| Team Name              | FinTechPassion                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                          |                                        |                 |  |  |  |  |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------|--|--|--|--|
| Vision                 | Proof of attendance for education                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                          |                                        |                 |  |  |  |  |
| Sector                 | Education and Commercial Services                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                          |                                        |                 |  |  |  |  |
| Team                   | <u> </u>                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                          |                                        |                 |  |  |  |  |
|                        | Name                                                                                                                                                                                                                                                                                                                                                                   | University                                                                                                                               | Degree                                 | Email address   |  |  |  |  |
|                        | Kavis Cho                                                                                                                                                                                                                                                                                                                                                              | The Hong Kong<br>Polytechnic<br>University                                                                                               | Bachelor of<br>Financial<br>Technology | kavis@gmail.com |  |  |  |  |
|                        | Alex Chu                                                                                                                                                                                                                                                                                                                                                               | The Hong Kong<br>Polytechnic<br>University                                                                                               | Bachelor of<br>Financial<br>Technology | alex@gmail.com  |  |  |  |  |
| General                | Cryptographic. We aim to build an application utilizing blockchain technology in a sensible way. We have finished blockchain workshops for Corda in 2018 and started our projects to be built on Hyperledger Composer.  P.O.P (Proof-of-Participation) is a proofing system for Privacy-Protection Verifiable                                                          |                                                                                                                                          |                                        |                 |  |  |  |  |
| General<br>Description | Proof of Participation                                                                                                                                                                                                                                                                                                                                                 | m for Privacy-Protection Verifiable stem is to prove the attendance of aduates may use their records fo ose records are not recorded wit | or<br>r                                |                 |  |  |  |  |
|                        | Concerns:  • Fake records for apply further study or seeking a job • Untrusted approvals because of security • Human-error and paperwork • Record ownership is controlled by central authority  To solve: • Trueness problem of the issued record • Time-consuming verification • Data integrity via cryptography and blockchain characteristics • Self-sovereign data |                                                                                                                                          |                                        |                 |  |  |  |  |

For example, Jason is a student who has declared he is the basketball team in school X that he wants to take this advantage to apply for university. However, the university may not able to find out the declaration is trustworthy or not.

The fake attendance brings the disadvantages of lowering the academic quality, harming the interest of students' and institution benefits.

Therefore, we hereby introduce to you P.O.P, a blockchain-based solution which can tackle the existing participation approval issues, e.g.:

- Trusted and tracable transaction records logged on the distributed ledger and
- Time-efficient and cost-effective verification process

## Blockchain

By using the blockchain, all the transactions will be recorded on the chain in the high security and protected way. The information of verifier. Issuer and holder is encrypted and their identities can only be verified by the zero knowledge proof. Besides, The information stored on the blockchain is immutable, permanence and can only be read by authorized parties.

When there is any process related to the record for proofing, the blockchain can help to provide the trustworthy evidence to proof the participation so as to prevent the wrong approvals or solve the controversial argument.

## Market Size

There are at least 30,000 of graduates seeking jobs each academic year and many industries require employees to have specific certifications or current memberships. In order to protect the organization from dishonest individuals, most of the enterprises will do great amount of credential verifications. In addition, the recent news of court case of forged documentation also raises the alarm to the society that a new approach in issuing, verifying and managing credential with security protection and GDPR compliant is warranted. Therefore, the market size is sizeable.

## **Partners**

The main players will be the service provider, student, educational institution and companies. Those organizations and individuals are having a serious concern about the proof of attendance. The educational industry will open to blockchain technology while it is starting to know more about the mechanism of it.

Education institutions and companies can participate in POP DLT network for proofing and verifying the attendance of students. Education institutions have to store the important attendance record for students. Companies who participate in the network can check the trueness of the attendance with the application.

| Competition              | There are lots of competitive competitors in the market, such as due diligence and background checking companies. Although there are lots of way for checking, using the indirect way for checking, the effectiveness and trustiness cannot be ensured.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                                                               |                                                |  |  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------|------------------------------------------------|--|--|
| Revenue<br>Model         | The revenue model will be separated to different stakeholders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                             |                                                               |                                                |  |  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Free service                                | set up fee                                                    | Pay(service subscription)                      |  |  |
|                          | Holder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Limited credentials and services in profile | 1                                                             | \$50USD per a year<br>or<br>\$7USD per a month |  |  |
|                          | Issuer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Limited functions                           | Server set up free<br>(depends on the size of<br>the company) |                                                |  |  |
|                          | Verifier                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Limited functions                           | Server set up free<br>(depends on the size of<br>the company) |                                                |  |  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                             |                                                               |                                                |  |  |
| Distribution<br>Channels | To begin with, the industries of education, student and employment as these parties are influencing each other. To promote in the institutions, student and institution can enjoy the benefits of credential digitalizing, managing and issuing. As credential issuance have always been heavy workloads to them while the management of the credentials by the students or institution also consume lots of amount of time. It is important as it brings forward the convenient for application applying and paperless procedure.  Besides, on the side of the workplace, employers can easily verify the credentials provided by the applicator, reduce the human power of enquiring and processing.                                                                                                                       |                                             |                                                               |                                                |  |  |
| Merits                   | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                             | rect and trustworthy is the main core of the project.         |                                                |  |  |
| Wichte                   | The identity of both buyer and seller are ensured by the platform that both of them are trusted identity. During each individual transaction, both buyer and seller knows they are making a deal with that particular party which currently requires a huge amount of paperwork to prove the identity of the opponent.  By using the characteristics of the blockchain, we can enjoy the  Privacy is one of the main concern of POP.  With effective from May 26, 2018, the requirement from General Data Protection Regulation (GDPR) issued by the European Union become effective. The requirement includes but not limited to "Consent", "Right to Data Portability", "Right to be forgotten" and another requirement per the checklist. Compliance is expected whenever the organization is handling citizen of the EU. |                                             |                                                               |                                                |  |  |

| Risks      | The risk of the application can be separated into two parts. The risk of fraud can happen if the individuals and institution are corrupted. It is hard to prove whether the application is eligible. Secondly, the key management might out of control if the crypto key of the user has lost, the account may not be able to use as the signature is necessary for verification and initializing the proof. |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Next Steps | To expand the horizon of the project, it is significant to invite more institutions to realize the importance of verifying and issuing the credentials via education and promotion.                                                                                                                                                                                                                          |
|            | Besides, to develop more functions for users to use, such as job applying, educational talk and daily attendance.                                                                                                                                                                                                                                                                                            |