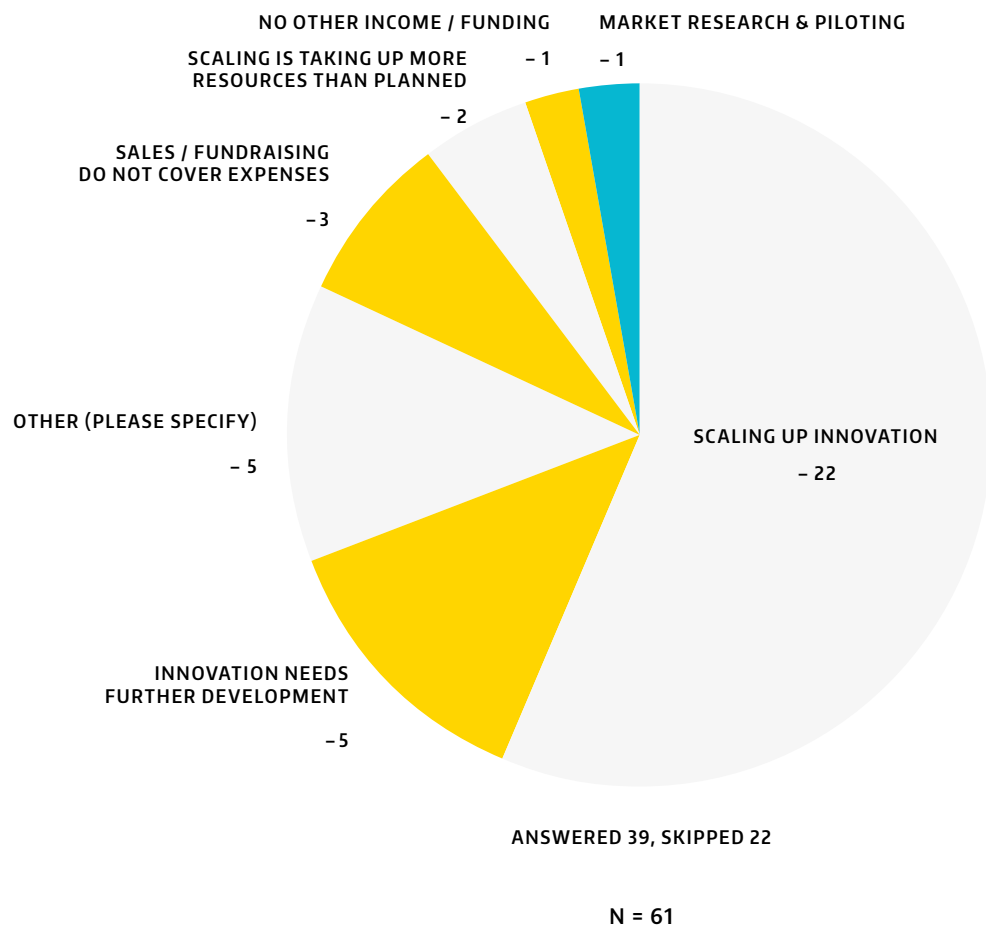
Figure 11: What is the primary reason for venture capital?

OVER 5 MILLION USD – 0 ANSWERS

500.000 - 999.999 USD
– 5

100.000 - 499.999 USD
– 14

1 MILLION - 5 MILLION USD
– 9

LESS THAN 100.000 USD
– 11

ANSWERED 39, SKIPPED 22

N = 61
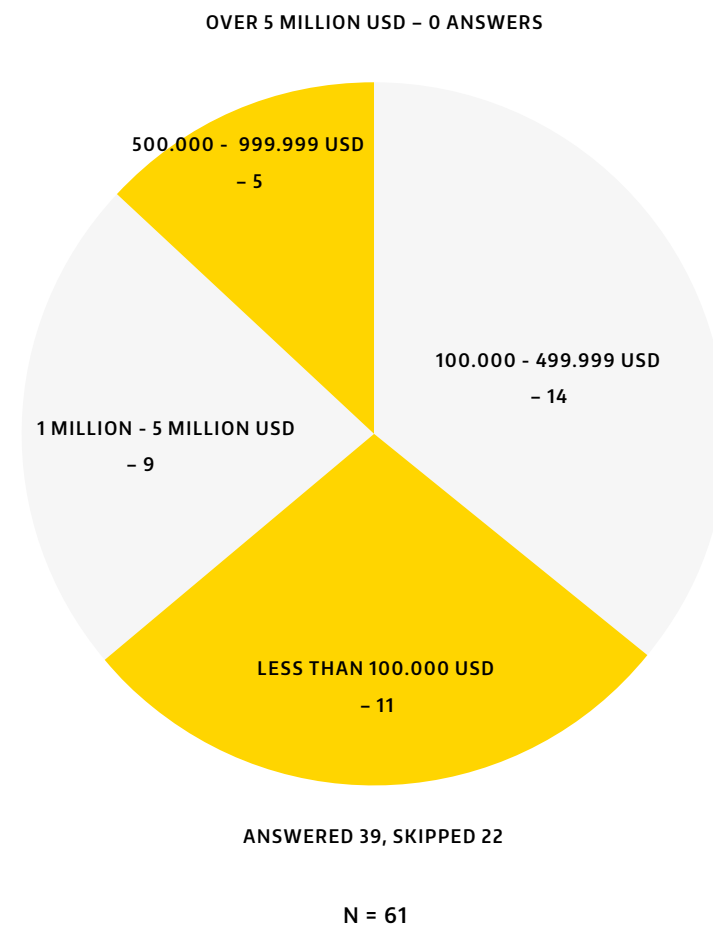
Figure 12: What is the size of investment you are looking for?

Answer Choices	Responses
IN THE NEXT 6 MONTHS	43.59%
AFTER 6 MONTHS BUT LESS THAN 12 MONTHS	43.59%
AFTER 12 MONTHS	12.82%

Table 1: Venture Capital / When is the investment needed the latest? All responses.

TEAM PRODUCTS INNOVATIVE SUPPORT DEVELOPING
TEACHERS WILL NEW DEVELOPMENT INNOVATION
SCALE EXPAND PROGRAM RESOURCES SALES
MARKETING SCHOOLS STUDENTS ONLINE FUND

Figure 13: Cloud view - How the (venture capital) investment would be used?

Based on the open question text analysis words development, scale, program and sales are mentioned most often in the answers (Figure 13). These words are mentioned in the answers, for example, in the following ways:

"Pay human resource for sale and program innovation."

(Not For Profit)

"Developing and strengthening the programme, new online teaching and learning tools for MOOC, alignment with the programme with the Sustainable Development Goals."

(Not For Profit)

"Recruitment of sales people (UK, USA, UAE), recruitment of customer engagement manager, market testing (consumer market in UK, USA), product development (Special Education features, consumer product). The capital will also help to unlock 500,000€ in innovation support from the Business Finland Young Innovative Company funding program."

(For Profit)

"Replicate language versions of the innovation, development more content and offer incentive for wise clicking online (monetizing and gratification of innovation), and innovative engagement of innovation."

(Other)

"Sales and marketing"

(For Profit)

"The investment will be used to build the team in business development so as to reach 100,000 users in the next 18 months with a revenue forecast of $5 million (USD)"

(For Profit)

"To fund operations, technology and sales teams."

(Social Enterprise)

49

Grant And Donation Needs

The primary reason for grant and donations is the same as with the venture capital funding; the majority of innovators (61%) are looking for funding to scale up the innovations, followed by the need to develop the innovation further (12%). The significant difference compared to the venture funding is that no-one is looking for grants and donations for sales and fundraising.

The amount of funding looked for is quite similar compared with the venture capital funding. The majority of innovators (43%) are looking for investment between 100,000 USD to 499,999 USD, followed by the second biggest group (25%) of investments at less than 100,000 USD. Interestingly, less innovators in total are looking for big investment tickets, but 4% of them are looking for investments over 5 million USD, whereas there were no innovators looking for such a money from the venture capital side (Figure 15).

NO OTHER INCOME / FUNDING
– 2

SCALING UP TAKES MORE RESOURCES THAN PLANNED
– 2

MARKET RESEARCH & PILOTING
– 3

INNOVATION NEEDS FURTHER DEVELOPMENT
– 6

OTHER (PLEASE SPECIFY)
– 7

SCALING UP INNOVATION
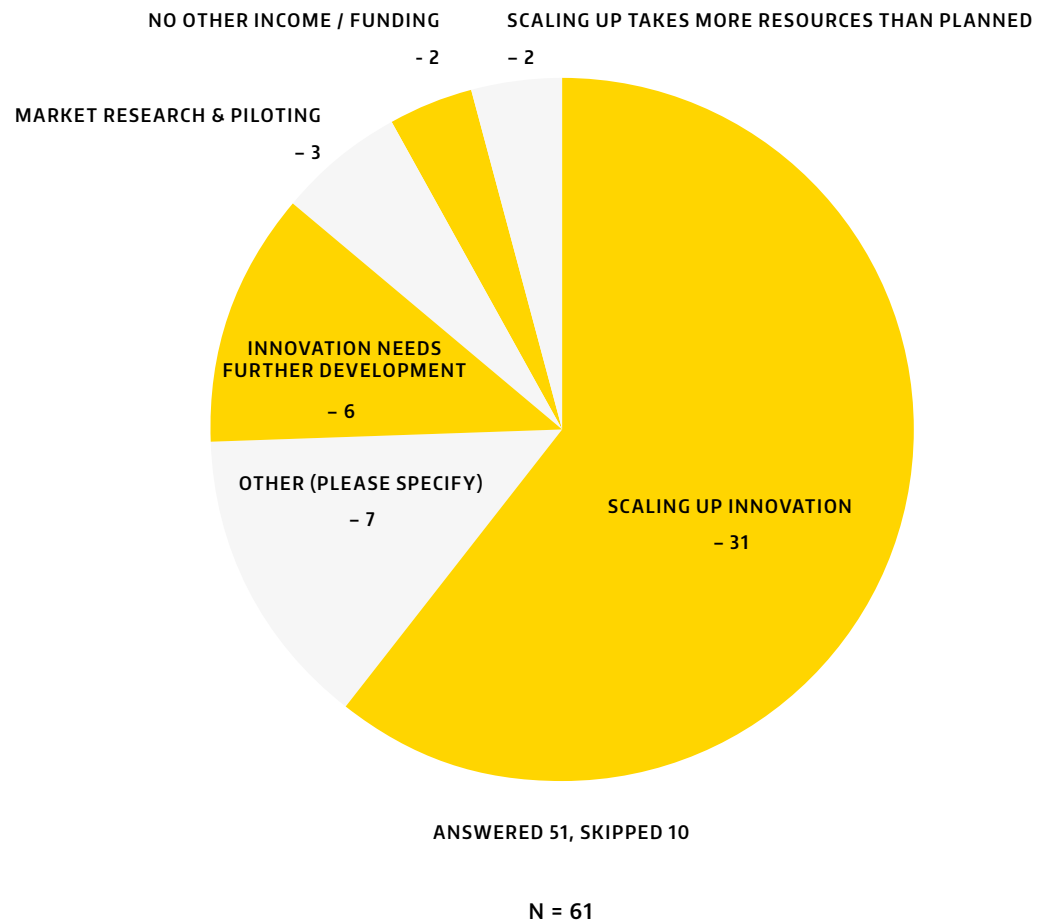– 31

ANSWERED 51, SKIPPED 10

N = 61

Figure 14: What is the primary reason for a grant/donation?

The urgency of the investments seems to be similar to that of the venture capital investments. A small majority (43%) are looking to receive the investment in the next six months, followed by 39% looking to receive the investment after six months, but in less than 12 months. 18% need the investment after 12 months.

In the grant and donation section it was also asked what type of grant or donation the innovator was specifically interested in. The majority of innovators were looking for a philanthropic grant or donation (41%), followed by Corporate Social Responsibility investment (20%), and Research grant (16%). The interest toward research grants was especially visible in the open text answers (Figure 16).
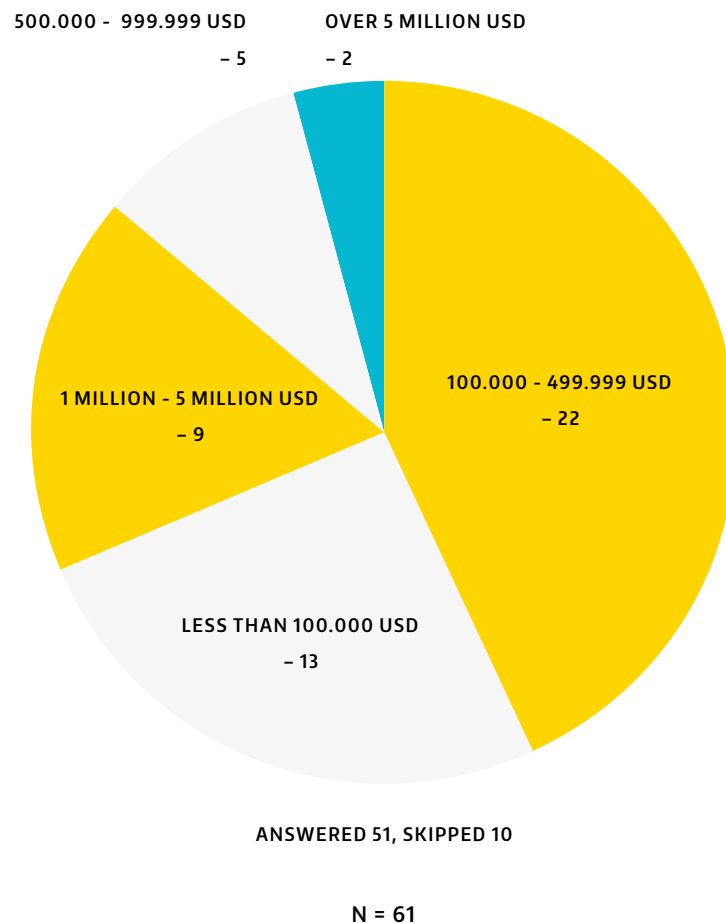

GOVERNMENTAL FUNDING – 4

RESEARCH GRANT – 8

PHILANTHROPIC GRANT OR DONATION – 21

OTHER (PLEASE SPECIFY) – 8

CORPORATE SOCIAL RESPONSIBILITY GRANT OR DONATION – 10

ANSWERED 51, SKIPPED 10

N = 61

Figure 16: What is the grant/donation type you are primary looking for?

500.000 - 999.999 USD – 5

OVER 5 MILLION USD – 2

1 MILLION - 5 MILLION USD – 9

100.000 - 499.999 USD – 22

LESS THAN 100.000 USD – 13

ANSWERED 51, SKIPPED 10

N = 61

Figure 15: What is the size of investment you are looking for?

Based on the text analysis on open answers how the grant/donation would be used the answers differ from venture capital usage. In the text analysis there is a higher density of development related topics, whereas in the venture capital analysis 'sales' was one of the key terms (Figure 13 & 17). Furthermore, answers state more actions towards student and learning impact instead of monetary achievements often mentioned in the venture capital section. This difference can be explained through the different nature of the funding.

STUDENTS DIGITAL SCHOOL MARKET BUILDING PROJECT
INNOVATION SUPPORT DEVELOPMENT
LEARNING SCALING USED PROGRAM CHILDREN
NEW FUND RESEARCH CONTENTS DEVELOP RESOURCES

Figure 17: Text Analysis Cloud / How the grant/donation would be used:

Examples of the answers:

"To develop 1-2 Innovation Labs ($45,000 USD each) - purpose built spaces for 200+ students filled with STEAM activities designed to encourage student creativity while encouraging these orphaned children to learn to believe that they can take big steps towards their dreams."

(Not For Profit)

"Development of materials and teaching/ learning platform based on research."

(Not For Profit)

"Scaling up the research that has done so far by inviting more researchers and extending the areas of interests."

(Educator-led Classroom Practice)

"The grant would be used to fund a parallel project with indigenous leaders in the field to create learning resources that detail indigenous understandings of sex, gender and sexuality diversity for young people. To do this effectively, a bi-cultural process is required, and this takes time and care. Funds are required to do video and animation production, and then follow up evaluation."

(Not For Profit)

"To carry out research with universities and employers on how the innovation can compliment a learners progress in these sectors."

(Whole School Model)

"The grant/donation will used to develop [innovation] to be useful in low resource settings, e.g. how can we use the power of artificial intelligence and augmented reality to empower teachers to get children ready and successful in primary school."

(For Profit)

Research Conclusions

Scaling Up Innovations Is The Primary Need

In almost all innovation groups, from educator led classroom practices to whole school models, scaling up innovations is the primary need for education innovators. The only exception to this majority is for profit organizations which are rather using grants and donations for improving their innovation (38%) than scaling it up (25%). However, also the for profit organizations are using venture capital mainly to scale up their innovations (50%), but also here improving innovation is clearly the second biggest group (25%).

When looking at the results more closely, some interesting smaller details are revealed. Looking at both venture capital and grant & donations, the need of funding in educator-led classroom practices is divided among multiple different needs. Among these innovators looking for venture capital innovation development is seen as important (25%) as scaling it up (25%).

Interestingly venture capital is not used at all for doing market research or piloting,

but grants and donations are used for this purpose among educator-led classroom practices and for profit organizations. Based on the results, in total it seems that among these two innovator groups the innovations are more likely still developing and they are eagerly trying to find a sustainable operational model. For example, these two are the only groups who are identifying lack of sales or fundraising as a primary reason for venture capital.

When looking at the other innovator groups they seem to have a clear need to use funding solely for scaling up. For example, all of the social enterprise respondents would use venture capital only for scaling up their innovation.

It can be also stated based on the results that grants and donations are used for wider needs than venture capital. That can be explained by understanding the nature of venture capital; as for profit investments innovators need to show growth and increased revenues to secure them.

Figure 18: What is the primary reason for venture capital?

Legend:
- Sales/ fundraising do not cover expenses (Total responses 2)
- Scaling up innovation (Total responses 21)
- Scaling up takes more resources than planned (Total responses 2)
- Innovation needs further development (Total responses 5)
- Market research & piloting (Total responses 0)
- No other income/funding (Total responses 1)
- Other (please spesify (Total responses 5)
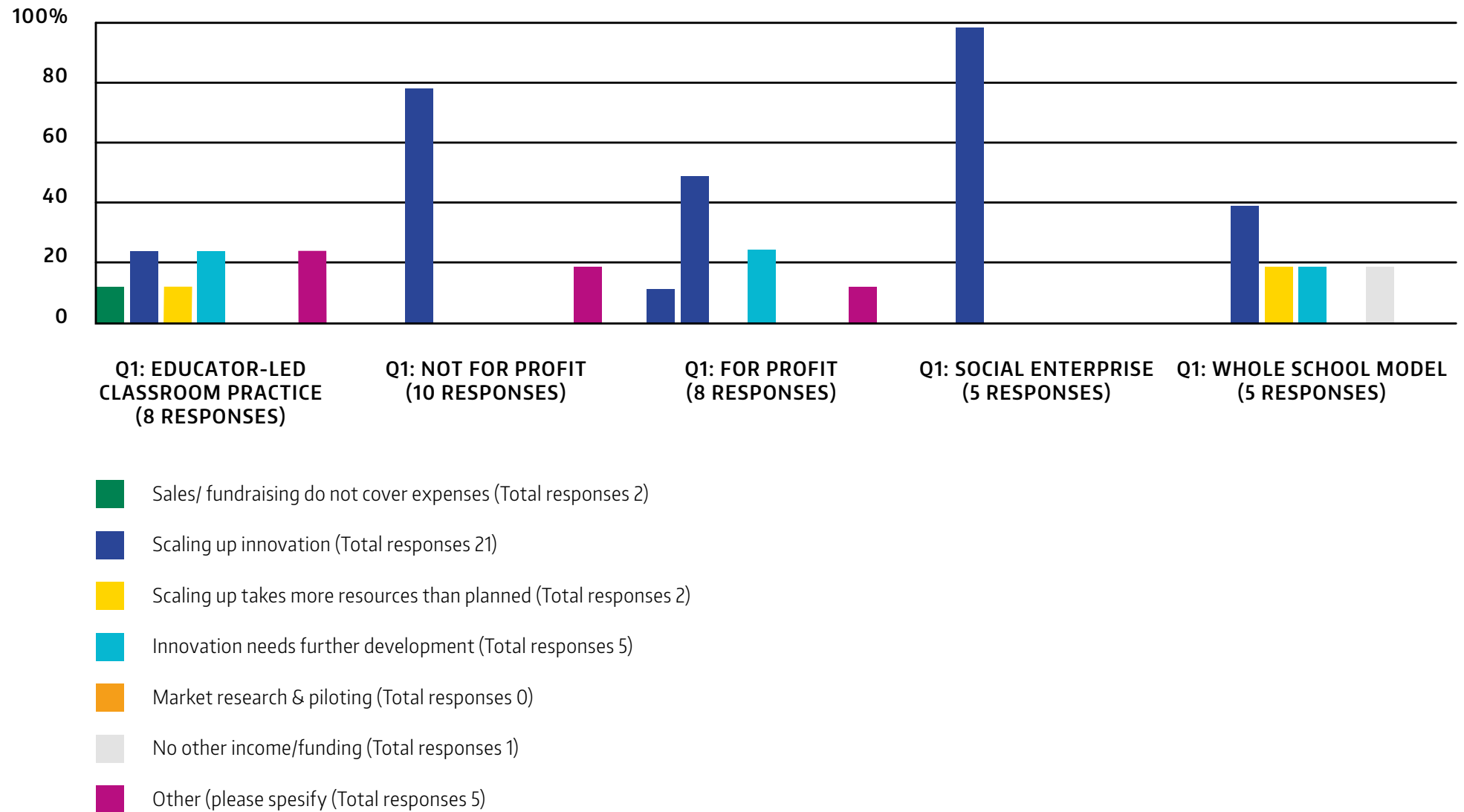
Figure 19: What is the primary reason for a grant/donation?

Legend:
- Sales/ fundraising do not cover expenses (Total responses 0)
- Scaling up innovation (Total responses 28)
- Scaling up takes more resources than planned (Total responses 2)
- Innovation needs further development (Total responses 6)
- Market research & piloting (Total responses 3)
- No other income/funding (Total responses 2)
- Other (please spesify (Total responses 6)
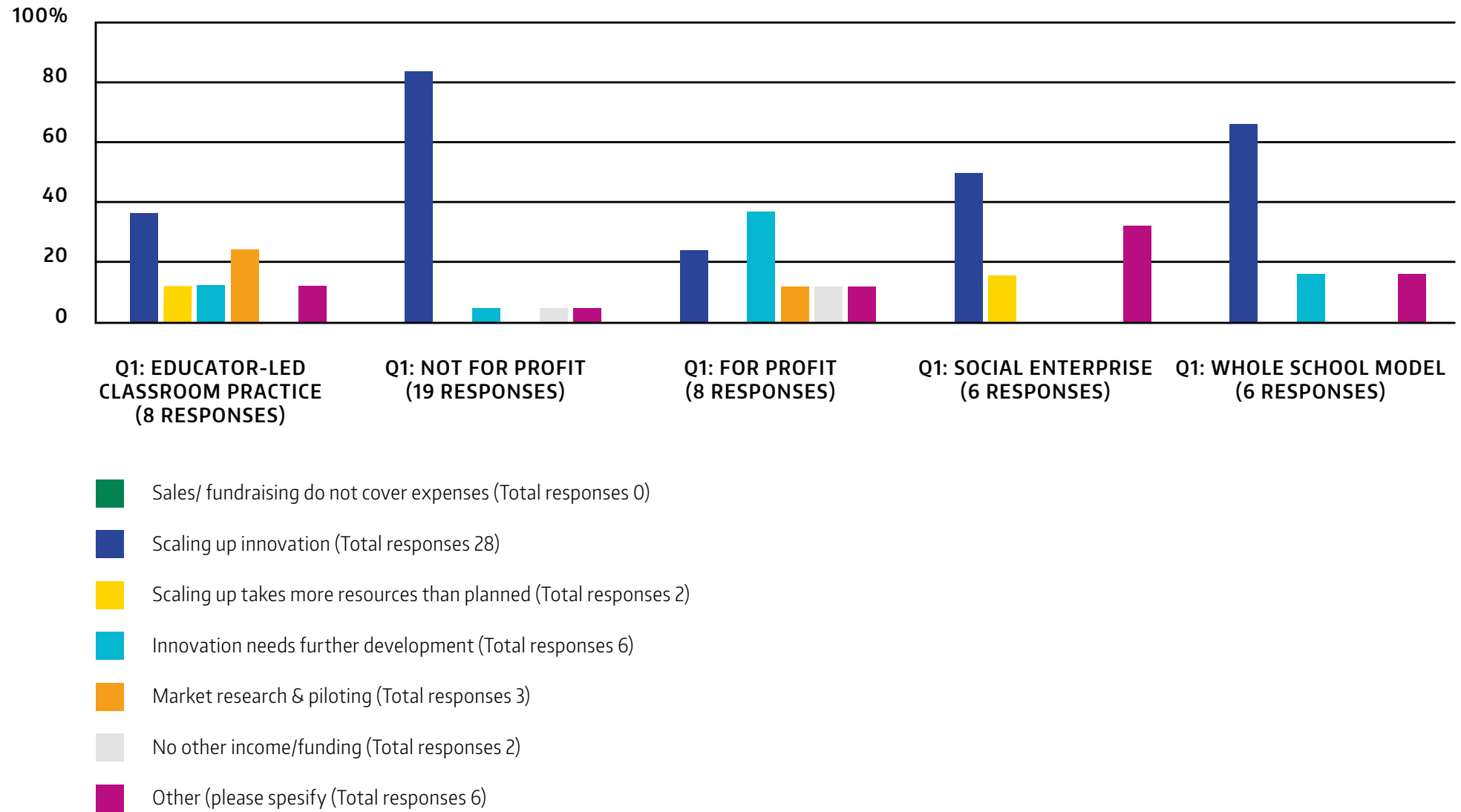
Funding Needs

When innovators are asked to explain how the investment would be used, there are big differences between innovators. Venture funding need is usually explained through outcomes, whereas actions are more of the focus when looking for grants and donations.

1) COMMUNICATING ACTION

Some innovators are explaining themselves through the vision and action they have, but not giving a very clear explanation of how the investment would affect educational outcomes in practice. Investing or donating money for this kind of actions can be justified through common values, but it will be very complicated for investors to understand what kind of an impact the investment is having, and how the outcomes can be measured.

Example 1:

"To host a gathering of 4000+ children from 100 countries in the city of Rome for 4 days. Children work on the 10 chosen SDGs will be showcased during the event. Companies will be invited to the event so that they can pledge the ideas to be taken to scale."

(Educator-led classroom practice / Venture Capital investment)

Example 2:

"The investment could be used to fund expanding programs in Afghanistan, Cambodia, and South Africa, but also to set up new project sites in Jordan and also Bamyan (which would be innovation's third School in Afghanistan)."

(Not For Profit / Venture Capital)

Example 3:

''The grant/donation will used to develop innovation to be useful in low resource settings, e.g. how can we use the power of artificial intelligence and augmented reality to empower teachers to get children ready and successful in primary school.''

(For Profit / Grants & Donations)

2) COMMUNICATING OUTCOMES

A minority of innovators explain the usage of investments through business terms, explaining how many people or organizations will benefit from the investment and how the investment is able to support the organization to achieve sustainable operations in the long run. Based on the PwC report (2013) innovators with this kind of competence and capability to explain their investment need are more likely to receive funding; investors are looking more for innovators who can be accountable for their actions and are able to demonstrate the return of the investment.

Example 1:

The investment will be used to build the team in business development so as to reach 100,000 users in the next 18 months with a revenue forecast of $5 million (USD)

(For Profit / Venture Capital)

Example 2:

To develop 1-2 Innovation Labs ($45,000 USD each) - purpose built spaces for 200+ students filled with STEAM activities designed to encourage student creativity while encouraging these orphaned children to learn to believe that they can take big steps towards their dreams.

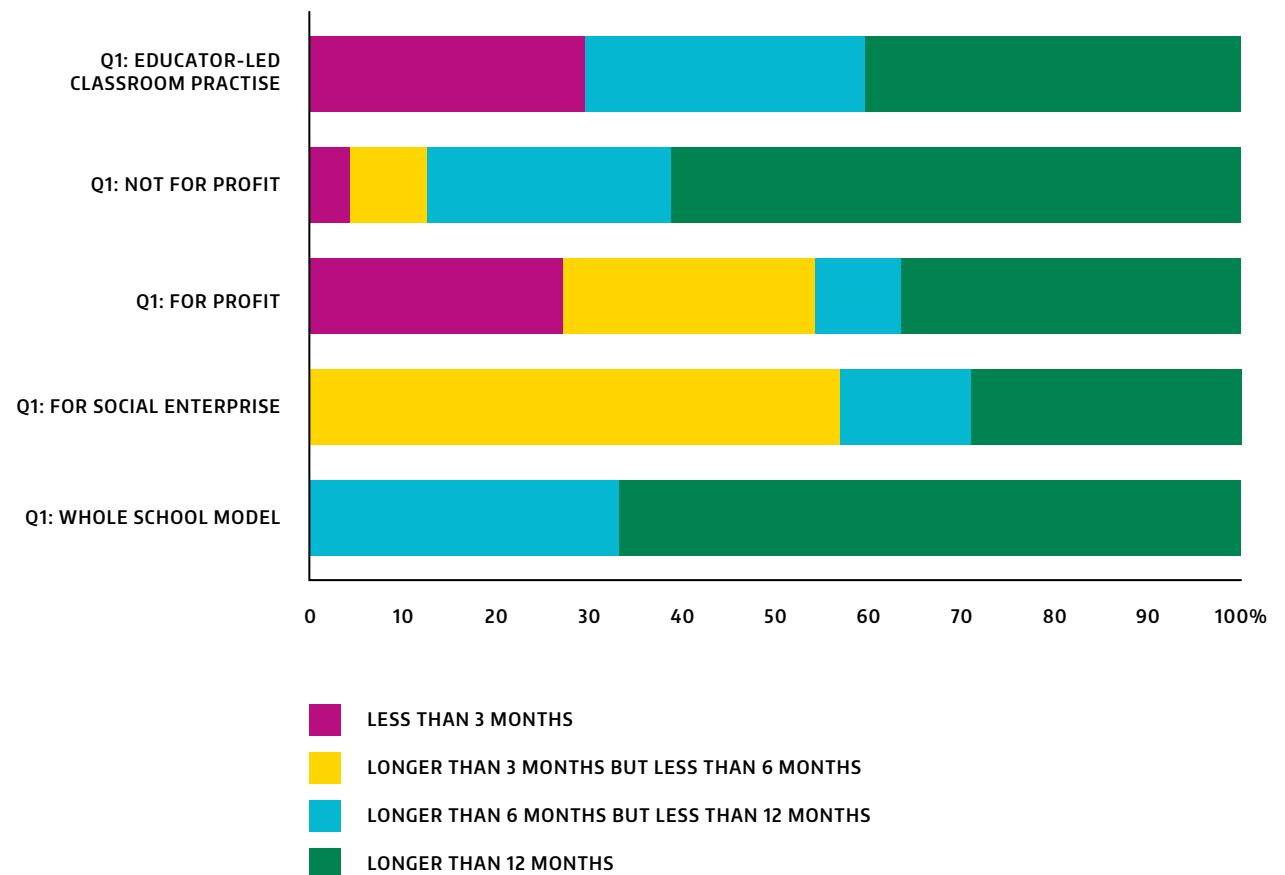(Not For Profit / Grants & Donations)

Example 3:

We are looking to launch campuses delivering pre-service teacher qualifications in both Kenya and South Africa. Investment is needed to fund infrastructure costs and staffing for years 1-3 until the venture becomes profitable.

(Social Enterprise / Venture Capital)

For Profits Cope With a Short Runaway

Based on the research results for profit organizations are operating with the tightest monetary resources; 27% of them can operate with the current monetary resources less than three months, while 27% of them can operate longer than three months but less than six months (Figure 20). Sudden costs and changes in the cash flow may be critical for these organizations. The struggle for balancing their cash flow is also seen through their need of investment. 75% of them need venture capital investment within the next six months and 63% of them need the grant or donation within the next six months. The most commonly wanted investment in this category is between 100,000-499,999 USD for both venture capital investments (50%) and grant & donations (63%).

Figure 20: Monetary resources

Legend:
- LESS THAN 3 MONTHS
- LONGER THAN 3 MONTHS BUT LESS THAN 6 MONTHS
- LONGER THAN 6 MONTHS BUT LESS THAN 12 MONTHS
- LONGER THAN 12 MONTHS

Even though the time window for receiving additional funding may be short, innovators in this category seem to be optimistic.

We have the product, impact and growing profile meeting a real and growing need.
We could not have made the innovation we wanted to without choosing to be a for profit company as we could not access seed or early development funding.

However, some of them might face product-market fit challenges when trying to identify suitable investors:

There is a huge need of funding opportunities for a company like ours to scale up the business. Too big for angels but a bit too small for VC:s.

There is only one group of innovators which is in greater need of a quick investments. Social enterprises have the highest demand to receive the investment within the next six months; 80% for the venture capital investments and 67% for grants and donations. However, this group of innovators have a more stable monetary situation than for profits – a majority of social enterprises (58%) can operate between three to six months with their current resources. Likewise, for profit organizations and social enterprises are mainly looking for investments between 100,000-499,999 USD as a venture capital investment (40%) and as grant & donations (67%).

Some of the social enterprises might find it difficult balancing between public and private systems and markets. They explain their situation in the following way.

Education investments and grants are mostly targeted at govt. partners and are seldom focused on private organisations. This is a major challenge.

We're very much feeling that we're ahead of [country's] school curriculum, with schools hesitant to take up the tech-based offering over a F2F workshop. That being said, the schools who do complete the online program repurchase.

We're eager to learn how to present our innovation to receive funding

Whole school models sit at the other end of the spectrum by having the most hefty resource situation. A majority of them (67%) can operate longer than 12 months with the current monetary resources. Even though monetary resources are well balanced, these innovators seem not to look for big venture capital investments; 40% are looking for investments under 100,000 USD and 40% investments between 100,000-499,999 USD. A similar trend is witnessed among those seeking grant & donations, with 33% looking for investments under 100,000 USD and 67% of investments between 100,000-499,999 USD. However, the more secure financial situation can also be read from further comments.

We have scaled locally in [state] through the help of foundation grants and have secured a government grant to continue dissemination between public schools in [state] in 2019-2020. We seek other grants (or CSR money, though that might be more difficult to secure) to scale nationally and globally as we build a model that offsets our costs, otherwise we will need to charge sizeable fees which only select schools would be able to afford.

	Less than 3 months	Longer than 3 months, less than 6 months	Longer than 6 months, less than 12 months	Longer than 12 months	Total
Q1: EDUCATORED CLASSROOM PRACTICE	0.00% (0)	30.00% (3)	30.00% (3)	40.00% (4)	17.54% (10)
Q1: NOT FOR PROFIT	4.35% (1)	8.70% (2)	26.09% (6)	60.87% (14)	40.35% (23)
Q1: FOR PROFIT	27.27% (3)	27.27% (3)	9.09% (1)	36.36% (4)	19.30% (11)
Q1: SOCIAL ENTERPRISE	0.00% (0)	57.14% (4)	14.29% (1)	28.57% (2)	12.28% (7)
Q1: WHOLE SCHOOL MODEL	0.00% (0)	0.00% (0)	33.33% (2)	66.67% (4)	10.53% (6)
TOTAL	4	12	13	28	57

Table 2: Funding urgency

Educator-led Classroom Practices Differ From Others

Educator-led classroom practices differ from other groups. Often these innovations have not been yet scaled to multiple countries, and they tend to operate closer to their origin. For example, out of 10 respondents, seven were scaled to 10 countries or fewer. However, the average rose to 20 countries because of two respondents which were operational in 63 and 90 countries.

When looking at the majority of these educator-led classroom practices, they are seeking smaller investments than other groups. They are primarily looking for venture capital investments (63%) and grant & donations (50%) of less than 100,000 USD. The reason why they are mostly interested in the smaller investments might be tied up with their competence to communicate the impact of the investment.

NO MONITORING OR EVALUATION (0 RESPONSES)

OTHER (PLEASE SPESIFY) 10 %

INDEPENDENT EXTERNAL EVALUATION (E.G. PUBLISHED RESEARCH) 20 %

ANECDOTAL EVIDENCE (E.G. QUOTES FROM EDUCATORS/LEARNERS 40 %
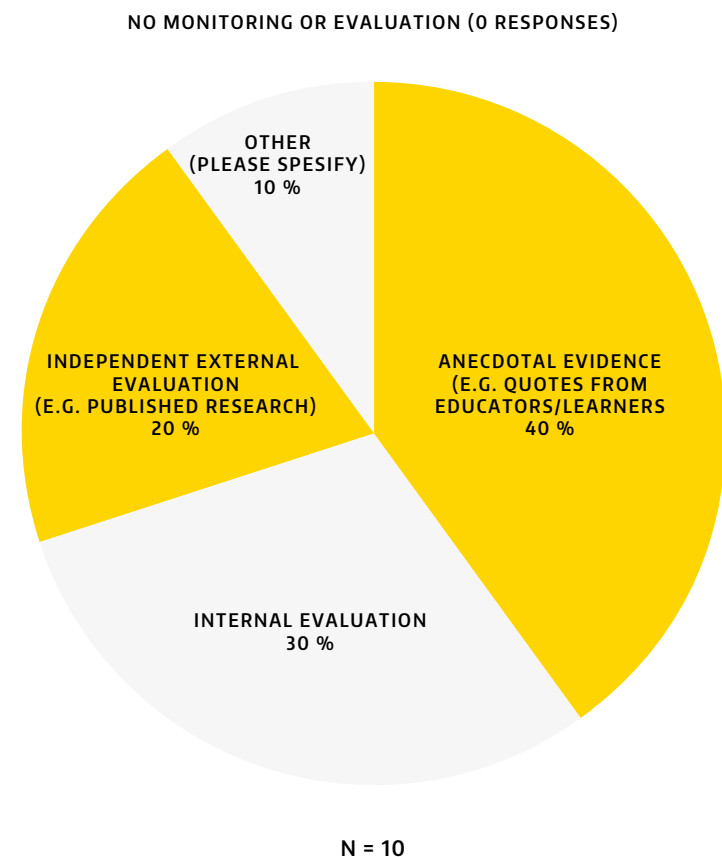
INTERNAL EVALUATION 30 %

N = 10

Figure 21: Educator-led classroom practices and monitoring methods

Whereas all other innovator groups are monitoring their performance through internal or external evaluation, educator-led practices are mainly leaning on anecdotal evidence (40%). In some of the open answers they also communicate the investment benefits more from the visibility point of view, but this kind of a reasoning might fall short when trying to persuade a venture investor or grant-giving organization. From an investor point of view it may be difficult to understand the actual benefit and impact of the investments.

For example:

[Innovation] is a first of the kind event which will bring innovation, ideas and solutions to the world by the children. It will provide with a massive opportunity for industries, corporates, institution, municipalities and government to come together and witness the potential in every child making visible their power and their potential.

We can offer funders very unique opportunities, including acknowledgment in the end credits of student-produced video journalism, launches of feature series websites as well as national and local events.

Answer Choices	Responses
NO MONITORING OR EVALUATION	0.00% (0)
ANECDOTAL EVIDENCE (E.G. QUOTES FROM EDUCATORS / LEARNERS)	40.00% (4)
INTERNAL EVALUATION	30.00% (3)
INDEPENDENT EXTERNAL EVALUATION (E.G. PUBLISHED RESEARCH)	20.00% (2)
OTHER (PLEASE SPECIFY)	10.00% (1)
TOTAL	10

Table 3: Educator-led classroom practices and monitoring methods

Discussion of results

Even though the sample size was rather small (n=61) the research was able to replicate similar kind of patterns to the bigger and more extensive research study made by Brookings (Winthrop & McGivney 2017). Brookings report stated that education innovations are delivered through a mix of education actors where NGOs form the biggest group, followed by private sector companies and government initiatives.

Innovators were given more answer options in this research to understand how they identify themselves. In the results biggest innovator group was not for profit organizations combined with educator-led practices. The second biggest group was private companies, which were a combination of for profits and social enterprises together. However, similar result were not replicated in the governmental innovation sector (Figure 2). None of the respondents identified themselves as such, but one innovator described in the "Other" section that they are a part of a NGO working under the government.

	Not-for-profit, social enterprise & Educator-Led Practices	Private Companies	Governmental	Whole School Model	Other
BROOKINGS REPORT	0.00% (0)	30.00% (3)	30.00% (3)	40.00% (4)	17.54% (10)
RESEARCH RESULTS	4.35% (1)	8.70% (2)	26.09% (6)	60.87% (14)	40.35% (23)

Table 4. Comparison between research results and Brookings Leapfrogging Report (Winthrop & McGivney 2017)

When innovators were explaining their current funding situations they picked multiple options and described in the "Other" section how they are "Looking for any funding" in order to keep their operations ongoing. Brookings (Winthrop 2017) report stated that innovators usually use 3-5 different funding sources together. A similar kind of pattern can be identified from their answers in this research (Figure 8).

Both the OECD (2015) report and EdTech Investment and Venture Capital (Karzunina et al. 2017) point out that education industry is adapting new practices slower than other industries. Looking at these research results it seems the education innovators are also quite risk averse. The only group of innovators which are heavily investing in growth are for-profit organizations. This also directly reflects their runway length, which is the shortest among all innovator groups. Interestingly, the for profits are also the the biggest innovator group which is looking for more funding to develop their innovation further. The conclusion could be made that especially for this group it is extremely important to find the market fit or to reach the current development goals before the funding runs out.

CONTRIBUTION TO PREVIOUS RESEARCH

 Education innovations are seen to be crucial for renewing education systems around the world. Corporate responsibility investments and risk capital investments have been increasing in the field, and education is seen as the most important target for corporate giving (CECP 2017), even though based on the results of Metaari (2018) research especially investments in K12 education innovations have been stagnating and even decreasing in some markets, like South America. That might also affect to the overall representation of education innovators in the HundrED Global Collection 2019, where South America represents only 8% of all innovations in this research (Figure 3).

As a part of the education discourse it's often stated that there is a need for additional funding. In this research report these existing surveys were contributed from the innovator point of view. There reports are often only showing results as to how much investment has been made, but not really asking from the grassroot level innovators how they see the situation from their point of view. For example, as a new result it was indicated that innovators usually combine together donation and grants (51%), service or product related income (26%) and self-financing (23%) to keep their innovation operational (Figure 8).

This result can help us to understand that many innovators see the work as so

important that they are willing to risk their own financial situation to improve education systems, even though most of the educational innovations are not for profits. Therefore a conclusion could be made that many of the education innovators are very passionate about their work, and willing to sacrifice a lot of their own personal (financial) freedom in order to create better educational opportunities for children. More strategic thinking could benefit this group of innovators especially.

Businesses have many reasons to invest in education from local (serving employees and customers) and global point of view (affecting the coming labor demands) (PwC 2014). In Figure 1 it can be seen that over 77% of companies focus their investments on programs which offer outcome and impact evaluation. The risk is that the passion based, usually Educator-Led Classroom Practices, may be not seen as a viable option for investments. Not because their work would be worse, but they rely more on anecdotal evidence (Figure 21) which is not seen as hard enough data by grant givers.

Based on our research results it can be suggested that some certain innovator groups could benefit from collaborations. Especially the educator-led classroom practices can be seen as usually small, but growing solutions which would benefit tremendously from long term collaborations. However, these long term collaborations might be hard to get for them because of the lack of impact data. Simultaneously, whole school models have the most secure financial situations of all innovation types, and they usually have more possibilities for experimenting with new solutions in their schools. Therefore, collaboration models between these two innovator types could help educator-led classroom practices to develop their working methods further, and maybe to transform into not for profit or for profit organization to achieve better sustainability for their operations.

In this survey a strong majority (all but one) was hoping to receive help for closing their funding rounds. Some respondents even sounded slightly unfocused and frustrated with their funding endeavors.

"We are looking for any kind of funding that can help us to expand outreach of the program and expand access of quality education for deprived children from marginalized communities (specially girls), so that they can also get equal opportunities for quality education."

Many education innovations are created by passionate educators who created their educational solution based on an actual need, but they might lack of knowledge of how to build sustainable and growing operations (Winthrop & McGivney 2017). Therefore, there might not be a solid business or operational competence on how to scale the innovation for a larger scale. For example, in some open answers the funding is only hoped for to continue the same work that has been done before, but it's not strategically thought how the investment could be used to improve the innovation outcomes.

Maybe education innovators should look more closely at the existing frameworks for education investments and match their offering based on presented impact factors, to find the most suitable factors to measure their success. For example, action research methodology shares a lot of similarities between both UN Three-Part Process For Engagement (2013) and PwC Impact Analysis Framework (2014). Action research was first introduced by Kurt Lewin in 1940s. The idea of action research approach is to both take action and create knowledge or theory about the taken action (Dickens 1999).

The action research framework works well for combining action and research to overcome social and organizational issues with those who are experiencing the issues directly (Dickens 1999). Both UN and PwC framework have a similar kind of structure as the action research methodology. They start from the planning phase, and continue with taking action and evaluating it. Based on the evaluated action the future planning occurs. Thereby the investments promote skills of inquiry, reflection, problem solving and action based decisions.

Interestingly, neither one of the models give an active role for beneficiaries; both UN and PwC frameworks seem to expect that investing the money will be enough to produce the results; they do not suggest any concrete ways or actions for how to operate together with the beneficiaries. One key difference between venture capital investments and CSR investments is that in CSR investments, companies usually work with issues which are outside of their core competencies whereas risk investors usually invest in their core competence areas. The lack of understanding of a beneficiary's work might be one reason why CSR education investments can feel uncoordinated and short term.

The action research model, however, underlines the participatory role of all stakeholders. To be able to measure the impact, an active dialogue and knowledge building together is necessary. The impact can't be measured nor understood deeply without being in active dialogue with the beneficiaries. That should be also seen as a way to improve the company's own performance in the processes. In general venture capital investors are better in this, as they are expecting to receive return of investment they are more engaged and willing to work for the benefit of the beneficiary organization.

Therefore also CSR education investments, like all investments, should be seen as an action involving both the giving and receiving party. Based on the provided examples, the investments which involve volunteering and/or other engaging activities and "doing together" result in the most lasting impact and are long-term (CECP 2017). Often these qualities have been missing from education investments which are looking for short term benefit. That can be often a mistake purely because of the different nature of the market – the education industry has been claimed to work five times slower than other fields of business (Karzunina et al. 2017). And this slowness is as evident in rich and poor countries (Winthrop 2017).

Based on the research results in this survey, innovators are mainly looking for quite small investments under 500,000 USD (Figure 12 & 15). At the same time innovators are struggling to keep their work sustainable (Figure 7) even though the operating window is longer than six months for 74% of innovators (Figure 9). Even though

62% say that they are not able to work profitability at the moment (Figure 7) a strong majority of them have quite a stable monetary situation. For example, with a money buffer of one year, an innovations' quick ratio rating would be over one. Whereas quick ratio over one means a good financial balance (an organization can pay it's all short term liabilities with the assets on hand with ease), it may also communicate about the risk averse attitude towards growth – especially when need for scaling up was clearly the major need stated in the survey (Figure 11 & 14).

Investments are always made based on the bilateral understanding of the funding need, the use of the funding and the expected outcome. One of the key questions from the innovators point of view is how to communicate and make their impact more tempting for investors, and from investors point of view how they are able to encourage education innovators to scale up and find sustainable models in the long-term.

One solution to boost the growth could be hidden in the Impact Canvas Model (Saari et al. 2017), which offers possibilities to challenge the operational and future orientation of innovations, an aspect which is almost totally missing from UN and PwC frameworks. Based on the Impact Canvas Model, innovators could challenge themselves or be challenged by investor with these questions;

- Why would someone pay for this: what is the benefit?

- What can be learned from benchmarking alternative solutions and/or their business models?

- How could the competition evolve in the future market?

- Who invest in us and why now and in the future?

- What is our roadmap to utilize the results?

Since it seems difficult to close the funding gap in education, perhaps the only way forward for education innovators is to find ways to provide not only pedagogically outstanding models but also include ways to overcome the financial barriers. It doesn't mean that systems should head to the neoliberal dream of over capitalized education but more to be able to identify innovations which can improve the learning outcomes while making the usage of education resources more efficient. As much as educators would like to have unlimited – or at least fair – resourcing for education, this might be the only chance to offer a possibility for a every child to flourish.

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