



**URBANTECH
STARTUP
PLAYBOOK**

Urbantech Startup Playbook Version 2.0

Over the last four years, Urban Us has met with hundreds of founders building startups to solve urban problems. Along the way, we've found that startups in this field have some unique challenges, so we decided to create a playbook just for urbantech startup founders.

Often, the innovative ideas of the founders we meet are held back by commonly accepted beliefs like:

- "It's too difficult to work with local governments."
- "Sales cycles are really tough in [fill in the key city sector]."
- "Hardware is too hard."

These are reasonable responses but despite all of these difficulties, it's possible to build successful urbantech startups that deliver both public benefits and competitive venture returns.

We can't make startups easy, but we believe that following this playbook will increase your chances of building a successful urbantech startup and ultimately re-imagining city life.

Table of Contents

[Better Cities](#)

[Public Benefits](#)

[Making Money](#)

[Hardware Business Models](#)

[Selling to Consumers and Businesses](#)

[Working with Regulators](#)

[Your Extended Team](#)

[Corporate Partners](#)

[Fundraising](#)

[Urban Us Investment Memos](#)

[Investment Memo - Bowery Farming](#)

[Investment Memo - BRCK](#)

[Investment Memo - One Wheel \(Future Motion\)](#)

[Investment Memo - Remix](#)

[Investment Memo - Seamlessdocs](#)

[Investment Memos - Starcity](#)

[Thanks](#)

[More](#)

Better Cities

At Urban Us, one of the first question we ask when we evaluate new startups is “How will your idea make cities better?” Interpretations of what it means to make cities better may vary, but in order to align resources to your cause, it is critical that your startup has a clear benefit to multiple city stakeholders. Whether the distribution channel for your solutions is government, businesses, or consumers, a successful urbantech startup will ideally serve cities, citizens, and the environment.

Our next question is, “Can you grow to 100 cities in five years?” It’s unlikely you’ll know exactly how this will happen, but the goal is to determine whether the problem your startup is solving exists for people or organizations across multiple cities. This will also help you answer a question you will get from prospective investors and teammates: *How big is the market?*

“Cellular phones will absolutely not replace local wire systems.”

- Marty Cooper, credited with inventing the cell phone at Motorola in 1981

Predicting scale is never easy

So why bother figuring this out early? Because, for many investors and employees, the potential size of an opportunity is an important measure of whether it will be worth spending time to learn more about the idea and, eventually, to invest. They know startups are hard in both large and small markets, so why not focus on the biggest opportunities?

Next, we ask, “How easily might this idea be replicated?” Some ideas become more difficult to copy as they grow, but in general, as your startup grows, more competition is likely to appear. Brand awareness, economies of scale, and high switching costs might slow down competitors, but it also helps to get a head start. If you’re working on an obvious problem, there are likely others working on solutions, too. And even if you’re working on a problem that is not

as obvious, or in a “boring” market (as many urbantech startups tend to do), others will become interested in replicating any success you build over time.

Competition won’t just come from incumbents and other startups. Your potential customers might be tempted to keep doing what they’ve been doing, including nothing. Some may decide to build their own solutions.

You can’t depend on old adages like “hardware is hard” to protect your idea. Hardware is becoming less hard thanks to easier access to regions rich with manufacturing resources and better distribution of best practices. Most advantages in software and UX/UI are replicable, and though machine learning may give you an edge, algorithms are quickly becoming commoditized. Networks and industry insights are easier than ever to access and build.

What’s really hard to replicate are unique insights, proprietary datasets, distribution and brand. Whether your customers are consumers, businesses, or cities, we’re seeing winners break out by delivering on promises and exceeding expectations. Understanding your customer, being responsive, and shipping a great product remains rare but justly rewarded.

We also ask, “Why do you want to work on this idea?” Or, to put it another way, why do you want to make cities better? All startups are hard, but urbantech startups often include additional challenges. Your answer to this question will impact many things, including what support you can expect from advisors, what types of people will want to join your team, and even how you interact with regulators. Too often we see founders enamored with a piece of technology instead of focusing on the problem they hope to solve. We prefer the latter group.

A note on demos:

Some customers need to experience a product to be convinced of the product’s value. They need to test-drive it or see ratings or reviews from people they know. This is why great demos and prototypes can be so critical. They may not answer questions about how a product or experience will be delivered at scale, but before you worry about how to serve an entire market, it’s important to verify that someone wants what you’re making.

For business and government customers, the problem you're working on is often one they've been living with and understand very well. If you are able to demonstrate how you can deliver a faster, better, or cheaper solution, they'll be able to give you a sense of their interest. Ideally, they'll demand to be first in line to buy it when it's available!

Public Benefits

All great startups make something people love, but we believe the best startups also do something else: They create public benefits. We're always interested in understanding how urbantech startups might generate these benefits, and we think they are well-positioned to do so because so many problems in cities are a consequence of old technologies.

Old technologies helped cities scale to deliver the opportunities we see today, but many are no longer up to the task of delivering what we need. We need more benefits without all of the negative consequences, like electricity without global warming or rapid, comfortable mobility without risk of injury.

Can your startup help reduce greenhouse gas emissions? Cities are already responsible for 70 percent of emissions, and that number is expected to grow as city populations continue to grow around the globe. As this [very detailed chart on energy use in the U.S. shows](#), a lot of energy-intensive activities relate to city life.

Density is what draws people to cities. It creates opportunity, but it also comes with downsides such as traffic, crime, and poor air quality. Startups are positioned to help provide public benefits in these areas.

Investors often ask if it's possible to provide great investor returns while also creating public benefits. Some believe if the public is benefiting for "free" then the business is not using the right business model or charging correctly for its product. This is not what we've found.

Public benefits can help in recruiting the best talent and customers while helping to win over regulators to your cause. For example, the most talented engineers know they will be paid well no matter where they work, but there are fewer opportunities for them to work on something that also has a positive public impact. Later, we'll discuss other stakeholders, such as advisors and regulators, and explain why public benefits matter to these people, too.

Most importantly, when you create public benefits, you make your team stronger. Most startups will face existential challenges, and we've found that a focus on public benefits can keep teams motivated in ways that money alone does not do.

Making Money

Early on, your main goal is to figure out if you have a business. In simple terms, this means you eventually need to figure out how to have less cash going out than you have coming in. As consumers, we're exposed to a wide variety of strategies for viable business. Think about all the ways you can access cars, such as buying, leasing, financing, renting, sharing, or hailing. In some cases we pay for products as we consume them, as with food, gas, or haircuts. We also pay monthly subscriptions to access services such as mobile networks, music libraries, or insurance.

The transaction-focused business is quite easy to model. There is the cost to provide the product or service and there is the cost to acquire customers (and often also to provide support to make sure they're having a great experience). You can determine whether the business makes sense if your customers pay you more than what it costs you to make the product or deliver the service.

Subscriptions are a bit more complex, as there are more questions to answer. Will an annual subscription cover all of your costs? How many months would it take until you begin to receive more cash than you've paid out to provide the service and acquire the customer?

We also need a different type of analysis to estimate the value of customers overtime. Lifetime value (LTV) refers to how much you expect customers to spend with you in total. If they are subscribers, you can think about this as the number of months that they are customers multiplied by the price of the monthly subscription. If you sell a product, you might think about how many times they might upgrade to new products.

Your ability to make money depends on understanding not just how much you will make but also when cash will flow in and out of your business. Simple models can help you think through different sales, marketing, and pricing strategies and also reveal the costs of unhappy customers. [David Skok](#) of Matrix Partners offers many great benchmarks and metrics to

understand the dynamics of cash flows for software-as-a-service (SaaS), and those benchmarks are broadly useful for businesses of all types to think about.

Hardware Business Models

Hardware startups scare many investors. Hardware adds additional risk dimensions, including suppliers, manufacturers, and distributors. Hardware also tends to require more equity capital because early-stage startups are too risky to work with traditional lenders to help fund initial production.

A good amount of hardware risk comes from failing to understand how business models can change when hardware is connected to the internet. Connected hardware unlocks new customer relationships and proprietary data, as well as actuators, consumables, and services. Put another way, it presents opportunities to increase the lifetime value of customers.

Tesla redefined the relationship between car owners and manufacturers. Before Tesla, you had to drive into a dealership so they could learn about your car. For Tesla, connecting their cars over the internet means they can update software to improve performance and add features. It also means they can provide better levels of support because they can see problems before customers can. And it means they can learn from all of their customers by collecting proprietary data to train algorithms.

Proprietary data is at the heart of many successful AI applications. Some of this data comes from humans, but a growing portion of it comes from sensors embedded in things ranging from cars to irrigation systems. Hardware, specifically sensors, can play an essential role in unlocking the data to drive new algorithms.

Hardware can also enable mini retail outlets. Much like ink for printers or water filters for refrigerators, connected hardware doesn't just allow direct interaction with customers; it also facilitates ongoing revenue from consumables — the things that are used up in delivering the service provided by hardware.

Finally, as noted, hardware can unlock new types of services. Rather than waiting for something to go wrong, professionals can be notified to inspect or replace parts and avoid service interruptions and potential for additional costs.

Selling to Consumers and Businesses

In 1884 P. T. Barnum led 21 elephants over the Brooklyn Bridge to prove that it was stable. Today, in the face of doubt about new technology, we might create a live stream of PT Barnum's elephants. Risking life and limb on a cable supported bridge would be deserving of a Red Bull sponsorship! It's a useful reminder of the constant need to show what is possible long after we might be comfortable with the idea.

There is a lot of existing guidance on understanding and finding consumers and business customers, which we won't repeat here. One thing we will note is that your messaging about public benefits is something that must be tested. We often meet founders who assume that people care a lot about public benefits such as emissions reduction. While many consumers do care, that doesn't mean those benefits will be their motivating factor in buying from you.

We've found that customers are motivated by comfort, savings, fun, and many other factors. Public benefits may be a very pleasant afterthought for them, and that's not a problem. Whatever the motivation for their purchase, the aligned goal is to get more of your solution out into the world. This is why we encourage founders to be okay with sneaking public benefits into their products or services.

Having clear public benefits frequently means that there will be multiple different organizations or individuals who benefit from what you're building. This usually means you will be able to choose between different potential first customers.

For example, [Rachio](#) began by focusing on how to save water by creating a smart irrigation controller. When they began, municipal water systems could understand the potential benefits of their product, but it was hard to deploy enough devices to demonstrate those benefits. Ultimately the team at Rachio was able to convince consumers of the benefits from control, savings, and even a whole new category of pranks (such as spraying squirrels or kids in the

yard). After a few years, Rachio deployed enough devices that they no longer have to prove their product's efficacy to water utilities.

Another example is [1concern](#), which models risk associated with earthquakes and water. Insurance companies are interested in these models, as are first responders, real estate owners, and citizens. 1concern opted to work with local governments and first responders, in spite of a longer sales cycle. Not only can first responders use the models to save lives, they can also help to make the models better in real time. Though, 1concern chose to begin there, they'll have other opportunities to work with businesses and consumers in the future.

Selling to Local Governments

Like hardware startups, there are few things that scare investors as much as business-to-government (B2G) sales. Some investors have had poor experiences, watching their companies struggle to navigate procurement, long sales cycles, and poor transparency in the sales process. Other investors simply don't have any experience with B2G as a business model and would prefer to stick to business-to-consumer (B2C) and/or business-to-business (B2B) models.

A typical local government request for proposal (RFP) can take 365–730 days! How will your sales strategy cope with this? If you are a software company, it's possible to price in a way that allows you to bypass the RFP process by tapping into discretionary spending budgets, where sales cycles can be about 90 days. It's an effective initial growth strategy, but then what?

It surprises founders when we tell them that we have a few teams who have succeeded, as seed stage companies, in winning RFPs with local governments. In most cases, the process has taken well over a year, but being able to close what are usually \$1m+ deals can be enough to get another, larger funding round done.

The RFP process differs from enterprise sales in other ways. In some competitive segments of government services there might be analyst publications that provide clear maps of the relative competitive positions in that space. In the B2G space, there is detailed data available about who is selling to local governments, including the name of companies as well as contract values. This is helpful from a competitive perspective, but also offers the potential to discover possible partners. Partnerships are another way to reduce the risk of RFPs and learn more about the process.

Working with Regulators

Even when you aren't selling to city government, it's necessary to be mindful of regulations. Much like other aspects of "[schlep blindness](#)" (that is, the tediousness of certain tasks that prevents people from recognizing startup opportunities), the thought of having to get multiple legal opinions isn't very appealing to most founders. It's much more interesting to build something and work with customers. But avoiding this for too long, or assuming you can "ask for forgiveness" later, is not a good long-term strategy.

At a minimum, it's necessary to understand regulations so that you can design your business to avoid regulatory risk. Things get more interesting when you are part of completely new ecosystems. We've worked with teams that have helped define how drones operate on construction sites and others who've helped lobby for changes in what types of personal electric vehicles are allowed on streets in California.

Time and money are resources that most early-stage startups just don't have in abundance. Working with regulators can be like adding another complex sales or business development process, so it's important to figure out when you should invest the time. We urge teams to get products into the world and ensure they have very happy customers. Why? Happy customers are a reason for regulators to begin dialog because they show that some part of the public is getting value from what you do. This makes it less likely that regulators will simply ask you to stop doing what you're doing.

This is also where public benefits can be helpful. Being able to go beyond customers and show broader benefits to other stakeholders will provide further incentive for regulators to work with you and to adjust regulations that will ensure that you can operate within the law.

Your Extended Team

Low-frequency decisions can pose a greater risk for startups because there isn't enough time to learn from them. Take fundraising, for example: If you do this poorly the first time, it can be hard to learn and adjust. This is different from high-frequency decisions, such as testing a landing page, where feedback is available within days or weeks.

Thus, for low-frequency decisions, it's especially helpful to learn from other people's experience — and they need not be full-time team members. Your investors, advisors, and customers are extensions of your team.

Some investors specialize and have deep experience and great networks within specific industries relevant to urbantech, such as real estate, energy, water, or local government. These investors can offer feedback on the structure of the ecosystem in which you're working and help you to identify prospective corporate partners or customers who are well regarded in their industries (for future referrals). They can also make introductions to founders, who are usually the very best advisors because they've recently had to confront similar challenges.

Early customers are essential to successful product development, but they also do a lot more. Like investors, they can offer feedback on sales, pricing, and even prospective partnerships. And they can be especially important in initial referrals (the best way to find new customers). We've seen successful founders go to work with customers on construction sites, in police cars, and in their kitchens. The best customers care deeply about what they do and can be very generous when they meet people with a similar passion for what they're working on.

Corporate Partners

Many startup founders have wasted considerable time and energy trying to work with large corporate partners, so there are some very good arguments in favor of avoiding these conversations early on. But there are two advantages that a well-aligned corporate partner might bring to the table: infrastructure and distribution.

Early-stage corporate VC has grown, meaning there are more people who understand early-stage startup needs as well as large operating groups within corporates. More companies now have programs that are explicitly designed to make it easier to work with large firms, much like APIs have made it easier to quickly leverage an array of services. Corporate VC objectives generally include access to solutions, technology partnerships, and acquisitions. They are also increasingly prioritizing returns.

It's important to understand the motivation of the corporate partners with whom you are engaging. It's very rare that they are motivated by a desire to hijack your intellectual property, as some startups fear, but conflicts may arise and should be discussed early. There are many risks in working with a much larger partner, but the biggest risk is wasting time and money. Make sure you understand how much risk you are exposed to, and that you aren't risking the death of your company.

Fundraising

“Learning to tell a story is critically important because that’s how the money works. The money flows as a function of the story.”

- Don Valentine, one of the first investors in Apple, Atari, Cisco, Oracle, and EA

It’s hard to overstate how important storytelling is.

A lot of people can describe what “happily ever after” looks like. And investors happily share their ideal version of it. However, it’s much harder to explain how you get there. What do you need to do in the next 12 months? Why is the time right? It’s so easy to be too early or too late. The best urbantech stories sound like science fiction that is on an inevitable track to becoming science fact.

Try to understand how VCs think about investments. Early-stage VC portfolios aren’t like other investment portfolios you may have seen. They expect most of their investments to perform poorly — maybe they fail completely or return the original investment after a few years. So why would you want to be a VC? Well, just one company in 20 can pay for all of the failures. This is why VCs obsess over how big companies might be and how fast they can grow. Fred Wilson of Union Square Ventures has a [great description of fund economics](#) that shows VC math.

It’s important to know who you’re talking to. Some investors (like Urban Us) are interested in public benefits, which they believe help to create valuable companies. Other investors believe that public benefits mean shareholders will get less. They think of public benefits as an unnecessary additional cost to businesses, like a tax, as opposed to something that attracts better talent or builds relationships with regulators.

Investors who are interested in public benefits will also be concerned about the potential size of the business. For example, as we mentioned in the first section of this playbook, we ask how startups might impact 100 cities within five years. Impact might mean reduction in greenhouse gas emissions or it might mean new units of affordable housing etc. Alongside potential annual

revenue, we're looking for impact metrics to give us a sense of what might happen if your company succeeds.

As mentioned earlier, corporate investors are also becoming more important. They care about financial returns and sometimes public benefits as well. But they also have other priorities. They may be looking for prospective customers or partners (like developers to build on an emerging platform). More and more corporate investors are ultimately looking to relationships that have the potential to lead to acquisitions. This has been true for a while at the largest tech firms, but now "non-tech" firms are employing the same strategy to augment their own efforts to develop new products.

Each type of investor can help in different ways, and has different networks. Classic VCs have a deep understanding of how to raise money and access talent to grow. Corporate investors often have access to critical partners, platforms, and customers. Impact investors are often focused on specific issues or ecosystems, so they tend to combine some of the capabilities of both corporate and classic VCs.

An emerging category of investors is "crowds." The first generation of crowds was popularized via platforms like angel.co, which has allowed investors to easily organize investment syndicates of up to 99 other investors. More recently, initial coin offerings (ICOs), which use cryptocurrencies such as Bitcoin, have appeared to offer another path to quickly and efficiently access large groups of investors. However, as regulators move to clarify how ICOs fit into the current legal framework for selling equity, it is becoming clear that this is not an easy alternative to traditional venture capital. Successful ICOs have a lot in common with successful seed-stage raises, but their communications process is much more public.

It's important to remember that investors can also do harm. Understand what other investments they've made and talk with other founders they've worked with. You'll be tempted to wrap up funding so you can get back to building your business, but working with a bad investor is like a bad hiring decision: It's not just that you may not get the help you need; you

might also be encouraged to do things that are not useful. And this will upset better investors, who may choose to invest their time elsewhere.

There is a lot more to fundraising, including valuations, types of offerings, and decks. Y Combinator has one of the best track records in helping companies raise seed funding; we recommend reading [their how-to guide](#).

Building Trust

Trust is critical to fundraising. Investors may ask questions such as: What school did you go to? What companies have you worked for? Who are your customers? What are your customers saying about you? Are your customers happy? Who have you persuaded to join your team? Who else is investing? All of these questions reveal things about who already trusts you and whether new investors can trust you to deliver on your promises.

Trust also fuels growth. Founders rely on introductions to prospective customers, employees, investors, lawyers, press, etc. Introductions require people to use trusted relationships to transfer some trust to the founders. Some of these new relationships will deliver immediate results, but most will still require that trust be built.

Mark Suster of Upfront Ventures explained how he invests in “[lines, not dots.](#)” While he talks about progress, we think he’s also talking about building trust. Each dot represents an interaction, which might be a meeting or an update or an experience with a product or service. Not all of these interactions will be great, but the important thing is that through multiple interactions, a trend of (mostly) unbroken promises begins to develop.

Traction is a good proxy for trust. Creating great products and services remains one of the best ways to build trust. There is nothing for the team to do or say; the experiences speak for themselves. At the same time, it’s easy to forget that successful experiences aren’t just about the product — they often benefit from great customer support that ensures that customers get the most from the products. Sometimes product issues are an ideal opportunity to let people interact with the team, and these interactions can be just the thing to build trust.

Even so, traction alone isn’t a true indicator of trust. If older customers begin to leave even as new customers join, that may mean promises aren’t being kept. Maybe too much is being promised. Perhaps the product isn’t delivering. Maybe customers aren’t getting the

handholding they need to succeed. Churn is one of the most underrated metrics, since it's often an indicator of loss of trust.

Startups need to understand how to build trust, but they also need to understand how trust impacts the organizations they depend on, such as venture funds, corporations, regulators, and the media. Trust in traditional media and social media is declining, even as trust in search engines (algorithms) and online-only news outlets is increasing. Interestingly, trust in owned media (content produced by startups instead of media outlets) has also increased.

Perhaps the most notable data is that peers are now as trusted as academic and technical experts. Peers are twice as trusted as CEOs and significantly more trusted than employees. It's not clear where VCs might sit, but the very best ones are likely still some of the most trusted referrals. However, introductions and referrals from happy customers have never been more valuable.

Urban Us Investment Memos

At Urban Us, we create investment memos to share with people in the Urban Us network. The goal is to explain why we're thinking about investing and ask for feedback to check our thinking. Each one is a little different because when we began in 2014, they were short emails and today they've evolved into more specific evaluations of teams, impact, approach, competition and risks. We hope these will help clarify some of the ideas in the playbook.

Investment Memo - Bowery Farming

September 8, 2015

We've been trying to make sense of cities and food since we started Urban.Us. We've explored logistics components, but we're convinced that all the elements of urban farming are aligned to compete with traditional farms.

We're excited about another company we've come across. It has opted to remain in stealth mode, because there has been a dramatic increase in visibility of various urban indoor farming projects over the last 12 months.

So, to understand the space, we'll follow a slightly different introduction format. We'll lay out our assumptions and ask you to tell us where we're going wrong. And to help us understand the space in more detail, we'd love pointers to research or existing companies to analyze.

Potential impact

The sustained drought in California is a constant reminder of uncertainty related to weather. And yet, our current food supply is completely dependent on the weather. Sure we can rely on genetically modified corn to endure harsher environments, but what other strategies can we consider? The most notable opportunity appears to be... ignore the weather (or seasons, for that matter).

Initial results from indoor farming include more than 90% reduction in water use, and growth times that are two and a half times faster than those of traditional outdoor farms. Then there is the ability to produce organically—that is, without the use of pesticides.

What about cost?

The biggest issue facing indoor farming has been cost inputs, including energy and labor. This

matters less for high-priced crops like marijuana, but becomes more pronounced when you look at a crop like lettuce.

LEDs are transforming the energy equation for indoor farms. As their cost drops and efficiency improves, they're a significant driver for the economics of indoor farming.

The other part of the equation is labor. While immigration and minimum wage debates probably help keep labor costs artificially low, larger-scale automation (think Tesla or a semiconductor plant) looks set to introduce a new level of efficiencies to drive down manufacturing costs.

Transport costs

It's not so much the direct costs as the consequences that add up. First, there is the issue of emissions. It's much easier to convert an indoor farm to renewables than it is to convert fleets of trucks and aeroplanes. Then there is the penalties paid by the food itself. It has to be selected not for taste or nutrition, but for resilience to transport.

Bigger than Uber vs the TLC

Uber has become a great example of a technology firm running into entrenched interests. We expect that, as it scales, urban farming will run into the full force of entrenched interest surrounding the farming business, from seed designers to equipment vendors. This is never a reason for us to avoid a company or a space, but it's simply worth noting.

In Summary

We think that food production is going to look more and more like semiconductor manufacturing—increasingly automated environments that steadily help to drive down the costs of production and reducing weather risks. Siting these new farms near their point of

consumption will help reduce waste and emissions, and provide new flexibility when food is not optimized for transport. While we expect a battle with traditional farming, as this model is proved out, it's not a reason to shy away from the opportunity.

We'd love to understand your perspective so we can be smarter about finding the most promising opportunity for impact.

More: www.boweryfarming.com

Investment Memo - BRCK

December 18, 2013

This is the team behind www.ushahidi.com, so I tend to believe they can do anything (only half kidding).

I believe BRCKs solve a few important problems. For developing countries, stabilizing access via redundant power and connectivity is valuable. This is the teams own use case in Nairobi. What percent of the worlds cities experience shaky power and connectivity? What are people willing to pay to avoid disruptions? I'm not sure this is easy to nail down.

But I could also see a role for this in developed cities, particularly as emergency devices. In fact, Ushahidi is already a key tool in any crisis area, so this should be an easy extension and they already have positive signals from folks who work in these environments.

And I suspect folks walking into an Apple store would might be intrigued by the idea of having one device designed in California and another designed in Nairobi.

More: www.brck.com

Investment Memo - One Wheel (Future Motion)

June 28, 2014

Future Motion aims to revolutionize mobility with personal electric vehicles. Their first offering is the closest thing yet to a hoverboard. You need to see it before reading on –

<http://vimeo.com/84071364>

Lets begin with why this is not a Segway because this seems to have come up in every conversation I've had about Onewheel. @Kyle pointed me to a Paul Graham post which captures one of Segway's biggest issue very well – <http://www.paulgraham.com/segway.html>.

Beyond what people thought of you as a rider, it had some other challenges. It was introduced at a time when there was no infrastructure to support it – there were no bike lanes, so you were a threat to pedestrians or threatened by cars. Today, longboarders and skateboards share bike lanes with bicycles (and sadly, often delivery vehicles). And because they weren't able to reach meaningful volumes with gen1 Segway, the price never came down.

Onewheel is approaching the opportunity differently. First, the team has had a good response from the board sports community. Certainly a good path to cultural acceptance (and hopefully adoration). Like Tesla's sports car loving Roadster buyers who were willing to pay for the first version, this seems like a great community of early supporters. And again like Tesla, with the early learnings from this group, Future Motion can figure out their Model S and Model X to eventually make Onewheel technologies available to a large number of buyers in cities around the world.

The second thing that is of interest is the architecture. If you think about electric bikes, their economics are also defined by batteries, motors and controllers, but Onewheel's architecture means there is little more in the bill of materials. So the architecture has a real shot at being much cheaper than most ebikes. And this is what makes us believe that if Onewheel eventually has a shot at disrupting the last miles of urban mobility.

Finally, it seems like the time is much better to support a revolutionary mobility push. Bike lanes provide the space. Protective gear exists from biking and boarding and social web means it's just a matter of time before we see insane Onewheel videos. And there push for clean last mile mobility has never been stronger.

Also, there is no reason why we shouldn't have a lot more fun on commutes. Please help us in welcoming Kyle.

More: www.onewheel.com

Investment Memo - Remix

November 6, 2014

Impact Opportunity

Public transit has been an essential part of what makes cities work. Efficiently moving large numbers of people impacts everything from access to opportunities to environmental impact.

The problem is that while we have elaborate computer aided design tools to design bus shelters, we're stuck using whiteboards and excel to design the actual transit system. Transitmix is solving this by building tools that make it easy to propose, understand and implement transit system changes.

The Problem

It's estimated that city populations will grow 30% in the next 15 years. Public transit is already failing to meet existing demand and can't adapt quickly to changing populations.

It takes years for transit agencies to make changes to their routes and overall networks. It's hard enough to do that small agencies don't make changes for decades.

Why? In short, there are no tools to model proposed changes and understand impact ranging from budget and service levels to compliance and policy impacts.

The state of the art for transit planning is often a combination of Excel and whiteboards.

Solution

Transitmix makes simulation tools (which you can try here) to enable planners to dramatically cut time to model and understand proposed changes, enabling large and small agencies to make decisions in weeks.

In effect, this lets transit planners move from Excel and whiteboards to something that feels a

lot more like Sim City. This has many implications. First, it's easier to understand and share new proposals with stakeholders. Second, it's easier to understand budget and quality of service impacts.

Market

Annual operating budget for mass transit in the US is \$60b (source: National Transit Database). And this number grew by 10% over the last decade, when adjusted for inflation.

As a point of reference, one of the largest incumbent software providers, Trapeze Group is \$300m a year business.

Competitive Space

Direct

Much of the incumbent activity has focused on operational pain. For example, matching drivers with routes. Much less attention has been paid to the planning space.

Trapeze – while they have some planning tools, they tend to focus on operations such as driver scheduling, fare collection and passenger information. Trapeze is the result of a variety of acquisitions over more than a decade and is part of the Constellation Software Inc. (“Constellation”) (TSX: CSU).

Urban Engines – <https://urbanengines.com/> – is a startup building realtime maps of transit systems using payment data and is focused on the 100 largest cities in the world. They then design incentivizes for citizens to change transit system use to smooth demand peaks. The primary question appears to be the efficacy of commuter incentives – and there is no word yet on performance of trials in cities like Sao Paulo, Washington DC and Singapore. They have received recent funding from Google Ventures and others.

Conveyal – <http://conveyal.com/> – consultancy for transit planning. They have developed their own transit planning tools, but these are not available independent of their advisory services.

Skybus – enables transit systems to dynamically route bus service based on demand. The focus is on less dense areas, where service can be provided in response to changing daily needs.
<http://skybus.es/en/concept.html>

Indirect

Private transport options are exploding, in large part due to the rapid success of Uber and Lyft.

Ride Sharing

Pioneered by services like Side.cr and now Bandwagon, ride sharing lets people share rides and dramatically reduce the cost relative to taxis. Uber Pool or Lyft Line are services that enable Uber and Lyft to leverage their drivers into lower priced services. Uber Pool is targeting prices that can be 33% of taxi prices, so still not public transit, but an alternative nonetheless.

Pop Up Transit

Where Lyft and Uber are using cars or SUVs. Bridj, Chariot and Leap Transit are using buses. So these services should be more able to approach the price point of public transit systems, particularly since they are not required to achieve the same levels of service coverage.

Product

The core offering enables users to create different scenarios – quickly changing routing, frequency of stops, etc. The result is a simulation environment that is not unlike choosing routes on Google maps. You can see a demo here – app.transitmix.net.

Roadmap

The team continues to identify promising use cases.

General Transit Feed Specification (GTFS) – transit systems can make this data available so that developers can include transit options in tools like Google or Apple maps for trip planning. Transitmix will make it simple for transit agencies to produce GTFS data and therefore make it easy for 3rd party developers to include transit systems in trip planning options.

Title VI – in the US, transit agencies that receive Federal funding most demonstrate the impact of proposed changes on minority riders. Today it is complex and time consuming to generate these reports. Transitmix will be able to dramatically simplify compliance reporting for Title VI.

Global Potential

The team localized to Mandarin in a week. The City of Zhengzhou uses it to present to the Chinese Transportation Ministry.

Distribution

If the sale is to transportation departments, though the freemium model means that citizens and other stakeholders and create and view transit plans too. The team currently has generated a lot of inbound interest, so most of the focus is around converting free to paid customers around specific use cases.

Team

Sam Hashemi, CEO – Designed and led software for Space Station at NASA.

Dan Getelman, CTO Co-founder & CTO Lore, raised \$6 million, sold to Noodle.

Tiffany Chu, CDO – Started user experience practice at Zipcar.

Danny Whalen, VP Engineering – Geospatial programming and architecture expert.

Urban.Us Perspective

How to improve mobility in cities? To get a feel for the complexity of this question, it's worthwhile digging into Anthony Townsend's recent paper on Reprogramming Mobility (or cheat and read a rough summary from Fastco).

If one assumes that public transit continues to play a role (with or without human drivers) planning will remain an issue for decades to come. It's possible that private approaches like Uber or Bridj will make inroads – some people may opt to drive less or not at all. But ultimately public transit is subsidized. Could cities contract with Uber or Bridj – certainly, but if Transitmix works, it would help to compare options of agency operated versus private operators.

Interesting, many US cities were built around cars and yet 2014 market the highest public transit usage since the 50s, an increase of 37% from 1995. But the biggest opportunities might be outside the US. Even as car ownership surges in developing countries, cities are making investments in public transit to avoid some of the crippling demands of surging vehicle traffic.

Finally, there is the question of how much usage might be influenced by simply making public transit better. And it's here that we see the main opportunity. If we can plan, deploy and operate public transit better, we can make it an attractive alternative to driving. And with this, we can drive down footprint associated with transport in cities.

More

www.remix.com

Investment Memo - Seamlessdocs

December 5th, 2013

This takes me back to my govWorks days when we paid for hours of developer time to create and edit forms. Not cheap and not fast. And this is what seamlessdocs addresses. They can quickly convert PDF forms into online fillable forms saving time and money to setup and then manage operations (the forms we submit, land up going through data entry processes...).

Founders have built and sold companies before. But perhaps even more important is an obsessive level of attention to detail on the design of forms. I'm not ready to call it fun, but the product is impressively well designed with the simple goal of making it easy to set up and manage forms, based on existing PDFs. And the team has the advantage of being able to grab existing forms and convert them into fillable forms in realtime as part of their sales demo.

The team can and has sold to other industry verticals, but has chosen to focus on government, hence the different landing pages.

Investment Memos - Starcity

September 12, 2016

FROM STARCITY

Overview

Beautiful, comfortable communal housing.

Problem

Housing growth has not kept up with job growth in many cities. In the last 5 years, the San Francisco Bay Area has added ~300k jobs while only adding ~50k housing units. This has created a problem in both supply and cost, with housing costs now taking more than 50% of household income for medium income earners (\$83k). From 2006 to 2016, average rent has gone from \$800/m to over \$3,000/m. Medium income renters are also the largest growing market segments (vs high and low income) but have seen the least growth in housing options (only 6% of new production).

Solution

Starcity is creating a new supply of comfortable communal housing in the cities where people want to work and live. We're starting with San Francisco, where we have two buildings filled up, with 26 residents moving in the months of September and October.

Our Approach

Starcity creates housing through adaptive re-use. We reconfigure existing residential and office buildings as well as convert boutique hotels to group housing.

We build welcoming and authentic homes with:

+ Ample community space – living/dining rooms, work and social space, media/entertainment rooms and more

- + Industrial kitchens – restaurant-grade appliances
- + Amenities – On-site laundry, hi-speed WiFi, bicycle parking, roof garden, weekly cleanings
- + Staff – Concierge + knowledgeable and courteous team

Our units are secure and private. Personal rooms are nano-suites of 120 – 300 sqft and include:

All the essentials: queen-sized bed, closet, sink, toilet, shower

Smart-home enabled tool powered by Mosaic

High ceilings and natural light

Layouts designed and organized for reduced footprint

Total liveable area for each resident = 400-500 sqft when including communal area

Our community is diverse and comes from all walks of life. 63% are female and 49% earn less than \$100k/year.

Market

We are starting in the Bay Area, where the annual market for rentals is \$44B. The rental market in the US is \$1.2T and America's rental population is expected to grow by 4.2 million people between 2015 and 2025, according to a recent Harvard study.

Specific cities where our model scales (Locations where renter population is outpacing urban supply): New York, Chicago, Dallas, Washington D.C., Boston, Auton, Phoenix, Minneapolis, Seattle, Portland, Denver

Business Model

Membership costs range from \$1,500 to \$2,400 based on location and duration. Our all inclusive membership includes a private room as well as communal area cleaning, 24/7 staff, on-site laundry, utilities, wi-fi, cable, and a wonderful community.

We also save members time and money by offering a Premium Services on top of monthly membership.

We use an asset light model. We partner with well known local developers and real estate lenders to finance all hard costs and construction. We focus our operations on a great customer experience and building great software to make the communities run smoothly.

Competition

Traditional - Typical market rate landlords provide a high cost option with often very average design and experience. For example, a 1 bedroom apartment in SF is \$3.5k on average, and a 2 bedroom is \$6k.

Co-living startups - WeLive and Common are luxury developments that are well designed but have high cost.

Other housing supply options such as single room occupancy, subsidized housing and micro units, while providing low cost options are often at the sacrifice of design and experience.

Starcity provides great design and experience at a low cost, 50-70% cheaper than a studio / 1 br in SF.

Progress

We have created 26 units in only 3 months and have a pipeline of 625 units in San Francisco. This progress was created in 12 weeks, we entered Y Combinator with just a team and a company.

Team

We have 25 years combined experience in real estate, software, hospitality and law.

We've worked on 3.8 Million Square feet of real estate transactions.

We've built software and have shipped multiple products.

Jon Dishotsky, CEO – 10 Years as a leader in commercial real estate and philanthropy. Cushman & Wakefiled, Custom Spaces, UC Davis Graduate. 3.8 million square feet of real estate deals, top donor to Habitat for Humanity.

Jesse Suarez, COO – 4 Years as an entrepreneur and attorney building dev teams and co-working space. Savvy, The Vault, UC Davis Law, UC Berkeley

Josh Lehman, CTO – 4 Years as an entrepreneur building software and teaching coding. Savvy, Hack Reactor, UC Santa Cruz

Mo Sakrani, CPO – 4 Years as an entrepreneur designing software and co-working space. Savvy, The Vault, UC Davis Law, Brandeis

Advisors from Weebly, Spirit Living Group, Presidio Bay Ventures, Andreessen Horowitz, Structure Properties, and Scribd.

Investors include – Trip Adler, Jared Friedman, Pete Koomen, Zack Pardey, Ben Boyer, Jude Gomila, Othman Laraki, Immad Akhund, Kima Ventures, Index Ventures, and Soma Ventures.

FROM URBAN US

Impact

While some cities struggle with lack of housing supply, even the most developed cities have forgotten square footage (urban blight). Starcity is taking the opportunity to efficiently increase housing density via reuse.

Another critical aspect of housing is affordability. At specific segments, in this case middle income, this is often overlooked. Teachers and civil servants are often unable to live in the cities they serve. We also know of uber and lyft drivers who collaborate on temporary housing just to have an option for staying in the city on working nights. Some communal housing communities are tackling this by asking those who can to subsidize the incubation of roommates who are more in need. What happens when rental price is determined by fairness?

Also, it's possible to be overly optimistic about the civic impact, but increasing interactions at the community scale holds some promise for civic engagement too.

Questions

Housing seems like a simple supply and demand question but is influenced by factors like lifestyle preference and increased economic mobility. How will Starcity attract and retain customers?

A sense of community helps but efforts like WeLive seem plastic. Community doesn't seem like something that can be forced, though it's an attractive value add to the co-living demographic. What is Starcity's approach to creating community?

Choosing to start a family can also affect housing options. Few co-living solutions have explicitly made it clear how solutions adopt to this demographic.

Retaining pricing levels that are affordable to middle income earners seems like a social mission at odds with market forces (low supply + high demand = higher prices). We've seen many new firms adopt a B-Corp structure in order allow for additional stakeholders and social missions that may be at odds with maximizing for profits. Where does affordable housing stack in Starcity's core goals and how does that affect the business?

Finally, the co-living space isn't new. There are waves of new options while incumbent property managers are adopting solutions to increase the density and value of their inventory by promoting co-living. What about Starcity's team or strategy is positioned to rise above the noise? (Customer acquisition? Supply acquisition? Community building? Brand?)

Opportunities

Providing value add services like personalized comfort can also lead to opportunities for energy efficiency. Partnerships make sense early on, but is there an opportunity to resell value added products for water and energy conservation?

One more lifestyle choice that affects renters is the choice to own a home. When does communal renting make sense to offer fractional ownership?

More

<https://joinstarcity.com>

<https://medium.com/@jondishotsky/get-to-work-6b631fddad24#.s5ezqqkbi>

<https://blog.joinstarcity.com/>

More perspective on co-living:

<https://medium.com/@antonchernikov/you-can-read-below-or-click-here-to-download-the-official-pdf-version-4a5edff904c9#.vddemuxhf>

Thanks

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More

Additional research, communities, and resources are available at Urban Us.