

Teaching Note

Abstract

Jeremy Kauffman is a serial entrepreneur with a strong belief in the value of decentralized technology and a firmly-held ethic in support of freedom of information. He has founded LBRY to implement a peer-to-peer exchange of multimedia content from producer to viewer/user over a blockchain. This platform runs over an open-source protocol that LBRY had developed for this purpose. In this case, we introduce the blockchain-backed LBRY protocol and the content-sharing platform LBRY built upon it and discuss technical and strategic challenges faced by the startup to grow its user base and number of content providers, generate revenue, and remain competitive. Students analyzing the case will gain an understanding of blockchain, protocols, platforms, and the strategic challenges inherent to managing a technology startup.

Learning Objectives

This case is intended to help students:

- Learn about blockchain technologies
- Learn about protocols based on blockchain technologies
- Explore platform business models
- Identify digital revenue models
- Evaluate strategic aspects of startup management, such as developing use cases, and attracting and retaining talent

Uses of the Case

The LBRY case is intended to be used in an undergraduate or graduate course covering electronic business, digital business strategy, or digital entrepreneurship. At the undergraduate level, typical business courses that could make use of this case and the topics they could cover include:

- Introduction to Management Information Systems – Business and revenue models for digital startups (e.g., media streaming services), analysis of competition in digital ecosystems, introduction to blockchain, user privacy
- Electronic Business (concentration course) – Business and revenue models for digital startups, digital platforms, electronic protocols, open source technologies, managing decentralized teams and technical talent
- Blockchain Technologies (concentration course) – Blockchain design, issues related to the management of blockchain implementations, information security, user privacy
- Entrepreneurship (concentration course) – Funding technology-based startups, analysis of competitive dynamics for platform businesses, scaling digital platforms, team management and talent attraction and retention issues

In an MBA degree or in a specialized master's program, the case can be incorporated into a variety of courses:

- Introduction to technology management or information technologies – new business models based on emerging technologies, digital business and revenue models, platform businesses, agile team management

- Digital strategy – analysis of competitive dynamics for platform businesses, scaling digital platforms (incentives and complements), digital innovation paradigms, exploration of LBRY (or blockchain) use cases in different industry verticals

Survey and e-business courses can emphasize the platform business model and its competitive ecosystem. Technical courses can emphasize the LBRY protocol stack—in contrast to the Internet stack—and the blockchain implementation. Strategy courses can focus on the business and revenue models of the LBRY protocol and platform, the analysis of competitive forces for both, and the management of the startup. Entrepreneurship courses can emphasize the management of the startup funds, the decisions the founder has to make with respect to the direction of the startup, and the acquisition of talent.

Key Terms

- Blockchain – decentralized digital ledger system that stores records in a way that they become verifiable and immutable
- Distributed applications (dApps) – distributed applications that run on a blockchain protocol
- Open-source – source code that is freely available and redistributed
- Platform business – business model that creates a scalable value exchange between users and providers
- Protocol – set of rules regulating the exchange and manipulation of data in a digital system
- Social innovation – the implementation of solutions to solve social and environmental issues

- Token (blockchains) – units representing an asset or utility that can be traded and are stored on a blockchain

Suggested Discussion Questions

1. Kauffman conceived LBRY as an open-source, blockchain-based, decentralized digital media protocol. As such, its source code is freely available for download, modification, and reuse, even with for-profit intentions. Should LBRY change the terms under which it licenses its protocol (and blockchain)? What other options might LBRY have to monetize its protocol and platform?
2. As explained on its website's FAQs, LBRY does not generate revenue out of the transactions on its platform: "when you buy content on LBRY, 100% of the listed price goes to the publisher. There is also a fee paid to the decentralized network of hosts that store and deliver the content to you."¹ LBRY is censorship resistant, as it is extremely difficult to block the storage or retrieval of any content. Would you consider LBRY to be a social innovation startup?
3. LBRY calls its platform a community-run digital marketplace. What companies are LBRY's platform's top competitors?
4. A successful platform needs balanced growth of all of its sides to generate positive reinforcing effects. With such goal in mind, it should seek ways to incite participation of consumers and content producers. What steps should Kauffman take to get a critical mass of consumers and producers to use the platform?

¹ <https://lbry.io/faq/lbry-revenue>. Accessed July 2018.

5. How does the community-led approach to software development impact LBRY as a company? What would you recommend Kauffman do to encourage top talent to participate in the development of the LBRY protocol and platform?
6. Should LBRY rename its platform and its protocol to eliminate confusion between them and the company (and between the platform and protocol), or does the common name create synergies that are potentially beneficial for marketing purposes?

Poll Question

Resources permitting, the following poll question should be answered by the students before the session discussing the case:

- 1. What business model has the greatest potential of being a sustainable business model?**
 - a. The LBRY protocol**
 - b. The LBRY platform**
 - c. The LBRY protocol and platform together**

LBRY is both blockchain-based protocol and a platform implementation of the protocol. A protocol is a set of rules determining the behavior of a network, while a platform business facilitates value exchanges between customers and producers. As a protocol, LBRY governs the blockchain ledger (i.e., the data layer) and the transaction and consensus mechanisms.

The LBRY protocol offers the shared data layer and the LBC token.

The poll question will make the students reflect on the value the LBRY platform and protocol bring to users, the effect control over the protocol can have over the value of the platform, and the value the proof-of-concept platform brings to the protocol as a business. Also,

the question should facilitate in-class discussion about the several facets of sustained viability of the business.

Case Analysis

1. Should LBRY change the terms under which it licenses its protocol (and blockchain)? What other options might LBRY have to monetize its protocol and platform?

As a rule, distributed protocols are quite difficult to monetize. Buterin has an excellent blog post on this issue at: <https://blog.ethereum.org/2014/04/30/decentralized-protocol-monetization-and-forks/>. The key takeaway points are:

1. Two ways to monetize an open-source distributed protocol are:
 - a. To sell services in support of the protocol
 - b. To sell internal assets such as tokens or name registrations
2. Buterin argues that selling services doesn't work because revenues are unlikely to be adequate and "it incentivizes the organization to produce only a minimal decentralized protocol in order to then sell centralized services on top, rather than building up an entire decentralized ecosystem." Instructors should encourage students to challenge this argument, as its validity is unclear. Protocol developers have a deeper insight than others, which a company can utilize to its advantage. For example, Acquia, one of the major contributors to the Drupal open-source project, has succeeded by selling a variety of services related to the Drupal project.
3. The major concern with selling internal assets is that there are no obvious barriers to others copying (forking) the protocol and monetizing the copy for their own benefit.

4. Making everything open source but keeping the latest (or premium) version private is the major way that traditional businesses protect against forking. But this won't work for distributed open-source protocols because users cannot then determine if the private version has some backdoor that allows developers to walk away with the blockchain's assets.
5. Buterin argues that there are barriers (he calls them a moat) against forking.
 - a. The core development team cannot easily be replicated, nor is it likely that they will walk away together to form a fork of the protocol. They are often its primary token holders and they have incentive to ensure it does well.
 - b. First-mover advantage. Given a choice, people will usually use the version that they heard of first.
 - c. Moral pressure. People believe that the developers of a project deserve to get compensated, not shafted by a rip-off.
 - d. A few other reasons, that are probably less important.
6. As evidence, Buterin points out, "Nothing has unseated Bitcoin, nothing has unseated Litecoin and nothing has unseated Dogecoin. The only forks that do gain serious community acceptance are the ones that add a large body of new features, and these forks always succeed in carving out a niche of their own."

LBRY has reserved 100 million of the 400 million LBC tokens originally issued as an internal asset (see 1b above) to sell to cover the operating costs of the company.² Increased participation on the LBRY blockchain should result in appreciation of their value. This potential is mitigated somewhat, despite Buterin's arguments addressed above, by the open-source nature

² <https://lbry.io/faq/credit-policy>, Accessed July 2018.

of the protocol, which allows others to use it, without incurring its development cost, to create their own blockchain and issue tokens for their applications rather than building on LBRY's blockchain.

While protocols are difficult to monetize, platforms are easy to monetize once network effects take hold. The LBRY platform could implement a variety of monetization strategies, from charging a percentage on paid transactions, to advertising on applications and subscription models, to charging for channel or content naming rights. As of July 2018, with LBRY's network still developing, LBRY had a negative revenue model, paying users and content producers in an effort to build out its network. Ultimately, when the network reaches a critical scale, that will stop or at least will be strategically focused on important growth markets, but LBRY currently lacks a clear strategy to generate revenue from its operations.

2. Would you consider LBRY to be a social innovation startup?

Social innovations seek to generate a mix of economic, social, and environmental outcomes for its stakeholders. In addition, those developing social innovations account for a broader group of stakeholders to include those individuals who may not be users, yet may be impacted by the innovation.

Attending to the comments by Jeremy Kauffman, LBRY's founder and CEO, LBRY was launched with the clear goal of creating an open source protocol that:

- Anyone can use to build applications.
- Gives users full control of their data.
- Is censorship and tampering-proof.

In addition, the LBRY team has been involved in the development of the content sharing platform that:

- Ensures any payment for content is received in full by the producer.
- Uses distributed storage to increase availability and access to the content shared.
- Enables any piece of digital content to be uploaded to the platform, without any form of censure to the author's free speech.

In so far as it seeks a positive impact on society, LBRY is a sustainable startup and LBRY's products can be considered social innovations. Two additional comments on this topic:

- LBRY does not yet generate revenue, but protocol or platform monetization and profit would not negate the existence of a social innovation. Porter and Kramer (2011) offer a good perspective the instructor can incorporate in the discussion.
- Students may argue against the merits of LBRY being considered a social innovation startup when its tools can be used to share and host illegal content. To address this issue, for example in the case of a user uploading content that is found in violation of the Digital Millennium Copyright Act, LBRY has a protocol for reporting illegal content and its removal (see the site: <https://lbry.io/faq/dmca>). Note that, while content can be removed from storage and become unavailable on LBRY applications, there will be a persistent record of the content's metadata on the LBRY blockchain.

3. What companies are LBRY platform's top competitors?

Platform companies such as Alphabet (i.e., YouTube) and Facebook are potential competitors of LBRY. They provide advantages in name recognition, habitual usage, content producer and consumer trust, the ability to provide tie-ins to other services they provide, deep financial pockets, a large body of expert developers, and low latency in retrieving and serving

content. Their major disadvantages include cost (to content producers, as they receive a reduced payment from the platform), use of censorship (seen as negative to some content producers and consumers, but needed to control the use of the platforms to share illegal or questionable content), trust (if you operate long enough, you will always make mistakes that will keep some people away, which would not apply to LBRY because of its self-managed nature), and focus (with many business opportunities, they might not have sufficient focus on certain types of content sharing, for which LBRY can become the specialized platform).

Blockchain startups are also potential competitors. When the case is used, the instructor should have students do a web search to identify companies that serve multimedia over the blockchain. At the time this case was written, examples are Steemit (<https://steemit.com/>), OPUS (<https://opus.audio/>), DECENT (<https://decent.ch/>), and mycelia (<http://myceliaformusic.org/>).

4. What steps should Kauffman take to get a critical mass of consumers and producers to use the platform?

Platforms have an ecosystem comprised of four players: owners, providers, producers, and consumers.³ Furthermore, platforms offer an interaction resulting in the exchange of value between producers and consumers, which are external to the platform (Figure 2).

³ Van Alstyne, M. W., Parker, G. G., & Choudary, S. P. (2016). Pipelines, platforms, and the new rules of strategy. *Harvard Business Review*, 94(4), 54-62.

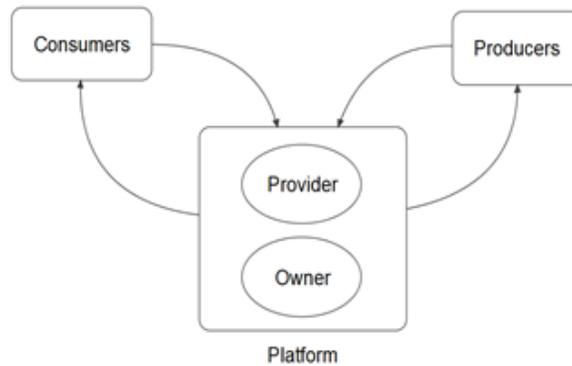


Figure 2. A platform business.

The LBRY platform serves as a proof-of-concept of the LBRY protocol. The LBRY platform, owned and provided by LBRY, creates an online repository of media that benefits from the use of a blockchain. On the platform, producers can make media content available to consumers, who pay for access with the LBRY token. The LBRY platform has the potential of attracting large numbers of producers and consumers as a public YouTube alternative.

In order to attract participants to both sides of the platform and generate economies of scale, LBRY can a combination of the following strategies:

- Make available Application Programming Interfaces (APIs) that facilitate the easy integration of third-party applications with the LBRY platform (and protocol).
- Promote complementors (e.g., hardware technologies that can interface with the platform) and the options to exchange LBRY credits.
- Incentivize content creators (for example, YouTube vloggers, gamers who record their plays, and media producers) and create the technical means for content creators to easily upload content to the platform.
- Subsidize the participation of users (e.g., via free or reduced-price content) and rely on social media and referrals to attract participants.

- Reduce the friction experienced by users (e.g., installation of the application, access and exchange of credits, access to content).

As with other platforms (e.g., Uber), the increased number of users makes it more attractive for producers (content creators) to engage with the platform, and vice-versa.

5. What would you recommend Kauffman does to encourage top talent to participate in the development of the LBRY protocol and platform?

Platform companies and open-source solutions benefit from access to the worldwide community of developers. At the same time, they may have difficulty generating the right level of engagement from those top developers who would contribute the most to the startup. If LBRY is to continue releasing the protocol as an open-source solution, it should continue to use incentives (LBC tokens) to reward the best developers. At the same time, it can incorporate into the team full-time product managers in charge of coordinating the distributed team and allocating development tasks to suitable developers.

To continue the development of its platform, LBRY may benefit from hiring experience developers using competitive salaries and benefits. These developers would be able to:

- Follow agile development methodologies and quickly respond to user and producer feedback.
- Develop polished experiences that reduce the platform's friction.
- Build APIs that would encourage the creation of an ecosystem.

6. Should LBRY rename its platform and its protocol to eliminate confusion between them and the company (and between the platform and protocol), or does the common name create synergies that are potentially beneficial for marketing purposes?

One frequent point of confusion about the startup and its technologies is that it uses the same name to call itself, its protocol, and its content management platform. LBRY addresses this confusion in a post on its website titled: “What is LBRY exactly – is it a protocol, an app, a website, a company?”.⁴ It reads:

“For most users, LBRY will be a place where they can find great videos, music, ebooks, and more. A vast digital library that is available on all of your devices. But LBRY is many components working together.

LBRY is first and foremost a new protocol that allows anyone to build apps that interact with digital content on the LBRY network. Apps built on the protocol allow creators to upload their work to the LBRY network of hosts (like BitTorrent), and set a price per stream or download (like iTunes) or give it away for free (like YouTube without ads).”

It is likely that the students reading the case will be confused about the nature of LBRY startup and the different technologies that make it. The recommendation would be for the startup to come up with distinctive names for its technologies. At the same time, to benefit from the diffusion of value between seemingly related technologies, LBRY could opt to deploy a naming convention that makes use of the startup name. LBRY is already using “LBRY Credits” (or LBC) to refer to its blockchain token, and it could continue with that convention to name the other technologies; for example, LBRY Platform, LBRY Protocol, and LBRY Blockchain. This question can lead to an interesting discussion about how the perception of a technology may impact its adoption (i.e., diffusion of innovation).

⁴ <https://lbry.io/faq/what-is-lbry> Accessed July 2018.

Suggested Discussion Plan

Introduction to LBRY:	5 minutes
Discussion of poll results:	10 minutes
Discussion questions:	75 minutes, or as class time allows
Wrap-up:	5 minutes

Research Method

The authors collected the facts presented in the case from public sources, the participation of Jeremy Kauffman, LBRY's CEO, as a guest lecturer in a blockchain course taught by one of the authors, and unstructured interviews of the LBRY employees at the startup's headquarters in New Hampshire. The interview protocol, data collection, and intended use of findings have been reviewed and approved by an Institutional Review Board.

Linkages to theory and the academic literature

The LBRY case is directly connected to several streams of research in the disciplines of information systems and technology, innovation, and entrepreneurship.

- Platform business — The case builds on the growing body of literature exploring platform business models. The instructor can link the case discussion to the literature on platform strategy and (e.g., Gawer and Cusumano, 2008; Parker, van Alstyne, and Choudary, 2016; van Alstyne, Parker, and Choudary, 2016)
- Innovation and technology management — The study of LBRY and its development practices offer an introduction to the topic of open innovation (Chesbrough,

Vanhaverbeke, and West, 2014) and the management of the innovation process (Link and Siegel, 2007).

- Digital entrepreneurship — LBRY illustrates the difficulty of launching, scaling, and monetizing a digital startup, including issues related to executive leadership, funding, and talent attraction and retention (Bailetti, 2012; Giones et al., 2013; Nambisan, 2017).
- Social innovation — LBRY seeks to benefit its users, developers, and content providers. In particular, it promotes fair remuneration to providers, cutting off the intermediary, and free speech. The case can serve to introduce the topics of sustained business viability and shared value (e.g., Porter and Kramer, 2011).
- Blockchain — blockchain technologies and the business opportunities and disruption they bring to numerous industry verticals (e.g., Iansiti and Lakhani, 2017; Tapscott and Tapscott, 2017).

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