Adapting to Change

Speakers at the BROADBAND COMMUNITIES fall economic development conference discussed how technology disrupts lives – and how it offers lifelines to help individuals and communities cope with that disruption.

A BBC Staff Report

Change is nothing new, according to technology guru Ray Kurzweil. It's been ever-present – and picking up speed – for billions of years. What's new is the pace of change relative to the human life span.

As technology accelerates, people have less and less time to adjust to new conditions. Each year is different from the last, and next year promises to be even more different.

Career change, once a rarity, is now the norm. People now hold an average of 12 different jobs over their working lives – and the same job can change from year to year. Technologies on the horizon, such as artificial intelligence and robotics, threaten to make lives, livelihoods and communities obsolete. Nearly half of today's jobs are forecast to disappear in the next 25 years, according to an Oxford University study. Those who plan for community change no longer talk about achieving a desired end state but about creating a culture of continual adaptation.

Adapting to change was a pervasive theme at the BROADBAND COMMUNITIES 2017 conference on Fiber for the New Economy, held in Atlanta in November. In session after session, speakers stressed that technology is both the source of disruption and the means of adapting to it. Broadband connectivity is a necessary part of the solution. But successful adaptation requires more than technology, speakers said. It takes vision, determination and communication on the part of individuals and communities.

Following are some highlights from these discussions.

JOBS OF THE FUTURE
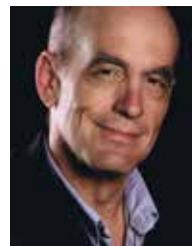
Gary Bolles, eParachute

Gary Bolles, eParachute: Work is the channeling of human energy to solve problems. By understanding more about their unique mixes of skills and attributes, people can continually optimize what they do for their work and continually prepare themselves for their next steps. Identity-rooted work (such as being an accountant) will become less valuable, as will specialized technical knowledge. New technical knowledge can be acquired fairly quickly. Transferable skills (such as getting along with people) will become more valuable. Everyone will have opportunities to navigate the new world of work and perform meaningful, compensated work in the future.

As technology transforms the workplace, identity-rooted work and specialized technical knowledge will become less valuable.

Right now there are many opportunities for technology to disrupt work, but increasingly, technology will offer more opportunities to enhance work. For example, with augmented reality showing where to place a drill, a manufacturing worker can do tasks he or she couldn't do before.

Greg Laudeman, Magellan Advisors: Manufacturing is moving to lights-out facilities. The economic opportunities are not in jobs in those facilities but in designing the products and equipment and systems to make them work.

Greg Laudeman, Magellan Advisors

Paul Baker, Georgia Tech: The World Economic Forum, predicting the skills needed for future work, says that STEM (science, technology, engineering and mathematics) skills are necessary but not sufficient. Soft skills are required, too. A brilliant engineer who can't communicate with others isn't very effective.

Paul Baker, Georgia Tech

Which problem are you trying to solve – creating jobs or matching available skills to needs? Reframing the problem may be necessary. One entity I consulted with told me it needed more training, but then it had no jobs to fill. In another case, a company was given incentives to locate a factory in a small town, but it soon had to shut the plant because it couldn't find enough trained workers or resources to train workers.

Georgia Tech was asked to develop an online master's program in computer science, and 17,000 students applied. It has a higher dropout rate than the in-person program, but the quality of the graduates is the same. One of the teaching assistants is an AI bot, but students can't tell. Through this program, Georgia Tech has contributed a 9 percent increase in computer scientists at low cost.

Nicolette Darjean, David Thibodaux STEM Magnet Academy, University of Louisiana: We are teaching high school students a college-level engineering curriculum using an online educational tool called Project Lead the Way. We use industry problem-solving techniques to do real projects. We started by creating STEM activities for public parks. Then we were chosen to put a microlab on the International Space Station, so the students coded the lab to work autonomously in zero gravity for 30 days. The students came up with the Atomic Agora, a tiny-house project. This was a two-year venture that the kids designed from scratch, working with an architect. They wanted it to be a benefit for an underserved community. When Mozilla came

Nicolette Darjean, University of Louisiana

through with a grant, the students realized that the house had to be more than a home – it's also a Wi-Fi hub, a guerrilla classroom and a miniature example of a smart city.

Kids with diverse learning styles can learn and create in different ways. We don't teach to a test; our students learn better by making education a hobby, and they do a lot better on the tests. There are challenges, though. No one else in the district really understands what we're doing. And industry representatives won't come in to look at the students' projects. They take for granted that kids can't do this kind of work. We'd like to make connections between the community and the industry. It could make a real difference in the economic development of our city and state.

Theresa Collington, WorkingNation: Ashbury Manufacturing in West Virginia needed robotics and automation, but it didn't want to displace its workers. It partnered with Xometry to enlarge its market and was able to add robots without firing people. It started the robots paired with workers on the night shift. Workers learned how to let the robots do the rote tasks and focus more on the higher-level tasks.

Theresa Collington, WorkingNation

In Kenosha, Wisconsin, Gateway Technical College partnered with Snap-on Tools and Fiat to create an advanced automotive technology program. They found bright kids and created career paths for them.

ADAPTIVE COMMUNITIES

Gary Bolles, eParachute: Adaptive communities make use of emergent leaders, who aren't necessarily the traditional community leaders but those who are passionate about the future of the community. These communities have processes to convene on a regular basis. They use rapid-cycle assessment and reporting on what they've done.

Gary Bolles, eParachute

Peter Hirshberg, Coauthor, Maker Cities: Innovative programs help communities adapt to change. Rising Tide Capital, a nonprofit in Jersey City, New Jersey, puts people through a 15-week program to train them as entrepreneurs. It's been very successful in terms of income. In Coeur d'Alene, Idaho, the Innovation Collective engaged the community to think through what it wanted; it decided on formal and informal entrepreneurship training focused on robotics and artificial intelligence. In Pittsburgh, which evolved from steel to software to robotics, the museums, libraries and foundations got together and came up with mechanisms for

Peter Hirshberg, Coauthor, Maker Cities

STEM education. Brooklyn, New York, needed affordable space to put equipment; the city acquired the Brooklyn Navy Yard for a dollar and used the space for companies that could offer advanced jobs. In an era of broadband and connectivity, social connectivity matters most.

Kokomo, Indiana, was an auto innovation town, but a lot of that industry left. The community realized it wanted to preserve the downtown core, where manufacturing was concentrated. It wrote a 15-year plan and is fleshing that out. In Wenatchee, Washington, a high school student visited a Maker Faire in Seattle and then brought one to Wenatchee. The change makers in all these cities were individuals who saw something and catalyzed the rest of the city. They made quite a transition from despair to turnaround.

Matt Dunne, Center for Rural Innovation

Matt Dunne, Center for Rural Innovation: In White River Junction, Vermont, the community came together and decided that being weird and decrepit could be cool. People created "flywheel synergy" around the creatives. They transformed unused buildings into live/work artist spaces. Their big breakthrough was starting an MFA program in graphic novel writing. Now there's an Equity theater, software developers, a publishing house and a vibrant downtown. I wouldn't have thought enough people were there to do it, but they stayed focused on creative energy. They brought in resources and exported value.

Debra Lam, Georgia Tech

Debra Lam, Georgia Tech: Smart cities lower the barriers for entrepreneurs. They make possible coworking spaces, accelerators, and innovative landscapes.

Archana Vemulapalli, District of Columbia

Archana Vemulapalli, District of Columbia: Implementing smart-city technology can enhance residents' access to earnings and education. One example is mobility applications. If I'm planning the right way, I'll provide options for residents to get from point A to point B in multiple ways at multiple price points. They'll be able to get to their jobs – or job interviews. The same goes for public Wi-Fi. And smart-city applications attract businesses that care about these things.

You can't be a smart city without being a connected city. ❖

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