

Technology Headed for City Hall.

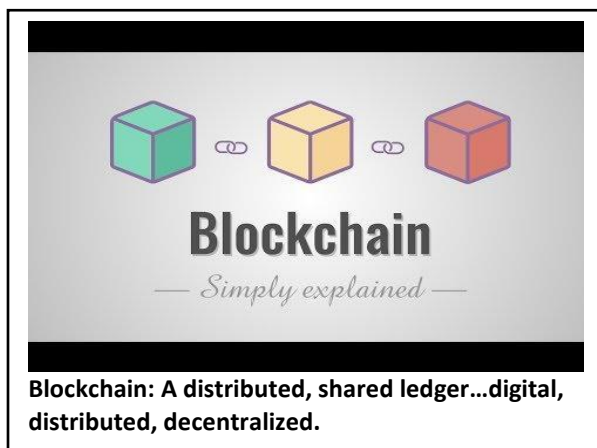
TECHNOLOGY FOR TOWNS.

Small cities and towns will evolve beyond the fear of change to accept the benefits of new technologies ranging from social media to autonomous vehicles to robotics to drones to new business models for e-commerce on mainstreet. The blockchain, “smart poles” with sensors and Wi-Fi, microgrids, smart solid waste systems and smart zoning are only a few of the innovations that will enhance city security, services, communication and administration.

Writing about the state of technology is treacherous given the pace of change. However, understanding and anticipating the impacts of technological changes are imperative for securing the sustained prosperity of mainstreet, providing city services and enabling a new financial model for mainstreet businesses.

BLOCKCHAIN TECHNOLOGY.

As of this is writing, blockchain technology is emerging from beneath the Bitcoin shadow as the new general-purpose technology with tremendous power and broad applicability; some say it’s the next internet. Blockchains offer improvements to municipal administration and the provision of city services.



In A First, A Blockchain Smart Contract Is Recorded On A Deed

APRIL 6, 2018 | BY ERIKA MORPHY

There are still technical and legal challenges that must be addressed, but this transaction makes clear that blockchain is headed for commercial real estate.



Steven Quick

WASHINGTON, DC—Quietly and with almost no fanfare, last month blockchain startup **Propy** scored a coup for the technology industry and the real estate space in one transaction: the first government sanctioned blockchain recorded real estate deal in the US.

The transaction happened under a pilot program that launched at the start of this year between a county in Vermont and the San Francisco-based company, which is developing a blockchain-based registry for real estate sales. The deal created legal history, CTO **Alexander Voloshyn** said in a [blog post](#). It was the “first time ever in the US that a blockchain address is recorded on a deed, and thus also recorded in the official, statutorily mandated land records in a recording jurisdiction of a US state,” he wrote.

Read more at:

<http://www.globest.com/2018/04/06/in-a-first-a-blockchain-smart-contract-is-recorded-on-a-deed/?kw=In%20A%20First%2C%20A%20Blockchain%20Smart%20Contract%20Is%20Recorded%20On%20A%20Deed&et=editorial&bu=REM&cn=20180406&src=EMC-Email&pt=National>

SMART POLES.

The literature, the examples and the case studies of cities across America and the globe leave one with the sense of never being current. Something new is always on-line.

The answer is to create a way of life in city hall that expects constant change; to create skills necessary to find, evaluate and exploit the new technologies that are useful and reject the junk. Downtown is a good place for experimentation.

- The smart city developments from the big tech firms like IBM, Cisco, Google and the rest are expanding and infiltrating city hall. Understand their interest in contracting with cities to install and manage their hardware and software. Also understand the city's obligation to ferret out the benefits, the costs and the escape path once the system has fulfilled its mission or proves to be of no use. Appreciate the experiences of other communities.
- Autonomous vehicles are coming fast. Find experts to help evaluate the impact of AVs on land use, street design, parking requirements and mass transit systems. The impact of autonomous buses, delivery trucks, ride-share services, freight trucks and private vehicles is hard to fathom.
- Electric vehicles are gaining ground; combinations with AVs will change travel habits. Free charging stations may be a downtown amenity or "perk".
- Economic development will depend on full access to high speed broadband internet service. Coordination and collaboration with business and academia is in the offing.

- High speed broadband internet service is growing in its areal coverage. The digital divide lurks to exclude this service from low income neighborhoods. Equity distribution becomes an issue for cities.
- Solar and wind power are becoming more prevalent. The two-way movement of power is becoming controversial. Smart micro-grids are emerging in areas with special circumstances.
- Internet Service Master Plans are starting to be prepared in California cities.
- Many major cities worldwide including Paris, Copenhagen and Barcelona are launching smart city initiatives. Kansas City has demonstrated how real-time data gathered by sensors provides tangible benefits to citizens.
- Small cities and towns can use their downtowns to roll-out high tech services to provide businesses with access to the global market place and to test reliability and usefulness.

In a simple sense, streetlight poles are being connected to the internet enabling the attachment of sensors [see next page]. Sensors make data and communication ubiquitous with:

- Alert Notification,
- Communication Systems (push & pull),
- Concealed Placement Speakers,
- Digital Signage, Dynamic Lighting,
- Emergency Call Stations, Security Systems,
- Environmental Sensors and
- Image Sensors.

Lumca Smartpole



SMART POLE FOR SMART CITIES™



THE SYSTEM OF SMART POLES. Technology needs to be downtown. Systems are being developed that provide security, communication, education, entertainment and energy for recharging, plus much more. The time is now for exploration of technology applications for downtowns, campuses, streets and neighborhoods. The systems exist, pioneering cities are appearing and therefore experiences are available for sharing.



MICROGRIDS, SMART AND GREEN.

“A microgrid is a local energy grid with control capability, which means it can disconnect from the traditional grid and operate autonomously.”

<http://www.energy.gov/articles/how-microgrids-work>

The Idea in Hoboken. The December 2015 edition of *American City and County* published an article entitled: ***The Birth of a Resilient Microgrid: Hoboken’s Journey***. The Sandia National Laboratory in conjunction with US DOE and US DOC did a study for the city.

The purpose of this article is to increase the awareness and applicability of this concept to small cities and towns, hospitals and education campuses and other small areas that want or need control over their supply of energy.

The City decided to pursue the microgrid concept in the aftermath of Superstorm Sandy. The storm-related catastrophe of power outages in hospitals, senior housing projects and other facilities with dependent populations inspired the City to find a way to better protect and respond to power outages regardless of their cause.

Smart microgrids, through technology, can provide discrete control of generation, distribution, hours of operation, pricing and automatic load control and allocation down to individual customers. Smart microsystems can also reduce greenhouse gas emissions and select from a wide range of energy sources.

The Toolkit. “To make the microgrid a reality, Hoboken hired Greener by Design, a private firm, as its energy consultant.” Greener by Design engaged EDF Climate Corps to develop a toolkit to address Hoboken’s situation and to serve as a “model to scale and adapt [the tools] to different types of buildings and different communities.” *The American City and County* article goes on to present the three key features of the toolkit:

- A centralized dashboard,
- A customized timeline, and
- A scorecard.

The Application. Every community has groups of dependent populations vulnerable to power outages. The use of microgrids, especially microgrids supported by alternative energy sources, offers a tremendous opportunity to avoid the misery caused by the lack of power and its many energy-dependent facilities and systems. The link to the study is:

<http://www.hobokennj.org/washingtonstreet/files/hoboken-microgrid-report.pdf>.

SMART MICROGRIDS - CONCLUSIONS.

The strategic deployment of microgrids can build a city’s resilience with grids designed:

- to connect and disconnect from the central grid as appropriate,
- to access alternative energy sources to provide cheap power in normal times and emergency power when necessary,
- to provide power to critical facilities that need to be free-standing in an emergency,
- to serve as a back-up source of energy during emergencies for dependent populations.

SMART SOLID WASTE.

Kissimmee Uses Innovation to Solve Solid Waste Management With Underground Refuse Systems. The City of Kissimmee along with Jay Wheeler, President of **Underground Refuse Systems**, presented an innovative way to overcome the challenge that so many cities and counties throughout the United States have to confront. The system is operational in Kissimmee FL. Sensors communicate when the receptacles need to be emptied. The problems with commercial dumpsters, corrals and spillage are solved by the system pictured below.

Kissimmee is the first government agency to partner with Underground Refuse Systems, a local business that is part of the UCF Business Incubator located in downtown Kissimmee. Underground Refuse Systems is the first of its kind in the United States that utilizes underground trash containers that eliminate unwanted dumpster use, unsettling odors, and unsightly above ground storage of waste and unnecessary use of space.

Source: Underground Refuse Systems

https://www.youtube.com/watch?v=S_o9Eu2iT64



SMART, WEB-BASED ZONING CODES.

Zoning, Where Planning Used to Die. The zoning code, the zoning department and the zoning commission have rarely been places of innovation...that thought is so last century. The 21st century zoning code with its design, sustainability and digital mindset has invaded zoning's traditional staid place and injected technology that promises to be friendly to users, zoners and the community. Digitization of codes enhances the decision-making process and outcomes by letting professionals focus on the decision at hand rather than spending time researching what codes apply to a specific site application.

re:code LA. Los Angeles is implementing re:code LA, described below, based on development of their Webcode System by the re:code LA Team. The City Code Studies Division with Code Studio and sub-consultant Urban Insight has conceived of a digital code that enables instant access to all the code requirements for any parcel of land in the City.

City of Miami Amazon Headquarters 2 Case Study. H2 is only one project of Zonar by Gridics using its site-specific zoning software application. Applications include site analysis, due diligence studies and numerous applications needing analysis of the uses associated with individual properties, and presumably, small areas of multiple properties.

Zoning and Related Tools for Community Design. With new tools and techniques, cities can better achieve their communities' visions by reducing, or eliminating, the historic disconnect between vision and implementation; but times are changing. Form-based codes deal with structures more than the internal uses.

CONCLUSIONS.

1. Infrastructure analyses are being expanded beyond water, sewer and traffic to include amenitized multi-property master stormwater systems, facilities for the reduction, re-use and re-cycling of waste, the provision of broad-band high-speed internet service as a utility and systems to build social and economic assets.
2. The GIS platform will also enable small areas to be defined, analyzed and planned.
3. Proper execution is the key. The essential LDC documents are:
 - Development Standards to control site planning and access to infrastructure with master downtown parking and master stormwater systems.
 - Design Guidelines, aesthetically oriented, to produce vision-consistent infill and redeveloped buildings and spaces.
 - High-speed broad band internet service master plans.
4. Future land use designations and zoning uses permit, by right, mixed-use development with a wide range of downtown-oriented uses including commercial, office, housing, hotel, selected manufacturing and public uses.
5. Master parking system plans reflect a downtown district-wide park-once approach with user-based funding and an idea for the next generation of growth.
6. Master stormwater system plans reflect a downtown district-wide approach to stormwater management with a funding program that assesses individual users their fair-share of funding the master system.