MAKERS ALL: EXECUTIVE SUMMARY

We are at a crossroads.

Robots and Artificial Intelligence (AI) threaten to either put millions out of work or create a society so unequal it shatters our democracy.

At the same time, we are facing a once-in-a-century opportunity. Over the next 20 years, not only robots and AI but virtual and augmented reality, digital fabrication, and other emerging tech will become ubiquitous. Emerging tech will create an abundance of wealth, and it could become a vital part of revitalizing communities from Compton to Appalachia.

But there's a catch. To take advantage of this opportunity, we need to pull off the seemingly impossible: train as many people as possible in every community to become developers and designers, so they can either get jobs or create co-ops or small businesses in emerging tech.

How do we do that? By recognizing that the road to a better future runs through our past.

What Extension Services and Citizenship Schools Can Teach Us

Extension Services

In the late 19th and early 20th century, U.S. farming faced a daunting task. The modern agricultural revolution couldn't occur unless millions of farmers mastered a wide range of new technical knowledge and skills. After several efforts failed to have a big enough impact, the United States created a community-oriented approach called Cooperative Extension Services aka Extension Services. Extension Services was a smashing success, radically transforming the way millions of U.S. farmers practiced farming.

In the introduction, the report argues that the reason Extension Services succeeded was because in its most effective incarnations, it:

- **Made Modern Farming Techniques Much Easier to Learn** by breaking down complex agricultural research and designing farming techniques so they could be easily understood by everyday farmers, and by creating feedback loops between researchers and community networks of farmers
- **Fostered A Rich Community-Based Web Of Support**, including clubs, local farmer demonstrations, and other forms of peer-to-peer learning
- **Operated On A Massive Scale**, providing every agricultural county with one or more extension agents, who organized large numbers of volunteers and identified and developed local leadership
- **Provided Real Accountability** by focusing on states and counties and demonstrating whether extension agents were transforming farming in their designated community -- unlike many well-meaning coding initiatives today, which may track how many individuals have taken a coding class but never measure whether their efforts are bringing about fundamental change in specific communities.

The report argues that the history of Extension Services also helps explain why so many people think the idea of truly democratizing coding is just wishful thinking. In many communities in the US, smart, dedicated, and passionate people who operate on a shoestring, pouring their heart and soul into making programming accessible in their community. But they are hopelessly outmatched by the size of the problem. If we are going to succeed, we need a solution that operates at the same scale as and employs strategies as ambitious as Extension Services did.

Citizenship Schools

Although the Extension Services strategy has proven to be extremely effective at helping the audiences it's designed to serve, sometimes it's done tremendous harm by focusing on the needs of some audiences while ignoring or damaging others -- e.g., helping white farmers while ignoring black farmers, turning its back on the small family farms it once embraced while shoring up Big Ag and damaging the environment.

How do we harness the strengths of the best traditions of Extension Services while ensuring no communities are left behind? By embracing the lessons of 1960s Civil Rights Movement's Citizenship Schools.

Citizenship Schools were a little-known but crucial part of the 1960s Civil Rights Movement. Southern states had passed voter suppression laws that required voters to be able to read and write. To teach basic literacy, Citizenship Schools used community-oriented strategies similar to those of Extension Services. But they also combined basic literacy with civic literacy, teaching their students the skills they needed to fight for their freedom and for their community.

When the Internet first took off, it was sold as a tool for empowering everyone; instead, it became one critical foundation of an economy where communities from Harlem to Harlan County were left behind. If we don't want to repeat that mistake, we must ensure that every community has a seat at the table -- and to do that, we'll need to draw on the lessons of Citizenship Schools. Only by ensuring that there are enough people in every community who understand both how to code and how to fight for their community's future can we be confident that emerging tech opportunities will be accessible in every community and that every community will have a real say in who benefits from this new economy.

3 Strategies for Truly Democratizing Emerging Tech

While the exact approach taken by each community will differ -- the Bronx, rural Kentucky, East LA and Youngstown, Ohio don't face identical challenges, circumstances, or culture -- the report argues there are three overarching strategies that are crucial to democratizing emerging tech in every community.

1) Smooth the Learning Curve

Why does training lots of people to become coders seem like Mission Impossible? Because right now, coding can be painfully hard to learn. But that's not a feature, it's a bug.

The techniques for making coding easier already exist -- user experience design (UX). UX is routinely used to make websites and apps easier to use and to entice users to buy more junk or spend more time clicking the Like button. But when it comes the coding languages and frameworks that are used to build those websites and apps? Not so much.

We need to do for emerging tech coding what Extension Services did for ag tech: make it a top priority to design it so it's easier for everyday adults to learn. Part 1 explains how:

- **Embrace Community-Oriented Coding UX** so we expand coding beyond the people who already find it easy to learn. Focus on the needs of everyday adults by creating collaborations between tech companies and community groups to improve coding UX. And in doing so, create coding UX expertise in the community that can lead to jobs or small businesses.
- **Create A Continuum Of Skill** from beginners to power users to "blue-collar coders" to skilled developers, so there are more opportunities to get into the industry. Then use coding UX to smooth the learning curve along that continuum. And along the way, strive to turn all types of coders from tool users to tool makers; as the report argues in "Hip-Hop Wasn't Created by Sound Engineers," you don't always need to be a rocket scientist to power innovation.
- **Get Coding UX Research Out Of Its Silo** so breakthrough techniques get out of the lab and into the hands of the coders who are creating and maintaining programming languages and frameworks.
- **Create Institutional Support For Coding UX**, particularly in Big Tech companies, venture capitalists, universities, and foundations.

2) Develop an Ecosystem of Community-Oriented Support

Making coding easier to learn is only half the battle; we also need to reduce the gap between tech and communities. In Part 2, the report argues that to do so we need to create an ecosystem of community-oriented support:
A) **Harness the Power of Community** in the way we provide training and support. For example:

- **Create Multiple On-Ramps**, especially in community institutions such as churches or beauty parlors, where people can explore the idea of coding and put their toes in the water while surrounded by people they know and trust
- **Create Peer-To-Peer Support** and other forms of community-based learning in order to overcome insecurity, psychological barriers -- e.g., seeing oneself as someone who works with their hands -- and uncertainty
- **Explore Collaborations between Communities and Corporations** in creating a rich ecosystem of support that can address overlapping needs, helping to both underwrite community support and create informal connections that can lead to opportunities for jobs and creating small businesses
- **Operate at Scale**, using national nonprofit networks and other approaches to take advantage of combining resources across communities

B) **Build A Better Bridge Between Training And Work** so all the hard work and sacrifice that goes into getting trained pays off. The report discusses strategies ranging from exploring creating apprenticeships to helping rural and other communities where tech jobs are scarce find ways to kickstart their local emerging tech economy.

3) Combine Tech and Civic Engagement Training

In Part 3, the report argues that emerging tech will not only create new economic opportunities, it will upend some of our core assumptions about how markets work. As it does so, it'll open up possibilities to reshape the rules of the road so our economy starts working for everyone. But if we want more than a handful of people to be involved in these conversations, we must ensure that as many people as possible in every community learn both the technical and the civic skills needed to truly participate.

This strategy must be designed so it can assist people from a wide variety of political ideologies and perspectives learn how to shape the direction of emerging tech, our communities, and our society. In short, the goal isn't to push a specific political viewpoint, it's to help revitalize our democracy in an era of rapid technological and economic change.

In Part 3, the report:

- **Explains how emerging tech will transform our economy over the next 20-30 years**, requiring that communities foster the skills of civic engagement around tech -- including addressing issues about the impact of emerging tech that go far beyond good paying coding jobs
- **Explores the lessons of Citizenship Schools**, which played a critical role in the 1960s Civil Rights movement in the South by combining basic literacy and civic literacy
- **Explores how to translate Citizenship Schools' lessons** for emerging tech by describing two thought experiments about how we could embed the development of civic literacy skills in technical training and support

Conclusion

In the conclusion, the report explains how to:

- **Get Started** implementing these ideas, including how to get your feet wet, how to set goals so you can know if you're making real progress, and how to ensure your efforts help to create diversity both in your community's emerging tech scene and the emerging tech industry as a whole
- **Scale Up** to create institutions and a movement that operates at a similar size and scope as Extension Services
- **Build Bridges** between communities in red and blue states

With the rise of emerging tech, we have a rare opportunity to help locked out communities today and create an amazing future tomorrow. But to seize it, the report argues, we need to learn the most important lesson from Extension Services and Citizenship Schools: we need to stop being afraid. We need to think boldly, dream, and then act on a big enough scale to reach those dreams.