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Office of the Vice Provost for Advances in Learning



CAPSTONE PROJECT CASEBOOK



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Learning outcome:

LO7: Review the requirements and resources for your capstone project.

Topic 1: A Plan of Action for Adopting the US Digital Dollar

Your mission:

You are a member of the digital innovation team in your chosen company, in any region that utilizes the United States Dollar (USD). Your mission is to provide a reasonable plan of action for how your chosen company in this region will prepare for the implementation and launch of the US Digital Dollar, a Central Bank Digital Currency (CBDC).

Blockchain-based payment systems, such as cryptocurrencies or stablecoins, have introduced the concept of digital bearer instruments. This new technology provides qualities similar to those of physical bank notes, including instant settlement, privacy, and reduced transaction fees. The digital nature of the transferred value further enables a host of programmable functions which previously required trusted middlemen. While the instruments have found market adoption within the cryptocurrency ecosystem, their use for everyday payments remains nascent. However, central banks around the world have taken notice of these new technologies and their potential impact on national currencies. In December 2022, 119 countries had announced they were exploring a central bank digital currency (CBDC), 17 were piloting one, and 11 had fully launched their digital currency.¹

In March 2022, US President Joseph Biden signed an executive order that outlined a whole of-government strategy to research and develop a potential digital dollar.² The order specifically directed the government to assess the required technological infrastructure and to prioritize US participation in multi-country experimentation to permit interoperability between multiple CBDC clearing and settlement systems. It further encouraged the Federal Reserve, the US central bank, to continue its research to assess what a digital dollar might look like.³

As the world's reserve currency, the US dollar is one of the US's most valuable exports and most foreign exchange reserves are denominated in USD. However, the US' currency dominance has consistently fallen in recent years, and stood at an all-time low of 59.7% in Q3 of 2022.⁴ Furthermore, unique from other national currencies, eleven other countries have adopted the US dollar as their official currency, and more than 65 countries peg their currencies to the US dollar. As of September 2022, approximately 50% of US currency circulated outside its borders.

¹ <https://www.atlanticcouncil.org/cbdctracker/>

² <https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/09/fact-sheet-president-biden-to-sign-executive-order-on-ensuring-responsible-innovation-in-digital-assets/>

³ <https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf>

⁴ <https://data.imf.org/?sk=E6A5F467-C14B-4AA8-9F6D-5A09EC4E62A4>

Many initiatives have researched the viability of a CBDC to assert the US dollar's position as the world's reserve currency. The Digital Dollar Project has published a number of white papers outlining considerations and principles for a US CBDC.⁵ MIT's OpenCBDC and Project Hamilton have collaborated on technical designs for a future CBDC and related transaction processors to support the currency across the US payment economy.⁶ Still, other strategy papers point to design objectives which include the needs of the currently unbanked population that stands at an estimated 1.4 billion people worldwide, according to the World Bank. In the US, FDIC research has reported that 6.5% of US households are unbanked. Other high-priority use cases for a digital dollar, and CBDCs in general, are that of cross-border payments, micropayments, and machine-to-machine payment systems. Furthermore, without significant research and development of new international standards and coordination on cross-border financial flows, other international bodies have warned that the international financial system may face significant interoperability challenges in the near future.

While many policy papers exist on CBDC principles, design, implementation, and roll-out, less research exists on its potential impact on companies. The US Federal Reserve has highlighted opportunities for businesses to use a new safe, convenient, and electronic form of central bank money, to create new financial products and services on the CBDC platform, to benefit from increased visibility into user provenance for Electronic Know Your Customer (eKYC) and advanced machine learning purposes, and to enjoy faster and cheaper transaction costs and cross-border payments.⁷ However, concerns have been raised about how digital currency transactions will safeguard consumer privacy rights and whether CBDC infrastructure will be resilient to cybersecurity threats. Specifically for the financial services industry, some researchers have suggested that if the US Digital Dollar serves as an interest-bearing substitute to commercial bank deposits, then the launch could significantly disrupt both bank deposit volumes and their lending services.⁸ Nonetheless, while uncertainties remain, the question of whether the US will launch a CBDC has shifted from whether to launch it, to what it will look like.

For your research into the US Digital Dollar CBDC, use the following resources:

<https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/16/fact-sheet-white-house-releases-first-ever-comprehensive-framework-for-responsible-development-of-digital-assets/>

<https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-august-2022-briefing-no-163/>

⁵ <https://digitaldollarproject.org/publications/>

⁶ <https://www.media.mit.edu/projects/opencbdc/overview/>

⁷ <https://www.wired.com/story/new-digital-dollar-could-shake-us-financial-system/>

⁸ <https://www.federalreserve.gov/econres/notes/feds-notes/central-bank-digital-currency-a-literature-review-20201109.htm>

Your task:

Create a slide deck presentation to the Executive team of your chosen company; accompanied by a well-researched, factual word write-up, which should include the following information:

1. An outline of how the US Digital Dollar (CBDC) will impact your customers and clients, your chosen company, and their industry in the region.
2. Provide factual reasons why and how your customers and clients would want your company to adapt to the US Digital Dollar (CBDC) in the region. Provide steps in your Plan of Action for your chosen company to take to prepare for the implementation and launch of the US Digital Dollar (CBDC).
3. Provide a SWOT analysis and the risks, costs, and benefits of your recommended Plan of Action; and why the facts support your recommendation.

Please note that students are free to choose any company they wish in this topic. While you may opt to select your current employer, you are strongly discouraged from revealing any confidential or proprietary data in this exercise and do so at your own risk.

Topic 2: Acquiring BanQu: Applying blockchain technology to sustainable supply chain financing

Your mission:

You are a C-Suite advisor at a major E.U. financial institution or organization of your choice. Your challenge is to assess a potential acquisition of, or a partnership with, BanQu, a blockchain-based supply chain compliance software, to augment your institution's supply chain financing offerings and to convince your institution's leadership of your proposed recommendation.

As adopted by the European Council in December 2022 and pending the European Parliament's approval expected in May 2023, the EU Supply Chain Law will obligate certain large companies operating within the EU to identify actual and potential human rights and environmental problems within their supply chains and take appropriate measures to prevent, mitigate, and remedy the problems. The proposed regulation will cover EU companies and foreign companies operating within the EU with more than 500 employees or with a turnover of at least 150 million euros as well as those companies operating in high-risk sectors, such as the textile and leather industries, agriculture, forestry, fisheries, and mining, that have at least 250 employees or a turnover of 40 million euros. Although the law will not directly target small-and-medium enterprises, they would be indirectly affected if they are a supplier of a company that is covered by the regulation.⁹ Whereas some national legislation has focused on specific human rights violations within supply chains, such as [Germany's 2023 LkSG law](#), all EU countries will have approximately two years to incorporate the law into their own national legal systems, whether through new legislation or amendments of existing legislation.

⁹ <https://www.egs.com/compliance-blog/eu-supply-chain-law/>



In part due to this expected future regulatory requirement, your institution's leadership has become curious about the potential applications of blockchain technology to supply chain financing and compliance – and was aware of BanQu's innovative application of blockchain-as-a-service to supply chain compliance in its platform. They have tasked you to investigate the company's offerings and its potential extension into augmenting your institution's sustainable supply chain financing offerings.

BanQu, or “bank you”, was a blockchain-based distributed ledger technology (DLT) supply chain record that traced a product's provenance from the first to the last mile¹⁰. Its mission was to provide “a true traceability platform with multiple industry solutions that helps global brands and manufacturers gain visibility and control of their entire supply chain.”¹¹ Founded in 2015 by Ashish Gadnis, Hamse Warfe, and Jeff Keiser, the for-profit-with-purpose was initially inspired by Gadnis's work in the Democratic Republic of the Congo for USAID when he tried helping a young female farmer open a bank account. Because she could not prove her work was part of a supply chain, the bank denied her request – yet offered to open Gadnis a bank account instead. The problems unbanked farmers had in proving their work history mirrored those of end-mile brands who were trying to prove their products' provenances. Gadnis explained, “If this mother is growing amazing coffee and cacao and you pay eight or ten dollars in New York for a latte that says Fair Trade, it's totally not true because she is invisible in the supply chain. I've anchored in this premise that, if that mother can prove her existence in the supply chain with full dignity, full equality then we will have done something amazing.”¹² From this interaction, BanQu was born as a way to help both the first-mile farmers develop a work history and credit record and the end-mile companies prove their products' provenance.

BanQu aimed to tackle endemic challenges of verifying a brand's entire global supply chain, such as the accountability risk of middleman suppliers who may not desire traceability or the need for low-tech solutions to accurately track every aspect of a supply chain's provenance. In explaining the product, Gadnis stated:

“Have you ever asked yourself a very simple question: where did the plastic come from? This pair of jeans that you are wearing ... [or] this cotton, was [it] ethically sourced? Have you asked yourself the question? And brands are telling you that [they are ethically sourced], but the reality is that ... the last two steps where the farmer is, where the waste picker is, where the worker is, are completely invisible.”¹³

Gadnis credited blockchain as the optimal underlying technology for the company's operations, since every user participating in one transaction on the platform receives a copy of the transaction. This produced an immutable record of every participant in the supply chain in a way that is accessible to both the first-mile farmer and the end-mile brand CEO alike.¹⁴ Furthermore, using BanQu's platform only entailed SMS or lightweight internet connectivity requirements, and it was device agnostic. The company was based out of both the U.S. and South Africa, and by 2023, BanQu

¹⁰ In supply chains, provenance refers to “the validated history of ownership, custody, and origin of a specific product instance, such as a lot, batch, or serial number.” Source: <https://www.ibm.com/docs/en/transparent-supply?topic=started-basic-provenance-concepts#:~:text=With%20respect%20to%20the%20world,than%20one%20product%20as%20well>

¹¹ <https://www.youtube.com/watch?v=tW-YAy-IJ1M>

¹² <https://www.banqu.co/news/fireside-chat-with-ashish-gadnis-banqu-ceo>

¹³ <https://www.youtube.com/watch?v=PBKOzJPazNM>

¹⁴ <https://www.youtube.com/watch?v=PBKOzJPazNM>

was present in over 40 countries with over 600,000 users and 300,000 digital supply chain connections included within its network.

When developing previous partnerships with financial institutions and end-mile brands, Gadnis emphasized, “BanQu was less about markets and positioning – we want to build a platform that will enable data democracy.”¹⁵ However, BanQu encountered some initial confusion among companies when marketing its product. He explained, “Honestly it was really hard ... every time we had the conversation, there were two hesitation points. One was, wait a minute, we don’t understand blockchain. ... And second, ... everyone would send us to their foundation or the CSR.”¹⁶ As awareness of BanQu’s product spread, he elaborated, “we looked for companies that not only agreed with our philosophy of creating a better world but also realized that potentially they could save money in their supply chain, [so] potentially they could tell their consumer, ‘Hey, I can tell you where your beer came from!’”¹⁷ In the E.U., BanQu already developed an existing partnership with RSM Spain, a Spanish member firm of a global network of independent, audit, tax, and consulting firms across 116 countries, in 2019.¹⁸

Visit [BanQu’s website](#) and do additional research regarding the company, its product, and its different features. Use the following questions to guide your research:

- What are the commonalities and differences between supply chain financing, sustainable supply chain financing, and supply chain compliance?
- Why should blockchain and distributed ledger technology be applied to both supply chain financing and supply chain compliance? Is this just a gimmick, or is there a real value in applying the technology to either use case (or both)?
- What is “greenwashing”, and why is it a problem? What are blockchain’s advantages and limitations in helping to tackle this problem in supply chains?
- With no set industry standard to measure ESG, harmonizing between existing ESG metrics remains a challenge for financial institutions and companies alike. How could BanQu’s provenance tracking be extended or built upon? What are its limitations?

¹⁵ <https://www.banqu.co/news/fireside-chat-with-ashish-gadnis-banqu-ceo>

¹⁶ CSR, or corporate social responsibility, was defined as "a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders." CSR in this context refers to the company's corporate social responsibility division, which was responsible for these matters. Source: <https://www.unido.org/our-focus/advancing-economic-competitiveness/competitive-trade-capacities-and-corporate-responsibility/corporate-social-responsibility-market-integration/what-csr>

¹⁷ <https://www.banqu.co/news/fireside-chat-with-ashish-gadnis-banqu-ceo>

¹⁸ <https://www.prnewswire.com/news-releases/banqu-secures-partnership-with-rsm-spain-to-bring-supply-chain-transparency-traceability-and-sustainability-to-spanish-and-european-markets-300852261.html>

Your task:

Create a slide deck presentation and accompanying write up, which includes the following information:

1. Your recommendation and factual rationale as to whether your financial institution or organization should:

(a) acquire BanQu and why;

(b) partner with BanQu and why;

or (c) build its own system, and why?

Be sure to include what aspects of supply chain financing – and what customer segments – BanQu’s innovative application of blockchain technology would help at your institution or organization and which it will have no (or limited) impact on.

2. If recommending an acquisition or partnership, identify one opportunity and one challenge to BanQu’s continued development and growth, and suggest one proposed course of action each that your financial institution or organization can take to address the opportunity and challenge. Briefly outline your proposed terms of the acquisition or partnership deal (within no more than 3 sentences).
3. If recommending building your own system, identify at least one feature necessary for fulfilling the E.U.’s compliance mandate that BanQu does NOT offer and that your system should contain. Assess the benefits and limitations of blockchain technology in constructing this feature. Briefly outline the necessary costs and other requirements of building your own system (within no more than 3 sentences).
4. Address whether you believe that BanQu’s platform – and blockchain technology more generally – can achieve harmonization across ESG objectives in supply chain financing and how these platforms can adequately minimize greenwashing.

Please note that students are free to choose any company they wish in this topic. While you may opt to select your current employer, you are strongly discouraged from revealing any confidential or proprietary data in this exercise and do so at your own risk.



Topic 3: Coegil - Big Data

Your mission:

You are the leader of a data analytics team at a company¹⁴ where Coegil's data science offering has been pitched (www.coegil.com). Your challenge is to provide a recommendation to your Executive leadership on whether your company should adopt Coegil's offering or pursue a different solution, and why?

While information technology has been about collecting, organizing, and storing data, the future lies in faster data processing and utilizing information more productively. Cloud technology makes this possible by building from electronic data processing methods, thereby increasing the speed and effectiveness of data processing. Faster, better quality data allows companies to derive greater insights and make superior decisions. Financial services companies are big beneficiaries of such cloud technology solutions due to the massive amounts of information they accumulate, consume, and process daily. See the [link about the value of big data in the cloud](#).

Coegil's solution loads, visualize and predict data within seconds. It loads data from your desktop, data warehouse, or third-party sources; builds sophisticated machine learning models; and shares results in seconds using a single, integrated product. It is made for those on the path from spreadsheets to big data who lack internal resources or have tight budgets. The platform was built by a team of systematic research and algorithmic execution experts from firms like Bridgewater Associates, UBS, and T.Rowe Price.

Performing complex analysis or working with large datasets is often difficult and time-consuming in Excel. Moreso, big data and cloud tools are complex to set up, costly to operate and require deep expertise to extract value. While established firms invest over US\$10m annually in data scientists and their data infrastructure, most people are not ready to make such a long-term commitment. Thus, companies either cobble together an inferior alternative to consumer products or go without one. Despite this large addressable market, no product makes the journey from spreadsheets to big data as easy or robust as Coegil.

For your research into the topic of big data processing in the cloud and, more specifically, Coegil, use the following guiding questions:

- What is the purpose of Coegil for other companies? How does Coegil compete in and attract users from its addressable market?
- Who are Coegil's competitors in the data-science-as-a-service market? How do Coegil and its peers differ from research providers such as Thompson Reuters?
- Is data processing in the cloud right for everyone and, more specifically, your company? Compare the benefits and drawbacks of on-cloud, off-cloud, and hybrid set-ups.
- How does Coegil handle issues such as data security and privacy? How do these trade-offs weigh with Coegil's processing efficiencies and speeds?
- What do you anticipate Coegil's greatest challenge will be in terms of adoption and what strategy can it use to mitigate it?

Your task:

Create an Executive leadership slide deck presentation and an accompanying write-up for your chosen company, including the following information:

1. A description of the benefits and drawbacks of big data analytics, data science, and cloud computing (and possible alternatives). Describe why this is recommended in your company and what possible alternatives you might consider
2. Analyze Coegil's offering in relation to your company's needs (noting Coegil's value proposition and its advantages and disadvantages as a smaller company competing for customers in data science-as-a-service.)
3. Prepare a thorough, well researched, factual plan of action recommending the adoption of Coegil (or an alternative offering) and why. Also, suggest ways Coegil can improve its offerings to be successful in the future to address criticisms your company has of it.

Please note that students are free to choose any company they wish in this topic. While you may opt to select your current employer, you are strongly discouraged from revealing any confidential or proprietary data in this exercise and do so at your own risk.



Topic 4: Jumia's super-app

Your mission:

You are an adviser to Jumia's CEO (appointed by the Board after the co-founders stepped down in Nov, 2022). JumiaPay launched as a mobile first strategy to compete with several FinTech super-apps in key markets across Africa - its competitors include VodaPay (South Africa); myfawry & Careem (Egypt); MPESA (Kenya); and OPay (Nigeria & Egypt). Your challenge is to compare JumiaPay with all top FinTech competitor offerings and provide a recommended FinTech growth plan for JumiaPay that boosts Jumia Group's profitability.

A super-app is a digital platform where users can meet all their everyday digital needs without leaving the app. It offers a seamless experience with integrations into other core applications so that it becomes an ecosystem of digital services. In addition, a super-app incorporates many FinTech features into its platform, such as a digital wallet, rewards, currency conversion and exchange, payment aggregators (such as bill payments and utility payments), credit, insurance, SME offerings, and other digital banking features.

"We are an everything platform," Jumia co-CEO Poignonnec declared.¹⁹ In 2016, Jumia was recognized by the *Financial Times* as Africa's first unicorn when the Africa Internet Group, its parent company, secured an investment valuation of more than US\$1bn.²⁰ In 2019, the company became the first African start-up to list on the New York Stock Exchange in an IPO, which raised US\$200m. The company first launched as an online retail store in Nigeria in 2012, where it bought local and international products from sellers and shipped them directly to customers. By the end of 2021, it was present in 11 markets in Africa with annual revenue of \$177.9 million USD.²¹ Despite this, its co-founders and co-CEOs believed that the company had only scratched the surface of what was possible on the continent, so its super-app was launched in 2020 to expand its integrated ecosystem. Poignonnec asserted:²²

It's better to look at how our ecosystem fits together: the sellers on the marketplace and the breadth of their respective offerings attract more consumers to our platform. This allows us to increase consumer lifetime value (through physical goods), increase relevance to consumers (through services), and increase consumer engagement (through payments). (Ibid)

The company launched a mobile money wallet in August 2016. In March 2018, the company launched its all-in-one app Jumia One, which allows customers to conduct online transactions such as airtime and data recharge, shopping, entertainment, and utility payments and access all Jumia services. In 2020, the company combined both the wallet and Jumia One into a single super-app, JumiaPay, which offered a broad range of lifestyle and financial services, including airtime,

19 Ramon Casadesus Masanell, Pippa Tubman Armerding, and Gamze Yucaoglu, "Jumia's Path to Profitability," Harvard Business School Case Study 9-721-355, March 2, 2021, p. 7.

20 <https://www.ft.com/content/d4bf5786-ce4b-11e5-92a1-c5e23ef99c77>

21 <https://www.bloomberg.com/press-releases/2022-02-23/jumia-reports-fourth-quarter-and-full-year-2021-results>; <https://techcrunch.com/2022/04/04/ups-partners-with-jumia-to-expand-delivery-network-in-africa/>

22 Ramon Casadesus Masanell, Pippa Tubman Armerding, and Gamze Yucaoglu, "Jumia's Path to Profitability," Harvard Business School Case Study 9-721-355, March 2, 2021, p. 7.

travel, utilities, finance, and gaming.

As Africa's largest e-commerce platform, Jumia recorded 8 million active users on its platform in 2021, and e-commerce only represented 2-5% of total retail.²³ With the launch of the JumiaPay super app, the company could benefit from the increase in adoption of cheaper, lower-end phones (with limited storage capabilities and high data costs) in a continent with a total population of 1.2 billion people, 453 million internet users, and US\$4 trillion worth of household and business-to-business spending. For many mobile phone users, a super-app offers the utility of dozens of apps with the storage and data costs of only one. Therefore, super-apps simplify the internet world for users who are coming online for the first time and enables them to access a wide variety of services on a simple, unified interface. Simultaneously, market fragmentation along regulatory, cultural, country and business environment lines challenges Jumia's ability to preserve its success across multiple markets while expanding into new ones.

Post the pandemic, Jumia noticed consumer and merchant behavior shifted to a digital-centric lifestyle and simultaneously, new entrants were creating an increasingly competitive landscape. Industry competitors had launched super-apps, such as Nigeria's OPAY and KongaPay, Kenya's MPESA super-app; Egypt's myFawry and Careem; and South Africa's VodaPay super-app. While the company faced these competitors, Jumia was still considered to offer the widest range of products and services; however, as international players like Alibaba and Tencent enter the continent more prolifically, Jumia's offerings could be dwarfed.

These events reaffirmed the need for Jumia's super-app to be a seamless, one-stop shop to respond to the multiple shifting needs of its mobile phone users. Furthermore, the leadership reviews the app's verticals for underperformers and do exit some services, such as Jumia Deal's (Groupon-esque marketplace) and its classifieds services (Jumia Car and Jumia House). How can Jumia retain its frontrunner e-commerce position while taking full advantage of business and consumer lifestyle & digital shifts across multiple African markets?

[Visit Jumia's website](#) and do additional research on the super-app's offerings. Use the following guiding questions:

- In emerging markets, what user needs does a FinTech super-app like JumiaPay solve? Think about how to apply your learnings from our Modules (for example, the PayNearby case study; India's UPI; India's super-apps etc) and how these learnings and other regional FinTech super-app advances might be relevant to JumiaPay?
- What technology, FinTech services, and experiences are critical to JumiaPay's super-app ecosystem for its mobile phone users and partners?
- How will super-apps like JumiaPay affect FinTech innovators, financial service incumbents, and FinTech telecommunication companies across emerging markets?
- When, why, and how should JumiaPay collaborate, build, buy, partner, or exit relationships?
- Are any FinTech trends affecting super-apps across various emerging markets, such as open banking, regulations or CBDCs, new emerging technologies, etc? How should JumiaPay navigate these new developments?

²³ <https://www.naijanewsagency.com/africa-e-commerce-market-hugely-untapped-with-potential-for-growth-says-jumia-chairwoman/>



Your Task:

As the adviser to Jumia's CEO, appointed by the Board, provide a slide deck presentation and an accompanying write-up, which includes:

1. An assessment of JumiaPay's super-app in relation to the competitive mobile-first, FinTech landscape in both Africa and globally. Consider lessons learnt from various other emerging market super-apps. Use SWOT analysis; scenario planning and other strategic tools.
2. Rank the top FinTech opportunities and cost-saving measures for JumiaPay to ensure its profitable future scale and growth. Propose one new FinTech priority, such as a technology, business model, or strategy, for JumiaPay to adopt in order to boost its current path to profitability.
3. Propose a Plan of Action for JumiaPay with KPIs (key performance indicators) that the CEO and Board can use to measure your proposals success.
4. Highlight your proposals downsides, risks, barriers, and costs; and provide mitigations and benefits where possible.

Topic 5: OpenSea, web3 & e-commerce

Your mission:

You are an Executive at OpenSea and the company leadership has been discussing how the platform can build upon its successes. Your challenge is to develop a FinTech strategic plan of action to advance OpenSea's mass adoption, profitability and future success.

After the invention of database technologies in 1960, commercial activity and financial data documentation rapidly shifted from paper to purely digital entries. Despite the improvements that this software provides, data stored in this way is exposed to potential misuse by a variety of actors, including the operator of the system, its personnel, and other external actors.

The Web's "original sin"

Ad-based business models have been called the "original sin" of the World Wide Web, leading to today's widespread calls to rein in excess of personal data collected by Web 1.0 internet companies. While regulatory efforts, such as the European Data Protection Regulation and California's Consumer Privacy Act, provide legal remedies for already recorded data, Web 3.0 solutions can provide users with nuanced control over personally identifiable data prior to its exposure to third parties.

Web 1.0 era e-commerce companies, such as eBay, and early FinTech companies, such as PayPal, rely on public internet infrastructure but interface with databases maintained by these companies. These walled gardens are accessible only to users that agree to the rules (i.e., terms and conditions) of the platform provider.

Conversely, Web 3.0 solutions enable permissionless peer-to-peer value transfer, with rules



automatically enforced through smart contracts. Smart contracts are a collection of software programs that are executed autonomously on a distributed network of computers and maintained by independent operators.

Immutable record-keeping and digital ownership

High-speed internet and Web 2.0 solutions shifted the distribution of software, music, and movies from physical media to purely digital delivery. However, while buyers of CDs and DVDs could sell the old albums or movies on secondary marketplaces, this is not possible with Web 2.0 media, which is rented or licensed to users in a purely digital form. Digital rights management solutions restrict buyers to use the media inside of the environments provided by the seller or licensee – as is the case with Amazon’s media platform and Apple’s iTunes.

The internet introduced new protocols for audio and video formatting that disrupted legacy media distribution technologies while simultaneously impacting ownership models that relied on physical products. Early blockchains, such as bitcoin, enabled the creation of digital bearer instruments, which allow ownership rights to be reliably transferred from one person to another without the sender keeping a copy of the virtual asset. While digital products are generally fungible – one bitcoin can be replaced by any other bitcoin without impacting its value or function – newer blockchain-based standards can allow for the creation of digitally unique, non-fungible, and semi-fungible virtual items.

Digital economies

Purely digital economies started to emerge in multi-massive online role-playing games in the late nineties. Today these online worlds generate multibillion-dollar revenues from the sale of in-game items (According to a 2022 market report published by Grand View Research , the global video game market reached revenues of \$195.6 billion in 2021). However, buyers of these goods only receive limited rights to their online persona and its virtual possessions.

With the introduction of Web 3.0 technologies, publishers can permanently transfer digital assets to the user. E-commerce solutions built on Web 3.0 technologies also allow the transfer of digital assets directly from one user to another (peer-to-peer). One of the first solutions built in this way is OpenSea - buyers and sellers are not required to create accounts on the marketplace but connect to the service using a digital wallet under the user’s control. OpenSea collects a fee for transactions and is interoperable with other decentralized applications (dApps). Even though the goods sold on the marketplace are still mostly limited to digital art, digital collectibles, and Web 3.0 domains (as of May 2022), the company’s revenue already exceeds one million dollars a week.

Visit [OpenSea’s](https://opensea.io) website to learn more about this Web 3.0 marketplace and consider the following:

- What are the advantages for OpenSea and its users in building on Web 3.0 technologies? How might other industry players assess Web 3.0’s advantages?
- How can Web 3.0 technologies link with other digital assets and ecosystems, such as personal data, e-commerce, gaming, cryptocurrencies, lending, and the metaverse?
- What other digital and non-digital products could OpenSea add to its marketplace?
- How could OpenSea benefit from interoperability with other Web 3.0 applications?



Your task:

As an Executive at OpenSea, create a slide deck presentation and an accompanying write-up, which should include the following information:

1. An assessment of OpenSea in relation to its (current & future) competitors; regulations and relevant emerging FinTech technologies. Consider lessons that can be learnt and applied from the course modules; web3 and dApp use cases; and various markets globally. Utilize SWOT analysis; scenario planning and other strategic tools..
2. Propose a Plan of Action detailing the recommended strategic direction and a practical execution path to mass adoption, scale and profitability for OpenSea to ensure a successful future.
3. An assessment of the downsides, barriers, risks, and costs of your proposal and why you still recommend it, citing some of its key benefits for OpenSea.

