The Cambridge Institute of Communication Arts

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Vision

My time teaching media making online at Harvard has been a revelation. While I was skeptical at first, I see amazing strength in what can be accomplished with the flexibility and power of the internet.

Media literacy is no longer a specialty. It's not a hobby, a fad, or even a choice. As old forms of communication are replaced with digital tools, and global access becomes a reality, it's imperative to understand how to stand out from the crowd.

Whether it's an entrepreneur looking to reach her customers, a filmmaker looking to share his story or young person trying to change the world with a single idea, understanding how to use media tools will be the key to their success. At the Cambridge Institute of Communication Arts, we believe quality education is the only path to get them there.

We're passionate about helping *all* people become better communicators, confident in social skills and social media, adept in marketing and media production. We envision a world where the barriers to access are broken down… and we believe in the power of a level playing field.

At the heart of our company is a dedication to effective teaching practices. As the digital world continues to evolve, CICA intends to become the leader in instruction and certification in creative arts education online.

Nick Manley
Founder and CEO
Cambridge Institute of
Communication Arts

Executive Summary

Founded in 1630 in honor of the University of Cambridge, Cambridge Massachusetts is known to be the epicenter of innovation in American education. With universities like Harvard and MIT calling Cambridge home, it's no surprise many leaders of government, industry and education trace their roots back to this small city across the river from Boston.

In addition to its claim as a hub of top tier higher learning, Cambridge also hosts industry giants such as Akamai, Apple, Google, Novartis, Amazon, Microsoft, and Pfizer, not to mention the dozens of tech startups coming out of "the most innovative square mile on the planet" in Cambridge's Kendall Square neighborhood.

In this center of education and innovation, Nick Manley and Pamela Lim founded the Cambridge Institute of Communication Arts. "We saw an opportunity to provide real, forward facing solutions to gaps in the evolving online educational market." says Manley. "What we're developing represents tangible opportunity for a global community in need. It's an opportunity to provide meaningful access to those who didn't have it."

"It's not just the access either." adds Lim, "What we're offering is not just an invitation to view or participate in courses online, it's an opportunity change students lives through the earning of verifiable certificates and degrees backed up by the strength and accountability of the blockchain."

"The blockchain is everything at CICA. It offers students, universities, and employers with a secure and level playing field in terms of assessment, transferring of credits, record keeping, and verification of certifications and degrees." "It's a game changer."

Market Trend

Since the launch of the first massive open online course (MOOC) at Stanford in 2011, online education has exploded as a global resource for those who's access to the internet is greater than their learning opportunities. Since then, over **800 universities around the world** including Harvard, Stanford, MIT, and the University of Cambridge have offered a massive online course, many partnering with industry in order to bring cutting edge learning opportunities to students.

Learning online is flexible, affordable, and tailored to student's needs. In the 7 years since Stanford rolled out the first MOOC, demand has pushed the world into the next generation of online learning. With over **81 million students** operating in the MOOC space, the market has responded with a proliferation of seemingly endless online education options.

The next phase of online learning in the offering of certificates and degrees. MOOC-based degrees are a lucrative opportunity for institutions and online providers. Coursera, FutureLearn, and XuetangX have announced over **70 new degrees will be added to their platforms by 2019**. FutureLearn announced that it has signed an agreement with Coventry University to roll out **50 online graduate degrees** over the next year and Udacity recently revealed an enrollment of **50,000 paying students participating in nanodegree programs.**

The market is estimated to grow from USD **1.83 billion in 2015 to USD 8.50 billion by 2020**, at an estimated compound annual growth rate (CAGR) of 36.0%. Adoption of device-based computing, increased connectivity of platform, and emergence of online and collaborative learning and personalization of technology are some of the prominent factors driving the adoption of MOOC platform and services.

Asia Pacific (APAC) is expected to grow at the highest CAGR for the MOOC platform due to high population and need of education and MOOC services in this region as per IndustryARC analysis. China, Japan and India are the major markets for the larger market through 2021.

The Problem

In such a lucrative and rapidly expanding marketplace, new courses and course providers emerge daily, signaling a global embrace of the online model. The new entrants, partnerships with industry, and adoption of the platform by schools over a global network creates a potential for wildly varied standards, products and results. As education migrates online, the security and validity of certificates and degrees offered by non-traditional institutions will be of great importance to the survival of the market. We must ask important questions regarding the integrity of the model.

- How can students understand what they are paying for?
- How do we ensure that course providers deliver as promised?
- How do we ensure that actual learning and skills building are taking place?
- How can employers understand that the education and training of their applicant pool is of an acceptable standard?
- How do we offer standardization and transferability of credits between online providers and conventional learning institutions?
- How can we protect the integrity of certificates and degrees offered across an online provider network?

In essence, all of these issues are encapsulated in a single fundamental question:

How do we create an academic system that ensures courses are secure, academically rigorous, and lead to meaningful learning and career development?

Blockchain for Education

"Blockchain solves the problem of manipulation. When I speak about it in the West, people say they trust Google, Facebook, or their banks. But the rest of the world doesn't trust organizations and corporations that much — I mean Africa, India, Eastern Europe, or Russia. It's not about the places where people are really rich. Blockchain's opportunities are the highest in the countries that haven't reached that level yet." **Vitalik Buterin, inventor of Ethereum**

The beauty of the blockchain's strength in secure data management offers wide ranging applications for institutions of higher learning. Three principles of blockchain structure create powerful solutions to issues in the rapidly evolving marketplace:

I.   Decentralized Systems: Stable, Secure and Efficient

A decentralized database enables the storage of certification information, student records, course details, and assessment information - all of which are accessible to both the student and the institution from anywhere in real-time over the internet. Both parties have direct control and access to the data via private keys, which are directly linked to the information assets.

The advantages provided by this system represent fundamental stability of systematic operations and academic integrity which comes from dissemination of information across a vast encrypted network. The specific benefits of decentralization are:

- **Empowering students:** Decentralized systems allows the students to keep control of all their course and assessment information.
- **Inherent stability:** Decentralized systems are fundamentally more stable due to information and processes spread over many separate components.
- **Inherent security:** Because blockchain does not have a central point of control at the institution of learning, records and information are more secure from external threats such as malicious attacks.
- **Free from scams:** It is much harder for students in decentralized systems to take advantage of weak points such as those existing in centralized databases and record systems. This offers freedom from fraudulent degrees or record manipulation.

- **Faster processing time:** The decentralized database on the blockchain can reduce transaction times for record retrieval such as transcripts and other academic information. Student requests and transactions can be handled in real-time given the open access to data as compared to the existing methods of transaction through requests made through bureaucratic institutional machinery.
- **Authenticity:** Changes to public blockchains are publicly viewable by all parties creating transparency, and all transactions are immutable, meaning they cannot be altered or deleted. This further solidifies the authenticity of records and information.

The power of decentralizing the access and flow of information using blockchain technology presents vast new opportunities for data management across many industries. For education, there is the potential for a significant paradigm shift offering a process which is more democratic, secure, transparent, and efficient.

II.   The Distributed Ledger and the Power of the Hash

Using blockchain technology for education provides records of all learning processes ever attempted by the student. Each block on the chain preserves a record of student action, and once completed, each block migrates to the blockchain.

When data, documents, or records are created, a hash is generated for each file. A hash is like the fingerprint that, through an algorithm, turns data into an output of fixed length which is unique for every single transaction. Blocks, which contain hash information, are added in sequential manner with the next block containing hash information of the previous block. This maintains an unbroken and sequential record containing the most recent educational qualification or record. A new block is generated as soon as the previous block migrates to the blockchain database.

The system records each educational transaction and shares it across the decentralized network. Every institution and user in the network can validate every educational record with an identical copy of the ledger, to which the encrypted educational record is added and stored across the decentralized network.

Any changes to the ledger are reflected in all copies in minutes, or in some cases, seconds. Through the use of 'keys' and signatures, the security and accuracy of assets are maintained cryptographically and are controlled solely by the participant.

The specific benefits of a distributed ledger for education are as follows:

- **Fraud protection:** Unauthorized changes or malicious tampering is prevented by the strength of the process in which information is generated, updated, and stored. Additionally, with the global redundancy of the ledger across a decentralized network, there are infinite records of data which ensures accuracy and validity.
- **Streamlined information management:** With all education records being added to a single public ledger, it reduces the clutter and complications of multiple ageing databases from vast numbers of different institutions.

In the handling of educational information, the authenticity of data and documents is of the utmost importance. Sensitive documentation, information, and assets need to be protected. The distributed ledger allows any location to continue to maintain the integrity of data if any copy of blockchain is compromised. This makes education information kept on the blockchain immutable. Additionally, through comparison of the unbroken chain of hash information, we can be assured of the validity of records and information. The end result of these benefits is a highly efficient and secure method of keeping educational records which are immutable and verifiable from anywhere around the world.

III.   A Tamper-Free Educational Environment

"The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.",
Don & Alex Tapscott, authors Blockchain Revolution (2016)

Today, so-called diploma mills based in the US sell roughly 200,000 degrees a year to customers around the globe. By some estimates, they sell as many PhDs as are awarded by legitimate American universities. Worldwide, the industry is thought to generate as much as $1 billion annually[1].

From the above features it can be easily seen how an education blockchain is providing a tamper free environment for the community. The Blockchain network automatically checks and updates itself with great frequency, creating a more accurate and robust self-reviewing system.

Many important properties result from the strength of the system:

- **Transparency:** All data is embedded within the network which makes it public. Hence, it helps in providing transparency.
- **Validity:** If anyone tries to alter the block data on the blockchain, it would require a huge amount of computing power to get ahead of the entire network. This proves that the system cannot be corrupted easily. Fake degrees and falsifying results will be things of the past.
- **No Single Point of Failure:** All the academic courses taken and the results generated are linked and verified at every block in the distributed ledger across a decentralized database. This eliminates single point failure events.

As evidenced in major trade publications, the proliferation of online education providers creates additional avenues for fraudulent documentation and diplomas. Additionally, the shift toward a contractor labor force creates additional obstacles for employers looking to hire workers with reputable training and certification in cutting edge creative skills and technologies.

Conclusion

Using blockchain technology for educational infrastructure provides proof in the security of a transparent system, diminishes transaction costs, reduces transaction time, and decreases the risk inherent in inclusion of third parties. The beauty of the blockchain's strength in secure data management offers wide ranging applications for institutions of higher learning.

Blockchain Specifications

Fundamentals For Using Blockchain□

1) Immutable and unique certification on all courses that are completed

    a. Details to be imbued within the newly created ERC 721 LCT

2) Immutable certification on each user as a verified user: Proving of real users.

3) Immutable certification on each trainer: Proving of certified trainer.

4) Cross border and cross certification use case within a franchise model.

5) Verifiable accreditation, certification and transfer of credits becomes possible through the security of the blockchain.

Challenges

Volatility of prices

1. Proposed Solutions:
    a. Pegged daily market rate of courses. Trainers have a choice of immediate conversion to fiat to peg hedge against fluctuations.
    b. Pegged bulk purchase price by MFs.
    c. Gaming the System
2. Proposed Solutions:
    a. Have verified users and trainers to ensure that MFs do not game the system to get out tokens for selling/trading.
    b. Have maximum limits on each user account to prevent excessive transferring of tokens to user accounts.
    c. Early investors who backed the TOKENS protocol to sell tokens besides the MF of each jurisdictions when a certain area is more profitable:
3. Proposed Solutions:

Attach country codes to each wallet creation. MFs who have jurisdictional control should benefit from tokens coming aside from MFs. i.e. tokens that did not come from MF would have a transfer fee (e.g. 5%) which would go to the MFs to have additional sales.

Current Status of Learning Environments

E-Learning Trends

- By 2022, the global E-Learning market is estimated to expand to 275 Billion dollars[4].
- By 2019, video will be responsible for 80% of the Internet traffic in the world[5].
- 67% of people now use mobile devices to access learning[5].
- Corporate eLearning has grown by a staggering 900% in the last 16 years[5].

Gap in Current Tertiary Education

For the majority of the world's population, access to affordable, university-style media arts and social media education is a difficult, if not impossible.

The lack of access puts large groups of people at a competitive disadvantage in an ever-increasing digital economy. This economy is driven largely by the influences of social media and the need to create meaningful digital content.

Typical Online Learning Environment

Online environments teaching media technology are largely unstructured, out-of-date and confusing. The technology and technique driving social media and communications changes rapidly and this requires an online institution to remain on the cutting edge.

Competitors like Lynda, Udemy, and Coursera ask students to navigate an endless ocean of courses without structure or guidance from instructors and collaborators. Their video modules are often taught by practitioners or hobbyists with little educational experience which leads to gaps in foundational knowledge and understanding. To us, this is unreasonable.

Our Solution
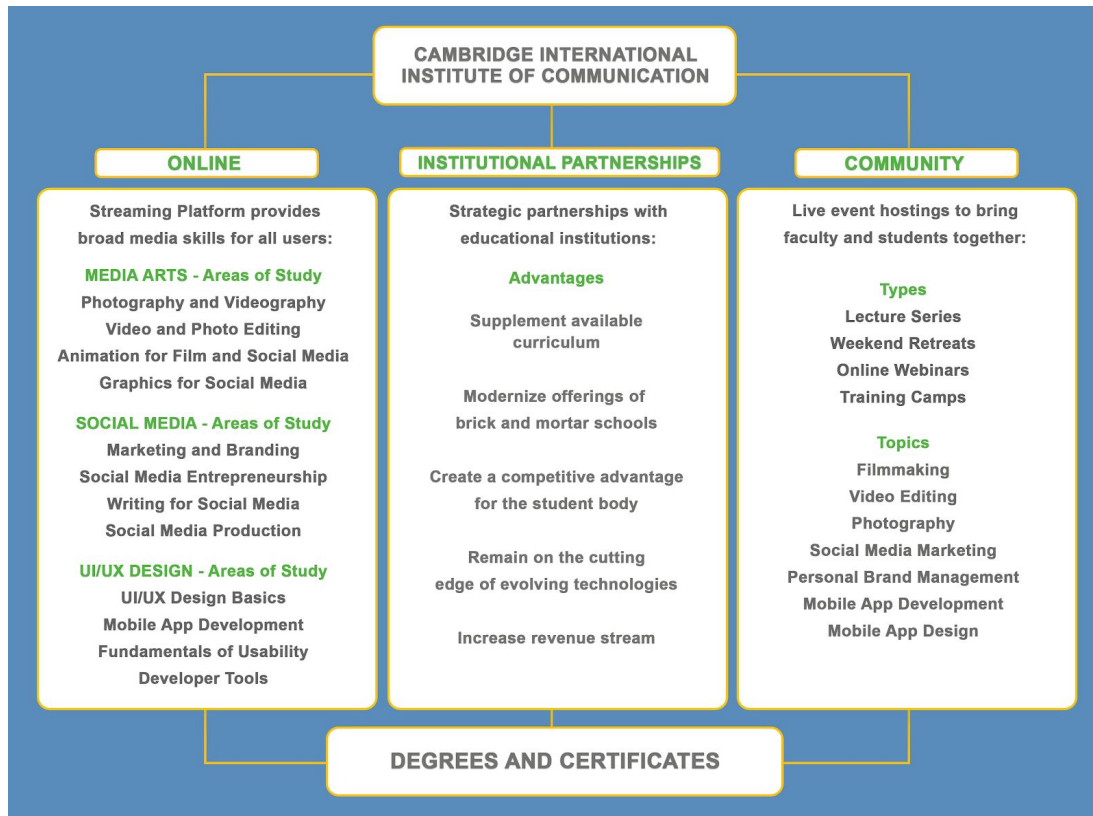
At CICA, we offer a flexible and robust curriculum in communication related arts and technology. With real-world skills building in Social Media Creation & Marketing, Media Production and User Experience Design, we are the first institute to combine such a cutting edge curriculum in modern communications tech backed up with full academic rigor including academic certificates and degrees.

We offer the highest level of experience across a streaming platform so students can access our comprehensive curriculum from anywhere. We understand that modern media is flexible, so we teach the uses of everything from available technologies and smartphones to cutting edge cinematic hardware and software.

CICA strongly believes the future of education is in verifiable degrees and certifications on the blockchain. We are proud to offer this benefit to all of our students. Degrees or certificates earned from CICA will be immediately verifiable to future employers, providing confidence in CICA students and the system.

Student Pathways: Online Learning

Leveraging the advantages of blockchain technology, students of all ages and experience levels may use TOKENS to access courses through our online streaming service.

Students may make selections from our courses on an as needed basis, or for an increased purchase, can complete a comprehensive personalized curricula plan to receive a degree from CICA Institute.
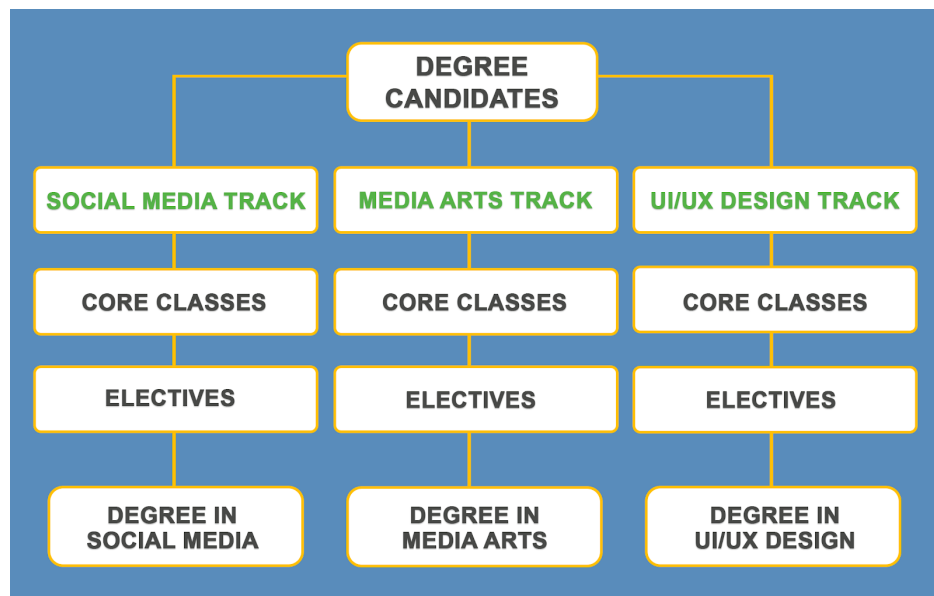
To ensure student success, the highest level of Instructional Design is implemented to account for:

- Course and module length
- Usefulness of content to real world situations
- Reflection and Assessment
- Avenues for social learning opportunities with other students
- Ease of use with our Learning Management System

Areas of Instruction and Courses

Media Production

- Introduction to Video Making
- Introduction to Photography
- Editing with Adobe Premiere
- Photoshop for Photographers and Filmmakers
- Lighting and Green Screen for Video
- Adobe After Effects for Beginners
- Adobe After Effects for Advanced Users
- Advanced Video Editing
- Creating Video Graphics
- Principles of Sound Design
- Color Correction for Video

Social Media Production

- Understanding Social Media Networks
- Personal Brand Management
- The Social Media Image: Photo/Video
- Creating Social Media Graphics
- Animation and Graphic Design for Social Media
- Social Media Ethics and Responsibility
- Social Media Marketing for Corporations
- Social Media Marketing for Entrepreneurs
- Writing for Social Media

UIX, Web, and Graphic Design

- Intro to Graphic Design
- Advanced Graphic Design
- UI for UX Designers
- UX Fundamentals
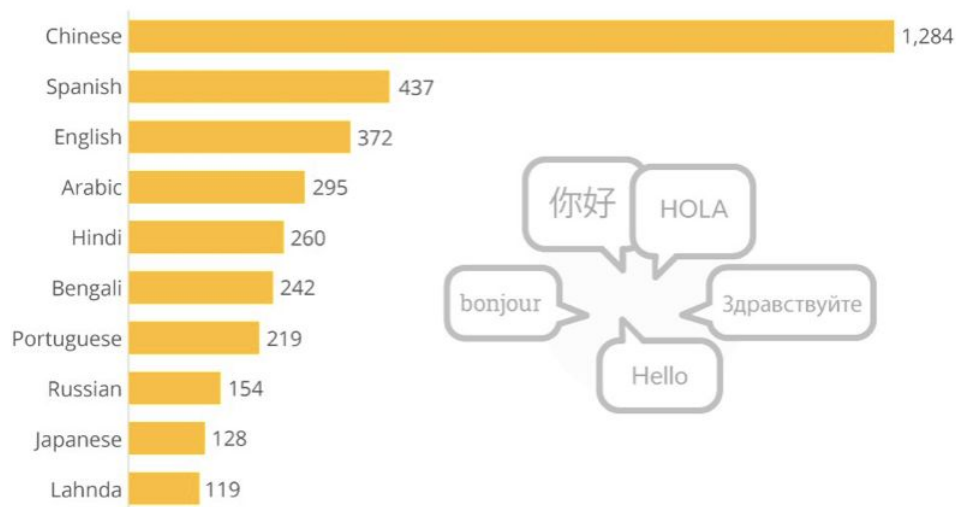- Front End Development for Designers
- Web Development

Business Management

- Intro to Finance
- Intro to Economics
- Intro to Marketing
- Brand Management for Business

Language Integration

The World's Most Spoken Languages
Estimated number of first-language speakers worldwide in 2017 (millions)*

Language	Speakers
Chinese	1,284
Spanish	437
English	372
Arabic	295
Hindi	260
Bengali	242
Portuguese	219
Russian	154
Japanese	128
Lahnda	119

Knowing and understanding other languages and cultures will be crucial as the world continues to shift into a global society. Educational institutions are in a unique position to benefit from this transition, and CICA intends to pursue this avenue vigorously. Statistica 2017 (Figure 1)

We believe it will be critical for the success of our students and of our company to be a leader in the delivery of Mandarin and English based communication arts education.
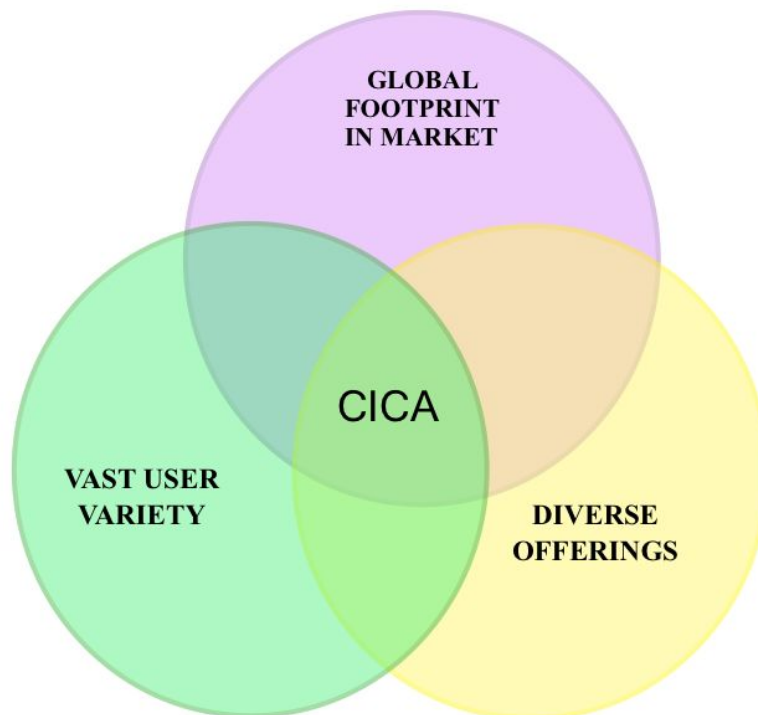
Our partnerships with existing brick and mortar schools, institutions of higher learning, and governmental partnerships are a key component of CICA's plan for distributing our model.

User Variety

CICA's curricula is structured to attract a wide variety of end users across a diverse spectrum:
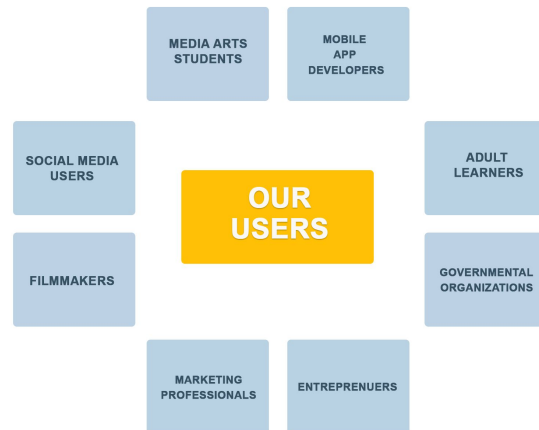
CICA Market Advantage

Who We Are

Founders

Nicholas Manley, Founder and CEO

I have always been passionate about learning. The process of it, the different disciplines, the broadening of understanding...I believe that growth through the sharing of knowledge is the most import thing that a person can do in their life. With a diverse background in Art History, Filmmaking, and Operations Management, I've seen how learning processes are handled in many different industries and organizations.

As a filmmaker, I have worked as a director, cinematographer, and producer with a passion for cultural exploration through immersive documentary filmmaking. In the education world, my experiences have taken me from corporate training, to youth training, and finally higher education where I currently serve as an Assistant Professor in Media Production at Texas A&M and Harvard where I teach media production online.

Pamela Lim, Founder

I had reasonable success as an entrepreneur in Asia two decades ago. With passion and drive, I managed to do well in the fast-paced, dog-eat-dog world of business. As a female entrepreneur in the technology industry, I managed to win numerous entrepreneur awards in Singapore and the rest of Asia, including Top 10 Woman entrepreneur in 1999, The Most Promising Woman Entrepreneur in 2000 and Netrepreneur of the Year in 2001.

During the dotcom boom of the 1990s, I started a company with just three employees which grew into one that has business and operations in 7 countries. The company managed to get approved for dual-listing in NASDAQ and SGX; and I led the first ever Singapore company to achieve a first level listing approval when I was in my early thirties.

In 2004, with the passing of my father-in-law who was the main caregiver to my children, I decided to give up the entrepreneurial world to raise my 5 young children. I then happily started teaching in the university and took to it with zealous dedication for a decade.

As a mother and an educator, I am constantly searching for answers and alternatives to Education and is curious about the most important aspect in societies. It is my passion to bring alternative ways of teaching using technology to our communities.

Executive and Org chart
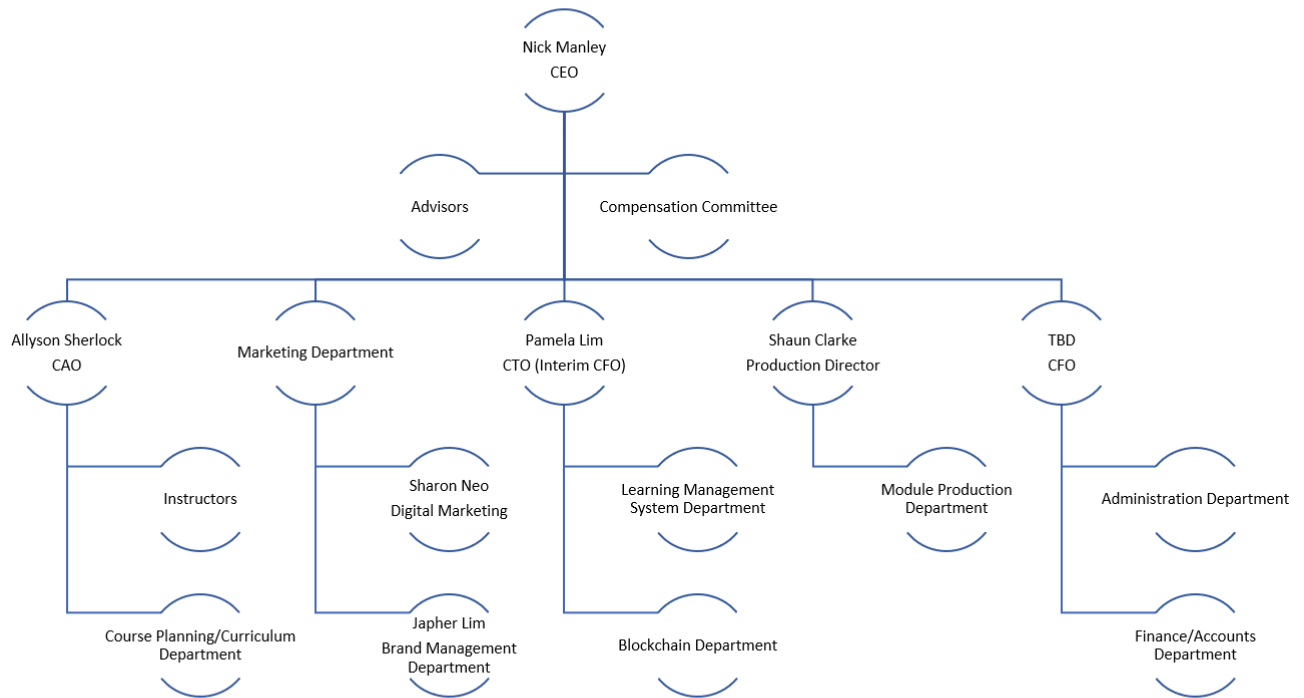
Advisors

André Bonfrer

André Bonfrer is a Professor of Marketing at Deakin University. His extensive academic experience includes faculty positions at the University of Queensland, Australian National University, Singapore Management University, Wharton Business School (University of Pennsylvania) and Melbourne School of Business. He has taught advanced quantitative research methods, promotions management, pricing, sales force management, marketing principles, and marketing research in a variety of undergraduate and postgraduate programs.

He has won awards for teaching and for distinction in research, including the Australia New Zealand Marketing Academy's 2012 Distinguished Researcher Award. From 2010 to 2011, he was the chair of the working party commissioned by the Australian Business Deans Council, to develop national learning outcomes for the Bachelor and Masters degrees majoring in Marketing.

Professor Bonfrer's research has been published in a number of top-tier international journals, including the *Journal of Marketing*, *Management Science*, *Marketing Science, Journal of Marketing Research*, *Review of Industrial Organization*, *International Journal of Research in Marketing*, and *Quantitative Marketing and Economics*.

Professor Bonfrer also draws from substantial practical experience across various industries. This experience is in the form of various consulting assignments with both SME's and large multinational organizations. He has developed models suitable for predicting customer retention in large-scale databases for China Mobile, and has built market response models for online service providers. Prior to joining Singapore Management University in 2001, he was an analytics director at Site Systems, in Los Angeles, California (USA), helping large clients such as 20th Century Fox, to develop customer databases and on-line marketing tools to dynamically interact with customers.

Jan Roberts-Breslin

Jan Roberts-Breslin is Dean of Graduate and Professional Studies at Emerson College, in Boston, Massachusetts, where she holds the position of Professor of Visual and Media Arts.

She is a media artist whose work has won awards at international and domestic film festivals, broadcast on PBS and exhibited at major contemporary art museums. She is the author of *Making Media: Foundations of Sound and Image Production,* 4th edition (2018) by Routledge Publishing and is a Visiting Scholar at Communications University of China in Beijing.

Ms. Roberts-Breslin holds a Master of Fine Arts degree in Film and Video Production from Temple University.

Anthony Eu

Besides his stature and good looks, the most important thing I gained from my father was his philosophy toward learning: if you're not smart, at least be curious. That approach served me well throughout my upbringing and I have tried my best to continue learning in every aspect of my life.

Guided by those teachings, I found myself in the entertainment industry, having worked in New York City as a TV development executive for a top level production company. Within a few years, projects that I had helped develop landed at Scripps, Viacom, Showtime, NBCUniversal, AMC Networks, Netflix, FX, and many, many others. In fact, my voracity for learning was the basis for a quiz-based game show concept that I eventually sold to a broadcast network.

Additionally, I serve on the Board of Governors of Blair Academy, a top boarding school in New Jersey, where I provide insight, advice, and a level of accountability to the school's administration. I've served on the board since 2012, where I was the youngest member at the time and its only international representative. I still serve on the board proudly today.

We now live in a digitally connected village where the ability to use social media is no longer a luxury but a necessity. Being fluent in social media has real world implications, where every industry from politics to entertainment to tech has social media needs. The Leapfrogger Institute represents the forerunner of a digital solution to an analog age.

Organizational Officers

Allyson Sherlock, Chief Academic Officer

Allyson Sherlock is documentary filmmaker, freelance editor and passionate educator with over 13 years of higher education teaching experience. While earning her M.A and M.F.A in Media Arts at Emerson College she formed a small production company with a classmate that focused on helping non-profit organizations create compelling video content. Realizing the immense power that storytelling has to change the landscape, she decided to devote her career to teaching others the art of media production.

Her classes at Harvard Extension School and Emerson College cover a broad range of topics including Advanced Editing, Motion Graphic Design, Creating a Short Film and Video Production. She was the recipient of the Petra T. Shattuck Excellence in Teaching Award from Harvard University in 2011, and has had her films distributed internationally and broadcast on U.S. Television.

Allyson has a keen interest in how new forms of education can create a more equitable world, and she wholeheartedly believes that with the proper support and guidance every student can reach their creative excellence.

Shaun Clarke - Production Director

Shaun Clarke is currently and Assistant Professor or Digital & Film Production (with a specialization in Cinematography) at Emerson College (Boston, MA). He has previously taught at Texas A&M University – Corpus Christi, Massachusetts College of Art and Design and Wentworth Institute of Technology.

Clarke has designed and developed educational programs in film and video for a number of youth focused programs over the past decade. He has worked closely with the New York Film Academy, Cambridge Community Television and RAW Art Works to deliver programs that enrich and educate teens interested in media production.

Clarke is a filmmaker who has directed a number of dance films, exploring how dance can be transformed through the tools of cinema. His work has screen internationally and he was selected as a 2017 Finalist for the Massachusetts Cultural Council's Artist Fellowship program. Clarke was recognized by the prestigious Mosesian Center for the Arts as one of the "30 under 30 artist" to watch in 2015.

Clarke works extensively as a Director of Photography and Producer. His cinematography work ranges from short narrative films, to nationally-broadcast commercial spots, to feature-length narrative and documentary films.

TOKENS☐

The CICA tokens stakes CICA token to commit to teach an academic program

(1) A student stakes CICA tokens to take a course.
(2) The educator finishes the program and issues digital certificates to students.
(3) CICA will create non-fungible, non-transferable digital certificates to be issued on the Ethereum blockchain upon completion of an CICA course or as a documentation of other MOOC courses. Certifications will be indelible, portable and transferable. They will be used for:
   - Committing to the blockchain, through locking CICA tokens, to permanently enter the certification on the chain.
   - reating indelible proof of completion of programs on the MOOC platform network
   - Creating a mirrored digital record of proof of completion of degrees and certifications through other traditional institutions, MOOCs or certification programs

The second is an ERC 721 LF User/Trainer Verification Token (LFVT) which would be created for each verified user and trainer that is within the TOKENS protocol. These tokens would not be trade-able and would contain customized information of each user or trainer. These tokens would interact with each course tokens to create the LF Certification Token upon course completion.

The third is an ERC 721 LF Certification Token (LCT) which would be sent to each individual user who has completed their course. The LCT would consist of specific and unique information on courses completed such as:

- Date/time stamp

- Jurisdiction stamp

- Course completed and score

- Certification Owner Signature

- Name and information of user who completed

The LCT would be a non-transferrable token except to users who replaced their accounts by recreating a new account and get verified. Each LCT would be absolutely unique and non-fungible; no 2 LCT would be exactly alike.

Competitors

Module-Based Online Skills Instruction

1. **Lynda**
2. Udemy
3. Open Sesame
4. Universal Class
5. Khan Academy
6. Coursera

Expansion Plans
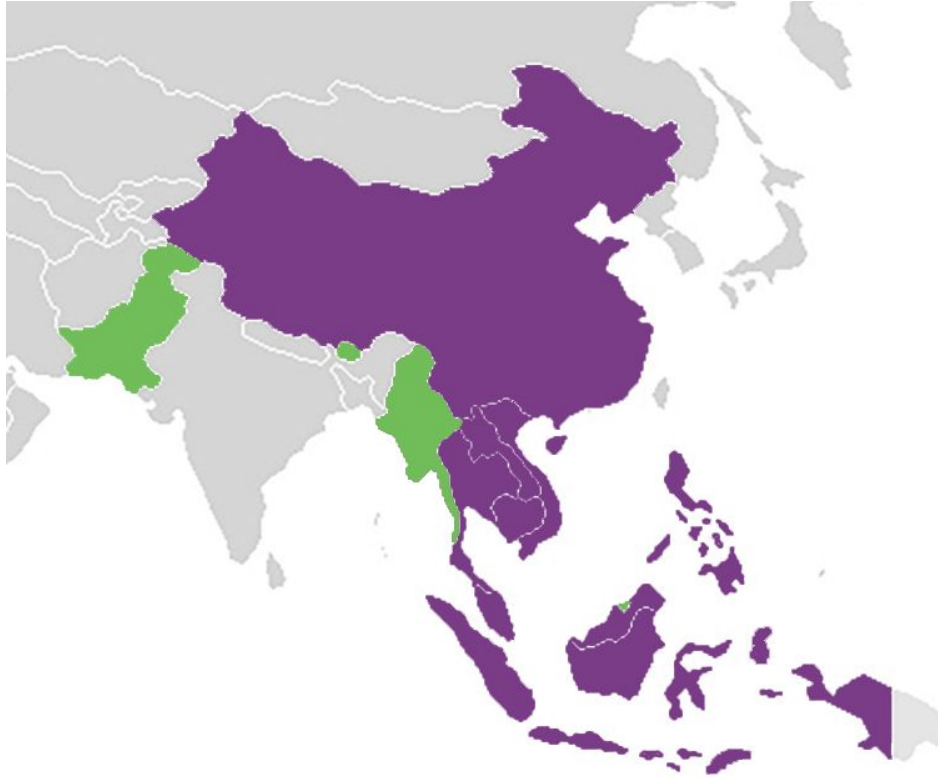
1. Expand footprint of partnership across China and Southeast Asia - Vietnam, Thailand, Cambodia, Laos, Malaysia, Singapore, Myanmar.

2. Continue to expand online courses - Social media courses (2018), Chinese language instruction courses (2019), higher-learning degree courses (2020).

3. Increase web-based revenue through alignment with government education in new markets - Bangladesh, Pakistan (2019)

4. We see a great opportunity to combine our online courses in media and social arts training with the partnerships we are developing with governmental institutions and schools. Courses designed specifically for youth in safe social media practices and content generation will be a key focus moving forward.

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