Assisting Amino: Identifying What Makes a Successful Crypto-Community

An Interactive Qualifying Project proposal to be submitted to the faculty of Worcester Polytechnic Institute in partial fulfillment of the requirements for the Degree of Bachelor of Science

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Executive Summary

Social media platforms like Facebook, Twitter, and Instagram have revolutionized the way companies and consumers interact, as they have given these two groups direct and immediate access to one another. In 2017, approximately 81 percent of Americans had a social media account (Sreenivasan, n.d.). The popularity of social media usage makes it important for businesses to utilize these platforms to build on the connection between their consumers and to draw attention to what they are doing. This is especially important in blockchain companies like Amino.

Amino is a startup that uses blockchain technology to share computing resources with others through distributed computing (Amino, 2018). There is a need for distributed computing across many different industries such as Virtual Reality and Artificial Intelligence. Amino plans to address this demand by creating a network where users will be able to lend their computing resources like CPU, GPU, and RAM to other members for a period of time. For Amino to gain the trust of these users and consumers, it is essential to establish a more direct connection with them. One helpful way to make and continue this connection is by creating an online community. In this project, we define an online community that promotes and supports blockchain projects as a crypto-community. As a new company, Amino hopes to grow their crypto-community in order to facilitate connections between resource sharers and users, through the use of social media.

We will assist Amino in building their crypto-community by identifying what makes a successful crypto-community. To achieve this goal, we have established the following three objectives:

1. Determine who would be involved in Amino's crypto-community
2. Understand what consumers want in a crypto-community
3. Observe the social media presence of blockchain projects involved in resource sharing

Our first step is to determine who might be interested in Amino's crypto-community. We will survey existing members of Amino's crypto-community in order to compile a profile of Amino's customer. Amino also has a list of companies that plan to use Amino's services. Our

team will interview these companies, hoping to gain an understanding as to what type of companies would be interested in joining Amino's crypto-community.

The next step is to understand what users want in a crypto-community. To achieve this, we will interview existing community members to determine their opinions regarding Amino's crypto-community. We will then reach out to people outside of Amino's crypto-community, who may be interested in Amino, and ask them to participate in our survey. This survey is aimed to determine what they hope to gain in a crypto-community. From there, we will conclude some strategies to help draw them into Amino's crypto-community

Lastly, we will observe the social media presence for other blockchain projects that involve resource sharing, like Amino. We will first determine which the blockchain projects to observe by conducting internet-based research, investigating their websites and whitepapers. The next step is to perform case studies where we observe their social media presence to see what types of online activities receive the most interactions.

At the conclusion of all these objectives, we plan to write a report on our findings, mainly containing recommendations on how to grow a crypto-community. Hopefully, our recommendations will assist Amino in expanding their crypto-community.

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1. Introduction

Businesses heavily rely on the world wide web to promote themselves. In the year 2018, digital ad spending is expected to reach 107.3 billion dollars (Mcnair, 2018). Businesses will also use social media platforms, such as Facebook and Twitter, to advertise their products and gain a customer base. This is especially important as more people join social media. Currently, eighty-one percent of Americans have a social media account (Sreenivasan, n.d.). According to the Social Media Barometer Report that surveyed over 9,000 organizations on their social media usage, in the Asia Pacific region, 90% respondents agree that the use of social media is essential to stay competitive (Singh, 2018). In order for businesses to be competitive, especially at an international level, they must have an online presence. They should regularly interact and communicate with their customer bases in order to build their credibility and reputation.

New blockchain-related businesses are on the rise. According to an article published by McKinsey and Company, "...venture-capital funding for blockchain startups consistently grew and were up to $1 billion in 2017" (Carson, 2018). The International Data Corporation predicts that companies and governments will spend more than double of that in 2018 (Popper, 2018) Blockchain is an emerging technology that allows quick transactions between two parties, without a middleman; this will be discussed in Section 2.2. Businesses from many different industries such as healthcare and finance are using blockchain technology. New blockchain projects will need to gain a customer base so that people will join their project.

It is essential for businesses that are using blockchain to also use the web to promote themselves so that they can gain popularity. By developing an online community, businesses can promote their projects and receive support from the community members. It also serves as a communication basis between the companies and their customers. It is important for businesses that use blockchain to start building their reputation and creating a large, well-known online community. It is also essential that these projects gather investors to support them. One way to attract investors is to grow the online community. When there are more members in the community, investors are more willing to invest in the blockchain projects in the community. In

this project, we define an online community that promotes and supports blockchain projects as a crypto-community.

Amino is a company that intends on using blockchain as a means to share computing resources such as the CPU, the central processing unit of the computer. Sharing computing resources through distributed computing is in high demand as there are many uses for large amounts of computing power across different industries. Some of these industries include Augmented and Virtual Reality, Artificial Intelligence, and Autonomous Vehicles. Amino is providing a way to share computing resources in a secure and cost-effective way by using blockchain technology. In order for this to be possible, there must be users who are willing to contribute, and consumers who are willing to use these resources. A great way for Amino to encourage people to participate in their resource sharing is to grow their crypto-community.

In order to assist Amino in building a crypto-community, our team will be studying the demographics of blockchain projects and the use of social media in developing this type of community. To achieve this goal, we established the following three objectives:

1. Determine who would be involved in Amino's crypto-community
2. Understand what consumers want in a crypto-community
3. Observe the social media presence of blockchain projects involved in resource sharing.

In planning our approach to these objectives, we collected our background information on blockchain and social media and examined the different methods we can use to achieve them, which we present in the Background and Methodology chapters.

2. Background

Crypto-communities play a vital role in the development of blockchain projects. This chapter presents the background information that is necessary to understand our proposal. The background chapter begins with the definition of crypto-community and then moves onto the basics of the blockchain[1] by: explaining what blockchain is its origins, and its advantages and disadvantages. Next, we describe the critical role social media plays in fostering a crypto-community, where we outline different social media and explain how they may benefit crypto-communities. Then, we provide a background about our sponsor, Amino. Subsequently we explain the need for distributed computing in different industries, and finally, we outline our key stakeholders.

In addition, this chapter contains many technical terms. Therefore, we have provided the reader with a glossary starting on page 25. The terms that are in the glossary are superscripted throughout this text with their corresponding numbers.

2.1. What is a Crypto-community?

A crypto-community is an online community that promotes and supports blockchain[1] projects. Leo Kerner, the founder of CryptoMondays, the largest meetup on crypto-based topics, defines a crypto-community as “all the people that drive the project forward” (Kerner, 2018). Typically, there are three groups of participants in an online community: users, investors, and contributors. Users are individuals who use the products, investors are those who support the project, and contributors are those who contribute to the project (Kerner, 2018). The combination of these three groups of participants forms a crypto-community. Figure 1 explains this further.

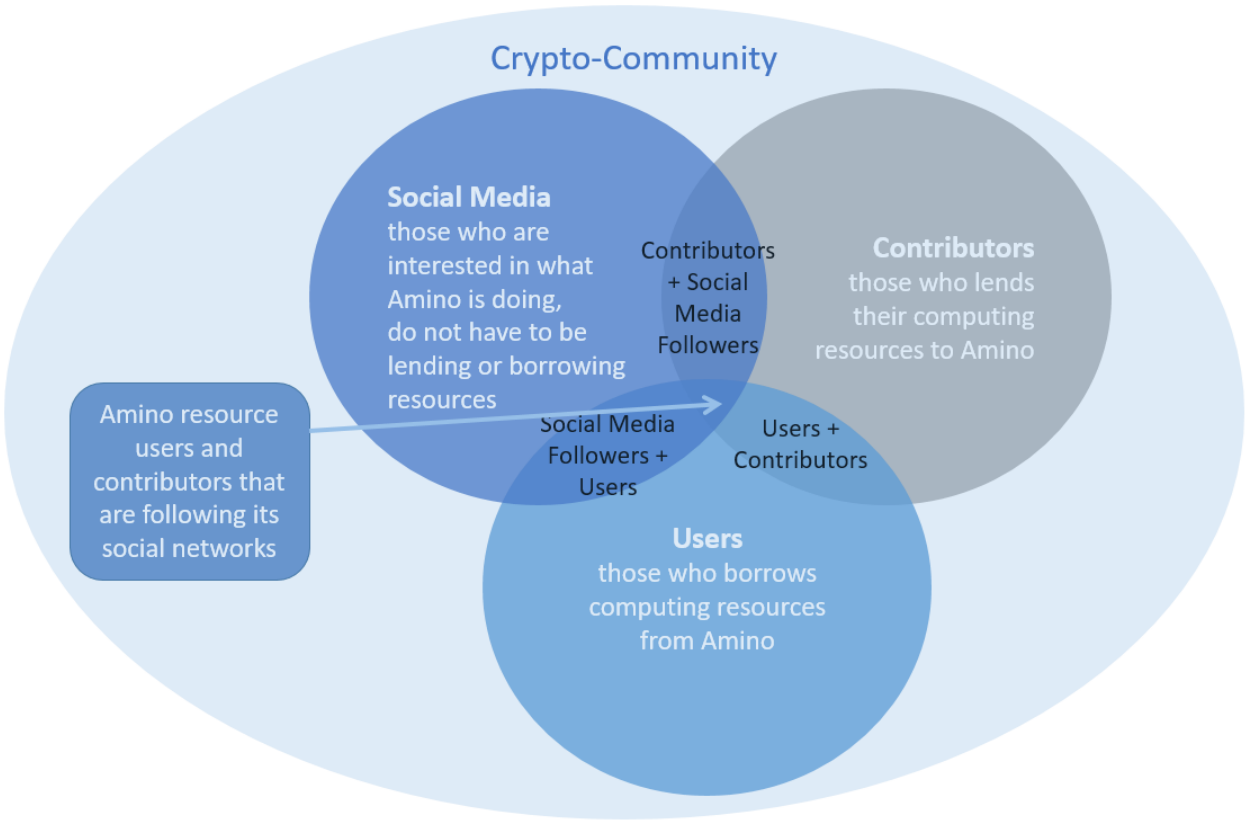

Figure 1: Members of a Crypto-community

Blockchain businesses should establish a crypto-community in order to promote and support the blockchain project. A crypto-community is a platform that allows people who have an interest in blockchain to collaborate and communicate with one another about blockchain projects. In an online community, companies can communicate with their customers and update them with their most-recent information. This is also the platform where companies can promote their projects. Additionally, many people believe that the strength of a crypto-community correlates to the success of its blockchain project. Many blockchain startup founders often boast about their "community size" (Kerner, 2018). This is because blockchains are only as secure as the number of peers[12] in their network. The more honest peers there are in a blockchain-based network, the more difficult it is for malicious peers to penetrate the security of the blockchain (Floyd, 2018). Therefore, it is essential for blockchain projects to grow their crypto-community. More popularity through their crypto-community means that more people will join their network, which in turn will further secure their blockchain (Floyd, 2018). This will be described in detail later in the paper. As a larger crypto-community better secures blockchain, it also creates more

opportunities for the company. A popular and well-known community will attract more potential investors to invest in the community and invest in the projects that interest them. Additionally, with more investments and contributions, members can find more resources and opportunities for blockchain-related projects through this community. Therefore, it is vital for businesses that use blockchain to develop and manage a crypto-community.

2.2. What is Blockchain?

Blockchain is a database that records events without the presence of a central authority (Crosby et al., 2015). Blockchain is decentralized as it eliminates the need of a middleman. It relies on a peer-to-peer network [12] of computers. Every agreement, process, task, and transaction in this database has its corresponding records "validated, stored, and shared" (Kalinov & Voshmgir, 2017).

The word "blockchain" describes its unique structure. Blocks of information are linked into a chain. One block in the chain cannot be changed without the other changing as well. When there is an event, say a transaction, the network groups this transaction into a block of data with several other transactions that have already taken place (Popper, 2018). Then the network distributes the block to every computer system in the network for approval. The majority of the computer systems in the network must come to a consensus of whether the transaction should be approved. They depend on pre-defined consensus rules that ensure the validity of the data (Kalinov & Voshmgir, 2017). This is known as the consensus mechanism. The consensus mechanism is essential to enable trust on a decentralized network of computers. Then, once the computers approve this transaction, its corresponding block adds to the chain. In this chain, each block of data shares a small amount of data with the previous block, keeping consistent the order and content of the blocks (Clifford Chance, 2017). Consider the following example for further explanation. User A wants to transfer money to User B in a blockchain-based network. The network groups this data in a block and distributes the block to every computer in the network. After the computer systems confirm that there is an adequate balance in User A's account, they approve the data. The block of data joins the chain. Lastly, the money from User A transfers to User B (Crosby et al., 2015). The figure below summarizes this process.

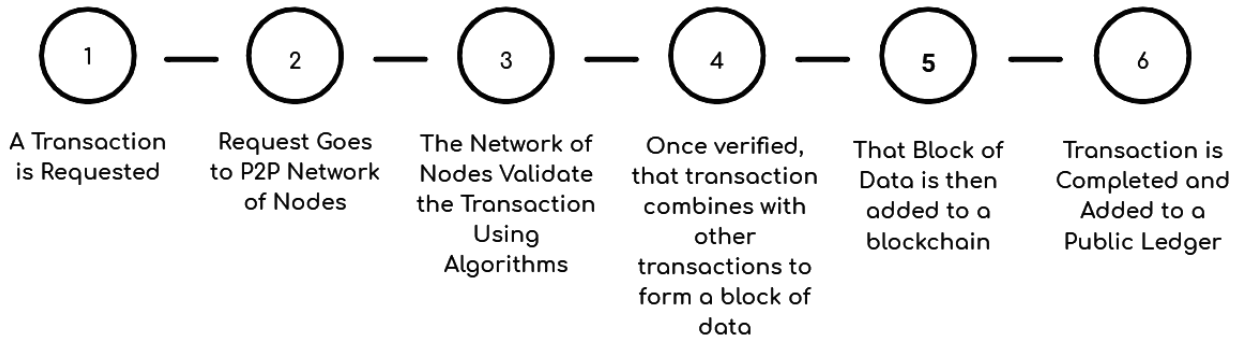

Figure 2: How Blockchain Works

Without blockchain, a central authority keeps a database of all events; this database acts as a central ledger [11] (Fitzpatrick, 2018). With blockchain technology, users can directly access their data, without going through a third party who oversees this central ledger. According to Cesare Fracassi, an organizer of the first McCombs Blockchain Conference, blockchain is not a central ledger, but a "distributed ledger" (Fitzpatrick, 2018). All computer systems of the blockchain-based network have a copy of the complete ledger (Clifford Chance, 2017). This feature eliminates the liability of having all the information in one place. Blockchain is essentially a database that maintains a continuously growing record of data, secured from revision because the majority of computers attached to the network must approve every change to the ledger (Kalinov & Voshmgir, 2017). Even though it is important to understand how blockchain technology, it is also essential to understand blockchain's history.

2.2.1 The Origin of Blockchain

Blockchain gained massive recognition as Bitcoin, one application of blockchain, grew in popularity. In 2008 "an [anonymous] individual or group writing under the name of Satoshi Nakamoto published a paper entitled 'Bitcoin: A Peer-To-Peer Electronic Cash System'. This paper would describe a peer-to-peer version of ... electronic cash that would allow online payments to be sent directly from one party to another without going through a financial institution" (Crosby et al., 2015). This process uses the technology that is later called blockchain. A few months after the publication of this article, Bitcoin was officially released to the world and the popularity of Bitcoin has not declined since.

2.2.2 Advantages and Disadvantages of Blockchain

As a technology, blockchain has many advantages and disadvantages that affect people's perceptions surrounding it and thus, affect their decision in joining a crypto-community.

Some advantages include:

1. **Blockchain technology protects the privacy of its users.** Even though all computer systems in a blockchain-based network hold a copy of the distributed ledger, users do not have access to other users' personal information (Crosby, 2015). Blockchain technology protects its users' identity with private keys. Every user of blockchain-based systems uses their private key as a proof of identification (Clifford Chance, 2017). This private key is a random string of alphanumeric, letters or numbers, that is required to make transactions and to validate changes (Kalinov & Voshmgir, 2017). In blockchain, users can also use their private key to encrypt or conceal stored data so that only those with the key to decrypt the data can access it (Clifford Chance, 2017). Therefore, blockchain users have control over their personal information (Fitzpatrick, 2018). In a crypto-community, members who are interested in blockchain projects may be attracted by this protection.

2. **Blockchain is generally more secure in data storing; Its users do not have to trust a single central authority.** Although hacks have been discovered on this technology (Popper, 2018), most of these cases involve cryptocurrency[7] and the private key being stolen (Popper, 2018). Blockchains are comparatively more secure in data storing than the traditional method of having a single authority. Blockchain makes it challenging to make changes to the database because blockchain technology is a distributed ledger, computer systems can recognize the change when "someone has tampered with old records" (Popper, 2018). As blockchain is not central but distributed, its users do not have to worry about what could happen to their data (Clifford Chance, 2017), like a natural disaster knocking out the central server or a cybercriminal hacking into the central server and losing all the information. Furthermore, in this peer-to-peer network, the network validates events by consensus. Blockchain users do not have to "trust people and organizations… [instead, they] trust code, which is open source and provides transparent

processes" (Kalinov & Voshmgir, 2017). Therefore, the design of blockchain secures its user's information and eliminates the need for a middleman.

Some disadvantages include:

1. **There is a lack of awareness about blockchain.** Many people are unfamiliar with the process of blockchain and how it works. A study called "Trust in Technology" was conducted by the Hong Kong and Shanghai Banking Corporation (HSBC) on more than 12,000 people in 11 countries. This study explores people's awareness, understanding, and opinions on new technologies (HSBC, 2017). According to this study, 59% of the participants are unaware of blockchain and 80% of the participants do not understand blockchain (HSBC, 2017). It is important for people to understand blockchain before they join blockchain projects and use blockchain applications. As there are still many people who are unaware of blockchain, it is difficult for these companies to gain customers. Additionally, people's lack of awareness can affect the size of crypto-communities. If people are unfamiliar with a topic, they will either avoid it or want to learn more about it. Hence, this unawareness makes it important for blockchain businesses to build and expand a community. Companies can use their community and social media to spread the awareness.

2. **Blockchain is not entirely protected from hacking.** As mentioned in the advantages section, private keys play an important role in the privacy of users, as they are used as a form of identification in blockchain-based networks. Therefore, it is essential to protect these keys. However, blockchain technology can fail to do so. Many thefts in these networks are "a result of people's… password, or private key… [being] stolen or hacked" (Popper, 2018).

3. **The anonymity and borderless features of blockchain delayed its acceptance by some regulators.** Regulators across the world react to the use of blockchain and its most-common application on financial transactions differently. "Regulatory responses have ranged from providing no guidance or regulation, to issuing warnings…and banning [the use of blockchain technology on online currencies, like bitcoin,] altogether" (Bartrem et al., 2017). The anonymity and borderless features can also attract criminals or those who

want to use these currencies for illegal uses. “In 2014, the top six Dark Markets [where illegal agreements take place] grossed $650,000 worth of sales in bitcoin” (Bartrem et al., 2017). These illegal use incidents of blockchain applications can affect people’s view of blockchain, especially when many people are unfamiliar with it. Therefore, regulators’ refusal to accept blockchain applications can affect the number of new members interested in joining crypto-communities.

As the advantages and disadvantages of blockchain can affect people’s interest in blockchain projects and in joining a crypto-community, how blockchain businesses manage their community can also affect this. A crypto-community is an online community of people interested in blockchain, it is a place where members interact. As social media improves online communication, it is the tool to use in growing a crypto-community.

2.3. Social Media and Online Platforms used to support Crypto-communities

2.3.1. Why is social media needed for a crypto-community?

One of the most important tools blockchain projects use to create and grow their crypto-community is social media. About 3.196 billion people in the world communicate with each other using social media platforms (Newberry, 2018). Social media is an approach that leaders of blockchain projects can take to attract people to their community because it creates a direct line of communication between themselves and other community members. This open line of communication allows for discussions about the blockchain project amongst people who are genuinely interested.

Multiple social media platforms are conducive to creating a successful crypto-community. Such platforms include Facebook, LinkedIn, Medium and Telegram. Each of these platforms offers different tools and have their limitations. To find the best use of social media platforms it is important to understand what each of them does, how are they helpful, and what their limitations are.

2.3.2. Facebook

Facebook is “the world's largest social network, with more than 1 billion users worldwide” (GCF Global, n.d.). Today, 68% of U.S. adults and 90% of LinkedIn users use

Facebook (Smith & Anderson, 2018). Facebook connects individual users with their family and friends. This social networking platform also connects companies with their current customers and helps them attract new ones. Many companies now choose to create and update their Facebook pages instead of their websites (GCF Global, n.d.). A Facebook page is where users post information about their company and invite others to like their page. Those who like the page can write reviews and ask questions (GCF Global, n.d.). Facebook users can also create and form groups. A group in Facebook is a place for users discuss a common interest (Lister, 2016). Facebook is an excellent platform for companies to expand their community and its features to organize a Facebook page and assemble groups that serve as communication channels with their customers.

However, Facebook also has its limits on Facebook business pages and group formation. Although the size of the group is unlimited, once the size reaches 5,000 or more, Facebook starts to eliminate some of the group creator's power. "The group creator can no longer send a single invitation to all group members to invite them to an event… [and] send a single message that is received by all group members" (Lister, 2016). Additionally, Facebook places limitations on business pages to protect its users' personal information. Facebook business pages can "only see basic directory information on individual users" (Mercer, 2017). Businesses cannot access information about their users that are unrelated to their company. Additionally, these business pages can only reply to individual user's comments or questions, the business "cannot initiate a conversation through private messages" (Mercer, 2017). Companies can answer the questions and concerns from their customers, but they cannot message users to promote themselves.

This social media platform benefits crypto-communities because blockchain businesses can utilize Facebook to spread the awareness of blockchain. Facebook is currently the world's most extensive social network; many people are using this social media. Businesses can also develop their business page and establish a group to communicate with their consumers. They can also update their customers by posting on their page and can support their projects by replying to their customers' concerns.

2.3.3 LinkedIn

LinkedIn is "the world's largest professional network with more than 562 million users in more than 200 countries and territories worldwide" (LinkedIn, 2018). LinkedIn attracts young

professionals. According to the Pew Research Center, 50% of American college graduates and 25% of U.S. adults use LinkedIn (Smith & Anderson, 2018). This social platform focuses on business purposes. The mission of LinkedIn is to "connect the world's professionals to make them more productive and successful" (LinkedIn, 2018). On LinkedIn, young professionals can form connections, or relationships that may help them in the future. Users can update their profiles, and this serves as their online resume to attract employers (LinkedIn, 2018). They can start building their network using LinkedIn. As LinkedIn can be beneficial to individuals, it can also help companies promote their business. LinkedIn has "more than 1 million groups focusing on a range of topics" (GCF Global, n.d.). Individual users, who want to expand on their connections, may choose to join the groups that interest them. As LinkedIn is a professional network, it is beneficial to companies as they try recruit their future employees.

Nevertheless, there are limitations on LinkedIn users. LinkedIn has a limit to "a maximum of 30,000 1st-degree connections" (LinkedIn, 2018). Once users meet their limit, they might have to reorganize their connection list. Therefore, it is important for users to manage their connection list wisely. However, LinkedIn users do not have a limit on the number of followers (LinkedIn, 2018). So, users can follow as many other users as desired. LinkedIn also has invitation limits. When users send out a large number of invitations and most of them are ignored or rejected, LinkedIn can limit these users from sending any more invitations (LinkedIn, 2018).

Businesses interested in growing their community can use this social platform to attract potential community members and new supporters to their projects. As LinkedIn is a professional platform, its users are mostly future or current employees and employers. Blockchain businesses can promote their company through LinkedIn to attract potential employees and introduce this new technology to young professionals. Since young professionals can impact companies in the future, it is important to familiarize potential employees with the companies early.

2.3.4 Telegram

Telegram was launched in 2013 by Nikolai and Pavel Durov. It "... is a messaging app with a focus on speed and security" (Telegram, n.d.). Telegram allows its users to send encrypted messages, photos, videos and files of any type on its platform. Telegram users can also create groups with a maximum of 100,000 people or channels to broadcast to an unlimited audience. In

addition, users can send messages to either their phone contacts or find people by their usernames.

Due to these features Telegram is one of the most important social media platforms for companies to use when it comes to crypto-communities. Telegram's end-to-end encryption feature is one of the most significant benefits the company offers. With Telegram, users feel safe discussing crypto-related topics, because discussing blockchain related topics can be very dangerous in some countries. In addition, Telegram allows blockchain leaders the option to have a direct line of contact between themselves and the members of their crypto-community at all times. However, one limitation of Telegram is that countries like Russia and Iran have banned Telegram for not giving them their users data and this list of countries could continue to grow in the future.

2.3.5 Medium

Medium is a San Francisco startup started in 2012. Ev Williams and Biz Stone, the founders of Twitter, created this social platform. It is a platform where anyone can post articles they have written on any topic. Medium also organizes all its articles by topic. One of the most popular topics on Medium is crypto-communities.

Medium is where "cryptocurrency projects publish details of their crowdsale[6], bug bounties[3], and other initiatives for the benefit of their community" (Sedgwick, 2018). However, there are some limitations to Medium. Medium has strict policies that must be adhered to regarding crypto-communities. For example, users cannot, under any circumstance: "use an anonymous email address which is not linked to your project domain or advertise or participate in bounty campaigns …. reviewing for reward, or other forms of brigading or inauthentic activity" (Medium, n.d.). These rules have been put in effect to prevent fraud and abuse for Medium's readers. If users do not adequately explain themselves or fix the problem, Medium will suspend their account and/or remove their content.

It is clear that social media is important to grow a crypto-community, and there are several social media sites used to do so. Amino, our sponsor needs help managing their crypto-community using these social media sights.

2.4. Amino

Amino is an international blockchain startup based in Auckland, New Zealand and established in the year 2010. The company aims to use blockchain technology to share computing resources such as Central Processing Unit (CPU [5]), Graphical Processing Unit (GPU [10]), and Random-Access Memory (RAM [13]) with other companies and individuals that may need them. The problem Amino hopes to address is that startups, especially blockchain projects, will need more computing resources as these startups become more advanced.

Amino created a decentralized computing architecture using blockchain technology. They distinguish themselves from distributed cloud computing companies by claiming to address many problems related to cloud services (Amino, 2018) such as the expensive maintenance of servers, high latency (or delay of data transfer) due to the distance between the user and the data center, and unreliable information security (Amino, 2018). Amino anticipates addressing these problems by using blockchain technology.

According to Amino, many blockchain projects use the Ethereum and Bitcoin platforms but are inherently dependent on cloud distributed computing technology (Amino, 2018). This means that many blockchain projects cannot reach the potentials of a fully decentralized blockchain project (Amino, 2018). New companies that are working on Augmented/Virtual Reality and Artificial Intelligence can also benefit from Amino's distributed computer architecture [4]; according to Amino, it will be cost effective and have relatively lower latency (Amino, 2018).

Amino will launch their product in October 2018. To make Amino's decentralized computer architecture utilized by users around the world, it is important to build a community around it. Amino has already started establishing their crypto-community using Telegram, Medium, Twitter, and GitHub. This project aims to assist them by investigating what makes a successful crypto-community.

2.5 Need for Distributed Computing

Distributed computing is important when a computational problem is too big to solve on a single computer. It is the process of using a multitude of computing resources like memory and

CPUs to solve these computational problems. Generally, computer scientists and researchers use distributed algorithmic techniques to divide the problem into smaller sub problems. The three main resources that Amino hopes to share through their distributed computing architecture are CPU, GPU, and RAM (Amino, 2018). Each resource plays a different role in completing computing-related tasks. The CPU is the central processing unit. It is the brain of the computer responsible for doing calculations, actions, and running programs. The RAM is the random-access memory. It temporarily stores data for running programs. The CPU and RAM work closely together. The GPU is the graphical processing unit. It is responsible for more complicated calculations required to render images.

There is a need for distributed computing especially as modern-day problems in computer science require a lot of computing resources. Consider the gaming industry, where games must render several high-resolution images at the same time to give the users the experience they desire. Another prominent example is the use of Big Data[2] to run experiments. These datasets are usually too big to perform calculations on one computer. There are existing distributed computing frameworks that do this for professionals running these experiments. Other industries that could use distributed computing are Augmented/Virtual Reality, Artificial Intelligence, Internet of Things, and Autonomous Vehicles (Amino, 2018).

Amino hopes to use blockchain technology to make distributed computing available to those who need it in a cost-effective manner (Amino, 2018). Those who may need these resources would benefit from Amino's work. In this project, we will look at companies that use distributed computing as potential users of Amino's product.

2.6. Stakeholders

To have a successful blockchain project it is important to understand the stakeholders of the project. Our stakeholders include current and potential investors, contributors of Amino, and Amino's users. Table 1 outlines each key stakeholders' interests and assets concerning Amino's blockchain project. Specifically, in the "Interests" column of Table 1, we explain why each group has an interest in Amino's project. In addition, the "Assets" column of Table 1 discusses what resources each group will bring to Amino's crypto-community.

Stakeholders	Interests	Assets
Investors and Potential Investors	Making a profit Supporting blockchain technology	Money
Contributors - People who share their idle computing resources	Money	Computing Resources
Users - People who will borrow computing resources from Amino	Borrowing computing resources to complete their tasks in a cost-effective manner	Money

Table 1: Stakeholders

2.7. Summary

Blockchain is still a relatively new technology and its applications can be broad, from financial transactions to managing computing resources. Blockchain also has many advantages and disadvantages that can affect the number of people attracted to join crypto-communities. Blockchain businesses should establish and expand a crypto-community to promote and support themselves. However, there is currently no right way to run a successful crypto-community. Since crypto-communities rely on online communication, social media is an important aspect in creating and growing one. Knowing this, we have established methods to help us discover the best practices for running a crypto-community.

3. Methodology

The goal of this project is to recommend the best practices for Amino to grow a crypto-community. To complete our goal, we established three objectives:

1. Determine who would be involved in Amino's crypto-community.

2. Understand what consumers want in a crypto-community.

3. Observe social media presence of blockchain projects involved in resource sharing.

To accomplish these objectives, we will collect data with surveys, interviews, research, and investigate Internet-related activities. Figure 4 displays our objectives and how we are going to accomplish them.

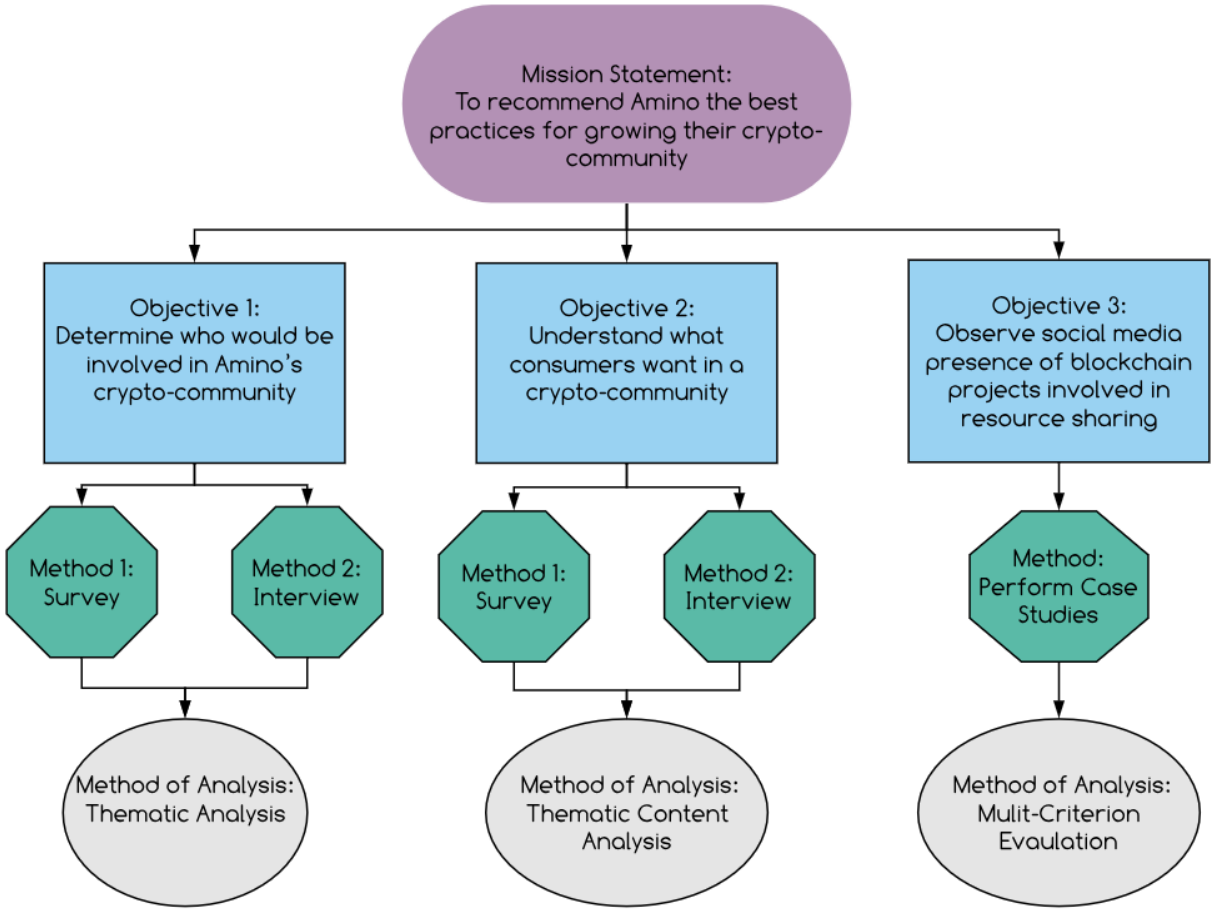

Figure 3: Methodology Flow Chart

3.1. Determine who would be involved in Amino's crypto-community

Our first objective is to determine who might be interested in joining Amino's crypto-community. To do this we will reach out to existing members of Amino's crypto-community to compile a profile of the typical Amino customer. This will allow Amino to narrow their focus down to a specific group of people and organizations for all marketing strategies they plan to use in the future to attract more people into their community.

We plan on sending a survey out through Amino's Telegram channel to individuals that are already connected to the telegram account. We are using a survey to gather data on the demographics of Amino's current community base. Appendix A provides a list of questions that we will ask these individuals to determine the demographics of Amino's customer base. We will create a report of our findings that will include an analysis of our results.

Our next step is to interview members of organizations that plan to use Amino's services. Amino will give us a list of these companies that we will contact for interviews. Since these members may be from around the world, our interviews will most likely be conducted over the phone. Appendix B presents the interview questions we will ask members of these organizations. We will analyze these interviews using thematic analysis. We chose thematic analysis as it will allow us to determine the common patterns in our data. We will search for common words, group responses, and determine the main themes in our interviews. We will create a table of these themes and present it to Amino.

3.2. Understand what consumers want in a crypto-community

It is essential to know what consumers want in a crypto-community so the owners managing it can ensure it goes in a direction these consumers want. The goal of this objective is to discover what consumers like and want in a crypto-community so Amino can continue to grow their community. We hope to give Amino further recommendations at the end of this objective by interviewing current members of their community and surveying people outside of it as well.

Similar to Section 3.1, the first step of our objective is to use Amino's existing community to reach out to specific individuals within this community. We will then request

interviews with these individuals, asking them questions such as: why they joined Amino's crypto-community, what they hope to gain from it, and what they do and do not like about this crypto-community (Appendix C). We will then use thematic content analysis to determine what most interviewees have in common. We will then report back to Amino with this feedback that their current community has given and recommend what changes they need to make to keep their consumer base satisfied.

The second step is to reach out to people outside of Amino's existing community to understand what would draw them in. From Section 3.1 we will have learned the demographics of Amino's current crypto-community. Using this knowledge, we can find a suitable platform to distribute our next survey. This survey will be going to people who have a similar profile to current amino users, but are not yet members; it will ask questions aimed to discover what strategies will draw them into Amino's crypto-community (Appendix D). Currently, we feel that people within gaming communities would fit Amino's current demographics and would be interested in sharing their computing resources and joining Amino's crypto-community; Amino has also expressed interest in this demographic. We have created a survey for this population because of this, and our current plan would be to distribute this survey on the gaming subreddit on the website Reddit. At the end of this survey, we will also use thematic content analysis to determine what potential consumers want or expect from being a part of a crypto-community. We can then report a list back to Amino of what potential consumers value in a crypto-community.

3.3. Observe the social media presence of blockchain projects involved in resource sharing.

The first part of this objective is to identify blockchain projects that aim to share computing resources like Amino. Table 2 shows a list of potential projects given by Amino that we can research. We will use these company's websites and white papers to further understand their similarities and differences from Amino. From their websites, we will investigate their company mission, goals, and roadmaps, to see how similar they are to Amino. Then we can see their accomplishments, what services they offer, and other information we find on their website.

We decided to also examine their white papers because they are informational documents with important information pertaining to what each company does.

The second part of this objective is to perform case studies on social media and online presence of five blockchain projects that aim to share computing resources. We will decide on these five projects based on the research done in the first part of this objective. We will research each company's social media sites to observe what kind of posts get the most interactions. Using multi-criterion evaluation, we will categorize these posts into five categories that we have determined: Entertainment, Education, Conversation, Connection, and Promotion. From there, we can determine which type of post gets the most interactions and involvement. This is accomplished by quantifying the number of likes or interactions of each post. After we have determined the types of posts that get the most interactions we can recommend to Amino what they should post on their social media to grow their community. Figure 4 gives a comprehensive outline of this objective.

These case studies will include charts of each site and how often they are used. This will show the most popular and, most likely, the best social media sites to use for a crypto-community. After analyzing this data, recommendations can be made to Amino on what social media sites to use.

At the conclusion of all these objectives, we plan to write a report on our findings, mainly containing recommendations on how to grow a crypto-community. We will present this report to Amino at the end of our stay in Hangzhou.

Company:	Basic Goals of Company:
Quarkchain	High-capacity P2P transactional system, also allows for weak computers to share resources
Vechain	Connect blockchain technology to the real world by providing a comprehensive governance structure, a robust economic model, and pioneer real-world applications of blockchain technology
Ankr	Build a resource efficient blockchain framework that enables distributed cloud

	computing and provides user-friendly infrastructure for business applications.
Hypernet	Allow people to sell and buy computing power
Dfinity	Find ways to host a virtual computer of unlimited capacity using computing resource sharing.
Golem	Create a global market for sharing computing power
SONM	Provide cloud services based on distributed customer level hardware. Consumers can either rent out hardware or use someone else's computing power

Table 2: Potential Companies to Perform Case Studies On

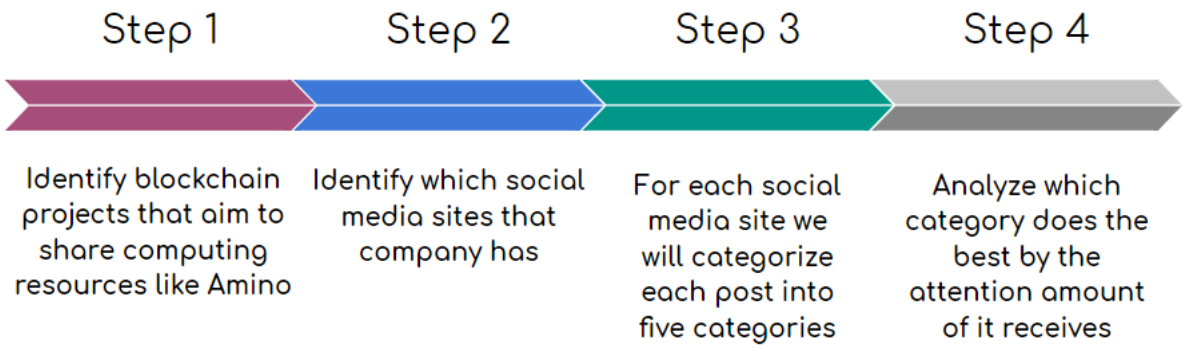

Figure 4: Objective 3 Process

3.4 Data and Logistics

We do not expect to need any translators for the data we collect. All participants for our surveys will remain anonymous. We plan to keep the information on a USB drive that will be protected by a password. Once we arrive in Hangzhou, we hope to receive a list of existing contributors from our sponsor. If we do not have this list, we will adjust our methods in section 3.1 to only interview members through social media means. If our interviewees are not close to us, we will interview them through the phone and will ask for their permission to record the conversation for future reference. Many social media sites are blocked in China. We plan to get a VPN, a virtual private network, to gain access to the social media we discuss in our methods section. If this is not possible, we will focus on the social media that are not blocked in China.

3.5 Tentative Timeline

Timeline	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
	10/22-10/28	10/29 - 11/04	11/05 - 11/12	11/12 - 11/18	11/19 - 11/26	11/26 - 12/02	12/03 - 12/09	12/10 - 12/14
Internet-based research								
Demographic Surveys								
Survey members outside the community								
Reach out to existing community members								
Interview Existing Community members								
Analyze Data								
Writing report								

Figure 5: Tentative Timeline

4. Conclusion

Social media is an important aspect in creating and growing a crypto-community, and there are many ways it can be used. However, there is still no agreed-upon way about how to manage a successful crypto-community. Through this project, we hope to discover the best practices for managing Amino's crypto-community. To accomplish this, it is important to understand the demographics of that community, what these community members want to obtain from joining a crypto-community, and what social media posts from other companies similar to Amino get the most interactions. We will achieve this by collecting and analyzing data from surveys and interviews during our stay in Hangzhou, China. At the end of our project, we will deliver our recommendations on how to manage a community to Amino. We hope that after this project Amino will be able to continue to grow a thriving community.

Authorship

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Executive Summary	Fareya Ikram & Irene Wong	All
1. Introduction	Fareya Ikram	All
2. Background Roadmap	Wesley Paul	All
2.1 Crypto-community	Irene Wong	All
2.2 Blockchain	Irene Wong	All
2.2.1 Origin	Richard Mohabir	All
2.2.3 Advantages/ Disadvantages	Irene Wong	All
2.3.1 Social Media	Richard Mohabir & Irene Wong	All
2.3.2	Irene Wong	All
2.3.3	Irene Wong	All
2.3.4	Richard Mohabir	All
2.3.5	Richard Mohabir	All
2.5 About our Sponsor	Fareya Ikram	All
2.6 Need for Distributed Computing	Fareya Ikram	All
2.6 Stakeholders	All	All
2.7 Summary	Wesley Paul	All
3.1 Objective One	Wesley Paul	All
3.2 Objective Two	Wesley Paul	All
3.3 Objective Three	Wesley Paul	All
3.4 Data and Logistics	All	All
3.5 Tentative Timeline	All	All

Glossary

1. *Blockchain* - a digital ledger in which transactions made in bitcoin or another cryptocurrency are recorded chronologically and publicly.
2. *Big Data*: extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, primarily relating to human behavior and interactions.
3. *Bug Bounty*: a deal offered by many websites and software developers by which individuals can receive recognition and compensation for reporting bugs, especially those on exploits and vulnerabilities.
4. *Computer Architecture*: a set of rules and methods that describe the functionality, organization, and implementation of computer systems.
5. *CPU* - Central Processing Unit. Executes computer task.
6. *Crowdsale* - A type of crowdfunding that issues cryptocurrency tokens (electronic records) that are stored on the user's device. The tokens can function as a share of stock and be bought and sold ("equity tokens"), or they can pay for services when the service is up and running ("user tokens"). The crowdsale may also issue tokens as a short-term loan ("debt tokens") that are repaid with interest.
7. *Cryptocurrency* - A digital currency that utilizes a cryptographic methodology or mechanism to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank.
8. *Cryptography* - Art of writing or solving codes.
9. *Distributed Systems*: several independent computers and computing systems linked by a network.
10. *GPU* - Graphical Processing Unit. A computer chip used primarily to render images.
11. *Ledger* - is a database or record of events, like transactions, land sale deeds, marriages, or births
12. *Peer-to-Peer Network* - a network where computer systems are connected through the internet, data can be shared among computers without the presence of a central server
13. *RAM* - Random Access Memory. This is where the software that runs the application on your computer, the Operating System, stores application programs and data in current use so that they can be easily accessed.

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Appendices

Appendix A: Survey for Individuals Connected to Amino's Telegram

Entrance Page of Survey I:

"We are a group of students working with Amino interested in understanding the demographics of the people currently connected to their Telegram account. These are basic questions and should take no longer than 5 minutes to complete. Your responses to the survey will be kept completely anonymous.

Your participation in this research is completely voluntary. You have the right to withdraw from the study at any point, and for any reason. If you have any questions about this research, please contact wpaul@wpi.edu.

By starting the survey, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason."

Survey I Questions:

1. What is your age?
    a. 18 - 24
    b. 25 - 34
    c. 35 - 44
    d. 45 - 54
    e. 55 - 64
    f. 65 and above
2. What gender do you identify yourself by?
    a. Male
    b. Female
    c. Other
3. What is your estimated income bracket? (USD)
    a. Under 15000
    b. 15,000 - 24,999
    c. 25,000 - 34,999
    d. 35,000 - 49,999
    e. 50,000 - 74,999
    f. 75,000 - 99,999
    g. 100,000 - 149,999
    h. 150,000 - 199,999
    i. 200,000 and above

4. What is your highest level of education?
    a. No education
    b. Elementary
    c. Middle School
    d. High School Diploma
    e. Bachelor's Degree of Science or Art
    f. Masters
    g. Doctorate
5. Are you currently employed or in school?
    a. Employed
    b. In school
    c. Other
6. If you are employed, what industry do you work in?
    a. Agro-Industries
    b. Energy and Utilities
    c. Manufacturing
    d. Services
    e. Construction
    f. Public Sector
    g. Communications
    h. Other
    i. N/A
7. What country do you live in?
8. Which social media platforms do you use the most?
    a. Telegram
    b. Facebook
    c. LinkedIn
    d. Medium
    e. Twitter
    f. Other
9. How often do you use these platforms?
    a. Everyday
    b. Every other day
    c. Once a week
    d. Every other week
    e. Once a month
10. What do you like most/least about using Amino?
11. Is there anything you would like to mention to us, that we did not get to cover?

Appendix B: Interview Questions for Groups/Organizations/Companies that are a part of Amino's Crypto-Community

Correspondence Letter for Interview II:

"Hello, [Insert Company/Organization name], we are a team of students working with Amino interested in learning more about what kind of companies are interested in Amino and why. We were wondering if you would be interested in letting us interview you as a part of our research. If you are, please contact us back at wpaul@wpi.edu

Your participation in the research would be completely voluntary. You will have the right to drop or withdraw from the study at any point, and for any reason.

By starting the interview, you acknowledge that your participation in the study is voluntary and that you are aware that you may choose to terminate your participation in the study at any time and for any reason."

Interview II Questions:

1. How did you hear about Amino?
2. Why are you interested in Amino?
3. What is the functionality your company offers?
4. How do you feel about your company's computer's current computing power?
    a. Do you feel you need more computing power?
        i. Why do you think you need more?
        ii. Is that why you were interested in Amino's service?
    b. Do you feel you like your company's current computing power is sufficient?
        i. What would you do if you had more computing power?
        ii. How do you see Amino addressing this need?
        iii. What components/aspects would be important for you to make sure Amino meets your needs in this spot?
5. Is there anything else you would like to mention to us, that we did not get to cover?
6. Is there anyone you can think of that would be interested in talking to us?

Appendix C: Interview Questions for those Involved in Amino's Community

Entrance Page of Interview II

"We are interested in understanding what users like or want in an online crypto-community. We define crypto-community as an online community that promotes and supports blockchain projects. Using this definition, you are a part of Amino's crypto-community and we wanted to ask you some questions about your experience with this community. Your responses will be kept completely anonymous.

This study will take around 30 minutes to complete. Your participation in this research is completely voluntary. You have the right to withdraw from the interview at any point, for any reason. Feel free to contact the Principal Investigators in this study at wpaul@wpi.edu.

By starting this interview, you acknowledge that your participation in this study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason."

Interview II Questions:

1. What about Amino attracted you to become a member of their community?
    a. What are some positive and negatives of Amino's crypto-community?
        i. Now that you've mentioned your pros and cons, overall, how would you rate being part of Amino's community on a scale of 1-5, 1 being the worst, and 5 being the best?"
    b. What do you think could be improved?
2. Are you currently in any other crypto-communities besides Amino? If so, which ones?
    a. What are some of the positives and negatives of those communities?
        i. How does this ___ compare to how amino does ___
    b. What made you want to join other crypto-communities?
    c. What do you like about this or these crypto-communities?
        i. On a scale of 1 (being the worst) to 5 (being the best), how do you like these other crypto-communities?
    d. What do you think could be improved?
3. What are 3 specific things you are hoping to gain from Amino's crypto-community?
4. Do you have any preferred social media platforms you use, when it comes to crypto-communities or communities in general?
    a. Why do you prefer these sites?
        i. Are there any downsides

5. Which social media platforms do you use to stay updated with Amino?
    a. What do you like and dislike about this site?
6. Is there anything you would like to mention to us, that we did not get to cover?

Appendix D: Survey questions for people outside of Amino's crypto-community

Entrance Page of Survey II

"We are interested in understanding what users like or want in an online crypto-community. We define crypto-community as an online community that promotes and supports blockchain projects. We want to ask you some questions about your experience with crypto-communities. Your responses will be kept completely anonymous.

This study will take around 10 minutes to complete. Your participation in this research is completely voluntary. You have the right to withdraw from the interview at any point, for any reason. Feel free to contact the Principal Investigators in this study at wpaul@wpi.edu.

By starting this interview, you acknowledge that your participation in this study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason."

Survey II Questions:

1. Are you involved in any crypto-communities?
    a. Which crypto-communities are you involved in?
        i. What attracted you to these communities?
        ii. What are some of the positives and negatives of that community?
        iii. What do you think could be improved?
    b. What are 3 specific things you are hoping to gain from these crypto-communities?
    c. Do you have any preferred social media platforms you use, when it comes to crypto-communities?
    d. Why do you prefer these sites?
        i. Are there any downsides?
2. Would you be interested in sharing your computing resources with others in exchange for money?
    a. If so, what considerations are you taking into account to help you make this decision?
    b. If not, or if you have doubts, what would make you more likely to do it?
3. Is there anything you would like to mention to us, that we did not get to cover?