by Frank di Palma and Robert Lane

DIGITAL STRATEGY
for a SMART CITY

On a regular basis, some city on the planet announces it will become a "smart city." Unfortunately, most cannot describe what makes a city smart, but they know it involves ubiquitous high-speed internet and a host of smartphone applications. By just labelling the city smart, they hope it will increase economic activity and livability, act like a magnet to draw people to their city, and lift spirits of their citizenry and productivity for all in the future. Smart cities matter, for as the world's population grows it becomes more urbanized. Increased urbanization means a greater number of buildings and key urban systems. The words we hear are automation, information technology, communications, integration, data mining, and analytics.

Cities thinking about becoming a smart city should never start with a focus about technology or become an instant partner with technology providers. Technology facilitates and catalyzes process change, but it is sec-ondary to the change itself. Procuring technology and automation should be one of the last steps, not – as it so often is the case – the first. Do you buy technology with little thought of the process changes that may be required of a city?

Framework

Like any business, a city has to have a *plan* of what they really want to be in the future. As we have experienced in all aspects of business, disruptive technology and the accelerating pace of change are constantly underlying legacy activities. It is no different for cities.

What have the leaders of companies that made the transformation to digital learned? Digital transformation is as much strategic, organizational, and cultural as technological. A city is the same as a business – its role is to serve the customers who pay all of the expenses associated to live-play-learn in an urban setting. Consumers empower a city administration to provide all manner of services directly or privately – often governed by rules and guidelines enacted though by-laws. As we experience in the business world, often many of these are not current with the "digital transformation."

Cities that seek to be smart (we suggest a better word might be intelligent) need to start by articulating a digital strategy that positions technology as a differentiator for functions activities. Such a process is underway for the City of Vaughan as identified in six elements illustrated in Figure 1.
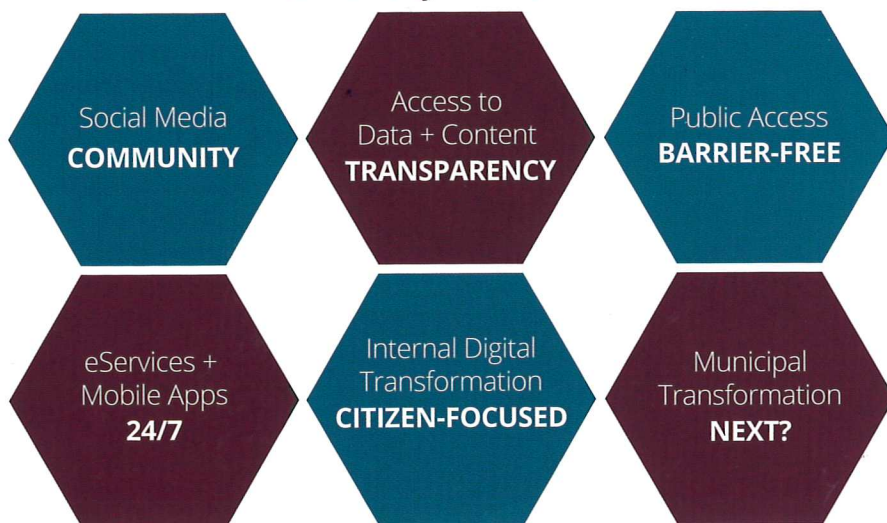
A city's digital strategy should be comprised of six segments. Each element may not be created within a similar time frame – however, the goal is to ultimately ensure that each is addressed. Let's look at each.

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Figure 1
Smart City Framework

| Social Media **COMMUNITY** | Access to Data + Content **TRANSPARENCY** | Public Access **BARRIER-FREE** |
| eServices + Mobile Apps **24/7** | Internal Digital Transformation **CITIZEN-FOCUSED** | Municipal Transformation **NEXT?** |

1. Social media – community

Social media can be used to foster a vibrant community that promotes diversity and is inclusive. Citizens should be heard and the city should provide timely responses with appropriate actions and/or communication of the right information when it is relevant. Things to consider are:

Joining the conversation – Social media brings together likeminded individuals in a virtual environment with very few constraints. What makes social media unique is the constant contact. There are no leaders, every member has a voice to which any other member can respond. Trending is a term in social media indicating that a topic of conversation is getting a significant amount of traffic – sometimes a trending topic can cross into other social media platforms. The city should actively create profiles on the most popular social media sites and have processes in place to join early any new trending sites. Active participation on these sites will ensure that the city is informed and can respond to real-time issues. This will engage citizens in meaningful dialogue. For dialogue to be meaningful, the city will need to ensure that concerns are attended to by appropriate actions. The city will need to develop proper support tools and competencies.

Answering questions – Blogs are discussion forums that engage and inform their readers. The city should create blogs allowing citizens to learn about city services, ask questions, get involved, or sign up for events – the more blogs the better. Any effort invested in creating blogs will forge a common understanding of relevant issues. It will also make it easier to navigate city services, receive valuable input from residents and businesses, provide specific answers to unique questions, and promote community values.

Facilitate community good – The city should look at ways to use social media to connect citizens in need with members in the community that can provide that support. Citizens that want to contribute to the advancement of their communities should have a platform to connect with volunteers. Citizen engagement through surveys can provide beneficial feedback for dealing with community issues and city building.

2. Access to data and content – transparency

Access to data is about making city data publicly available, accessible, and easily interpreted and will be an important driver of open, accessible, and accountable government. This allows for better information, making insights, doing business better, becoming more efficient, adding value, and creating new opportunities. Make sure to consider:

Making data available (open data) – The city has all kinds of data that would be interesting to the community: permits, development data, plans, data linked to maps such as city properties and assets, city spending, and data related to city services like complaint management. When communities begin to access and use open data, they invariably add value by creating apps and combining different datasets in a way that collaboratively addresses community problems and interests. Other governments, in Canada and across the world, have repeatedly reported benefits that include: increased quality of life, more efficient city services, better decision making, and creation of new data-driven businesses.

Having a single version of the truth – Corporate data access and usability and our capacity to integrate data from different sources eliminating data silos is dependent on creating a single version of the truth, managing master data as a single consistent entity across the city. For example, property locations are identified by street address in a variety of datasets and solutions throughout the city. If we implement a consistent managed address standard across all city datasets, we would be able to integrate all address-based information geospatially and to make strategic and operational insights that deliver better services.

Creating dashboards – By building dashboards supported by integrated data and a single version of the truth, the city would be in a position to make faster, more evidence-based decisions in support of the services we deliver. The technology involved in sorting, filtering, and aggregating the information that underlies dashboards will eliminate significant processes where the city manages and manipulates data in the absence of a supporting technology. This would free the city to focus on the delivery of services above the management of data and will promote continuous improvement gained through insights in the dashboards.

3. Public access

Public access to high-speed internet today is critical for the wellbeing of the community. It enables citizens and businesses to access new opportunities. There is a direct link between economic growth and digital literacy. The city is committed to ensuring that all of it's community has the ability to benefit and compete in this information age. It is imperative to have:

Broadband for everyone – Broadband internet is quickly becoming a necessary infrastructure in city building. Just as it is difficult to measure the benefits of providing power, clean water, and waste removal; it is difficult to determine the detriment to social and economic wellbeing of not providing broadband to everyone.

Access to public studios and labs – Multimedia, software development, and 3D printing are staples for creativity, research and development, and business development. The city should provide the tools and space necessary for citizens and businesses to use the latest technology to communicate, collaborate, and enter new markets.

Improved digital literacy – Digital literacy is the ability to use technology for finding information, getting services, expressing ideas, forming and joining communities, and performing business transactions. Anyone unable to use technology will find it increasingly difficult to thrive in today's information age. The city should ensure the inclusion of citizens in today's digital world by providing opportunities to learn how to use foundational tools and technologies.

4. eServices & mobile apps – 24/7

A city of choice uses the internet to look for ways to serve their constituents in a timely, informative way that provides outcomes and value for money. This service should be available when, where, and how they want it, including:

Responsive web presence – Websites and solutions are responsive when they providing citizens with consistent experiences using any device (PC, tablet, or smartphone). Consistency includes performance, ease of use, and outcomes. Sites should be intuitive for locating services. Information should be easily accessible and transactions should be friendly, efficient, and complete.

Virtual counter service – All services that can be migrated to the web should be. City hall has many counters to assist residents, developers, and local businesses. The same care in developing forms and service packages should be made available on the web. This will allow service requests and transactions to occur during off hours. Increasing self-service will reduce overall service costs.

Leverage cloud computing – Cloud computing is making it easier for governments to focus on constituent needs and less on the infrastructure requirements to satisfy those needs. Solution development is getting quicker and easier. Although time to develop and deploy solutions is quicker, consideration needs to be given to costs associated with hosting services, data management, and integration skills.

5. Internal digital transformation – citizen-focused

Internal digital transformation is key to ensuring citizen-focused services are continuously reviewed for efficiency, effectiveness, and sustainability. The city needs to ensure:

Improved staff digital literacy – City employees need to think "digital first." Each process that collects data in electronic form lends itself to better analysis, reporting, and decision making. Employees can improve their digital literacy by optimizing their use of existing systems and considering data and system integration. This will allow for employees to leverage technology in innovative ways with every new business problem, initiative, or project.

Mobile work force – The mobile worker should be empowered with mobile solutions that allow them to plan their day more effectively, capture electronic data in the field quickly, and communicate with constituents by providing information that is timely, accurate, and relevant.

Continuous innovation – Technology is changing at an exponential rate. The city should have processes in place to review and evaluate relevant emerging technologies. Technologies that are disrupting industries should be of special interest because they are creative in nature, can reveal opportunities, and can change mindsets by altering citizen expectations.

6. Municipal transformation

This final element of the framework requires the city to always be asking:

What will be next? Are we ready for the future?

The city's digital maturity is dependent on allocated resources and its ability to engage, participate, and learn from others. Technology is changing so rapidly that smart cities need to be open to embracing what's next. The city needs to explore and understand emerging concepts, models, and technologies such as smart cities, Internet of Things (IoT), digital economies, and e-government. The city should look to industry leaders for trends, interpretations, and partnering opportunities. **MW**