Abstract: Cities are becoming bigger and denser in an era of unprecedented urbanization. At the same time, large-scale mobile data layers exist atop these dense environments. Combining these two trends to better understand the city will lead to a great age of Urban Digitization, which can be used to help residents, businesses, and governments gain insights into how cities work. Large, dense urban data layers will give cities the tools they need to reform regulations and start practicing more agile, data-driven urban design.

There’s a piece of lore floating around the halls of Blackstone, one of the world’s largest private equity and real estate firms. The story goes that when first evaluating a real estate deal, Stephen A. Schwarzman, the founder of said firm, would stand outside the property for a few hours and watch. He would watch and watch and watch, getting a sense of how many people moved around, in, and out of a specific property, in effect, taking the pulse of the entire area. By measuring the pulse of the area around the property, he could tell if the deal would go sour or not.

It’s an image that can teach us an enduring lesson about cities: those who understand its pulse will understand the city.

The pulse-measurers—developers, planners, and designers—are nowadays challenging traditional notions of what a city can be and how it can best serve its citizens.

Rather than analyze individual projects through a siloed city planning lens, urban design centers contextualize design plans within the vision of a larger, livable city.

What defines the resurgence of urban design in America is a renewed commitment to multi-modal forms of transportation and a transition to “complete streets” thinking.\(^1\) Cars no longer take precedence within city centers. Larger, more urbane populations demand walkable, livable cities. In American cities where progressive urban design is ascendant, the car’s reign is ebbing if not in outright decline.\(^2\)

“As we emerge from the recession our communities want to take more time to consider

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1. UCLA: An Assessment of the Spring Street Parklets
2. CityLab: A Brief History of How ‘Complete Streets’ Became Hip
how their neighborhoods and corridors look and function,” writes Mark Brodeur, the head of San Antonio’s CityDesignCenter, about how this trend interacts with urban design. A post-recession America that’s increasingly urbanizing wants to see more bang for its livable buck. As Brodeur, puts it, “We all want a better place and placemaking is at the heart of urban design.”

Whether by accident or by design, a new chapter of the digital age unfolded alongside this explosion in urbanization. As cities became denser, people became more interconnected—online. Companies created elaborate digital social networks à la Facebook. Thanks to smartphones, networks went mobile and apps proliferated.

What are we to make of these two trends, that of the greater urbanization and digitization of our lives? We are only starting to realize the grand effects this confluence can wring: a great age of Urban Digitization.

The first phase of these realizations are transactional in manner. Uber, Lyft, Seamless, TaskRabbit, Urban Compass, PostMates, and even PushToPizza, all leverage dense digital environments layered atop dense urban ones to ease the pain of purchasing for services in a large city.

For example, when a person calls an Uber car from their iPhone, they are really leveraging three network effects. The first is the urban density needed to create a big enough demand for drivers to float around within five minutes of potential passengers. The second is the Uber network of drivers itself, acting as an advanced and faceless dispatcher. The third is the network of consumers, doling out demand more efficiently to the dispatcher. Without one, the other two falter and create a less than desirable service.

Building better delivery mechanisms for businesses: the first phase of Urban Digitization

The next phase of Urban Digitization will involve taking all the rich data created by our vast digital networks and empowering them with insights that serve government and citizens alike—effectively giving the city’s pulse to all key stakeholders. Rather than making location the raison d’être of their apps, developers are using the intrinsic location awareness of dense mobile networks to build out useful real-time data layers for consumers and businesses alike:

- Probably the most successful of such apps so far is Waze, the Israeli turn-by-turn app that incorporates all its users’ locations into its navigation services. Waze’s user-generated dataset of accidents and road hazards can compliment a city’s existing road incident dataset to better understand what drivers encounter on daily commutes.

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3. UrbDeZine: Urban Design Centers and Healthier Communities
• Strava provides a similar service for bikers and runners, while adding a competitive element with leaderboards and peer-to-peer challenges. Oregon’s Department of Transportation has already started to use their data to build better bike routes.4

• Google recently unveiled their Google Now service, which, “using Google’s devouring awareness of your calendar, inbox, and movements,” acts as your personal local assistant, letting you know when to expect transit delays or inclement weather alongside your daily routine.5

• Placemeter tracks, in real-time, aggregated pedestrian and vehicular traffic information using video feeds, many of which are crowdsourced through old Android phones stuck on the windows of willing users. We serve up this information to businesses, governments, and citizens, helping them gain a real-time sense of pedestrian and vehicular traffic in neighborhoods.

A central assumption of multi-modal transportation theories is that people make rational decisions when traveling around a city. I go from Point A to Point B using the subway because it will get me there with the best combination of speed, cost, and comfort rather than driving (cost) or walking (comfort and speed). If used correctly, the apps emerging from Urban Digitization could add another important data point in that rational mobility decision-making. Just like how we now check Twitter and Facebook to take the instant pulse of our world and the people we care about the most, so too will we take the instant pulse of the places that matter the most to us and change our mobility habits around what we learn.

One can see the first inklings of this change in New York on subways with arrival time indicators installed on platforms. People quickly jump off their subway car and check the indicator then, depending on what they see, jump back on the car or move to another train. Urban Digitization promises to make such split-second decisions second nature.

As a society, though, we’re only now grappling with how this next phase of Urban Digitization will change our daily lives.

Bringing Urban Digitization to citizens: opportunities and challenges

Consumers will inherently understand how to use this data, whether it is getting more efficiently from point A to point B, or deciding whether or not to go to a busy or a quiet bar before leaving their home, or any other number of creative applications that developers will dream up in the coming years. As long as apps can provide rich, contextual, and real-time location data in easily digestible form, users will improve their lives with it.

Making these services useful to citizens and cities requires building trust that personal data

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5. The Atlantic: Google Knows You Better Than You Know Yourself
will remain unexposed. As a collective, both tech companies and governments are off to a shaky start. Without basic trust and an inherent understanding of personal privacy, Urban Digitization could be stopped dead in its tracks, nothing more than a tool used to deliver pizza faster.

Governments may have a harder time incorporating insights into their day-to-day operations, but early signs suggest that the resurgence of urban design leaves cities poised to capitalize on Urban Digitization rather than squander a grand opportunity.

For example, New York City’s Mayor’s Office of Data Analytics uses Placemeter’s data to help small businesses understand footfall throughout New York’s neighborhoods so they can make better site selection decisions. Departments of Transportation could use the same data for a variety of applications, most relevant of which to reduce pedestrian fatalities on roads. With a technology like Placemeter’s they could know day-to-day the volume of pedestrian traffic within a city, detect where jay-walking or dangerous walking occurs the most, refocusing enforcement and design efforts dynamically rather than using static traffic studies.

However, the true governmental innovation will be in how cities plan on using this data. California is already rewriting its regulations to prioritize multi-modal transportation above car-first transportation. New York City still uses a 70’s-era benchmark to measure transportation implications from new building projects. Reinvigorated urban designers stand to gain the most immediate benefit from Urban Digitization’s evolution. Rather than dealing with costly, intermittent traffic studies, urban designers will gain access to a torrent of persistent, advanced data. Cities could respond more quickly to changes in traffic flow and pedestrian movement, creating a proactive and data-driven approach rather than a reactive one. Hypotheses will travel from the realm of conjunction to that of hard-proven fact.

Urban Digitization will not create an instant utopia. Indeed, an emphasis on data could blind decision-makers to the compassion that needs to inform how cities are built. Large, dense urban data layers will give cities the tools they need to reform regulations and start practicing more agile, data-driven urban design. Whether or not cities and citizens will use those tools to build a better society remains to be seen.