The Futures of Work in South Bend in 2035:
A Participatory Foresight Study

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The majority of studies on the future of work remain predictive in nature; often taking a bird's-eye view and depicting a most likely scenario on a global or national level, which overlooks the importance of local context. This study uses a participatory foresight approach, formulating potential scenario narratives of the futures of work, both at the global and local level, by actively engaging the local community in South Bend. The scenario narratives are created by combining research on global driving forces affecting the futures of work with local driving forces gathered via snowball semi-structured interviews with local practitioners. The interviews also served to narrow down the focus of the scenarios to two most critical concerns: 1) the skillsets of the future, and 2) the future of the local manufacturing sector.

Using these elements as building blocks, the scenario narratives are created using the six archetypes method (Fergnani, & Song, 2020), a deductive set of predetermined archetypes (Growth & Decay, Threats & New Hopes, Disarray, The Powers That Be, Wasteworlds, and Inversion) that emphasizes stress-point events/phenomena in the environment. The long-term outcomes of the narratives are weaved with potential short-term outcomes of the COVID-19 pandemic.

The discussion encourages practitioners and policymakers to use the narratives to "test" current strategies and policies, making them more resilient. It also uncovers common elements to more than one scenario, pointing to the necessity to create new strategies and policies today. These could be, for instance, partnerships between educational institutions and the public sector/industries to create new experimental degrees (responding to the concern over skillsets of the future), and pivoting to the production of emerging technologies while maintaining key manufacturing expertise (responding to the concern over the future of the local manufacturing sector).

ABOUT THE AUTHOR

Alessandro Fergnani was a Visiting Associate of Policy and Practice with the Pulte Institute for Global Development at the University of Notre Dame in Spring 2020 and is currently a PhD candidate in Management and Organisation at NUS Business School (Singapore). Alessandro conducts research on corporate foresight, foresight methodologies, and the futures of work. His research has been published in the journals *Academy of Management Perspectives, Futures, Futures & Foresight Science, Foresight, and World Futures Review,* among others. Alessandro is also head of scenario consulting at the strategic foresight consultancy Shaping Tomorrow, and regularly gives futures and scenario planning workshops globally.

1. INTRODUCTION

What will work look like in the City of South Bend in 2035? It is very difficult to answer this question. Indeed, the future of work is highly uncertain. A salient, unknown variable is the effect of automation on the workplace. Although a significant portion of our jobs have been predicted to be automated globally in the next few decades (Frey, & Osborne, 2017; Bakhshi, Downing, Osborne, & Schneider, 2017; Manyika, Chui, Miremadi, Bughin, George, Willmott, & Dewhurst, 2017) there is a substantial disagreement between scholars on which and how many jobs will be automated, as well as on the time required to automate them (Winick, 2018). The effect of automation on the workforce seems indeed to be more complex than what any prediction could foresee, as it might drastically impact any sector with a varied intensity between and within them (Muro, Maxim, & Whiton, 2019). And despite the clear limitations of economic projections, in mainstream economic sciences most of the studies on the future of work remain predictive in nature (e.g. Acemoglu, & Restrepo, 2019; Webb, 2020). Adding further uncertainty to the unknown effects of automation on future working conditions, current trends point towards the possibility of a complex future economic system characterized by a hybrid economy, where capitalism could merge with collaborative resource management (Fergnani, 2019).

Moreover, a large majority of institutional reports on the future of work take a bird's-eye view, depicting a most likely scenario on a global or national level. Although these reports aim to be instrumental for practitioners rather than for academic specialists, this approach overlooks the importance of local context (e.g. Muro et al., 2019; Institute for the Future, 2018; Zaidi, 2020, etc.). Indeed, any outcome of the future of work in the next few decades will be highly dependent on local configurations.

In view of the above, it appears that a *participatory foresight* approach is more fruitful. On the backdrop of the assumption that a single predetermined future cannot be successfully predicted, foresight refers to the capability to imagine a variety of potential futures and to develop successful strategies today based on those futures (Fergnani, 2020). Participatory foresight is a more recent development of foresight practice whereby local communities are actively engaged in the creation of future scenarios, so that they

impact the project from the very beginning and are more incentivized in using the outcome of the project to actively shape the future to their advantage (Popp, 2013; Ramos, Sweeney, Peach, & Smith, 2019).

In the current paper, participatory foresight has been applied to study possible futures of work in the City of South Bend with a 15 year time horizon (2035). A participatory approach, which is more tied to local communities, appears more fruitful to study the futures of work in such a regional context, although a foresight approach has already been applied to study the futures of work on a larger scale (e.g. Wilkinson, 2016; Ruotsalainen, Heinonen, Karjalainen, & Parkkinen, 2016).

Finally, as the current COVID-19 pandemic has altered workplace arrangements around the globe, and is likely to continue to do so in the short to medium-term future, the scenario narratives presented here also include different plausible outcomes of the pandemic on the future of work.

2. METHODS

The scenario narratives were built using predetermined archetypes as scaffolding. Predetermined archetypes about the futures have been shown to be consistent across cultures (Boschetti, Price, & Walker, 2016; Hunt et al., 2012; MacDonald, 2012), and have been used in various governmental and corporate contexts to investigate the futures of several topics (Bezold, 2009). Using predetermined archetypes goes back to Jim Dator's methodology, which consists of four archetypes: *continued growth, collapse, discipline, and transformation* (Dator. 2009). Dator (2009) asserts that these archetypes are to be found in any fictional artifacts, documents or plans about the future and that, therefore, they can be used as a parsimonious yet comprehensive method to imagine alternative futures.

Recently, however, this method has been updated to include a new set of six archetypes, which have been found through an investigation of science fiction (Fergnani & Song, 2020). These six archetypes are more granular and sophisticated than Dator's four archetypes as they retain a higher level of complexity (Fergnani, 2020). These archetypes are also more transformational as they are to be found in science fiction sources that were likely not originally considered by Dator (Fergnani, 2020). The six archetypes present overarching characteristics of the futures of mankind and can be adapted to any domain to imagine the futures.

THE ARCHETYPES ARE:

Growth & Decay: A future of continuation on the current development trajectory, which also includes current problems. Decay and decadence are found in any given society along with growth at any level of analysis: social, political, technological, economic, environmental, legal, and artistic.

Threats & New Hopes: An exogenous or endogenous incoming threat significantly challenges the status quo globally, and forces humanity to build new resilience capabilities.

Wasteworlds: A catastrophic event or phenomenon transforms life as we know it, and may transform the atmospheric environment. The world regresses due to scarcity of resources and animal spirits and conflict reigns unalloyed.

Disarray: The world enters into a state of disorder. Although not significantly altered, it experiences widespread levels of war, famine, epidemics, disinformation, or social unrest.

Inversion: A transformational event or phenomenon inverts human beings' sovereignty over the globe, bringing a new and unexpected power balance between human beings and the outside environment.

Powers That Be: Totalitarian or dictatorial regimes significantly decrease the agency of organizations and individuals globally.

According to Dator's methodology, scenarios are built by investigating driving forces in the present and then by projecting the potential behavior of those driving forces under each archetype in the future. The same rationale is preserved in the six archetypes framework as above.

In the current project, major driving forces affecting the futures of work globally have been identified via independent environmental scanning research using practitioner journals (section 3.1 below).

However, to make the scenarios more participatory, as is the aim of the project, local driving forces as in the eyes of local subjects have also been investigated. To identify local driving forces, a set of semi-structured interviews with local practitioners, social workers, grassroots leaders, entrepreneurs, academics, and innovators in South Bend and the nearby area have been carried out. To reach the sample size, the snowball technique has been used. Details about the full sample can be found in the appendix. The interviews were instrumental in narrowing down the scope of the scenarios, rendering them more realistic to the eye of local change-agents, as well as framing the scenarios using real-world sources of concerns of local citizens. The interviews were loosely carried out following two open-ended questions:

1) *What are the major local driving forces affecting the future of work in South Bend and nearby areas?*

2) *If you had a crystal ball and you were allowed to ask about the future of work in South Bend, what would you want to know?*

In asking these two questions, to capture long-term forces and concerns affecting the future of work, subjects were reminded that their responses had to not just consider the latest developments of COVID-19, but also whether these would remain post-pandemic. The first question was instrumental in identifying the driving forces that have a local impact on the futures of work, which would serve as building blocks for the scenario narratives. The second question served to frame the angle of interest, locally, of the scenario narratives. The archetypes were used, as the method dictates, metaphorically, i.e. as abstract guidelines.

3. FORESIGHT FINDINGS

3.1 GLOBAL DRIVING FORCES

Cultural shift - getting accustomed to remote work.

While some jobs were able to shift to remote work much easier, it has been a challenge for other jobs that require a physical presence to complete the task. The use of technology and the adaptation to new business models have been imperative in this shift. The impact of remote work comes both on the business side—in terms of costs, the adaptation of technology and business models and processes—and on an individual level—in terms of productivity, work-life balance, mental health, and socialization (Walsh, 2020).

New organization structures are reliant on global employee reach.

As the economy becomes more digital, companies which innovate and digitize earlier are getting an outsized share of the upside at the expense of the laggard majority (Sneader, & Singhal, 2020). Companies are pressured to change the way they are structured to take advantage of these developments or risk falling behind. Organizations are reaching beyond their physical location.

Virtual world and creation of a virtual community.

Large online communities are sharing common sentiments and ideologies. As technology advances, these virtual communities are having a stronger presence (The Futures Agency, 2020). Businesses increasingly have to understand how these communities influence them and their stakeholders.

Changing the scope and structure of public health.

The recent pandemic has exposed the flaws in the current structure and scope of public health globally. The resilience of nations, and in turn the impact of events on businesses, depends upon the strength of the public health system and on the confidence people have in this system (The Business Times, 2020).

Importance of social networks for expansion and survival.

As the world goes online more and more, social networks are no longer just a medium for expansion and reach to new customers, but also the proving ground where the survival of businesses is determined. Decisions made through the network have a high level of impact on every aspect of business, from funding and marketing to product development and hiring (Thought Leadership, 2020).

Changing the education delivery landscape.

The understanding of why and how people learn and of the purpose of education is changing. The education delivery landscape is increasingly one of the most vital elements of the progress a country makes because it sets the stage for how the future will play out. With the introduction of new education technologies, and a preference for a more applied and hands-on educational system, we are seeing the old system being slowly phased out. The impact of this will be realized over a long period of time with some moderate uncertainty (The Futures Agency, 2020).

Economic restructuring towards increased investment in education and innovation.

Education and innovation are two of the most impactful drivers of the future and have been the reason for much of the progress of the world. A restructuring of the economy that places a greater focus on investments on education and innovation is having an increasingly positive impact on the globe at large (The Futures Agency, 2020).

Increased ambidexterity of businesses with digital business models.

As the economy becomes more digital, companies innovating and digitizing earlier are getting an outsized share of the upside. Businesses that successfully experiment and develop emerging technologies such as 5G networks, Internet of Things, blockchains, and artificial intelligence are already more ambidextrous and will continue to be (Tan, 2019).

3.2 LOCAL DRIVING FORCES

The local driving forces identified by the subjects, in response to question 1 (section 3 above), were clustered in groups, which are presented below. These groups have interrelations between each other, for instance, companies relying on gig workers are less likely to provide benefits to workers, making the two driving forces, connectivity and the gig/freelance economy and erosion of stakeholder capitalism, closely related. However, the attempt here is to generate the most parsimonious set of mutually exclusive groups:

Changes in skills: The skillset required by employers is changing exponentially, with an increasing demand for skills in business analytics, managing and analyzing data, and digital systems. Not only are new platforms being created, but also new skills are needed to use those platforms to best market products. Consequently, local education in South Bend cannot keep up with the pace of technologies, and new startups have difficulty finding skilled employees. Available employees locally are more likely to be in the manufacturing industry.

Changes in values among younger workers: Millennial employees, and younger employees in general, are increasingly driven by purpose and have an entrepreneurial spirit. We can see the rise of a new set of interests, including more concern for sustainability and sustainable entrepreneurial ventures. We witness local companies in South Bend capitalizing on this trend as they translate corporate social responsibility into monetization. However, there is a dark side of this value change: more

solitude. Younger generations don't talk much with strangers and just go about "doing their business".

Cultural forces and cultural conflict: Widespread sentiments exacerbate automation. As one respondent replied: "if it can get it done with a machine, I can be 'lazy'". We also see clashes between technological developments and the beliefs of individuals who don't see the value of education because technologies move too quickly. Mistrust in the government is also increasingly common because the ideology that there should be no ceiling to salaries appears increasingly untenable. Lastly, following COVID-19, individuals are starting to question whether an investment in new work infrastructures and business travels are really needed.

Connectivity and the gig/freelance economy: South Bend is small but increasingly connected with the outside world. South Bend has also increasingly fewer workers because everyone can work remotely. Employees don't need to be physically present in South Bend to work there. This has been fueling the freelance economy. Mobility apps allow employees to carry out their work-related tasks everywhere thanks to mobile technology and smartphones. Individuals are increasingly having several different jobs in their lifetime.

AI and automation: Automation is increasing, which fuels unemployment locally and prevents migration to South Bend. Automation is not much driven by robotics, but by AI deployed to increase productivity. For instance, policy-making and medical diagnoses are informed by big data, and tasks are increasingly handled by bots. But we do also see the production and tests of driverless cars, driverless trucks, and shipping drones. Concurrently, in manufacturing, as robots are getting better but cannot automate the whole production process, there is a shortage of niche skills that cannot be automated, e.g. molders.

Erosion of stakeholder capitalism: Profits are increasingly retained by shareholders, with no major investments in worker's benefits. This is in part because of and related to the fact that companies rely on gig workers. With fewer benefits, there is more work-related stress or pressure and little stability. Recent policy changes are not in favor of workers. In the manufacturing industry, for instance, local workers are mercenaries moving to another firm for just 20 cents more per hour.

Support for entrepreneurs: More infrastructure and aids for entrepreneurs and startups in Indiana are showing up.

Following tax easing due to the Trump administration, many small and nimble players have appeared, and fewer big manufacturers have come back.

3.3 SOURCES OF UNCERTAINTY

Similar to the local driving forces, the responses to question 2 (section 3 above) were clustered in groups of concerns, which constitute the critical concerns framing scenario narratives. These groups are shown below.

Legislative concerns: What is the control we will have on labor matters, as local leaders (i.e. how many of our decisions will be taken away by the state)? What kind of research funding will be provided by the government? What will be the new labor laws? What will be the power of future labor unions?

Concerns about education: What kind of training in innovation do we need in educational institutions? What are the skills people will need to be successful in the future? How do we measure success in the future?

Concerns about innovation: How quickly will the long-announced innovations be marketed, e.g. driverless cars? How democratized will technologies be and to what extent will we need to know the underlying code? To what extent should we be concerned by ethical dilemmas in AI development? When will we be able to generate a general AI and what reskilling will be needed following that?

Concerns about policymaking for entrepreneurs: How to support employees psychologically in the future? How to drive entrepreneurs with resources more systematically? How to translate innovation from academic publications to start-up studios? Can new policies create new jobs?

Concerns about changing values: What will be the habits of consumers of the future?

Concerns about industry dynamics: How will South Bend move away from manufacturing? How will local manufacturing reinvent itself? What kinds of jobs will we have/need in the region at the macro level? Do we still need manufacturing? What economic downturn(s) will significantly change the planning of manufacturing production? What new technologies and materials will be available for manufacturing?

Concern about the sustainability of work: What will the future look like for people with the least resources? How do we advance technology while making sure inequality is not exacerbated?

3.4 SCENARIO NARRATIVES

The scenario narratives provided follow the six predetermined archetypes method (Growth & Decay, Threats & New Hopes, Wasteworlds, The Powers that Be, Disarray, and Inversion). The scenarios present different combinations of speculative rearrangements of the driving forces and attempt to focus on the key concerns as above. Specifically, particular attention was paid to two key concerns that appeared repeatedly throughout the interviews: concerns about education (skillset of the future), and concerns about industry dynamics (manufacturing of the future). Additionally, the scenarios attempt to weave together potential short-term future developments of COVID-19 with the focal issue in the study. The time horizon of the scenarios is 15 years (2035).

3.4.1 GROWTH & DECAY

Globally. The coronavirus is conquered thanks to a vaccine manufactured by a Chinese multinational and distributed globally in late 2021. Chinese conglomerates are increasingly powerful, with shares in all major corporations globally. The world returns to a new normal. Private investment in automation technologies is boosted in the early 2020s. After the experience of extended lockdowns, the conviction that much of workplace practices can be carried out remotely is widespread. Menial jobs are increasingly automated all over developed nations, which causes spikes in unemployment, depression, domestic violence and suicides.

Locally. The tasks carried out by retail sale persons, food preparation and servicing workers, and nurses are completely automated. This contributes to a wave of unemployment locally. However, the University of Notre Dame launches a program in collaboration with a consortium of private firms to offer a compulsory online remote re-training program in data analytics named *Rebound*, to reinstate the laid-off workforce into the economy of the city. With the steady increase of online deliveries via driverless vehicles, the demand for automated transportation technicians, practitioners, and analysts increases, and Rebound manages to reinstate 55% of the laid-off workforce into that industry by the end of 2027. A side effects of this is that reinstated employees are underpaid, which fuels discontent and job dissatisfaction. Additionally, a large part of the younger population remains unemployed, as many younger professional reject reinstatement offers from the Rebound program, which they see as clashing with their freedom of choice. A community of online gamblers and collaborative video makers is emerging in the early 2030s, and indigence remains widespread.

With a steady increase of discretionary consumption and sales of vehicles during the pandemic, heavy manufacturing plants in the region have new disposable investment and new plants are created. The South Bend and Elkhart regions become a new hub for industrial development in vehicle automation, and after the new 2029 partnership with Daimler, production of driverless trucks begin at scale in 2031. Boats and vehicles manufacturing applies algorithms to fetch raw materials and optimize costs. With the self-driving cars mass market opened to consumers in 2027, entrepreneurial ventures on apps and adds-on for vehicles' software are incentivized by the local government and are more likely to receive seed funding. New degrees in management of automation are generated at Mendoza College of Business in collaboration with data analytics firms, which provide insights on the skills sought by local employers that are most lacking. However, graduates of several other majors are left unemployed. This feeds into the creation of an underclass of videogame addicts eking a living online via the gig economy.

3.4.2. THREATS & NEW HOPES

Globally. The pandemic is recurring throughout the Western world with several waves into 2021 and 2022, similar to the seasonal flu. The newly elected presidential administration collaborates with Apple to institutionalize and distribute compulsory face shields all over the nation free of charge. The economic outlook globally is positive as new and unprecedented industries start to emerge, spurred by prolonged remote work arrangements, including hologram technologies, sanitary clothing, and face shields production. Keeping the pandemic at bay via prevention becomes part of policy arrangements and common individuals' daily routines, who slowly adapt to living with the virus, as preoccupation gives way to resilience.

Locally. South Bend manufacturers refocus their production towards new industries. Manufacturing skillsets previously used to produce vehicles' windows come in handy in the production of face shields and related technologies. Thanks to seed funding from the local government, a new local start-up, Exoglass, takes advantage of the widespread usage of face shields by prototyping an augmented reality software to enhance electronic shields' virtual functions and connect to smartphones. Its headquarters employs 7000 individuals and brings great wealth to the city of South Bend. Sensitized to the importance of preparing for repeated crises in the business/economic environment, in 2025 the government of the city of South Bend partners up with University of Notre Dame to create a new set of interdisciplinary degrees for younger

generations in order to withstand upcoming crises. Among the many newly generated degrees in the following years are: bachelor of complexity science, bachelor of crisis prevention and control, bachelor of foresight and epidemiology, along with new masters' degrees in corporate foresight and business and epidemiology.

3.4.3. WASTEWORLDS

Globally. The coronavirus mutates and is not conquered. It becomes more lethal and widespread. Serial bouts of lockdown globally turn the sluggish world economy into a prolonged recession without significant improvements throughout the 2020s. A new administrative task force is in charge of disease prevention and control nationally. However, while scientists recommend making sure that the population practices social distancing and doesn't commute excessively, the presidential administration ignores these warnings, and as individuals lose their jobs and face adverse economic conditions, they still commute illegally to stores outside of their neighborhood for daily needs. This leads to a new wave of infections and deaths. In turn, the global concerns over the economic recession lead to the downplay of warnings of the sudden dangers of climate change, bringing about irreparably erratic weather conditions.

Locally. South Bend is not immune to the global wave of pandemic, recession and severe environmental conditions that plagues the globe. As typhoons appear for the first time in the region, many lose their houses, and squatting in rundown properties is common. The local government incentivizes new industries that distribute food and essentials. Many manufacturing plants are shut down. Those left turn to the production of sanitary products, weapons, and processed foods. Fresh produce is scarce and difficult to find. As the population consumes large amounts of processed foods, the general health conditions of citizens deteriorate, overwhelming the local healthcare system even further. The extremely adverse weather and the pandemic cause education to a stall. As students can't afford their tuition any longer, a new tuition allowance scheme is sanctioned, allowing students to finish their degrees online with lower expenditures from universities. A great majority of academic research shifts to Covid-19. As the cost of investing in automation is too high, the demand of menial jobs increases, and students with a background in business analytics and digital systems have to fall back on menial labor, working for the few essential industries still prosperous, such as food processing and healthcare.

3.4.4 THE POWERS THAT BE

Globally. The sluggish global economic situation lasts until the mid-2020's as global lockdowns are extended over the second and third waves of the coronavirus pandemic. Governments make tracking apps compulsory, initially with the purpose of contact tracing. These apps are built into every smartphone. However, amidst the economic downturn, these apps turn out to be instruments to impose monetary fines to individuals who do not comply with orders of social distancing. regimes. As the world experiences recurring waves of the pandemic, compulsory tracking apps are not lifted, and fear over strictures to social life is palpable in the media. In the late 2020s, the global economy slowly emerges from the doldrums as new holographic technologies are marketed and 5G infrastructure is increasingly widespread which, combined, allow most of labor to be executed remotely. However, this also allows governments to extend the reach of their surveillance. The demand for holographic managers increases. Business analytics evolves up to a point that strategic decision making is automated.

Locally. By the late 2020s, the economy has recovered, and some local manufacturers in South Bend adapt to holographic technologies, implementing it in their production lines as modelling technique and in showrooms as a form of rendering. Against the backdrop of necessary social distancing, recreational vehicles' sales increase moderately but steadily over the years. The government levies hefty taxes on products and services to fund contact tracing and surveillance programs. Strategic decisions are completely entrusted to business analytics, and marketing is automated with minimal decision making. However, this raises the question of whether local governments are overlooking these self-running firms to channel profits to their advantage. Business analytics expertise is obsolete in the workforce, but highly sought after in academia, where researchers are payed highly to design more optimal algorithms. A new cluster of research in business optimization technologies at the University of Notre Dame achieve global recognition, and new research centers in this domain are established. New PhD degrees on ethical AI optimization and policy automation are generated. However, the government levies hefty taxes from the proceedings of academic research and vetoes academic output. Tracking systems are part of daily life and are used to fine employees not complying with the social distancing measures in place, allegedly for not respecting social responsibility. A group of students at the University of Notre Dame turn into activists denouncing the use of AI as an instrument of control, and promoting the importance of ethical AI. Their gatherings are squelched with violence by the local police.

3.4.5 DISARRAY

Globally. The coronavirus ends its course earlier than several estimates in early 2021, leaving the United States as the worst-hit country globally. The Trump administration's hostile public reprobation of China as a culprit during the global pandemic lead to rising diplomatic tensions, fueling a wave of xenophobia. Trade routes are significantly altered, and a one-upmanship race via cyberwarfare escalates, until the White House internal communication system is hacked in winter 2024, suffering a devastating data loss. The attack is attributed to the new Xi Jinping administration, given its close ties with Huawei. Several countries along the Belt and Road Initiative decide to side with China and bilateral trade between the United States and most countries in Eurasia significantly decreases, leading to a local recession in the late 2020s and spelling the end of the United States' global hegemony.

Locally. Due to the significant shortage of raw materials, local manufacturing, food production facilities, healthcare, and retail face a significant increase in wholesale prices, leading to panic and unrest. This stirs up further massive riots by those who were against USA foreign policy measures against China before it led to the spike in prices. To counter this, the government of South Bend, among several other towns in Indiana and nearby states, launches initiatives to incentivize local farming, sourcing seeds from South America and educating citizens via online training. The profession of counter-espionage officer becomes the new ambition of generation Alpha. As the public sector and the United States Armed Forces absorb the great majority of the young workforce to feed the escalating cyber war with China, the most sought after professions are conflict intelligence experts, public safety experts, and counter espionage specialists. As most younger professionals, of both genders, move away from South Bend, prices of properties decrease significantly. In 2031, the government of South Bend invests in three major luxury nursing home plans, attempting to revive the local economy and repositioning the region as a idyllic retirement location in the Midwest.

3.4.6. INVERSION

Globally. Lockdowns following the global pandemic

force individuals to rethink the human role in adversely impacting the planetary ecosystem. Following the publication of the IPCC climate change projections in 2023, which include narratives and videos about the future of the earth's ecosystem, as well as the widespread viral hashtag #nature2.0, a new global sentiment for consciousness and spirituality arises. A new system of values, heavily promoted by celebrities on social media, voices the importance of taking care of nature. By 2027, the meat substitutes industry and the artificial meat industry reach a market capitalization of almost $60 billion, absorbing a new wave of investments. Once the coronavirus abates, individuals are more willing to pay a premium for outdoor activities. Shared workspaces shift to the open. University lectures are now organized outdoors. The excessive use of technologies is stigmatized. New research shows the adverse effects of online video conferences on health, and individuals shift back to phone calls, believing these are more intimate as one can focus exclusively on the sound. Video conferencing becomes disrespectful.

Locally. Local manufacturing sees a halt in the production of discretionary vehicles. In the midst of more prudent spending behaviors among generation Z and generation Alpha, individuals' disposable income is mostly spent on outdoor activities, spiritual enrichment, and health products. The University of Notre Dame sets up a series of new laboratories in plant-based food science research, food substitutes research, and wellbeing and spirtualty. Some manufactures divest from heavy manufacturing and pivot into biomedical engineering, in collaboration with the Eck Institute of Global Health. Many others, unable to adapt, file for bankruptcy. Students are required to attend internships in research and development laboratories of firms as part of their degrees. Artificial intelligence is still used in business analytics and digital marketing, but as the workforce steers away from office work, it remains a niche area where skills are in high demand locally and high salaries are offered to potential applicants, but given the wider ideological environment and the stigma on the excessive reliance on machines, few decide to pursue such a career.

Futures of Work Scenarios presented in this policy brief have been published at sciencedirect.com.

4. DISCUSSION

The method used to create the scenario narratives emphasizes stress-point events and phenomena in the larger social, political technological, and economic environment.

This is to prepare policymakers and practitioners for potential crises and to build resilience to such crises in advance. In view of this aim, the scenario narratives here presented are not the end. Future scenarios have to be used fruitfully in the present. This can be done in a number of ways, but the most common and fruitful approach is wind tunneling. Wind tunneling involves comparing current strategies and policies against each scenario, and asking whether those strategies and policies are robust to possible future stress-point conditions in the environment (Rudd, Hajkowicz, Nepal, Boughen, & Reeson, 2015; UK Government, 2009, 2017).

This allows us to find the most enduring strategies, those that require some form of change, and those that need a complete overhaul. Strategic decision making can thus be derived from the scenarios and be made fruitful in the very present. This analytical process applies to organizations as well as to policymakers, with the variation that in the former case, organizational strategies are tested against scenarios, while in the latter case, it's public policies.

A second way to derive policy guidelines from the set of scenarios is looking for common implications that are recurring in one or more scenario narratives, and building resilience based on those elements. For instance, a critical source of concern locally, which was uncovered in the interviews, was the nature of the skillsets required in the workforce of the future. The outlines of the scenario narratives show that when stress-point situations in the environment are present, long-term partnerships between public institutions, private corporations and educational institutions to set up a new range of university degrees make new skillsets more easily available. Fundamentally, these partnerships will be initiated by the University of Notre Dame, which has been the largest employer in the region (King, 2018). The scenarios also give suggestions on what particular professions of the future are plausible. The partnerships narrated in the scenarios serve to envision and actively create professions of the future. These proactive measures appear more fruitful to withstand adverse conditions of the social, political and economic environment (Growth & Decay, Threats & New Hopes, The Powers that Be, and Inversion scenarios) rather than more reactive approaches (Wasteworlds and Disarray scenarios). Local universities could see this as a salient implication of the scenario narratives and start planning to enact policies along this line in the very present.

Another common implication of several of the above scenario narratives is that manufacturing companies appear

to be successful when they pivot into a substantially different line of products while maintaining some core expertise (Growth & Decay, Threats & New Hopes, The Powers that Be, and Inversion scenarios). This element should awaken some visionary entrepreneurs and managers to start researching possible business pivoting opportunities in the technological environment in the present. Indeed, it was noted during the interviews that discretionary vehicle sales went up during the global pandemic. This is an unexpected positive event. It is equally plausible that unexpected negative events will occur. Acting now in view of common wake-up-call elements to more than one scenario would in part ward off currently leading manufacturers against an excessively dire impact of changing business environment conditions on their competitive advantage.

Similarly, other sectors could look for other common elements in the scenario narratives that are more germane to their industry to envision proactive strategies today.

Both wind tunneling and thinking about scenarios' implications would yield the best results in workshop settings, where actual change agents from various sectors engage cooperatively in a discussion on how to test, change, and rethink strategies and policies today. This would be aligned with the participatory aim of the project.

Finally, the information presented in this study can be used to generate more foresight output. For example, the narratives focused primarily on two sources of concern due to space limits. But this study also presents five additional sources of concern about the futures of work locally. Future research could choose to focus on any of those concerns to create a new set of scenario narratives.

PARTICIPANTS		
Position	Affiliation	Gender
Innovation Officer	City of South Bend	F
Director of Mobility Innovation	City of South Bend	M
Professor of Management	University of Notre Dame	M
Associate Director for Economic Opportunities	University of Notre Dame	F
Senior Project Manager	Sarah Cannon Research Institute	M
Cofounder	Invanti	F
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