19 Key Essays on

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Designing Connections

No one disputes that new technologies, including the ubiquitous Internet and World Wide Web along with social media, have changed our lives and how we work and play. Most people who use these technologies can point to many positive things that have resulted. What we tend not to focus on, though, is the primary downside of our digital connectivity. While we're all busy using our various devices, doing everything from finding a restaurant nearby to sharing an experience we've had with acquaintances to working from home and thus avoiding contributing to a clogged highway, we may also be separating ourselves from direct human contact. And that may exact a severe price on society.

As Sherry Turkle (2011, xx) has written, "Technology proposes itself as the architect of our intimacies." She warns that humans are falling prey to the "illusion of companionship" as we amass Facebook and Twitter "friends" and treat tweets and wall posts as "authentic" communication.

The challenge today, then, is to design technologies we can use, but not let them use us. No one disputes that remote interaction not only has positive attributes but that in certain cases is necessary. No one disputes that remote interaction may, in many cases, be more efficient and in some instances may achieve better results. Still, though, our use of digital technologies, today and tomorrow, poses a question. It is a question we may not have thought about but that is pressing nonetheless: How do we make technological advances without disconnecting from direct human interaction?

Consider this question in the context of some of the most recent amazing advances in technological capabilities.

- There has been a huge uptick in the number of consumer wearable and sensing technologies that do everything from tracking physical activity, dietary choices and calories, sleep habits and cycles, to sensing mood changes, where you gaze, and whether your posture needs correcting. Many of the devices are linked to smartphones applications and websites

where goals can be set, progress monitored, and even competitions can be set up with friends and strangers.

- Edible and nanotechnologies in the years to come will become more popular and diffused in our societies. In June, the head of Google-owned Motorola's research division announced the development of an ingestible vitamin prototype that will transform the human body into an authentication passcode. Once swallowed, the pill creates an individual 18-bit ECG light signal detectable by external devices such as a personal computer or smartphone. The small chip in the pill is switched on and off by stomach acid (Ferro 2013). We can already foresee many areas where this type of technology can be beneficial.

- With a grain-of-rice-size RFID chip implanted in his hand, artist Anthony Antonellis has created what some are calling the first-ever digital tattoo. The chip functions like a floppy disk: it stores 1KB of data and the content it holds can be swapped out and replaced with any text file or image of a size less than its storage capability. The content is viewable only on a smartphone (Zolfagharifard 2013).

- Professor Hugh Herr, who heads the Biomechatronics research group at the MIT Media Lab (2013), has developed physically assistive technologies that allow what he calls "intimate extensions" of the human body "structurally, neurologically, and dynamically," with a focus on orthotics and prosthetics. His inventions include a computer-controlled knee and a robotic ankle-foot prosthesis that mimics the action of a biological ankle and allows an amputee to have a natural gait.

These are but a few of many examples of how technologies have not only progressively become part of our lives, not only extensions of our bodies, but integral parts of us and our bodies. There is an emergent and increasingly symbiotic relationship between humans, networks, and technologies, which poses the earlier question a different way: How do we continue to progress and reap all the potential benefits of what digital technologies have to offer without turning ourselves into cyborgs?

What follows is not a Luddite manifesto, nor a screed against human progress. Rather, consider it in the tradition of cautionary tales. In this

case, it is a tale about what we, as humans, lose as we increasingly move our interactions with others to our digital technologies and eliminate, more and more, the human activity of talking with others face to face, in shared physical space. It is a tale about the decline of *Dasein*, or "being there," which philosophers (notably Heidegger [1927]) have identified as a uniquely human experience that helps shape us as social beings. It is these human interactions that are being subverted, even if inadvertently, by digital technologies.

And further: Can we actually build trust, engagement, and even social sustainability using digital technologies... things that seem antithetical to their use?

More than a hundred years ago, German sociologist and philosopher Ferdinand Tönnies (1887) provided a kind of guide for answering that question. He described two types of social groupings: the *Gemeinschaft* (or community) and the *Gesellschaft* (or society). The former refers to "emphatic" groupings of people in which feelings of togetherness and mutual bonds are shared, like a family or a neighborhood. In the latter, cohesiveness among group members is more mechanical and based on individual aims and goals.

Increasingly, it appears that the severing of direct human interaction that occurs with the use of so many digital technologies makes for a more efficient *Gesellschaft*, but perhaps at the expense of the *Gemeinschaft*. We need to find a balance.

This issue of balancing advances in digital technology with maintaining, and indeed strengthening, human interaction and human connections at the *Gemeinschaft* level has informed the work of the MIT Mobile Experience Lab[1] from its beginning. The aim of the lab's research has been to creatively design new media and technology to connect people, places, and information, always with a human-centric approach in which technology is a tool, not the driver of innovation. While it may seem a cliché, the goal truly is to design technology around people, not the other way around. So, the complexity of our questions has evolved over time, from how to build in a way to promote

1. http://mobile.mit.edu

direct connections while taking advantage of new technologies that enable new personal devices, to an outlook today that encompasses the entire digital ecosystem of a home or, beyond, an entire city. What we've tried to do, in a sense, is grow along with the expansion of how *smart* is used with respect to technology: from smart personal devices to smart cities, reflecting back on what we might call the *smart individual* in a digital world. And not just smart in using digital technology, but smart in not allowing that technology to disconnect us from each other as it is seeming to connect us.

It is this context within which the digital technology applications described below have been designed and employed under circumstances where human connectivity may be between individuals, neighbors, schoolmates, or communities and the institutions on which they depend and that exist to serve their interests.

Trust and Engagement Through a Wearable Device

Brescia is a province in northern Italy, situated at the foot of the Alps. The city of Brescia has about 200,000 people, and it was facing a big problem in the mid-2000s: a big increase in the number of automobile accidents involving young, drunk drivers. The Councilor of Innovation and government workers involved with running the province's information and communication systems believed that digital technology might provide part of a solution to the problem. The objective was to help create an environment in which the incidence of drunk driving would not only decrease, but would do so while drawing young drivers into a closer relationship with government institutions. Put differently, the institutions wanted to be seen not just as the enforcers of laws, but as a component of a social circle that could help lead young drivers to better outcomes. That would, by definition, mean using technology as a tool to strengthen human connections.

To begin to find a digital *solution* to a social problem, though, required not simply going through the catalogue of digital technologies and choosing something that seemed apt, but bringing civic engagement to the effort from the beginning. Students in Brescia joined with students from MIT to explore the local issues and social culture to ensure that any solution would

unfold in a local context that would build connections. They did background research, interviewed residents of Brescia, and explored the city. They conducted a design charette and met with Brescia government representatives in a workshop, building a portfolio of ideas for how to go beyond the simple application of technology. The students from Brescia, in particular, became conduits between the local Brescian citizenry and the laboratory.

Ultimately, what the lab designed as a technology *solution* to the drunk driving problem (based on what had been learned about Brescians and on the outcome of the earlier design charette) was a system that combined wearable technology, mobile phones, and a web infrastructure specifically aimed at establishing a peer-to-peer trust network in which Brescian youth address the social issue of drunk driving themselves, but aided by government institutions. Thus, the system builds direct human connections based on trust while at the same time promoting civic engagement.

Each user of what is called Ride.Link[2] becomes a registered member of an online social networking platform with a personalized profile. From there, a network of friends is established. Users wear smart bracelets when out partying or at clubs. The bracelets are equipped with simple breathalyzers; the user blows on the bracelet to determine whether driving would be safe. If not, the bracelet sends a message through the system, via the cell phone, to contact a friend who can drive.

The more sophisticated social component is found in how the technological tool aims to strengthen trust. The online social network has components of reputation management; the system facilitates matching a group of designated drivers with their friends who need a safe ride home if they consume alcohol and are unable to drive themselves, and over time reputations for reliability, based on trust, grow. Once home safely, drinkers and drivers are rewarded with incentive points redeemable at an e-commerce store integrated into the system.

Notably, in the Ride.Link demonstration project the users themselves identified all manner of potential new directions in which the technology could be used.

2. http://mobile.mit.edu/p/ridelink/

Building social trust was at the very core of the conception of the Ride. Link system, as a step toward strengthening human relationships and social connections among a peer group and empowering a local community to develop solutions to its own problems. UNICEF's Youth-Led Digital Mapping project in the favelas (slums) of Rio de Janeiro, Brazil, also using a technology developed by the MIT Mobile Experience Lab, takes this empowerment to a new, higher level (Caparelli, Palazzo, and Kone 2012).

Creating Community Change Through Digital Engagement

The UNICEF country office in Brazil trains young people to gather stories and data about their communities using a smartphone-based application called UNICEF-GIS, which is based on the underlying technology Open Locast, a location-based media framework. With it, youth can map their neighborhoods, identify where governmental and nongovernmental services exist or may be missing and address issues of accessibility for young people, point specifically to places where young people face particular risks or hazards (actionable items related to infrastructure and the environment), and locate public social spaces where the community is coming together.

Locast was developed as the Mobile Experience Lab sought to gain a better understanding of how evolving media technologies could be used to improve connections between people and their social, cultural, and physical spaces. Its development benefits from what we learned in 2005 with a project in Manresa, a small city in Catalonia (Spain) that began with an exploration of how governments and civic institutions can improve the way they communicate with citizens using networked technologies and new media, and how governments might become more responsive and offer better services through the use of wireless, interactive, and location-aware technologies. Back then, we were trying to provide Manresa's citizens with a sort of magnifying glass that would allow them to see into civic institutions, thus making them transparent, as well as allow citizens to investigate and explore their urban environment. We called the device we developed (a modified cell phone) the electronic lens, or eLens.[3]

3. http://mobile.mit.edu/p/elens

With eLens, users could post messages in physical locations, tag buildings and places, create social networks based on common interests and social empathy, and share information, opinions, experiences, and passions. Tagging was central to eLens; it was a way to enrich the physical environment by combining formal and institutional information with informal communication and personal annotations. People from local communities who posted their ideas, information, and experiences in their physical environment could create affinity based on social networks. In short, digital technology was used to strengthen *Gemeinschaft*.

In the initial experiment, Manresa teens were organized into teams to redesign the city's three famous architectural walks, which are a tourist attraction. Using the technology and working together, they would provide on-the-spot contextual information about the city's attractions and resources. They could tag buildings with formal messages about history, architecture, and the city, or about their own subjective interactions with their community and its people.

eLens was a clear effort to merge digital information into the built environment and merge user-generated communication and annotation with top-down information. The project was an exploration in embedding human memories and making them accessible as a way to humanize cities and physical places. This had already been done with art (e.g., sculptures in public places), but we wanted to do it with human communication. And while the technology may not have been perfect for the objective, we made the effort.

In much the same way today, Locast allows for rapid prototyping and quick deployment of location-based media platforms, and has two primary components: a web application and a mobile application that act in unison to provide a platform that can be tailored to specific users. In the Brazil case, Locast—as part of UNICEF-GIS—is tailored to build human connections among the youth while, at the same time, identifying to service providers (including governmental and nongovernmental institutions) where they can disseminate information and assistance face-to-face.

This digital technology, and the way it's being used, supports not only bottom-up communication from favela residents to institutions that can

help them, but also horizontal communication within the community among activists and non-activists alike. Before the UNICEF-GIS project was rolled out in Rio, there was already some community self-organization to address many of the problems residents encounter. Requiring face-to-face engagement in physical space, the tool helps reinforce the community self-organization and thus strengthen human interaction.

The Brazil project is by no means the first use of Locast to build civic engagement and human connections. In northern Italy, the technology was at the center of the Locast H2Flow project, in which students used templates on their mobile phones to construct video reports and documentaries about sustainable water issues in their community. Working in groups to conduct interviews, survey the public, and uncover issues *in the field*, the teens not only learned through participation but also drew closer together to each other and to the local authorities responsible for water in their region. This engendered a new level of civic engagement, one that required much more than sitting at a desk and working at a personal computer. The students were freed from those shackles, compelled to go outside and work with others, face-to-face.

A digital technology like Locast also reinforces the transmission of knowledge, culture, history, and memory, all of which are key components of *Gemeinschaft*. In the Boston area, the lab undertook the Memory Traces project to explore the potential of digital storytelling using mobile devices.[4] Interviewing prominent first-, second-, and third-generation Italian Americans, the project produced 150 *episodes* relaying memories, made the stories *visual* by overlaying them on a map of the city, and made it possible to access stories by person, time, place, period, or theme. A mobile application allows users to follow the stories as they travel through the city of Boston, linking them directly to the physical urban environment.

It turns out that geo-referenced media has the potential to enrich learning and create strong links between people, places, and information. The technology can also help empower people, young and old, to become public advocates and even decision makers, as in Brazil. In Boston, Memory Traces is demonstrating how embedding information into physical spaces

4. http://locast.mit.edu/memorytraces/

and then unleashing digital technology to bring people together around that information can strengthen human connections.

Smart People, Not Just Smart Technology

The Locast projects just described point to how much of what futurists predicted about digital technologies has come to pass, and also how carefully we must tread to ensure that these technologies don't engulf us.

Today, powerful little computers that we carry around in our pockets allow us to make recordings, take high-quality pictures, listen to more music than is almost imaginable, access the Internet at high speeds, process a variety of data, organize our personal information, and employ sensors that tell us where we are, how to get where we need to go, what the weather is, how fast we're moving, where the next coffee shop might be, deposit and withdraw funds and pay, share a plethora of things with other devices thanks to embedded near field communications capabilities, tag just about anything...

The advances in digital technology have brought computational capability directly into our physical surroundings, where once we had to sit at our computers at work or home to do not even half of what we can do today.

These same advances, as the Ride.Link project illustrates, are beginning to create an ecosystem of wearable digital technology.

Yet, we still ride subways on which dozens of people, despite their physical proximity, are completely engrossed in their personal digital *spaces*, reading e-books, playing games, surfing the web, talking on the phone to someone else similarly ensconced in a personal digital space, but not co-located. So, the risk remains: our human connections become more and more severed, with real physical interaction in physical spaces replaced with, well, the sort of *cyborgian* life alluded to earlier.

It turns out this question of connections to physical space is as important as the earlier question posed about taking advantage of digital technologies without disconnecting from direct human interaction, which takes place in shared physical places—as the Brazil project shows. So, then, how do we employ digital technologies without isolating ourselves from others in real physical spaces?

Digital Connections in Physical Space

Some years back, the Mobile Experience Lab began to work in France with the Régie Autonome des Transports Parisiens (Autonomous Transit Operator of Paris, or RATP) to engage people there in thinking about the bus line of the future.[5] The RATP operates a multimode system that includes extensive bus lines, regional trains, trams, and even the subway service, and is today the major provider of public transportation in the Greater Paris area. A lot of effort was put into the future of the physical buses, how bus routes should be designed, and how riders should access and even help design the bus schedules. All of these considerations led to the bus stop, where the issue of human connections in a digitally enabled world once again arose.

First, the lab explored several questions. How can we connect the bus stop more organically to the bus? To its environment? How can we create a seamless fluidity between the bus stop and the neighborhood? What can be done at the bus stop to help people put the public bus system to better use? To have a better understanding of the bus lines and how they can be used? To provide more portals into the urban environment between physical stops? What might be a good design for the bus stop of the future? These questions were considered in the context of human connections, not simply digital technologies and how they might be employed in a bus stop of the future.

The resulting design of a bus stop had lots of digital capabilities, from digital display technology to sensors that allowed it to become a herald

5. http://mobile.mit.edu/p/smartmobility/

of neighborhood environmental conditions. But in the context of strengthening connections, the lab took some counterintuitive steps specifically designed to compel face-to-face interaction in physical spaces. It was an early experiment in what this article is all about.

The lab sought to establish the bus as a kind of *outdoor living room*, a space between a bus rider's home and work or destination that can build stronger social ties between people and between people and their physical surroundings. It is the same idea behind the increasing prevalence of interactive furniture in public spaces, where digital technologies and new media are used to help people find what they need—information, services, whatever—locally. Such applications intensify a physical space, making it richer and denser and capitalizing on opportunities to connect people.

In Paris, the bus stop was designed not just to help people use the bus system itself, but also to serve as a local information kiosk for its local community, as an information portal through which citizens can access fundamental resources offered by the city of Paris and, in particular, neighbors and the neighborhood. In addition, it was designed to do so by creating a kind of collective intelligence that would enable the local community to build its own human connections independent of the bus line.

Facing waiting passengers, the bus stop (called the Electronic Guimard, after Paris Métro designer Hector Guimard) has an interior that provides displays and interaction screens for way-finding and schedule information, news, information about local businesses and points of interest, and local community networking. It is in the networking that the human connection-building becomes most pronounced. So, for instance, someone in the community may be able to access the bus stop from home, digitally, to post a notice about starting a neighborhood book club, but eventually the system will require that person and other interested people to continue their organizing efforts in real time, face-to-face, maybe at a neighborhood café that has been enabled with access to the bus stop and further digital tools needed to extend the initial organizing efforts until a real book club exists, with people physically present in a shared space.

In this way, the conception the lab realized was to strengthen the real links between commuters, visitors, neighbors, and, on a larger scale, the

city's citizens—at the very local level, but also promoting face-to-face interaction by promoting local conversations, all while helping RATP keep current with the latest in digital technologies. The Electronic Guimard, while by now perhaps eclipsed by more recent technological advances, keeps alive the key notion of an interactive urban artifact that reinforces social interactions.

A Connected Home

The Paris project addressed human interaction, connections, and physical space on a community-wide, even citywide scale. So it may seem a step back to take on the questions posed earlier at the level of an individual family's domicile. After all, one function of our homes, beyond shelter, is to offer a refuge from the world outside, a place to rest, refresh, and renew.

This does not negate, though, that even the physical space of a home can employ the most advanced digital technologies while strengthening human connections beyond the walls.

Typically today, designers of technologically advanced housing are addressing a common set of issues: transcending shelter to make the home a potential workplace easily connected to the online world; employing building methods that are environmentally sound; using materials that are sustainable; and embedding digital technologies that support and encourage efficient use of resources (electricity, water, and so on). These are not specifically issues of strengthening human connections.

What might it look like to design a home with digital technologies that create the potential for social interaction between the house and its inhabitants, other dwellings and residents, and the larger community and world?

In Trentino, a province in northern Italy, the Mobile Experience Lab has worked in concert with other researchers and designers to answer that

question. Part of doing so has meant expanding the notion of sustainability from the environmental and energy contexts to something more akin to social sustainability: designing what is called the Connected Sustainable Home in a way that allows it to be smoothly integrated within its specific community given a specific social, cultural, and economic *context*. Coupled with physical space, that context is the arena within which human connections unfold. After all, physical spaces carry history, memory, and culture just as people do, and these are the building blocks of human connections.

An example of the solution can be found in the dynamic façade of the Connected Sustainable Home, which operates using digital technology. The façade is a matrix of 4 × 9 digitally controlled windows, each with three degrees of freedom that allow it to function as a filter between exterior and interior controlling air, daylight, and heat flow. Twenty-seven of the windows in the façade contain an electronic actuator hidden in the frame to allow automated operability. Each windowpane is operable independently so that the permeability to airflow is adjustable with precision. Cross-ventilation becomes possible when house windows facing north and windows of the dynamic façade facing south are open at the same time. The windows themselves are made of radically new materials in a radically new design. An artificial intelligence system optimizes the production, management, and distribution of the renewable energy the connected home utilizes.

While at first blush the dynamic façade may seem a purely technological advance, its design has two main aspects of sustainability that function together and that are linked directly to our broader objective of human connectivity. The first is performance, and the need to achieve natural ventilation. This is eminently *human* in the context of where the home is built; open windows have specific social and cultural implications for the site in Italy, and so making the windows operable was a given. Italians build human connections in part through their interactions through windows, from the outside to the inside and vice versa. A home without windows that can open to the outside world and to neighbors and strangers who may pass by, no matter how technologically advanced, energy efficient, and *sustainable* it may be, is a home that weakens human connections.

The second aspect of sustainability in the Connected Sustainable Home is aesthetics. How, for instance, is the house perceived from the public

street? The windows change positions and each serves as a light filter, becoming transparent or opaque. Does the look of the dynamic façade matter in strengthening human connections?

We found the ability to achieve different visual patterns with the windows (open/closed, degrees of interior illumination, average light, etc.) provides an aesthetic advantage. The house can reflect different levels of comfort; the façade can show to the outside world the *behavior* of the residents. Diverse patterns can be aesthetically pleasing. Overall, the combination of performance and aesthetics in the dynamic façade creates a Connected Sustainable Home that looks different depending on external conditions. The windows allow the winter sun to enter. In times of warmer weather, fresh air enters the house. At night, visibility into the house can be blocked for privacy, while still maintaining light and air characteristics. The dynamic façade functions as a responsive, programmable skin between exterior and interior. And in doing all of this, it engages the inhabitant, the neighbor, and the passerby at the aesthetic level to make a connection.

Beyond the Conventional Definition of Smart Technology

When technologists use the word *smart* to describe their inventions and applications, they typically mean harnessing a whole host of digital technologies—monitoring systems, automated controls, sensors—in combination with modeling and decision support to do some things more efficiently and to do some things that have never been done before. That's what is meant by the smart electricity grid, smart transportation networks, and so on. While the objective may more often than not be to figure out how to correct for erratic demand that makes constrained supply difficult to manage, which by its definition centers on human activity, it is not about humans as humans making human connections.

As the lab's projects show, though, the potential for expanding this conventional definition of smart to transcend devices and systems and encompass people certainly exists.

For instance, in the case of the Connected Sustainable Home, the objective was not to create a *smart* home in a completely techno-centric sense, although there is a lot of digital technology (far more than described in this article) involved in the design. The house's own intelligence does not make decisions for the inhabitants. Instead, the design of all the efficiency-related technologies in the house work as a kind of *personal trainer* to encourage efficiency and thus sustainability, and in a context where the technology *relationship* between the house and its inhabitants can be extended beyond the physical building to a wider world. Just as with the Nike wristband, neighbors might playfully connect as they *compete* to create the most efficient community.

In the book *Connected Sustainable Cities*, this idea is taken further and writ larger. The idea of such a city begins with employing "ubiquitous, networked intelligence to ensure the efficient and responsible use of the scarce resources ... that are required for a city's operation, together with the effective management of waste products that a city produces, such as carbon emissions to the atmosphere" (Mitchell and Casalegno 2008, 1). But its end is not simply to be technologically smart. It is predicated on the conviction that "pervasive connectivity and related services can encourage new ways of planning, working, and living that make social connections stronger and lead to cooperative sustainable behavior" (Mitchell and Casalegno 2008, 1).

In the context of an entire city, human connections are a foundational aspect of both the smart city and its smart inhabitants, along with technology, to enable "coordinated, efficient, and sustainable urban policies across neighborhoods, institutions and, indeed, the entire social fabric of an urban area" (Mitchell and Casalegno 2008, 1).

How do we avoid becoming cyborgs in a city that takes full advantage of advanced digital technologies in a city, in applications ranging from mobility to work to living and playing? The interactive bus stops described earlier are a start. Self-organized ridesharing, enabled by smartphones, is another. In residences and offices, sustainable agriculture on rooftops can flourish with the help of digital technologies that can not only guide planting and growing decisions, but also help organize the work and bring people together to sow and reap. On a larger scale, neighborhoods can be

designed as connected live-work villages that use digital technologies to take advantage of flex time, telecommuting, cloud computing and other collaborative tools, and shared work and meeting spaces as needed. Systems can be established that leverage everything digital technologies have to offer while still putting humans in direct contact within physical spaces.

First Step: Admitting the Challenge Exists

It seems that a lot of technologists either avoid or perhaps have never even considered that their designs and inventions are pulling people apart. It's easy to be seduced into believing that ubiquitous connectivity with your far-flung family through Facebook has only positive ramifications. It's easy to miss the isolation that comes from sitting alone at a computer, seemingly connected to an entire world but absent any physical contact with others in a real physical space. Do we really want to get to a point where a smiling emoticon sent by text or posted online is the norm for showing glee, where once we saw the real smile?

Again, this is about striking a balance.

Digital technology has reinvented our expectations for staying connected at the cost of severing some of our most important human connections—the ones that happen face-to-face.

How often have you communicated digitally with someone over a period that could have just as easily been spent sitting down together for a cup of coffee?

This problem is real, and there's a strong argument that as our devices grow more and more capable we had better do something about reversing the trend. It doesn't have to mean stopping the advance of technological progress. There's no way to impose a rule that every use of digital technology has to create opportunities for the kind of human interaction that

technology tends to suppress, but we do need to think more carefully about how to ensure that we can all reap the benefits of digital technology without losing those interactions and… well… becoming something like the cyborgs mentioned earlier.

The correction of our course can begin with a recognition of the problem and a pledge to make sure our progress is being driven by what people need as people, not by what is possible with the next technological development in a sort of vacuum. An iPhone today has more technological capabilities built into it than existed in the first space shuttle. We don't need to halt the expansion of iPhone capabilities, but can we at least keep asking ourselves, at each juncture, whether we actually need the next new thing, and what are its implications for advancing or subverting human connections?

The massive uprisings of the Arab Spring have taught an important lesson. Enabled in large part by digital technology, they still showed that humans have to make physical connections to hope to create a better world. For all the amazing interactions possible on, say, Twitter, it was to the streets of Tunis, Cairo, and elsewhere that hundreds of thousands of people came to make their difference. Yes, they could broadcast content around the world at the proverbial flip of a switch, but they could not take down a dictator without relegating digital technology to its rightful place as a tool of human action, not a substitute for human action.

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