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The Adaptation of Everyday Work in an Age of Automation

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Recent debates around the future of work have largely focused on how automated technologies are contributing to job loss or decline. However, in this paper, we draw from original ethnographic research with four types of automation-affected workers – insurance agents, pharmaceutical representatives, medical device salespeople, and medical device technicians – to argue that, rather than being replaced by machines, many workers are in fact adapting how they define and perform their work to survive in a more digital age. Uncovering such adaption tactics is crucial for recognizing the human agency that is present in, even definitive of increasing encounters with machine-driven technologies and can help large organizations solve some of their toughest challenges, including how to predict future trends in the labor market, define the added value of human labor, build and train a better workforce, and develop and evolve existing digital tools.

INTRODUCTION

One fellow adjusts his cowboy hat. Another, long tattoos snaking down his arms, leans back skeptically. A third shuffles nervously in his chair. Truckers all, and the subjects of a new Vice documentary on *The Future of Work,* they've just met the Chief Product Officer of a company that is engineering self-driving big rigs capable of navigating the roads completely autonomously. This technology has the potential to displace 10 million jobs, the CPO tells the camera. Not only are these workers facing a jobless future, according to the makers of the *Vice* film, but they are also are unprepared for it. "When you asked me, what would I do if I didn't drive? I honestly can't answer that, because I really don't know what I would do…," one of the truckers says to *Vice* host, Krishna Andavalou, "I've been doing this too long." Layering a melancholy soundtrack over slow-motion footage of the man's rig backing out into the night, the filmmakers present the worker as both unwilling and unable to change, so long stuck in one way of being in the world that he cannot even contemplate transitioning to another.

This is of course a poignant image, and a much-needed reminder of the human lives at stake in the rush toward new technologies; without outside help or training, many workers may indeed struggle to adapt to an increasingly digitized future. However, replicated unthinkingly, we also find this to be a problematic depiction of the worker as someone without agency, lacking the drive, creativity, ability or resourcefulness to adapt in meaningful ways to automation-driven change. By contrast, in our extensive ethnographic research with (admittedly white-collar) professionals across America and internationally, we have seen a different narrative emerging, one in which ordinary workers are both aware of the advanced technologies transforming their industries and incredibly inventive, finding ways to adapt to these technologies by changing how they think about and describe their jobs, the daily ways they operate, and even the kinds of customers they serve, as we go on to discuss in our findings section. Much of the contemporary discourse around advanced technologies has

embraced a narrative of "technological determinism," in the words of information technology scholars Howcroft and Taylor (2014), presenting the development of these technologies – and their displacement of workers – as inevitable, or destined to transform society in quite damaging ways. We submit that this elides the agency that ordinary workers are exercising to resist these technologies, and the power they have to shape not only the ways these technologies are designed and implemented, but also the impact they have on worker's lives – and society more broadly.

Take, for example, Paul, a medical device technician, who is embracing a softer language of "patient care" to describe his role in not only troubleshooting issues with medical devices, but also teaching patients how to use them properly; Cynthia, a pharmaceutical representative who is finding new ways of delivering value to clinicians, for instance by introducing them to methods and studies; or Melissa, an insurance agent who has shifted her entire business to serve a more asset-rich customer. In each case, the professionals' actions can be explained as a resilient response to increasing automation and digitization in their industries, for instance, to medical devices that are increasingly able to troubleshoot problems and relay information autonomously, without lesser need for an in-home technician; and to competition from direct-to-consumer websites, which enable insurance customers and clinicians to purchase products without the help of an agent, dealer, or representative. By framing their actions *as responses*, signifying purpose, intention, and method – sometimes, even being rewarded with success – it becomes possible, we argue, to recognize these workers *as agents* taking measures to protect the future of their livelihoods; not, as the *Vice* documentary would frame them, passive, unwitting victims displaced, or, in the words of another commentator writing in *The Guardian*, made "disposable" by new, more advanced technologies (Murphy 2017). Furthermore, recognizing workers' agency is important for many reasons, not least because it is often a missing variable in predictions of the future of work and workplace technologies.

OBJECTIVES

When making predictions about future unemployment as a result of automation – a much-debated topic in academia, policy-making, as well as popular media – it is not enough, we argue, to simply calculate the percentage of cognitive or manual tasks within a given job that could theoretically, or in the near future, be accomplished by a computer, which is (roughly speaking) the method employed by oft-quoted commentators such as Frey and Osbourne (2013). This is because such predictions do not take into account the *new* value that workers are creating to stay competitive against these technologies, which affects the pace at which they will or even *can* be replaced by advanced technologies. Consider, for example, the insurance agents who are competing with automated websites by going beyond simply selling policies to also providing other forms of risk-related value, such as workplace safety training, as we go on to discuss. Meanwhile, workers who are creating new kinds of value in this and other ways will continue to persevere in their jobs, which should be factored into predictions about the impact of advanced technologies on human behavior – and society more generally.

Another practical application of the research we go on to discuss, though a less desirable one, is the development of even more advanced or competitive technologies by learning from workers' adaptation practices: for example, while today direct-to-consumer websites

primarily match customers to (simple) policies via algorithms, in future, they could also become centralized platforms for a suite of other services that include, for instance, safety training, thereby learning from or mimicking what human agents are currently doing. This of course raises questions about the ethics of recruiting ordinary workers into ethnographic studies – gaining access to their homes, communities, and workplaces in the process – with the explicit intention of using this data to develop technologies that put their livelihoods at even greater risk. It also assumes that that more automation is always preferred, if not always more cost-effective, a highly suspect view for reasons that include the capital it takes to develop such technologies: see, for instance, Steve Lohr's (2019) recent article for *The New York Times* on the often prohibitive costs of training artificially intelligent systems.

Fortunately, studying workers' adaptation practices can not only guide the development of new technologies that compete with them, but also help them. That is, instead of *prescribing* how workers can or should evolve, for instance, through a broader analysis of industry trends, we argue there is more opportunity to learn from what workers are currently doing, and *partner with* them in changing how they work to keep pace with new technologies: for instance, providing software tools to insurance agents that help them quote policies and get back to their customers faster – an observed and explicitly-stated need, as we go on to explore below. This application of our research may be particularly relevant for organizations that wish to demonstrate their loyalty to – and partner with – workers as they grapple with change in automation-affected industries: for instance, pharmaceutical companies that employ both human and digital "agents" to sell their products. Workers often have an idea of how they would *like* their jobs to evolve to stay both meaningful and profitable to them, and they can be shrewd assessors of the kinds of tools-, skills- and knowledge gaps they must close to stay competitive, as we go on to show. Tailoring solutions to address these gaps can be an effective way both to build closer relationships with automation-affected workers, and help them to adapt to change successfully.

To be sure, as we go on to explore below, adaptation is not always easy. While workers may have an idea of how they would *like* their work to evolve to compete with new technologies, they often lack the practical resources to do so, which presents opportunities for organizations with a stake in these workers' survival – e.g. governments, foundations, suppliers – to assist and, thus, build closer relationships with them. This paper uses the term "tactics," as defined by Michel de Certeau (1984) in *The Practice of Everyday Life*, to describe how workers are adapting to new technologies precisely because it encapsulates the limitations of their responses. Unlike "strategies," according to Certeau, tactics are fundamentally defensive; workers have no "base where [they] can capitalize on their advantages," or secure whatever gains they may have made (xix). Similarly, today's workers must evolve further to stay competitive; there are few adaptation methods that put them permanently beyond the threat of advanced technologies, and even short-term gains can be difficult to secure with the limited resources they currently possess, as we go on to show. This paper proceeds to discuss some of the occasionally intractable challenges hindering these workers' ability to compete with advanced technologies – including, rather ironically, their struggle to access sufficiently sophisticated digital tools in their daily work – while also illuminating possible ways that outside actors, for instance our clients, can help.

But what about the ways that we, as applied ethnographers, assist *our clients*? As yet another, perhaps principal, application of the research we disclose below, insight into the unique value that humans contribute over automated services may also help firms pursuing

multi-channel strategies to develop a coherent vision of when a human agent or sales representative, for example, is more valuable than an algorithm. Several EPIC community members including Oreglia and Kitner (2013) have discussed the critical role of salespeople as "gatekeepers," shaping how customers see and even use many products. For instance, even though many direct-to-consumer websites today are capable of selling personal lines policies to (moderately) high-net-worth individuals, *should* they? Or would marketing dollars be better spent in funneling these customers to human agents who are both more skilled at selling them the complete package of coverages they need, as well as more adept at keeping these customers with providers long-term by delivering the "white glove" service they expect? As applied ethnographers, one of the primary ways we can be useful to our clients is by unravelling their established orthodoxies not only about the technologies they adopt or implement, but especially about the designated roles and presumed value of the people they employ.

LITERATURE REVIEW

Are automated technologies good or bad? In the future, will they lead to mass unemployment or help make work more fulfilling for more people? These questions obviously have major social, political, even environmental (Ford 2015) implications and, thus, have occupied scholars from a range of fields. As early as 1974, political scientist Harry Braverman argued in *Labor Monopoly and Capital* that companies are and will continue using automation to replace or simplify skilled jobs. Braverman viewed such technologies as a tool of control by management, leveraged to weaken the power of workers in the labor market and hence to strengthen the position of the company. Notably he thereby elides the leverage that *workers* have in their unique skills, talents, and particularly resourceful agency, as we go on to show. Subsequent scholars refer to this as "Braverman's universalist thesis of deskilling" (Bricken et al 2017, 4); according to his theory, machines will eventually, universally, replace workers. Many commentators since have embraced similarly fatalistic concerns. For instance, Brynjolfsson and McAfee (2014) raise anxieties about deepening social inequality as result of advanced technologies. Only some highly skilled workers will be able to "create and capture" the value of these technologies, they argue, while other, "ordinary" skilled workers will likely become susceptible to substitution, seeing their wages fall. Martin Ford (2015) even goes so far as to warn of worsening climate change as a result of automation when, faced with economic insecurity as a result of widespread worker displacement, politicians will prove even less capable to "address the dangers posed by climate change" (283-4).

Indeed, much of the contemporary discourse around automation in the workplace is haunted by a sense of impending doom for workers. *The Wall Street Journal* warns of "White Collar Robots, Coming for Jobs; *The Economist*, often fairly optimistic in its approach to new technologies (not to mention conservative in its projections) submits, "The combination of big data and smart machines will take over some occupations wholesale, [or in others] allow firms to do more with fewer workers" (2014, 23). Though, of course, some academics have been more circumscribed in their predictions: Oxford professors Benedikt Frey and Michael A. Osbourne (2013), for instance, estimate that nearly half (46%) of American jobs may be susceptible to substitution by automation in the next two decades, but, crucially, they do so without making any predictions about the number of jobs that will *actually* be automated, nor

do they speculate about what the consequences of rising automation are likely to be. And circumspection *is* required: as scholars such as Teigland and colleagues (2018) have also noted, the extent to which automated technologies will be adopted, particularly as a replacement for human workers, is likely to depend on a number of external variables, including but not limited to the commercial availability of these technologies; the cost of implementing them; their perceived economic benefits; and evolving legal, ethical, and other regulatory frameworks that govern them, which may constrain where and how such technologies may be used, or what protections will be available to workers.

We aim to add another variable to this (by the perspective of some, comforting) list: the adaptation of everyday work by the ordinary worker. To reiterate, we submit that it is not possible to predict the extent to which automated technologies are or will be "displacing" workers without understanding the ways these workers are already responding to, and even successfully resisting, the effects of these technologies on their work. As social scientists have been arguing for decades, technologies are not created nor adopted in a vacuum; rather, they "exist and function within social systems and are consequently conditioned by them," in the words of esteemed anthropologist Leslie T. White (1959) (27). Hence, in order to make predictions about the future of the workforce, or even to understand the relationship of workers to new technologies in the present day, it is paramount to understand how ordinary workers are using advanced technologies in their daily practices; how they see themselves in relationship to new digital competitors; how they are evolving their work to stand out from these competitors; as well as what challenges they face throughout this process.

Fortunately, a number of scholars in the fields of Labor Process Theory, Information Systems (IS), Social Shaping of Technology (SST), as well as the EPIC community have redrawn attention to the modern workplace as a "contested terrain" in the words of labor process scholars Thompson and Harley (2007, p. 149) – that is, as a space not only where advanced technologies are playing a more prominent role, but also where human agents are taking steps to counter their (sometimes nefarious) effects. Borkovich and colleagues (2016), for instance, have explored how office workers are repurposing the very connected devices (e.g. cell phones, mobile computers) that render them "always on" at work, or more susceptible to the demands of their employers, to practice *perruque*, that is, to "pilfer" their employers' time for their own personal, private purposes (5). Moore, Aktar and Upchurch (2013), similarly limn the subversive practices of warehouse workers who, when instructed to wear new technologies designed to monitor productivity and performance (e.g. step counters, movement trackers, even heart rate monitors), decided "not to care," in the words of one laborer, actually reducing the effort and alacrity with which they operated. Within the EPIC community, Stayton and Cefkin (2018) have sketched a beautiful portrait of the way in which the caring actions of transit operators – for instance, liaising with local law enforcement, comforting distraught customers – cannot be "formalized into computational procedures" (336); that is, in their very existence and excess, they would seem to defy the "logics of efficiency" underlying many automated systems (225). In each case, these scholars underline the resilience and resistance with which many workers are grappling with, not merely bowing down in submission to, advanced intelligent systems.

This paper adds to these scholars' small but growing number by drawing on findings from studies that ReD Associates has conducted over the past several years with "ordinary workers" in professions threatened by automation. Our aim is to unpack the ways these workers are resisting competition from new technologies, how they think about or describe

their work, how they actually perform their jobs, and the customers they serve, as we go on to detail in a later section. Underpinning our argument – as well as, we would argue, the orientation of the papers above – is Michel de Certeau's *The Practice of Everyday Life*. Of course, his work is often credited as having refocused the attention of social scientists on end users, or the consumers of "representations" (read also: goods and services), to study how these users employ them in ways their producers (read: our clients) do not always envision nor intend. Yet more apposite for our immediate concerns, Certeau also gives priority to the ways ordinary people respond to, re-appropriate, and even subvert forces intended to influence or control them, for instance, by introducing ambiguity into everyday acts such as cooking, shopping, or even walking. By making these acts mean something different from what the "producers" or people who shape these activities intend (read: the creators and implementors of advanced technologies), ordinary people (read: workers) have the ability to enact a kind of counter-hegemonic uncertainty or instability (read: the robots have not yet won).

Again, how inevitable is it that full or partially automated technologies will result in widespread job loss? It depends, not only on the technologies themselves, how quickly they develop, by whom and in what ways they are applied – amongst other variables – but also on the workers and the agency that they exercise in resisting or adapting. To be sure, adaption practices that enable workers' continued survival despite competition from new technologies, we submit, can be seen as effective resistance tactics. Though, it is crucial to note that the resistance we describe here and to follow is against new *technologies*, not against these workers' employers or partner-suppliers; indeed, frequently the workers we met framed their adaptation tactics as actually helping their employers or suppliers, who rely on their continued existence as a crucial channel for sales, even sometimes alongside or in complement to direct-to-consumer websites. As Howcroft and Taylor (2014) observe, and as we have also noted above, much of the debate around the future of the workforce and automation has been striated with a sense of "technological determinism," or an assumption that advanced technologies have the ability to transform society as kind of "god from the machine," with dire and inevitable consequences for humans (1). We intend, in this paper, that a renewed focus on the everyday practices of ordinary workers, and on their "wandering lines" and "errant trajectories," to quote from Certeau (xviii), will serve at very least to complicate this view and seek, alongside Howcroft, Taylor, and others, to ground theoretical debates in emerging empirical realities. Machines are not – like the Greek gods of old – infallible, nor workers without resilience and resources, as we soon go on to show.

METHODS

But first, which workers are we talking about? Over the past few years, ReD has conducted several ethnographic studies for private sector clients that enabled our researchers to spend considerable time with professionals in industries being affected by automation, namely with independent insurance agents; pharmaceutical representatives; medical device dealers; and medical device technicians. In the largest and most recent of these studies, several ReD researchers – including two of the authors of this paper – embedded ourselves for a full week inside 6 small-to-mid-size independent insurance agencies in Illinois, Wisconsin, Nevada, Colorado, and Tennessee, conducting in-depth immersions with over 40 agents and customer service representatives, while also speaking to their customers, families,

and community members. For the other three studies, our colleagues traveled to markets across the US, meeting with 8 medical device dealers and 9 pharmaceutical reps, as well as to France, Germany, Brazil and China, where they joined medical device technicians in 13 separate observations. In some cases, these professionals were the "primary respondents" of the studies, or the workers whose attitudes and practices the researchers were most interested to study and observe, while in other instances they served as "secondary respondents," whose perspectives were critical for helping the researchers map the broader social or industry ecology in which the primary respondents, such as patients being treated for sleep apnea, were situated. To be quite specific, insurance agents served as primary respondents in their respective studies, while the pharmaceutical representatives, medical device dealers and medical device technicians were recruited as secondary respondents.

In meeting with these respondents, both core and secondary, the researchers employed standard ethnographic research methods including participant-observation, semi-structured interviews, as well as exercises to surface respondents' underlying mental models, for instance of the landscape of insurance providers. To be clear, understanding workers' responses to automation was the not the explicit focus of any of the studies, which pursued other research objectives determined in collaboration with our clients; though, it did come up frequently as a topic of preoccupation both in the researchers' notes and in their post-field reflections. In preparing this paper, we have skimmed relevant insights from the surface of our colleagues' fieldnotes and from our own internal conversations and reframed these to speak to this question of automation and agency. Each of the subsections of our findings chapter to follow opens with a "postcard" from an automation-affected worker: their stories are composites and have been lightly fictionalized and pseudonymized to protect the respondents' identities.

FINDINGS: THE ADAPTATION OF EVERYDAY WORK

This section is organized into three sub-chapters, each of which demonstrates, using examples from the field, how professionals in automation-affected industries are adapting to compete with automated technologies that threaten their businesses or livelihoods. In particular, the first discusses how workers are evolving how they think about and describe their work to others; the second, how they are adapting their actual work practices; and the third, how they are even, in some cases, moving to serve new kinds of customers. Each sub-chapter also includes a discussion of the challenges these professionals face either in attempting to apply these tactics or as a result of them. To reiterate, we employ Certeau's term "tactic" to describe these professionals' techniques of adaptation because it highlights the clear limits of them. Unlike the "strategy" which is methodical and planned, the "tactic" is spontaneous and un-homed, seizing opportunities "on the wing," as Certeau puts it, without the vantage point to plan a larger attack nor the terrain to consolidate its victories (xix). Methods of adaptation as we go on to describe are clearly tactics in that they are attempts by these workers to "manipulat[e] events in order to turn them into opportunities" (xix). But, as manipulations, they are always-already responses, or defensive measures to hold off the advance of powerful adversaries, which as unpleasant as it may be, are often our clients, the companies making and implementing intelligent technologies.

Tactic #1: Adapting how they *define* their work (i.e. identities and values)

Paul is a medical device repairman, based in France. His job involves the fairly routine tasks of troubleshooting problems with patients' CPAP machines, used in the treatment of sleep apnea, as well as downloading the data these machines collect about how many apneas patients experience at night and how long they wear the device onto an SD card, for transport back to physicians' offices. But his work also involves many more "softer" functions, such as teaching patients how to properly use the machines and ensuring proper adherence, for instance by lightly admonishing patients who haven't been using them regularly. In an increasingly digital age, in which medical devices may likely soon be able to relay basic information to physicians directly via the internet, without the need for in-home technicians to collect it, Paul nevertheless feels confident of his job security, and has the appropriate language to describe what he does every day: he sees himself and his colleagues as not only technicians but also "engineers, doctors, counsellors, psychologists – everything all in one."

The process of adapting professional practices starts with changing how workers think about their work and describe it to others – including to ourselves and our colleagues. This is the first and highest-order tactic our researchers observed in that it involves a fundamental redefinition by workers of the "hard" and increasingly "soft" skills their jobs entail and the value these hold for others. Paul, for example, sees – and increasingly presents – himself as providing crucial aspects of patient care, not only troubleshooting problems with technological devices, which may soon be serviced digitally via enhanced Wi-Fi capabilities. To provide some context, many modern medical devices are moving in the direction where, soon, they will likely be able monitor and troubleshoot themselves. While today, CPAP machines, for example, still require the physical presence of a technician to download data onto an SD card, in the future, these machines will likely able to transmit data back to physicians' offices autonomously. However, in response to this pressure from automation – among other forces – many technicians are resisting replacement by technology by expanding the tasks they perform beyond "mere" data collection, device repair, and cleaning, into more tasks involving human "soft skills," such as teaching proper device use and even providing much-needed social stimulation for shut-ins. For instance, one technician spent a full 45 minutes talking a patient throughout how to properly remove and replace her CPAP mask, for instance, if she needed to use the bathroom during the night. In this respect, these professionals resemble more in-home nurses or social workers – "technicians, engineers, doctors, counsellors, psychologist, everything all in one" – rather than specialized industry technicians. To be sure, mere "technician" hardly seems adequate to describe all the myriad responsibilities these workers' jobs now entail.

Devon, an independent insurance agent, similarly sees himself less as an "insurance broker" and more as a "consultant," providing people with all the ingredients they need to run a successful business or household, which includes but is not limited to providing proper risk protection; for instance, Devon also provides workplace safety training tutorials and materials to his commercial customers. "Consultant" – or "strategic insurance consultant," as another agent put it – was a term several independent agents used to explain to us how they were evolving their work to be more valuable to customers beyond (or even as a more accurate description of) what it means to match a customer to a best-fit policy. Other agents preferred "educator," to emphasize their role in explaining the complicated coverages and conditions of a policy; others, "customer advocate," to focus attention on their value as an intermediary who negotiates a fair price with providers and ensures prompt and proper

payouts in the event of a claim. What all these terms have in common is their ability to highlight the uniquely human value these agents add above and beyond a mere website, which cannot, in these agents' eyes, adequately assess an individual's (or business's) complex needs; communicate and clarify complicated information in real-time; nor advocate for customers' interests to ensure their needs are being met, since, with digital websites, the sales channel and the provider are one and the same. In other words, these self-ascribed labels capture a new reality – a new set of "soft" skills that are relevant in these workers' daily practices, and a new set of values that they deliver to customers – which older terms used in their industry, such as "agent," "broker" or (worst of all) "middleman," do not.

In some situations, the agents almost seemed liberated by these terms, if also by the ways they were changing their jobs to respond to digital competition, finding a new level of dignity in their work. For instance, one customer service representative, a young business grad recently out of college, seemed genuinely pleased by the possibility that, soon, he would no longer have to spend hours completing quotes for small businesses, many of whom already can or will soon be able to purchase policies through direct-to-business websites. Instead, he would be able to spend his time helping the senior "producers" on his team chase down large accounts – for instance, major mining and construction companies – worth six figures in annual commissions for the agency if they land them. The senior agents in his office felt roughly the same: after years of feeling like "used car salesman," paper shufflers fighting to command even a little of people's time and respect, they now see themselves as more like the "consultants" or "problem solvers" they have always aspired to be. Rather than clocking long hours in the office filling out forms, they now spend most of their days talking to business owners on-site about their needs, working with underwriters to accurately assess the risks of complicated companies, reviewing existing policies for ways to save their customers money, and even teaming up with agents in other offices to strategize how to win their region's biggest accounts. One principal's eyes beamed as he talked about how an out-of-state agent was flying in to help his agency win a major residential care franchise.

But, again, we do not wish to overstate the benefits of automation, nor to make it sound as if these workers' adaptations to increased competition from digital channels has been easy – nor that their efforts are even over. To some degree, the challenge facing agents is the enduring nature of stereotypes: the ardor and frequency with which these agents and medical technicians talked to our researchers about how *they* saw their work, and what terms *they* used to describe it, is a testament to the fact that they were not yet comfortable that others see it the same way. One agent even wrote a poem defending the virtues of the misunderstood "salesman," suggesting that he felt others did not share his respect for his profession. "Misrecognition," to put a label to the professionals' pain, not only "hinders a person's successful relationship to their themselves," or their self-respect, in the words of Mattias Isser (2013) (with "recognition" being a "a vital human need" to quote from philosopher Charles Taylor [1992]), it also, in our analysis of these workers' situations, threatens their future. That is, if the public does not recognize these workers' new value or contributions, for instance by adopting the new terms agents use to describe their work, then they may not learn to prefer them over digital channels. Notably, the insurance customers we met who seem to find the greatest value in their agents often used terms other than "insurance agent" to describe them, such as "advisor," "coverage expert," "community leader," "advocate," even "friend." Conversely, the stubbornness of language, or people's residual use of

"insurance salesman" to describe the profession, in our gloss of these workers' dilemma, perhaps points to a recalcitrance of thought, in which case the agents stand little chance against the robots. Hence, workers are not only adapting how they think and talk about their work, but also backing up their claims by operating in new ways in the service of new types of customers, as we now go on to explore.

Tactic #2: Adapting how they *perform* their work (i.e. everyday practices)

Cynthia is a pharmaceutical representative operating out of Florida. In the "good old days," when she met with clinicians, she'd take them out to a nice lunch, ask about their spouses, kids, and grandkids, maybe finally get around to asking about their contract with suppliers. Easy. But today, she spends a lot of time beforehand reading up on the latest medical discoveries, scrolling health websites and monitoring patient threads. The clinicians she meets now expect her to be an expert not only on her company's products, but more generally on the disease area. With more competitors and more direct-to-clinician sales channels, Cynthia feels increasing pressure to stand out and prove value to her customers. It's becoming harder and harder to get face time with doctors and office staff. When she can, she needs to make it worth their time as well as hers.

As a pharmaceutical representative who has been assigned a specific sales region within southeastern Florida, Cynthia does not have much control over the customers she serves; to an extent, these are determined by her regional sales director. But she does have control over *how* she engages these clinicians, for instance, by spending more time focused on what they need and the value she can provide them, such as information on new treatments and medical discoveries. To linger with this example a little longer, in a more sober modern era, clinicians no longer want (or want to appear to want) fancy perks or boozy lunches; they want to know if you can help them do their job better, for instance, in less time, with improved outcomes, or supported by more effective relationships with patients – ideally all three. Direct-to-clinic channels hold the promise of greater convenience, an "easier" way for clinicians to buy what they need. But only human sales agents can truly help clinicians serve their patients better, for instance, by helping them keep on top of new medical discoveries; see, touch and explore new products first-hand; or even gain insight into patients' unique challenges and experiences. Hence another healthcare worker, a medical device dealer named Keith, took care to show clinicians how to help patients practice proper device use, for instance, while on vacation and away from their normal routines.

The above is only one example of the way in which professionals are keeping pace with automation-driven change by adapting their work to a) deliver new kinds of value to both customers new and old, as we go on to further discuss below. But professionals are also adapting *how* they perform work in other ways, seeking to deliver this value in b) shorter time frames, and c) with greater flexibility availability and demands on their own time. All three "sub-tactics," so to speak, can be seen as directly targeted against direct-to-consumer competitors, which a) proffer a value proposition of enhanced efficiency, and b) to that end, complete processes rapidly, heightening consumers' expectations for faster service, while c) also being available for access 24/7, in part by routing customer queries to fully- or partially-automated customer call centers located in the global south (with service reps who are thus available during work days in northern countries). In what follows, we begin with a deeper discussion of how professionals are attempting to deliver new types of value beyond, and in opposition to, a logic of convenience, and then move on to analyzing the other two sub-

tactics – shorter time frames and greater availability – closing with a discussion of the challenges all three pose.

Delivering new kinds of value…

As an insurance agent in a small midwestern town, Devon is trying to stand out with both his personal and (small) commercial lines customers by doing more than "just" selling them an insurance policy. For instance, every morning he scours the internet for interesting articles he can share, such as "10 things you need to know about having a teenager drive," or "how to winterize your home," hoping customers will see him as a broader source of advice beyond just "what insurance policy should I buy?". He provides his (small) commercial lines customers with materials to support their broader business, such as safety trainings, manuals, and liability release forms, and even has ambitions to start producing videos that will help small business owners not only protect, but also promote their company's assets. Moreover, whenever he visits a client of any kind, he asks them what else they need help with, connecting them to another professional, such as a local plumber or accountant, even if their problem is unrelated to insurance. In these ways, Devon is finding new means of proving value to his customers above and beyond simply selling them a basic insurance policy, something which, increasingly, direct-to-consumer websites are also able to do. While it is possible to see Devon's actions as intended to differentiate him from both human and digital competitors, they feel particularly calibrated to combat a digital adversary, which (so far) cannot give advice beyond "buy this policy," nor provide additional resources and connections to customers. Devon indeed told researchers that he sees his customers as increasingly wanting to "do everything online," cognizant of rising competition from direct-to-consumer channels; within this context, it is possible to interpret his actions as adaptation tactics.

To be sure, Devon's leverage not only of his human knowledge and expertise, but also of his unique social relationships seems especially crafted to differentiate him from non-human competitors. Can Geico.com also connect you to a chartered accountant, specifically one that you trust with your family's 100-year-old business? Several scholars, including eminent trust theorist, Russell Hardin, have observed that increasing distrust in our modern society may be due to the fact that many relationships are now purely digital and not embedded in a "rich enough network of broader relations to ground enforcement of any norms" (2006, 8). That is, the provider behind a large direct-to-consumer website may have little incentive to provide any one customer with impeccable service (though many unhappy customers over the long term is likely to significantly damage their reputation), whereas a local agent like Devon has "thick connections" to many clients at once, which aligns their interests with his. That is, if he were to fail even one of his customers, many of his other customers would likely find out, affecting his business. As another agent put it, her customers are the people she encounters in the grocery store each day; "they know my mom, they know [the agency principal] and [the agency's principal's] mom." This network of "thick connections," and its resulting accountability then gives Devon the credibility he needs to recommend local help, e.g. accountants, lawyers, as well as to find and to recommend insurance policies.

Many of the insurance agents our researchers met, as well as the pharmaceutical representatives and device dealers, indeed saw enhanced credibility or trust – built up over

decades of loyally serving customers and through active involvement in their local community, for instance as church aldermen or school council committee members – as one of their chief advantages over digital competitors. Their adaptation tactic here, then, is not so much altering professional practices, but rather continuing to behave in the same consistent, customer-focused ways whilst ensuring their customers become more aware of the superior value of a human salesperson over digital channels; it is, in other words, possible to see this as an intensification, and greater amplification of existing practices rather than the emergence of new ones. Can Geico.com really get you a quote within 15 min? Not a good one, several agents told our researchers, in more or less the same terms. Fifteen minutes filling out a superficial questionnaire is likely to produce a patchy policy that leaves many of your assets at risk. Whereas an agent who is also the coach of your daughter's basketball team – who sits three rows behind you in church every Sunday morning – will take her time pouring over every detail to make sure your best interests, and hers, are being looked after. After all, she has multiple incentives to honor your trust: her whole business, not to mention her broader standing in the community, depends on it.

…in shorter time frames…

The sub-tactic of delivering – and highlighting – unique kinds of value above and beyond convenience is really about advancing a different kind of logic that goes beyond mere efficiency and places the spotlight on higher human values such as trusted advice and social connections. In other words, it attempts to shift the standards by which the industry operates to ones that play to agents' uniquely human strengths. Yet, in also trying to find ways to reduce the time they spend on specific tasks, some professionals are also molding their practices to fit the efficiency logics of digital systems rather than rejecting them altogether. Melissa, like many of the agents our researchers met, was acutely aware of her clients' increasing expectations for faster service and working harder to meet these. In a world where customers can get a quote from Geico.com in 15 minutes, not to mention hail an Uber or download a movie in two, Melissa feels she need to return an answer to customers "within at least 24 hours." Fortunately, with the conglomerate rating system her agency has purchased, Melissa can fill out a single form with her customer's information and receive initial quotes from several providers within a few minutes. This then gives her the time she needs to "refine" her sense of the advantages and disadvantages of each of the top quotes (which she chooses based on fit with her customer's needs, not purely on price), and prepare a polished pitch for the customer, thereby demonstrating her superior quality of service and advice especially over a simple, price-focused algorithm.

This tension, between needing to get back to the customer faster whilst also demonstrating superior service has led to some surprising innovations among workers. For instance, one enterprising agent, at an agency that did not provide access to a conglomerate rating system, frequently used providers' direct-to-consumer websites to generate a ballpark estimate for quotes: would they even be within the price range of her customers? This then allowed her, like Melissa, to rule out bad-match providers quickly and get back to her customer faster. This is perhaps the best example of a "errant trajectory," to riff on Certeau, in our data, or the use of a technology by a worker in a way that its producers likely did not expect nor intend. To provide some context for this tactic, many insurance providers are now pursuing multi-channel strategies, creating websites that sell their policies directly to

customers, while also continuing to contract with independent agents who sell their policies (among other providers') while taking a cut in commission. Yet multi-channel does not usually mean, in this particular sense, cross-channel, with one channel cannibalizing the sales of another by turning the competition into a tool to improve response times with customers, as this agent has done.

…with greater flexibility and availability

Increasingly "frictionless" digital encounters, both within the professionals' fields and outside them, are not only raising consumers' expectations for speed, but also for availability. This leads us now, briefly, to the third sub-tactic, which is adapting professional practices to provide greater flexibility to customers. Digital websites, and the partially automated customer call centers that support them, are now open 24/7. Agents, among other professionals, feel they also have to be. One agency overhauled its phone operating system so that instead of checking their voicemails intermittently throughout the day, the agents now automatically receive a text message when they have a new voicemail from a customer, even if they are at home or otherwise out of the office. And increasingly, their agency owner expected them to listen to, and even answer these voicemails. Another agency reshuffled its pool of customer service representatives so that, instead of waiting for "their" CSR to get back from a break, any customer could be served immediately by any CSR, using their comprehensive file in the customer relationship management system. In this way, the agency aimed to ensure that a customer could always promptly reach an agent if they had questions about a quote or existing policy. Devon, mentioned earlier, even devised a way to make himself available for sales pitches, not only inquiries after hours, by filming himself explaining coverage options. His millennial customers, he explained, hate taking time out of their workday to meet him in person. So now they don't have to. They can simply open his video from an email and learn all about their coverage, texting him if they have questions or have decided on a particular policy. These videos are almost as easy as logging onto a website, but much more information-rich and personable: they can still "see my face…laugh at my jokes," as Devon relates.

Of course, competing with automated websites that have no need to sleep, eat, or go home to their families is not easy, leading us now into a discussion of the unmet needs and challenges of each of these sub-tactics. To continue in order, it can be difficult, firstly, when delivering new kinds of value, to figure out what goods or services customers actually need or find useful. Devon's scattershot "fixer" approach, spending his time surfing the internet, learning how to make marketing videos on his iPhone, and building a portfolio of local repairmen to recommend, is not likely to succeed, as even he is well aware. What he really needs is insight into his customer's core problems – particularly related to risk, an insurance agent's core expertise – so that he can develop unique solutions that help him stand out from his competitors, both digital and non-. But few professionals have the resources, time, or even skill to fully comprehend their customers' problems, nor may their customers find it straightforward to articulate to them what it is they actually need. Hence, in a sense, what these professionals need is an applied ethnographer to conduct immersions with their clients in order to surface a set of unmet needs; by addressing these needs, they could then make themselves more valuable and less easily replaceable. Unfortunately for Devon, as for many of his peers, these services are largely beyond his financial means.

What about the second sub-tactic? What challenges are professionals, specifically agents, encountering in, or as a result of, their efforts to respond to customers faster? The first and most obvious challenge here is mental and physical exhaustion, as these agents try to complete the same work in less time, often while also providing higher levels of service to their customers. But practically speaking, as these professionals told and showed our researchers who looked over their shoulders as they entered customer information into the quoting systems, they need more automated tools, especially for data entry. In other words, these agents wanted more auto-fill features in their existing quoting software systems as well as entirely new tools altogether, such as a conglomerate rating system for small businesses, which would help to reduce the time they spend completing quotes and free up time for demonstrating their uniquely human value, for instance by creating more "refined" or detailed quotes for customers, or by showing empathetic care – one of the agents even sent her customers wedding anniversary cards. This is, we think, one of the most provoking findings from our research, as it relates to the question of how new technologies are impacting professionals' daily work: automation in one area of these professionals' industry (e.g. sales) heightened demand for enhanced automation tools in another (e.g. data entry). Fortunately for the agents, some of these tools, such as advanced customer relationship management systems with auto-fill features, already exist; it's merely a matter of making them more widely available. Others, such as a conglomerate rater for (small) businesses, are (allegedly) in development.

The consequences of the *third* sub-tactic, or challenges related to the ways in which professionals are making themselves more available to customers, are not so easily addressed with existing technologies – or even any kind of technology. To put it simply, how do you help professionals set better work-life boundaries? Several scholars, including Howcroft and Taylor (2014), have also drawn compelling attention to professionals' struggle to contain work responsibilities in a digital age when connected technologies make it possible for anyone to be reached any time; Ens and colleagues (2018), too, show how the very connected technologies that have enabled more professionals, such as "digital nomads," to work remotely also make it harder for them to "feel competent managing their tasks and time" (5). Still, it's difficult to understand what kind of intervention would be helpful here; the change that is required seems much more systemic and cultural. Our firm recently conducted research for a telecommunications company in Central America and found that, generalizing slightly, it is not uncommon there to reply – or expect to receive a reply – until at least a day after an initial message was sent. In part, this attitude is a result of intermittent connectivity in the region – service outages frequently prevent people from replying promptly, which has helped to create a culture where delays are accepted, even the norm. Nonetheless, this seems the kind of cultural consensus – almost collusion – that is required in order to free these agents from the increasing pressure they feel to compete with digital websites by making themselves available at all hours, a losing battle in many respects.

Tactic #3: Adapting *who* they serve (i.e. customer composition)

Melissa is an insurance agent, working in a mid-size agency in Idaho. She quit her job at a high-end hotel a few years ago, when the wealthy customers she had helped to organize events for became excessively demanding, keeping her at work at all hours. In moving to insurance, Melissa hoped to find a more relaxed environment. But these days, at her agency, she finds herself serving more and more of that same type of

wealthy, discerning customer. Often, lately, Melissa actually (politely) hangs up the phone on young couples who want a policy for their first home, or college students who need a basic auto coverage. She knows that, even if she spends time talking to these value-minded customers, they will likely end up going online to buy a policy directly from a provider anyway. She "just can't" waste her efforts on them. But higher-end customers more often prefer, and require, her advice: their needs are much too complicated for an online form and algorithm. She is slightly nervous about this shift in her customer base, but also confident: after all, she has successfully served this customer profile before.

Many businesses serve more than one type of customer. Some make this diversity explicit with a customer segmentation; a few develop unique strategies for serving different customer segments, for instance, with targeted products or promotions; others may even decide to specialize in a particular subset of customers, seeking greater efficiency and higher returns, especially when threatened by increasing competition in their industry. Melissa is no different. When faced with increased competition from direct-to-consumer websites, she chose to focus her efforts on a specific niche of her customer base: high-end customers with many different assets to protect, who cannot be so easily served by a digital distributor. We saw this as a common tactic among the insurance agents, who have some control not only over the providers they contract with, but also the customers they serve, partly as result of their freedom to choose which products they sell. For instance, another agency our researchers visited was in the process of shifting its product portfolio, customer service experience, as well as marketing outreach to better attract commercial, rather than personal property and casualty customers. Currently, most direct-to-consumer websites sell only simple personal lines insurance to individuals or families, that is, basic auto, home, or contents coverage. Small businesses may, soon, be able to buy their insurance online, yet many experts predict very large or complex businesses, such as high-risk trucking outfits, will continue requiring the help of a human agent, in collaboration with an underwriter, to purchase insurance, perhaps indefinitely. Hence the agency was in the process of pursuing commercial businesses both large and small as new customers, though, the rapid pace of automation means that they will likely have to shift their tactics yet again as soon as websites for small businesses become available on the market – as mentioned above, there are strikingly few ways for workers to adapt permanently to, or consolidate their gains against, technological competitors.

The quest to find a lee in the rapids of digital disruption also explains the tactics of another agency owner, Barb, who was in the process of evolving her business to sell new kinds of insurance products beyond property and casualty insurance, such as life and health, when we met her; selling different kinds of products is a key way that agents can reach new customer groups. Although competing with online disrupters by attracting a new group of customers was not an explicit reason Barb gave for diversifying her product line, it is easy to interpret her actions as instigated by the need to differentiate not only from human competitors but particular from digital ones. For instance, the act of buying life insurance brings up many customers' fears around death, as Barb told us; hence it requires a gentle touch and deep understanding of human psychology to successfully sell these kinds of policies – warm, human traits that a transactional digital "agent" or direct-to-consumer website may struggle to embody. Moreover, health insurance, at least in the US, is often provided through employers, who require large teams of agents to negotiate discounts on policies with providers, explain the specific terms of these policies to their employees, and be available for questions from these employees at all hours, preferably in person. To be sure,

our researchers stood by as Barb's agents fielded calls, distributed materials, and prepped for coverage presentations at the nearby offices of the city government, one of the agency's healthcare clients. In these ways, that is by selling new products – life and health insurance – to new types of customers, Barb had clearly found ways of playing to the strengths of her human agents with whom digital channels could not easily compete.

Of course, when it comes to holding off digital competition by serving new customer groups, insurance agents may have it easier than workers in other industries because they have the ability to sell a range of products sought by a variety of customers who operate in different ways relative to new technologies. That is, again, the act of buying a policy to provide for your loved ones in the possible event of your death carries a different emotional valence from buying a simple auto insurance policy. It requires calculating different sums – not, "how much is my car worth" but rather "how much will my family need to keep going day-to-day?" – as well as considering alternative hypotheticals – not, "how likely is it that windshield will be damaged by hail this summer?" but instead "how likely is it that I'm going to die before my loved ones?" These are much more agonizing, less straightforward questions. Customers' reluctance to grapple with these questions on their own, without the help of a trusted advisor, then creates an opening for human agents who are able to help them almost as a pastor or therapist – one of Barb's star workers, Melinda, in fact cited her degree in psychology as fundamental to her success as an agent. Whereas, in other industries, where products and sales process are more standardized and standardly transactional (e.g. consumer goods), retail workers may continue to struggle to differentiate themselves from online platforms (see: the rise of Amazon).

Still, the tactic of remaining profitable by pursuing new customers – even for insurance agents – is not without its challenges. In particular we saw that these workers struggle to a) reach and build connections with new customer groups; b) develop expertise in the new kinds of products these customers seek; c) learn the right kinds of skills for attracting and serving new customers, both before and after the purchase; and d) hire skilled staff to help them win new, less familiar customer groups. Barb indeed grappled with this final challenge until Melissa fortuitously quit her job at a large healthcare provider and agreed to join her small agency. Melissa, profiled above, was among the more fortunate agents in our sample: she was able to a) build connections with new, higher-net-worth customers through her colleagues in commercial lines, who referred her to their wealthy business owners; b) develop expertise in new, more complicated products with the assistance of her agency principal and mentor, Elaine; c) gain the skills for serving high-end customers by drawing on her past experience in hospitality; and d) get access to qualified service representatives and junior agents through the national agency network her agency belonged to, which kept an up-to-date talent pool. But many of the other agents we met lacked these advantages, raising questions of their likelihood of successfully adapting to automation, at least without help from others, such as the providers who (still) contract with them to sell their policies.

CONCLUSION

Once more, to what extent will increasing automation lead to widespread unemployment? To revise our previous answer: it depends, not only on the workers themselves, and the ways they are evolving their daily work as we have shown in the above, but also on the organizations who have a stake in these professionals' futures, including

corporate suppliers and vendors, non-profit foundations, even governments. All of these can play a role in helping workers transition into a more digitized economy. For instance, in our work with our private sector clients for these studies, we helped them develop solutions to some of the challenges professionals face, such as better ways for pharmaceutical representatives and medical device dealers to demonstrate value to clinicians, as well as new training resources for insurance agents, to help them become more knowledgeable in the complicated insurance products their new groups of customers seek, among others. Of course, there were a limited number of interventions our clients were *able* to make, given questions of costs and feasibility, or felt that it was in their *interest* to make, given the core focus of the studies. Still, it is easy to envision other potential client-partners or applications for this kind of research, such as governments who wish to come to the aid of regional workers; technology companies who want to offset or mitigate the impact of their products, not only develop more competitive ones[1]; or even large corporations undergoing digital transformations, who want to understand how workers on the frontlines are being affected by this process and, based on this, develop new tools and solutions to ease their transition into novel ways of working.

As our research with four "endangered" professionals has shown, workers are on the frontlines of disruption in their industry, possessing firsthand knowledge and expertise. More employers and organizations should find ways of tapping into this insight as a valuable resource. But, first, they would do well to acknowledge workers *as agents* with a particular vision for how they want to conduct their work and which specific methods to employ to carry it out, even if they occasionally require external assistance. Hence, we end with a call to recognize agents *as agents,* as ironic as this may sound, and for more efforts to partner with, not parent, workers as they strive to adapt their everyday practices in an increasingly automated age.

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NOTES

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1. See, for instance, Sandra Upson (2018) on how some technology firms are investing in retraining the workers their technologies have displaced, an effort which we argue could be better guided by ethnographic research.

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