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The Biggest Mistakes Cities Make in Their Quest to Be Smart.

The key is to care about the technology—but not too much

The hottest trend in cities across the U.S. today is to become a "smart city," where apps, algorithms and artificial intelligence promise to create new efficiencies and improve urban life.

It makes sense. What city wouldn't want to be called "smart"? And what city wouldn't want to be seen as being on the cutting edge of technology?

No wonder cities are aggressively courting technology companies to use their cities as testing grounds for smart-city technology.

But as some cities are starting to realize, getting technology is the easy part. The real challenge is figuring out how best to use it. When implemented thoughtfully, technology can be an incredibly potent tool to advance social progress. When implemented carelessly or inappropriately, however, technology can be ineffective and can even exacerbate the problems it is meant to address.

Counterintuitively, the key to leveraging technology to improve urban life is to abandon the dream of being "smart"—which prompts a narrow focus on technology that can lead cities astray—and instead strive to be "smart enough" to advance established goals

To do this, cities need to avoid three common mistakes when it comes to chasing the smart-city dream.

Technology as the solution

The first mistake that many cities make is to be consumed by the possibilities of technology, regardless of whether those enhanced capabilities actually dovetail with their long-term vision.

Consider autonomous vehicles, whose allure has led many cities to focus their transportation investments and policies on accommodating self-driving cars. Technologists have proposed visions of autonomous vehicles zooming through downtown without congestion—coordinating their own movements without the need even for traffic lights—leading cities to consider reducing investments in public transit, expecting that self-driving cars will make such systems obsolete.

What many cities don't realize is that the focus on self-driving cars has the potential to obstruct their efforts to overturn decades of automobile-focused development. A narrow emphasis on autonomous vehicles would come at the expense of efforts to foster walkable and bikeable neighborhoods.

If cars can travel at faster speeds and transit is neglected, people will likely respond by moving farther away from downtowns, increasing sprawl—exactly what many city planners are trying to avoid. Moreover, allowing high speeds on city streets would diminish safety, walkability and vitality. Main Streets would turn into high-speed corridors. Imagine how unpleasant it would be to eat lunch

or go shopping along the side of the freeway.

Instead, cities should be driven by clear policy goals and long-term planning efforts that are independent of technology. By all means, use technology in service of those bigger goals. But don't let the excitement about self-driving cars lead to cities that are optimized for self-driving cars but unwelcoming to pedestrians, transit and vibrant public space.

A smart-enough city might instead expand public transit through self-driving shuttles that connect people to transit hubs and provide transportation to those without the ability to drive. And by calming traffic on city streets, it could create shared streets where pedestrians and cyclists are kept safe and feel comfortable.

The goal would be to use smart-city technology not to speed the adoption of autonomous vehicles, but to speed the realization of existing planning and transportation goals. Self-driving cars would be a means to that end, but not the end in itself.

Technology as a quick fix

The next mistake that many cities fall prey to is expecting technology to provide a quick fix to a much bigger urban problem. This is the danger of conceiving of an issue as a technology problem: It can make that problem appear artificially simple and suggest "solutions" that fail to address the right issues.

A perfect example is the effort to increase civic engagement. City governments and technologists have proposed countless platforms, social networks and apps to make politics and governance simpler and more efficient. Most notably, 311 apps allow residents to notify the government about issues like potholes or damaged street signs straight from a smartphone.

Such efforts may make some parts of government more efficient. The problem, though, is when they become a stand-in for a city's civic-engagement efforts. Politics isn't an optimization problem—being "smart" won't solve democracy.

These apps have several fundamental problems.

First, they typically lead to reports that are disproportionately from white and wealthy residents.

Second, emphasizing efficient service delivery through 311 apps diminishes people's concern for the public good by suggesting that government exists to address personal needs, as if it was a customer-service agency. Promising to quickly repair every pothole elides the reality that government has limited resources that often must be allocated to other issues and other people.

And three, the desire for efficiency leads 311 apps to prioritize relatively simple needs like street repairs over more complex (and therefore inefficient) needs like improved schools. One neighborhood official that I spoke with, for example, focused his efforts entirely around telling people to submit 311 reports and making sure those requests were responded to, with little focus on fostering deeper forms of engagement.

Rather than expect technology to completely solve civic engagement, cities must figure out which aspects of democracy and engagement can appropriately be characterized as technology problems.

For example, by designing technologies to facilitate deliberation rather than simple interactions, cities can develop online platforms that foster dialogue and community. Meanwhile, by disseminating information online and allowing online voting, cities can trim the fat from burdensome

civic processes like participatory budgeting, allowing more people to participate in civic life without diminishing the value of that participation.

Smart tech, stupid implementation

The final mistake that cities make is to focus more on the technology itself rather than on integrating that technology into institutional practices and processes. Smart-city rhetoric prescribes newer and more advanced technology as the way for governments to quickly solve every problem, leading cities to acquire new technology without clear plans for how to use it.

Yet the real work of making technology valuable in cities involves reducing institutional barriers and developing the infrastructure and practices to make all that data actionable.

Let's take a basic example: firefighting. Suppose a city wants to develop an algorithm aimed at reducing fires by predicting which buildings are most susceptible.

Creating the algorithm itself is a breeze compared with eliminating the operational roadblocks to developing and using it. The fire department might have incomplete data that is missing all of the fires from a recent year. Another department might have a full inventory of buildings in the city, but identify locations using a different format than the fire department does, making it difficult to merge the two sets of information.

Meanwhile, the fire department staff might not understand or trust the predictions made by the algorithm, especially if the predictions provide information that can't easily be integrated into existing or new operations. For example, predictions of every building that pose a high fire risk may not be useful if the city only has the ability to intervene on buildings that face fire hazards due to outdated electrical systems.

Instead, municipal leaders must focus on the painstaking work of developing the infrastructure and processes that make the data useful in practice.

To help prevent fires, this means ensuring data is accurate, unifying data formats across different departments, making sure those departments share information, and training fire-department staff in how to use and interpret the data. And they need to study whether interventions based on that data actually had the desired effect.

Too smart for their own good?
Cities today are at a crossroads: As the opportunities for using technology grow, so do the risks.

When cities focus too narrowly on technology, they risk creating places that are superficially smart but where human needs are ignored. When they avoid these mistakes—when cities have well-defined goals that guide their use of technology, embrace the complexity of urban challenges to identify the most effective interventions, and focus on integrating technology into institutional processes—cities can achieve various forms of innovation that range from improving social services with algorithms, studying environmental conditions with sensors, and protecting community health by predicting unsafe restaurants.

Technology can help us attain these benefits—but only once we recognize its limits and the challenges to wielding it.

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