Question 1.1.

Give an example of a company that you think will disrupt its target market in the next 5 years. Analyse 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.

Apollo Agriculture is a tech-enabled input financing solution for small scale farmers in Nairobi, Kenya founded in 2016. Apollo's model combines a new credit product with sophisticated analytics, remote sensing, and agronomic machine learning. Farmers can purchase high-quality farming inputs (like hybrid seeds and fertilizer) on credit with flexible repayment terms and post-harvest due dates. It also offers crop insurance and customer-centric, voice-based trainings to help farmers learn the best practices for tasks like planting, combating pests, and developing financial literacy. Apollo assesses farmer credit risk and customizes each product to a farmer's specific location using satellite data, soil data, farmer behaviour data and crop yield models. Each farmer's plot is mapped by GPS and satellite-tracked to provide real-time data on crop production and health. The company is potentially disruptive because it targets small-scale farmers in rural Kenya who do not have access to traditional loans because they lack collateral. Furthermore, it offers a customised package high quality farm inputs, and advice that can increase yields for these farmers and maximize their profits.

Question 1.2

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.

Acronis Notary uses blockchain technology to prove a file is authentic and unchanged. It adds an extra level of confidence to the authenticity of your personal and business data (property records, court documents, and long-term archives that could be subject to legal or tax audits) through computing a cryptographic hash, or "fingerprint", that is unique for each file. If all you need is to provide authenticity for a piece of data, a digital signature can be used without blockchain. In the case of Acronis Notary, using blockchain is merely a security theatre. That is, it is a solution that does little or nothing to increase security but makes people feel more secure. Digital signatures have been in existence and served well before blockchain came into existence. They are a much cheaper and less complex solution to document authenticity than blockchain. Furthermore, with or without the blockchain, it is impossible to verify that nobody tampered with the physical document before feeding it into the digital system.

Question 1.3

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

An initial coin offering (ICO) is a fundraising tool in the blockchain and cryptocurrencies ecosystem in which new digital coins are issued. A start-up company creates a new cryptocurrency or digital token and then the company holds a public ICO where retail investors can buy the newly minted digital tokens at a discount as a way for the company to

raise money. The investor doesn't get an equity stake but the coin can be used on a product that is eventually created. There is also speculation that the digital coin token will appreciate in value and can then be traded for profit.
To launch an ICO, a company ideally needs an ICO token with a solid distribution plan, white paper, prototype, skilled team and informative website.

An example of a failed ICO which turned out to be a scam is GoNetwork. GoNetwork is a network for Ethereum that is said to help decrease the cost, while at the same time increase the speed of ETH transactions which was dodgy for many reasons:

i. There are no ICO start-end dates and no goal set
ii. The team comprising Amit Shah, Rashid Khan and Xun Cai claim to have won the ETHWaterloo (world's largest Ethereum Hackathon held in late October, 2017) were merely finalists. They also claim to have over 30 years of experience.
iii. Their website home page uses a gigantic background photo which the team took with Vitalik Buterin at the hackathon. The page features a brief and unclear description of the GoNetwork platform and no roadmap.
iv. A GitHub repository barely showing any activity or commits and repositories which are either forked or stolen.
v. Their white paper is titled "Anticipated to be a highly scalable, low cost mobile first network infrastructure for Ethereum" but hardly goes into detail about how it will achieve and implement this. There is no clear communication of the vision of the project, its development strategy, architecture and goals, information on the token and its distribution, legal issues and so on. The token model information is limited to a diagram depicting the token distribution and token supply but no justifications for these numbers.

   The dodgy part in the white paper is a small paragraph in a small font stating that "The GoNetwork Parties do not accept liability for the Company’s website, roadmap and this Whitepaper being accurate, complete or up-to- date or for their respective content nor is it responsible for direct, indirect, incidental or consequential damages resulting from any defect, error or failure to perform. The GoNetwork Parties do not accept liability for the Company’s website, roadmap and this Whitepaper being accurate, complete or up-to- date or for their respective content nor is it responsible for direct, indirect, incidental or consequential damages resulting from any defect, error or failure to perform." In addition, there is no contact information for each of the team members and no details about Advisors(who get 5% of token distribution).

vi. Ironically, USA, Canada, China and Singapore were prohibited from participating in the ICO and yet USA and China turned out to be part of the top traffic generating countries for GoNetwork.

Question 1.4

While Proof of Work(PoW) consumes a lot of electricity, Proof of Stake (PoS) 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.

Unlike PoW which requires agents to compete using raw computational power and consumes a lot of electricity to achieve consensus, PoS overcomes this by offering a selected stake-holder the authority to validate the blockchain. In order to facilitate agreement among all validator nodes on the transactions to be executed and the order in which they can be executed, the Libra Blockchain adopted the Byzantine Fault Tolerant(BFT) consensus approach. The LibraBFT decentralizes trust among a set of validators that participate in the consensus protocol. LibraBFT guarantees consensus on the history of transactions among honest validators and remains safe even if a threshold of participants are faulty or corrupt.

Advantages

- builds trust in network because BFT consensus protocols are designed to function correctly even if some (up to one-third) validator nodes are compromised or fail.
- BFT class of consensus protocols enables high transaction throughput and low latency
- it is a more energy-efficient approach to consensus than PoW

Disadvantages

- leads to the rich getting richer because the greater the stake, the greater the rewards
- Libra uses a new programming language called Move. Therefore, developers are required to learn a new language to implement protocol.

Question 1.5
Which regulatory obstacles will you face when you want to commercialize your group project? Please explain why.
My group project is a decentralised post-graduate student lending platform that links students to social impact investors. We offer collateral-free loans to post-graduate students by creating a social investment product
that allows multiple investors from anywhere in the world to participate in funding their studies. Students build up a profile of alternative data which can be used to estimate their creditworthiness (employability potential) for student funding. Our aim is to create more viable interest rates for students on their student loans and simultaneously create a more secure investment for the investors through tokenisation.

South Africa has extensive exchange control rules which govern the inflow and outflow of capital, as well as stringent legal requirements regarding credit and financial assistance, which are pivotal to the success of lending transactions between foreign lenders and South African borrowers. No South African borrower is permitted to borrow any foreign currency from any person who is not an authorised dealer, unless that borrower has prior approval from the Financial Surveillance Department (FSD) of the South African Reserve Bank. Given

that the platform is open to foreign lenders and foreign borrowers, these may pose exchange control regulatory issues.
In addition, the National Credit Act(NCA) regulates the provision of credit in South Africa and applies to all credit agreements made in or having an effect within the country. Estimating the employability of the students is similar to assigning a credit score and by law, only credit bureaus registered with the National Credit Regulator can assign credit scores to consumers. The NCA requires lenders to register all credit on a national register to enable lenders to do an obligatory affordability assessment. The Act also regulates credit bureaus with regards to consumer protection in terms of credit information. The Act considerably beefs up the disclosure of interest rates, fees and other charges and lays down a maximum rate of interest. Furthermore, the employability model would require personal and sensitive information for which one requires ethical approvals.