THE 100 QUESTIONS

THE FUTURE OF WORK DATA AGENDA

Introduction

Workers face a multitude of challenges caused by the rapid implementation of technology and automation. On one side of the equation stands the ever-growing list of technologies that could revolutionize our society and the way we work—platforms, the "gig" economy, cobots, robotics, and AI. On the other side of the equation lies their potential impacts on everything from jobs to wages, from membership in organized labor to occupational safety. Together, elements from these two sides inform predictions for what the "future of work" means.

Generating a sound framing for what the future of work entails (and does not entail) is notoriously difficult. Since its popularization in 2013, the term has resulted in a dizzying array of estimates, projections, definitions, and general prognostications about the impact of automation and new technologies such as artificial intelligence (AI) on work, workers, jobs, and skills. It has sparked debate on the differing impacts of change as a result of underlying and intersecting inequalities relating gender, race, socio-economic status, and other factors.

The difficulty in framing what the future of work entails poses a monumental challenge to policymakers tasked with preparing for—and responding to—the future of work. The challenge is not just grasping that the future of work is a first-order policy challenge. Rather, it lies in fending off the insatiable (and human) desire for quick, clear-cut answers. To solve the problems and take advantage of the opportunities generated by the future of work, policymakers must first spark debate and establish data-driven frameworks to ensure they are asking the right questions and solving the right problems. Moreover, they need to be sure they are solving these problems for the right people.

Recognition of this need was the impetus for the [100 Questions Initiative](#), which seeks to collaboratively map the world's 100 most pressing, high-impact questions using a unique participatory methodology. The initiative starts from the premise that solving problems starts with formulating the questions that define the problem rather than focusing on the available data, resources, and hypotheses. It has sought to make the use of data more demand-driven, defining the question and problem first, rather than supply-driven, defining the question based on data available to answer the questions. It stimulates, identifies, and establishes a transformative agenda with partners on a wide range of societal challenges, including the future of work.

This document, therefore, is intended to provide an overview of the Future of Work domain of the 100 Questions Initiative for prospective partner organizations and stakeholders. It details the steps in the project, beginning with the topic mapping exercise, which identified four key future of work thematic categories, and then lays out the methodology used by The GovLab and its partner, The Bertelsmann Foundation, to develop research questions from these topics. It ends with a listing of the questions developed and potential next steps for the effort.

Topic Mapping

What are the Issues Associated with the Future of Work?

To develop data-driven future of work questions, The GovLab and The Bertelsmann Foundation first worked on defining the domain by identifying key topics within it, The first step in this process was to develop a topic mapping - a rapid mapping of the future of work landscape - through The GovLab's R-Search methodology, relies on desk research conducted through searches of publicly available journals, conference programs, reports, and databases to identify common issues animating researchers and practitioners.[1] The topic mapping exercise provides researchers, policymakers, and other key stakeholders with a basic understanding of the larger context in which challenges and opportunities can exist.

The GovLab, together with The Bertelsmann Foundation, relied on English-language searches of resources available through the open web and academic databases on the "future of work." The 100 Questions research team sought common themes and ideas unifying data-driven research. The researchers, following discussion, identified four themes in the literature:

I. Technologies and Their Impact:

- <u>Automation and Digitalization:</u> Technological advances have altered how work is performed and the ways members of the society interact with each other, do business, and govern. Similar

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[1] https://blog.thegovlab.org/post/new-govlab-resource-r-search-rapid-re-search-enabling-the-design-of-agile-and-creative-responses-to-problems

changes, driven by digitalization and automation, are underway. Increasingly, tasks are automated, impacting jobs and wages of low-, middle-, and high-skilled workers. In turn, these changes might affect other indicators, such as inequality, inflation, or growth;

- Ethics of Technology: Technology can improve the accuracy, efficiency, and productivity of work. At the same time, it has caused harm by iterating human bias on a larger scale, enabling exploitative behaviors, or invading workers' privacy. Incorporating ethics into technological tools and assessing the implications of the use of those tools are imperative to minimize the harm caused by technology in the future of work.

II. Workforce Preparations and Social Protections:

- Workforce Re-training: As discussed, new technologies are likely to eliminate some jobs and create new opportunities at the same time. These new opportunities might demand new sets of skills, necessitating re-training through new and fit-for-purpose degree programs, certifications, or practical trainings. Analyzing trends and identifying the skills of the future will inform the capacity development efforts that would ready the labor market for a reimagined workforce;

- Social Protection: Workers will need additional social protection in the two possible outcomes of technological disruption. First, in the case where workers lose their jobs or face other economic difficulties, decision-makers need to ensure that those dislocated as a result of major changes are protected from the job loss and empowered to transition to a new job. Second, technological advances are changing the nature of employment, demonstrated by the increased opportunity for temporary jobs. Some groups advocate for a four-day work week, arguing that such arrangements can improve productivity and accommodation for those with caring responsibilities. Additionally, guarantees for parental leave and childcare would also enable a more flexible and equal outcome workforce for the future. These potential changes require re-evaluation of the compensation structure that would provide better financial and social protection for workers.

III. Business Governance:

Innovation often outpaces regulation. It creates new terms and scenarios open to exploitation. Policymakers need to examine the relevance of current policies to today's context and take appropriate actions to make sure that up-to-date regulatory mechanisms are in place in response to changes across industries. The previous industrial revolutions triggered the creation of the modern education system, anti-trust regulations, and welfare system. In the future of work, relevant actors should formulate regulatory tools that would help society adjust to this change, minimize the risks, and ensure businesses can thrive and benefit the public at the same time.

IV. Globalization and Trade

The current structure of the global trade chain is likely to widen the impact of a technological revolution. In the past few decades, labor-intensive production activity has been concentrated in low- to middle-

income economies. Meanwhile, economic consumption is concentrated in high-income economies. There is a high probability that automation and other technological innovations will drastically change this global structure. Minimizing the loss of jobs and productivity on a global scale is another critical objective in creating the future of work that will be beneficial for all, as well as intentional trade policies that benefit the most disadvantaged in society.

The topic mapping revealed various organizations and experts working on issues related to the future of work. These names provided the basis of The GovLab's subsequent work to identify bilinguals—practitioners across fields who possess both domain knowledge and data science expertise - for the identification of data-driven questions. A full list of people solicited as part of this bilingual cohort can be found in Addendum III.

Execution:

What Questions Should We be Answering?

Relying on the topic mapping for guidance, the research team subsequently curated a cohort of bilinguals to participate in the 100 Questions deliberation process. The research team was able to identify and work with 90 bilinguals. Following an introductory call during which the research team explained the 100 Questions Initiative's project goals and intent, The GovLab and the Bertelsmann Foundation invited the bilinguals to submit research questions about the future of work that could be answered with greater access to data and data science. All bilinguals submitted questions according to pre-developed question criteria developed for the purposes of operationalizing these questions. Furthermore, the four topics identified as part of the topic mapping exercise served as prompts to inspire the participants and provide them with ideas on what to consider.

The research team sourced over 100 data-driven questions in the first phase. Given the total number of questions and a sizable amount of thematic overlap, The GovLab then began to group the questions together in the clustering phase in collaboration with The Bertelsmann Foundation. The organizations grouped these questions thematically and revised them to ensure clarity and that they could be answered using data or data science capabilities.

The team sent these now-grouped questions back to the bilinguals with instructions to vote on those questions that they considered among the ten most important in an effort to curate a list of priorities. The ten questions receiving the most votes were published on The 100 Questions Initiative website for public voting. Questions with the most votes are considered most important by the public and, therefore, are further prioritized in later work involving data collaboratives.

Top 10 Priority Future of Work Questions

After asking bilinguals to prioritize which of the top ten future of work questions to focus on going forward, the cohort selected the below questions. Included in bulleted form are the rationales for the questions originally provided by the bilinguals and edited by the research team.

Question #1: How can we determine the value of skills relevant to the future of work marketplace and how can we increase the value of human labor in the 21st century marketplace?

- The debate around the potential for job automation and its impact on the labour market is mainly built around scenarios that try to estimate how many jobs will be lost due to technology. We need a more sophisticated lens to interpret how technologies will impact the labour market and what kind of impact, as society, we want them to have: substitution of human beings or augmentation of their role?

- Far more jobs are reshaped by automation than eliminated by it. For many workers, even for knowledge workers, AI will be an important tool taking over specific tasks, but won't replace them entirely. So to understand the impact of technology we need to focus on specific tasks and skills: what people can do and what technology can do. We need to understand what skills are most human. But we also need to determine what skills people need to complement, collaborate with, and control the AI-driven tools of the future. It would clearly be a mistake to assume that AI's capabilities can expand infinitely while human skills remain static. Making human labor more valuable is an important part of the automation equation.

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- Often, "innovation" gets framed purely in technological terms. This can lead to techno-solutionism at the cost of considering socio-technical innovation in which humans and systems interact. The latter can be a lens that would be more productive, quite literally, especially in the context of the future of work where a key question is "How do we integrate new technologies in new and existing workflows"?
- The workforce ecosystem is fragmented.

Question #2: What are the economic and social costs and benefits for modernizing worker support systems and providing social protection (eg. paid family leave and subsidized child care) for workers of all employment backgrounds (e.g., particularly women, part-time and informal work)?

- Current worker support systems such as unemployment insurance, retirement plans, skills development, health insurance and others have changed very little since their creation decades ago. At the same time, the evolution of the workforce and its changing relationship with business has resulted in substantial disruptions in traditional employment areas, including workplace training, alternative work arrangements, length and nature of tenure, and employer-sponsored benefits. New or modified support systems are required to better address these shifts that leave workers less vulnerable without placing onerous burdens on private business or the government.
- The International Labour Organization estimates that only 29% of the global population are covered by comprehensive social security systems with a range of entitlements including child and family benefits (World Social Protection Report 2017-19). In addition, according to the World Economic Forum 2020 Gender Gap Report, it would take more than 250 years to close the gender gap in economic opportunity. Social norms dictating women's role in family care responsibilities and the lack of social protection programs, including paid family leave and subsidized child and elderly care, are key barriers to women's labor participation and economic advancement. In addition, women are more likely than men to engage in informal employment, which limits their opportunities to access social and legal protections and a range of other employment benefits. This question would help add evidence to influence nations to further their investments in social protection systems that can ultimately help improve women's labor participation and their access to adequate preparation and jobs in emerging fields.

Question #3: What is the impact of current use of AI on diversity and equity in the labor force? How can AI be used to increase the participation of underrepresented groups (i.e., women, Black people, Latinx people, and low-income communities, etc.)? What aspects/strategies have proven most effective in reducing AI biases?

- With a large number of jobs opening up due to workforce replacement and economic growth—projections show that by 2030, the American workforce will need to fill 83 million jobs, people of color will play a key role in shaping the American workforce. By 2030, 54% of new workers will be people of color. But as the workforce becomes increasingly diverse, the persistence of racial disparities—wealth gaps, educational opportunity and wage gaps—poses real challenges to opportunity and upward mobility. Without target intervention and anti-racist policies, the future of work can only exacerbate existing inequities.
- A growing number of employers are leveraging artificial intelligence in the workplace, including as a way to reduce human biases and inefficiencies during recruitment and hiring processes.

However, it is known that machine learning creates challenges of its own, as applications can learn to be biased against certain individuals based on factors including gender, race, and age. These obstacles, for example, have a significant effect on women's labor participation, as artificial technology can develop biases against women that puts them at a disadvantage for accessing "male-dominated" careers and leadership positions. One of the key recommendations from experts is to increase diversity in technology fields; however, there's a need to further substantiate this claim through comprehensive information on the role and impact of having diverse leadership in AI development on reducing biases. While women continue to be underrepresented in STEM fields–with the World Economic Forum estimating in 2018 that women make up only 22% of artificial intelligence professionals globally–this study can help assess how diverse teams impact the functionality of AI, whether it does actually reduce bias and increase diversity issues in the workplace, identify other best practices for developing inclusive artificial technology that works for all, and serve to enhance the investment case for women in leadership.

- Many employers are still using outdated hiring practices which create unnecessary barriers for job seekers to overcome and result in a fuzzy link between employers and training providers.

Question #4: What new systems of education and training are needed for workers to reap gains from technology and automation?

- The hierarchical approach to career development relies on years of experience, formal education certification and degrees, career ladders, etc. New technologies break down the age, meritocracy, and institutional barriers to enterprise and career development.

- In the U.S. there is no pipeline or synergy between workforce training and institutions of vocational and higher education. The lack of connected, interrelated, and symbiotic infrastructure means that investment in worker training does not happen in an organized or intentional way, leading to great numbers of workers living on below living wages in jobs that are anticipated to be automated in 5 years or less; and employers/enterprises being inefficient because workers lack critical new workforce skills and innovation resources. What would it take to build a synergistic educonomy infrastructure that is forward looking, not reactive, slow, and a waste of public resources? Current workforce and unemployment programs in the U.S. are broken. With this pandemic in Vegas, we are seeing the extreme impact of an unemployment system built to hand 3,000 people choking at the intake of over 370,000 people in three weeks. The immediate social impact is a tremendous number of households that lack the basics- food, rent/mortgage and utility payments. There is a sad and deeper long term impact on individual and community health and well-being. Structural layers of institutional racism and other dysfunctions apply. How will communities and individuals reimagine talent development systems and education interfaces in the post-pandemic world?

- The current fiasco with 300,000 service workers laid off in three weeks has crashed every state system – unemployment that was designed for 3,000 case load; TANF program, designed to take people off traditional welfare (but these are working families who have not been on public assistance), and 17 agencies that have something to do with family support, but only 7 have data systems that talk to each other.

- Many have argued that a traditional four-year degree is no longer required to gain the skills needed in today's workforce, and that many programs teach the wrong or irrelevant skills

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alongside the "right" skills. Yet, a college degree remains one of the most remunerable credentials in modern labor markets, in part because it is a simple, easy-to-understand, and credible signal of a workers' capabilities. The transition to a skills-based labor market, where short-term, highly targeted, and continual training supplants lumpy educational investments will be hindered by the absence of credible, consumable alternative signals of worker capabilities. Though there has been a proliferation of alternative credentialing initiatives in recent years, we have almost no evidence on which are effective, or why, and which are not, and why not. We also do not know whether the grassroots proliferation of employer-specific credentials, commonly created by training partnerships between local trainers and local employers, actually increases or decreases a workers' future options by providing highly-tailored training over more general instruction.

- To what extent we have a holistic understanding of the trend in individual-initiated learning, enterprise-initiated learning and institution-directed learning? The access and effectiveness required more attention. We need to know the exemplary cases and the areas that need further push for change. This is fundamental when learning is a parallel career in life.
- Youth unemployment, cited as a primary challenge in a number of Middle East and Asian countries, is often blamed on the mismatch of skill availability and skill needs. Skills from the gig economy could partially resolve the problem of skill-mismatch (and expectation-mismatch), if students are given an opportunity and incentive to take part in the gig economy.

Question #5: How do automation and digitization impact income inequality of different income groups? How can workers from all backgrounds benefit from technological innovations in the world of work?

- The growing digital divide will impact future generations ability to be part of economic opportunity and prosperity. In Las Vegas, it is estimated that 40% of local households lack internet and/or devices other than smart phones at home. As schools were shuttered for the current pandemic, this digital divide is a huge barrier for over a hundred thousand secondary students and many of the 300,000 service workers who cannot access online learning platforms, online courses, and certifications.We have extensive market segmentation data on these families – their interests, lifestyles, occupations, consumption patterns.
- There is an ongoing concern about how technologies aren't neutral and create or reproduce social biases. The distinction between development and deployment comes from recognizing that these technologies are created and maintained by humans.
- Income inequality is one of the defining issues of our time. Increasing income inequality can hamper economic growth and lead to political polarization in society.

Question #6: Who determines the legal and governance frameworks as well as the (ethical) conditions on how technologies are developed, deployed, and implemented and how can we make these decisions more democratic? What legal gaps need to be identified and filled in order to protect the labor market and society from any negative effects of technology? What aspects and practices from international law can help mitigate the impact of technology and automation on workers and the labour market?

- The impact of technology is often seen as a technical, economical or efficiency debate. However, the importance for the labour market and humans lies in the ethical, fairness and governance aspects. We should focus on that since technology will not be stopped. We will however have to guide the impact it has on society.
- Greater knowledge in AI, connectivity and criminality could negatively drive democracy.
- There is an ongoing concern about the ownership of technology and the power that it involves. Similarly, there are many questions related to the proper governance and regulation of these technologies.

Question #7: How can we demonstrate the relationship between skills gain and economic mobility? What characteristics of retraining programs produce equitable outcomes for workers – across a range of demographic and professional characteristics – and what is the impact of these educational/ training programs and vocational schooling?

- Our communities currently have wide disparities in educational and professional outcomes for racial and ethnic minorities. The future of work will demand workers to continuously pursue education so that they can keep up, retain their jobs, or assume jobs at comparable levels in new fields. The growing need for more education threatens to exacerbate existing disparities in education, and specifically its ability to elevate people's socioeconomic status.
- Employers and other stakeholders need to consider the gender implications of shifts to automation and artificial intelligence so girls and women are not left behind. According to McKinsey's 2019 report, The Future of Women at Work: Transitions in the Age of Automation, roughly 40 to 160 million women may need to transition between occupations and skill levels. Women currently hold a significant portion of jobs with a high potential for automation, and automation has led to a shift in labor demand for higher paying jobs. Furthermore, the International Labour Organization estimated that in 2018, 21% of young people were excluded from employment, education and training, and that 14% of youth that are employed are still twice as likely to be living in extreme poverty than adults. Thus, if people, especially young people, girls and women, are equipped with updated skills, they could be looking at a future of more lucrative employment. The study would show why preparing everyone for the future of work is necessary to bridge the gender and youth employment gap, and the steps needed to make this transition successful.
- The "skills gap" is a convenient characterization of technology related workforce shifts and natural structural change. This does not often consider the relationship between skills gain and prosperity for individuals. There are two important assumptions about the individual impact that need further investigation: (1) the right kind of education and training can lead to increased economic opportunity; and (2) education and skills alone (rather than broader structural changes) can lead to economic opportunity for traditionally underserved populations (especially low-skilled workers, first-generation students, limited english proficiency, etc.).

Question #8: What does a resilient labour force to shocks (ex. technological, financial, health) look like?

- Technological change is inevitable in the long terms, but as we think about the successive waves of technological disruption to come (5G networks, quantum computing), how can we use data to

better identify early warnings, the stressors, risks, and uncertainties of digital disruption and a people's degree of exposure to them in a way that will not reinforce the status quo? I am not proposing a labour economics modeling or a foresight scenario exercise. What I am proposing in terms of a "resilient labour force" is to examine whether resilience today (ex. to COVID) is about to bouncing back and preserving the 'status quo' OR more transformative changes, whereby we can upgrade our labour institutions by address underlying root issues of inequality, fissured workplaces, flexible production, and precarity. If we do not address this, it is uncertain whether future resilience measures in labour administration across the Atlantic would be responding to digital disruption or trying to address the five decades of the deliberate weakening of the labour institutions.

Questions #9: What factors currently hinder women's participation in the labor force? How do these barriers impact women's work in the future and their career trajectories? What policies or programs can facilitate women's work and remove barriers to their work and careers?
- Previous systemic barriers to women's ability to advance in workplace settings are driving greater negative disproportionate impacts on women. Gaps in gender equality across workplaces may also be further exacerbated by the COVID-19 crisis.

Question #10: In what ways will technology and automation widen or narrow gaps between developed and developing nations? What steps can developing countries take to harness and apply new technologies?
- Technology and skill development is key for developing countries to take advantage of new technologies. Some developing countries are doing better in this regard than others. Good practices that can be replicated may show paths to take advantage of new technologies.
- Huge labor productivity gaps (related, among others, to technology and skill gaps) are key causes of welfare differences between countries. These gaps may widen even more through unequal use of new technologies.

Addendum I

Full Methodology
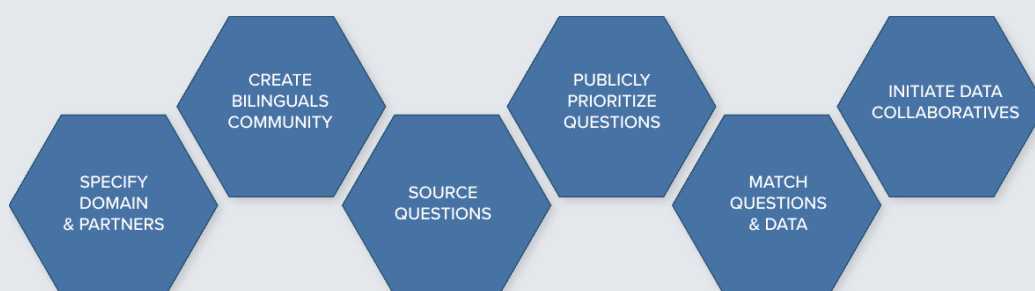
The GovLab uses its smarter crowdsourcing methodology for the 100 Questions Initiative. This methodology sources questions from domain-specific bilingual networks, along with an interactive voting platform to allow the general public to prioritize those questions. Each domain has two phases, including: Preparation Phase (topic mapping, bilinguals list) and the Execution Phase (Invitations and Kick-off call, Sourcing and Clustering Questions, Public Voting, and Data Collaboratives).

Preparation Phase:

Topic mapping: The GovLab, together with The Bertelsmann Foundation, developed a topic and system mapping. Using The GovLab's Rapid Research (R-Search) Methodology, the participants surveyed the current landscape of research and action associated with the future of work. The mapping highlighted key issues, concepts, and dimensions animating policymaking, research, and institutional practice. The topic mapping — a living, interactive, and iterative product — acted as both a core deliverable and important enabler and guide for subsequent activities.

Bilinguals list: The next step in The 100 Questions methodology is identifying, curating, and engaging "bilinguals." Bilinguals are individuals with expertise in a specific subject area ("domain") and data science. Thus, they are well-positioned to identify questions that matter and can be answered through data research and policy experimentation. In tandem with the topic mapping, the research team curated a list of future of work bilinguals and asked for their participation in the next project stage.The profiles of these individuals can be found at the end of this document.

Execution Phase

Sourcing and Clustering Questions: The researchers then asked the bilinguals what they considered to be pressing research questions about "the future of work" that could be answered with data. All bilinguals submitted questions according to pre-developed question criteria developed for the purposes of operationalizing these questions.

Given the total number of question sources and thematic overlap, The GovLab then grouped similar questions together in close collaboration with The Bertelsmann Foundation and bilinguals. The team grouped questions thematically and revised to ensure clarity and actionability. The bilinguals were asked to provide feedback on the first round of grouping. After finalizing the question list, the team asked the bilinguals to vote for the questions they considered to be most transformative if answered. The team used a quadratic or weighted voting system and asked bilinguals to vote with four criteria in mind: potential impact, novelty, feasibility, and overall quality. After voting ended, the team took the ten questions with the highest scores for further prioritization.

Public Voting: With the top ten questions, The GovLab and The Bertelsmann Foundation used a custom-built voting system to seek public input on the questions. Individuals who visited The 100 Questions Initiative's webpage were asked to vote to indicate which questions policymakers, data holders, and actors working in the public interest should prioritize. The site gathered results. Voting remained open for about four weeks.

Data Collaboratives: , The GovLab is working to launch a data collaborative, new form of collaboration, beyond the public-private partnership model, in which participants from different sectors — in particular companies—exchange their data to create public value, on the issues raised.

Addendum II

Bilinguals' Future of Work Questions (Complete List)

Below is the original list of questions produced by the bilinguals following initial engagement. The questions are grouped thematically and lightly ended for clarity.

TECHNOLOGY, AUTOMATION & DIGITIZATION

1. Can we quantify the relationship between the introduction of robots in the workplace and impacts on workers well-being and engagement? Are there aspects of robot design that have more of an impact than others?

2. How can we determine the value of skills relevant to the future of work marketplace and how can we increase the value of human labor in the 21st century marketplace?
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3. How have automation, digitization and other future of work impacts affected the motivations and preferences of older people in terms of levels and types of labour market engagement? How does this differ by gender, socioeconomic status, location, family composition and other relevant markers?

4. In which ways will technology and automation impact small and marginal farmers, sharecroppers and agricultural workers?

5. What are the characteristics of job disruptions among highly educated workers due to the adoption of AI? How can job disruption due to adoption of AI for higher educated, higher wage workers be measured or predicted?

6. What are the economic and social costs and benefits for modernizing worker support systems and providing social protection (eg. paid family leave and subsidized child care) for workers of all employment backgrounds (e.g., particularly women, part-time and informal work)?

7. What is the impact of the on-demand gig economy upon working conditions in countries with large informal economies?

8. What new methods can be developed to better understand existing and future impacts of AI on workers?

9. What patterns of face-to-face and remote work foster the greatest levels of innovation, collaboration, and economic activity? What is the impact of remote work on corporate loyalty, culture, and brand?

LEGAL FRAMEWORK

10. Who determines the legal and governance frameworks as well as the (ethical) conditions on how technologies are developed, deployed, and implemented and how can we make these decisions more democratic? What legal gaps need to be identified and filled in order to protect the labor market and society from any negative effects of technology? What aspects and practices from international law can help mitigate the impact of technology and automation on workers and the labour market?

REIMAGINING EDUCATION

11. How can we demonstrate the relationship between skills gain and economic mobility? What characteristics of retraining programs produce equitable outcomes for workers — across a range of demographic and professional characteristics — and what is the impact of these educational/training programs and vocational schooling?

12. What new systems of education and training are needed for workers to reap gains from technology and automation?

RESKILLING/UPSKILLING

13. Are individuals with badges for in-demand skills more likely to be hired than those who have the skills but lack documentation?

14. How are technological advances shaping the shelf life of skills in certain domains (e.g. business functions, occupations, industries)? What skills are predicted to be in high demand 10 years from now? How do we create a workforce that is adaptable to this demand?

15. How effective are nudging-type technologies when used with coaches and job seekers to make workforce advising processes more manageable and efficient? What technologies can be leveraged to ensure that job seekers are better matched with job and skills coaching?

16. How can data and marketing be used to convince policymakers to invest in upskilling and a transition to the future of work?

17. How can demonstrations of automation, that provide a better understanding among workers on the way in which tasks within their jobs, increase enrollment in appropriate reskilling programs?

18. How can we design and use cross-national surveys to understand the impact of various education policies and measures in different places?

19. What could be a triggering change for a Board of Directors of learning institutions to more proactively address the employability of graduates by better matching skill supply-demand?

20. What does a resilient labour force to shocks (ex. technological, financial, health) look like?

21. What is the adaptability of different skills to upskilling? How do we quantify the impact of nontechnical and interpersonal skill deficits on individual mobility and business performance? Are there data solutions that could empower impacted workers to judge the difference, or draw a line between, illusion and reality of reskilling opportunities?

WORKERS' AGENCY & RIGHTS

22. How can we use data unions (and data trusts) to amplify the voice and rights of workers as the service economy transitions to high tech? Would data intermediaries counterbalance the power asymmetries between individual data generators and large techs? Would they increase trust in the process of data provision for public purposes by protecting those that are most vulnerable? Would data union and data trust be an opportunity for a fairer data landscape?

23. What are the underlying mechanisms and negotiations that influence decisions about the introduction of robots and digital technologies, and the intended and unintended consequences these choices have for different groups of workers with different characteristics in the labour market? More concretely: How do negotiations between firm-level management and unions impact decisions on which jobs or segments of the workforce to keep? How are different skills and work tasks valued when new technology is introduced? How do these decisions impact the division of labour in the workplace?

24. What is the impact of digital surveillance on workers' well-being?

INEQUALITY

25. How do automation and digitization impact income inequality of different income groups? How can workers from all backgrounds benefit from technological innovations in the world of work?

26. What factors currently hinder women's participation in the labor force? How do these barriers impact women's work in the future and their career trajectories? What policies or programs can facilitate women's work and remove barriers to their work and careers?

27. What is the impact of current use of AI on diversity and equity in the labor force? How can AI be used to increase the participation of underrepresented groups (i.e., women, Black people, Latinx people, and low-income communities, etc.)? What aspects/strategies have proven most effective in reducing AI biases?

28. Will technology and automation widen the digital divide or heal it? How are generational differences a factor?

JOBS POLICY

29. How do we integrate the many employment and training dollars into local communities recognizing the many barriers our clients experience?

30. What changes can we make to workforce development policy and practices, especially public, private and civil society sector collaboration, to facilitate a transition from precarious employment, to positions in which workers can take advantage of the digital revolution and the future of work?

31. What data needs to be collected and what legislative, legal or regulatory changes need to be made that would result in increased employee/worker ownership over the next 5 years?

32. What is the economic impact of limited reentry mechanisms into the workplace for people, particularly women, after prolonged absence due to unpaid care work responsibilities? How do we design better social protection schemes for women in the unpaid "care economy"?

33. What targeted changes can be made to the Workforce Innovation and Opportunity Act to ensure effective integration of multiple employment and training schemes at the local level?

BUSINESS GOVERNANCE

34. Could workforce policy be broken down into components so that policy decision makers build 'playlists' on the issues that they are most interested in and can those playlists be transparent to

the public? Could content then be curated and ranked across a wide variety of vetted non-profits, think tanks, thought leaders, economists, etc.?

35. How can we judge the effectiveness of a workforce intervention from the lens of a job seeker?

GLOBALIZATION & TRADE

36. As technology and automation are introduced, what can we do to ensure that private initiatives and governments respond effectively to boost worker voice, benefits, incomes, and population inequalities in developing countries?

37. In what ways will technology and automation widen or narrow gaps between developed and developing nations? What steps can developing countries take to harness and apply new technologies?

38. What data can we collect (or platform can we create) to measure the speed of progress in automation and robotics across various industries to be able to form better informed upskilling policies?

COVID-19

39. Digitalization and times of crisis have accelerated the future of work to where location no longer matters: how far will the emerging trend of future of work go?

40. How has COVID-19 impacted worker decisions to engage in on-demand gig work and their conduct of that work, and how does this vary by age, gender, socioeconomic status, race/ethnicity, location and other salient markers?

41. Post-COVID-19, what can companies and policymakers do to ensure that low-wage workers return to positions and tasks that are not highly subject to disruption caused by technology and automation?

42. What are the different ways countries have supported their citizens in the wake of COVID-19 and what are the impact of these interventions on workers?

43. What are the near term markers of change in the post-COVID-19 world that will impact work arrangement and job availability?

44. What will be the future trend of self-employment and alternative work arrangements in the post-pandemic local labour markets?

FUTURE OF WORK DATA / DATA AUDIT

45. How can publicly available information about AI patents, investments, acquisitions and related information provide enough data to know or accurately predict which industry sectors, and jobs and tasks within those sectors provided by high paid knowledge workers will either be eliminated or over 50% disrupted by adoption of AI applications?

46. What can policymakers do to ensure that big data is used to build workers' awareness and planning around the "future of work" into their individual career development?

47. What policies can be implemented to ensure that states/regions integrate real time labor market data into financial models and projections to support worker navigation?

48. Can labor exchange data be used to help public sector agencies plan for recessions, analyze supply and demand, find skills-adjacent roles for career seekers, and investigate the future of work?

Addendum III

Bilingual Expert Directory

Government	
Danielle Milam	Development and Planning Director, Las Vegas-Clark County Library District
Jack Martin	Director, Department of Juvenile Services for Clark County, Nevada
Jennifer Cargal	Strategy and Policy Advisor, Seattle Public Library
Joe Wilcox	Co-Manager, Washington State Future of Work Task Force
Lewis McMurran	Business Engagement and Workforce Development Manager, Washington State Future of Work Task Force
Scott Powell	Chief Data Officer, Bureau of Labor Market Information & Strategic Initiatives, Department of Technology, Management and Budget, State of Michigan
Sharon Leu	Senior Policy Advisor, United States Department of Education
Sohail Inayatullah	Virtual Futurist-in-Residence, Department of Culture and Tourism, Government of Abu Dhabi, and Professor, Graduate Institute of Future Studies, Tamkang University

Soon-Joo Gog	Chief Skills Officer, Skills Future Singapore
Thorben Albrecht	Expert in Digital Transformation and the Future of Work, Social Democratic Party of Germany (SPD)

Academia	
Bitange Ndemo	Senior Lecturer, University of Kenya, Nairobi
Caroline Krafft	Associate Professor, Department of Economics and Political Science, St. Catherine University
Christine Farrugia	Director of Institutional Research, Planning and Assessment, Manhattanville College
Dominique Meda	Professor of Sociology, IRISSO, Dauphine University, Paris
Elinor Wahal	Associate Researcher, French National Institute for Research in Digital Science and Technology, and Lecturer, Telecom ParisTech, Polytechnic Institute of Paris
Fabian Ferrari	DPhil Student, Oxford Internet Institute
Ghada Barsoum	Associate Professor and Chair of the Department of Public Policy and Administration, American University in Cairo
Ines Wagner	Senior Research Fellow, Institute for Social Research, Norway
Inez von Weitershausen	Research Associate at the Good Companies, Good Jobs Initiative, Massachusetts Institute of Technology
Julian Posada	Ph.D. Candidate, Faculty of Information and a Junior Fellow of Massey College, University of Toronto
Kai-Hsin Hung	Ph.D. Student Researcher, HEC Montreal
Laura Forlano	Associate Professor, IIT Institute of Design and Director, Critical Futures Lab
Ludovic Righetti	Associate Professor in the Electrical and Computer Engineering Department and in the Mechanical and Aerospace Engineering Department, Tandon School of Engineering, New York University
Maria Savona	Professor of Innovation and Evolutionary Economics at SPRU Science and Technology, Policy Research University of Sussex UK
Matthias Oschinski	Sessional Lecturer, University of Toronto and Director of Innovation Economics, MaRS Discovery District
Mona Sloane	Fellow, Institute for Public Knowledge (IPK), New York University

Phela Townsend	Ph.D. Student, Industrial Relations and Human Resource Management, Rutgers University
Rim Mouelhi	Professor of Economics and Statistics at ISCAE, Manouba University
Sean Gallagher	Founder and Executive Director of the Center for Future of Higher Education and Talent Strategy, and Executive Professor of Educational Policy, Northeastern University
Shireen Al Azzawi	Lecturer, Santa Clara University / Economic Research Forum
Theresa Veer	University of Tübingen / New York University

Nonprofit	
Abhishek Gupta	Founder and Principal Researcher, Montreal AI Ethics Institute and Software Engineer II - Machine Learning, Microsoft
Aditi Mohapatra	Managing Director, Business for Social Responsibility
Alex Comninos	Researcher, Research ICT Africa
Brooks Rainwater	Senior Executive and Director, Center for City Solutions, National League of Cities
Divya Mathew	Director, Policy and Advocacy, Women Deliver
Drew Scheberle	Senior Vice President, Policy, Advocacy, Mobility, Talent, Austin Chamber of Commerce
Ethan Pollack	Director of Financing the Future Initiative, Jobs for the Future
Fabio Sgaragli	Open & Social Innovation Manager, Fondazione Giacomo Brodolini
Jaime Cruz	Executive Director, Workforce Connections Las Vegas
John Buck	President and Chief Executive Officer, Community Economic Development and Employability Corporation (CEDEC)
John Hawkins	Senior Director, Partnership Development, Council for Adult and Experiential Learning (CAEL)
Jyl Djumalieva	Data Science Technical Lead, Data Analytics, Nesta
Manish Kumar	Managing Director and Chief Executive Officer, National Skills Development Corporation
Meyris Montalvo	Research Associate, Women Deliver
Nirmal Singhania	Chapter Leader, DataKind Bangalore
Rachel Fowler	Health Coordinator - Global Programs, Canadian Red Cross

Rob Atkinson	Founder and President, Information Technology and Innovation Foundation (ITIF)
Shannon Block	Executive Director, Chief Operations Officer, Chief Digital Officer, Markle Foundation
Steven Tobin	Executive Director, Labour Market Information Council, Ottawa
Sumitra Pasupathy	Country Director, Ashoka Singapore and Ahsoka Malaysia
Tamara Atkinson	Chief Executive Officer, Workforce Solutions Austin, Texas
Victor Oluwatope Famubode	Committee Member, IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems

Multilateral Organization	
Alexander Plekhanov	Director for Transition Impact and Global Economics, Office of the Chief Economist, European Bank for Reconstruction and Development
Axel Schimmelpfennig	Assistant Director, Office of Budget and Planning, International Monetary Fund (IMF)
Carlos Ospino	Poverty Analyst, World Bank Group
Cristina Gomez	Leader of Artificial Intelligence and Machine Learning Center, WEF - Center for the 4th Industrial Revolution, Colombia
Elisabetta Gentile	Economist, Economic Research and Regional Cooperation Department, Asian Development Bank
Jonathan Barr	Deputy Head of Division/Head of Unit, Centre for Entrepreneurship, SMEs, Regions and Cities, Organisation for Economic Co-operation and Development (OECD)
Jürgen Weller	Employment Situation and Dynamics Unit, Economic Commission for Latin America and the Caribbean (ECLAC)
Kelly Gleason	Data Science Officer, International Labour Organization (ILO)
Liliana Suchodolska	Policy Analyst, Paris21/OECD
Manuel Enrique Garcia Huitron	Senior Consultant, Pensions Team, Inter-American Development Bank
Rolando Ocampo	Chief Statistics Division, Economic Commission for Latin America and the Caribbean (ECLAC)
Shumin Liu	Data and Policy Consultant, United Nations Development Programme (UNDP) Bangkok Regional Hub

Vladimir Hlasny	Economic Affairs Officer, UN Economic and Social Commission for Western Asia

Business	
Bastiaan Starink	Partner - People and Organisation, PwC
Bettina Schaller	Senior Vice President, Head Group Public Affairs, The Adecco Group
Dale Brill	Senior Vice President, Research and Foundation, Orlando Economic Partnership
Elizabeth Wilke	Tech Policy and Future of Work Researcher, LinkedIn
Erica Burns	Senior Vice President, Co-Director of Research, Whiteboard Advisors
Jessica Hyde	Global Corporate Citizenship Strategy Lead, Accenture
Joseph Louis Tan	Experience Design Manager, Digital Transformation Office, Income, Singapore
Lisa Neuberger-Fernandez	Managing Director, Strategy and Innovation, Accenture
Matt Sigelman	Chief Executive Officer, Burning Glass Technologies
Michael Chui	PGI Partner, McKinsey & Co.
Reema Nanavaty	Executive Director, Self-Employed Women's Association (SEWA)
Richard Stirling	Chief Executive Officer, Oxford Insights
Rita Kimani	Co-Founder, FarmDrive Limited
Sara Sutton	CEO and Founder, FlexJobs
Seha Yatim	Senior Policy Manager, Access Partnership
Urvashi Aneja	Co-Founder and Director, Tandem Research, India

Think Tank	
Annelies Goger	David M. Rubenstein Fellow - Metropolitan Policy Program, Brookings Institution
Brent Orrell	Resident Fellow, American Enterprise Institute
Ed Brown	Director of Country Engagements and Operations, African Centre for Economic Transformation

Emma Samman	Independent Consultant and Research Associate, Overseas Development Institute
Mary Alice McCarthy	Director, Center on Education and Labor, New America

National Association	
Alejandra Montoya-Boyer	Associate Program Director of Resilient Economies and Communities, National Association of Counties
Charlie Terrell	Director, National Association of State Workforce Agencies (NASWA)
Ron Painter	President and Chief Executive Officer, National Association of Workforce Boards

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