Observations:
- Programmable digital currency sets the stage for automated financial systems.
- Stock market investing favors the wealthy.
- Diversifying investments reduces investor risk.
- Company centralization increases investor risk by grouping various values and risk factors under a single investment opportunity.

Questions:
- Is there a fundamentally superior means of managing personal finances that would be universally beneficial to all participants?
- Could our investment structure be redesigned to be equally accessible to all income levels?
- Could our investment structure be redesigned to break up investment values and reduce investor and investee risk?

Hypotheses:
- An equally-accessible investment structure with maximized participation and minimized risk would be greatly beneficial to the economy.
- The ability to buy/sell fractional shares would allow any amount of money to be diversified in any way, significantly increasing accessibility.
- Breaking companies into many smaller and specialized investment opportunities would create more accurate market values and reduce investor risk by allowing them to focus on opportunities more relevant to their knowledge.
- Granularly specialized markets operating on a public distributed ledger would create a robust data set that'd be used by machine learning algorithms to automate investing effectively.

The concept of programmable digital currency opens a lot of doors to automation and increasing overall financial efficiency in every way. Money can be treated like any other variable in a program, which means we can facilitate the transfer of money automatically using any logical methods. As a programmer, the concept made me realize that we may not be far off from a post-scarcity world. Scarcity is the problem that arises when we have a limited supply with a theoretically infinite demand. Technically, this problem will always exist since supply can never be infinite. If we could instantly convert energy into any kind of matter, literally materializing whatever we wanted whenever we wanted, scarcity would still technically be present since energy itself is finite. However, in this example, scarcity would essentially have no effect on us. That's because the point isn't to create infinite supply, it's to have access to enough supply to meet demand at that time. Scarcity is permanent, but effective scarcity isn't. So what could we do to reduce the effect of scarcity?

Reducing effective scarcity can be branched into separate high-level goals: reducing demand and increasing supply. With this in mind, I'm 100% positive that there are countless programmatic solutions for managing digital money that could reduce demand and increase supply to varying degrees. This is what motivated me to start conceptualizing systems that could be used to accelerate the economy as a whole and I decided that the stock market was a good place to start. It was initially created as a means of reducing an investor's risk, allowing companies to raise more capital and pursue riskier ventures without sacrificing profitability. Today, it's regarded as an indicator of economic success. While technology has advanced exponentially since the introduction of a public stock exchange, the underlying structure of a stock market hasn't. Starting with the current stock market, let's break it down and see where we can make improvements to decrease demand and/or increase supply.

First, the ability to buy and sell fractional shares would increase supply by allowing any sum of money to be properly diversified across any number of markets. If I wanted to buy 1 share each of Amazon, Google, Facebook, Apple and Microsoft, it would cost me almost $3000. If I don't have $3000, there's no way I could make that spread happen and even that isn't diverse enough to properly mitigate risk. If I could buy fragments of a share, I could achieve that (or any other) spread regardless of how much money I have by simply scaling down how much of a share I buy. Total capital would no longer be a factor in how diverse your portfolio is, which means that all income levels have equal opportunity to properly mitigate risk and lock in the same growth rate as anyone else.

Second, breaking up what we're investing in would give us a wide array of advantages. Let's say you and I both want to invest in Google. While I as a programmer may have specialized knowledge about the technical aspects of their products, maybe you're a marketing expert who can recognize the successful or unsuccessful strategies being used for their products. Right now, there's one value (their market value) to represent an aggregate of all values that make up Google. If I recognize a technical flaw in Product A and you recognize a successful marketing strategy in Product B, the two could cancel out without affecting Google's overall stock value. What if we could invest in each product individually and Google overall? I

would've been able to sell my shares of Product A anticipating a decline in value, while you could buy shares of Product B anticipating an increase in value. We were both able to apply our specialized knowledge to our benefits, yet the two outcomes would still cancel out in the overall value, meaning someone without specialized knowledge wouldn't have been able to benefit. Going further, what if we could invest in the individual departments that make up each product? I wouldn't necessarily know whether or not Product A's marketing is good enough to cover the damage from the tech issue I found, nor would you know if Product B's tech had some critical issues that even a brilliant marketing campaign wouldn't help.

By being more specific, we can maximize our individual potential for making successful investments. Additionally, we're providing crucial information to each other via specific market values. Like we use a company's market value as an indicator of their success, we can use the market value of their specific products and departments to inform our decisions regarding investments that require more than our specialized knowledge. If I see some major tech breakthrough for a product, I may want to lean more into the tech department and the product as a whole. However, if that product's marketing value happens to be plummeting for reasons unknown to me, I can choose to invest in just the tech and not the product as a whole. When Google rectifies the marketing issues and I see the product's marketing value rising again, I can invest more in the whole product. It's essentially creating abstract markets that represent certain parts of something. Being more specific with our investments maximizes our individual potential to apply our unique knowledge to the market. This means everyone can become a more potent investor, making investing more accessible to the average person. Additionally, this provides security for the company themselves by decentralizing failure points that would affect the company's overall value in today's stock market.

Third, the investment structure should be able to support the entire lifecycle of a business. From the initial idea to becoming a mega corporation, it should be scalable and allow public funding at any level. Like I would launch a Kickstarter campaign, I should be able to post an idea for something along with the proper credentials to show I can achieve my goal and allow people to invest right at the start. Not to try and raise enough capital to see the idea through from the beginning, but enough to support myself as I progress the idea. As it grows into a plan and a team starts forming, I should be able to generate more funding for the next stage. Going beyond business, we should be able to invest directly in one another. Individuals should be able to sell their own shares to receive funding for themselves to accomplish personal goals. If you're an A+ student who got accepted into MIT's computer science program, wouldn't it be cool if you could run an initial public offering (IPO) for yourself and use the raised funds for tuition? Family, friends, classmates and teachers could all invest in you personally. Your personal value increases as you get through school successfully, get a job, gain experience, then try to start your own business. If we can tie your personal value to your shares, then anyone can benefit from your own success and you can benefit from anyone else's success. The investment structure should cover that journey too.

Fractional shares, abstract markets, infinitely scalable IPOs and social investing are all key components to building a better investment system. We're not going to factor in any existing/future regulations or technological issues as these things aren't relevant if the system itself isn't conceptually sound. We're also going to assume that there's a free and secure way to facilitate the system autonomously and that it has reached its critical mass of users.

We start at the individual by creating a social network that allows them to generate and sell personal shares to others. While shareholders don't have any control over the individual, they can still purchase a piece of their value in hopes that it will appreciate like any other investment. Their market value is ultimately determined by the information found on their profile, as well as any public information that investors have access to outside of the social network. These would be things like academic history, work history, criminal record, net worth, portfolio, social status, etc. While it's completely up to the individual to decide what they put on their profile, their choices will be reflected in their market value. Nobody is going to invest in someone who won't reveal relevant information about themselves. However, if you're only planning to invest (and not be invested in), then there's no need for any publicly visible personal information to be uploaded at all. Individuals have control over their profile visibility and market permissions. Shares can be bought or sold fractionally, allowing all income levels equal access to any market. If you know somebody who makes a living off of their investments, you could copy their portfolio (given they share that information with you) at a smaller scale regardless of how much money you have. You'd be guaranteed to have the same growth rate as them.

This opens us up to social investment. Families can invest in each other and benefit from their success together. If I hit a rut in life I don't need to feel bad that my friends sold my shares, because I'm invested in them too. My loss is their loss and their loss is my loss. Family, friends, coworkers, neighbors, and communities all supporting one another in a way that gives each individual complete control over who they personally invest in. By distributing our value among each other, we're reducing the impact of financial emergencies in our personal lives that can diminish our personal value. As long as everyone I've invested in doesn't go down simultaneously, I won't either. It's like a voluntary financial safety net.

Social investing also serves as a mechanism to ensure that people with high potential are easily noticeable. This is thanks to the concept of abstract markets, which allow any individual or group to run an IPO for any purpose. It's easy to follow how this works: someone comes up with a good idea and runs an IPO to gain investments. The first investments will be the individual themselves, then their friends and family. There will be community markets of all kinds whose purpose is to invest in local talent. As your idea becomes more detailed you apply to local markets for investment money, as well as markets that are related to your idea. Maybe your alma mater runs alumni investment networks you could apply to. Maybe there's a national investment network for your specific industry or degree. The idea is that there's always one or many bigger investment pools that will be willing to chip in at any stage of the project's life cycle. With fractional shares, it becomes less about "will they invest or not" and more about "how much will they throw in". They can scale their investment to their confidence. The more you grow, the

more your current investors lean into your market. As you get to a point where you can afford to hire employees, they have the opportunity to invest some or all of their wages into the company and grow with it, regardless of their job position.

From the investor side, you can always tailor your portfolio to your personal knowledge as well as borrow knowledge from each other. Going back to our programmer/marketer investor example, we could each create public/permission-restricted profiles for our specialization and then decide to invest any sum of money to proportionally match the other's portfolio. It'd be like letting a skilled trader work with your money without the risk of them doing something they wouldn't without their own money. Just select their profile, enter a sum of money and let the system do the rest. If you want/need to support yourself via short-term trading, you could start by following the lead of successful investors within your social network until you learn the ropes. As you gain experience, you branch out more and more until you've created your own portfolio that's tailored to your knowledge and experiences. Trading would become a universally applicable skill. If a company runs out of capital before they reach the next level of investment opportunities, they could pivot to short-term trading to raise capital until they have enough to continue. Since employees are probably invested in the company, it's in their best interest to generate capital too. They could all form a network of portfolio profiles tailored specifically to their job descriptions. People with identical/similar job titles would try to branch out in different directions, while everyone can also tap into their unique knowledge and experiences that are separate from their work. Then the company can reinvest in the top performing profiles based on their growth rate.

It's an investment system that facilitates a perpetual exchange of value in all levels of the economy, provides financial security through virtually limitless diversification and keeps each individual in complete control of their own finances. It would be open-source for public scrutiny and have a public API to allow developers to create unique interfaces tailored to specific audiences. Developers would create various tools to simplify investing further, like an AI-driven chat bot that interviews new users in order to generate a diverse portfolio and recommend markets based on the information you give it. There could be a search engine that reads a description of something you need to raise funds for and recommends relevant investment networks. Despite the overall increase in complexity, this new investment system would actually be much simpler from a user's perspective. We would neatly represent a portfolio as an overall value that makes up what could be millions of unique investments, then have a grouping mechanism that allows you to organize your portfolio for different purposes. Rather than manually managing these diverse portfolios, we can group them, then buy and sell directly by the group. I'd have a long-term group that I add to whenever I make money and a short-term group that I use to keep myself diversified and use for spending money when I need it.

As workplace automation advances, we're reducing demand for labor in a lot of industries. While reducing demand is good for the overall goal of reducing effective scarcity, the people working these jobs aren't going to benefit from the automation. A lot of jobs being displaced aren't high paying enough to allow for effective investing in our current investment

structure. This new investment system provides a place for anybody to apply their personal knowledge and experiences and contribute to the economy by facilitating trade. Over time, use of the new system would organically form a robust and precise dataset detailing overall supply and demand. This data could be used to feed machine learning algorithms and develop AI-driven investment systems. The system would actually be creating value inherently by generating public data to be used by anyone for research and development, while still leaving each individual in control of what private information they put on the network.

Overall, it's meant to be a more accessible, efficient and scalable version of what the stock market is today. It's an equal-access, equal-opportunity public platform that could be created alongside any existing systems today and allow for an organic transition to what should be the superior investment system. As a learning investment system, it not only benefits from increased money supply, it benefits from a growing user-base. Each new user helps facilitate rapid exchange of value for the economy while helping shape market values relevant to their knowledge and experiences, providing new and refined data for the public. People become profitable, so it would become profitable to pursue infrastructure restoration and basic needs for the impoverished. We need their raw brain power to circulate money through the economy, we need their unique knowledge and experience for our public data set (and any AI relying on them), and we need the myriad of benefits that would come with actually meeting the needs of everyone in our society.

Potential problems and solutions:

1. It's reasonable to assume that an individual or small group market would be volatile.
    a. This can be mitigated through widespread diversification and decentralizing their investor base.
    b. From the investor's perspective, individual/small group volatility isn't such a big deal when you can spread your investments to any number of investees. Though their individual investments might be volatile, their aggregated value stabilizes as you diversify your investments further.
2. Who would buy personal shares?
    a. On a personal level, friends, family and coworkers.
    b. On a community level, I'd imagine there would be markets dedicated to providing stable market values to represent the community, so it'd be in their interest to invest a bit in each of their promising community members.
    c. There could be stable-growth markets who invest in people early in their careers who show potential to succeed.
    d. There could be automated markets that take and process applications from individuals and automatically invest a calculated amount of money in them based on historical data about that person (growth-rate, stability, portfolio value, etc.).
3. How could markets merge/split?
    a. This would be necessary as ideas form and teams meet up and join together for specific goals.

4. What kind of security does an investor have when investing in individuals/small groups?
    a. It's really up to the investee, but their decisions play into their marketability.
        i. They could setup the IPO funds to be deposited in an escrow account that pays in installments and refunds remaining account balances if the investee doesn't fulfill whatever goals that they committed to.
        ii. They could setup an account that enables shareholders to hold votes regarding the investees account privileges.
        iii. They could pay dividends to shareholders as they grow.