VIRTUOUS
PEOPLE INVESTING IN PEOPLE

White Paper

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Executive Summary

What YouTube did for broadcast, Amazon for retailing, Airbnb for lodging, Uber for transportation, and eBay for garage sales, VIRTUOUS will do for government. Or, more specifically, for the production and provision of public goods – particularly, and starting with, investment in human capital. In short, VIRTUOUS **is a platform for financing investment in a wide range of human capital – and eventually an even wider range of public goods – compensating for declining public-sector commitment.**

The Problem with Public Goods

Technological, economic and political change are reducing the ability of governments worldwide to provide many of the services they came to embody in the 20th Century – particularly human capital investment (education, health care, social insurance) and other "public goods" like infrastructure, public safety, and environmental goods. People generally want these goods and services, and societies depend on them, but taxpayers and voters don't want to pay for them because the payoffs are diffuse. But today's technologies like the Internet, platform businesses, and blockchain make it easier for anyone, anywhere, to provide them everywhere. VIRTUOUS is the first private-sector provider to recognize this and to enable individuals who want to support investment in public goods, especially human capital – and to benefit from doing so. We take existing concepts of "paying it forward" through income-sharing agreements, and couple them with blockchain technology's ability to digitize and capture real-world economic effects, to allow investors to realize the widespread financial benefits that otherwise go unrecognized. By aggregating the increases in income that accrue to large numbers of "entrepreneurs" (which existing systems treat as mere "beneficiaries") willing to invest in themselves – through advanced education and job training, child care, health care and other forms of insurance – VIRTUOUS provides investors with a stable, market-rate return for providing the human investment that governments are decreasingly providing … a breakthrough model for doing well by doing good.

From Marketplace to Community

This model also presents an extensive range of additional benefits for consumers – and investors. It aligns the interests of investors and those looking to better their lives, and capitalizes on cutting-edge research on "what works." It brings market clout to bear to drive lower costs for consumers of ever-more-expensive, needed services ranging from college education to health care, while improving performance and results. These services together create a huge potential marketplace that can also serve as the basis for a social network of the kind people really want: a real community of shared values and interests. One that also gives people control over their own data and the algorithms governing what they see, because it makes its money elsewhere, not by exploiting its customers.

Finally, this model doesn't just *use* blockchain technology to create and track financial value: It *embodies the full promise of blockchain* as a new technology of "governance" – creating trust, distributing enforcement of rules, and excluding "free riders."

By capturing the gains of investment in value-creation that has never before been captured, VIRTUOUS represents a unique economic opportunity. It makes it possible and affordable for millions of Americans to obtain education, job training, health care, income security, and other benefits – and for private investors to share these benefits.

The Ask

VIRTUOUS is conducting pilot projects and detailed cost/benefit research throughout Fall 2018, and aims to launch a fully-accessible, public, mobile application ("app") in early 2019. We require roughly $220,000, for tech and design work, policy analysis and underwriting, and legal/regulatory filings, in order to achieve initial launch.

I. The Opportunity

What YouTube did for video, Amazon for retailing, Airbnb for lodging, Uber for transportation, and eBay for garage sales, VIRTUOUS will do for government. This starts with the for-profit production and provision of public goods – particularly, investment in human capital. By capturing the financial gains from investment in value-creation that have never before been captured, VIRTUOUS represents a unique economic opportunity: **making it possible and affordable for millions of Americans to obtain education, job training, health care, income security, and other benefits – and for private investors to share in the return**.

A. The Problem

Technological, economic and political change are reducing the ability of governments worldwide to provide many of the services they came to embody in the 20th Century – particularly human capital investments (education, health care, social insurance), and, more broadly, "public goods" (human capital investments but also other goods like infrastructure, public safety, environmental goods, etc.). This is not just a product of the current political moment: The decline of government services, and particularly public-goods investment, has been occurring worldwide for over four decades. It's not a passing phenomenon.

Nevertheless, people generally want these public goods and services – and societies depend on them – but taxpayers and voters don't want to pay for them because the payoffs are diffuse. But technologies like the Internet, platform businesses, and blockchain make it easier for anyone, anywhere, to provide them everywhere. VIRTUOUS is the first private-sector provider to recognize this and to enable individuals who want to support investment in public goods – especially human capital – to do so **and to benefit from it**. In other words, the VIRTUOUS business model is to **make it profitable for private investors to provide what until now have been public services – especially *human* services.**

B. The Solution

This is possible because we take (1) existing concepts of "paying it forward" through income-sharing agreements, and (2) blockchain technology's ability to digitize and capture economic effects in the real world, to **allow "investors" to realize the financial benefits that taxpayers generally do *not* realize from paying for widespread economic gains.** By aggregating the increases in income that accrue to large numbers of "entrepreneurs" (which existing systems treat as mere "beneficiaries") willing to invest in themselves – through advanced education and job training, child care, health care and other forms of insurance – VIRTUOUS provides investors with a stable, market-rate return for providing the human investment that governments are decreasingly providing … a breakthrough model for doing well by doing good.

VIRTUOUS provides *everyone* the opportunity to obtain market-rate returns by investing in the social services, human-capital programs and public goods that public-sector entities and governments decreasingly provide. **It represents the future of governance, community, and investment in a better world.** But, just as with Airbnb's reinvention of the lodging industry and Uber's reinvention of transportation, VIRTUOUS users encounter merely **a simple, and seamless, interface allowing them to access this "government of the future."** This enables users to experience simple and seamless access to a wide range of opportunities to invest in bettering their own lives – or the lives of others. Along the way, it applies cutting-edge knowledge in public policy to generate incentives for service providers – colleges, day care providers, health insurers – to produce better results; leverages market clout into low prices and better services for consumers; and creates voluntary communities-of-values on which can be built the kind of social network people really want – with the kind of data protections and privacy rights that represent the future of government.

In short, VIRTUOUS is uniquely designed to make the world a better place. One smartphone user and one investor at a time.

II. The Demand for Our Product

A. Public Goods

Around the world, throughout history, societies run on so-called "public goods." The technical economic definition is goods that are non-rivalrous and non-excludable – in other words, one's consumption doesn't deplete the amount available for another, and one person can't "own" it and keep others from using it without paying for it. The air is a common example, but the concept applies as well to much that we came, in the 20th Century at least, to expect governments to provide:

- public safety.
- public health.
- public spaces and environments.
- education, considered by many the prototypical "public good" because people's educations create broader benefits for society as a whole, and everyone benefits from this regardless of whether they paid for it.

B. Market Size & Composition

Most people recognize the need for and value of all sorts of public goods.

- In fact, 64 million Americans voted in 2016 *against* the candidate promising a tax cut averaging $4,000 – at least in part because they preferred the idea of putting that into social welfare programs. That's a potential pool of a quarter-trillion dollars in desired spending on social welfare and other public goods.

- Many others feel we have enough government as it is – but that still comes to $4 trillion per year at the federal level alone, or more than $10,000 per American.
- And plenty more don't believe in government spending much at all – but in its absence would voluntarily pay for what are now public investments. In fact, charitable giving in the United States exceeds $400 billion annually, and new online platforms for people to raise money for themselves are already an established outlet with GoFundMe and Kickstarter both having raised a reported $3 billion each.[1] In Kickstarter's case, the money raised has come from over 15 million contributors.[2]

In short, there is in fact a deep market for investment of this sort, amounting to tens of billions of dollars and attracting Americans of all means and ideological persuasions – in fact, virtually *all* Americans, one way or another. Except that – until now – such a "market" was neither necessary or possible. Instead of a market, we had government.

C. Why There Was No Market Until Now

In fact, many economists and political scientists today argue that paying for and providing public goods is the entire justification for government. Because the benefits accrue to everyone regardless of who pays for them, their existence and upkeep tend to be underinvested in; unless everyone is *forced* to pay their fair share, some will "free ride" on the efforts of others and, eventually, everyone else will resent paying *their* fair share. Without a compulsory mechanism to collect payments through taxes and spend them on governmental efforts, public goods wouldn't exist.

And yet, everyone – and society as a whole – needs these "public goods."

As Abraham Lincoln put it, "The legitimate object of government is to do for a community of people whatever they need to have done, but cannot do at all, or cannot so well do, for themselves – in their separate, and individual capacities."

"Governing" is thus an intrinsic component of forming and maintaining any "community." But "government" – and particularly the funding of public goods – is one of the aspects of community most threatened by technology today.

New technologies today are changing the way every industry operates and driving many of them out of business. Most people don't think of government in this way, but technology is having the same effect on governments worldwide – their ability to derive revenues, to control a territory or market, to retain customers, to dictate consumer behavior. Inter-related changes in technology, economics, and politics are driving a long-term decline in the public sector, public investment, and so-called "public goods."

In an increasingly bottom-line world, services governments traditionally provide – "public goods" like education, public health, justice and public safety – are at risk of disappearing. Why? They don't make money.

The decline of public goods and public investment is neither a short-term nor a cyclical political phenomenon that those who favor more such spending can just "wait out": There has been a worldwide, secular decline in public goods and public investment for over four decades now. The politics simply are driven by the underlying economic realities: As technology provides citizens with greater ability to "opt-out" and choose alternatives, public goods are becoming harder to fund because, by definition, they can't exist in a world where people opt-out.

Until now.

III. The Return for Investors: The Virtuous Circle

How can a business step in to provide these kinds of services – and make a profit?

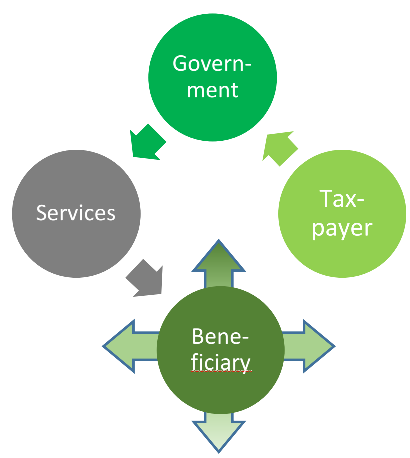
Unthinking critics of government services insist that such efforts are a waste of money because they produce no return. But this isn't true: Countless studies show that investment in public goods like people's overall health, education, job preparedness, economic "safety nets" and the like – not to mention more generalized investments like basic scientific research and knowledge, or publicly-shared infrastructure like roads or airports – generate a wide range of economic benefits many multiples of their cost. Some of these accrue to individuals who are able to earn more because they have higher skill levels, or are in better health and therefore more productive, or are better able to hold onto a job because they have daycare for their children and transportation to the worksite. But some of economic gain is more diffuse, e.g.:

- the reduction in crime or dependency that flow from more individuals having work and higher earnings,
- or from an entire society able to get work and ship its products to markets efficiently,
- or enjoying greater productivity and potential because it has concurred widespread endemic disease thanks to investments in public health and public infrastructure (like, say, sewer and drainage systems).

These gains are diffuse: They accrue to a wide spectrum of society, often as costs avoided rather than perceivable payment, and we're used to their presence (in countries like the United States) as opposed to their more obvious absence (in countries without any public-goods infrastructure like, say, Somalia).

A. The Vicious Circle

As a result, some critics, taxpayers and voters fail to see any benefit, at least to themselves, from such investments, since investments in social goods – such as better and broader education – are diffuse, lifting both the individual and the entire society, but rarely return an identifiable cash dividend to the taxpayer whose annual tax payments funded the school:



The nature of public goods – clean air, national security and public safety, public infrastructure, eradication of disease, increased scientific knowledge – is that those who don't want to contribute nonetheless cannot be excluded, so people "free-ride" on provision of these goods and services so actual support for them declines, in **a vicious circle**. That's why, throughout history, public goods have been under-invested in – and why governments were created to compel contribution investment in such public goods by *all*. But this has carried with it philosophical and political objections to compulsory payments that many see as unproductive – or simply don't want to have to make. That undermines – and in the current political moment defeats – public goods and public services that many want, and are willing to invest in.

B. Social Investing Without Government

VIRTUOUS is a whole new "operating system" to modernize – and perhaps even replace – the age-old technology called "government." It will deliver what millions of Americans want from "communities" and their "governments"– but decreasingly find today in either the public *or* private sectors.

This starts with enabling people to invest in each other's futures through things like:

- educational opportunity
- job training
- day care and family supports
- affordable insurance against health care costs and life's other vicissitudes.

And, once rolling, it can naturally come to include a wide range of popular "apps" built off the "backbone" of this online community of shared interest – just as it has for modern governments – creating parks and public places; providing security and privacy for both people *and* their data and identities; using collective action and market clout to protect consumers and to lower costs, and even drive pay-for-performance in service delivery and other "public policy" improvement; even creating virtually a real *community*.

These, however, are all down-stream applications: The core product, and pressing need, is the creation of a 21st-Century marketplace for investment in public goods – specifically, human capital. We do this, very simply, by making such investments profitable, both for those who make the investments and those who receive them.

And today's technology makes that possible.

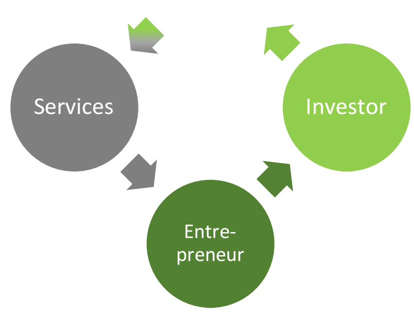
Technologies like blockchain (as well as platform business models and the Internet generally) allow us to create *new* alternatives to compulsory government programs that make it easier to:

- aggregate people;
- agree on and enforce rules;
- monetize, capture, and redistribute the gains; and
- exclude "free-riders" who don't *play* by the rules…

… *all* the things we created government *for*. And it's *that* – not "coins" or "registries" – that represents the *true* promise of blockchain.

Using modern digital technology that's revolutionizing money, finance and value-exchange in place of the analog world's third-party trust and enforcement technology that we call "government," people can choose to take collective action, invest in public goods, realize and share the benefits – but only amongst those who affirmatively choose to contribute – creating a **virtuous circle**:

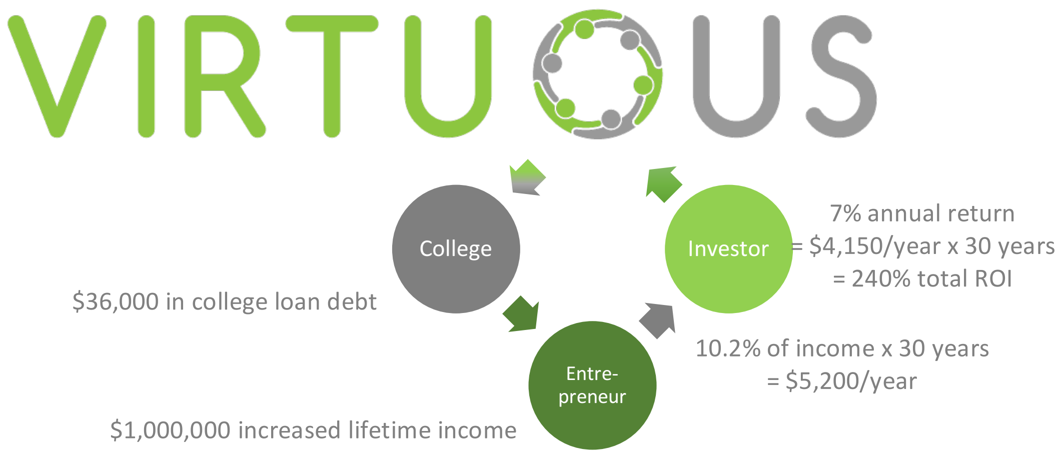
VIRTUOUS



By substituting VIRTUOUS services for government, we substitute grudging taxpayers for willing investors, generating the funding to make needed services available to individuals and families who want to better their lives – and thereby treating them as *entrepreneurs* rather than "beneficiaries," creating a stake in their futures. The technology makes it easier on a large scale to track the individual and social benefits, collect on investments and pay-back arrangements, and ensure that the gains circulate and continue to build this virtual community, to *everyone's* benefit: Or, at least, to the benefit of everyone who chooses to join in.

C. Example: Investing in Higher Ed

The easiest – but by no means only – way to illustrate how VIRTUOUS works, one that most people recognize immediately, is to look at financing for higher education:



College is expensive – more expensive than many families can afford. But it produces an average increase in income of $1 million over the course of the student's working life. If that's paid back as a percentage of income over a 30-year period – like the average home mortgage – it would lower today's average monthly payment, especially in the early years when relief is most needed and defaults sometimes occur. This would produce a market-rate return for the source of the financing. Just as importantly, it would turn the finance entity from a lending into an investment vehicle – with everyone sharing an interest in the student's long-term success.

This is a concept first developed by two of the greatest economists of the 20th Century. In 1954, Milton Friedman and Simon Kuznets wrote:[3]

> "[I]f individuals sold 'stock' in themselves, i.e., obligated themselves to pay a fixed proportion of future earnings, investors could 'diversify' their holdings …. The purchase of such 'stock' would be profitable so long as the expected return on investment in training exceeded the market rate of interest. Such investments would be similar to others involving a large element of risk, a type of investment usually financed by stocks rather than bonds."

The argument may be put in a somewhat different fashion by using an analogy that at first blush may seem fantastic. Investment in professional training will not necessarily be pushed to the margin because earning power is seldom explicitly treated as an asset to be capitalized and sold to others by the issuance of 'stock'. An individual will rarely sell a fixed proportion of his future income to an investor (i.e., he will rarely sell 'stock' in himself), though he may borrow money, obligating himself to repay the principal and to pay interest at a rate that ordinarily cannot exceed a legally stipulated maximum (i.e., he may sell 'bonds'). Under such conditions, an investor who loaned money to a prospective professional man could at most get back his capital and the interest on it; he could never realize a 'capital gain'. But he could, and frequently would, suffer a 'capital loss', since, despite the average profitability of professional training, professional incomes differ greatly so that many individuals fare poorly and would be unable even to repay the principal. For this reason, it would be profitable for an investor to finance the professional training of individuals with no resources other than their expected future incomes only at a rate of interest that would be sufficiently high to provide for capital losses as well as for the usual interest charges. Such a rate of interest would probably exceed the expected return from investment in training even though the latter were well above the market rate of interest. On the other hand, if individuals sold 'stock' in themselves, i.e., obligated themselves to pay a fixed proportion of future earnings, investors could 'diversify' their holdings and balance capital appreciations against capital losses. The purchase of such 'stock' would be profitable so long as the expected return on investment in training exceeded the market rate of interest. Such investments would be similar to others involving a large element of risk, a type of investment usually financed by stocks rather than bonds.

This type of arrangement – known as an Income Share Agreement (ISA) – is increasingly popular in college financing in the U.S., and in other areas, particularly job-training, in various countries around the world. But the concept – making **everyone a shareholder in everyone else's success** rather than just a financier – is central to building the *real* virtual online community, and **virtuous circle**, that VIRTUOUS represents.

2009

The first to enter the ISA space was Lumni, beginning operations in the United States in 2009. Shortly thereafter, it was joined by 13th Avenue (in 2009).

2012

Cumulus Funding (2011), Upstart (2012), and Pave (2012) enter the ISA space. During this same period, Social Finance, Inc. (SoFi; 2011) and CommonBond (2012) began offering student-loan products that reflected, in part, a "personal relationship" between investors and beneficiaries.

2016

Purdue University launched an ISA program in AY 2016-2017 which will fund over 175 students at almost $2MM.

2017

Goal Structured Solutions, Inc. ("GS2"), in partnership with Make School, becomes the first lender to enhance cash flow opportunities for schools by leveraging Income Share Agreements (ISAs). GS2 recently closed a $2 million credit facility, enabling Make School students to fund their education debt free with ISAs.

D. The Larger Investment Market for Human Services

In short, the best way to attract such a broad range of investors – as well as a wide array of customers – is by bringing together a larger variety of such investments on one platform, as Amazon did. Existing financing platforms are limited to a single form of human capital investment – mostly the easiest example, higher education. VIRTUOUS **is a platform for financing investment in a wide range of human capital – and eventually an even wider range of public goods – compensating for declining public-sector commitment.**

While college finance has the most advanced existing infrastructure, the same basic concepts – equity instead of debt, investment in human capital generating returns like investment in financial capital, alignment of investor and entrepreneur interests, more widely-shared access and more widely-shared gains – can be applied to other areas of human capital investment. And, in fact, they already are:

- **The same ROI model already is being applied to *post*-college career investments**. Upstart provides personal loans to promising college graduates for entrepreneurship by contracting to share a percent of their future income. And "[i]n 2010, Clarkson [University] offered freshman Matthew Turcotte four years of free tuition—at the time worth as much as $150,000—in return for 10% of a web design business he had started in high school."[4] This, of course, is an approach pioneered by musician David Bowie – the originator of so-called "Bowie Bonds."[5]

- **It's easy to see how this also can be applied to job training**. For example, currently at a handful of coding boot camps and specialized institutions, all students use ISAs to cover their tuition and fees. "Holbertson School … is an unaccredited two-year software training program that charges 17% of students' income for 3-1/2 years. 'If our students' fail, we don't get paid and we die. And we should die.'"[6]

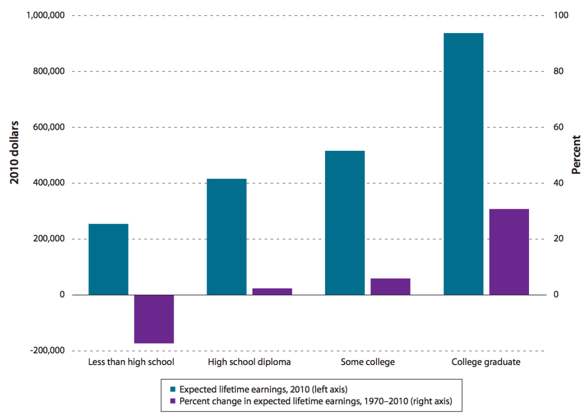
- **Day care funding, too, can be provided through an income-sharing investment.** The costs in foregone income of leaving, or not entering, the workforce to care for children are significant, implicating much more than just parent's lost wages: In fact, workers can expect to lose up to 3 or 4 times their annual salary for each year out of the workforce. Taking this time off can reduce lifetime earnings by around 20%.[7] For example, a 27-year-old African American woman earning the median income of $35,100 would lose more than half a million dollars in lifetime income by leaving the workforce for five years – $175,500 in lost wages, about $195,000 in lost wage growth, and $165,000 in lost retirement savings and benefits.[8] Avoiding this kind of income and wealth hit *also* helps avoid *additional* costs: Mothers with children in childcare experienced fewer incidences of financial hardship i.e. insufficient funds to see physician, falling behind on rent or mortgage, or having to borrow money.[9] **It turns out that the lifetime monetary value of day care for working families is almost as great as a college education!**

- As for early childhood, primary and secondary education, VIRTUOUS aims to **provide *every* young person the ability to access and afford the highest quality education from the earliest years onward, regardless of family resources.** There is, of course, extensive evidence – though more attenuated than that for college – that investing in improved K-12 education directly improves lifetime earnings (besides improving a broad range of life outcomes such as reduced likelihood of teen pregnancy, welfare dependency, and incarceration). For example, it is well known that, besides the dramatic effect on income of receiving a college education, completing high school has a similar effect in terms of order-of-magnitude (if at lower dollar levels) – *doubling* projected lifetime earnings (see figure below).[10] But even intermediate levels of investment improve outcomes in quantifiable – and monetizable – ways: One expert concludes that each additional year of schooling is likely to raise an individual's earnings about 10 percent, or up to $30-$40,000 in present value over the course of a lifetime an American at the median household income.[11] More precisely, just the difference between a good teacher and a poorer-quality one for that one year alone produces $6,000 in income at present value – in other words, investing in a good teacher for an entire classroom (say, $60,000) produces on average a market-rate of return (roughly $150,000 in present-value):[12]

FIGURE 1.

Lifetime Earnings by Education Level.

While earnings for the highly educated have seen modest increases in the past few decades, incomes for those who did not graduate from high school have fallen since 1970.



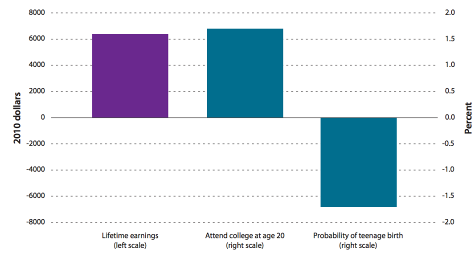
Sources: ACS (2007–2010); CPS (1970, 2007–2010); U.S. Census (1970).

Note: Calculations take mean earnings for individuals in each education level at every age between eighteen and sixty-four, as reported in the CPS between 2007 and 2010, and the ACS between the same years for the institutionalized populations. Future earnings are discounted at 5 percent. Earnings data are adjusted using the CPI Research Series.

FIGURE 11.

Long-Term Impact of Having a Better Teacher for One Year.

Being taught by a better teacher *for just one year* can increase a student's lifetime earnings and probability of attending college, as well as reduce her probability of teenage birth.



Source: Chetty et al. (2011).

Note: Percent change calculated relative to mean. Calculations based on difference between a 75th percentile and 25th percentile teacher.

In short, investing in better K-12 schooling can in fact produce similar economic returns as that for the other models of social investing discussed above. VIRTUOUS thus ultimately aims at **helping to provide better schools – *and* access to them – for every child in the United States**.

Investing in younger students, however, which won't pay off economically for years, presents special legal, practical and financial challenges; we believe solutions can be devised using intermediate metrics, such as those used in Social Impact Bonds. And we believe **this can and will eventually overcome political fights over education financing and equity and transform school funding in America**.

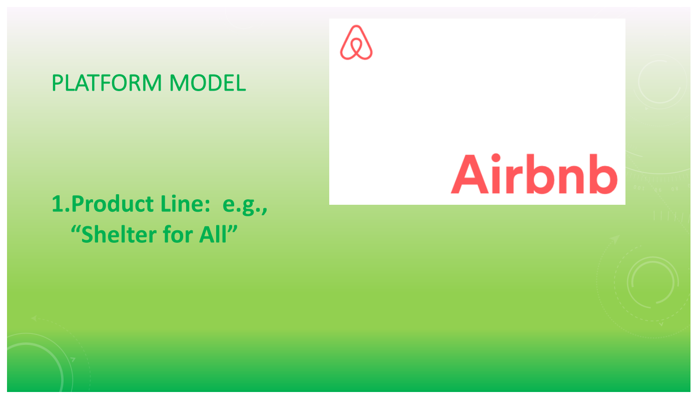
In short, there is a wide range of human capital investments that can provide monetizable, market-rate returns – and opportunities for equity (i.e., income-sharing) investment. Others already emerging include **life insurance,**[13] **unemployment insurance,**[14] and new forms of **health coverage.**[15] VIRTUOUS is a one-stop shop for those looking to better their lives – and for those looking to help them do so.

By pulling *all* these models together, VIRTUOUS provides a full suite of human services, all in one place, similarly to what *governments* have traditionally provided – or, more to the point, **the Amazon of human-capital investment services and "public goods."**

IV. The Product

A. Combining Crowdfunding with the Market for Public Services

So, what would such a broader market for human capital investment look like? It starts with two basic principles:

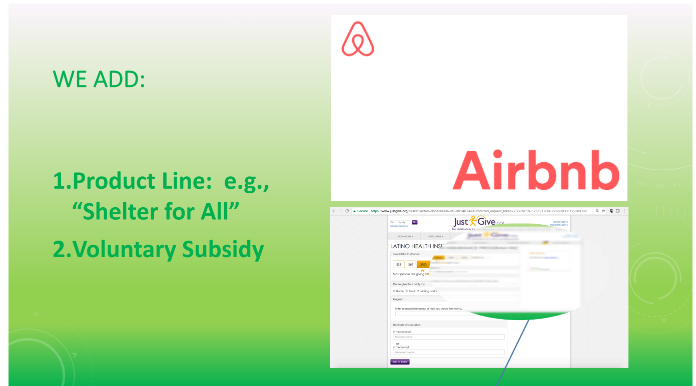


1. **The platform business model allows a simple, well-designed website easily to bring together a countless number of buyers and sellers of any kind of good or service – creating markets virtually the way the traditional market square did historically.** Think eBay, Uber – or, say, Airbnb. Just as with any of today's major platforms, the marketplace doesn't necessarily have to be the producer of any of the goods and services (although, like Amazon, it also *can* be): Its value lies in aggregating products – and their purchasers.

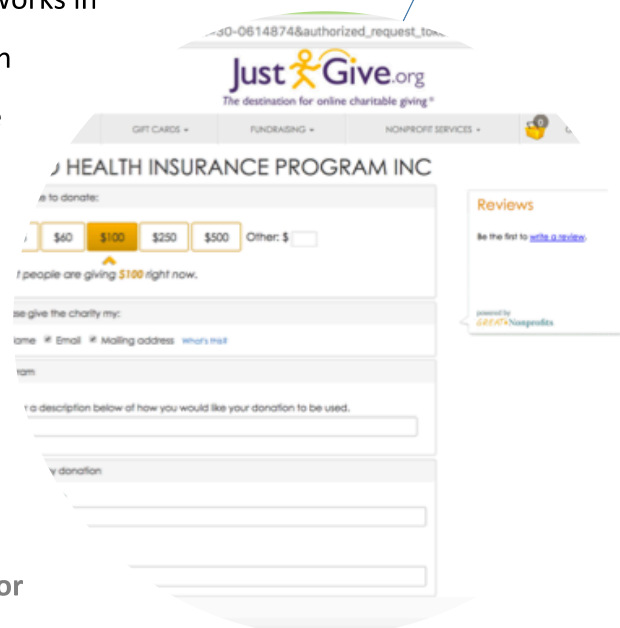
2. **Such a virtual market can just as easily be *three*-sided, creating an opportunity for buyers to find not just sellers but also *financers* of their purchases. Or, put another way, people could just as easily go onto a platform website to pay for a service – such as shelter – for *others* as for themselves.** Think Airbnb – with a "JustGive" option.

   In fact, many people want to put money into helping others with no expectation of personal return; some don't believe that such a return is possible. They're not looking to "invest" – they'd be happy for the subsidy to be simply a charitable contribution.

VIRTUOUS gives them that option. By choosing the charitable option, "investors" forego any return on their investment – receiving an immediate tax deduction, instead – and the proceeds become part of a revolving fund making further loans. Kiva, for instance, is an entirely *non*-profit micro-lending operation, but Lumni, among others, operates parallel for-profit and non-profit college ISA funds in this manner. VIRTUOUS provides both options.



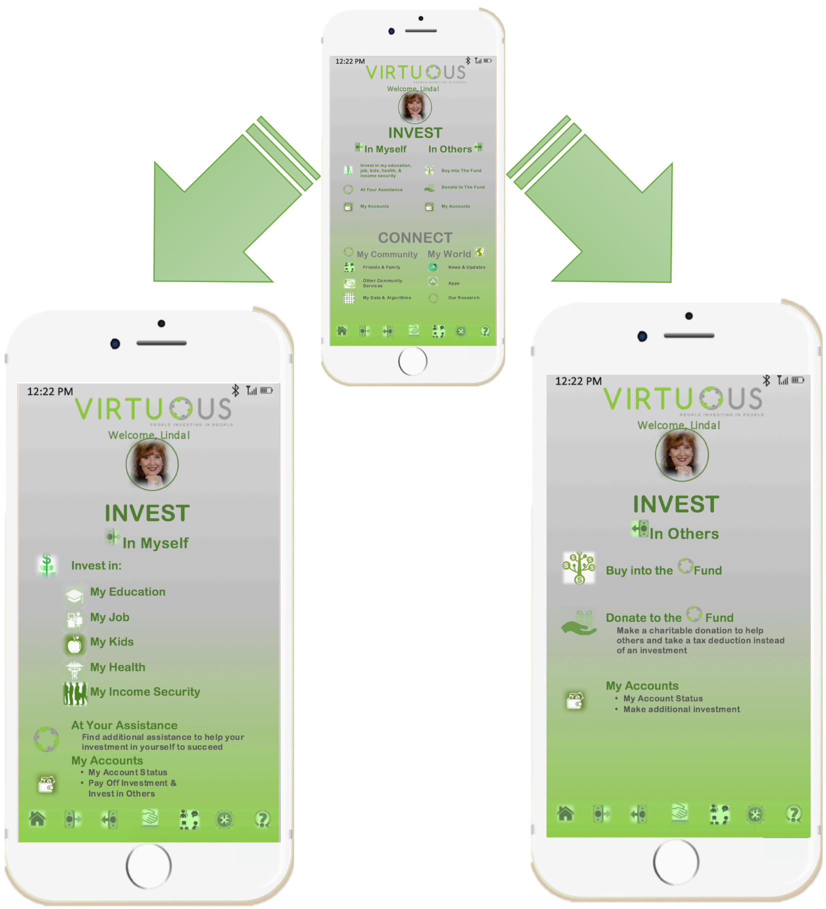
As "profits" accrue to the non-profit fund, these are used to fund further research on what works in human capital investing, which is then shared with governments and the public generally. Charitable contributions thus become a source for both further investments in people who need it *and* our "think tank" to support advances in "**public" policy.**



As our platform becomes more robust, it will also offer investors the option of offering funds at below market rates, so that each investor can choose his or her preferred mix of economic and "psychic" returns.

B. Building the Interface

All of this translates into **a simple, and seamless, interface:**



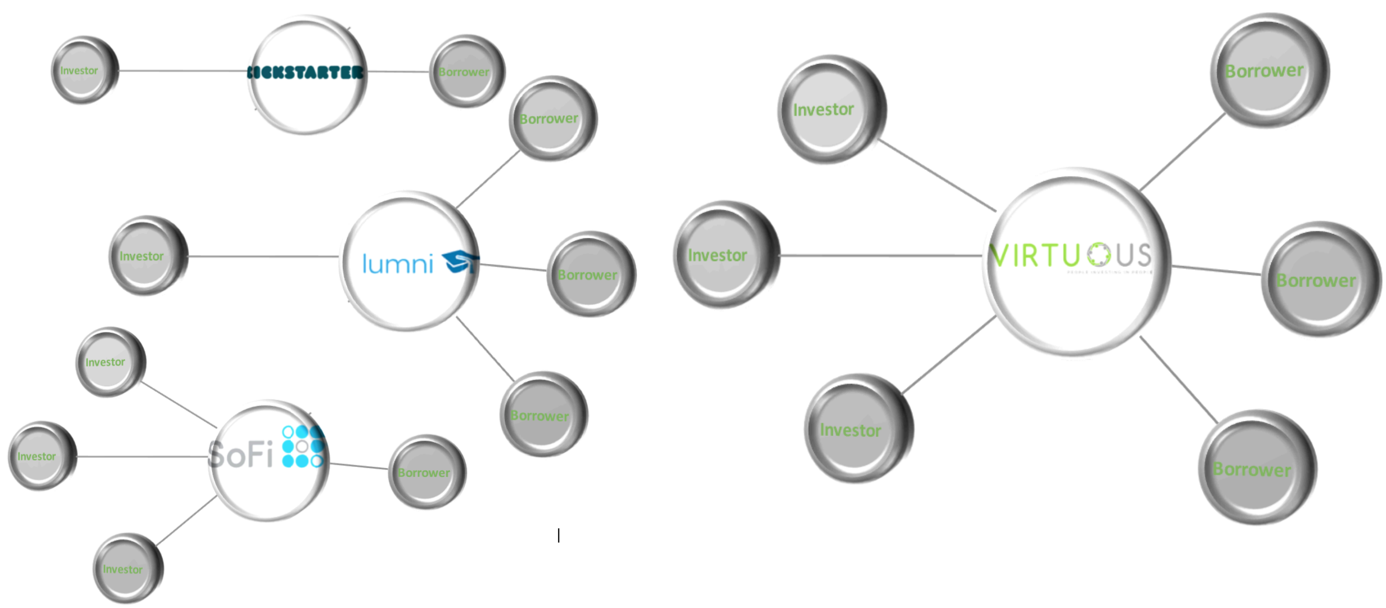
- VIRTUOUS starts by giving *all* investors the opportunity to invest in a college opportunity fund – the way other funds (such as Calvert Impact Capital[16] and RSF[17]) have **enabled small investors to put their money into social investing**.

- *None* of the college-funding models today have widespread investment: They're backed, like most start-ups, by a handful of wealthy VCs who make all the money; it's a fairly traditional business model, in that there are owners and customers. VIRTUOUS will *change* that model, making human capital investment available to wider pool of investors, not through small-scale peer-to-peer lending but through the same mechanisms available to large, professional investors. In other words, VIRTUOUS will **do for human capital investment what the advent of mutual funds did for stock-market investing**.

- VIRTUOUS will enable student borrowers to obtain financing aligned with and invested in their own success – but from a broad market of investors rather than an individual investor, or small number of investors, to whom they are personally beholden or "indentured." In other words, VIRTUOUS will **do for human capital investment what the advent of the secondary mortgage market did for home ownership**.

- And VIRTUOUS makes this new **many-to-many human capital marketplace** available to both investors and consumers through an easy on-line interface, rather than traditional banks, brokers and other financial intermediaries:

One-to-one, one-to-many & many-to-one vs. Many-to-many



This unique many-to-many VIRTUOUS model allows widespread investment in widespread human capital. Existing competing models, in contrast, suffer from several limitations, which VIRTUOUS addresses and overcomes:

C. Better Options for More Investors

Current education financing programs – both traditional and ISAs – operate either as peer-to-peer lenders or on behalf of small numbers of "highly qualified investors," promoting individual investments in individuals. VIRTUOUS **is building a *community* of people investing in each other collectively, creating collective gains from which *everyone* benefits. It is thus more scalable, more diversifiable, and more pro-social – like the declining public sector – than any other alternative.**

Higher education funding today isn't for everyone.

VIRTUOUS, in contrast, *is*.

Funding platforms providing new options outside the traditional banking or government financing structures – whether through student loans (debt/borrowing) or ISAs (equity/investing) – come in two basic forms: peer-to-peer lending, or portfolio investing by venture funders and officially-denominated "highly qualified investors."[18]

That means that the average American can help pay for a single individual's college expenses through peer-lending sites – as they can help other forms of entrepreneurship through KickStarter or GoFundMe – but has essentially no opportunity to invest in, and benefit from, the broad economic gains from widespread college-going. There is, conversely, no broad-based societal funding mechanism for what most economists say is the Number One investment we can make in our jointly-shared economy – other than governments, which have been *cutting* their investments in education over recent decades.

Funding society's future is therefore increasingly left to small groups of wealthy investors. Some of these operate through portfolio investments – the investor funds not a one-on-one commitment to a particular student, but a pool of investments, along with others, in a large number of students – but many are simply higher-wealth versions of educational KickStarter campaigns.

However structured, then, these are *not* widely-shared investments in widely-shared educational opportunity. It is (intentionally) limited-scale investing in (intentionally) limited-scale opportunity.

In contrast, VIRTUOUS makes a wider range of opportunities available to a wider range of people – creating more widespread, and widely-shared, benefits in ways the US, and the wider world, increasingly need.

D. Better Options for More Borrowers

Existing college lending models focus on achieving profits by helping those already at the high end of the socioeconomic scale.

VIRTUOUS **is dedicated to helping *all* people to achieve their full potential – as a truly democratic society should.**

Private college lending is largely an exercise in cream-skimming.

VIRTUOUS **allows *everyone* to rise to the top**.

SoFi, the leading online student loan refinancing company, makes its money by investing heavily in costly customer acquisition, targeting graduates of elite institutions in high-earning professions – good bets to pay back their educational costs, but unlikely to find income-sharing agreements appealing, as opposed to simply providing investors with a low-risk, low-rate fixed return.

Similarly, those firms pursuing ISA-based lending – like Upstart and Pave – underwrite individuals based on projected-income models, as opposed to traditional credit-worthiness. “On Upstart, investors browsing the pool can sort the candidates by interests, education, and intended use of funds. The education selection is broken down into four options: 'STEM,' 'Top Ranked Schools,' 'MBA,' and 'JD.' It's a quick way to identify the cream of the crop."[19] This is the functional and social equivalent of selling insurance only to those who won't need it – which may sound like an effective way to make money, but turns out to be problematic for a number of reasons.

> "When a population is aggregated on high-level data points like age and location, we're essentially being judged on a simple shared commons … evening out the societal costs in the process. But once the system can discriminate on a multitude of data points, the commons collapses, devolving into a system rewarding whoever has the most profitable profile.
>
> "Put another way, adding personalized data to the insurance commons destroys the fabric of that commons…. Once you start to think about public goods in this way, you start to see the data-driven erosion of the public good everywhere."[20]

Financial models that, rather than inducing the "cream" to remain in the pool instead actively skim it out, not only undermine the larger pool: They dilute the investor's interest in the entrepreneur. Most finance and insurance companies use more-and-more sophisticated algorithms and accretions of big-data to segregate, and even exclude, customers in order to increase profitability. VIRTUOUS recognizes that this runs counter to the well-being of the larger society.

But we also believe it's not the best business model for today. Other companies engaged in college financing either, like SoFi, target likely-to-be-successful students (e.g., Ivy League graduates with medical degrees) – which provides low risk but also extremely high customer-acquisition costs, low returns, and high incentives to pay off and exit early – or, like Upstart, stratify borrowers into risk bands, in which the higher-risk individuals are segregated into groups providing investors with higher returns. But this latter approach demonstrates the "law of large numbers": while the individual students may each represent a higher risk of default, collectively the group provides a stable return – and, in fact, a better one than the supposed good-bets.

VIRTUOUS thus is built on the proposition that it isn't just the *return* from investing broadly in all people that's good business: It's also the *ethos*. More and more today, not just investors but also the great bulk of consumers – and especially those with, or seeking, high-education lifestyles – prefer to use spend their money in pursuit of their values and the greater good. And if a product or return offers both solid value *and* better *values*, it will engender greater, and more durable, consumer and investor loyalty. And VIRTUOUS possesses the rare virtue of **appealing to values across the political spectrum: not just, as noted earlier, liberals eager to put their (and other people's) money into human capital investments under assault in the public sector – but also "compassionate conservatives" eager to see such activities continue … but *outside of government*.**

The main insight of VIRTUOUS, then, is that – instead of improving investor returns using data, algorithms, and underwriting models to cream-skim only *those* individuals *likely* to succeed – we can **improve investor returns using data, algorithms, and underwriting models to make *all* individuals *more likely* to succeed.** This means that – instead of the usual approach of using private-sector values to *drive investment to those who already represent the best inputs* – VIRTUOUS **takes public policy advances as to what works and what doesn't to *drive better outcomes*.**

E. A New Private-Sector Approach to Advancing Public Policy

The VIRTUOUS model represents the next step in the evolution of pay-for-performance and social impact bonds (SIBs) in government. These innovations represent attempts to shift "policy risk" from governments (and their taxpayers) to private investors, by asking the latter to pay for them and assume the risk of profit or loss based on the achievement of certain benchmarks (e.g., reducing criminal recidivism or increasing job-holding by the target population). From the perspective of VIRTUOUS, these represent half-measures – and *gambling on*, rather than *investing in*, people and what works.

With VIRTUOUS, investors invest directly in public goods and human capital, and earn a profit as the target populations – individuals looking to better their lives – themselves do. This aligns the interests of investors with those looking to better their lives, and capitalizes on cutting-edge research on "what works." It relies on the quality of these insights to *promote success broadly* – and a *broad pool of borrowers* – rather than cream-skim *those already likely to succeed*. It thus uses market incentives to drive the kind of improvements in social spending and program outcomes that governments themselves ought to be adopting but generally aren't. This produces better "public policy" – **better helping intended beneficiaries – but, in doing so, *also* better benefiting investors in these opportunities.**

VIRTUOUS applies its policy research on what works to:

- **Place borrower-entrepreneurs in better programs.** VIRTUOUS won't discriminate on the basis of who you are. And we won't tell you to be a tech major instead of studying philosophy. But we *will* tell you – based on our constantly-updated research – that certain educational institutions are overpriced for the results they produce, that certain job-training programs have better records of putting their graduates on a path to career success, that certain day-care centers rank higher on quality-outcomes for their kids, or that certain insurance plans are bad bets for the money. And we'll use data to adjust our financing accordingly – **ensuring that our financial support helps our participants to patronize higher-quality programs and that our funding pays for *performance*.**

- **Incentivize providers to help individuals who need it most.** Our model rests on the belief that we will do best by helping those who need it most. Our financial incentives will be structured around the same goal. We will pay for what works – but that doesn't mean rewarding investors for finding individuals already headed to success, and it doesn't mean funding programs and providers that produce "results" by "cream-skimming" the same individuals. VIRTUOUS has learned the lessons of both public- and private-sector efforts that simply channel resources to those who already have them: We adjust our outcome measures to reflect the inputs – rewarding actual improvement and real results, producing the *opposite* of "cream-skimming." Thus, we provide funding for, steer enrollees toward, and reward providers that tackle the hard cases and succeed – **schools and job programs that help students get on base, not just those driving in runners who already reached third base on their own.** (*This is not a gratuitous sports metaphor, by the way: Modern statistical research on baseball has revealed that this is in fact the better way to build a winning baseball team, too.*)

- **Provide additional supports that aid success.** Extensive public policy research has demonstrated that ancillary supports are essential to success in virtually every area of human capital investment: This has proven true of juvenile offender "boot camp" programs, adult offender post-release programs, marriage-promotion or mandatory work policies amongst welfare recipients, wellness promotion and health care cost-reduction efforts, drug courts and treatment programs – and, of course, college students. Numerous government efforts – as well as most colleges and universities themselves – understand this, and the investor community itself has begun to do so. Some higher education funders geared to helping lower-income students succeed, like Mentor Works and Education Equity, Inc., already focus on support programs – and even those like Upstart that aim to help only potential high-earners recognize that on-going assistance like mentoring is likely to help produce better results. Investing in resources and programs that will help our members succeed may cost money upfront, but they increase the likelihood and extent of return. **When we say that VIRTUOUS is about taking an interest in individuals' success, we mean it in every sense.**

- **Develop and offer its own, state-of-the-art lending products.** As discussed in the preceding section, like Amazon VIRTUOUS starts as a marketplace for a wide-ranging of pre-existing products, but the creation of such a platform for large numbers of buyers and sellers produces deeper analysis of both the real-world efficacy of products and programs, per above, *and* their desirability in the marketplace. This will allow

VIRTUOUS over time to refine and produce even better products to offer directly itself to investors and entrepreneur-borrowers – creating **another virtuous circle of investment and improvement.**

All of this will produce better results for both individuals seeking to better their own lives *and* investor seeking better returns while bettering the lives of others.

F. Aligning Lenders & Borrowers

VIRTUOUS **is creating new structures to ensure that financers and providers share a long-term interest in individuals – and that all individuals involved become stakeholders in the larger community's success.**

The main recommending feature of income-contingent loans – in other words, of equity-investing in people's futures rather than taking a short-term lending interest – is that they align the interests of investor and entrepreneur. This not only produces a "community of interest" – it encourages and helps fund efforts likely to improve the entrepreneur's performance, and provides market signals for the entrepreneur as to how best to that.

However, cream-skimming models – producing profits by reducing the risk-spread of the investee pool – are only successful to the extent that they identify and invest in entrepreneurs who are pre-identified as likely to succeed. In that case, the "moral hazard" rests with the investor, who has less concern about the need to help the guaranteed-to-succeed entrepreneur to succeed; the entrepreneurs, for their part, have little reason to feel any sort of solidarity with the investor beyond the financial investment, which is paid off as soon as possible.

In all these instances, the incentive of the entrepreneur-borrower is to pay off the loan *or* investment, and exit the relationship, as quickly as possible. That's why the flipside of the caps on total payment allowed for high-earning entrepreneurs is a pre-payment penalty for those to whom even such limits prove unacceptable and who therefore attempt to cash out early. (The lack of such a restriction is what doomed the Yale experiment – with high earners cashing out and low earners defaulting, leaving middle-income grads to pay off the entire investment.)

VIRTUOUS seeks to accomplish something different:

- It allows investors to take a long-term position in borrowers – so that they take an interest in their long-term success. Most education, job-training, even insurance plans look at a short time-horizon – and their financial interests diverge from those of their "customer."

- It pools the investors – and it pools the borrowers – so that the entire community of investors has an interest in the entire community of borrowers.

- VIRTUOUS enables those who are able to cash out of their obligations to do so by "paying it forward" and becoming investors in others themselves – creating a further virtuous circle of those who benefit from investment becoming investors and stakeholders – a community rather than a mere transaction.

G. Turning Moral Hazard into a VIRTUOUS Circle

The preceding two sections suggested the problem of "upside risk" that arises with Income Share arrangements: While ISAs are generally viewed as beneficial to, and by, most students and their families, as well as by experts, because they provide what is essentially a form of insurance against poor economic outcomes (see, e.g., American Institutes for Research, The Income Share Agreement Landscape 2017 and Beyond (April 2017)), they also have the opposite effect: They are viewed as undesirable if one can reasonably expect to be one of the economy's winners. For students coming from wealthy homes, headed to elite institutions, or able to pursue high-paying fields, this is a good bet.

There is thus an incentive for "moral hazard" – for those expecting to do well to opt out, lowering the returns for the overall pool and eventually causing a "death spiral" in which only the worst risks are covered, at untenable prices:

- Those who believe they will produce high incomes tend to shun the product, because they can expect to pay *more* than their "fair share." Since high earning potential today is a combination of family background and educational opportunity, one's own expectations of future earnings are pretty accurate by age 18.

- This is then compounded by the fact that those who do opt-in but later find themselves be exceptionally successful (widely known as the "Mark Zuckerberg problem") will want to buy out of this arrangement by paying off their loan amounts early (a phenomenon that undermined and eventually killed the most prominent experiment with such a system, at Yale University).

- And, in fact, the ability of those who end up on the "up" side of the risk calculation to diminish their subsequent contribution, or even opt out completely, is quite strong. The only way to induce their participation to begin with is to offer a short pay-back period, with a low percentage-of-income required, then cap even these already-limited paybacks at a small multiple (usually 2-5 times) of the original principal amount – and allow prepayment.

- Of course, the concept of one's "fair share" is based on a notion of progressivity – that those earning (and benefiting from the investment) more should pay *back* more. If those who end up on the "up" side of the risk calculation can diminish their subsequent contribution, or even opt out completely, then the overall pool becomes unstable, not unlike the frequently-referenced "death spiral" phenomenon in debates over health insurance. This is a classic example of the concept of "moral hazard."

- Since prepayment completely deprives the investors of their payback, there is usually some sort of prepayment *penalty* – e.g., 50% of the expected (capped) amount had the borrower kept paying back for the originally-agreed term. This represents something of a compromise between the investors' need for some sort of return … and their need to have likely-to-succeed individuals join the pool to begin with. It's not the greatest compromise.

VIRTUOUS offers a different solution to this dilemma:

We aim, after all, to build a true community of interest: one where investors take an interest, in all senses, in the entrepreneur-borrower – but also where these borrowers feel a sense of allegiance not just *from* but also *to* the community investing in them. We want to create and encourage both mutual and *long-term* stakes – where investors hold not just a glorified short-term loan but an interest in other individuals' futures. Where schools and job-training programs don't just take in tuition dollars and hand out diplomas and certificates – and maybe get graded on how quickly their customers subsequently land *jobs* – but rather maintain an interest, and a stake, in whether their graduates actually succeed in *careers*. Where insurance companies don't just care about premium payments and then ducking liability, but rather have a real stake in people's long-term health and well-being. And since VIRTUOUS is interested in long-term success, we want our investments to last for the long-term, as well.

So, how can an investor like VIRTUOUS square this circle of keeping successful subjects of our investments within the community when they want to cash out? Very simply: by turning our invest*ments* into invest*ors* themselves.

How? Successful entrepreneur-borrowers may "cash-out" of their repayment terms early if they choose, as with other ISAs – there's effectively no other way to induce those who expect to be unusually successful to join the pool – but with a twist: (1) VIRTUOUS expects successful borrowers to pay off the full present-value of their *capped future liability*, not just the pre-payment penalty as under other ISAs. However, (2) we'll then refund the difference between the two, just not in cash but, rather, in the form of an investment in the rest of the VIRTUOUS pool.

Here's an example to show how this works:

	Equivalent standard $50,000 loan	**ISA $50,00 loan**	**Earns $110,000 in first 3 years…**	**… so figures she'll be very high earner…**	**… so she decides to pre-pay the balance**	
					under *other* ISAs	under VIRTUOUS
Term	30 years	30 years				
Rate	5% interest	3% of income				
Average Income	n/a	$110,000	$110,000	$300,000		
Annual Payment	$3300	$3300	$3300	$10,000		
Total Interest	$50,000	n/a	n/a			
Total Payment	**$100,000**	**$100,000**	**$10,000**	Capped @5x Loan = $250,000		
Remaining Payment			**$90,000**	**$240,000**	**$40,000** ***plus:***	**$40,000** ***plus:***
Remaining Expected Re-Payment						$240,000
Prepayment Penalty = Present Value of Remainder						**$65,000** *but given in return:*
Investment Stake in VIRTUOUS						**$40,000**
Net Prepayment Penalty = 50% of Loan					**$25,000**	$25,000

Figures in this table have been rounded for simplicity

The effect of this is to leave VIRTUOUS borrowers effectively as well off as they would be under *other* ISAs – except that a portion of their assets now consist of an investment in VIRTUOUS and its other customers, themselves. VIRTUOUS's total pool of investments has been enlarged. And while can't stop the borrower-turned-investor from selling his or her stake to another investor, if s/he chooses, until then **that former "beneficiary" *remains* in the community as a success story, rather than *leaving* it as one**. Either way, while being "made whole" relative to alternative ISA options, instead of becoming an instance of "moral hazard" potentially undermining the pool, successful borrowers become examples of paying-it-forward – strengthening the pool and the entire underlying **virtuous circle** ethos.

V. Virtuous Circles: The Potential for Growth

As discussed from the outset, our core product, and the pressing need, is the creation of a 21st-Century marketplace for investment in public goods – specifically, human capital.

Over time, however, this model can naturally come to include a wide range of other popular apps built off the "backbone" of this online community of shared interest – just as it has for modern governments: providing security and privacy for both people *and* their data and identities; using collective action and market clout to protect consumers and to lower costs, and even drive pay-for-performance in service delivery and other "public policy" improvement; even creating virtually a real *community*. **These are all down-stream applications** – but they raise the possibility of future organic growth for both VIRTUOUS investors and its services:

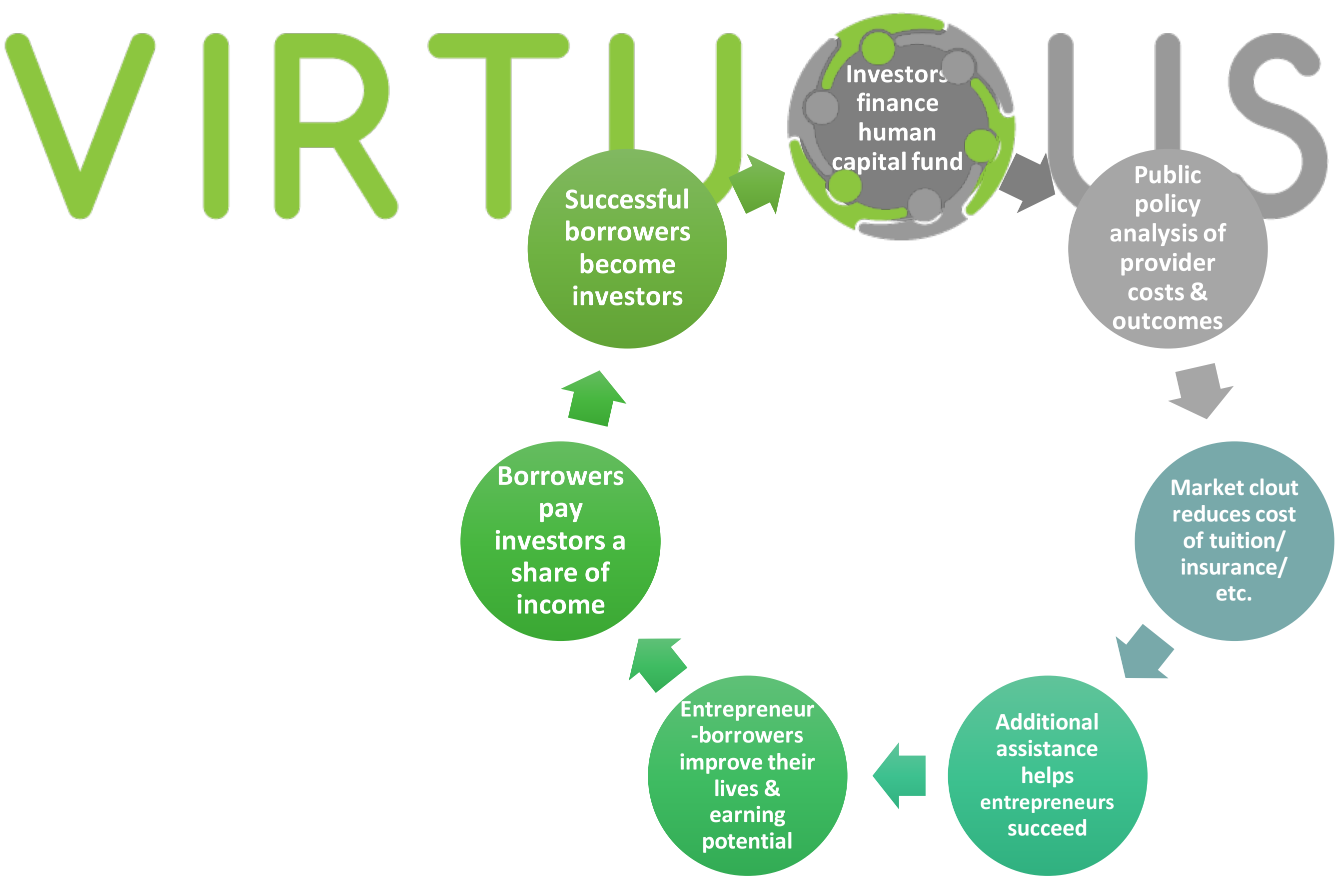
- We will start by bringing market clout and the "platform" business model to bear to drive lower costs for consumers of every-more-high-priced, needed services ranging from college education to health care, and to improve performance and results. **This platform, then, will make such services more available, affordable and attractive not just to lower-income Americans in greater need of them but also virtually *every* family concerned about the high-cost of education, health care, day care, and similar amenities.** In other words, even our *investors* can benefit as *consumers* of our services.

- These services together thus create a huge potential marketplace that **can also serve as the basis for a social network of the kind people really want: a real community of shared values and interests** – that also gives people control over their own data, and the algorithms governing what they see, because it makes its money elsewhere, not by exploiting its customers.

- This will allow **the build-out of a wide range of additional public goods and services**, creating parks and public places; promoting dispute resolution, law and justice services; providing public safety and consular-type services; and issuance of digital currency.

- Finally, this model doesn't just *use* blockchain technology to create and track financial value: **It *embodies the full promise of blockchain* as a new technology of "governance"** – creating trust, distributing enforcement of rules, and excluding "free riders."

All of these features are self-reinforcing – users find more and more features attracting them to the VIRTUOUS community, the growing number of users makes the business more profitable for investors, the increased number of customers allows us to exercise more market clout to drive better deals for our consumers, the wider range of uses and interactions provides a more attractive platform for users, and the burgeoning track record drives better data which drives better program performance which drives better results for both customers and investors **– creating a further virtuous circle of growth opportunities.**



A. Market Clout to Benefit VIRTUOUS Members

The foregoing describes the core business of VIRTUOUS: producing value by aggregating investment in a broad pool of human capital investment across a wide range of areas including higher education, job training, entrepreneurship, child care, health promotion, and insurance against economic hardships. VIRTUOUS, in short, is picking up where governments are increasingly leaving off. As a shared investment platform, it will produce returns for investors through a shared-income model of human capital advance.

But the creation of this new marketplace of social good itself generates additional value in a range of ways that create additional opportunities for investment and return: As VIRTUOUS grows, this will mean greater leverage in the marketplace to secure lower prices and better cost-to-benefit returns for VIRTUOUS service-purchasers – students, job-seekers, parents needing day care, patients, families seeking insurance – and this, in turn, will continuously strengthen the firm's profitability for investors.

Platforms like Amazon, Uber, and Airbnb famously use their buying power to drive down prices for their customers. VIRTUOUS will be able to do the same – but for consumers of education, day care, health care, unemployment coverage. It will serve, in short, as a consumer co-op for human and social services – exactly what *the government* ought to be doing, if the government did that sort of thing anymore. And as these human capital investments – in college, say, or day care, or health insurance – become less expensive when purchased through , more consumers of such services, middleclass and well-to-do families, not just those in need of financing, will find it desirable to become not just *investors* through VIRTUOUS but also *purchasers*. This will further increase the firm's market leverage – as well as the solidarity and sense of community amongst *all* VIRTUOUS participants, investors and recipients alike – **once again enlarging the virtuous circle of value for all**.

B. Real Rights for VIRTUOUS Users

What if you could join a *real* community on-line? Not a social media platform that sells your personal data and search history while deciding for you which friends you hear from and what news you see – but a community of shared values and interests? Not an app that lets you swipe left or right to make facile connections – but one that lets you truly invest in others? Not a marketplace for consumer goods and services – but one for the public goods and services that make everything else you have and enjoy possible, like education, career advancement and job security, health and childcare for your family? **What if there were a virtual community and virtual government that actually delivered what you want from them – in the *real* world?**

That's VIRTUOUS.

And we believe that t**he better business model for governments – and the better governance model for business – is a 21st Century equivalent of *Magna Carta*:**

- **You own your own data.** Users' right to own their own data – personal identifiers, genetic makeup, health data, search history, contacts, what you read and listen to, call and text metadata, geospatial coordinates, toll records, in-home conversations – is one of the great human rights issues of our time. Companies as well as governments can now take all this from people. This fact not only eliminates privacy and degrades individual autonomy, it is directly traceable to the undermining of democracy itself, such as through Facebook's sale of user data to Cambridge Analytica. And it makes people the raw material from which others extract economic value – usually without the individual's knowledge, consent … or benefit.

- **You choose whatever ads you see.** Right now, the ads target *you*. Your data is used by algorithms owned by your ISP and social networking companies to determine ads (not to mention other information) that you might like or respond to. But why can't *you* determine this for yourself? Because the companies want to control it for you (so *they* can benefit) – and believe their algorithms can do it for you *better* than you can yourself, despite evidence to the contrary. There's no disputing that algorithms can help people sort through mountains of data more efficiently, to obtain better results – but *someone has to set the parameters and weightings in the algorithm to reflect your preferences*. Why not, well, *you*?

- **You control your newsfeed and what you see.** You join a social network to keep up with your friends and contacts, to read the information and news they share, and allow them to do the same with you. Do you get to? No: Facebook algorithms determine whom from amongst your friends you get to see and hear from, and what news and information you get read. It's like being under virtual house arrest, with your TV and your visitors determined by the "government" – in this case, the company.

- **You determine the reliability of the information you receive.** "Fake news" and disinformation have become real problems. The leading solutions today all involve letting some authority determine the reliability of your news and information you receive – and whether you receive them at all – for your own supposed good. This simply substitutes one problem, and lack of autonomy, for another. A good social media system allows individuals to read and receive whatever information they want, and evaluate it for themselves – and also provides assistance of their own choosing in how to do so. Perhaps users trust Facebook, or the Chinese government, to do this for them – or perhaps they trust their best friend Fred even more. Whichever, they should be able to decide that for themselves; algorithms – that they control – can help them do that more easily, rather than do it for them.

- In all these areas – data collection, advertising targeting, access to information, assessment of reliability – **individuals should own the system, not the other way around.**

C. Building a Real On-Line Community

The virtue of the platform business model is that it brings large numbers of people, on both sides of a potential transaction, together in one "place," increasing transaction volume and efficiency – just as marketplaces have done throughout human history. Marketplaces historically have also served as a catalyst for socializing, exchange of news and information, dispute resolution, and a crossroads that grows into the heart of a community.

Similarly, **a "social network" results when you bring people together through their shared commercial, intellectual, moral, and political interests – not the other way around.** VIRTUOUS is a marketplace of opportunities. Users can choose to pursue their own paths in life, and get help getting there – or choose to help others. Either way, it's a community of interest, a community of values, and a community of choice. VIRTUOUS, in short, **provides a unique opportunity to create a true social network by layering the social function *over* the pre-existing, deeper interest – as did the market square of old – and building a true community *around* that.** Thus, the VIRTUOUS app and website will evolve organically into a full social media platform, generating monetizable synergies in the form of **a social network the way one *ought to be***.

Under the business model of Facebook and "social media 1.0," *you're not the customer*: You're the product. Under the "social media 2.0" model of VIRTUOUS, the product isn't "you," so the revenue source isn't "you": The product is *us* – a *real* community – and the revenue is from human capital *investment*. VIRTUOUS doesn't *need* to steal your data, determine which ads you see, control your newsfeed, and tell you who or what to believe. It makes money from what users *choose* to do – so it can let users continue to make their own choices, and help them make money doing so. **We believe that giving people their own choices is the better business model in the long run – because they'll see the value in choosing *us*.** This makes it **a better business model – for investors and consumers alike.**

D. Becoming a Backbone: An Expanding Range of "Public Goods"

This is where the platform business model begins to offer real value-add – and where it begins to shade into the reality of what a "government" is.

Entities – such as governments, natural, monopolies, or platforms – able, for various pre-existing reasons, to aggregate large numbers of individuals can use that large "customer base" to serve as a backbone for delivery of *other* services to this base. This is a model employed by Facebook – and is similar to, but different from, the model discussed earlier of using the platform's size and clout to drive better deals for its users: Here, the platform uses its size and clout to allow *others* to reach the platform's user base by building their own apps onto the platform. The platform business itself can benefit both by taking a share of the proceeds and from making the platform more desirable to a wider range of users.

This is also, of course, the starting point for VIRTUOUS described at the outset, in making the existing investment products of others available to wider pool of investors, and thereby *to* a wider pool of entrepreneurs, without developing and launching its own investment products.

Governments first attained a monopoly position in the provisions of public safety and order. But, particularly in the 20^{th} Century, they used their pre-existing large customer bases to branch out into the provision of a broad range of human services. VIRTUOUS essentially works in the opposite direction – providing a 21^{st} Century answer to the question of how to provide such public goods as human capital in an era of declining political consensus and public investment – but as its customer base expands, it will be able to serve as a backbone for additional public good apps, of its own and other providers, in such areas as:

- **Open space and parks.** According to the Trust for Public Land's Conservation Economics service, studies have shown that land conservation returns from \$4 to \$10 for every dollar invested – because it provides recreational opportunities, controls flooding, and protects air and drinking water quality, wildlife habitat, and farms while supporting industries such as tourism, agriculture, and fisheries. Almost all of these benefits can be monetized and marketized to finance the preservation of such public goods, while the platform model and blockchain make it possible to overcome much of the impediment to this classic public good by dramatically lowering the "transaction cost" of aggregating large numbers of people to purchase environmental goods and making it easier to apportion and impose costs (including social) on would-be free-riders.

- **Dispute resolution, law & justice.** Private judicial systems are already widespread[21] – but, at present, they are generally imposed by the stronger party in a transaction on the weaker as part of an adhesion contract – particularly in the financial industry, where consumers are often required to submit to binding arbitration by a private adjudicator of the industry's choice. More recently, however, a group of advocates were able to bring sufficient consumer pressure to force the Florida tomato industry into a private judicial and private-law enforcement system designed and operated on behalf of the industry's employees – immigrant farmworkers, amongst the poorest and least powerful individuals in the country. Binding legal systems, in short, can be constructed to provide stable and fair adjudication and enforcement for *any* party – and blockchain will make the enforceability of such private arrangements easier, cheaper, and more common.

- **Safety and security.** Safety and security are widely regarded as the first and foremost function of government – yet private security employment and spending today exceed public employment and spending on police in the U.S., and military operations are increasingly contracted out to private firms. Consular services – a traditional marker of sovereignty – are also being handled increasingly by *other countries* or *private companies*,[22] while private "extraction" services, companies that rescue the well-to-do caught in a jam abroad, have boomed. There's no reason why the incidents of sovereign nationhood should be available abroad only to the wealthiest Americans or corporate citizens. As in all other areas, technology eventually will lower costs and democratize access even to these supposedly-public services.

- **And, of course, currency.** Blockchain began as the technology behind Bitcoin, a cryptocurrency. Today, the world is flooded with non-governmental currencies and "coin" or "token" offerings. In theory, everyone soon will be able to – and *will* – issue their own private currency. This isn't actually that novel or unique a phenomenon.

  In the 19th Century, the bulk of paper money in circulation in the United States consisted of banknotes issued by private banks, rather than government-backed currency. Even though the creation of "money" is now generally regarded as a government function, the U.S.'s "fractional reserve" banking system – under which private banks can hand out in loans many times the amount of money actually kept in reserve – means that the overwhelming majority of money circulating in the country is bank-created (and not in physical form, but rather in the form of journal entries and electronic account balances). In fact, the Federal reserve and other policymakers use several different definitions of "money," that include or exclude various kinds of monetary instruments. In essence, money and currency are simply a form of indebtedness that's tradeable ("negotiable") depending upon how willing recipients are to trust the promise to pay of the underlying debt-issuer (in most cases, the rather reliable U.S. government).

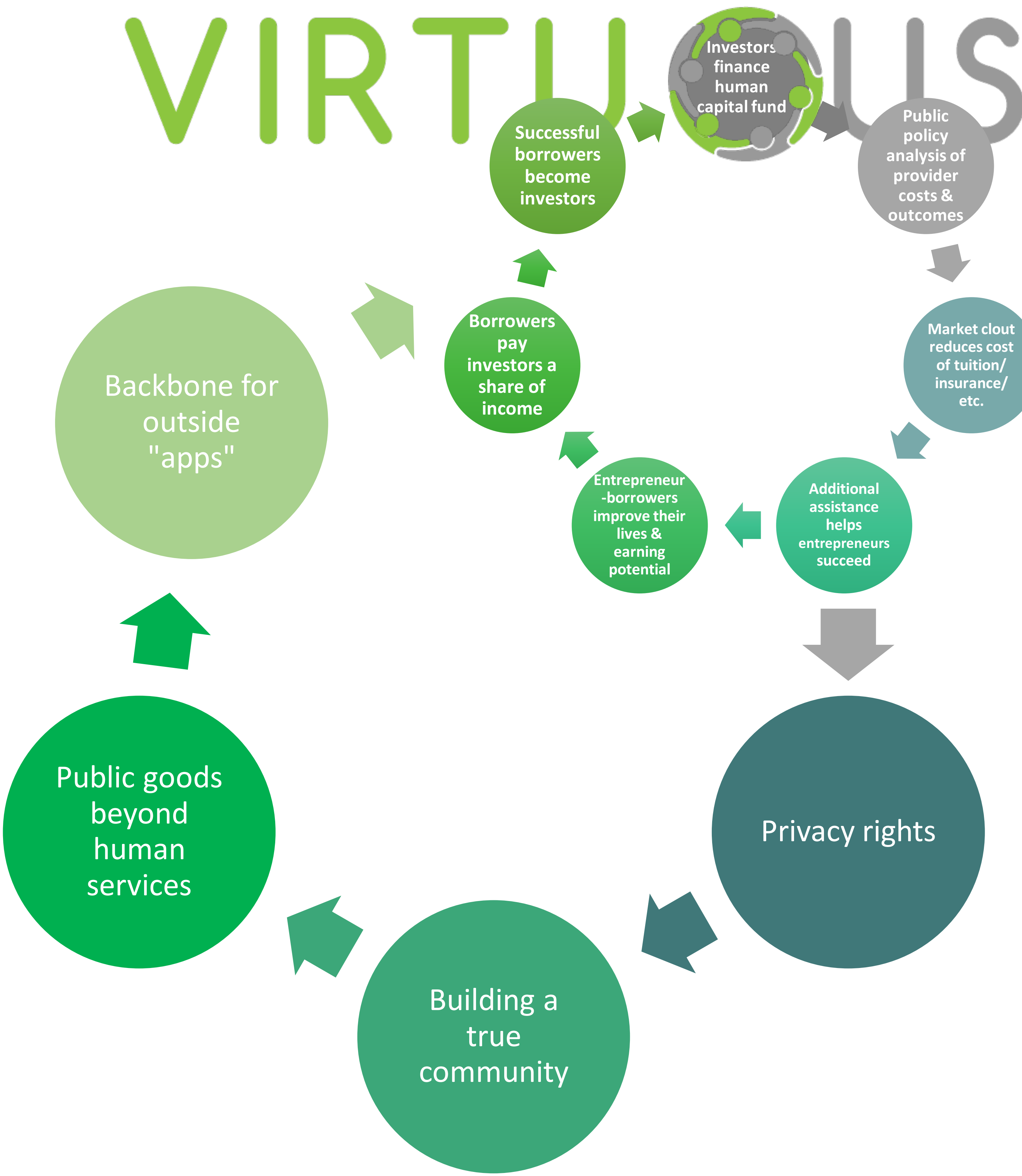
  Digital technology has made the issuance of different "currencies" more common – ranging from PayPal, arguably a form of currency, to walled-off corporate "currencies" trading within a limited economic eco-system such as "loyalty points," and even over 4,000 "cooperative currencies" in local circulation today. The cryptocurrency movement has attempted to square the circle of *requiring* an issuing authority that engenders sufficient trust in the currency's ultimate value to enable negotiability, while simultaneously *removing* any central authority that might be able to track users and their transactions, manipulate the currency's value, and other such alleged offenses of governments. Bitcoin provided an elegant, seeming solution to this problem through the development of blockchain technology; this has led to a torrent of other aspiring cryptocurrencies.

The libertarian philosophy behind this movement has led to an insistence on cryptocurrencies based on algorithms designed to remove the inflationary scenario whereby the issuer unfairly "profits" by issuing more money (thereby devaluing it). But this removes the issuer's ability to carry out one of modern governments' main functions – using the money supply to leverage the overall "real economy." While over-issuance of money can destroy value and hobble an economy, *under*-issuance can constrict an economy, make an economic contraction worse, and stall a society's ability to recover from a recession. In sum, the policies or rules governing the issuance and expansion of any currency can regulate and determine – for better or worse – the fate of any economic ecosystem that comes to rely heavily on that currency. To pretend that fixed algorithms do not do so is to ignore reality – they simply represent *de facto* adoption of the sort of fixed monetary policy advocated by economist Milton Friedman and his followers, with all the benefits that its ideological adherents claim … *and* all the liabilities.

Private currencies thus can embody the same diversity of monetary policies that fiat currencies do – and presumably they will evolve to do so, with the same results as fiat policies: Some will strike a good balance between stability of value and strength of their underlying "real" economy, and others won't. Ultimately, the former will be rewarded by the market – as now – while the latter will be punished. (Successful currency issuers, of course, reap a financial benefit in the form of "seignorage" – the "profit" from providing something that others treat as worth a lot more than what it cost to issue.) In reality, a market for governmental monetary and fiscal policy exists today, and one will exist in the future for crypto-monetary and "government business" fiscal policy. VIRTUOUS recognizes this reality and, **with its full suite of governmental-like services, policy-analytic approach and capabilities, and business plan for building a stable community centered on human-capital investment, is uniquely positioned to become a leader in building a virtual money economy on top of virtual "real" economy – instead of the other way around.**

Welcome to the 21st Century governance world.

Virtuous Circles Give Rise to Virtual Communities



VI. Blockchain & the Future of Governance

That brings us to the ultimate implications of blockchain – and VIRTUOUS.

Almost every start-up today claims, or is trying, to be a "blockchain-based business." That's a little like all the businesses that touted themselves in the 1990s as being "Internet-based": What business or industry today *isn't* Internet-based? Similarly, within a decade or so, *all* businesses and industries will be "blockchain-based." It is important to understand, however, how blockchain represents not just a new infrastructure for all activities, as the Internet has been, but, even more so, a transformative development in an age-old technology – and the "industry" around its provision – that we call "government." And how VIRTUOUS **is, and will be, at the vanguard.**

What's called "Blockchain 1.0" is the technology's original use: the basis for Bitcoin and, subsequently, numerous other such "coins." "Blockchain 2.0" is its emerging, more-widespread use as a distributed ledger allowing the tracking of all sorts of items, from physical inventories (everything from diamonds to produce) to intangible items of value (i.e., fintech). "Blockchain 3.0" constitutes its much-ballyhooed forthcoming widespread use that "will change *everything*" – which is but vaguely imagined to include government. For instance, in BLOCKCHAIN REVOLUTION,'90s Internet prophet Don Tapscott and his son, Alex, project such use cases as direct democracy and instant polls, online voting, and participatory judicial proceedings. But while it's true that blockchain could make such operations easier and more secure, all of these actually are already feasible today thanks to such cutting-edge technologies as the Internet, television, and telephones (more people voted for American Idol each week than vote for President).

Blockchain's *real* future lies in its ability to create "smart contracts," through which people can make promises that become self-executing, including (but not limited to) financial commitments through the incorporation of money itself into the blockchain (the technology's original purpose).

As digital technology becomes embedded in more aspects of daily life – the emerging, so-called "Internet Of Things" – real-world objects and facilities will become more-and-more integrated with the blockchain. For example, access to major roadways – and the "rules of the road" such as the distance between cars and rights-of-way in merges or at intersections – will be controlled by technology in the (self-driving) cars themselves, and interconnected and enforced via blockchain: Individuals who do not consent to these rules will be denied access, and the rules themselves – including collection of tolls and fines – will be self-executing, automatically carried out by the technology. **This ability to exclude "free-riders" who don't agree to the social compact, and then to enforce it, is the essence of *government*.**

Blockchain thus represents a new technology for achieving the aims of governance, and public goods provision, that have underlain political theory for 2,500 years – the advent of voluntary social contracts and virtual communities-of-choice with rules and norms and obligations and benefits that people can choose not to join and, if so, can be automatically excluded. **People, wherever they live, will be able easily to choose to join – or not – communities, systems of governance, and social contracts, for all sorts of different activities and interactions, based on their respective costs and benefits.**

This is the real future blockchain portends. And while we increasingly will use blockchain technology to create smart contracts and enforce the long-term obligations created under them, more crucially VIRTUOUS **is the first business model not simply to utilize the technology but, more so, comprehensively to embody the world blockchain will deliver**.

VII. Leadership

The VIRTUOUS team represents the perfect group to accomplish all this. The firm grows out of a nearly-30-year-old for-profit consultancy, consisting of former leaders in federal, state and local government, that developed cutting-edge, research-based public policies for government across the country. This consulting firm, Public Works LLC, was founded on the notion that governmental functions would increasingly be carried out by non-governmental entities – for-profit as well as non-profit – including the development and implementation of policymaking at the highest levels. Public Works LLC served as the “policy office” for the governors of several U.S. states and state agencies, in addition to being hired by state and local governments agencies in a majority of states to study and develop policy responses on specific subjects across a wide range of areas including health care reform, education, workforce development, environment and sustainability, and economic development. The firm also became one of the leading national consultancies on the subject of government performance and efficiency.

Founder: Eric Schnurer

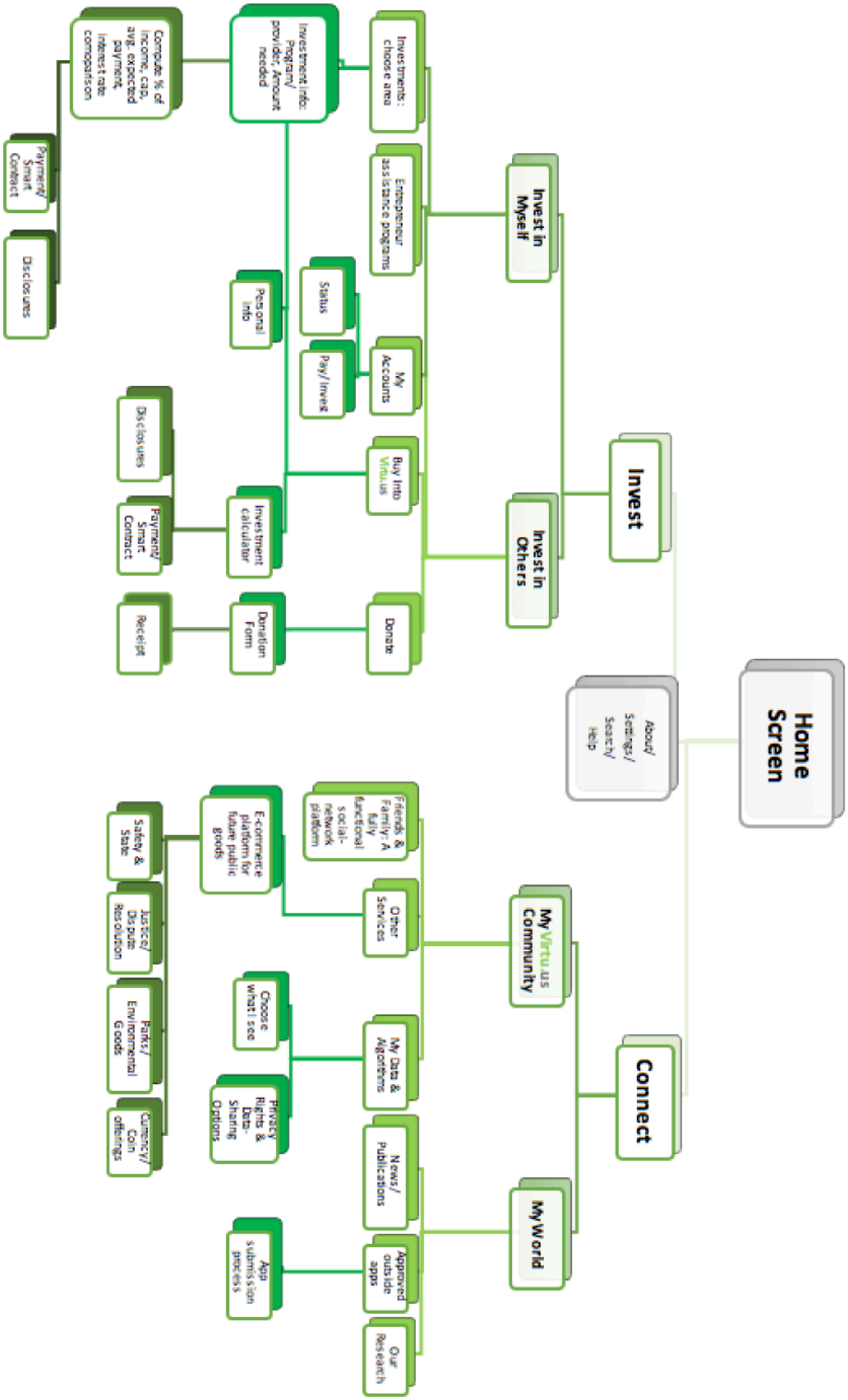
- Worked in White House, writing speeches for President Carter, while in college
- Speechwriter for a dozen presidential candidates
- A.B. Brown, M.P.P. Harvard, J.D. Columbia
- Civil rights attorney, deputy federal "special prosecutor,"
- Former gubernatorial chief-of-staff
- Policy consultant to governors, US Senators, presidential candidates
- Started successful government consultancy and sold for seven-figures
- Lecturer on public policy at U Penn, Drexel, Brown, U Chicago
- Writes on future of government for US News & World Report, The Atlantic, Aspen Institute, Foreign Affairs, StratFor, The Washington Monthly, The New Republic & CNN

The firm’s founder, Eric Schnurer, had long seen a larger picture of government functions being assumed by non-governmental entities in the face of technological changes undermining 20th Century governments. After serving as deputy general counsel of one of the largest state governments, a speechwriter or press secretary to numerous governors and US Senators, and an associate federal special prosecutor, Schnurer ultimately left government for good in 1995 after serving as a gubernatorial chief-of-staff in Pennsylvania. From all these experiences, Schnurer was by then concerned about the decline of the 20th Century welfare state – and the implications this held for the production and provision of “public goods” ranging from social welfare systems and education to public parks, public safety, and governmental regulatory structures. The founding of Public Works was a first step in meeting the challenges this posed.

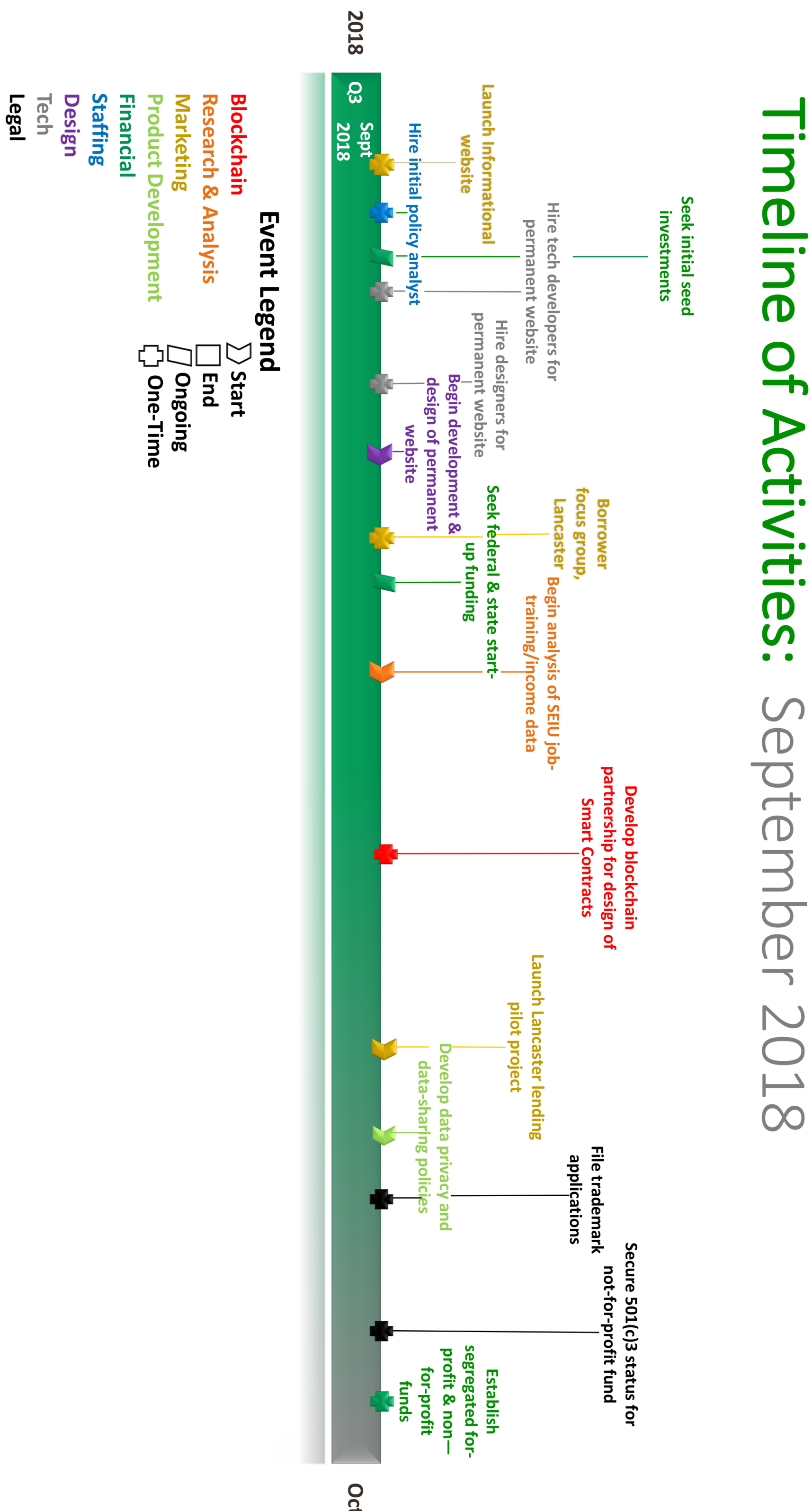
Over the course of a decade, Schnurer took Public Works from an idea to the reality of a for-profit business providing public policy leadership in states and cities across the country. He then began teaching on the broader subject of the "Future of Government" at the University of Chicago Harris School of Public Policy; and writing regularly on this topic for a wide variety of national international publications. These writings had a pretty good track record for predicting the future: Schnurer wrote almost ten years ago about party realignment resulting in a Republican party that would look rather like what it now does under Donald Trump. He warned of Vladimir Putin's war on truth and democracy in 2014. In 2015, he pointed to the rise of populist, anti-global parties and a worldwide backlash against the global economy and its leaders. He warned from early in 2016 that Hillary Clinton seriously risked losing to Trump if she didn't start making more of a case to disaffected working class voters in former manufacturing strongholds. Along the way, he wrote numerous articles for *US News*, *The Atlantic*, the Aspen Institute, *Foreign Policy* and others, laying the intellectual foundation for the founding of VIRTUOUS as a for-profit providing a wide-range of hitherto-governmental services.

In launching this new venture, Schnurer has recruited a team of over 100 individuals who have participated in planning-sessions and a series of national conferences – called the Greater Good Gathering – to turn this idea into a reality. This group includes two former governors, a former deputy White House political director, one of Foreign Policy magazine's "Top 100 Global Innovators," a career finance expert from Wall Street and Capitol Hill, award-winning social entrepreneurs, and a team of young programmers, blockchain engineers, and researchers. The day-to-day operations include chief-of-staff Betsy Mullins, a former US Cabinet agency chief-of-staff and head of the tech industry's Washington, DC, trade association; and business strategist Jennifer Reiner, an MBA who led the Pennsylvania Governor's Office of Transformation & Innovation after helping to establish a first-of-its-kind STEM-centered higher-education start-up and then launched a business start-up advisory consultancy.

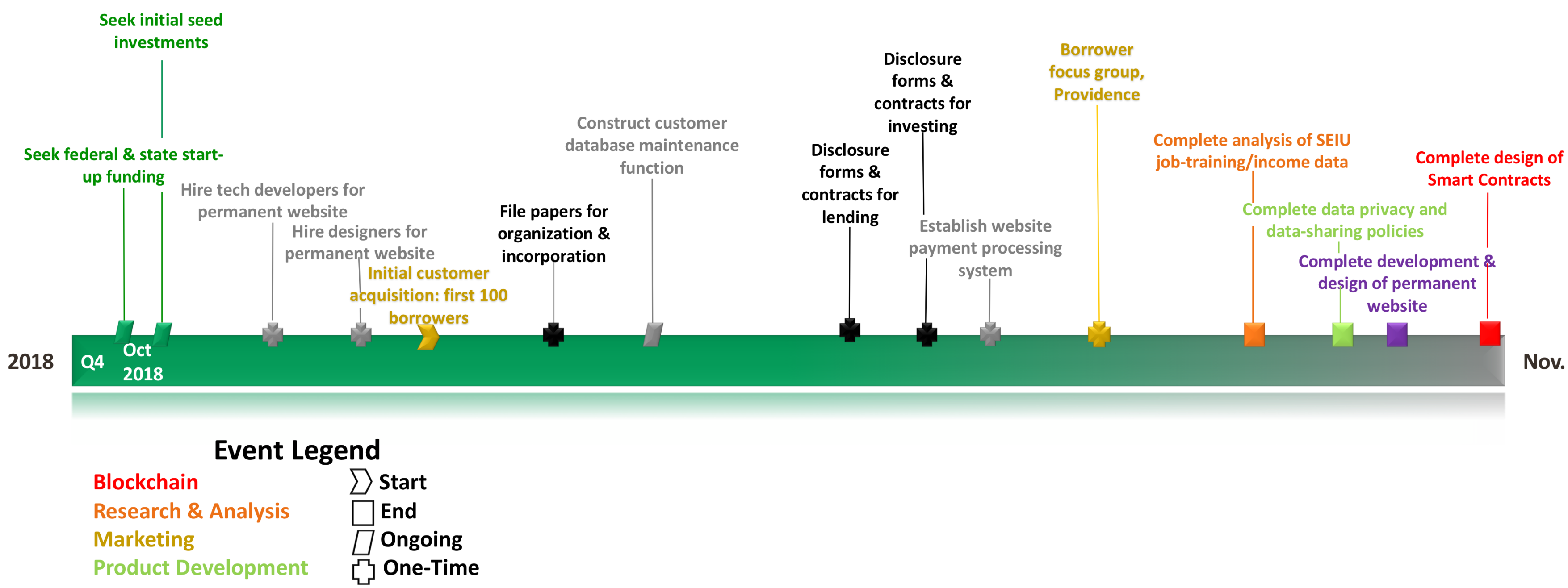
VIII. App/Website Architecture



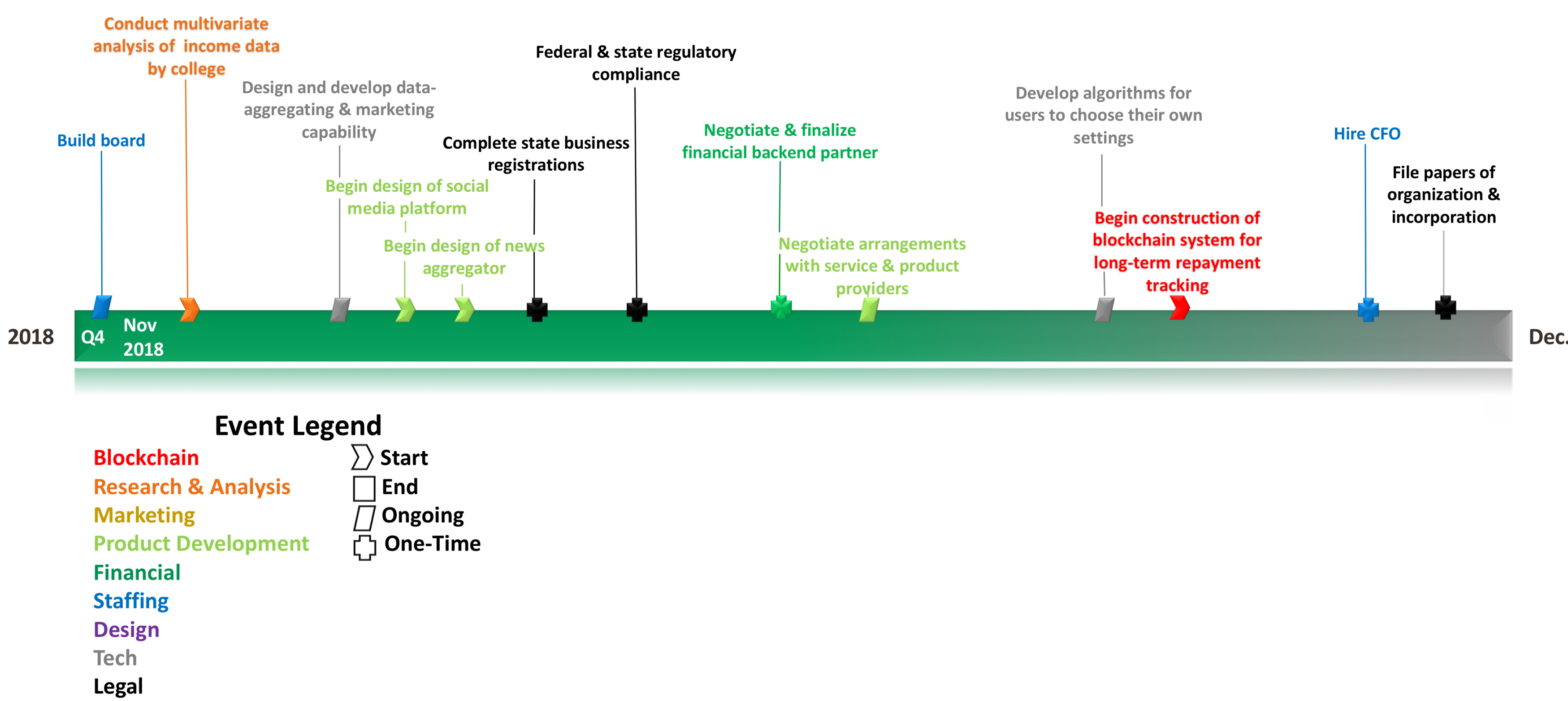
IX. Execution Plan



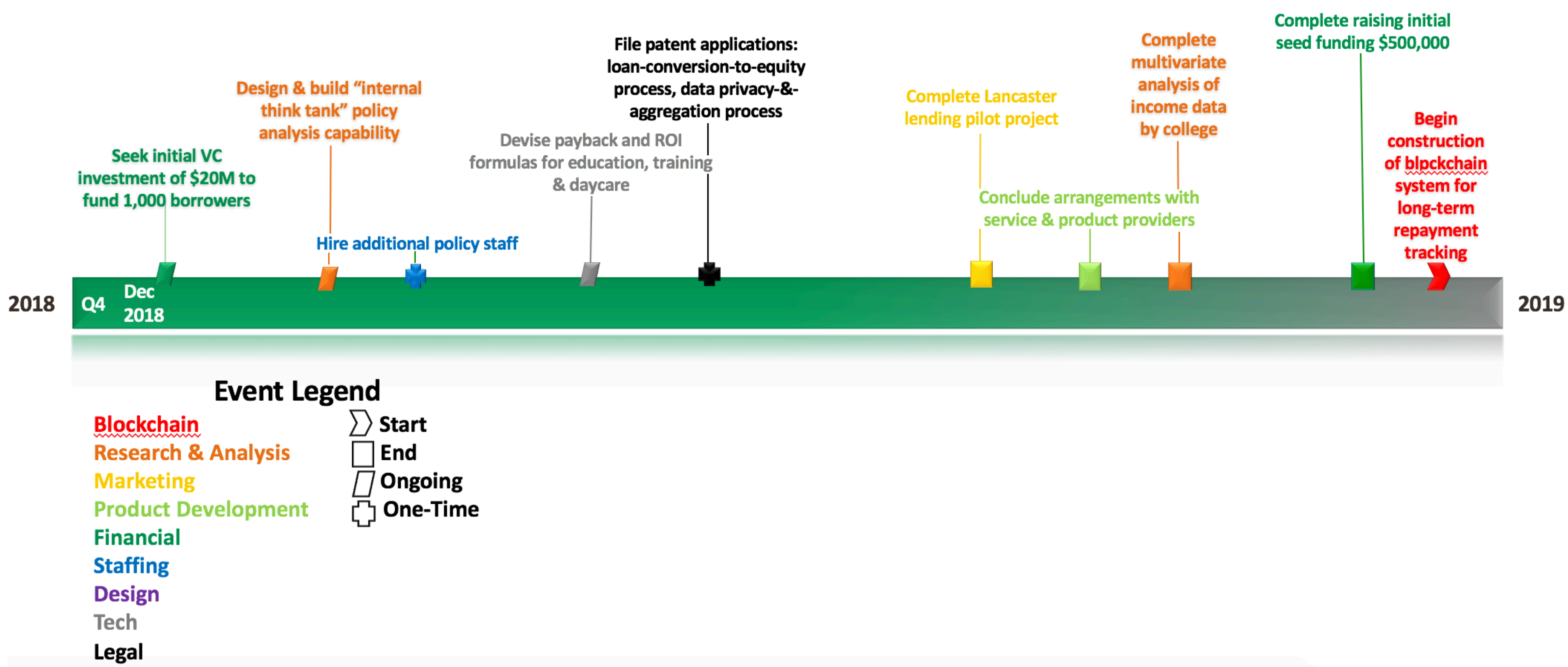
Timeline of Activities: October 2018



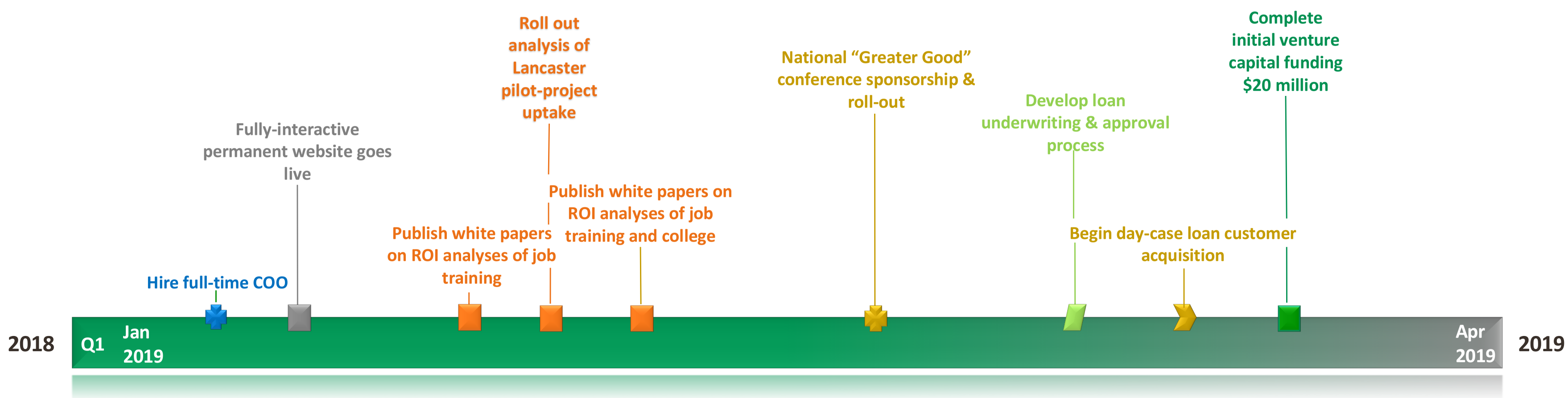
Timeline of Activities: November 2018



Timeline of Activities: December 2018



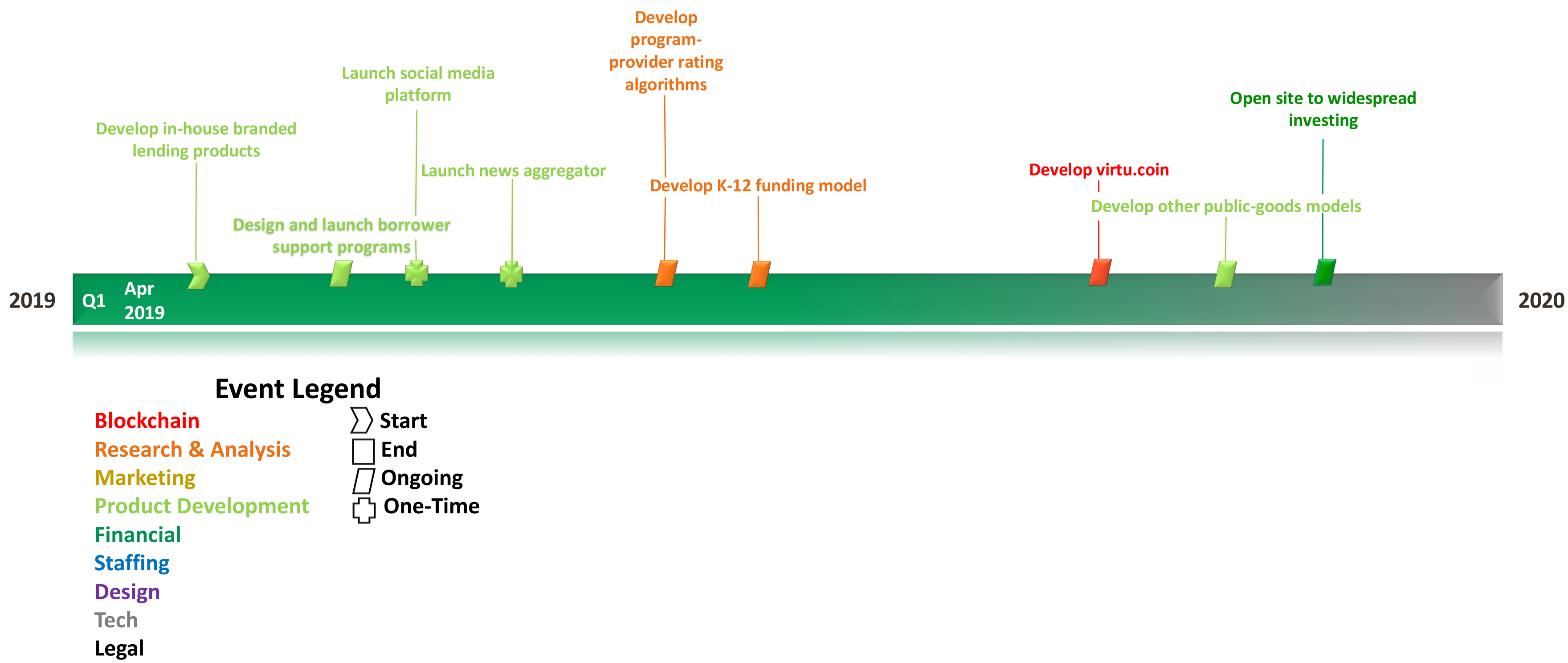
Timeline of Activities: Q1 2019



Event Legend

Blockchain	Start
Research & Analysis	End
Marketing	Ongoing
Product Development	One-Time
Financial	
Staffing	
Design	
Tech	
Legal	

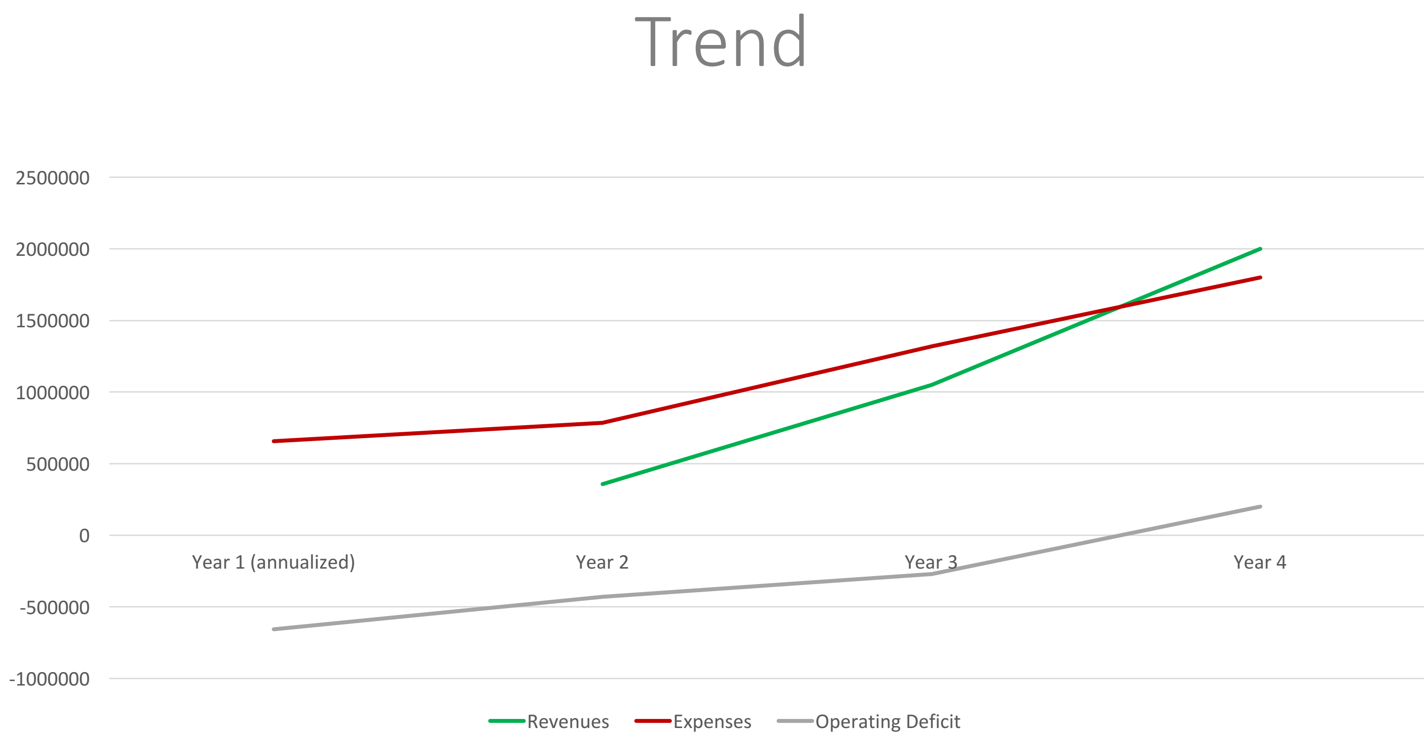
Timeline of Activities: Q2+ 2019



X. Financial Projections

VIRTUOUS is conducting pilot projects and detailed cost/benefit research throughout Fall 2018, and aims to launch a fully accessible public "app" in early 2019. We require roughly $250,000, for tech and design work, policy analysis and underwriting, and legal/regulatory filings, in order to achieve initial launch.

	2018 (4 mos.)	2019	2020
EXPENSES	**$219,555**	**$785,333**	**$1,320,000**
Personnel (incl. taxes & benefits)	**$170,555**	**$703,333**	**$1,170,000**
CEO (full-time)	$16,667	$100,000	$150,000
CFO (part-time)	$11,111	$66,667	$66,667
Research	$14,444	$53,333	$170,000
Actuary/Modeling	$30,000	$100,000	$250,000
Programming/Engineering	$53,333	$213,333	$213,333
Blockchain Design	$10,000	$100,000	$200,000
Website Design/Construction	$10,000	$20,000	$20,000
Attorneys	$25,000	$50,000	$100,000
Operations	**$49,000**	**$85,000**	**$150,000**
Registration/Compliance	$25,000	$25,000	$25,000
Advertising/Promotion	$12,000	$25,000	$25,000
Travel	$6,000	$20,000	$50,000
Overhead/Rent/Utilities	$6,000	$15,000	$50,000
CAPITAL			
Investments		**$6,800,000**	**$13,200,000**
REVENUES			
Return on Loans	**–**	**$357,000**	**$1,050,000**
NET OPERATING LOSS	**$219,555 (annualized = $656,665)**	**$428,333**	**$270,000**



Trend
2500000
2000000
1500000
1000000
500000
0
-500000
-1000000
Year 1 (annualized)
Year 2
Year 3
Year 4
Revenues
Expenses
Operating Deficit

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[18] Highly Qualified Investors are defined by federal Securities and Exchange Commission regulations. Roughly speaking, these are individuals who can show that they regularly attain incomes over $200,000 per year or have net wealth above $1 million. http://www.sec.gov/answers/accred.htm.
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