Fintech and Cryptocurrencies Exam 2019

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# Part 1: Theoretical Questions

* 1. Give an example of a company that you think will disrupt its target market in the next 5 years. Analyze the company’s target market and explain very carefully why you consider it as potentially being disruptive. Your example should NOT be a company that has already been classified as disruptive by news agencies or discussed in class.

Company: CommonBond

The company that is proposed to be disruptive in its target market in the next 5 years is CommonBond. CommonBond focusses on lending to college students and guides students throughout their loaning procedure, from when they first start studying until their refinancing post-graduation. They have developed different loan categories for students, ensuring that those in different academic phases and faculties are catered for. These categories include loans specifically for undergraduates, postgraduates students or medical students. Their goal is to provide lower rates, simpler terms and a better experience for student overall.

Target Market Analysis: Students seeking funding and investors.

The main target market is college students looking to fund their college/university fees and investors seeking alternative forms of impact investment

In the US alone students make up $1.5 trillion of debt. This is an incredibly large number and shows that there is a niche in the market for a company that can facilitate in providing more competitive solutions for these students.

Investors include those who want a responsible way to invest their money. The investors can directly see the results of their money on society and at the same time receive a return. Common Bond also partners with Pencils For Promise, a non-profit that provides educational infrastructure and supplies to children who desperately need it. This partnership also boosts the opportunity for potential investors as the Pencils For Promise Foundations has built a great reputation for itself as a company for good and attracted many big players.

Disruptive Potential: Lack of access to funding globally and subsequent high student debt shows a niche in the market.

There is currently a major lack of funding for students wanting to attend college/university, especially in South Africa where higher education is a luxury rather than a basic right. Another major concern is the incredibly high rate of student loans that are leaving graduates with crippling debt for years after college. CommonBond will be disruptive in this area as they offer students who really need finance, the means to study.

CommonBond identified that the process of acquiring funding can be incredibly confusing and aimed to create a process that was more straightforward for students to borrow. This strategy is powerful and solves a real problem in terms of how loans are communicated by commercial banks. These banks usually have complicated terms and fine print, which confuses many people and leads to a lack of trust. Confused students often pick loans that are not suited to them, resulting in them having to pay back large sums of money and often default more regularly. CommonBond has created a platform where they communicate simply and directly to the student, which means that there is more trust and less default risk.

The company provides rates that are far lower than competitors, making it affordable for students and ultimately a no-brainer for them to decided where to take out a loan from. For undergraduate students the rates start at just 3.66% APR and the loan is tailored per student based on their school of study and degree path, among other factors.

A major competitive factor is that every student is provided with a financial mentor to help them to find the correct loan. The company makes it flexible for students to repay loans and does not penalise them for late payments at all. CommonBond realises that by facilitating students in this way they are more likely to have the loan repaid.

With regards to the South African market, there is a significant lack of funding and an outcry for education. The banks are the competitive loaners and do not have rates that are affordable enough for students to make use of. Should Common Bond enter the SA market and ensure their rates are below that of competing banks, there is no doubt that there would be a disruption in the market.

With student debt at an all-time high, this company is providing a product that is in high demand and succeeding at analysing exactly what student want and need. Ultimately they deliver what students have been asking for; lower rates, a straight-forward system with no fine print and personal management.

Product Offering Summary :

* Lower rates than competitors
* Tailored financial packages per student
* Personal financial facilitation by a mentor
* Flexible repayment structures
* No penalties for defaults in payments
* Co-signers are released after payments have been made on tome for 24 months
* Networking through the access to the community of CommonBond members
  1. Give an example of a blockchain company that does not need a blockchain. Explain why the blockchain is unnecessary for their application and does not add any value.

**IBM Food Trust for Food Supply Chain Management**

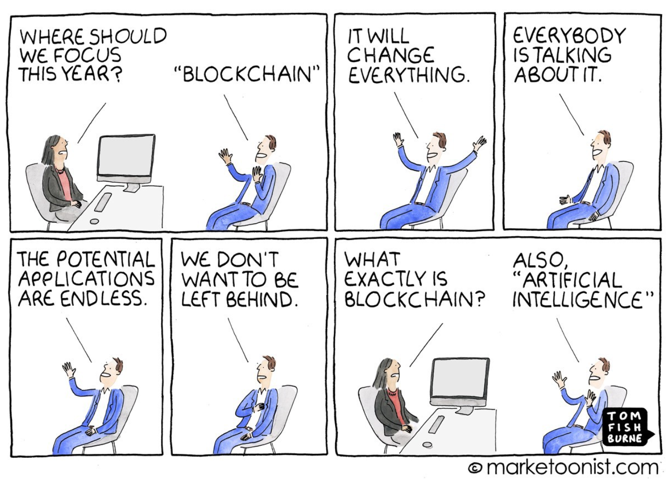
IBM has implemented a blockchain based system to ensure food transparency. The company wants there to be a shared of processing data, transaction details and certification with regards to food.

The truth of the matter is that supply chain management does not necessarily need to have a blockchain to improve the process. Distributed databases could more easily be implemented to address the problems that the company is trying to address.

Blockchains have scalability issues and tend to be slow, while databases tend to not have these issues. The databases are able to provide the transparency needed as consumers can view the details of the produce in the same way they can through the blockchain application.

One could argue the stance that the database lacks the immutability of blockchain technology. This argument does not hold when one further analyses the business process of capturing data on the blockchain. In order for the immutability to actually be of true value, IBM would actually have to ensure that every single piece of produce is truthfully and accurately entered by the farmer. This process is often inaccurate and the error would be carried through in the blockchain with no way of changing it.

Ultimately the problem is the lack of traceability of food, which can be solved through a database system and IoT sensors along the supply chain to track the food. The IoT sensors would record the produce at each step and input the details into the database. The database can easily be queried to enable consumers to see the journey and details of their food as well as enabling officials to trace the source of problems in the supply chain.



* 1. Explain the concept of an ICO. Give an example of an ICO that failed. Analyze why this ICO probably failed by citing dodgy parts from the whitepaper and explain why these parts are dodgy.

**Initial Coin Offerings (ICO’s)**

ICOs are initial mechanisms of funding used by tech organisations to raise money for perspective projects. The organisation offers to sell crypto tokens/coins they have themselves created to the public, in exchange for Ether or Bitcoin. The investor will hope that the project performs well and that this reflects in the value of the purchased token. Initial Public Offerings (IPO’s) are a similar concept whereby shares are offered to the public in exchanged for funding. In order for the company to qualify for an ICO release, they usually have to publish a White Paper that details their project. The company will then direct potential users to a site and display the time and day that the ICO will begin.

The participation in ICO’s is very unrestricted and so the pool of potential investors is very large. Due to this lack of limitation, huge amounts of funding can be raised for the company to use for their product.

A core issue with the ICO process is that the funds are raised prior to the company actually producing the product. This means that there is a large amount of risk an speculation on the part of the investor as many companies do not deliver on their promises made prior to investment.

**Fixy Network**

The Fixy Network is an example of an ICO that failed. This company attempted to create a system whereby they were apparently making the use of cryptocurrencies for everyday lives and ‘ordinary’ people easier. Fixy Network created a voucher system with vouchers that equated to an amount of cryptocurrency, such as Ether. The concept involved partnered retail stores that would sell these vouchers of cryptocurrency to customers and thereby allow these customers to exchange their fiat currency for cryptocurrency.

This ICO failed for multiples reasons, with the major point being that they appear to have ‘alternative motives’ that are somewhat ‘dodgey’. An alternative reason is that the average consumer is risk adverse and still does not trust cryptocurrencies enough to be casually purchasing vouchers.

Corporates are also still adverse to dealing with cryptocurrencies and so finding major retailers to partner with could have been a difficult task and resulted in the ICO failure. None of these so called “partners” are mentioned in the white paper which suggests that the company may not have been able to forge partnerships prior to publishing the document.

The ‘dodgey’ sections of the white paper are outlined in more depth, with the major points being the fact the paper is written in a very colloquial way and does not included major creditable sources or statistics. Reading the paper does not give the sense of trust and often one feels as though the company is trying to almost brainwash consumers by making cryptocurrencies seem like they are incredibly complicated and hard to deal with without Fixy Network’s help. The paper attempts to downplay consumer knowledge by referring to consumers as “cryptocurrency beginners’, “new and inexperienced” and “newbies”.

**White Paper:** <https://icosbull.com/whitepapers/2047/FIXY_NETWORK_whitepaper.pdf>

**‘Dodgey’ Whitepaper Citations:**

1. “It is a very tiring task attempting to participate in the world of cryptocurrency, the interest of newbie investors of cryptocurrency is truly put to the test at the point of first purchase.” – participating in cryptocurrency is portrayed as being confusing and energy consuming in an attempt to scare consumers into rather using Fixy Network. This is misrepresenting what the trading of cryptocurrency is actually like.
2. “When new and inexperienced cryptocurrency enthusiast gets into the real buying context, they realize that is not so easy to acquire, and some may even lose interest.” – scare tactics and misrepresentation are once again used to deter consumers from not using the platform. The paper generalises about all new users in an attempt to convince them that they will also lose interest in trading without Fixy.
3. “Registering on exchange platform in other to be able to liquidate one's cryptocurrency is another challenge as exchanges require exhausting and time-consuming processes which involve KYC (know your customer) validation which may take days or weeks.” – all exchanges are generalised as being time-consuming, which is a defaming comment regarding exchanges and not factual data is given to prove these statements.
4. “Exchanges have struggled to keep up with the breakneck growth of the cryptocurrency market and enormous volumes so much that some of the existing centralized exchange platforms have even begun to shut out new members because it has become nearly impossible to keep up with demand.”- making allegations without verified statistics in order to making competition look negative instead of providing more detail about their own product is dodgey and unprofessional.
5. “This makes it extremely difficult for newbies to acquire cryptocurrency.” – referring to clients as “newbies” once again undermines their knowledge and is unprofessional.
6. “Cryptocurrency traders and investors have lost so much money because these centralized exchange platforms have at some point ceased trading, experienced outage, and crashed during times of very high volumes and demands.” – vague amount exposed as simply ‘so much money’. This is another scare tactic to pull potential investors who do not know enough about cryptocurrencies and the exchanges to know that it is a hyperbole.
7. “Basically, an electronic ledger, or better described as a decentralized and digitized ledger which is available for all cryptocurrency transactions.” – white paper is written in colloquial language and lazy grammar which contributes to the dodgey feeling of reading it.
8. “Fast Transactions”: the blockchain is advertised as having faster transaction times than traditional systems, which is blatantly untrue.
9. Graphs of cryptocurrency performance as well as the statistics of Bitcoin has no listed knowledgeable sources, making the information less respectable.
10. “In terms of digitalization, retailers always need new products and solutions to keep customers or even win new ones.” - generalization about the retail sector is acknowledged in a very colloquial way an no respectable data or sources are given to back it up. None of the “partner stores” are ever mentioned in the white paper, which makes one question whether there are actually stores that have agreed to sell the “gift cards”, a fundamental part of this business case.
11. “To prevent, inflation and maintain a steady rise in value, the Fixy token will have a fixed quantity supply of 100,000,000 FXY” – there is no factual accredited data to back up why this number will support a stead value of currency. Not accredited personal such as an economist is included to support the value.
12. “The fixy app is not just about serious business alone; it also brings fun and games into the mix. There will be several games on the app that will engage the users.” – the business model attempts to incorporate multiple aspects, rather than focussing on the main aim of the project. This could be a ploy to try and present more value to the consumer. It does however appear slightly dodgey to be trying to now incorporate games into what appears to be a crypto voucher exchange.
13. 15% of tokens distributed to team - this is a high percentage to distribute directly back into the project team.
14. Project team - the CEO is Hasan Turgut, who is not a creditable business person or tech guru. The CEO no longer has an active LinkedIn profile (Link from the white paper). The technical head still has an active LinkedIn profile, but does not present the Fixy Network as his prior experience anywhere on the profile. Ultimately the team is somewhat anonymous and therefore does not appear to be trustworthy.
15. Project timeline lacks funding requirements and clear development goals - no funding requirements are listed on the timeline at all for investors to see. The development goals are vague and this could indicate that there was no intention to actually carry out the project or no thought through direct plan as how to do it.
    1. While Proof of Work consumes a lot of electricity, Proof of Stake also is not perfect. Explain how Libra, as an example of a Proof of Stake protocol, works and what its advantages and disadvantages over Proof of Work are.

**Libra as a Proof of Stake Protocol**

Project Libra makes use of a consensus algorithm known as Proof of Stake (PoS). In general this algorithm ensures transactions are verified by a distributed group of people who have an ownership (known as a “stake”) of the currency only. These people stake an amount of Libra and will therefore allow them have the ability to validate transactions. The thought process behind the algorithm is that these aforementioned ‘validators’ own a stake which they do not want to be devalued and so are incentivised to behave in a manner that is rational. Within the Libra network, the buy in for partners is $10 million, which will allow these partners to run validator nodes. The aim for the future is to have 70 of these validator partners to assist with transactions. This will not happen overnight and so Libra will not be permissionless, rather controlled by the Libra Association governing members. In order to prevent fraudulent activities and enable auditing, the ledger will still be public.

This is different to Proof of Work (PoW), used by Bitcoin. PoW is decentralised and so allows anyone in the network to contribute hash power (work). The individual that solves a complex algorithm with their computing power is rewarded in Bitcoin. This process in turn creates Bitcoin, known as mining and adds transactions to the blockchain.

**Proof of Work**

**Advantages**

* Protection against DDoS attacks is ensured
* Supply distribution is incentivised and hoarding is subsequently disincentivised. Miners are constantly encouraged to sell the tokens they have minted in order to pay the costs of mining new tokens. This ensure liquidity in the market and hoarding is not rational.
* Inflation is controlled through the varying difficulty of the algorithms. The rate at which coins are minted is therefore controlled through the algorithm difficulty as it takes miners longer and involves more resources to solve.
* PoS generally results in the “rich getter richer” problem, whereby those who have the large stakes are the ones who are rewarded for mining. Proof of Work allows all miners the chance to earn rewards and so makes the system faired in its allocation of rewards.
* Forking on the PoW system is far more disincentivised to the rational miner. This is due to the fact that forking means that miners have to divide their resources amongst the forks, which then results in a lower chance of them actually finding a block. Rational miners will always stick to one branch, whilst in PoS systems have no incentives for stakers to do so.

**Disadvantages**

* High amounts of energy are needed to process a transaction. The externalities of this include environmental damage in the process of producing the power required to fuel mining equipment.
* High costs are amassed in the process due to the amount of energy needed to fuel the mining equipment. Equipment has to continuously be upgraded in order for the miner to be able to keep up with competing miners.
* The miner may not actually end up owning any of the currency that they contribute to mining as there is significant competition to solve each algorithm.
* High capital costs are needed to set up a mining rig which can be seen as being exclusionary in nature as only those who have enough money to invest will actually be able to mine.
* The system gradually centralises as only a select few have the resources to continuously compete for a block.
* The complex algorithms that are being solved do not actually result in anything of value being created, which is even more of a waste of energy. Their use is to ensure that there is security, but ultimately the results have not positive consequence for research or society.
  1. Which regulatory obstacles will you face when you want to commercialize your group project? Please explain why.

The regulation obstacles that FoodPrint (our group project), may face include aspects of the following nature;

**Produce Board:**

The Department of Agriculture, Forestry and Fisheries (DAFF) regulates that quality of produce in SA through several acts including the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990). FoodPrint needs to ensure that none of the information provided on each produce goes against any of these mandated acts and that the terms of conditions clearly state that the company is in no way responsible for farmers misrepresenting their produce.

**Organics Board:**

The South African Bureau of Standards (SABS) have drafted the South African National Standards protocol on the Organic Agricultural Production Processing (OAPP). These protocols will impact the control and sale of organic produce within the country. FoodPrint would have to ensure that the business processes are in line with any new protocols that are implemented. Business rules should ensure that produce is not incorrectly labelled and misleads the consumer in any way.

**Biosafety (Genetically Modified Organisms (GMO)):**

Currently the SA Department of Health requires that all food that differs in genetic makeup significantly needs to be labelled as GMO. FoodPrint needs to ensure that the terms and conditions clearly states that the company is in no way responsible for labelling the produce that is shown on the app. Forming relationships with such departments would benefit both FoodPrint and the department. The department would benefit from using the system to plot the source of problems in a supply chain, while FoodPrint would benefit from being able to know in advanced as to what food safety regulations they need to abide by.

**Farmer Personal Data Privacy :**

Mechanisms and procedures for the handling of personal information are dictated by the POPI Act. FoodPrint needs to ensure that all information regarding their farmers that is held, is used in ways that abide by POPI. No information regarding farmers will be released without their knowledge or approval. The company must ensure that all farmers making use of the application and provide their information are fully aware of what they are doing and sign a waiver when doing so.