i360 Report
Edutech Industry in Indonesia

PAGES

Executive Summary

I360 Report : Edutech - Teaching the Next Generation of Digital Talent in Indonesia is the first of a series of reports written by Innovation Factory and Ravenry for the i360 innovation program. I360 by Innovation Factory is a comprehensive corporate innovation program that incorporates real research into a series of innovation workshops ranging from the panel discussion, hackathon, business matching and networking night.

This report discusses the rise of Edutech Industry in the world's fourth populous country. Education is a large industry in Indonesia which represent an estimated number of 52 million students within Indonesia's standard 12-year education system in 2019. Nevertheless, the education industry is riddled with socio, geographical and economic challenges.

Over the recent years, we see that there is a change in the education market in Indonesia, the new trends in education show the increasingly prominent role of technology in facilitating education like (1) Online as a new delivery and discovery model (2) Large niches within a large market (3) Startups plugging in gaps in digital skills education (4) Incumbent players are focusing on the formal education segment and (5) Gamification to attract users and (6) Enterprise segments are still a relatively untapped opportunities

Despite the large potential of the Indonesian education market, the key challenges for the edutech players are the inconsistent quality of educators in Indonesia despite its growing quantity, the low adoption of technology amongst educational institutions and professional, Poor understanding of key skills to equip the next-generation workforce and language barrier prevents Indonesians from consuming content from global players. We see that there are possibilities to tackle these challenges through the rise of edtech startups like Ruangguru, Zenius, Quipper, HarukaEdu, Cakap, Pintek, and others. These startups understood that opportunities lie on building more than on-demand content, they would need to Upskill teachers to catalyze technology adoption, tap onto ongoing government initiatives, provide access to vocational skills and extracurricular courses, localise and personalise their solutions and to not rely only on content but a combination of hardware and software solution helps unlock new segments

About Innovation Factory

Innovation Factory is a technology innovation hub in Indonesia. As a platform for innovation initiatives, we enable key actors in the tech startup ecosystem to meet, collaborate and grow together. Started in 2017 with the launch of BLOCK71 Jakarta, an ecosystem builder and global connector for early stage startups, which then followed by Bandung and Yogyakarta. Our latest venture, Innovation Factory@Wisma 46 aims to expand beyond being an ecosystem builder to cultivating a portfolio of key players within Indonesia's tech industry.

Innovation Factory also invests in startups and establish partnerships with organizations and corporations to foster technological innovations, empowering both Indonesian as well as international startups through a series of accelerators, market access and corporate innovation programs.

Website : www.innofactory.co
Instagram : innofactory.id , BLOCK71jakarta, BLOCK71bandung, BLOCK71yogyakarta
Facebook : innofactory.id, BLOCK71 Jakarta, BLOCK71 Bandung, BLOCK71 Yogyakarta
Linkedin : innovation factory indonesia, BLOCK71 Jakarta, BLOCK71 Bandung

About Ravenry

Ravenry transforms the way research works. We find answers to businesses' biggest question in 48 hours by combining data and human intelligence. Our clients work with us to understand their customers better, find new market insights, keep their competitors abreast, and accelerate their business results.

Ravenry is a trailblazer in the on-demand research industry. We have completed hundreds of projects for clients across the globe. Ravenry's vision to empower businesses with connected data and people.

See more : www.theravenry.com

Reference
I360 : Report Edutech Industry in Indonesia is the second of a series of report published by Innovation Factory, in collaboration with Ravenry. The information contained in this publication is quoted as "i360 SaaS Wave in Indonesia by Innovation Factory and Ravenry, 2020" unless otherwise noted.

Introduction

The education industry in Indonesia is enormous, driven by a large population of students and productive demography. In 2019, it is estimated that there were approximately 52 million students within Indonesia's standard 12 year education system. In the same year, there are approximately 150 million people within the productive demographics.

While the education industry is riddled with challenges around infrastructure and a lack of certified educators, demand for education has only been increasing. This is driven by a strong increase in per capita income providing families with more disposable income that they can invest into their children's education. Additionally, the Indonesian government has been pushing various initiatives to make education more accessible and affordable.

As Indonesia is set to grow into the largest digital economy in Southeast Asia, pressure to reinvent and transform its human capital continues to mount. It is estimated that 113 million or 73% of all people within the productive demographics require retraining to remain relevant in the workforce by 2030. Additionally, students within the national curriculum also need access to supplementary education tools and services to ensure they stay ahead of the curve and are well equipped to enter the workforce.

The combination of economic growth, changes in the workforce requirements, and increasing priority towards education means that educators need to reinvent themselves and produce solutions that are relevant and scalable for a market like Indonesia. Several technology players within the education sector have made significant headway in transforming the way people learn in Indonesia. As the market for education, training and learning continues to evolve, technology will become a more important component in the industry and education technology players will play a big part in redefining and paving the future of education in Indonesia.

The Size of Education Technology Market in Indonesia

Indonesia's education sector has received more attention in recent years. Between 2015 and 2019, government spending has grown at an annualised rate of 6.8%, reaching USD 35 billion in 2019. Meanwhile annual consumer spending on education will grow at 6% per annum and have collectively reached USD 23.6 billion in 2020, according to McKinsey.[1]

It is estimated that there are approximately 55 million students enrolled in kindergarten all the way to tertiary education institutions across Indonesia in 2019. The following chart breaks down the proportion of students by level of education in Indonesia.

Table 1. Distribution of enterprises in Indonesia

	Total enrollment in 2018	Proportion
Primary school students (SD)	25,238,923	47.51%
Secondary school students (SMP)	9,981,216	18.79%
Tertiary school students (SMA)	4,845,068	9.12%
Vocational school students (SMK)	5,009,265	9.43%
University students	8,043,480[2]	15.14%

While overall enrollment in primary all the way to tertiary education has stayed relatively flat across the years, demand for vocational education has increased by an annual rate of 2.1% between 2017 and 2018. University enrolment, on the other hand, is the fastest growing segment and has increased significantly in the past years from 6.9 million to 8.0 million students between 2017 and 2018, representing 15.9% annual growth.[3]

The education technology industry

Educational technology (Education technology) leverages software and hardware solutions to facilitate learning experiences for students and teachers. Education technology also includes solutions that enable the design, delivery, financing, and tracking of all educational activities across education institutions, educators, students, parents, organisations, and the workforce.

The increase in consumer spending is also reflected in the rapid growth of the number of Education technology users as Indonesian students are becoming more dependent on the Education technology applications to supplement their learning activities. The market size of the Education technology industry in Indonesia is estimated to be at USD 112 million in 2019 and is expected to grow at 24.9% annually.

Growth Drivers

The increase in demand for education among adults and students presents a wide-open window of opportunities for Education technology players to thrive in Indonesia. Growth within the industry is driven by a wide range of factors unique to this archipelago. Below are several key trends driving the development of the industry in Indonesia.

Inconsistent education quality drives demand for extracurricular courses and tuitions

According to government surveys, consumer spending on courses beyond the national curriculum has been growing rapidly. In 2015, consumer spending on these courses amounted to USD 15.4 million and spending exceeded USD 37.5 million in 2019.

While Indonesia has a healthy teacher to student ratio of 1:16 (3 million teachers to 52 million students), over 53% of teachers are not actually certified.[4] As a result of that, the quality of education across the country is

inconsistent. At the same time, students face increasing pressure to perform academically as competition for a placement in universities heats up.

A survey found that a significant portion of Indonesian students (87%) are pressured to attain better scores and differentiate themselves from other students.[5] Many students seek additional help outside of school hours for subjects they struggle to understand. A survey by RuangGuru found that 70% of purchases made on their platform is made by the students themselves.[6] As a result, demand for extracurricular courses has increased rapidly in the past years as evident in the following chart.

% of students enrolled in extracurricular courses is growing
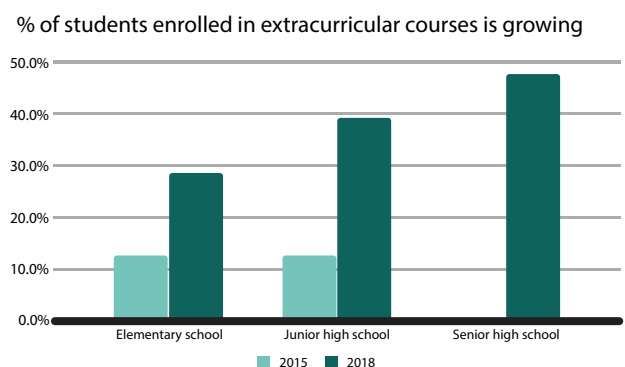
Source: Indonesia Statistics [7,8]

Affordability of technology and accessibility of the internet increases online learning

Technology has permeated across all facets of education. Affordable computers make it easier for students to do their homework. A faster and wide-reaching internet improves access to online education content. These two factors combine to eliminate the constraints of geographics and time from allowing individuals to access educational services.

Additionally, mobile phones have also been getting smarter. AI chips, advanced cameras, and high speed mobile processors allow technology players to provide completely new solutions to students. Aside from acting as a content delivery device, many players are using mobile phones to directly help students complete their homework or even to provide on-the-go coaching on various subjects.[9]

Improve competencies of unskilled Indonesian workers

Indonesia is set to become one of the largest digital economies in Southeast Asia. Fundamental to driving that growth is the availability of talents with the right skill sets and capabilities. According to Mckinsey, an additional 10 million workers with advanced degrees and new skills will be required in Indonesia by 2030. Opportunities within the education sector are therefore not going to be limited only to formal education as the productive demographics will also need significant training and retraining.

In response to this, the Indonesian government is rolling out pre-employment cards for its unemployed citizens in 2020.[10] This nation-wide programme, which is estimated to cost USD 730 million, will give card holders access to vocational training and certification for the future skills needed in the market. Card holders can select from a range of vocational skills including software development and heavy machinery operations.[11] The programme aims to provide support to 2 million unemployed Indonesians.

Several technology providers will inadvertently take advantage of this by building solutions that are targeted at this budget. Such government policies will help bolster the development of new technologies within the education sector as Indonesia continues to invest in its people and increases its spending on education.[12] Tokopedia, one of the largest e-commerce players, has started building up a digital platform to specifically complement this initiative. The platform aims to aggregate a list of courses to assist card-holders to apply for online courses.[13]
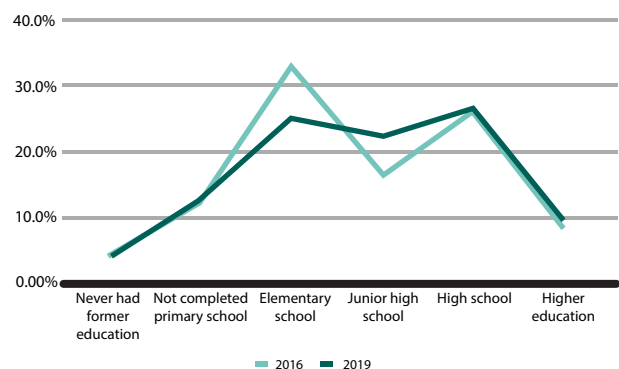
A growing middle class

Since 2002, Indonesia's middle-class consumption has increased at 12% annually. Increasing disposable income would likely invigorate spending in the education sector. As a result, the number of students completing grade 12 has increased over the years. In 2009, 35.4% of students completed 12 years of formal education, while in 2019 this proportion has increased to 59%. As students are staying in school longer, the demand for peripheral education services including Education technology solutions will only continue to increase.

Huge number of students

More than 55 million students enrol at public and private schools across the region. The number is likely to increase as the result of the government enacted policy in 2015 which aims to provide 12-year compulsory study for students. To support this vision, the government has allocated a budget for tuition-free programmes.[14] and since the implementation of the national 12-year school programme, there is a shift in the number of people that finished secondary school.

Higher mean year of schooling in 2019

Never had former education	Not completed primary school	Elementary school	Junior high school	High school	Higher education

■ 2016   ■ 2019

Lifelong education as the norm in modern enterprises

In 2019, workers in the millennials age group (born between 1980 to 1996) constitutes 57% of Indonesia's workforce.[15] A study by Michael Page found that younger Indonesian workers are more loyal to employers that organise training and development programmes regularly.[16] As enterprises realise the importance of people development as both a strategic retention tool and a growth driver, the need for enterprise education solutions will increase. Companies such as HarukaEdu in Indonesia are already targeting this niche and are providing content aimed specifically at corporate learners.

Key Players
in the Market

The following is the list of key players in Indonesia.

ruang
guru

Founded in 2014, Ruangguru is an online platform that leverage marketplace as the core of its business. The company's main offering is a mobile app tailored for students in 1st to 12th grade that enables students to access online videos to learn on various subjects or even tap on its marketplace to get on-demand tutoring. Ruangguru leverages various monetisation models like subscription (where students can gain access to all of its video contents) and pay-per-use model (on its private tutoring service).

By 2019, Ruangguru has a user base of over 15 million students which represents about 28% of the number of students in Indonesia. The company's substantial growth is likely attributed to the following reasons:

Since its inception, the company mainly focuses its effort on exploring collaboration with various stakeholders such as public schools. As a result, Ruangguru has secured partnerships with 32 provinces (out of 34 provinces in Indonesia) to provide free access to its product line to public schools. This initiative likely raised the students' awareness of e-learning and has been critical in growing its user base.

The company has raised over USD 150 million and closed Series C funding from various investors like East Ventures and UOB Ventures. Armed with a sizable budget, the company is able to launch marketing campaigns on various channels.

Strong core products that act as one-stop-solution for students. The platform has multiple features that make students' lives easier like access to all videos relevant to national curriculum, access to reach a tutor.

Unique solution - Ruangguru is the first to launch blended learning for the formal education segment.[17] Although the offline courses market is generally already saturated, innovation offered is likely to let the company gain share.

As it grows, Ruangguru keeps adding new features and bolster its lineup with products like a learning management system and online private tutor - a feature that lets students take a picture of a challenging question and submit it on Ruangguru app to receive solutions from online tutor. The increasing number of users indicates innovation may fit market needs as the mobile app gets localisation treatment. Approaches like offline watching (a feature that can be useful in a country where internet connection can be unstable) and animated video contents are luring students to convert to become premium users.[18]

The success of this model prompted Ruangguru to replicate a relatively similar model but targeted on different segments - enterprises. Movement toward the enterprise segment is understandable as the market is relatively untouched and offers much potential to tap with over 65 million enterprises as potential users.

Ruangguru mobile app continuously iterates and incorporates localisation features like offline watching (a feature that can be useful in a country where internet connection can be unstable). The success of the product prompted Ruangguru to expand the business regionally and in 2019, Ruangguru entered Vietnam market.

zenius
EDUCATION

Founded in 2004, Zenius is one of the first-mover in Indonesia MOOC market. As the first-mover, the company has an extensive library with over 80,000 educational videos that can be accessed on both desktop and Android-based phone. The company is mainly targeting students in first to twelfth grade and has various partnerships with schools in the region to raise awareness of their brand. Zenius primarily generates revenue using a subscription model where the user can pay a cost to gain access to all educational contents until the premium membership expires.

The company had more than 11 million users in December 2019. To stay competitive with an increasingly saturated market, the company has taken a shift on its business model as it opens all of its contents for free.[20] While the company does not disclose the reason behind this strategy, it is likely the initiative behind this is to attract the students that have mobile phones but do not have hardware like laptops. The probable reason behind this is Zenius was relatively tardy on the launching of its mobile apps (Android version has just recently launched in March 2019 while the iOS version is rolled-out in September 2019.) [21] As the penetration rate of mobile phones is generally higher than other hardware like laptops, the initiative could yield significant traction for Zenius.

The company raised an investment worth of USD 20 million led by Northstar Group in 2019. The company spokesperson cited the money will be growing the business notably in managing user engagement and retention.[22] It is most likely this will complement the core strategies of acquiring and retaining users. Aside of its focus on MOOC segment, Zenius also operates brick-and-mortar courses centres [23] and learning management systems.

Quipper

The company is headquartered in the UK and entered Indonesia market in 2014.[24] Quipper is a marketplace that provides features from educational video contents to access to private tutors. The company mainly targets students in 9th to 12th grade and boasts a high acceptance rate of its graduates to state universities. The company earns revenue using a subscription model and has created various membership tiers where add-on features like access to online tutor can be unlocked at an additional cost.

While being a foreign-based entity, the company has leveraged various approaches to fit with the market needs. To exemplify this, Quipper localised its Indonesia platform from the dashboard to educational contents, all presented in Indonesia language. This is likely to lower the barrier to entry as generally Indonesia students have weak english proficiency.[25] Quipper has more than 6 million users and to raise brand awareness, the company has been actively organising events like scholarship programmes for students interested in pursuing a higher education degree.

Udemy

The global MOOC giant was founded in 2010 and has officially entered the Indonesia market in 2018. The company decision was largely driven by the rise in the number of users (200,000 users). Udemy realised Indonesian generally have low English language proficiency and therefore to attract more users. The company deems localisation of their English-language contents as a critical success factor. The company has started to build studios across the region to pursue this.[26]

To build its library, Udemy partners with multiple content creators. Udemy adopts an access-fee business model and shares the revenue depending on the marketing channel. Upon the creation of an online course, content creators will generate a referral code they can use to promote the product. If any sales happen with this channel, the creator will take 97% of the product value. Whereas if sales are generated organically, Udemy will take 50% of the cut.

Quintal

Founded in 2015, Quintal provides one-stop-solution for school management systems that can handle various administration-related works like students attendance system to tuition payment system.

Quintal provides a Learning Management System tailored for the formal education market (elementary to high school) and offers robust functionalities to serve various curriculums like national curriculum and International curriculum. Quintal's decision to create products that cater to various curriculums is likely to pursue international schools with higher spending power, which is more receptive to adopt technology-driven solutions. The solution is running on a SaaS-based model and the company monetises using per-user-pricing. This means every active student will be incurred a certain fee (starts from USD 1 per student).

Quintal product adopted in 2016, where 2,000 students were onboarded. While the number of onboarded students rose to 25,000 students in 2020, there is still a huge market to be untapped given the number of schools in the region amounted to 42 million schools.[27]

Entire Quintal users come from the private sector and the Quintal management is currently undertaking strategies into breaking the public sector. A series of engagements with stakeholders from the public sector is being approached, said a person familiar with the situation. Quintal has raised seed funding led by East Ventures.

MAU**BELAJAR**APA

Founded in 2015, MauBelajarApa is an online platform that connects learners to look for vocational classes or workshops. The platform has courses from various disciplines like art to IT-related skills. Each class is organised by their partners (the platform claimed to have over 100 partners).

The platform aggregates the list of offline and online (or hybrid) workshops and promotes the activities using digital channels like Instagram. The company monetises on each successful transaction a fee of 20% is imposed on the workshop organiser. [28]

cakap
by squline

Founded in 2014, the company specialises in e-learning of foreign language courses and exam prep such as Mandarin, Japanese, and English. The company has built a platform that mainly targets language learners consumer segment (children and adults) and enterprise segments. [29] Cakap generates revenue using a marketplace model where prospective users can look around for online tutors to engage in 1-on-1 video calls. This model suggests Cakap take a commission-based fee from each successful tutoring session. As one of the first Education technology players in the foreign-language sector, Cakap' solutions have enjoyed positive market reaction and have successfully attracted 8,000 premium users (this refers to students that pay subscription services) in 2018, especially good performance considering the market is saturated with conventional foreign-learning course institutions (over 4,700 English course institutions in the region) [30]

Cakap Premium Users
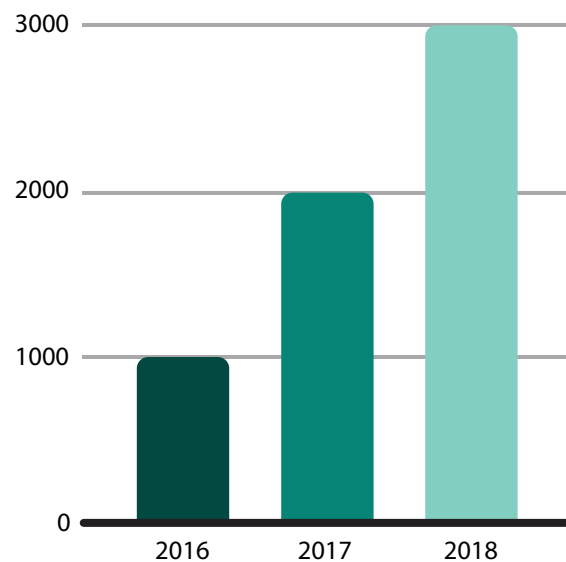
While Cakap has seen positive growth, the number of subscribers is relatively small compared to potential users in Indonesia. In pursuit of taking a bigger market slice, the company has undertaken numerous strategies such as building its platform with quality content. This approach is made possible by its strategic partnerships with various foreign-language learning institutions in Indonesia and China that have yielded in the creation of quality curriculums. Apart from that, partnerships with these institutions empower Cakap to create a network of curated teachers that can be reached at-a-click on Cakap mobile app. In addition, Cakap seems to take a shift in its user acquisition strategy and reflect on their new product - Cakap Chat, a feature that allows users to engage in chat communication with online tutors. Another strategy is playing in a relatively niche sector, such as the Japanese language. The wave generated by the influx of the number of Japanese companies that recently entered the Indonesia market has likely encouraged more Indonesian to learn the language. [34]

Cakap has raised its Series A funding for an undisclosed amount led by InvestIdea Ventures.

Pintek

Founded in 2018, Pintek is an Indonesia-based startup specialise in education loans for students. The company provides financing to various educational institutions such as formal education (from kindergarten to higher education) and non-formal education (courses). Students may apply for a loan worth IDR 3 million to IDR 300 million (USD 210 - USD 21,000) with a flat interest rate of 1.5% per month. [35]

There are three main revenue generators for Pintek: [36]

The interest rate. The rate can be as low as 0% for selected education institutions (mainly non-formal education). But in a typical case, Pintek charges an interest rate of 1.5% for formal education.

Admin fees. Pintek charges 1% of school tuition cost as an administration fee, but this is capped to IDR 100,000 (USD 7).

Other associated fees such as late charge fees and platform fees

Armed with a lending license from Indonesia Financial Services Authority (OJK), Pintek had disbursed lending to over 3,000 students in 2019. The loan value stands at IDR 40 billion (USD 2.7 million).

Monthly active users grew 20 times between May to October 2019. This may suggest Indonesian need educational financing and such a solution fit with the market demands. In 2020, Pintek had partnerships with more than 90 educational institutions, according to the person familiar with the matter. The company believes the extensive collaboration with educational institutions as a critical factor to expand the business and aim to elevate this number to hit 500 institutions. A sensible approach given at this moment, Pintek service is heavily concentrated in major cities. [37]

Aside from servicing the student segment, Pintek provides lending for educational institutions. While not disclosing the exact figure, Pintek's spokesperson claimed a few educational institutions had tried Pintek's solution. The company has raised Pre-series A funding from various investors like Global Founders Capital, Finch Capital, and Amand Ventures. This initiative has secured at least USD 260,000.

HARUKAEDU

HarukaEdu is a company headquartered in Indonesia and founded in 2013. HarukaEdu offers two main products: blended-learning (a combination of offline and online learning) and Learning Management System (LMS).

In the blended-learning segment, HarukaEdu has introduced a product, namely Pintaria, a higher education marketplace where users can view a selection of universities that offer blended learning and HarukaEdu charges a commission for each successful transaction. Pintaria has partnerships with more than ten public universities like PPM School of Management and Institut Teknologi Harapan Bangsa to act as providers of blended-learning contents. The company believes that online degrees can triumph given a large portion of Indonesian do not have a higher education degree yet generally have the desire to continue their studies and has seen blended learning as a feasible alternative given the programme offers a relatively affordable tuition cost and flexibility of time during learning process can be critical in luring new users. To raise brand awareness, HarukaEdu has actively organised promotional activity like scholarships programme. [38]

The company has begun to shift away from the pure-play segment and launched its spin-off product - CorporateEdu, a platform that provides e-learning solutions for the corporate segment. Inefficiencies and high cost associated with enterprise training are a couple of key challenges CorporateEdu brought to solve. CorporateEdu CorporateEdu has successfully captured large corporations like Samator Gas within months since its launch. [39]

HarukaEdu has successfully raised series C funding in 2019 led by Susquehanna International Group, albeit the company only has around 8,000 users. This may suggest investors are generally optimistic on the future outlook of this segment.

Lingkaran is an Indonesia-based startup specialised in curated contents and a curated network of courses creators that are experts in various fields like digital marketing to business strategy. The key differentiator of Lingkaran is the curated network and the approach is likely taken to create a brand that is has a premium feel and to target segment

The company was founded in 2014 and heavily emphasises on self-improvement workshops (i.e. personality, leadership) for people that aspire to become entrepreneurs. The workshops are distributed both using offline and blended-learning. To generate revenue, Lingkaran utilises pay-access model.[40]

Kelaskita registered users

Number of registered users

500.000	
400.000	
300.000	
200.000	
100.000	
0	2014 2015 2017 2018
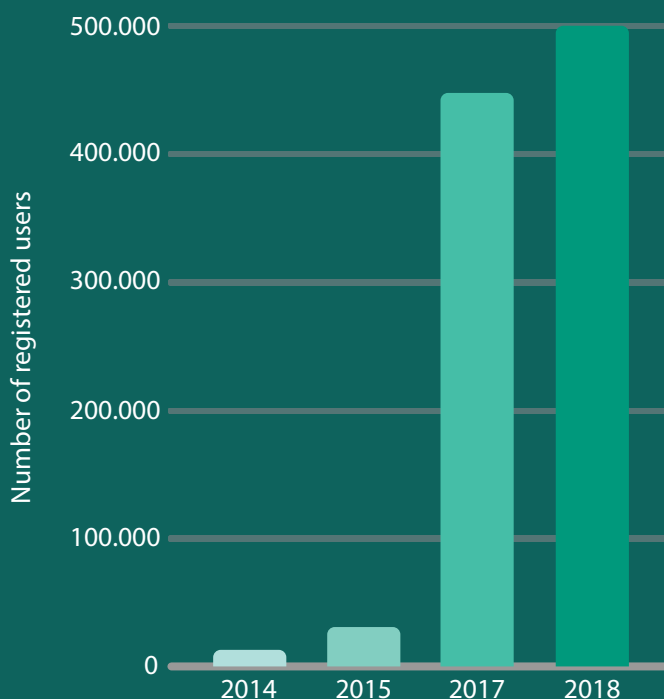
Founded in 2012, Kelas Kita is a MOOC platform that offers video classes targeted for lifelong learners with interest in vocational skills ranging from IT skills to design skills. The MOOC is built by leveraging various partners that create online courses where users can join either for free or at cost.

The company saw growth in the increase in the number of registered users in recent years. Massive growth is attributed to the implementation of new features and shifted in the customer journey as the largest drivers to lure new users.

Key Trends

Online as a new delivery and discovery model

Large niches within a large market

Startups plugging in gaps in digital skills education

Enterprise segments are still a relatively untapped opportunities

Gamification to attract users

Incumbent players are focusing on the formal education segment

Online as a new delivery and discovery model

The largest segments within the education technology industry in Indonesia are the MOOC (massive open online course) and marketplace segments. While demand for education products and services has been on the rise, matching these demands with the suppliers is challenging due to a high level of fragmentation in the market. Education is a highly personal endeavour and individuals have specific needs and preferences. As a result, players within the MOOC and marketplace segments are highly sought after as they provide a frictionless way to connect with unique service providers in the market.

The marketplace models work especially well in Indonesia as the market itself is already saturated with service providers such as tuition centres, language learning schools, and individual tutors. Players such as RuangGuru simply makes it easy for students to find specific tutors that matches their learning needs. The delivery can then be made in-person or through online classes. Other marketplace players focus on more niche segments in the market. Players such as Kiddo consolidate suppliers of vocational learning activities to parents of young children who are keen to supplement their kids' education with sports, arts, and craft classes.

The attractiveness of the Indonesian market even draws interest from various global players. MOOC providers such as Progate from Japan are not only making their programs accessible in Indonesia, but are also localising them to appeal to non-English speaking audiences. High level of content reusability makes it easy for MOOC players to scale their businesses into new markets. With scale, these players are also able to keep prices down, allowing them to capture segments previously unaddressed by more expensive competitors such as tuition centres or universities.
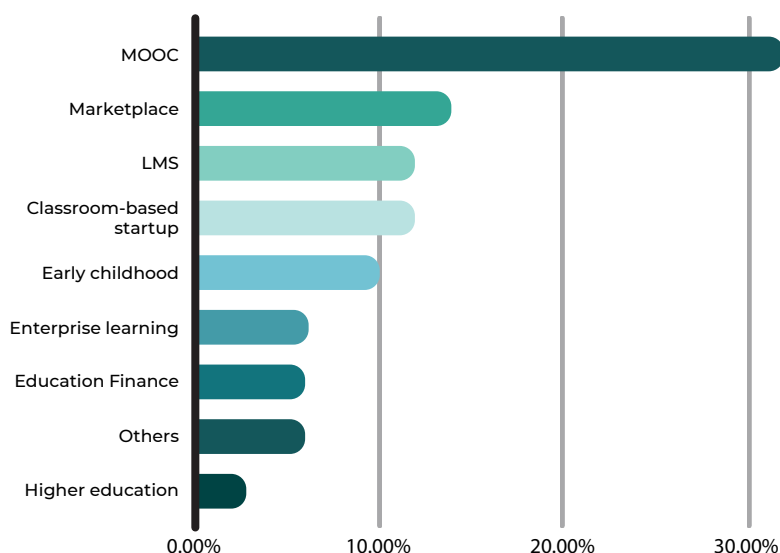
Large niches within a large market

While the Indonesian market is huge, the education industry is saturated with many traditional players. Many technology players are therefore focused on specific niches within the overall education industry.

Players such as Cakap target the language learning market by providing a highly specialised marketplace with a curate network of language specialists. Even within the formal education segment, many players are narrowing their focus to target specific age groups. Quipper, for instance, primarily focuses on ninth grade to twelfth grade students, and their contents are geared to help students enter highly competitive universities.[41]

Aside from focusing on specific client segments, several players are also focusing on delivering services on very specific parts of a student's learning journey. Brainly provides learning services focused only on the homework completion part of a student's journey by making it easy for students to get on-demand guidance on a huge range of homework topics.

As education gets more personalised, the trend towards specialising into niche areas is expected to grow in the coming years in Indonesia.

Incumbent players are focusing on the formal education segment

The formal education segment which comprises students from kindergarten to twelfth grade in Indonesia is a highly contested segment within the education technology players. There are approximately 44 million students in this segment and more students are expected to enrol driven by the increase in per capita income in the country. Additionally, Indonesia is going to enjoy a demographic bonus (where the productive population exceeds non-productive population) in the medium term. This implies a strong continuous stream of students enrolling into the national education system in the foreseeable future.

Current education technology providers involved in this segment focus mainly on content designed to complement the standard national curriculum. Their solutions generally come in the form of personal tutors, extracurricular activities, study guides and study assistance tools. Demand for such solutions is only expected to grow especially because Indonesian students are big adopters of technology, with an estimated 81% leveraging technology in completing their homework.[42] A focus on the formal education segment is also highly scalable as the content required to service the market is similar across the nation.

Startups plugging in gaps in digital skills education

A survey by Microsoft in 2015 found 91% of Indonesian students are interested in learning how to code, but only 51% of students have the opportunity to learn it from school.[43] While digital skills are becoming more important, the formal education system in Indonesia has yet to incorporate these courses into the current curriculum. At the same time, students and parents that are attuned to the changing workforce needs are showing great demand for this.

While they are not necessarily in the technology space, companies such as Hactiv8 and Algoritma have sprung up in recent years to address these needs. These classroom-based startups provide a platform for coding enthusiasts to pick up programming skills in a more formal and guided way. While many MOOC-style coding academies are available online, most are still delivered in English, posing a significant barrier to entry for most Indonesians.

As digital skills will become more in-demand, it is expected that new players will come into the market to offer specialised skills training that formal education providers are not equipped to deliver. Specialised trainers for digital marketing, programming, and design are expected to continue growing their share in the education sector in Indonesia.

Gamification to attract users

A local study found that gamification in learning apps creates a positive impact on user engagement and improves students' overall learning outcome.[44] This is not a surprising finding as Indonesia has a large population of gamers, estimated at 45 million as of 2018.[45] E-commerce platforms, free-to-use and free-to-play apps have long familiarised Indonesians with gamification approaches to increase engagement on their apps. As a result, many students respond to gamified elements relatively positively across various technology solutions.

Gamification itself is not foreign in the learning and education sector as many traditional teaching and behavioural change methods already incorporate these elements. Global players such as Duolingo and Udemy have incorporated features such as achievement badges as collectibles, encouraging people to complete their courses. In Indonesia, this trend is no different. For example, Ruangguru added a feature where users can collect virtual points through watching educational videos and completing tests. These virtual points can be exchanged with various prizes like mobile phone prepaid credit, vacation trip, school supplies, etc.[46] Implementation of gamification features successfully increases the engagement rate, said people familiar with the matter.[47] It is expected that gamification will continue to become an important aspect of the education technology industry in Indonesia.

Enterprise segments are still a relatively untapped opportunities

As enterprises continue its evolution into a more digital economy, the workforce driving these transformation efforts also needs new skills and retraining. In the next 20 years, 40 million more people will join the productive demographics in Indonesia totalling the number of working population to 190 million people by 2040. Meanwhile, the current working population requires approximately 100 days of retraining per person to ensure that they will remain relevant in the workplace of the future. In total that adds up to 39 million years of retraining for the 150 million people in the working age in Indonesia.

Given the extent of people development required in Indonesia, enterprises need solutions that are able to manage and track the retraining process, and also separate solutions to deliver the actual training for their people. Companies such as HarukaEdu target enterprises and provide end-to-end solutions for a one-stop-shop for learning management systems, performance tracking, and e-learning delivery. The last feature is particularly helpful for corporate workforce as they prefer solutions that help save travel time to and from training venues, especially when 46% of the workforce in Indonesia are already spending over one hour to reach their workplace.[48]

Demand for unique and specialised learning solutions has also been increasing. Enterprises look at training and development as more than just people development tools but also as a retention strategy. Companies such as Squiline,[49] which provides an e-learning platform that offers foreign languages courses, has also onboarded several corporate clients.

The demand for Learning Management System (LMS) for corporations is also ramping up. Codemi, a provider of bespoke e-learning systems, is one of the key players in this segment. They boast a client portfolio that includes Jasa Marga and Manulife. Codemi customises training contents for workforce in frontline, managerial and even skilled roles.

Key Challenges in the Edutech Industry

While many factors drive the development of the education technology industry in Indonesia, it is not without its challenges. Indonesia currently ranks 111 amongst 189 countries in terms of its human development index, which includes an education index measure, as reported by the United Nations.[50] Some of the obstacles Indonesia faces include a lack of education infrastructure and talents. Uneven access to education across the country creates pockets of underserved regions as well. To add to that, many people still find difficulty putting their children through the standard 12 years system mostly due to financial constraints.

Challenges faced by players operating with Edutech model

The quantity of educators in Indonesia does not equal quality

Low adoption of technology amongst educational institution and professionals

Poor understanding of key skills to equip the next-generation workforce

Language barrier prevents Indonesians from consuming content from global players

The quantity of educators in Indonesia does not equal quality

As one of the most populated countries in the world, Indonesia is home to a large number of students. There are currently 3.3 million teachers and about 55 million students in Indonesia. The ratio of teacher to student stands at approximately 1 to 16, which is significantly better than the global average of approximately 1 to 23.[51] Despite this, only a few Indonesian education institutions make the world's top 500 league.

A likely explanation of this contradicting data is that the requirements to become an education professional is relatively low in Indonesia. A staggering 53% of these teachers are not certified educators, which negatively affects the quality of education available to students. As such, despite the healthy ratio between teachers and students, the proportion of inexperienced and poorly trained educators is likely to have offset the benefits of having more teachers per student.

This paradoxical result can also be seen in the table below that shows the teacher-student ratio across various provinces in Indonesia and the corresponding average national exam scores of that province. One would expect that a high teacher-student ratio would result in a higher student performance as every student has access to more attention from a teacher. However, the results show that Jakarta, a region with a low teacher-student ratio, outperforms other regions in their exam results. Whereas other regions with better teacher-student ratio perform at significantly lower levels. This further corroborates the observation that inexperienced teachers significantly offset the benefits of having more teachers per student.

Region	# of teachers	# of students	Ratio	Average national exam results
Jakarta	79,593	1,578,311	1 to 19.8	60.71
Bali	46,925	777,527	1 to 16.6	53.63
South Kalimantan	44,456	621,093	1 to 14.0	51.14
East Nusa Tenggara	92,718	1,363,569	1 to 14.7	50.68
West Papua	13,904	222,953	1 to 16.0	51.97

Source: Indonesia Ministry of Education Statistics [52,53] **Academic year 2018/2019 data**

A shortage of well-trained teachers poses a significant challenge to even technology players in the market especially ones that rely on current providers to facilitate the actual content delivery. Marketplace solutions depend on their network of education contractors and vendors to provide quality experience. While these players are able to provide seamless experience on their platform, poor interaction with educators can quickly undermine the credibility of these digital solutions.

Low adoption of technology amongst educational institution and professionals

As technology becomes a more integral part of learning, teachers are required to know how to operate and leverage new technologies to facilitate classroom learning. Despite this, 60% percent of teachers do not have any experience using technology-based teaching tools. This is most likely attributed to a lack of access to proper IT equipment and a lack of retraining for education professionals.[54]

Challenges around IT infrastructure is simply an extension of a larger issue around education infrastructure in Indonesia. In 2019, there are more than 1.5 million classrooms across Indonesia out of which only 30% are considered to be in good condition. As seen in the following table, more than 15% of classrooms in Indonesia are either severely or totally damaged. With a lack of proper facilities, it is difficult for educators to upgrade with the latest technology, severely holding back the efficacy and quality of education received by students.

Classroom conditions	Number of classrooms	Proportion
In good condition	475,132	30.04%
Slightly damaged	853,257	53.94%
Moderately damaged	128,086	8.10%
Severely damaged	125,295	7.92%
Totally damaged	135	0.01%
Total	**1,581,905**	

Table XX. Number of classrooms by condition

Limited payment options

One key challenge around technology solutions is the need for digital payment solutions or credit card ownership. 66% percent of Indonesians are unbanked and do not own credit cards.[55] This makes it difficult for customers to make online purchases easily. While the availability of digital payment solutions is becoming more widespread, solution providers also need to keep abreast with the latest payment technologies and integrate them quickly to their solutions.

To add to the challenge around payments, education technology providers target students as end users. These individuals are often ineligible to apply for a personal payment solution - even digital ones - and are likely to still be dependent on their parents in making payments. This provides additional friction for players to monetise their solutions easily as they need to appeal to both students and parents before any transactions can be made.

Poor understanding of key skills to equip the next-generation workforce

More than 150 million people are in the productive demographics in Indonesia in 2019. This number is set to increase by another 40 million to reach 190 million by 2040. While Indonesia's supply of talents surmounts many other countries' in the region, a significant portion of them requires retraining to ensure their relevance in Indonesia's future.

In the next 20 years, 23 millions jobs will disappear as they get automated away or become depleted due to technological advancements. 46 million jobs will be affected by the same advent of technology and while they will not go away, retraining of the workforce is required to ensure they will be able to perform those roles.

While many would agree with the upcoming changes in the workforce requirements, organisations and individuals are not clear on the actual skills required during this transition period. A lack of clear demand makes it difficult for suppliers to come in with a solution that addresses the many challenges these organisations face. Additionally, appetite to spend on retraining is not huge at least in 2015 as a mere 7.7% of organisations actively provide training for their workforce in Indonesia.[56]

Language barrier prevents Indonesians from consuming content from global players

The swathe of educational content from global providers is becoming more accessible in Indonesia. However, due to language barriers (A survey classified Indonesian english literacy skills as low)[57] consumption of these content proves challenging. As people are thinking more globally, many are picking up new languages, which eventually provides them with access to a larger body of content for consumption.

Opportunities

The education technology sector is teeming with new opportunities. Key enablers such as afford-able computers and mobile phones, and the high level of internet penetration have acted as fodder to many of the early startups growth.

A combination of hardware and software solution helps unlock new segments

Upskill teachers to catalyse technology adoption

Partnerships to create new distribution channels and sidestep payment issues

From just in case to just in time

Localise and personalise

Tap onto ongoing government initiatives

Vocational skills and extracurricular courses

A combination of hardware and software solution helps unlock new segments

Indonesia's widespread geography makes it challenging to distribute content. While internet penetration rate has risen, there are still plenty of remote areas without tenable internet connection. Education technology players have been actively bringing innovation like hardware solutions for institutions situated in remote areas.[58] For example Zenius provides a hardware box that contains over 80 thousand videos to schools in rural areas to help them learn even without having internet connection.

Apart from alleviating internet connection issues, this solution removes concern on data streaming costs that rack up pretty quickly in areas that are poorly serviced by telecommunication providers.[59]

Upskill teachers to catalyse technology adoption

IWhile technology brings about significant improvements in the education sector, adoption will only truly happen when key stakeholders are bought in. Educators play a central role in this, and in Indonesia they have ironically been left behind in their learning journey to equip themselves with upgraded skills that will allow them to connect with the new tech-enabled generations better. By upskilling teachers with digital skills, they are better able to become ambassador of the technology and expedite various types of technology within educational institutions or even students.

Quipper, an online learning platform, decided to focus its attention to raise and provided free training to more than 15 thousand teachers across the Southeast Asia region. This proved to be great marketing as teachers involved in these training typically would be able to realise benefits their solution has to offer and ultimately promote the solution to their teacher peers.

Partnerships to create new distribution channels and sidestep payment issues

Given a high rate of adoption of mobile technologies amongst students, several education technology players partner with enablers such as telecommunication providers to solve some intrinsic issues in the market.

Players like Ruangguru, Cakap, Quipper, and Bahaso collaborate with Telkomsel, the largest telco in Indonesia, to create a customised and more affordable mobile plans to access their sites.[61] Apart from solving distribution issues, partnering with a telco sidesteps payment issues for students. Instead of leveraging digital payment solutions or credit cards, students can easily purchase education services that have been bundled into prepaid mobile plans.

Some education technology players have even partnered with hardware providers to open up new distribution channels.[62] For example, Quipper bundled its product with Samsung tablets and included 1-year free access to its content as part of the hardware purchase.[63]

From just in case to just in time

Current technologies offered in the market are focused on delivering content on-demand. These "just in case" approaches in education provide learners with a codex of information that may or may not be applicable in their lives or workplaces.

As education becomes a lot more contextualised, there are opportunities to provide insights just when they are needed. "Just in time" learning allows learners to quickly implement their learning in the right situation at exactly the right time. With the availability of artificial intelligence and sensor technologies, devices are able to detect the right moment when learners need a simple prompt or guidance to complete specific tasks.

For students, such learning can manifest in the form of AI-driven coaching that responds to students when they need help or when they need a prompt on certain homework or tasks. Similarly, in the workplace settings, individuals can receive "just in time" content or actionable insights for them to apply directly in various situations such as when they are about to give their colleagues feedback or when they need to get reminded of best practices when writing a sales email.

Localise and personalise

Solutions with a localised approach will appeal to a broader audience in Indonesia. As many Indonesians do not speak English, content that has been translated into local languages is more accessible. Aside from just language, there are opportunities to localise the actual content to reflect local use cases and situations.

Personalisation features do not only help to fit a particular solution to purpose, but also to help users eliminate unnecessary decisions in their learning journeys. As information and content become so overwhelming, a personalised approach to learning helps students focus on learning a particular topic rather than making decisions on which to focus on.

Tap onto ongoing government initiatives

Education is one of the highest priorities of the Indonesian government which has allocated 20% of the national budget for educational activities ranging from teacher certification to financial aid for in need students. Up to USD 421.9 million has been allocated to accelerate digital skill adoption among Indonesian future workforce in 2019. The money was mainly directed towards vocational training programs that upskilled about 32,000 unskilled workers through 1,000 newly built training centres.[64] Opportunities to offer content and programs that align with the government initiatives will facilitate uptake as users get to tap onto government budget to upskill themselves.

Vocational skills and extracurricular courses

While many players are crowding in the formal education segment, opportunities within other niche segments such as art, music, sports, and various digital skills are still aplenty.

Across the multiple customer segments, parents are ones that are willing to invest in their children by equipping them with unique skills to give them any advantage they can early in their children's lives. Increasing demand for extracurricular courses such as arts and crafts, mobility activities, and even leadership and mindfulness activities are becoming more popular amongst parents of younger children. Companies such as Kiddo and Parentstory are taking advantage of opportunities within this niche by consolidating fragmented players onto a marketplace that facilitates the matching of students and vendors.

Adults are also a lot more conscious of developing their own skills continuously. In the global market, solutions such as Masterclass and Udemy are targeted at adults who are looking to continuously upskill themselves with toolkits and know hows that are pragmatic and implementable in their work lives. Courses on inspiring leadership, mindfulness, and design thinking are examples of highly sought after programs, and are only becoming more relevant amongst Indonesia's workforce.

Conclusion

The education industry in Indonesia is growing fast fueled by a growing population and a newfound ability to afford education services. These reasons combined with Indonesians' tech savviness and an improved internet connectivity make the intersect of technology and education an enticing sector for many entrepreneurs.

While still a small subset of the broader education industry, the education technology industry is growing rapidly in Indonesia. While the industry is still facing many challenges around infrastructure and qualified educators, many players have been making significant headway in capturing the new generation of learners that are digital natives. Most of the key players within the industry are still focused on creating marketplace and MOOC solutions, which leverage an already established network of service providers, and simply create value through connecting buyers and suppliers.

The future of education technology in Indonesia is exciting especially as the country is accelerating towards becoming the largest digital economy in the region. The education technology industry is expected to not only reinvigorate the formal education segment, but also the professional adults and enterprise segments which has a market of up to 190 million people by the year 2040.

The growth of some of the early education technology entrants has been phenomenal in Indonesia, and it will only accelerate. The biggest winners in this industry are ones who are able traverse beyond the realms of education and software into domains such as financial services and hardware to sidestep the swathe of infrastructure and socio economic challenges rife within Indonesia.

Appendix

Glossary

MOOC is an online platform that provides classes/ learning materials in multi-media formats (texts, video, and audio) to learners with access to the internet.

The marketplace model connects education providers with target audience conveniently

The marketplace technology players provide platforms to help learners find education solution providers easily online. The education exchanges may happen either in-person, in-class or online.

Learning Management System (LMS) players are pure-play software players with highly scalable B2B model

LMS bridges education providers and learners by providing a platform to administer, deliver, and track learning progress. LMS targets the entire value chain of the ecosystem from providers, students, parents to regulators.

References

1 https://www.mckinsey.com/~/media/mckinsey/featured%20in-sights/asia%20pacific/the%20archipelago%20economy/mgi_unleashing_indonesia_potential_executive_summary.ashx

2 https://pddikti.ristekdikti.go.id/asset/data/publikasi/Statis-tik%20Pendidikan%20Tinggi%20Indonesia%202018.pdf

3 http://kopertis3.or.id/v5/wp-content/uploads/Buku-Statistik-Pendidikan-Tinggi-2017.pdf

4 https://ekonomi.bisnis.com/read/20190314/12/899813/pemerin-tah-segera-bereskan-162-juta-sertifikasi-guru#:~:text=Sekjen%20Kementerian%20Pendidikan%20dan%20Kebudayaan,ini%20selesai%20pada%20tahun%20ini

5 https://edukasi.kompas.com/read/2012/12/07/17494989/Ramai-ramai.Les.Pelajaran

6 https://www.gsma.com/mobilefordevelopment/wp-content/up-loads/2018/05/Ruangguru-Accelerating-Indonesia%E2%80%99s-educational-outcomes.pdf

7 https://www.bps.go.id/publication/2019/07/05/b18a5bd0c21-ca2c13127d382/statistik-penunjang-pendidikan-2018.html

8 https://www.bps.go.id/publica-tion/2016/09/01/06783c6249482af3622c9d85/statistik-penunjang-pendidikan-2015--hasil-susenas-modul-sosial-budaya-dan-pendidikan-.html

9 https://www.cambridgeinternational.org/news/news-de-tails/view/indonesian-students-among-the-worlds-highest-users-of-technology-27-nov2018/

10 https://www.cnbcindonesia.com/news/20190819105419-8-92899/ang-garan-kartu-pra-kerja-mencapai-rp10-triliun

11 https://www.cnbcindone-sia.com/news/20191211085421-4-122076/pak-jokowi-jadi-kartu-pra-kerja-ini-sebenarnya-buat-siapa

12 https://www.cnbcindone-sia.com/news/20200113091228-4-129466/khusus-pengangguran-nih-syarat-terima-gaji-dari-jokowi

13 https://aptika.kominfo.go.id/2019/09/tokopedia-belajar-bantu-wujudkan-kartu-pra-kerja/

14 https://edukasi.kompas.com/read/2015/01/13/01183401/Puan.Maha-rani.Wajib.Belajar.12.Tahun.Dimulai.Juni.2015

15 https://www.bps.go.id/publica-tion/2019/05/31/4a6b3b44a64b3250c10f2d36/keadaan-pekerja-di-indonesia-februari-2019.html

16 https://www.michaelpage.co.id/sites/michaelpage.co.id/-files/16777_mp_id_salary_benchmark_2020_all_web.pdf?utm_source=pi_edm&utm_medium=email&utm_campaign=ID-MP-7013Y000001HieuQAC-CT14-CH1-NON-Salary_Benchmark_2020_Report-CONT

17 https://www.brainacademy.id/

18 https://blog.ruangguru.com/mengapa-mereka-berlangganan-ruangguru

19 https://katadata.co.id/berita/2019/12/19/bidik-kenaikan-peng-guna-zenius-gratiskan-80000-video-pembelajaran#:~:text=Perusahaan%20mencatat%2C%20hingga%20saat%20ini,dibanding%20masa%20belajar%20periode%20sebelumnya.

20 https://dailysocial.id/post/strategi-zenius-dongkrak-bisnis-dan-jangkau-lebih-banyak-pengguna

21 https://www.suara.com/tekno/2019/07/18/182133/zenius-app-revolusi-belajar-kini-dalam-genggaman

22 https://e27.co/indonesian-edtech-startup-zenius-reported-ly-raised-us20m-from-northstar-group-onboarding-ex-gojek-coo-as-its-new-ceo-20191018/

23 http://zeniuscenter.com/

24 https://dailysocial.id/post/online-education-startup-quipper-school-enters-indonesian-market/

25 https://www.ef.com/epi/regions/asia/indonesia/

26 https://dailysocial.id/post/udemy-resmikan-kehadiran-di-indonesia

27   https://cakap.com/en/cakap-chat-en/

28   https://maubelajarapa.com/educators-guide/

29   https://e27.co/language-e-learning-platform-squline-rebrands-into-cakap-breaking-local-record-20190408/

30   https://kursus.kemdikbud.go.id/index.php/download/data-dan-informasi-kursus-dan-pelatihan-tahun-2018/?wpdmdl=2455&refresh=5e5f51cfda3361583305167

31   https://wartakota.tribunnews.com/2016/12/20/gandeng-aki-no-sora-squlinecom-buka-kursus-online-bahasa-jepang

32   https://mediaindonesia.com/read/detail/85986-luncurkan-kursus-bahasa-jepang-daring-squline-gandeng-aki-no-sora

33   https://kumparan.com/kumparantech/squline-aplikasi-kursus-bahasa-asing-dengan-jadwal-fleksibel

34   https://cakap.com/en/cakap-chat-en/

35   https://dailysocial.id/post/pintek-funding-global-founders-capital

36   https://pintek.id/faq

37   https://infokomputer.grid.id/read/122057852/pintek-pinjaman-online-untuk-menempuh-pendidikan?page=all

38   https://edukasi.kompas.com/read/2020/02/11/14300081/beasiswa-pintaria-super30-pelatihan-gratis-6-bulan-lanjut-penempatan-kerjahttps://edukasi.kompas.com/read/2020/02/11/14300081/beasiswa-pintaria-super30-pelatihan-gratis-6-bulan-lanjut-penempatan-kerja

39   https://swa.co.id/swa/trends/grup-samator-jadi-klien-pertama-harukaedu-corporateedu

40   https://dailysocial.id/post/rebranding-lingkaran

41   https://www.quipper.com/id/video/

42   https://www.cambridgeinternational.org/news/news-details/view/indonesian-students-among-the-worlds-highest-users-of-technology-27-nov2018/

43   https://selular.id/2015/03/survei-siswa-ingin-pelajaran-coding-di-sekolah/

44   https://www.researchgate.net/publication/323254384_Pengaruh_Elemen_Gamification_Terhadap_Hasil_Belajar_Siswa_pada_E-learning_Pemrograman_Java

45   https://newzoo.com/insights/infographics/the-indonesian-gamer-2017/

46   https://blog.ruangguru.com/belajar-efektif

47   https://teknologi.bisnis.com/read/20190710/266/1122556/ruangguru-tambah-3-fitur-bimbel-online-baru

48   https://www.cermati.com/artikel/hasil-survei-ternyata-transportasi-umum-ini-yang-digandrungi-orang-indonesia

49   https://squline.com/corporate-class/

50   http://hdr.undp.org/sites/default/files/hdr2019.pdf

51   https://data.worldbank.org/indicator/SE.PRM.ENRL.TC.ZS

52   http://statistik.data.kemdikbud.go.id/

53   https://puspendik.kemdikbud.go.id/hasil-un/

54   http://jejakrekam.com/2019/03/19/hasil-survei-pustekkom-60-persen-guru-di-indonesia-gagap-teknologi-informasi/

55   https://www.thinkwithgoogle.com/intl/en-apac/tools-resources/research-studies/all-eyes-e-money-race-reach-180m-unbanked-indonesians/

56   https://www.enterprisesurveys.org/en/data/exploreeconomies/2015/indonesia#workforce

57   https://www.ef.co.id/epi/regions/asia/indonesia/

58   https://teknologi.bisnis.com/read/20190925/266/1151833/kemendes-pdtt-kolaborasi-dengan-quipper-bangun-pendidikan-di-halmahera-barat

59   https://dailysocial.id/post/strategi-zenius-dongkrak-bisnis-dan-jangkau-lebih-banyak-pengguna

60   https://republika.co.id/berita/q1fi4t10017000/quipper-ajak-guru-berinovasi-lewat-teknologi

61   https://investor.id/it-and-telecommunication/telkomsel-hadirkan-paket-ilmupedia

62   https://gizmologi.id/gadget/samsung-galaxy-tab-a-with-s-pen-ruangguru/

63   https://marketeers.com/kolaborasi-quipper-samsung-dukung-pembelajaran-siswa/

64   https://www.liputan6.com/bisnis/read/3865831/kemnaker-fokus-tingkatkan-program-pelatihan-di-blk