**Civitas**

*Accessing the Power of Cities*

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*678-386-6202****Let’s say you are the CEO of a shared mobility company like Lime or Car2Go and you are considering which urban market is best to launch your next fleet of electric scooters or shared cars. What data source can you look at to analyze profitability, scale, and regulatory hurdles?***

***How about if you are the Commissioner of the Department of Transportation in New York City and you need to evaluate how shared bike and scooter services could reduce congestion in the District? Where can you look to see how such programs have causally impacted traffic congestion in other cities around the world?***

***What if you are a Public Policy researcher at Georgetown University and you want to know how proximity to public bus stops influences poverty rates? Where can you find a large sample size of cities to analyze the correlations or causal impacts?***

***While cities generate close to 85% of global GDP, there is no data source that quantifies city metrics and policies across the globe over time. While large cities like Toronto, San Francisco, and New York have established robust data collection and analysis capabilities, most cities do not have the manpower or budget necessary to collect or analyze data, let alone prepare it in a standardized way that can be benchmarked against other cities.***

***Civitas will fill that gap by providing data collection, processing, and analysis services to local governments and collecting information on hundreds of different indicators related to cities.***

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# THE PROBLEM: City-Level Data Does Not Exist and Local Officials Have No Capacity to Collect It

# The first problem that Civitas is addressing stems from the fact that no standardized data source for global cities data exists on the market. Civitas will fill this market gap.

# Companies often struggle to recognize regulatory hurdles or economic forces that would threaten the viability of their business model in specific urban markets. When Bird tried entering the Boston market, for example, it was quickly met with significant government pushback that it was unprepared to face without an adequate knowledge of how Boston regulated public areas compared to other cities. Dockless bike operators Ofo and Mobike were both forced to pull out of the Washington DC market after spending significant funds only to realize that permit caps and short average ride times made the market revenue negative for them. What’s more, international private equity firms like Target Global are increasingly launching dedicated transportation and mobility funds, and they therefore increasingly need new sources of information that can provide them insight into the financial viability of portfolio companies, especially given that only 34% of global private equity funds have beat the market since 2008.

# Cities themselves are often faced to make costly decisions on budget expenditure without having any empirically proven examples to consult. Does implementing congestion pricing incentivize people to move away from cars and towards transportation options like walking or biking that are much better for the environment? Does easing zoning laws and increasing the density of commercial offices and apartments lead to increased FDI and business activity? Does investing in government provided entrepreneurial training programs increase organic growth and startup survivability? These are all questions that municipal governments want answers to but have no way of evaluating before spending money on such policy initiatives.

# What’s more, in the process of the founder writing his own Master’s thesis on predicting FDI inflows into cities based on city-level economic development policies, he quickly realized that any thesis focused on cities was impossible as not only does no such data source exist for cities across the world, but it does not even exist for large cities in the US. Research institutions like the Brookings Institution, the World Resources Institute, and the World Bank primarily rely on data provided by Oxford Economics for their city-related research products and studies. While organizations like Oxford Economics, the Economist Intelligence Unit, and Euromonitor market city-level indicator data, such data is often snapshot and lacks a time series component, is overly comprised of forecasting as opposed to real metrics, or is insufficient in its city or issue-area coverage. Using such data sources, it is therefore challenging for them to use the data in a way that can facilitate comparison or causal or predictive inference.

# The second problem Civitas is addressing relates to the opportunity costs that small and medium sized cities face in collecting, processing, and analyzing urban data.

# With the exception of large cities like San Francisco and New York, most cities do not have the budget needed to effectively collect, process, and analyze large streams of data in an effective way. There is a significant amount of time and effort that goes into cleaning, processing, and harmonizing data. Especially given that they are competing with private companies that will pay data scientists, engineers, and other analysts sufficiently higher compensation, they often have no choice but to simply relegate data programs to the backburner despite the promise they offer for decreasing costs and providing vital insights. For many cities, making sense of the data that they already have can be just as important than generating more data.

# THE SERVICE: City-Level Indicators and Data Analytics as a Services for Cities

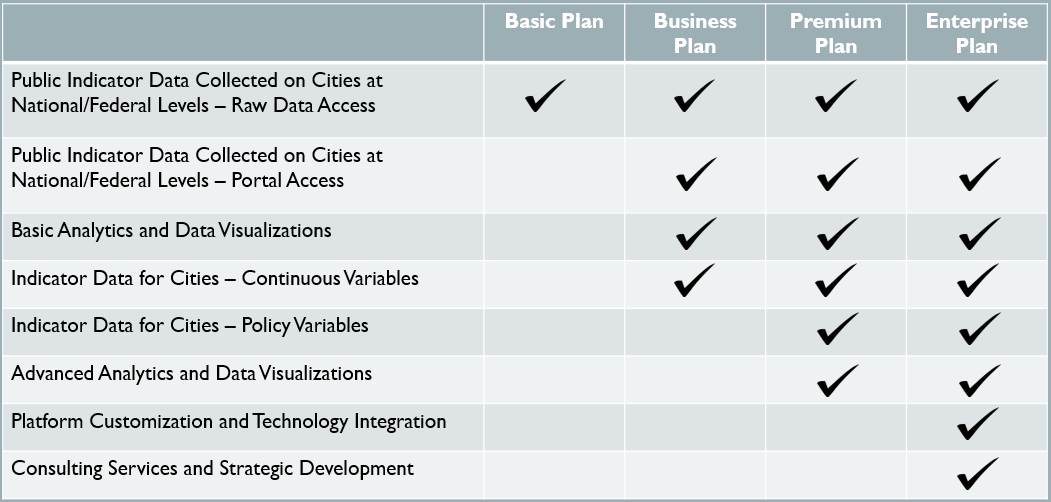
# The primary revenue generation for Civitas will come from companies and investment firms, as well as research institutions and local governments at a lower price point. These customers will choose from various tiers of a subscription model in the same way they currently do for products like the Bloomberg Terminal. Subscriptions will be priced based on what type of data is being accessed, the associated data visualizations and analytics built on top of the data, customization and platform integration, and consulting and strategic advisory services offered.

# The secondary revenue generation for the product will come from the local governments that pay for Civitas to efficiently guide the data collection, processing, and analysis process at a cost far less than that needed to hire full time data scientists or engineers. For many cities, they may be able to collect significant amount of data, but do not have the resources to hire full time data scientists or analysts, and the data often therefore is of no use to city officials.

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# The added benefit of this dual revenue structure is that it establishes a positive feedback loop whereby Civitas is contracted to provide data collection and analysis services and then the data is subsequently layered into the urban data platform offering that serves as the primary revenue driver.REVENUE: *Civitas* will leverage a value-based pricing subscription model

The primary revenue generation for the product will come from the companies and investment firms that choose from various tiers of the subscription model. The tiered subscription model will take advantage of a value-based pricing model where large companies and investment firms basing significant investment decisions off of data access will pay higher prices compared to local governments, research institutions, or media outlets that would pay little or nothing at all for access. Subscriptions will be priced based on what type of data is being accessed, the visualizations and analytics built on top of the data, customization and platform integration, and consulting and strategic advisory services offered.



Based on research of similar platforms and my own conversations with company heads, companies will be willing to pay $10,000 per year at the higher end. While this tool will not merit the high prices of full-fledged financial information providers like Bloomberg ($20,000-$25,000 per year), Thomson Reuters’ Eikon ($22,000 per year), or CapitalIQ ($13,000 per year), it will merit a higher price than stripped down versions of these platforms –Bloomberg’s academic subscription goes for as little as $3,000 per year, the most basic version of Thomson Reuters’ Eikon is priced at $4,000 per year, and the equity report only version of CapitalIQ sells for $2,500 per year. The closest precedent is the Bloomberg Government tool, which Bloomberg only recently started targeting to Congressional offices for the price of $5,700 per year.

As *Civitas* expands its issue set and geographic reach, this tool can reach the 54% of the global population living in cities and stands to profit from the $903.7 million global customer data platform market size, according to market intelligence firm Research and Markets. According to my conversations with subscription managers at universities, academic institutions would be willing to pay a flat $2,000 base price variable based on number of users and the Carnegie Classification of the university. While *Civitas* plans to avoid government RFP processes and to not make significant revenue from the government pipeline, the founder has talked to city-level officials in large well-funded cities that have paid up to $75,000 for access to subscription data services if they help to fill pressing city needs.

The secondary revenue generation for the product will come from the local governments that pay for Civitas to efficiently guide the data collection, processing, and analysis process at a cost far less than that needed to hire full time data scientists or engineers. Pricing for these services would align with that provided by economic development impact analysis firms, which tend to receive contracts valued at $150,000-$200,000 on average for urban impact analysis studies. The added benefit of this dual revenue structure is that it establishes a feedback loop whereby Civitas is contracted to provide data collection and analysis services and then the data is subsequently layered into the urban data platform offering that serves as the primary revenue driver.

# IMPACT: Harnessing the power of urbanization and revolutionizing city policy design

# While the way in which we define what constitutes a city is up for debate, according to the UN, there are 4,415 cities with populations over 150,000 in the world. According to the last census, in the United States specifically, there are 19,522 municipalities that employed a total of 6,312,500 employees as of 2015 (not counting teachers or those working in education). According to the Canadian Union of Public Employees, local government employees work across 80,000 different categories in providing public services to diverse populations. Usable data is increasingly important across all categories of public service delivery – economic, education, energy, environment, finance, emergency response, governance, health, safety, housing, waste, telecommunications, transportation, planning, and sanitation – and therefore the number of people within local government structures affected by the problem is quite large.

# At a broader level, approximately 55% of the world’s population lived in cities in 2018, a number that is expected to rise to 68% by 2050 according to the UN. This growth is occurring at an exponential rate, with a city the size of Chicago being added to the world’s urban population ever two weeks. Regardless of which type of customer is accessing the product through their subscription, the outcomes of all use cases of the data, analytics, and consulting services have the potential to make significant social impacts. With access to a tool like Civitas, future cities around the world will operate with a consistent approach to project development and evaluation with Civitas. It will not be just the large cities with ambitious mayors like Michael Bloomberg or Muriel Bowser that champion data-driven project development, but instead all cities will embed data-driven policy design into their practices in the same way they do now with basic practices like budgeting. Instead of needing urban analytics professionals to consult on every project, employees across local government departments will seamlessly follow the Civic Analytics Network process of 1) identifying the problem; 2) assessing data readiness; 3) scoping the project; 4) piloting the project; and 5) implementing and scaling the model. Because these officials will have access to the empirical findings and lessons learned from cities that have implemented and evaluated similar programs around the world, they will be able to more quickly build pilots and integrate successful policy outcomes into city planning.

# While the way a tool like that offered by Civitas develops will ultimately depend on the problems city governments will face in the future, eventually as more and more cities use tools like this, the process of scoping and piloting projects and tailoring data analysis will become more streamlined through increased economies of scale. As standards like the new WCCD ISO 37120 standard on indicators for city services and quality of life proliferate, the process of collecting and standardizing city-level data will become easier and easier. Such standards will not only apply to the data collected directly by governments, but also to private partners that increasingly offer more insights into the inner workings of a city than do local governments themselves. What’s more, in ten years’ time AI and machine learning algorithms will be able to better predict the questions city officials, companies and investors, and researchers will be seeking answers to and tailor what data is collected and how it is presented accordingly.

# COMPETITION: Competitors will augment notthreaten *Civitas’s* competitive advantage

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# The most promising alternative tool to the Civitas offering is being offered by an NGO that aims to make everything they are aggregating free to the world. In 2008, the University of Toronto launched the Global City Indicators Facility (GCIF), which aimed to answer questions like what city forms best combine livability with density by developing a database of comparable statistics that would allow cities to track their effectiveness on everything from planning and economic growth to transportation, safety, and education. After initially running pilots across nine different cities, the Global City Indicators Facility (GCIF) now collects information on 100 indicators in 255 member cities across 82 countries and has been backed by organizations like the World Bank and the OECD. GCIF has since evolved into the World Council on Cities Data, which has instituted ISO 37120, the first international standard on indicators for sustainable cities, and ISO 37122, the first international standard on indicators for smart cities, as means to encourage cities themselves to report standardized metric in a decentralized way. Bloomberg Philanthropies is taking a similar approach in the US by certifying localities as “What Works Cities” certified based on their data collection and organization processes.

# The strengths of these efforts do not pose a threat to the viability of Civitas because the WCCD and WhatWorks Cities data are free, transparent, and requires no licensing for use in our product. The WCCD grants a worldwide, royalty-free, perpetual, non-exclusive license to use their Open City Data. We therefore will actually incorporate the 17 themes comprise of 46 core and 54 supporting indicators into our product directly.

# While private organizations like Oxford Economics, the Economist Intelligence Unit (EIU), and Euromonitor market city-level indicator data, such data is often snapshot and lacks a time series component, is overly comprised of forecasting as opposed to real metrics, or is insufficient in its city ore issue-area coverage.

# In the case of Oxford Economics, which is what the Brookings Institution, the World Bank, and the World Resources Institute use for their city-related research, I’ve been told specifically that it is too expensive, enables access for far too short a period of time, and only contains real data for one year with the rest being forecasted. The company also fails to provide any indicators on the policies and actions that local governments take and there is therefore no way to use the data to determine causal outcomes that could guide investment or policy decisions.

# EIU’s CityData offering covers close to 140 cities and has reported indicators twice a year since 1990. However, as the founder learned when using the tool while working in Business Intelligence at Electrolux, EIU only reports price information reported through household surveys. While there is potential for licensing as the Civitas product scales upwards, there is no product substitution threat from the CityData platform, which mainly collects information from supermarkets, mid-priced stores, and property developers on prices for components like food, alcohol, transportation-related products, and salary and business rents.

# While Euromonitor provides time series information for 1,150 cities, they only provide information on disaggregated national-level statistics and household survey information as opposed to city indicator and policy metrics.

# In terms of the MVP *Civitas* is building on transportation and mobility, Populus and Remix are working in this space, but they do not focus on comparing metrics across cities and instead focus on providing strategic guidance to cities on a one-by-one basis. While Populus collects useful real-time data on traffic flows and congestion for the cities they work with, they are not focused on standardizing such data to enable comparison. At the same time, while Remix leverages data to advise planning, their main product offering is the associated consulting services and cloud-based toolkit design and not the standardization of benchmarking data across cities.

# The clear alternative for cities is of course to not use a tool like this and instead rely only on the data that is being collected within the jurisdiction of that city. In the case of transportation and mobility, for example, the city of San Francisco collects metrics on the origin and destination of shared bikes and scooters, individual vehicle permit processing, a pavement index, and other metrics, but they rely on anecdotal conversations with transportation officials in other cities to benchmark program performance. This is obviously not sustainable and will only provide comparison to a small set of outcomes.

# While financial information providers do not serve as competitors to Civitas, they do offer interesting partnership or acquisition opportunities. For example, given that Bloomberg launched Bloomberg Government only recently, it is feasible for the company to eventually want to expand into urban data given that Bloomberg Government right now only focuses on the Federal level in the US. This could be a great exit opportunity for Civitas.

# GROWTH STRATEGY: *Civitas* will leverage pilots to demonstrate ROI before expanding scope

*Civitas* is developing in 3 phases:

**PHASE 1: Initial Data Collection and Aggregation**

In this first phase, the MVP will aggregate only open source data that has not been previously standardized or integrated into a useable platform complete with an easy-to-use UI and basic data analytics and visualization. While the ultimate goal of Civitas is to cover as many issues and geographic locations as possible, the initial MVP will focus on one issue area and the 500 US cities selected based on data collection and reporting maturity by the Centers for Disease Control and Prevention (CDC) 500 cities project.

The MVP currently under development focuses initially on transportation and mobility metrics. The idea is that a manager investing in transportation-focused funds or a shared mobility company evaluating market entry will be able to compare urban markets, a municipal official will be able to identify how best to leverage a bike sharing pilot to reduce emissions, and an academic research may be able to study how proximity to public transit stops influences poverty.

Data at this level can be broken down into four categories: city-level variables collected at the national level, uniquely urban indicators, policy action variables, and continuous indicators underlying policy action. The first category will include standard city characteristics such as unemployment rates, GDP growth, population characteristics and average tax rates. The second category will include indicators such as amount of green space per square kilometer, total kilometers of public transportation, and average CO2 emissions. The third category will consist of binary or categorical variables related to policy action – does the city have a shared bike or scooter program, does the city employ congestion pricing, and does the city require background checks for shared ride service drivers, for example. The final category quantifies these policies and includes indicators such as the number shared bikes and scooters does the city permit, the average cost of congestion pricing, and the price and number of driver background checks.

**PHASE 2: Team Expansion and Beta Development for Pilot Submission**

In the short term, *Civitas* is seeking funding to pay a developer to convert the database currently maintained into a queryable software platform that can be used as part of government pilot programs and advertised to companies in the urban transportation sector. In the medium to long term, *Civitas* is seeking to bring on an equity partnering CTO in order to transition the product from being just a static database of aggregated data sources to an actual web interface with easy-to-use filtering, data visualizations and analytics, and customizable technical integration abilities.

The founder was in the San Francisco in March of 2019 talking to transportation officials and is in the process of submitting for pilot programs being run in both San Francisco and San Jose. The goal is to show a proof of concept through these pilot programs before jumping into coordinating across a multitude of cities. *Civitas* has secured approval from both jurisdictions to use the tool to accomplish the aims of a transportation related pilot in the respective cities.

**PHASE 3: Scope Expansion**

While the highest demand is in transportation and mobility according to conversations the founder has had, the next step upon proving initial viability will be to move towards energy and real estate. For example, in terms of energy, a private equity investor recently told me that his firm’s portfolio included a company providing automated washing machine services, and that something that benchmarks energy indicators across urban environments would be highly useful to his firm in evaluating the long-term viability of their portfolio company. At the same time, a mentor working in public equity investment has expressed interest in how a tool like this could help better evaluate weighting and composition of real estate investment trusts (REITs).

RISKS:   
Critical Need to Protect Data Pipelines and Monitor Regulations

For *Civitas* to succeed, it is critical that four things happen (or do not happen).

First, the initial MVP offering for Civitas centers around integrating existing open source data into a data portal focused on transportation and mobility through APIs, web scraping, and data extraction. It is therefore critical that the data aggregated aligns with the problems that city-level officials face in building multimodal transportation plans, that companies face in deciding where to launch shared mobility services, and that researchers encounter in conducting inferential and predictive analysis of transportation and mobility issues. While the founder confident this is the case having already aggregated a significant amount of data and been encouraged to submit the tool for pilot programs in San Francisco and San Jose by transportation officials in each jurisdiction, there may be problems local officials face that simply cannot be answered with the existing data.

Second, because the initial MVP offering leverages urban-level data collected by Federal organizations like the US Department of Housing and Urban Development and the US Census Bureau, it is important that minimal disruptions to the access of the data those entities collect and maintain occurs. There was a company specifically focused on measuring electricity demand that was unfortunately forced to declare bankruptcy in 2013 when the Federal government shutdown in 2013. Given the government shutdown that just occurred in the US, this is a risk that must be kept in mind as Civitas further develops the technical processes underlying our product.

Third, how open governments and private companies operating in the urban space are with their data will ultimately determine how useful a tool like this can be as it is scaled. For example, a shared scooter company thinking of launching a fleet of electric scooter in Washington DC would be interested in understanding how their offering would compete with Uber and Lyft and a shared bike company considering launching a fleet of e-bikes in Manila would want data on Grab. How such private operators ultimately share data with cities and what stipulations they require in terms of the city making that data accessible to entities like Civitas will be an important consideration as we grow and scale.

Lastly, how data privacy laws evolve will also impact the viability of our business model. While governments in North America have yet to pass anything as strict as the General Data Protection Regulation (GDPR) recently launched for EU countries, there are many battles brewing over urban data privacy right now (the battle between Sidewalk Labs and the residents of Quayside in Toronto for example).

# MANAGEMENT TEAM: The Right Person for the Right Approach

**Founder – Christian Conroy:** Christian Conroy recently received a dual Master in Public Policy (MPP) and Master of Science in Foreign Service (MSFS) from Georgetown University, where he focused on using quantitative analysis and an understanding of urban development to advise foreign companies entering emerging markets. Prior to Georgetown, Christian most recently served as the GM for the Shanghai office of CRCC Asia, where he led efforts to provide global recruitment consulting to more than 200 host companies across 14 different sectors and organized panels on topics such as mobile technology and entrepreneurial opportunities. He has held several other positions in the private sector, including Supply Chain Security Risk Analyst at BSI Group, Technical Advisor for Psychometrics and Analytics at GSX Inc., and freelance contract writer for Smartbug Media. Christian was also previously a Fulbright Fellow based in Xi’an, China, where he studied the decentralization of education policy in rural China. Since starting at Georgetown, Christian has received several grants to address gerrymandering and electoral redistricting reform, model the impact of macroeconomic changes on market size for multinational companies, and create frameworks for global food tech ecosystems.