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AS PEOPLE RETURN TO CITIES, LEADERS LOOK TO TECHNOLOGY TO MAKE METROPOLITAN LIVING GREENER AND EASIER. KIOSKS ARE A PROVING TO BE A CRITICAL TOOL IN THEIR KIT.

# Kiosks and the Emergence of the Smarter City

HOW SELF-SERVICE TECHNOLOGY IS HELPING URBANITES MOVE INTO THE 21ST CENTURY

In what research and analysis firm Brookings is calling the “decade of the city,” large metropolitan areas are enjoying a renewal of growth and vibrancy that began in 2010 and looks set to continue until at least 2020.

The firm, citing U.S. Census data, goes on to say that “so far in this period, the annual growth rates of cities with over half a million people were double the average annual rate between 2000 and 2010 ... and the combined urban cores of the nation’s major metropolitan areas continue to grow at faster rates than their surrounding suburbs.”

The trend is good news for city officials with bare coffers as well as environmentalists who appreciate the carbon reduction that comes with the efficiencies of urban living.

That said, accepting so many people so quickly into such dense areas brings its own issues.

- Yes, the potential for efficiencies exists, but what are the best ways to realize them without exceeding budget constraints?
- How can citizens enjoy the most convenient access to public transportation?
- As new residents take root and the number of out-of-town visitors grows, what can be done to help make their interaction with the city simple and pleasant?

Around these questions, technology experts across the country have developed the concept of a “smart city.”

In “From Intelligent to Smart Cities,” authors Mark Deakin and Husam Al Waer define a “smart city” around:

- The application of a wide range of electronic and digital technologies to communities and cities
- The use of information and communication technology (ICT) to transform life and working environments within the region
- The embedding of such technology into government systems
- The territorialisation of practices that brings ICTs and people together to enhance the innovation and knowledge that they offer.

More simply, the Smart City Council offers this definition: A smart city is one that “uses information and communications technology to enhance its livability, workability and sustainability.”

Kiosks and other types of self-service technology (telephony, smart phone apps) owe their growth in large part to the efficiencies they bring to otherwise cumbersome tasks. Wayfinding. Research. Transportation scheduling and ticketing. With smart city technology, the information exists in real time: If a delay develops on a particular route, for example, kiosks are able to notify kiosk-users immediately.

In cities where buses or light rail are still a small part of the public transportation mix, people may not immediately see the potential connection between high-tech kiosks and old-fashioned, low-tech bus stops or train stations.

Truth is, however, that as demand for these conveyances continues to increase, so too does the opportunity for self-service technology and digital signage to provide valuable services for riders and pedestrians alike, not to mention their ability to pay for themselves and even become revenue-positive by hosting third-party advertising.

Recent trends in public transportation, doubtless tied to the reverse exodus to cities, have so well made the case for this kind of deployment that it's no wonder several municipalities have already partnered with technology companies like Olea Kiosks to position terminals across their grids.

From Olea's white paper, "Kiosks: A Turbo Boost for Public Transportation" (available at [www.olea.com/thelab/](http://www.olea.com/thelab/)):

*According to a study last year by the Project for Public Places, Americans made 10.7 billion trips on public transportation in 2013. Representing a 37 percent increase over 1995, the number of trips was at its highest since 1956, when American culture began its push toward suburbanization and the ritual of the solo daily commute in a car caught on. What's more, said the study, the number of miles Americans travel in cars or trucks is down nine percent in the last decade.*

That's why so many cities that pursue the ideals of efficiency and convenience nested in the smart city concept turn to solutions providers like Olea Kiosks not only for hardware, but for guidance on how best to structure a world-class application and deployment.



When Dallas/Fort Worth Airport officials needed a way to process passengers more quickly but without compromising security, they turned to Olea. Our custom security kiosk decreased wait times by 42 percent even while passenger volume increased by 15 percent.

## Sample Deployments

Following are examples of "smart city"-style self-service and digital signage deployments. Readers should bear in mind that the principles executed here are not restricted to urban areas. Other types of entities that could benefit from the scheduling and wayfinding components include:

- **Large college campuses**, by helping students navigate campus, see campus updates, launch their own emergency alerts. Public transportation information—so critical to commuter colleges—can be wired in. Monetization can come in part from third-party advertising, such as from campus eateries, bookstores, apparel shops and more.
- **Large corporate campuses**, where visitors and even employees may need guidance getting around. If the campus offers visitor shuttles, they can be summoned from these kiosks.
- **Mega-churches**. Some religious facilities—Southeast Christian Church in Louisville, Ky.; Lakewood Church in Houston, Tex.; Saddleback Church in Lake Forest, Calif.—have campuses with large, arena-like sanctuaries and often multiple supporting buildings for classes, youth groups, athletics and more. Visitors can be intimidated trying to navigate the campus while dealing with the nervousness that can come from visiting any new church, let alone such a large one. Kiosks can be positioned conspicuously in parking lots and atria to announce schedules, point to classes and worship locations and even make arrangements to meet a church representative for one-on-one assistance.

Returning to urban deployments, digital street enclosures are not new. Yahoo! and other companies wired them a decade ago to power kiosk functionality as part of elaborate marketing campaigns. What is new is that now the kiosks and digital signs are being championed by municipalities as part of their "smart city" initiatives, meaning the ultimate beneficiary of the deployment isn't primarily a marketing VEEP, but the public at large.

**Kansas City, Mo.** In partnership with Sprint (headquartered in the city) and Cisco, KC deployed more than 50 blocks of free public Wi-Fi, 125 smart streetlights and 25 interactive kiosks. The network connects to a broad range of applications such as smart lighting, kiosks and sensors. Kiosks at local streetcar platforms and locations around downtown provide information about local businesses and events and offer new ways to access city services.

**Miami-Dade, Fla.** The city has negotiated a 15-year deal to install up to 300 kiosks with Wi-Fi hot spots at bus stops and Metrorail stations across the county, according to a story in The Miami Herald.

If the kiosks are anything like those deployed in a similar installation in New York City—without the infamous ability to access porn through them—Miami-Dade citizens have a few things to look forward to: gigabit Wi-Fi, which is significantly faster than most networks; the ability to charge mobile phones and access 911 services; free phone calls from Vonage; and an interactive screen that can broadcast public announcements and information about local events and commonly used city services.

The city is also receiving a check for \$20 million for the privilege of making these deployments, with the installer believing the third-party advertising revenue will make the entire project meaningfully profitable.

**Dubai.** The largest city in the United Arab Emirates is known for its tall buildings, tolerance for Westerners, tourism, and shopping. Now, thanks to its focus on smart city-like principles, it's also garnering recognition for its self-service and digital signage deployments, all to benefit tourists and residents alike.

So far, more than a hundred bus stops in Dubai have been converted into Smart Shelters, according to a story in Gulf News. Each is equipped with free Wi-Fi, a smart kiosk, a mini-mart and much more. The local transportation authority says plans call for 400 more such stops.

**Santa Barbara, Calif.** Just wading into the waters, this metropolitan area of about 400,000 people recently installed its first public kiosk, locating it at the city's Transit Center.

According to a KioskMarketplace.com, the web-enabled unit serves up bus schedules, helps plan routes and also supports those who travel by car, foot or bike, with trip plans able to be sent to smart phones.

Additional applications include Yelp reviews, news and weather. Advertising can be placed to mitigate costs.



Olea's Milan, available in landscape and portrait orientation, is typical of the user-friendly, durable and highly visible kiosk suitable for public wayfinding and other smart city applications.

**San Diego, Calif.** Two years and \$21 million later, San Diego announced in November 2016 that 11 new bus stations were operational across the downtown area.

A half-cent tax on public transportation tickets funded the high-tech stops, which includes new shelters, 16"-high pylons with digital signs and other upgrades.

**Pittsburgh, Penn.** In June 2016, Pittsburgh's Port Authority revealed its new wayfinding network of kiosks designed to help riders better navigate the local public transportation system of buses and subways.

The system includes five touchscreens that passengers can use for directions on how to reach their destination. In addition, says the press release, the system includes "eight solar-powered devices at digital bus stops to provide real-time bus information; two digital bus stops with abbreviated maps and route frequency information for that stop; and 85 bus stop signs that include an abbreviated map and route frequency information."

## How to Make It Work

Olea Kiosks has deep experience in producing the rugged, hyper-connected kiosks demanded by related applications of Smart City principles. Our white paper, “Kiosks: A Turbo Boost for Public Transportation,” details several deployments we designed for critical, high-performance roles. In addition to work for CLEAR traveler kiosks and JCDecaux airport phone-charging stations, the paper addresses:

- 33 kiosks for Canada’s national rail system, VIA Rail. The 99-percent uptime kiosks enabled faster, more accurate service at busy stations and allowed the line to keep open stations that no longer were profitable enough to staff with people.
- Dallas/Fort Worth Airport. Tightening security regulations and insufficient staff were creating unacceptable backlogs for international travelers at this critical hub. Olea developed the Automated Passport System a TSA-compliant kiosk solution that dramatically improved passenger throughput. In comparable year-over-year measurements, before and after deployment, wait-times decreased 42 percent (from 32.5 minutes to 18.8 minutes), even while passenger traffic continued to grow by 15 percent.
- The paper also details Olea’s work for CLEAR traveller kiosks and JCDecaux airport kiosks, the latter of which recently won an award from KioskMarketplace.com as Most Innovative Telecom Kiosk.

Olea also has significant experience in the high-volume ticketing and wayfinding venue of theme parks, recently completing a major roll-out for an internationally known amusement brand. More information can be found in our white paper, “5 Ways Kiosks Rock the World of Ticketing.”

**The right due-diligence.** With most kiosk deployments, the hardest work is designing and building the unit, followed by installation. Most projects are straightforward when it comes to planning the logistics. Check-out kiosks are by the door of the store. Ticketing kiosks at airports are in front of baggage drop-off by the agents. Movie kiosks are outside the theater or just inside the lobby.

Even beyond placement, another key consideration, ROI, is comparatively straightforward: Will enough people use the kiosk to justify its cost?

With smart city projects, the questions are many and more complex.

- Which bus or light rail stations will get kiosks? All? Some now, more later? The busiest?

- What functionality should they include at launch? Will more functionality be added later?
- What are the various environmental factors the kiosks will face and what do they suggest in terms of hardware?

**Bottom line:** Partner with a kiosk company with the resources and experience to work with city leaders to create the most efficient, least costly system possible.

**The right kiosks.** Public kiosks, especially those used outdoors, are some of the most abused and stressed high-tech devices made today. Extreme elements—from blistering heat and blinding light, to heavy rain and freezing cold—weed out all but the most robust kiosks. Ordinary use is one thing, but in the context of travel, where people are often running late and carrying back-packs or rolling bags, kiosks are particularly vulnerable to misuse. And it’s certainly not uncommon for kiosks at bus or train stations to experience vandalism.

Also part of choosing the right kiosk is to make sure the manufacturer works with the right partners. Dozens of OEM suppliers are engaged to build a kiosk, and each one plays a critical role in the success of the unit. If a kiosk company is promising a world-class product, ask for a list of component providers and question whether they are world-class companies. In other words, the whole is never great than the sum of its parts.

That’s why Olea partners only with suppliers who are known for their integrity, ingenuity and quality.

**Bottom line:** Take the time to ask about suppliers who contribute parts to the completed kiosk, and if those names aren’t familiar, spend some time on Google.

## Conclusion

Economic and environmental issues—especially as they are increasingly interwoven—will continue to drive people back to major metropolitan areas. Leaders of those population centers will be able to better compete with other population centers by offering citizens amenities that alleviate some of the hassles related to urban living. They can use self-service kiosks to make public transportation easier to navigate. They can use them to provide information to citizens on the go. Behind the scenes, they can realize great efficiencies through robust data networks, all subsidized or wholly funded by third-party advertising.

*Let Olea Kiosks spend a few minutes on the phone to talk about our vision for smart-city technology and how our kiosks and partners can bring this new civic model to your town. Call 800-927-8063 or email [info@olea.com](mailto:info@olea.com) today.*