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Exploring the notion of sharing and cultural change related to emerging platform-based business models

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Exploring the notion of sharing and cultural change related to emerging platform-based business models

Introduction

The purpose of this paper is to present a framework to help us understand the interactions between culture and digital technologies, and the frictions that exist between these two elements within the context of business models. We introduce the Natural Patterns Framework to analyze the tension between the fast and dynamic evolution of information and communication technologies and the slower, risk-averse, path-dependent elements of culture that prevail in organizational settings and society at large. Because the notion of culture includes many aspects, we focus exclusively on work culture.

The study analyzes the impact of technology during three periods, the 1920s, to examine the period when the telephone achieved mass-market status; the 1970s, to assess the impact of mainframes; and the 2010s, to get a sense of the impact of the Internet. We found that in the 1920s, technology played a small role in shaping business models; other socioeconomic factors were much more powerful in shaping the work culture of the time. In fact, in light of the evidence, these initial work arrangements had a pervasive and negative effect on the work culture that prevails today. Companies, in an effort to attract workers, began to take over functions that should have been provided by the state.

In the second period, technology began to have a more prominent role in shaping business models, but again, socioeconomic factors impeded changes in expectations about work and contributed to the perpetuation of traditional work arrangements.

It is only in the third period that we begin to see not only a much more prominent role of digital technologies in company's business models, but also initial efforts to change work culture. While these efforts have been positive in some companies, there is little evidence that these new arrangements are shaping our society's overall work culture.

The reliance of labor protection on corporations has resulted, we would argue, in an inflexible labor market, as people may be less willing to leave a job to avoid losing

their benefits, and those who decide to become autonomous are left unprotected by basic benefits such as health insurance and retirement funds.

Business magazines and consulting companies have provided hints about the expectations that we have about work in our more digitally dependent economy. They talk about workers' wanting greater autonomy and flexibility in both the time and location of their work and a shift in compensation, from hours or fixed salaries to payment for projects and from individual output to collaborative arrangements that can make a business more competitive (Manyika et al., 2016). These changing expectations about work contrast with the cultural institutions created last century and during the manufacturing era, which are unable to accommodate today's technological capabilities to meet the needs of businesses and workers. These institutions are the products of a culture of work that rewards long, not smart, work hours, offers limited options for location, and mandates inflexible work schedules.

Information and communication technologies continue to evolve and appear to be moving at a faster rate. If we look at the amount of time that it took older technologies to reach their mass-market status, we find that it took decades. The telephone, which is the first technology we analyze here, took fifty years to reach 10% of households after it was introduced in 1876 (Fischer, 1994). The Internet, in contrast, which was commercialized in the late 1980s and early 1990s, took less than ten years to reach 35% penetration, which is the point in innovation diffusion theory at which technologies are considered to have reached an early majority (McGrath, 2013).

The speed at which technology is advancing today, and the companies that embrace it, are putting tremendous pressure on more stable elements of our lives, namely, cultural elements. The tension between the fast pace of technology and the slower pace of cultural transformation is leading to conflicts that can have negative a impact on businesses, but what is more important, on society. As an example, consider California, where the government decided that any individual who engages in any activity that relates to the services provided by an online platform like Uber is obliged to consider their drivers as employees and is thus eligible for federally mandated benefits (Finley, 2018). We gather from examples like these that new technologies that

give rise to new business models are now clashing with more traditional work arrangements, as well as with laws and regulations.

This paper is organized into six sections. The second section briefly defines business models that help us understand the areas where technology can play a role. In the third section, we define culture – how it is created, why it endures, and why it should matter to companies – within the contexts of business models, workers, and technological advancements. We also explain the relationship between business culture and its reflection at the societal level. This contributes to our understanding of why the stasis in our work culture continues to prevail, in spite of the facts that technology is moving rapidly and that younger generations are quickly adopting it.

In the fourth section, we propose the Natural Patterns Framework to explain why it is difficult for companies to change the work culture that sustains their business models, even when introducing new ICT technologies could be profitable, and we explain the clash between natural patterns of use and learning that prevail in organizations and the natural patterns of innovation that prevail in the market.

The fifth section reports on an empirical analysis of the content of scholarly articles published in the *Harvard Business Review* in regard to three technologies: the telephone, the mainframe, and the Internet. The objective of analysis was to identify both the manner in which companies' business models have been affected by technology and the cultural patterns that sustain the models.

The last part of the paper presents policy implications and recommendations under the topics of cultural friction, the role of cultural corporate leaders, and the need for greater flexibility in the law by the use of planned updates.

As of this writing, the authors are not aware of studies that address together the notion of business models, the work culture that sustains them, and the manner in which technology affected both. The paper's contribution is to explain how business models and work culture have changed, if at all, what effected the change, and how legacy practices are affecting our technologically driven economy today.

In our study of culture, one of the challenges was that the factors that influence a behavior are often hidden, so that we are not entirely aware of what leads to people's

decisions and actions. Another challenge was that the study was not based on single companies in its efforts to describe business models and the work culture of a particular time. Instead, we examined many articles in the academic literature to get a sense of how business models and work culture formed and how they have been affected by technology, and more important, how legacy structures are affecting our digital economy today.

Defining business models

Before we can determine how a business model and work culture are affected by technology, we need to understand what a business model is. One of the most comprehensive studies about business models was done by Morris (2005), whose extensive literature review resulted in the identification of the components of a business model. Although Morris (2005) recognizes that there isn't a single definition of business model, their study of the literature found that a business model, understood as a company's economic model, requires decisions at three levels: the foundational and proprietary levels and the level of rules. The foundational level of a business model, they write, entails having a clear understanding of what the business is and what is not. At this level, a well-formulated business model should address the following components Morris (2005):

1. The factors related to the offering, namely, how the company creates value,
2. Factors related to the market or those for whom it creates value,
3. Internal capability factors, or the competencies which give the company a competitive advantage and which it offers to the market,
4. Factors related to the company's competitive strategy,
5. Economic factors related to the way it generates revenue,
6. Personal and investor factors that determine the time, scope, and size it hopes to achieve.

The proprietary level should include the combination of factors that makes the offering unique and gives the business a competitive advantage. The rules level pertains

to the business operations, strategic actions, and priority rules that guide the decisions to be made at levels one and two. In the literature on business models, the main concern is the economic viability of a firm; other scholars are left to address notions of culture. These are taken up in the next section.

Defining business models and work culture

Because culture can significantly affect many aspects of a country's wellbeing, or a company's profitability, much research has been done about it. Culture has been defined as the rules of the game (Schien, 1968; Schein, 1978; Van Maanen, 1979a, 1979b; Ritti & Levy, 2009), habits of thinking, mental models, and linguistic paradigms (Van Maanen, 1979b; Douglas, 1986; Hofstede, 2003; Senge et al., 2014).

Anthropologists define culture as the customs and rituals that societies develop over time (Argyris & Schon, 1974; Argyris, 1976, p. 31) calls the basic assumptions that inform people's behavior "theories in use": "the implicit assumptions that actually guide behavior, that tell group members how to perceive, think about, and feel about things" (Schein, 2006, p. 31).

Schein (2006) argues that cultures deal with values, and that these values, which are non-negotiable, are then the assumptions we make about a group. He states (p.17):

The culture of a group can now be defined as a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.

The power of culture resides in the role it takes in reducing uncertainty by establishing "what to pay attention to, what things mean, how to react emotionally to what is going on, and what actions to take in various kinds of situations" (Schein, 2006, p. 32). From a cognitive perspective, this is necessary because uncertainty creates anxiety and defensiveness.

In terms of business models, organizational culture refers to the values, climate, and practices that people rely on when relating to others. In this sense, we often hear companies talking about developing a "culture of quality" or a "culture of innovation"

in an effort to convey certain values that managers want employees to embrace (Schein, 2006). Because culture can affect business performance, it is not unusual to judge some cultures as being better than others, and the merits of one culture over another are measured in terms of its impact on performance or the effectiveness of the organization (Denison, 1990). There is thus in the management literature the assumption that “the right culture” will make an organization more effective and improve its performance (Kotter & Heskett, 1992). This, in turn, implies that we can introduce some sort of formula, “a cultural potion,” that can make workers more effective and productive.

However, in this paper we are not interested in a specific corporate/organizational culture. We focus on a societal-level work culture that emerges from business practices. We are interested in workers, the individuals who perform jobs within a private entity, a group with a shared history whose culture is affected by general business trends, market conditions, government policies, and as is the case here, the evolution of information and communication technologies.

[From the organization to society and the definition of work culture](#)

Scholars have found that leadership plays an important role in the formation of an organization’s culture. Leaders, to a certain extent, set up the “rules of the game” (Schein, 2006; Woodside, 2010). They can help determine the reward/incentive systems that workers follow to perform their jobs. When a leader enters a company, he or she has certain expectations about employees with respect to getting things done (to enhance the value of the corporation or to create the unique competitive advantage that will make the company succeed in the market).

In analyzing corporate cultures, Schein (2006) found a culture forms around the initial successes of the organization. He illustrates this with the following example. Imagine, he says, that a CEO believes that lower sales can be counteracted through advertising and that this course of action works. This success initiates a cultural belief that associates advertising with increased sales. In a similar future situation, employees will base their decisions and behavior on the assumption that advertising will increase sales, and they will take that course of action.

To move from the notion of organizational culture to the notion of work culture at the societal level, we need to enter the field of anthropology, which give us the tools to move from a lower level to a higher level of abstraction, in this case from organizations to society. The way this is done is to recognize that even though there are many possible cultural arrangements, and in this case, many work cultures within organizations, at the societal level, some tend to prevail over others. Anthropologists call them “dominant value orientations”; they are the preferred solutions from among several alternatives. This means that other alternatives are also available, so that anyone could deviate from the preferred solution or simply behave according to the dominant orientation (Kluckhohn & Strodtbeck, 1961, p. 31).

If we adopt the notion that work culture begins with corporate leaders, we can begin to identify a work culture at a societal level through what we would call *proxy leaders*. In this respect, a society’s work culture can develop through leading organizations that appear to be successful. This process happens when certain organizational structures and processes of work prevail because they have been found to be successful. The successful implementation of practices in some organizations may lead other organizations to implement them as well, which can, in the aggregate, begin to form societal notions of work. Thus, to identify a society’s work culture, we need to examine the messages propagated by the leaders of successful corporations (proxy leaders) about dominant/preferred solutions, and specifically about the expectations they have of workers. These messages and the stories written about these companies provide subtle messages to workers that influence their behavior. A country’s culture can be identified by what is most pervasive, probable, widely used, and most expected. A work culture within a given society can thus be defined in terms of the most common organizational form, the most common processes, and thus, the most common expectations about work in that society.

The reason for why leaders can set the tone in the workplace is because of the power dynamics that influence a worker’s behavior to succeed. At a societal level, the private sector, as the principal employer, serves as an effective proxy for shaping workers’ behavior, as it can affect their success, such as in finding a job or growing professionally in the one they currently have.

To the extent that these practices continue to work, they gradually become generally accepted, and over time they become the prevalent underlying assumptions of the group which help it to mitigate uncertainty (Schein, 2006, p. 19).

If we are to understand how a culture is changing with the passage of time and the introduction of new technologies, we need to try to decipher the culture by observing the characteristics that are most publicly manifested, such as organizational structures and processes. From these, we can try to identify the manifested values and beliefs that are the expression of people's unconscious values, beliefs, and feelings (Schein, 2006, p. 26).

With these understandings of business models and culture, we now need to explain how these more stable elements of society interact with more rapidly changing elements like the evolution of information and communication technologies. For this, we introduce the Natural Patterns Framework.

The Natural Patterns Framework

In this section, we present a framework that can help us understand the clashes that we observe between slow-changing business and cultural work arrangements and the rapid and accelerating evolution of information and communications technology. This clash, we believe, stems from the fact that the factors that affect an organization's business decisions are completely different from those that prevail in the market.

We call the factors that shape business decisions and their corresponding work culture at the local, company level, *natural patterns of use and learning*, and these are slow and difficult to change. In contrast, the factors that guide markets, particularly those involving ICT innovations, change much faster; we call these *natural patterns of innovation*, and they tend to clash with the former.

Natural patterns of use

At an organizational level, there are technological, business, and labor factors that affect the way an organization provides value to consumers (the business model (BM) foundational level), establish its uniqueness (the BM proprietary level), and makes strategic decisions (the BM rules level).

From a technological perspective, organizations normally choose technologies that can help them support their business models. Decisions to introduce technology involve significant costs, due not only to prices, but also to the incorporation of the new technology and its alignment with existing technology, processes and labor capabilities.

Technology adoption by organizations is also problematic because implementation often involves high rates of failure, and expectations are high (Sauer, 1999). An organization's experiences, as well as those of others, with difficult technological deployments reduce the expected benefits and may lead officers to shy away from introducing yet another technology in the future. It is also unusual for a company to change technology on a yearly basis, even if markets do so. Companies want to obtain a return on their initial investment and wait for it to depreciate before they are willing to change it.

In some industries, some of these new technologies are also asset-specific, meaning that they cannot be easily redeployed to another function, and thus, changing them can entail major costs. When a technology is deployed, it is not done in isolation, but entails significant investments in interrelated infrastructure.

Costs, failures, and return on investment are not the only factors that make the introduction of new technologies to a company difficult and slow. There is also a natural risk aversion in regard to the unknown, related not only to the risks associated with a potentially costly implementation, but also to the uncertainty associated with unknown effects on the company's competitiveness. For company officials, it is not clear whether an innovation will have any positive impact on their customers/clients.

In addition to the operational aspects of introducing a new technology, there are also risk factors associated with people. One of the challenges to change is the psychological re-adjustment that people need to make when adopting a new technology. For example, if a technology like telework is introduced, workers need to change their mindset to be able to accommodate a merged work and home environment (Jackson & Van der Wielen, 1998). With this practice in place, companies would also need to become comfortable with a different notion of trust in employees. If managers believe that people who work from home are lazing around (Bailyn, 1993, p. 33), they may deny requests for telework and fight to create structures around the new technologies

that tend to maintain the status quo, in this case, working at the office. This preference for keeping things as they are is known in behavioral economics, as the *status quo bias*.

All of these implementation, organizational, and human factors naturally slow the introduction of technologies. Internally, our business models and work culture evolve slowly. Similar patterns happen at the societal level. These stand in contrast to the natural patterns of innovation.

Attributes of technology and the natural patterns of innovation

Markets experience dynamics completely different from those of organizations, whose natural patterns of use are affected to a certain extent by other companies in the sector. When a technology is introduced within a single economic sector, because of the factors described above, it is gradually implemented by all the players. The market, however, comprises companies from many different sectors, and each is developing technologies that may or may not be of relevance to any given sector. In a multi-player market, the natural patterns of use no longer apply, because any evolution is developed by and for a multiplicity of players, all of whom want to be the first or best in the market. They will thus continue to push for improvements and innovations, which evolve at a much faster speed than those in any given organization.

At the market level, companies do not rely on a single entity or sector to sell a product; they rely on the whole universe of potential customers, many of whom are early adopters and risk takers. Technology innovators thrive in this larger, more diverse, and thus more dynamic, setting, which enables them to introduce technology in much shorter time spans, given that certain segments are likely to adopt at one time and certain segments at another. Innovators also benefit from the diversity of enthusiasm that exists in the market; many perceive technological advances in a positive light because technologies can make operations easier, more convenient, faster, and so forth, and eventually generate a competitive advantage.

The clash

As one may observe from the previous section, the clash between technology and our business models and work culture is due to slower, prone-to-caution natural

patterns of use fraught with risk aversion and status quo bias in conflict with the natural patterns of innovation, which progresses at a faster pace.

Under these circumstances, we may find that even though markets have given us the tools to transform business models and the work culture underlying them, natural patterns of use prevent changes from happening. These clashes have become much more evident today, as Jackson indicates: “The difficulty this presents is that the concepts and theories available to inform such discussions often reflect the priorities, mindsets and values of earlier contexts.”

In this paper, we review the literature to understand how technology has changed business models and how it has affected the culture of organizations, with a specific interest in the work environment.

In the course of this study, one thing that became clear is the fact that culture changes slowly. Cultural stability is important because it provides predictability. Uncertainty and chaos create anxiety and can negatively affect performance. The development of human culture is our effort to make sense of the world and function more effectively. Because of this, methodologically we need to cover a long span of life to understand how, in the United States, technology has changed business models, and consequently, work culture.

This study relies on articles published in the *Harvard Business Review (HBR)* to understand the evolution of technology and its effects on business models and work culture. We focus on three periods – the 1920s, the 1970s, and the 2000s because we are interested in understanding the impact that the telephone, computers, and the Internet have had on business models and work culture.

To identify the impact of technology, we did a content analysis of *HBR* articles from 1921-1926, from 1970 to 1975, and from 2000 to 2005. These years were selected because they correspond roughly to the period between the technologies’ point of introduction and the point when their market share reached approximately 35%, which is in the early majority portion of the diffusion of innovation curve. This is important for this study because to determine the organizational and cultural impact of a technology, a significant number of users must have adopted it.

The telephone, business models and the work culture of the 1920s

In the 1920s, we see a work culture that had prevailed up to this time. As evidenced by an analysis of the literature of the time, corporate initiatives, business models, and work expectations were, for the most part, driven not by the technological advancements, namely, the rapid diffusion of the telephone and radio, but by economic and political circumstances. The U.S. economy in the 1920s was dominated by infrastructure industries such as railroads and shipping, and commodities like copper, steel, oil, and coal, and by major manufacturing.

From a business model perspective, many efforts to obtain a competitive advantage focused on companies' consolidating and expanding their operations; the railroad companies in particular were supported by a desire on the part of Congress to facilitate the shipment of goods across the country. It was not unusual at the time for companies to expand their operations through acquisitions (1922) and for commodity markets to expand to reduce dependency in certain regions (Klein, 1922).

In the absence of computing, the society was less prepared than ours to handle economic downturns. Companies, therefore, were constantly battling demand fluctuations, which often resulted in the cancellation of contracts by retailers. Some companies made significant efforts to try to collect data more systemically to help them understand general business conditions and achieve inventory control (Folsom, 1924); for example, many efforts were made to systematize accounting (1926a; 1926b). The main messages to be gathered from the business literature at this time concerned systematic decision-making processes (Donham, 1922).

The ICT technology of the time did not help with these challenges. The telephone and radio were used to increase efficiencies (Cogswell, 1926) and were used mainly to reduce the transactions costs associated with the coordination of people's activities. The impact of technology at the time was most evident in the ads that the Bell System deployed to increase telephone usage (Dennis, NA). The benefits that the company emphasized were the "ability to talk next block, next country, a distant state, a foreign country and a distant ship," the ability to "talk to millions," 24/7 availability, convenience, low costs, and the benefits of greater reductions in rates as the network

grew larger. Similarly, consistent with network externalities, the company advertised the ability to seek help from any other people. In the industry, we see evidence of the use of the telephone in doctors' and lawyers' offices first, and then in companies' internal communications. For railroads, one typical use, and in fact a source of labor contention, was its employment by train dispatchers to coordinate with each other the movements of trains on the tracks. The review of the literature did not provide any evidence that the telephone had a transformative impact on business models; any effect on companies and our culture of labor seems to have been driven mostly by broader economic and political events.

The late 1910's was a favorable period for labor. World War I reduced the supply of labor due to reduced immigration from Europe and to the entry of many U.S. males into the military. The country was facing labor shortages, which led to the abusive practices of the previous century being replaced by better labor protections that were fought for and won by unions. The eight-hour workday and benefits such as life insurance, disability, sickness insurance, and old age pensions were implemented. These protections, in retrospect, were critical, and, to a certain extent, they determined for generations the expectations for work arrangements.

To get a sense of how these work arrangements became engrained in American culture, we need to understand economic conditions. In 1920-1921, there was a severe depression. The labor market converted from a seller's to a buyer's market; there was less immigration from Europe but a significant increase in the number of people migrating to the cities, and union membership declined by 30% (Slichter, 1929). The recession reduced non-agricultural wholesale prices by 31% between 1920 and 1921, and between 1920 and 1922 by 30%. Wages decreased by 14% and 19% in those two periods, which led earnings to be higher than the prices companies could get for their products (Slichter, 1929).

However, despite weaker unions, companies maintained some of the benefits that had been implemented at the beginning of the century. This is because management, afraid of confrontations with labor, was concerned that changes could lead to greater labor radicalization at a time when the economy was beginning to recover from the recession. However, because of high labor costs, there were efforts to reduce

labor, and management felt compelled to implement working practices that would make their workers more productive.

The major drive in these company's business models was to reduce costs, and with an expensive labor force, they were forced to seek the cooperation of workers to find ways to save on materials, reduce the wear and tear on equipment, reduce the amount of spoiled product, and improve the quality of work (Slichter, 1929). The search for greater worker productivity also prompted the need for more formal organizational structures to exert tighter control on workers through supervisory functions (Tosdal, 1923). We begin to see the introduction of standards and standardized working conditions (Farquhar, 1923), which gave rise to the introduction of what were known as the principles of Scientific Management (Mixer, 1923) and a movement towards the suggestions made by Sheldon (1925). As well, around this time we begin to see psychological testing to match employees to particular vocations.

High labor costs and a recovered economy prompted companies to put in place policies that made employees more dependent on and loyal to them. For example, we see more benefits being introduced to encourage savings; in some places, employees deposited a portion of their wages into an account that offered better terms than those offered by banks; they were also supported with finances to encourage them to buy houses, along with free legal or architectural advice. Companies established building and loan associations and at times even sold houses or land to employees at low prices. This was done to gain the greater loyalty of the workers because of the belief that if they lived near their workplace they would be more tied to their jobs, more careful to avoid being discharged, and less inclined to resign or strike (Slichter, 1929). Another way in which companies tried to maintain the stability of the workforce was through the offer of bonuses to salaried employees. Normally, employees would work on an hourly basis and as a result sometimes face precarious financial conditions. Hourly workers were the first to be laid off when costs had to be cut. This provided an incentive for employees to move into salaried positions because it afforded them greater stability. Greater labor stability was achieved through bonuses that increased the longer a worker stayed with a company (Slichter, 1929). Similarly, lengthy employment gave workers additional benefits, such as more time off (e.g., two weeks with full pay), access to a pension, and

continuing wages during recovery from sickness or accidents. Companies also made efforts to sell company stock to their employees, the object of which was to make workers into capitalists and immunize them against radical ideas, in the hope that, if propagated widely, this would make the nation strike-proof (Slichter, 1929).

One could argue that the 1920s has dictated many of the current work arrangements. We still have business models based on structured organizational settings that rely on the presence of workers, and a work culture that has undermined labor by almost eliminating unions, while also making the labor market much less flexible through the introduction of benefits offered by companies, many on the basis of seniority. Many of the labor initiatives of the 1920s have created employment dependencies that have made current labor markets highly inflexible.

In sum, the telephone seems to have had little to do with the business models and work culture that was initiated in 1920s. The next question concerns whether computers, introduced in the 1950s, led to change. This is the focus of the next section.

[Technology business models and culture during the 1970s](#)

The period from 1970 to 1976 was selected to capture the impact of the mainframes, which had been introduced in the 1950s. It is approximately during this time period that mainframes reached mass-market status, and thus, this is when we are more likely to see their effects on business models and work expectations (Teng et al., 2002).

The 1970s was a challenging period for companies and workers. Inflation and recessions weakened some of the gains workers had made during the 1960's; they were undermined by sluggish economic growth and the beginning of an industry-based decline (Armiger, 2012) and burdened with the demands placed on them by the civil rights efforts of the previous decade.

Given the uncertain economic and social environment that prevailed at the time, the availability of computing tools led to greater efforts for operational control. Unlike the situation in the 1920s, businesses in this decade had the technology to make better market predictions. Mainframe computers enabled them to collect data more systematically (Vandell, 1970). The literature provides evidence of the need for models

that could help companies forecast and prepare for strikes, economic uncertainties, sudden changes in demand, and price-cutting moves by competitors (Abdul, 1988).

The adoption of computers by businesses was not always successful. In spite of efforts being made by organizations to have managers make decisions based on quantitative measures, the business culture impeded it, and managers tended to continue to rely much more on qualitative criteria when appraising the company's performance (Greiner et al., 1970). In this decade, we see companies trying to get a competitive advantage over their rivals, but what is more important, greater control over their operations at uncertain times. There is evidence of companies' trying to develop computer models that could help them – for example, to determine capacity plans, facility sizes, and operational costs – and to calculate their risks more adequately (Virst & Garrett, 1970). There is enthusiasm for these systems' ability to help businesses make more informed decisions regarding operations (Boulden & Buffa, 1970). There was already the computing capacity to convert two-dimensional data into three-dimensional models (Shostack & Eddy, 1971) and to inform marketing plans (Kotler, 1970).

Technology, however, did not fundamentally affect the work culture. This is due to the fact that political forces were in play that offset any progress that could have been attributed to computers. The 1970s started with a labor market imbalance, such that there was significant growth in the labor force, but even greater growth in the economy that led to significant labor shortages with high turnover. Surprisingly, even with low levels of unemployment, wages did not increase, as would have been expected. This was also a period when productivity slowed down, which has been attributed to the difficulty that employers had in retaining employees; in a period of high turnover, new hires had to constantly be trained (Medoff et al., 1983).

In the 1970s, low levels of unemployment gave workers, once again, greater power, which they gained through a higher number of strikes compared to previous years. In 1970, there were 2.4 million workers engaged in large-scale strikes. In addition, high growth and a tight labor market led to inflation, which negatively affected wages.

In addition to the economic challenges, the population was battling for civil rights, and in 1971 the Supreme Court had just decided, in *Swann vs. Charlotte*

Mecklenburg Board of Education, to affirm mandatory busing for school children as a remedy to racial segregation. The country was experiencing significant transformations that demanded racial and gender equality (Cowie, 2010). The fight for civil rights let the government and companies to pay a lot more attention to the black community. Workers in general were demanding better conditions, and with management unwilling to hear them, they resorted to sabotaging their employers by engaging in unproductive activities that disrupted factory operations. For example, in the GM factory in Lordstown, Ohio, assembly workers would clog the fastest assembly line with hair (Cowie, 2010, p. 8).

While progress was being made for black workers, this was not the case for female workers. Gender justice efforts that were emerging in the early Seventies were quickly abandoned by companies when the government decided to institute mandatory affirmative action requirements. Companies reacted with hostility to these requirement, believing they were being burdened by ever-growing labor regulations (Armiger, 2012). The requirements negatively affected the women's movement, as some held that women's liberation efforts reflected “extreme” and “self-serving” positions. In addition, other policy initiatives intended to be progressive, like the New Deal and the Great Society, were based on gender and racial roles (Rymph, 2012) that were further strengthened by initiatives such as the family wage system, which took males to be the breadwinners.

It should be noted, nonetheless, that the inclusion of black workers in the Bell system was in part motivated by the fact that they were as equally educated as their white counterparts, but were paid lower wages. They were also valuable in helping companies fend off unionization efforts (Armiger, 2012). This was most evident in 1963, when African Americans voted against the teamster’s organization in exchange for a more favorable approach to civil rights, to which management readily agreed (Armiger, 2012).

Women were also hired, but under the unstated assumption that they were a rare exception in the labor market with no automatic rights to work and, therefore, did not need to be paid as well as their male counterparts (Kessler-Harris, 2003). In fact, in the Bell system women were hired as a cost-saving resource that could be easily laid off when the company faced economic hardship (Armiger, 2012). This was made evident in

1973, when Kleo Kyriazi filed a lawsuit against the company for sex discrimination (Armiger, 2012).

The economic boom did not last long. In 1973, the United States suffered from a global shortage of petroleum production that resulted in an oil crisis, from the ensuing stagflation, which was exacerbated by the political uncertainty of Nixon's resignation in 1974, and from the fall of Saigon in 1975 (Cowie, 2010).

The difficult economic circumstances of the time led to the dismantling of the unions and to an increase in the number of unprotected and unorganized workers, who faced greater demands at work, as opposed to the fewer unionized members, who at the time still enjoyed higher salaries (Cowie, 2010). It is also around this time that initial efforts were made to introduce computers to the manufacturing floor to save on labor costs (Dooley & Stout, 1971).

The 1970s was a period of mass production in manufacturing that relied on highly structured and rigid bureaucracies and a labor environment that provided workers in a common setting with tools and resources, but also continued to engage in practices that aimed to routinize activities to make them more productive (Hassard, 1989). This was a work system that relied on coordinating the activities of workers by synchronizing their movements in time and space (Pollard, 1965). A work environment of this type also generated discipline, since coordination and control took place in face-to-face settings under the watchful eye of a supervisor (Foucault 1979, as cited in Jackson & Van der Wielen, 1998)

Work was so highly structured that that workers expressed their dissatisfaction with “the mind-numbing tedium of industrial production” which gave rise to the disaffected, blue-collar American (Cowie, 2010). The role of information and communications technologies at this time thus had little impact on the majority of workers; they were used primarily to support the proprietary elements of companies’ business models, namely, to improve their operations, to help them make better decisions and forecast challenging economic and social conditions, and to reduce costs through the more systematic collection, analysis, and modeling of data.

In this respect, “Such spatial and temporal structures [were] also reflected in the cultural values and norms of an organisation. Mass-production industry, for instance, relied on a culture of punctuality, precision, discipline, obedience and conscientiousness to support timespace concentration and maintain coherence of the collectivity” (Ernesto, 1989, as cited in Jackson & Van der Wielen, 1998).

Business models, work culture, and technology in the 21st century

The analysis of the third period of this study spans the years 2000 to 2005. It tries to capture the impact of the Internet, which was introduced to the public in 1990 and by 2000 had already reached more than 35% of the population, which means that from the diffusion of innovation perspective, it had reached mass-market status.

The change from manufacturing to a primarily service economy in the U.S. happened rapidly. As early as 1977, the number of information workers was 38 million, or 48.3 % of the U.S. total workforce, and it reached 55% by 2000 (Jackson & Van der Wielen, 1998), which means there should have been significant movement in the ways that companies organized themselves, to allow telework to become an alternative mode of work for employees.

During this period, the impact of technology on business and work culture is much more evident. Binary computation made it possible for computers to simplify tasks. They were used to facilitate standardization and modularization, so that many jobs previously done by people could be done by machines, leading to business models that could take advantage of human cognitive capacities.

Today's technology is dramatically changing businesses and the nature of work. Companies are embracing universal connectivity through the Internet of things (IoT), through Big Data algorithms that provide companies with even more tools for making decisions, and through artificial intelligence, which can further facilitate the ability of machines to replace certain types of labor (Campbell & Throy Alexander).

In tandem with greater computing power, prices have decreased dramatically, leading to more widespread adoption in the private sector and further replacement of labor. In light of the changes that technology has made possible, “humans are now

required to be adaptable, communicate effectively, and to collaborate in problem-solving teams” (Campbell & Throy Alexander, p. 2).

In light of all this, it should not be surprising to find that an analysis of the Occupational Information Network (O*NET) found that the skill sets for workers today include “originality, service orientation, manual dexterity, [and] gross body coordination” (Campbell & Throy Alexander, p. 3).

According to Campbell and Alexander, the business professions are not overly influenced by technological change. In this country, it appears that automation is making some jobs disappear, and this has led researchers such as Frey and Osborne (2013) to argue that highly-skilled workers in technical areas (hard skills) are likely to do better in the job market if they also have soft skills, such as problem-solving, communication, emotional regulation, and moral sensibility (Neubert et al., 2015).

One of the important transformations that has occurred in work culture is a shift in employment from the manufacturing to the service sector. The service economy has two levels. One is entirely physical and, to a certain extent, still exhibits a culture similar to the one that prevailed in manufacturing, which treated labor as a resource. The other level, service work, entails workers providing services using their cognitive capabilities. In this case, the ability to conceptualize output as widgets breaks down, and it becomes difficult to manipulate labor from the point of view of output, because output is now much more amorphous and is no longer done by a single individual at a plant. Instead, it is done in combination with the cognitive work of others. In the absence of the production of concrete widgets, we now have outputs that are the result of many people’s efforts, so that quantifying any one person’s contribution is difficult. Only the extremes, the very best and the very worst, are evident, but everybody else’s effort is difficult to differentiate. In the absence of clear metrics, work has become infinite, with more working hours being added, and the assumption of employers is that their workers are productive because they are working many hours, which has led to a work culture where professional, highly skilled workers are expected to work more than the legal forty hours a week. This, in turn, has become further entrenched by ICTs, which connect workers and make it possible to work anytime and anyplace.

From a business model perspective, information technology allows for the much more granular construction of strategies that can generate value to customers. For example, at the foundational level, the factors that create value for customers can be identified more easily via ICTs. The large collection of data that companies now acquire not only through the sales of their products but also through much more abundant online consumer reviews, provides them with an in-depth knowledge of the experiences, preferences, and beliefs of current and potential users (Simonson & Rosen, 2014). They can identify “super consumers,” heavy users of the brand, and try to cater even more to their needs to stimulate greater revenue and acquire more clients through the commitment of these customers (Yoon et al., 2014; Simons, 2014).

In an economy where production has moved not only from manufacturing to service, but also in great part to digital services, we see companies taking advantage of a unique digital business model, which is the offering of free products. A digital environment enables a potential customer to use only some components of a product, and hopefully after experiencing the product, the customer will feel compelled to buy the fully functional version (Kumar, 2014).

The digital capabilities of more powerful mobile devices make it possible for companies to enhance the value (foundational level) they offer users. Mobile apps for their business, with the affordance of geolocation technology, can send users promotions and incentives that can generate benefits for both the consumer, in the form of value and convenience, and for the company, in the form of greater revenues (Fang et al., 2014).

One could argue that today businesses are confronting a much more complex environment. The foundational level value that they need to generate for customers and the strategic operational decisions that give them a competitive advantage require the skills, expertise, and talents of not single workers, but teams. This need can be seen in the way companies like IDEO operate to generate highly original ideas. IDEO’s work culture has enabled it to become a sought-out leader. Our legacy work culture, which began in the 1920s, relied on highly structured environments where each person was evaluated in comparison to others and to stated goals and objectives (Frederiksen et al., 2017). At IDEO, on the contrary, employees are motivated to help each other, which has

resulted in their being much more interconnected in comparison with traditional settings, where social network analysis has shown the formation of more cliques (people interconnected in small tight groups) (Amabile et al., 2014).

During this period, we see that many new successful business models are being built around people's talents. We are moving from a culture that focuses on the individual to a culture that requires team efforts and the trust and cooperation of employees (McComb, 2014) and gives license to employees to feel comfortable being different (Yoshino & Smith, 2014). Human elements such as trust are becoming much more prominent, even regarding decisions that affect a company's alliances with other companies (DeSteno, 2014).

In our digital era, we observe business models taking advantage of both technology and people. We are seeing a migration, which, although it is slow in successful businesses, relies on a work culture that considers the human condition. McCord (2014), for example, found that Netflix has scrapped formal reviews in favor of informal conversations, giving people time off, and expenses. At the societal level, a similar change in work culture is taking advantage of technology and producing greater benefits in terms of economics and wellbeing.

As we move to a more technologically dependent economy, we are discovering, as was made evident in a recent McKinsey report, that digitalization allows for digital-based services to not only be bundled, but also re-bundled to generate additional value, and enables technology to complement labor by generating more data to be analyzed and interpreted by experts to produce insights. More than ever, digital technologies can make operations much more efficient and speed the generation of new products and services uniquely tailored to their users.

If we accept that the business models of the digital world need to rely on people, we are currently inadequately prepared to make the transition. While digital technologies have been providing more information and data, as well as the processing power to interpret and create them, it has also made necessary the use of external talent. Information technologies and the need to react much more rapidly to global market changes are forcing cultural change in our traditional work settings. We need to move

from a work culture based on hierarchical settings to flatter and more collaborative ones.

Similarly, the complexity of work will require a more integrated work structure and culture, where the boundaries between individual departments are less rigid and allow for a more fluid movement of ideas that can generate products and services that take advantage of the knowledge that people in all these different roles can offer. The combination of talent and experience is likely to continue to generate products and services capable of being customized at the individual level.

However, the blurring of boundaries among departments is found not only in companies, but also in the marketplace. Because digital technologies have significantly reduced transaction costs, it is possible for companies to have ties with thousands of other companies via Amazon, for example, and for independent workers to rely on other independent workers for information, which further undermines our notion of unions as mechanisms for obtaining better working conditions. Digital technologies have now made it possible to create business models where the employee is no longer indispensable, and at this point, culture is an external factor that a company need no longer be concerned with. The decoupling of businesses from a reliance on their own workers may benefit them, but at the expense of labor

Implications and recommendations

As we analyzed the impact of technology on business models and the underlying work culture of companies and society at large, we found that technology today is having a much stronger impact on business models and that the traditional work structures and work cultures of the past are no longer adequate. A dynamic market requires a dynamic and knowledgeable workforce. However, given the opportunities for decoupling work from business, there is also a risk that the old labor protections that were embedded in traditional corporate settings of the 1920s are no longer sufficient to support more sophisticated, fluid, innovative business models that can rely on an unaffiliated workforce. The business models of the future will require significantly different work arrangements, but as can be seen in the comparisons in Table 1, we are still shackled to the work structures of the past.

Table 1. The legacies of the past and the needs of today

Past cultural work patterns within the context of business	Expected cultural patterns within the context of business
Unions	Communities
Management control	Self-control
Little autonomy	Greater autonomy
Boundaries at a company's central site	Boundary-less, decentralized locations
Measured output per worker	Collaborative output (hard to measure)
Committed, loyal, disciplined	Opportunistic
Defined occupation	Multiple identities
Defined salary	Project-based salaries
Discipline-based skills	Multiple skills
Companies	Ecosystems

While there are tremendous benefits for companies, there are also tremendous risks, especially for workers forced out from under the protection of corporate America; for them, current labor structures will need to change to better protect them by offering them benefits equivalent to those offered by companies, for instance, affordable health insurance, retirement benefits, and the possibility of paid leave and vacations.

[Policy Recommendations](#)

The 1920s led to the evolution of path-dependent institutions that prevail today for companies and workers. These obsolete arrangements, namely, benefits provided by corporations and companies, are limiting the potential for more creative business models that can allow workers to thrive. While we see unlimited innovation in the market, the same has not been the case for government. We thus recommend greater experimentation. Government could, for example, support the implementation of benefits pools, where companies and participants with revenue are expected to pay a

certain percentage on any earnings beyond a basic salary into the pool, and then all employees get to choose their benefits.

If a benefits pool is created with a straight salary percentage, then the total amount contributed per worker increases with salary, which would imply a cross-subsidy from highly paid workers to low-paid workers. In this way the self-employed, small businesses, and large businesses would be on a more level playing field that provides benefits while allowing companies to freely take advantage of all sorts of work arrangements without making those in non-traditional arrangements vulnerable.

Governments should also experiment with the old idea of a universal basic income that can provide a minimum income to everyone, thereby allowing workers to take more risks and providing them with enough capital to become innovators, expanding the pool for ideas beyond those of large, well-endowed corporations.

Limitations of the study

One of known limitations of cultural studies is that even when one tries to identify the deeper assumptions that underlie the more visible manifestations of culture, one can easily misinterpret them because these are being analyzed through one cultural lens. Schein (2006) provided a clear example of this problem. If I see an informal setting, I may interpret it as being inefficient if my underlying cultural beliefs see informality as play and not work. The same environment can be interpreted as innovative if one believes that informality can foster dialogue and generate potentially profitable ideas. In our efforts to understand this country's culture of work, we need to recognize also that there is a multiplicity of subcultures (Schein, 2006, p. 21).

Conclusions

In this paper, we try to understand the way technology has affected business models and work culture over time. This type of work requires a long historical analysis of the business literature; in this case, inferences were drawn mostly from *Harvard Business Review* issues dating back to 1921, with the aim of identifying slow cultural changes that come about over time.

Our research shows that technology did not always play a prominent role in transforming business models and work culture. This should have been expected, as technologies of the past took longer to be adopted and were not as powerful as the ones we have today. Aside from technology, social and political forces prove to have had a great impact on business and work culture. One could argue that those forces and the misfortunes reflected in the societal concerns of the 1970s prevented the institutions invented in the 1920s from evolving into structures that could have provided greater fluidity to business and workers.

Today, digital technologies are having much more powerful effects, which is evident in the explosion of new business models; however, these new business arrangements are having an impact on a labor force that derives its benefits from traditional corporate settings. Under such conditions, we see the emergence of a vulnerable labor force that might not only curtail the innovation of newer business models, but potentially negatively affect the economy and society at large through discontent that could lead to civil unrest. Therefore, governments need to experiment to change these obsolete institutions. We propose experimentation, and as a propitious place to start, benefits pools and a universal basic income.

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