

The Startup for Education in the 4th Industrial Revolution

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Abstract. According to Merriam-Webster, start-up means “the act or an instance of setting in operation or motion” or “a fledgling business enterprise.” The American Heritage Dictionary suggests it is “a business or undertaking that has recently begun operation.” One thing that can all agree on: the key attribute of a startup is its ability to grow. As Graham explains, a startup is a company designed to scale very quickly. It is this focus on growth unconstrained by geography which differentiates startups from small businesses. Recently Indonesia was shocked by the industrial revolution 4.0. This era was marked by a start-up business. One of the Indonesian youth who successfully released the startup was Umar Usman. He is a student from the University of Indonesia which is International Relations Department with his teacher room finding. Since childhood, Usman aspired to become a teacher. That's why Umar Usman is motivated so that teachers can provide the widest possible benefits so that science and technology-based science findings are needed. From that sense of awe and Umar Usman wanted to give something to the teachers and students namely the teacher room application. This study tries to dig up information with literature review to find out how startups in education and their contribution to education.

Keywords: Education, Startup

INTRODUCTION

The number of internet users in 2017 has reached 143.26 million people, equivalent to 54.68 percent of the total population of Indonesia. The number shows an increase of 10.56 million from the survey results in 2016. This was announced by the Indonesian Internet Service Providers Association (APJII) after conducting a survey of penetration and behavior of internet users in Indonesia, Monday (02/19/2018), in Jakarta. The composition of internet users by sex consists of 48.57 percent of women, and 51.43 percent of men. For compositions based on age, the largest number is indicated by people aged 19-34, which is 49.52 percent. However, the biggest penetration is at the age of 13-18, which is equal to 75.50 percent. Whereas the second largest penetration rate of internet users is based on economic level, which is respectively in the lower middle-class population of 74.62 percent, and the community is in the upper middle part of 16.02 percent. This shows now, the benefits of the internet are not only accessible to the upper class.

In addition, in Indonesia with a large population, education is a promising market. Just imagine, in the 2016/2017 academic year ago, there were around two hundred thousand schools from elementary school to high school that operated in the country. The schools also have a very large total of students, reaching 45 million people. This number has not even been added to the number of students in universities which number more than five million people. Seeing this, it is not surprising if there are enough educational startups (edtech) that appear in the country. And interestingly, the startup business model is quite varied.

Various problems faced by developing countries in the world always intersect with the problem of the low

quality of education that infects the people. Each country has its own ways to develop the process and quality of education. Social and professional movements are also increasingly growing and developing as a form of awareness to build a better civilization in the future. Until finally, many startups were born to help the government by offering various appropriate innovations. This also happened in Indonesia which is known to have quite complex problems with the system and the quality of education.

Did you know it's a startup business? Maybe only a small number of people know about this startup business. The word startup itself is an absorption from English which shows a business that has just been initiated. The term “startup” has been bandied around with increasing frequency over the past few years to describe scrappy young ventures, hip San Francisco apps and huge tech companies. But what is a startup, really? “A startup is a company working to solve a problem where the solution is not obvious and success is not guaranteed,” says Neil Blumenthal, cofounder and co-CEO of Warby Parker.

This business emerged in the tumultuous era of industrial revolution 4.0 as it is today. Before this era, First came steam and the first machines that mechanized some of the work our ancestors did. Next was electricity, the assembly line and the birth of mass production. The third era of industry came about with the advent of computers and the beginnings of automation, when robots and machines began to replace human workers on those assembly lines.

And now we enter Industry 4.0, in which computers and automation will come together in an entirely new way, with robotics connected remotely to computer systems equipped with machine learning algorithms

that can learn and control the robotics with very little input from human operators.

Industry 4.0 introduces what has been called the “smart factory,” in which cyber-physical systems monitor the physical processes of the factory and make decentralized decisions. The physical systems become Internet of Things, communicating and cooperating both with each other and with humans in real time via the wireless web.

For a factory or system to be considered Industry 4.0, it must include: (1) Interoperability—machines, devices, sensors and people that connect and communicate with one another; (2) Information transparency—the systems create a virtual copy of the physical world through sensor data in order to contextualize information; (3) Technical assistance—both the ability of the systems to support humans in making decisions and solving problems and the ability to assist humans with tasks that are too difficult or unsafe for humans; (4) Decentralized decision-making—the ability of cyber-physical systems to make simple decisions on their own and become as autonomous as possible.

But as with any major shift, there are challenges inherent in adopting an Industry 4.0 model: (1) Data security issues are greatly increased by integrating new systems and more access to those systems. Additionally, proprietary production knowledge becomes an IT security problem as well; (2) A high degree of reliability and stability are needed for successful cyber-physical communication that can be difficult to achieve and maintain; (3) Maintaining the integrity of the production process with less human oversight could become a barrier; (4) Loss of high-paying human jobs is always a concern when new automations are introduced; (5) And avoiding technical problems that could cause expensive production outages is always a concern.

The growth of educational startups in Indonesia is indeed not as fast as other domains, such as e-commerce, for example. Nevertheless, there are already several local startups who have taken part in efforts to improve the quality of education in this country.

MATERIALS AND METHODS

This research is using literature study method. The literature study conducted by the author to search on various written sources, whether in the form of website relevant to topic of startup for education in the 4th industrial revolution. Combine collected data, analyze, and make decisions.

RESULTS AND DISCUSSION

The Startup

According to cambridge dictionary startup means a new business, or the activities involved in starting a

new business: star-ups need to generate revenue quickly in business dictionary startup means early stage in the life cycle of an enterprise where the entrepreneur moves from the idea stage to securing financing, laying down the basic structure of the business, and initiating operations or trading.

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Education

The Greeks, approximately 600 BC, have stated that education is an effort to help humans become human. There are two important words in the sentence, first “help” and the first “human”.

Humans need to be helped so that they succeed in becoming human. A person can be said to have become a human being if he has the value of humanity. That shows that it is not easy to be human. Because of that, since a long time ago many humans failed to become humans. So, the purpose of educating is to humanize humans. So that these goals can be achieved and so that the program can be compiled, the characteristics of humans who have become human must be clear.

In the Education is a conscious and planned effort to create a learning atmosphere and the learning process so that students actively develop their potential to have religious spiritual power, self control, personality, intelligence, noble character, and the skills needed by him, society, nation and state. So, National Education is education based on Pancasila and Law The Basic State of the Republic of Indonesia in 1945 which is rooted in religious values, Indonesian national culture and responsive to the demands of changing times (UU RI No 20 Tahun 2003).

The Fourth Industrial Revolution

What is the Fourth Industrial Revolution?

The Fourth Industrial Revolution describes the exponential changes to the way we live, work and relate to one another due to the adoption of cyber-physical systems, the Internet of Things and the Internet of Systems. As we implement smart technologies in our factories and workplaces, connected machines will interact, visualize the entire production chain and make decisions autonomously. This revolution is expected to impact all disciplines, industries, and economies. While in some ways it's an extension of the computerization of the 3rd Industrial Revolution (Digital Revolution), due to the velocity, scope and systems impact of the changes of the fourth

revolution, it is being considered a distinct era. The Fourth Industrial Revolution is disrupting almost every industry in every country and creating massive change in a non-linear way at unprecedented speed (Marr, 2018).

In his book, *The Fourth Industrial Revolution*, Professor Klaus Schwab, founder and executive chairman of the World Economic Forum, describes the enormous potential for the technologies of the Fourth Industrial Revolution as well as the possible risks. He said, "The changes are so profound that, from the perspective of human history, there has never been a time of greater promise or potential peril. My concern, however, is that decision-makers are too often caught in traditional, linear (and non-disruptive) thinking or too absorbed by immediate concerns to think strategically about the forces of disruption and innovation shaping our future." (Marr, 2018).

What's The Promise of The Fourth Industrial Revolution?

Indeed, one of the greatest promises of the Fourth Industrial Revolution is to potential is to improve the quality of life for the world's population and raise income levels. For those in First World countries who already enjoy some of the benefits of a connected world as well as new products and services developed to take advantage of the technologies, we appreciate the efficiencies and conveniences provided such as booking a flight to getting movie recommendations. Our workplaces and organizations are becoming "smarter" and more efficient as machines, and humans start to work together, and we use connected devices to enhance our supply chains and warehouses. The technologies of the Fourth Industrial Revolution might even help us better prepare for natural disasters and potentially also undo some of the damage wrought by previous industrial revolutions (Marr, 2018).

What's the potential peril of the Fourth Industrial Revolution?

World governments need to adequately plan for and regulate our new capabilities to ensure our security. There might be increased social tensions as a result of the socioeconomic changes brought by the Fourth Industrial Revolution that could create a job market that's segregated into "low-skill/low-pay" and "high-skill/high-pay" segments. Typically, first-adopters of technology are the ones with the financial means to secure it, and that technology can catapult their continued success increasing the economic gaps. Some jobs will become obsolete. Additionally, the changes might develop so swiftly, that even those who are ahead of the curve in terms of their knowledge and preparation, might not be able to keep up with the ripple effects of the changes (Marr, 2018).

How Best to Prepare for The Fourth Industrial Revolution?

Schwab calls for leaders and citizens to "together shape a future that works for all by putting people first, empowering them and constantly reminding ourselves that all of these new technologies are first and foremost tools made by people for people." Humans must be proactive in shaping this technology and disruption. This requires global cooperation and a shared view of how technology is reshaping our economic, social, cultural and individual lives. Companies should invest in their technical infrastructure and data analyzing capabilities. All businesses must be making a move to be smart, connected organizations or they will soon fall behind the competition. We need to develop leaders with the skills to manage organizations through these dramatic shifts. As professionals, we need to embrace change and realize that what our jobs are today might be dramatically different in the not too distant future. Our education and training systems need to adapt to better prepare people for the flexibility and critical thinking skills they will need in the future workplace.

The Startup for Education in Indonesia Ruangguru



Figure 1. Ruangguru advertising media.

All about Ruangguru

Ruangguru is an Indonesian technology company that focuses on education-based services and has more than 9 million registered students. Established since 2014 by Belva Devara and Iman Usman, which is a ranks of successful entrepreneurs under 30 years through Forbes 30 under 30 for consumer technology in Asia.

Ruangguru is committed to being a partner for local governments to provide quality education through the Learning Management System (LMS). Last year, Ruangguru managed to work with 32 (out of 34) provincial governments and more than 326 city and district governments in Indonesia (Ruangguru, 2018).

Ruangguru application service is intended for the development of K-12 and professional education, with products in the form of learning videos with questions, quizzes, and infographics, online and face-to-face private tutors, exam preparation courses, chat group learning with standby tutors, classroom management, and training certified online for students and professionals (Ruangguru, 2018).

In Forbes Magazine, Syah and Usman co-founded Ruangguru.com, the largest marketplace for private tutoring in Indonesia -- connecting prospective students with over 80,000 private tutors. Ruangguru was launched in 2014 as an edtech platform connecting tutors to students and has raised a Series A round of funding from Venturra Capital. The amount was undisclosed but Venturra's average investment size is \$2m-\$5m. The startup currently has 1.6 million users and a community of around 300,000. While Syah has a Stanford MBA and Harvard Masters of Public Administration under his belt, Usman did his Masters of International Education Development at Columbia University (Marr, 2018).

CONCLUSIONS

The American Heritage Dictionary suggests it is "a business or undertaking that has recently begun operation." One thing that can all agree on: the key attribute of a startup is its ability to grow. As Graham explains, a startup is a company designed to scale very quickly. It is this focus on growth unconstrained by geography which differentiates startups from small businesses.

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