WORKFORCE & LEARNING PATHWAYS IN A PERIOD OF DYNAMIC CHANGE
mediaX at Stanford University Conference
October 6, 2017, McCaw Hall, Arrillaga Alumni Center

Welcome: *Martha Russell, mediaX*

1. mediaX is a member-supported organization; thank you to our members for the support for this Conference.
2. Learning and career pathways are changing.
3. We need multi-disciplinary collaboration between business and academia to design content and programs for learning, education and training in this period of dynamic change.

Introduction: *Roy Pea, Graduate School of Education*

1. In the algorithmization of human physical and cognitive labors, software is eating jobs and entire industries of workers.
2. Recent applications of AI, Machine Learning, and Data Sciences have brought prospects of self-driving cars, pervasive computer vision, facial recognition, and robust speech recognition as a naturalistic means for humans interacting with computational devices, as well as machines learning about the natural and social worlds.
3. The future success of the middle class rests on the nation's ability to sharply increase the fraction of American children with the foundational skills needed to develop job-relevant knowledge and to learn efficiently over a lifetime.

System Experiments for a Competitive Workforce
Van Ton-Quinlivan, California Community Colleges

1. 6.3 million job openings are predicted for California between 2010 and 2020.
2. "Some college" is the new gateway into the workforce.
3. California needs 1 million more AA, certificate, or industry-valued credentials.
4. Largest system of higher education, with 114 community colleges, respond to differing labor market needs of industry sectors under Doing What Matters for Jobs and the Economy focus.

Transforming America's Outdated Labor Market
Denis McDonough, Markle Foundation

1. Change is coming to the U.S. economy, and we must ensure the development of an ecosystem to train the workforce of the future through a focus on continual learning and skills-building.
2. The United States has traditionally recognized and harnessed technological change to advance American interest, and this time is no different.

Job Displacement, Poverty & Mobility in the American Economy
Dave Grusky, Stanford Center for Poverty and Inequality

1. How does rising inequality affect the U.S. workforce?
2. It reduces the amount of absolute mobility and relative mobility.
3. Two roads to restoring the American dream.

Future Proofing Training Programs & the Economics of Education
Martin Carnoy, GSE, Lemann Center

1. Investment in training is an integral part of any capital investment program—these are "complementary" investment goods required to choose, implement, and operate the infrastructure of the future.
2. The kinds of investments required to modernize developing countries' (and even the U.S.'s) infrastructure will be highly sophisticated, high technology driven. Designing the systems, choosing the new technology, implementing it, installing, operating, and maintaining it—all these will require high levels of human capital and therefore the training to produce it.
3. The first level of training required is of decision makers, who will design the most effective long-term solutions for nations' inadequate and complex transportation systems and how to choose the most appropriate, most cost-effective physical capital to modernize the systems.
4. The second level of training required is for the highly-trained engineers needed to work with the decision makers to implement optimally the technologically advanced physical capital.
5. The third level of training required is for the technicians who will install, operate, and maintain the technologically advanced physical capital.

Creating a Lifelong Learning Marketplace
Mitchell Stevens, Graduate School of Education
1. Going forward, essentially all people need to plan on obtaining educational credentials over a long span of the life course.
2. Many of these credentials have yet to be invented.
3. The market for credentials that are not conventional college degrees is highly anarchic, creating high risk for credential providers, employers and — especially — consumers.
4. We need to develop a lifelong learning marketplace that better distributes risk and information about credential substance, value, and interoperability.
5. California is an ideal laboratory for building this marketplace.

Competence, Collaboration, Crowdsourcing & the Future of Work
Alex Kass, Accenture Labs, Technology & Training Ecosystems
1. Digital technology can enable managers to re-imagine how work gets done at the individual level, the team level, and the organizational level.
2. Sustainable transformations often require an integrated approach to all three levels, with clear value propositions for both the organization and the workers involved.
3. Technology can change how workers develop new competencies – and what it means to be competent as an individual, a team, and an organization.
4. The most transformational changes may prove to be at the organizational level – as hierarchical organization and fixed teams of resources giving way to ad-hoc teams formed and re-formed on demand through online labor markets that operate both inside the organization the enterprise boundary.
5. This new organizational model brings great potential benefit to both organizations and workers – but also raises risks and challenges that we must understand and confront.

The Importance of Interests in Building a Skilled Workforce
Tara Behrend, The George Washington University
1. A person's interest in a field is an important indicator of their long-term success in that field.
2. Mismatches between one's own interests and the requirements of a job lead to a range of negative consequences.

3. Men and people living in high-income countries are less likely to experience interest mismatches.
4. Helping more people to develop interests in less-common fields is an important step in building a diverse and talented workforce; this is the domain of educators, industry members, and communities.

Lightening Talks with Discussion: Experiments with Promising ROI

Benefiting Local Talent Markets Using Knowledge Networks & Cognitive Surplus: *Sima Yazdani, Cisco Services*
1. Cisco's emphasis is on and investment in Digital Transformation.
2. We must see local talents, workforce & human capital as national assets.
3. My observations through participation in Cisco CSR programs, Teachers Without Borders and City of San Jose Work2Future & startup pilots.
4. Future of learning, work & workforce - Technology as an enabler – yet we need a new kind of workforce digital transformation strategy, indicators, development bridges & pathways.
5. My journey- has included Passion, Profession, Vocation, Mission - leading me to my career pathways & plans– focused on making an impact.

Genentech FutureLab: *Kristin Campbell Reed, Genetech*
1. Companies can make a difference in their own backyards, and successfully partner with local school districts.
2. Lead with what you know and are passionate about, and listen. This builds trust and results in better decisions.
3. Meaningful and magnetic volunteer programs benefit companies by engaging employees, helping them build skills and connecting them to your company's mission and to one another.

Starbucks College Achievement Plan: *Charlotte Fenner, Starbucks*
1. The Starbucks College Achievement Plan provides FULL tuition coverage for Starbucks partners to earn their degree through Arizona State University. Partners can pursue ANY degree and there is no give back to Starbucks.

2. We believe that the investments we make in our partners are critical investments for our business – the partner-customer connection is key to us and focusing on our partners is invaluable.
3. We are happy to share how this came to be and how it is working. We hope to inspire other companies to find creative solutions like this that meet the needs of their employees and a larger societal need as well. Listen to your employees, and help them pursue their dreams. Believe in the power of human potential and find a way to unlock it.

Panel: Global Perspectives

Transforming the Training Infrastructure of Brazil's Transportation System
Raquel Coelho, Graduate Student, Lemann Fellow, GSE
1. Brazil's transportation sector is vital to its role in global provisioning of food, energy and minerals, as well as to domestic economic vitality.
2. On land, sea, and air, technological transformations are changing the mindset and skills needed by executives, engineers, and service workers.
3. SEST/SENAT, the national agencies that support training for transportation workers, are reframing the training infrastructure for this key business sector.

German SME Perspectives
Sabine Remdisch, Leuphana University, H-STAR Visiting Scholar
1. The "German Mittelstand" is a cornerstone of the German economy, but currently facing challenges attracting and retaining a high-skilled workforce.
2. According to our study on SME employer attractiveness, the following characteristics make a workplace highly attractive: Trust in management, interesting and motivating work environment, identifying with company values, high reputation of the company, good relationship with colleagues and supervisors, family friendliness.
3. SME's must also keep up with digital progression in order to remain attractive by focusing on five factors that help to be

successful in the digital world: Workplace, Leadership, Culture, Collaboration, and Empowerment.

An Ecosystem-based University using an Experience Platform
Marcelo Tournier, SESI Santa Catarina
1. The main challenge of Innovative Habitats and Ecosystems is workforce education in a very dynamic environment.
2. The New University model, inspired by living ecosystems, can focus on real life experience training and education of talented people.
3. Engagement is a key factor to improve the performance of the learning process of the workforce. Authentic Immersive Learning Environments can enhance Engaging Experiences through the integration of stories, Gamification and ubiquitous Digital Technologies.

Workforce Pathways Through Constraint: Stories from Europe and Marginalized Communities
Aman Kumar, mediaX Distinguished Visiting Scholar, SAP
1. How SAP builds an innovation business with the worker-friendly European culture
2. How Estonia builds an innovation country with ~1.5 million citizens
3. How stuttering was once a handicap and now being spun more positively by corporations and the media (then I tie that together with some SAP specific programs like Autism at Work etc.)

System Leadership in the Face of Dynamic Change
Banny Banerjee, H-STAR, Stanford Change Labs
1. We are entering an era marked by rapid changes and profound questions.
2. Our dominant models of leadership are ill suited for these new class of challenges.
3. System Leadership is a new approach that is a leadership style better suited to scaled and complex challenges - it has implications at personal, organizational, and policy levels.

The pipelines for highly skilled talent are global. Around the world, organizations compete aggressively to recruit the best and the brightest minds to invent a digital transformation.

The pathways into many of these pipelines are local. Opportunities open up through family involvement, community choices, and mindsets for the future. These vary widely from one locale to another.

There is a shortage of highly skilled talent for the digital transformation. Some workers are now falling out of the workforce because they lack means to upgrade to the digital mindset and technologies. The pipeline of young STEM-savvy talent is not sufficient. Access to global talent, once a panacea for Silicon Valley and other high tech hubs, is now constrained. Productive citizens, high performing employees and a fluid exchange of information are all essential for a high performance future. Organizations and nations without a pipeline of highly skilled talent are vulnerable.

The challenges of the coming transformation are diverse. The forces for education and employment are shifting. Changes made today will, in all likelihood, take several years to show impact. The need for change is urgent, and creative leadership is a necessity.

Thought leaders from the mediaX community have been brought together today to discuss:

* Poverty, Mobility and Displacement in the U.S.
* Global economic, social and political impact
* System Experiments for a Competitive Workforce
* Perspectives on the Opportunities
* Market-Shaping Forces and Responses
* Financing the Transformation
* Experiments with Extensible Insights
* Experiments with Promising ROI
* Pathways for Mobility

And much more…

mediaX at Stanford University is a forum, an incubator of ideas, and a programmatic framework to encourage and support multi-disciplinary research initiatives. Our initiatives explore how understanding people can improve the design of technologies – in the areas of learning, mobility, collaboration, entertainment and commerce.

As the affiliate program to Stanford's H-STAR Institute (Human Science and Technology Advanced Research) in the Graduate School of Education at Stanford University, mediaX programs are grounded on respect for different approaches to discovery and centered on our belief in the power of collaboration – between business and academic researchers, on campus and around the world.

In trusted relationships, aligned on questions that are important for the future, mediaX collaborations seed campus-wide research and coordinate industry interest. Through dialogue and collaboration, university and industry researchers challenge what we know now and stretch intellectual resources to gain new insights relevant to academic and business collaborators.

Together, we pursue new insights on how information technology affects people's lives, how to better design products and services to make them more usable, and the innovative use of communication technologies to improve the human experience.

To become a member of the mediaX Community, please talk to or email Martha Russell martha.russell@stanford.edu

Thank you for attending the **Workforce & Learning Pathways In A Period Of Dynamic Change Conference.** All of us at mediaX look forward to seeing you at the **Human AI Collaboration: A Dynamic Frontier Conference** on November 1st.