LiveEdu - Decentralized Peer-to-Peer Project Learning Network for People to Improve Their Job Skills in Future Technologies

Y-combinator Company

Abstract

LiveEdu is a decentralized peer-to-peer project learning network for people to improve their job skills in future technologies. The main participants in the network are content creators, viewers, moderators, API developers, colleges, schools, libraries, businesses and third-party online education companies. We are applying what Steemit did for blogging to the online education market. We are an existing business, with team members from Amazon and Y-combinator. LinkedIn bought Lynda.com for $1.5 billion and Lynda was founded 20 years ago. LiveEdu is building today the next generation Lynda.com. LiveEdu is building the world's largest project learning network starting with the seven topics: programming, game development, data analytics, design, augmented and virtual reality, artificial intelligence and cryptocurrencies. We aim to develop a decentralized online learning network that is not reliant on learning theory, but practical career skills by using real complete projects. Content creators create educational premium projects and are paid monthly, lifelong royalty fees as viewers learn from their projects.

The immediate business objective targets development of 10,000 premium projects with over 1400 premium projects for each of the seven topics. Our network will be all opened for all topics in 2019. In this paper we explain the benefits of project learning as well as the token mechanics for the blockchain EDU smart contract tokens and how we intend to fully integrate EDU into the whole network.

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1. Introduction and Executive Summary

1.1. Executive Summary:

LiveEdu is a decentralized peer-to-peer project learning network for people to improve their job skills in future technologies. The main participants in the network are content creators, viewers, moderators, API developers, colleges, schools, libraries, businesses and third-party online education companies. We are an existing business and our site is accessible under the domain www.liveedu.tv. We are applying what Steemit did successfully for blogging to the education market. Our team members are from Amazon and Y-combinator. LinkedIn bought Lynda.com for $1.5 billion and Lynda was founded 20 years ago. LiveEdu is building today the next generation Lynda.com. Over 1,000,000 people from 194 countries have used our product since we launched our alpha version at the end of 2015, with a focus on software development projects. More than 13,000 streamers (content creators) created over 200,000 pieces of video content. In 2017 we launched premium projects and expanded the number of topics by adding the six new topics: game development, data analytics, design, augmented and virtual reality, artificial intelligence and cryptocurrencies.

There are two main types of projects on LiveEdu, namely premium and non-premium projects. For the purpose of this ICO, only premium projects will be tokenized. Unlike non-premium projects, premium projects are educational, narrative, well structured and created with the sole intention of teaching. It is the main project type LiveEdu has moved to focus on.

There is no online project learning platform that teaches college students and professionals (who have passed the beginner stage) how to build complete products. LiveEdu does not target beginners, but those who have more than basic introductory knowledge of a field. College students and professionals working in the industry use LiveEdu. They live in the US, China, Europe, Brazil and use premium projects to learn how to build complete products.

Our premium projects are available either as live stream or video. The LiveEdu network is a classic model that is highly suitable for blockchain smart contract tokenization. The blockchain will decentralize key product development decisions that are made on both the supply and demand side. Tokenization will help LiveEdu build its network faster on both the demand and supply side:

Supply side
- LiveEdu does not create content itself, but provides a peer-to-peer premium project network that connects streamers to viewers from the whole world.
- We plan to use tokenization as a key approach to solve our chicken-and-egg marketplace problem by incentivizing early premium project creators with a mix of EDU tokens and cash.
- Tokenization will enable LiveEdu to bind premium content creators because, they will have a shared interest in the long-term value appreciation of EDU tokens.
- We plan to use investors in the ICO, who have subject matter domain expertise, to create premium projects. Therefore we see the ICO as a way to build deep relationships with potential premium project creators.

Demand side:
- The success of LiveEdu will depend on creating content that viewers want to watch. So far, streamers have decided which projects to create, frequently deviating from what viewers want to watch. Tokenization will empower viewers as token holders to submit projects or vote on projects. This will transform LiveEdu from a supply-side-driven marketplace to a demand one.
- Tokenization will enable LiveEdu to launch a native payment currency that is deeply embedded into the product and used for all payment transactions.
- Tokenization will enable LiveEdu to reward site supporters, moderators and API ecosystem developers, using EDU tokens without spending any fiat upfront, which reduces business risk.

LiveEdu does NOT compete directly with existing online learning platforms, as it is focused on practical projects (project learning) and users who have passed the beginner stage (post-beginners, intermediates and experts). Compared to the indirect competitors Lynda, Pluralsight and Udemy:
- LiveEdu does not have expensive content production cost (< $500 per project).
- Premium project completion speed on LiveEdu is faster (< 1 month).
- LiveEdu uses only project learning.
- Real practical projects and real production level work.
- Learners watch how to build a complete product.
- Interactive Q&A chat to discuss things in real time.
- LiveEdu is a peer-to-peer network (decentralized) which gives it access to a bigger content creator pool.

LiveEdu is an existing developed product with a monetization model and seasoned team. Dr. Michael J. Garbade leads LiveEdu as founder and CEO. Our core team has worked together since the company launched: Alex Zhukov and Ilya Toka. As a young team of business guys, educators, back-end engineers, front-end developers and tech marketers with work experience from Amazon, General Electric, Photobucket, Rebate Networks, Lashou and Mail.ru, the team has extensive sector domain expertise in the education and video streaming space. Moreover, the team has worked for two years building LiveEdu and has gathered enormous insight on user acquisition, content management, monetization models, non-valuable uses cases, and market data.

The shift from non-structured casual streaming (non-premium projects) to focus on monetizable projects (premium projects) represents the only change to LiveEdu's business model. We have all the ingredients in place to scale the LiveEdu network and business right after the ICO:
- Established team with experience building education and video streaming products.
- Very technically-strong team. Built our entire live streaming and video infrastructure from scratch with 50 edge servers worldwide.
- No team risk - an established team working together.
- No product development risk - Not starting from zero.
- Extensive data on cost-effective user acquisition channels.
- Monetization experiments and subscription model completed.
- Over 13,000 content creators with no paid marketing.
- Existing users will be retained with attractive economic model.
- Strong viewer base interested in premium projects that meet their needs.

Our target users are very familiar with live and video streaming. It is part of their everyday activity. Media streaming platforms like Twitch, YouNow and Meerkat popularized live streaming, while YouTube popularized video streaming. These media streaming channels provide online entertainment; while, very distinctively, LiveEdu focuses on online learning.

LiveEdu will build the world's largest project learning network. Self-paced e-learning, in particular, generates global revenues in the region of $46.6 billion as of 2016.[1] LiveEdu's mission is audacious and targets the online learning market. We aim to develop a decentralized online learning ecosystem that is not reliant on learning theory,

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[1] "ELEARNING MARKET TRENDS AND FORECAST 2017-2021." Docebo E-learning. https://eclass.teicrete.gr/modules/document/file.php/TP271/Additional%20material/docebo-elearning-trends-report-2017.pdf.

but practical career skills by using real complete projects. The peer-to-peer network connects streamers (content creators) and viewers (learners) from all over the world. Streamers will create educational premium projects and earn a monthly, lifelong royalty fee when viewers watch their projects.

LiveEdu also seeks to bring cryptocurrency to the masses by educating college students and professionals about cryptocurrency; through practical projects covering basics, blockchain mining, Bitcoin, Ethereum, security and ICO.

LiveEdu's token is called "Education token", having the abbreviation "EDU" and based on the Ethereum ERC-20 standard. EDU tokens will be fully integrated into all core modules and transactions on LiveEdu; a payment method for financial transactions that, rewards premium project streamers, viewers, site moderators, and API ecosystem developers. For the pre-ICO stage purchases can be done in ETH, BTC, LTC and fiat (EUR, USD, Paypal), but for the public sale only BTC, LTC and ETH will be accepted.

There is a soft cap of $1M and hard cap of $8M for ETH investments (non-ETH investments do not count toward the hard cap). For the execution of this ICO, LiveEdu partnered with the reputable and experienced ICO technical advisory firm "New Alchemy" that is guiding LiveEdu in all aspects of the ICO. LiveEdu has been featured in Mashable, Venturebeat, TechCrunch, Habrahabru, Spiegel, Opensource.com, Pingwest, Businessinsider, and many leading tech blogs in China, Brazil and Russia.

1.2. Project History and Milestone Achievements

LiveEdu currently exists. We launched our beta version at the end of 2015 under the name 'Livecoding.tv' with a focus on programming related content. In 2017, we changed our name to 'LiveEdu', expanded our content topics and shifted to focus on monetizable premium projects. Since launching, LiveEdu has been used by over 1,000,000 people from 194 countries. More than 13,000 content creators have produced over 200,000 pieces of video content. Some of the major project milestones include:
- Launching Livecoding.tv end of 2015.
- Announcing the launch on Reddit which included a pre-signup of 3000 people.
- Joining Y-combinator. Releasing the Beta version that resulted in the addition of HTML5 streaming and LiveEdu API.
- Adding the Asia-Pacific streaming cluster, adaptive bitrate streaming
- Re-branding as LiveEdu in 2017, adding a subscription model, premium projects, six new topics and releasing a new site design.

1.3. Team, ICO Advisors and Partners

The parent company of LiveEdu.tv is LiveEdu Inc. which is legally registered in San Francisco, CA. LiveEdu Inc. owns the UK subsidiary Livecoding Ltd. We are a remotely distributed company with team members working from the US, Europe and Asia. A young team of business guys, educators, backend engineers, front end developers and tech marketers. Our core team members are the same since launch; Dr. Michael J. Garbade, Alex Zhukov and Ilya Toka.

Dr. Michael J. Garbade is a serial entrepreneur, hybrid business guy and Python engineer, who enjoys building applications in Python, Django and Sencha Touch. He co-founded and exited the e-Commerce cashback platform Kyuda and ran business operations for multiple start-ups at Rebate Networks. He previously worked at Amazon, GE, and Photobucket. From past projects, he is experienced in building live music and video streaming applications using Wowza, NGiNX RTMP and Red5. He has a Masters in business administration and physics and a PhD in finance. He speaks English and German and has worked in the US, Europe and Asia. At LiveEdu he is the CTO and also runs business operations. He has been involved with multiple bitcoin and cryptocurrency startups. A few years ago, he built the Bitcoin education quiz app Bitcoinmillionaire on Android, iOS and Web. Initially created as a personal side project, he plans to add it to the list of premium projects on LiveEdu and open source the code base so other developers can develop it further.

Alex Zhukov is an experienced Python and Django developer with experience building Django applications starting from Django 0.96. Besides Python he commands modern JavaScript, React.js, Go, and Erlang/OTP. A self-taught programmer with a masters degree in radiophysics, he's spent most of his career in software, systems and networking positions at ISP companies including Novgorod Datacom and Alphacom. At LiveEdu he develops backend web applications.

Ilya Toka is an experienced JavaScript developer with experience building React.js applications. Besides JavaScript he also commands HTML, CSS, Jekyll, Django, Sass, Gulp, Webpack, and Git. Another self-taught programmer, he worked in different positions at several companies including Criterion and NGO. At LiveEdu he develops the frontend part of the application.

Post ICO, we plan to expand our team to fill key positions including a seasoned Head of Marketing, Head of Sales, Product Manager and Head of Curriculum. Running a

technically flawless ICO can be challenging for a startup that has never done one before. Consequently, LiveEdu partnered, early on, with the reputable and experienced technical ICO advisory firm, "[New](#) [Alchemy](#)", that is guiding LiveEdu in all aspects of the ICO including; smart contract, token security, token mechanics, token allocation, white paper and token deployment. Managing Director Peter Vessenes leads New Alchemy. He launched the first venture- capital-backed Bitcoin company in 2011, was co-founder of the Bitcoin Foundation and holds a patent for deanonymizing Bitcoin. His team members at New Alchemy are experts in the areas of business development, investment banking, and fundraising. New Alchemy ran and managed multiple ICOs that raised over $200M including Monolith Studios, Funfair and TokenCard. The Funfair ICO raised $26M in four hours.
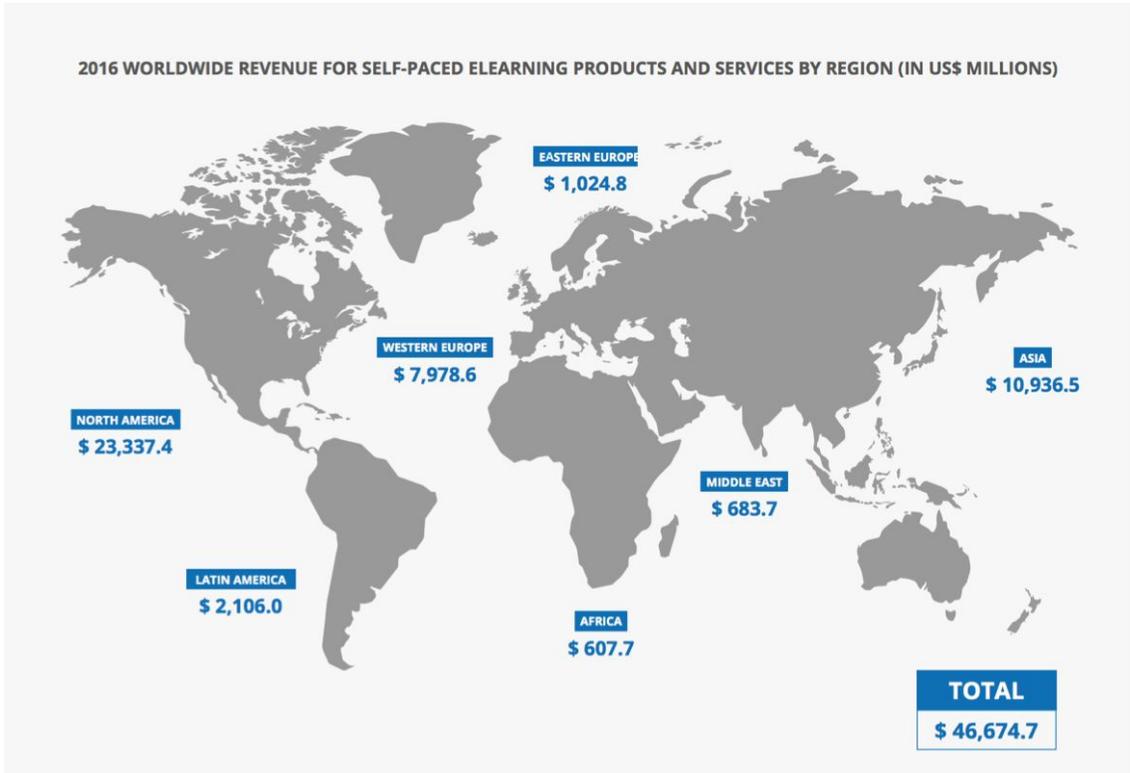
1.4. Problem and Product Solution

Many students and professionals dream of building real products. But not many achieve this goal because they lack the real skills needed to build a product from the fields of programming, game development, data analytics, design, augmented reality, virtual reality, artificial intelligence or cryptocurrencies. It is easy for anybody to take introductory courses on any topic online and say they completed it. Udemy and Lynda do not teach learners how to build real products from beginning to end. Many learners give up after learning the basic curriculum due to the lack of real life applications of their learning. Beginners can easily find places online to learn basic introductory courses on Udemy, Pluralsight or Lynda.com. Those courses are basic and do not necessarily teach learners the practical skills needed to build a real product. Where people get stuck and give up is after they have finished the beginner courses and want to build real products. There is no platform out there that teaches learners how to build real products. This is the exact problem LiveEdu solves. Focused on learners who already have basic knowledge on a topic, LiveEdu uses practical projects to teach learners how to build real products from scratch and we give them project files to download and practice with. LiveEdu does not create content itself, but provides a monetization network for content creators to teach premium projects. With LiveEdu learners are able to:

- Watch and learn how to build a complete product.
- Watch sessions live or as archived video.
- Download videos and project files to practice with.
- Get instant answers on questions in interactive live chat.
- Be in a supportive peer-to-peer knowledge-sharing community.
- Improve their job market skills and make more money in their career.

1.5. Market and Competition Analysis

As of 2015, the global e-learning market was valued at $165 billion and poised to "grow at a CAGR of around 7.2%, over the next decade, to reach approximately $325 billion by 2025"[2]. Self-paced e-learning generated global revenues in the amount of $46.6 billion in 2016. Some of the largest regions for this revenue generation include North America, Asia and Europe. These three areas currently generate revenues in the region of $23.3, $10.9 and $9 billion, respectively[3].

2016 WORLDWIDE REVENUE FOR SELF-PACED ELEARNING PRODUCTS AND SERVICES BY REGION (IN US$ MILLIONS)

EASTERN EUROPE $ 1,024.8
WESTERN EUROPE $ 7,978.6
ASIA $ 10,936.5
NORTH AMERICA $ 23,337.4
MIDDLE EAST $ 683.7
LATIN AMERICA $ 2,106.0
AFRICA $ 607.7
TOTAL $ 46,674.7

[4]

Some of the biggest players in this market include platforms such as Zuoyebang, Juesheng, Changingedu, NetDragon, Udemy, Coursera, Udacity, Lynda and Pluralsight. In China, a few of the largest internet companies, including Alibaba, Baidu and Tencent, have also entered the commercial and eLearning markets in partnership with universities. More people worldwide are adopting these learning platforms in order to

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[2] "E-Learning Market Size- Industry Share Report, 2023."
https://www.gminsights.com/industry-analysis/elearning-market-size
[3] "ELEARNING MARKET TRENDS AND FORECAST 2017-2021." Docebo E-learning.
https://eclass.teicrete.gr/modules/document/file.php/TP271/Additional%20material/docebo-elearning-trends-report-2017.pdf.
[4] Ibid.

improve their skills to meet certain practical requirements for new jobs, as well as to satisfy their own curiosities. Trends emerging in the industry include live streaming learning, peer-to-peer learning, advanced self-learning, project learning, mentorship-based learning, gamified learning and group-based learning. Note that the market for VR, AR, AI and cryptocurrency education is nascent and not covered by any player yet. LiveEdu does NOT compete directly with existing online learning platforms as we are focused on practical projects (project learning) and users who have passed the beginner stage (post-beginners, intermediates, experts).

LiveEdu focuses on the intermediate to expert educational levels, while other existing online education sites are focused primarily on beginners. We address the main reason people start learning new skills: building a product. We don't see Coursera, Udemy or Udacity as competitors; but as potential partners to work with. We see them as customers and distribution partners and plan to syndicate our content to them via our API. Those sites are great for beginners to learn theory and introductory topics. LiveEdu does not provide this, but emphasizes teaching people, who are above the level of these sites, how to build a complete product, e.g a VR Game, an AI Bot, a Bitcoin auto-trader. You could think of Coursera, Udemy and Udacity as kindergarten and LiveEdu as high school.

Compared to the indirect competitors Lynda, Pluralsight and Udemy:
● Indirect competitors have high expensive content production costs while it costs LiveEdu less than $500 to create a complete project.
● Project production speed on LiveEdu is faster (< 1 month).
● LiveEdu uses only project learning.
● Real practical projects. Real production level work.
● You can learn how to build a complete product.
● Interactive Q&A chat to discuss things in real time.
● LiveEdu is a decentralized peer-to-peer network which gives it access to a bigger content creator pool.
● LiveEdu is flexible and can create projects on new emerging technologies faster.

2. LiveEdu Network and API Ecosystem
2.1. List of Topics and Categories
LiveEdu covers seven topics; programming, game development, design, data science, virtual and augmented reality, artificial intelligence and cryptocurrencies. Each of these seven topics contains its own sub-categories. LiveEdu initially focused on building premium projects emphasizing the topic of programming. Programming currently

remains the topic with the largest content volume. Six additional topics were launched in August 2017 and LiveEdu is in the early stages of developing significant content for them. Part of the ICO proceeds will be used to incentivize streamers to create premium projects.

Programming	Data Science	Artificial Intelligence	VR & AR	Design	Game Development	Cryptocurrency
As Currently On LiveEdu	Data Visualization	Machine Learning	Mobile VR	Logo Design	GameDev	Cryptocurrency Basics
	Big Data	Robotics	Desktop and Console VR	Mobile App Design	GameMaker	Blockchain Mining
	Data Analytics	Natural Language Processing	VR Games	Web App Design	Unreal Engine	BitCoin
	Text Processing	Self Driving Car	Augmented Reality	Art and Illustration	Love2D	Ethereum
	Data Warehouse	Computer Vision		UX Design	Unity	Security and Hacking
	Data Mining					ICOs
	Wolfram					

2.2. Main Product Features: Live Streams, Videos, Chat

Content on LiveEdu is organized around projects. Each project contains a live streaming channel, video project playlist and live chat window. Each live stream is archived automatically as a video. LiveEdu gives content creators the ability to deliver their projects via live stream or offline recording. There are two main types of projects on LiveEdu; premium projects and non-premium projects. The interactive live chat is the main mode of Q & A communication between a content creator and viewers. Learners ask questions, give suggestions for improvement and also socialize with other learners. When a learner opens a live stream he can see the live channel, chat window, project description, curriculum and downloadable resources. Live Streams can be pre-scheduled or not scheduled and are delivered in real time. The schedule contains all pre-announced live streams. In order to avoid missing any live stream, learners can subscribe to a content creator and are notified when a stream is live. Live streams and videos can be watched in HTML5 or flash and are delivered in three quality formats 480p, 720p and 1080p. Even though LiveEdu does not yet have native mobile apps, streams and videos can be watched in HTML5 on smartphones and tablets. Content

creators use the streaming software client Open Broadcaster Software (OBS) to stream their desktop, audio and camera to one of the LiveEdu streaming origin servers.

2.3. Premium Projects

Premium projects are created with the sole intention of teaching learners. They are fully narrative, structured, contain well-drafted project descriptions, streamed on a weekly schedule and have downloadable project resources. The creation of premium projects undergoes a strict content moderation process to ensure the highest quality standard. Creating a premium project requires the content creator to spend time preparing the content. Content creators selected for premium projects have vast, real industry experience, with at least four years in their field. They love teaching and sharing their skills to train and educate the next generation to improve their practical career skills. On LiveEdu, "live" premium projects are displayed under the "Premium" tab of the live stream section. In order to decide which projects to create, we have a project request board on the site, where learners submit project suggestions and then other learners upvote or downvote the idea. Listed below are examples of premium projects, from the fields of data science and programming, that expand on how LiveEdu teaches learners how to build real products:

Project Title: Python Data Analytics and Visualization

Ryan Schuetz, a developer from Minneapolis, United States with over eight years of experience; covers all facets of building a complete and operational analytical dashboard. Learners are guided through all the steps and concepts, starting from setting up a new Django project, building an ORM model, business logic, math functions and visualizing data using JS libraries (D3, NVD3, Charts.js). Ultimately, learners will be able to create their own data analytics and visualization application.

Project Title: How to Create a Dating Web App in Node.js

Igor Kuzmenko, a software engineer from Odessa, Ukraine who resides in Basel, Switzerland; explains, in detail, how learners can use Node.js, MongoDB, and React.js to quickly build products. He has about eight years of experience shipping products and has founded two startups. Throughout this highly educational project, Igor covers all the details of creating a dating website so a learner can build it from scratch, add their own features, and adapt it to their specifications.

Project Title: Machine Learning Model: Python Sklearn & Kera

Andrey Bulezyuk, a data science expert from Nuremberg, Germany with over five years of experience in Python; teaches learners how to create two simple machine learning

applications to solve a classification problem. Nonetheless, it is one of the most complex problems in the world, since the data they are trying to "predict" is stock market data. Learners can take a look at two completely different libraries; Sklearn and Keras. Before they dive into the main task, they can see what a "Hello World", in Machine Learning, looks like. After that, they learn numer.ai and use their pre-defined data sets.

LiveEdu now focuses on 'Premium projects' because they provide the maximum educational value for learners compared to non-premium projects. In addition, learners are willing to pay for them because they offer huge educational value. Learners pay a monthly subscription starting from $9.99 to $19.99, depending on the number of topics. There are also quarterly, bi-annual and annual pricing packages. The table below illustrates the subscription price packages. We started monetization with a focus on consumers using a B2C model, but our main sustainable revenue source from bulk subscription purchasers, such as public institutions (high schools, libraries, colleges), businesses (B2B) and other established online learning platforms (bootcamps, Udemy, Lynda, Codecademy, Udemy, Pluralsight). We plan to start bulk subscription sales in one year.

SINGLE	TRIPLE	ALL!
1 topic	**3 topics**	**All topics**
Unlimited access to premium projects	Unlimited access to premium projects	Unlimited access to premium projects
Unlimited access to project playlists	Unlimited access to project playlists	Unlimited access to project playlists
Download project files	Download project files	Download project files
Download project videos	Download project videos	Download project videos
Access for mobile apps	Access for mobile apps	Access for mobile apps
Send project requests*	Send project requests*	Send project requests*
Watch in high or low resolution	Watch in high or low resolution	Watch in high or low resolution
No Advertising	No Advertising	No Advertising
Unlimited project creation	Unlimited project creation	Unlimited project creation
Up to XGB video storage per month for non-educational content	Up to XGB video storage per month for non-educational content	Up to XGB video storage per month for non-educational content
Set videos private	Set videos private	Set videos private
Opt out archiving	Opt out archiving	Opt out archiving
Team Channel	Team Channel	Team Channel
24hr customer support	24hr customer support	24hr customer support
$9.99 /mo START FREE TRIAL	$14.99 /mo START FREE TRIAL	$19.99 /mo START FREE TRIAL
Save more with annual subscription!	Save more with annual subscription!	Save more with annual subscription!
$56.99 /6 month SAVE 5% SUBSCRIBE	$85.99 /6 month SAVE 5% SUBSCRIBE	$113.99 /6 month SAVE 5% SUBSCRIBE
$107.99 /year SAVE 10% SUBSCRIBE	$161.99 /year SAVE 10% SUBSCRIBE	$215.99 /year SAVE 10% SUBSCRIBE

2.4. LiveEdu API Ecosystem and Third-party Apps

As LiveEdu seeks to position itself as the major learning network in the world, an API supports making this a reality. Authentication and access controls are performed using standard and widely supported OAuth2 protocol. The API is available over HTTPS and follows RESTful conventions. Third-party developers can build their own complete applications on top of the LiveEdu API. These can be bots, mobile apps, websites, widgets or plugins. As the users are mostly software developers, providing them API access provides a way to empower end-users to do things the network was not built to do. One example of this is the LiveEdu streamer, Iamvalerio, who is using the API to build a LiveEdu Android app.

3. LiveEdu EDU Token Model

3.1. Decentralization of Learning and Professional Development

Decentralization of learning is an educational shift from conventional learning to a modern approach; where knowledge is gained from project learning, peer-to-peer learning, practical learning or learning-by-doing. In contrast to traditional teacher to student learning, decentralized learning is multidimensional.[5] Due to the shift in learning from formal institutional training at universities to informal career oriented learning, students and professionals are seeking practical modes of learning. According to a 2016 report by Online Learning Consortium, more than 5.8 million people have been signing up for online education each year for the last decade.[6] In a study by Class Central, it is stated that the number of students worldwide who have signed up for at least one course is 58 million.[7] Another facet of decentralized learning can be attributed to the high college tuition costs. In a news report by The Washington Post, increasing college fees have driven learners to seek alternative degrees. Learners and professionals are instead opting towards more concise and skill oriented training like online courses and bootcamps.[8] For nascent high in-demand professions in the fields of programming, game development, design, virtual reality, augmented reality, artificial intelligence and cryptocurrencies, informal learning is the only way for students to acquire the necessary skills.

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[5]https://www.european-agency.org/sites/default/files/Decentralisation%20in%20Education%20Systems.pdf

[6] https://onlinelearningconsortium.org/news_item/report-one-four-students-enrolled-online-courses/

[7] https://www.class-central.com/report/mooc-stats-2016/

[8] https://techcrunch.com/2016/02/26/linkedin-and-the-golden-age-of-american-education/

A research paper by John W. Thomas, explains peer-to-peer learning as a way in which students, through mutual feedback, learn from one another to abandon misconceptions and search for better solutions[9]. A learning network like LiveEdu is based on project peer-to-peer learning and enables users from all over the world to exchange ideas and learn from each other.

Project learning is a mode of informal education, where you learn either by directly participating or by watching a real-time project. In a research paper by two Australians, Julie Mills and David F. Treagust, it was found that projects linked to programming and design, require a lot of people working in unison. For any learner, there is a very comprehensive and practical source of knowledge if they can learn from real-time projects.[10] Decentralized learning is probably best manifested by the process of learning by doing. A research report by Anzai, Yuichiro and Simon H.A, asserts that the 'Learning by doing' approach makes learners acquainted with real tasks and not just some theoretical models.[11]

3.2. Use-Cases for EDU Smart Tokens

Each positive activity a learner, content creator, site moderator or ecosystem participant completes on LiveEdu represents the minting of EDU tokens. EDU tokens will be fully integrated into all core modules and transactions on LiveEdu: a payment method for all financial transactions; to reward premium project creators, positive learner behavior, site moderators, and API ecosystem developers. When EDU tokens fully roll out and integrate into LiveEdu, the chart below shows how EDU tokens will be used on our website and in mobile apps.

All new and existing LiveEdu users will be assigned an EDU token wallet. Each LiveEdu user will receive a small free token amount as a starting balance. For each new user, that creates an account on site, a wallet will automatically be created to store their tokens. The wallet will also be used for incoming and outgoing user token transactions.

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[9]

https://www.researchgate.net/profile/William_Damon2/publication/223299779_Peer_Education_The_Unta pped_Potential/links/563a44cb08ae337ef29841e3/Peer-Education-The-Untapped-Potential.pdf

[10]

https://www.researchgate.net/publication/246069451_Engineering_Education_Is_Problem-Based_or_Proj ect-Based_Learning_the_Answer

[11] Anzai, Yuichiro and Simon H.A , 1979, "The theory of learning by doing" The Journal of Psychological Review
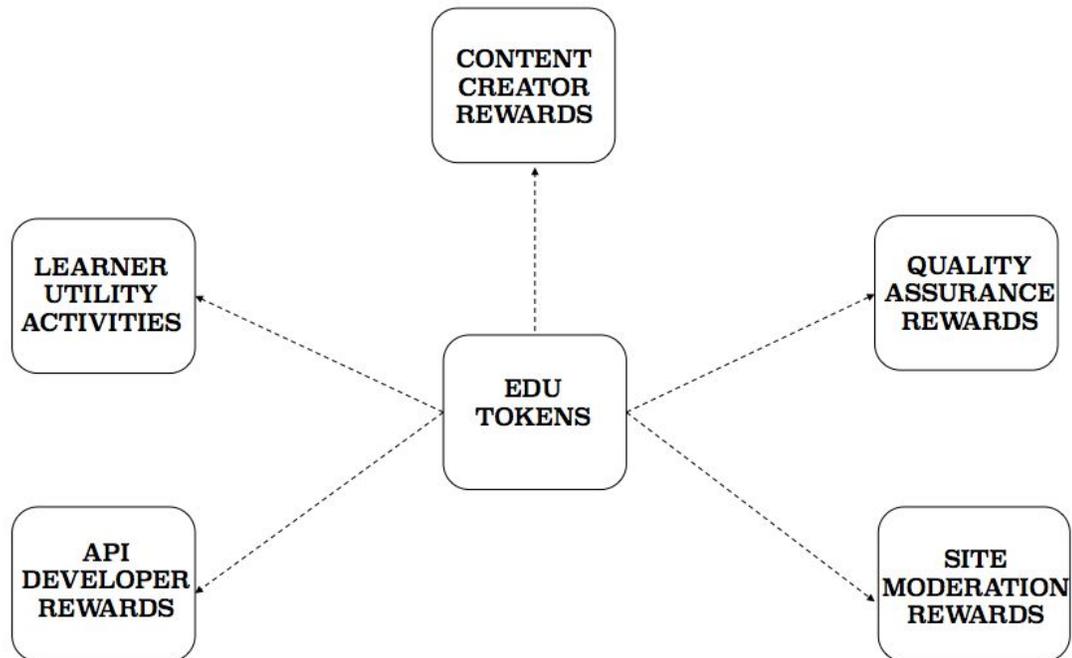
3.2.1. Payment Method for all Financial Transactions

EDU tokens will replace fiat payment methods as the main method of payment by users for subscriptions and donations. Currently, Stripe and Paypal power fiat financial transactions on LiveEdu. Paypal's lack of transparency, in its transaction fee calculation based on the location of the buyer, poses a big issue for LiveEdu. When EDU tokens are fully deployed, users can make their 'Single', 'Triple' or 'All' subscription payment, without credit cards or Paypal accounts. Users in Europe and Asia, without a credit card or Paypal account, will be able to buy EDU tokens with their normal bank accounts and pay for their subscriptions in EDU. LiveEdu has an international user base with people from 194 countries. Thousands of donations are made monthly on LiveEdu to content creators. Donations are one of the ways learners show their appreciation to content creators.

Subscription prices on LiveEdu will be denominated in USD$ and not EDU units. Viewers cannot use fiat, BTC or ETH directly on LiveEdu. They must first buy EDU tokens and then expense them for activities they do on-site. The most important viewer activities will cost a certain number of tokens each. Viewers buy EDU tokens in $5 increments with a minimum starting amount of $10. The total number of tokens a user will get, at the time of purchase, will depend on the EDU token market price at that time.

Viewers will use the tokens for:
- paying subscriptions,
- downloading project files,
- sending messages,
- voting on projects,
- submitting project requests,
- requesting custom projects,
- sending personal Q&A to streamers and
- donations.

Since we have a subscription model, each month EDU tokens are distributed to paying subscribers. For example, if a user has a monthly single subscription for $10, each month we distribute 30 tokens to him. Viewers, without a subscription can buy EDU tokens to hold them in their wallets or use them for non-subscription-related activities. Token price value changes will not affect the subscription price USD$ nominal value; but only affect how many tokens a user needs to buy a subscription.

3.2.2. Paying Premium Project Content Creators

As shown in the LiveEdu token utility model (see section content creators), premium project creators will be rewarded EDU tokens as partial compensation for their work. Thirteen percent (13%) of all tokens, minted for the purpose of this ICO, are reserved for them and will be distributed over a 3-year period until all premium project creator tokens are allocated. Each month a fixed percentage of two point eight percent (1/36 months = 2.8%) of the original total content creator tokens will be distributed. The amount of EDU tokens allocated monthly to each premium content creator is calculated based on his proportional view-time. Proportional view time of a content creator is his total view time divided by total LiveEdu view time. Total LiveEdu view time is the sum of the view time of all premium live streams and videos on LiveEdu for a given month. Total premium content creator view time is the sum of the view time on all of his live streams and videos for a given month. The number of tokens to be allocated is simply calculated by multiplying the proportional view time by the total number of fixed monthly tokens.

$$T_{CC} = (T_{CCVT} / T_{TLVL}) * T_{FMT}$$

T_{CC} = total number of tokens allocated to a content creator monthly
T_{TCCVT} = total monthly content creator view time
T_{TLVT} = total monthly LiveEdu view time
T_{FMT} = total number of fixed monthly tokens

3.2.3. LiveEdu Token Utility Activities for Learners

Learners on LiveEdu will be rewarded for each positive learning activity they complete:
- watching live streams,
- watching project video playlists,
- total monthly view time,
- submitting premium project suggestions,
- inviting friends and
- following projects.

For each activity a learner completes successfully, a tiny token fraction will be allocated. The total number of tokens to be allocated to a learner at month's end is the sum of all tokens the learner minted:

$$T_{TL} = \sum_{i=1}^{n} T_L$$

T_{TL} = total tokens allocated to learner
T_L = sum of tokens for each desired learner activity completed

3.2.4. LiveEdu Token Rewards for Quality Assurance and Site Moderation

Quality assurance encompasses reporting bugs, technical streaming issues, video quality issues and content moderation. LiveEdu users will be allocated tokens for each quality assurance activity. Quality assurance is important as it improves user experience for all learners and content creators. Site moderators represent an integral part of the LiveEdu community and without them the site cannot run. Paying site moderators with EDU tokens for their time will motivate them to carry out site moderation weekly.

$$T_{TMQ} = \sum_{i=1}^{n} T_{MQ}$$

T_{TMQ} = total tokens for site moderation or quality assurance
T_{MQ} = sum of tokens for each moderation or quality assurance activity completed

3.2.5. LiveEdu Token Rewards for LiveEdu API Ecosystem Developers

The API is in high demand by LiveEdu users but we have not been able to meet all of the endpoint requests developers have been asking for, due to limited engineering capacity. So far, LiveEdu provides no attractive incentive to API ecosystem developers to develop large numbers of applications. EDU tokens will be allocated to developers for each application developed on top of the LiveEdu API, that is deployed and used by at

least 1000 end users. The best apps and bots will be endorsed by LiveEdu and shared to all LiveEdu users. The amount of tokens for each app developed is the sum of the base amount plus additional tokens depending on popularity, quality of app, and availability of source code for others:

$$T_{AD} = BTA + \sum_{i=1}^{n} TA_{API}$$

T_{AD} = total tokens per app developed
BTA = base token amount
TA_{API} = sum of tokens for each API ecosystem development activity completed.

4. Technical Implementation of EDU Tokens
4.1. Smart Contract Implementation
The EDU smart contract is fully implemented and set up by the experienced blockchain and ICO experts from New Alchemy, as mentioned in section 1.3. The token is based on the ERC-20 standard with minimal deviations. This was designed with inspiration from other ERC-20 tokens such as Bancor, Filecoin and Civic. The smart contract accepts only ether. Investments made with other coins and fiat will be converted to ether.

4.2. Token Model
For the pre-ICO stage, investors can purchase EDU tokens directly with fiat (EUR, USD, Paypal), BTC, LTC and ETH, but for the public sale only BTC, LTC and ETH will be accepted. An EDU token can have maximum eight decimal points. There is a soft cap of $1M and hard cap of $8M for ETH investments (non- ETH investments do not count toward the hard cap). The total number of EDU tokens minted for the LiveEdu ICO will be determined after the ICO closes. The total token supply is limited by the hard cap. As soon as the hard cap is reached, the ICO closes. For the main crowdsale, minimum investment amount per transaction is $3. If you invest less than $3 per transaction, you will lose that. For you to qualify for any bonus in the pre-ico or main crowdsale, you have to invest a minimum of $50 per transaction. If you invest less than $50, you will get no bonus. EDU token base prices are fixed. The fixed pricing prevents investors from playing a 'price and time of payment' arbitrage game and waiting things out.

1 ETH = 3300 EDU
1 BTC = 67000 EDU
1 LTC = 600 EDU

Pre-orders for pre-sale

The company is pre-selling EDU tokens prior to the public sale at a discount on a wholesale basis for large volume purchases:

<= $10,000 USD + receives a 25% bonus

>= $10,000 USD + receives a 30% bonus

>= $ 30,000 USD + receives a 35% bonus

> = $50,000 USD + receives a 40% bonus

> = $100,000 USD + receives a 50% bonus

Bonuses are assigned only once per individual or entity even for multiple purchases. You can place your pre-order by following the 'Buy Tokens" guide on the site "tokensale.liveedu.tv" or by emailing us at "tokensale@liveedu.tv" or an authorized affiliate.

Public crowdsale

EDU tokens are intended to be sold at the following rates starting Jan. 15, 2018 - Feb. 10, 2018. The sale will be closed in the next 48 hours after the first $4 million is raised.

First USD$2 million tranche: 1 USD = 12 EDU tokens (20% bonus)

Second USD$2 million tranche: 1 USD = 11 EDU tokens (10% bonus)

After that : 1 USD = 10 EDU tokens (0% bonus)

Note that the exact dates and rates for the public sale could change. For any already sold tokens, the exchange rates are locked at the purchase rate.

4.3. Crowdsale Objective and Token Allocation

There is a soft cap of $1M and hard cap of $8M for ETH investments (non-ETH investments do not count toward the hard cap). The additional money will help the company scale faster by getting more content creators on board to create quality content, expand our streaming cluster infrastructure, marketing efforts, team size and number of countries served. For the token distribution the fixed percentage split is displayed in the table below.

To keep the EDU token supply low, no future tokens will be issued and surplus tokens will be burned. If after three years all the content creator, supporter and API tokens run out, all future token incentives for them will be funded from the subscription pool using blockchain smart contract. Our smart contract is audited by the smart contract guru Bok Pooh.

Because the LiveEdu team has worked on the product for some time, the vesting schedule for team-member EDU tokens is as follows: twenty five percent (25%) will be allocated immediately and seventy-five percent (75%) over the next eighteen-month (18) period. Team members cannot sell more than twenty-five percent (25%) of their tokens per year, in the first two years.

Token Allocation	Percentage
Crowdsale to investors	50%
Subscription pool (user token purchases)	10%
Content Creators (streamers)	13%
Team	13%
ICO Legal and Technical Advisory, Bounty Program, ICO Marketing	6%
API Ecosystem Developers	3%
Supporters (Quality Assurance and Site Moderation)	3%
Learners (viewers)	2%
Total	100%

Streamers represent the most valuable element in the LiveEdu product value-generation chain. Our product is a peer-to-peer, decentralized network that connects streamers with viewers. The streamers represent the supply side. Since the premium content program is a new product, LiveEdu does not currently have a large premium content library for the seven topics.

LiveEdu will ultimately succeed or fail, based on the content quality of the premium projects created by streamers. If the premium projects are educational, structured and of high quality, viewers will buy them. We want to attract the best content creators. As with building any marketplace business, the supply side (content) needs to be built first. Thus, LiveEdu needs to build a huge initial content library, quickly, by incentivizing premium content creators generously. There are three possible ways LiveEdu can cover the initial content creator acquisition cost: i) cash ii) EDU tokens iii) mix of cash and EDU tokens. Option 1 requires LiveEdu to raise a huge amount of cash just for content generation. This option is not ideal because it does not intrinsically enforce content

creator loyalty. Option 2 will not be very attractive to content creators because at launch there will neither be a huge organic demand for tokens nor trading on exchanges. Similar to other marketplace ICOs like Civic and Musiconimi, Option 3 is the best approach for LiveEdu to incentivize content creators to create exclusive quality content.

Thirteen percent (13%) of tokens minted in the ICO will be used to partially fund the content creator acquisition cost. This will be distributed to them over a three-year period. The monthly allocation will follow the formula defined in section 3.1.2. To avoid content creators dumping tokens onto the market and creating oversupply, their tokens are subject to a vesting schedule:
- For every 3 premium projects completed, a content creator gets 30% of tokens released. The more projects they complete, the more tokens will be released.
- They cannot sell more than 50% of their released tokens per quarter.
- They cannot sell more than 50% of their released tokens per year.

To insure that content creators create only high-quality content, any project created is only counted if it meets the following criteria: a minimum total view time of 20 hours (live stream and videos) and marked completed by site quality assurance moderators.

There are many benefits for ICO investors to buy EDU tokens beyond expecting to make a huge profit from selling EDU tokens at a higher price than they were originally bought. ICO investors will have voting rights for key decisions in the ecosystem; for example, advising on which premium projects to build first and which new topics or product features to add. Because LiveEdu is the first education technology ICO and is making a commitment to bring cryptocurrency to the masses. Its real practical cryptocurrency projects will cover cryptocurrency basics, blockchain mining, Bitcoin, Ethereum, security and ICOs. With expert content creators educating people about these topics through the use of practical projects, we hope to remove some of the fear and uncertainty surrounding the wider cryptocurrency market.

To reduce total token supply and increase token price, each year, LiveEdu will use 20% of annual subscription revenue to buy EDU tokens from the market and burn them. Demand for EDU tokens will be generated organically by purchases on LiveEdu and inorganically by trading on exchanges. After the crowdsale all EDU tokens sold to investors will be sent to their wallets in seven (7) days. EDU token is already listed on [Etherdelta](#). More exchanges will be announced as the crowdsale progresses. We are applying to be listed on the following: Bittrex, Poloniex, Liqui, Bitfinex, Tidex,

HitBC.

4.4. Use of Funds

LiveEdu's main business objective behind our crowdsale centers on building 10,000 premium projects with over 1400 premium projects for each of the seven topics over a three-year period. LiveEdu plans to invest proceeds from the ICO in the following way:

- Building Premium Projects (15%): Each quarter approximately 700 premium projects will be created by streamers.
- Team Member Expansion (35%): Hiring new team members: engineers, product manager, chief marketing officer, head of curriculum, and head of sales.
- Network Development and Server Costs (25%): Integration of EDU token into LiveEdu. Expanding streaming cluster and improving stream quality. Native Android and iOS app development.
- Marketing: (15%).
- Overhead: (10%).

5. Roadmap and Future Potential Developments

5.1. Roadmap and ICO Risk Factors

The roadmap outlines the planned milestones for LiveEdu for the first year following the completion of the ICO.

Q2-2018	Q3-2018	Q4-2018	Q1-2019
➢ Hire new team members ➢ Create 700 premium projects ➢ Release the Android and iOS apps	➢ Create 700 premium projects ➢ Launch the EDU wallet for each user ➢ Integrate the EDU token system into the LiveEdu platform	➢ Create 700 premium projects ➢ Launch B2B and B2G sales	➢ Create 700 premium projects ➢ Expand the streaming cluster ➢ Launch Chinese language projects for Chinese market

The purchase of EDU tokens in this crowdsale does not represent a right of equity ownership of the company itself. There are typically a variety of risk factors associated

with an ICO. LiveEdu does not guarantee to investors that there will be a successful long-term exit via an IPO or trade sale. The company is running its ICO through the UK subsidiary Livecoding Ltd with the company registration number 09346459.

5.2. Future Potential Development

While we cannot forecast the future, there are some ideas we have in mind, including:
- API endpoints for other online education sites to integrate our projects into their site.
- Localized content for the Chinese, Korean, Japanese, Spanish, German, Portuguese and Arabic markets.
- LiveEdu billboard screens in big metropolitan cities around the world where people can watch projects live; San Francisco, New York, Toronto, Dubai, London, Berlin, Paris, Moscow, Beijing, Seoul, Tokyo and Sao Paolo.
- Content catalogue expansion to include more topics, just as YouTube and Spotify did.

5.3. Conclusion

LiveEdu is building a global online education ecosystem. We are applying what Steemit did for blogging to the education market. LinkedIn bought Lynda.com for $1.5 billion and Lynda was founded 20 years ago. LiveEdu is building today the next generation Lynda.com. Our mission is to be the place on the web for project learning. We are building the world's largest project learning network on any topic.

The immediate business goal behind the LiveEdu crowdsale is to build 10,000 premium projects, with over 1400 premium projects for each of the seven topics. We also intend to build strong mutual relationships with investors who we use as premium project content creators. There are many benefits for ICO investors to buy EDU tokens beyond expecting to make a huge profit from selling EDU tokens at a higher price than they were originally bought. Investors who participate in the crowdsale and hold EDU tokens will have voting rights for making key decisions in the EDU ecosystem. **To reduce total token supply and increase token price, each year, LiveEdu will use 20% of annual subscription revenue to buy EDU tokens from the market and burn them.** EDU tokens will be native to the LiveEdu network and deeply integrated into the product to manage incentives in a way that benefits all participants in the ecosystem.