

# Physician Burnout: A Technology-based Reification of Competing Logics View

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## Abstract

*Physician burnout has become a major concern for healthcare organizations and society as the increasing use of technology along with other changes have dramatically altered healthcare delivery in recent years. While prior research on burnout has offered explanations of a “dark side” of technology, it has not sufficiently captured the complexity of the institutional context in healthcare. To address this research gap, we develop a theoretical framework of physician burnout that considers both institutional issues and job demands/resources related to healthcare delivery. Drawing on the institutional logics literature, we identify four competing logics that shape physician responses to day-to-day interactions with technology and institutional issues. We contribute to IS literature by theorizing that when technology reifies competing logics, the technology—which was intended to be a job resource—becomes a source of increasing job demands while simultaneously reducing worker autonomy that could have buffered the impact of those increasing demands.*

## 1. Introduction

Burnout—a work-related syndrome involving chronic emotional exhaustion, depersonalization, and a sense of reduced personal accomplishment—is a serious problem that results in substantial costs for both organizations and individuals [1]. An increasing number of healthcare professionals—especially physicians—are feeling burned out in the performance of their work [2], the consequences of which are manifested in health problems, working while sick, extended leaves of absence, early retirement, and even suicide as they struggle to cope with an increasingly complex and stressful environment [3]. In a survey of over 12000 physicians in 29 specialties conducted in fall 2020, about 42% of physicians in the U.S. reported being burned out—a number similar to the previous year [4]. This problem has been exacerbated by

pandemic-related pressures on work and home lives, adding to an already stressful profession [2, 5].

Early studies of physician burnout focused primarily on individual factors (e.g., physician age, sex, educational debt, relationship status, age of children and spousal/partner occupation) [5]. Recent studies have taken a more systemic approach to physician burnout and have considered work system factors (e.g., high work load and administrative burden), organizational factors (e.g., leadership and management practices) as well as challenges related to the mandated technology use in healthcare delivery [6]. Ideally, health information technology (HIT) such as electronic health record (EHR) and computerized physician order entry (CPOE) systems would ease the clerical burden on physicians, but evidence suggests that these technologies often elevate that burden [7]. For example, primary care physicians averaged 45% of their workday on EHR activities with an additional 1.4 hours on the EHR outside of work [8]. Many physicians are thus spending excessive time on EHR activities due to factors that include inefficient interfaces, unpredictable system response time, poor interoperability, and excessive data entry requirements [9]. Research has shown that spending more time on EHR and CPOE increases the odds of burnout [7, 10].

Most burnout studies have focused on individual, interpersonal, and organizational antecedents [11, 12]. They have yielded widely used models of burnout, including the Conservation of Resources Model [13], Job Demand-Control Model [14], Effort-Reward Imbalance Model [15], and Job Demands-Resources Model [16, 17]. However, few studies have considered the institutional factors that we argue can shed light on the broader, systemic causes of burnout. These factors are relevant in the context of physician burnout because physicians are subjected to not only day-to-day stresses of caring for patients, but must also work within an increasingly complex and challenging healthcare system shaped by a myriad of social and political forces [6].

In the current healthcare environment, an

institutional view of technology is particularly relevant to understanding burnout because technology reifies social relations and institutions [18], usurping power and control from physicians. In this paper, we frame burnout as an institutional problem, shining light on the competing institutional logics that shape the practice of medicine in the U.S. and the role technology plays in reifying them. Towards this end, we draw on the institutional logics literature to examine the institutional influences on the work and lives of physicians. Institutional logics provide individuals and organizations with meaning for actions [19]. The logics not only support and constrain decisions, but also channel attention to particular issues [20].

However, competing institutional logics can engender dissonance and conflict [21, 22, 23]. The cognitive and emotional load imposed by dissonance and conflict, in turn, creates strain and, over time, burnout [24]. In this study, we therefore argue that the effects of the competing logics imposed by progressive bureaucratization and consumerization of the practice of medicine are exacerbated by the reification of these logics via HITs. By explaining how HITs contribute to burnout via reification of competing logics, we contribute to the IS literature, enhancing understanding of physician burnout.

## 2. Literature review

### 2.1. Burnout in IS literature

The problem of job-related burnout has been the subject of research for many decades [1, 12, 25] and burnout among IT professionals has gained the attention of IS researchers [26]. IS research on burnout initially focused on turnover intention and its determinants (e.g., job satisfaction and organizational commitment) to explain and address the high turnover rate and chronic shortage of IT professionals that organizations started experiencing in the 1980s and early 1990s. More recently, a growing body of research suggests “an emerging dichotomy in IT-enabled patterns of work and collaboration: that of quick and easy information access and flexible work patterns versus addiction, misuse, overuse, and stressful use” engendered by the same technology [27, p. 110]. This has led to researchers taking a more holistic approach to understanding job-related burnout by examining work-life balance among IT professionals [28, 29]. Yet, causes of technology-based burnout in complex institutional contexts—such as healthcare—are not as well understood.

### 2.2. Physician burnout

Burnout among physicians and other clinicians is one of the major challenges facing U.S. healthcare delivery [6]. Physician burnout adversely affects the quality of patient care, as it has been associated with increased medical errors and malpractice claims, reduced patient satisfaction, and diminished and ineffective patient-physician communication [5]. In addition, physician burnout puts a strain on healthcare organizations by increasing absenteeism, increasing turnover, and reducing individual productivity [30]. A recent study has estimated that the annual economic cost associated with physician burnout (resulting from turnover and reduced productivity) in the U.S. is approximately \$4.6 billion or about \$7600 per employed physician [31].

Beyond economic costs, physician burnout is also a public health crisis that has serious consequences for the overall U.S. healthcare workforce as an increasing number of physicians are retiring early and fewer young people are attracted to the profession [32]. This is leading to a critical shortage of physicians at a time when the U.S. has been experiencing increased demand for healthcare services [33]. Recent studies have warned that if factors contributing to burnout are not addressed, physician shortages will likely worsen, leading to a decrease in overall access and quality of healthcare [6].

### 2.3. Theoretical perspectives on burnout

Several models—mainly in the psychology and organizational literatures—seek to explain burnout. These models, summarized in Table 1, include the Conservation of Resources Model [13], Job Demand-Control Model [14], Effort-Reward Imbalance Model [15], and Job Demands-Resources Model [16]. All four models share a focus on how job demands and resources—stemming from individual and workplace characteristics—induce worker strain and eventual burnout.

Job demands are “aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs” [17, p. 312]. They thus deplete worker energy and create strain [24]. The strain produced by job demands may be temporary and its effects reversible, but it can develop into burnout when the strain is stable and habitual over time [34].

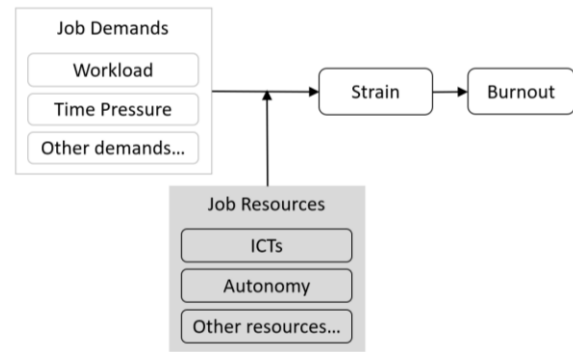
**Table 1. Theoretical models of burnout**

Model [key references]	Brief Description
<b>Conservation of Resources</b> [13]	Stressors (such as job demands) deplete resources; cycles of resource losses without resource replenishment can lead to burnout
<b>Job Demand-Control</b> [14]	Burnout occurs when low job control is coupled with high job demands
<b>Effort-Reward Imbalance</b> [15]	Imbalance of effort and reward (e.g., salary and career opportunities) leads to burnout
<b>Job Demands-Resources</b> [16, 17]	High job demands accompanied by low job resources lead to burnout

Job resources are “aspects of the job that are ... 1) functional in achieving work goals, 2) reduce job demands and the associated physiological and psychological costs, or 3) stimulate personal growth, learning, and development” [17, p. 312]. Thus, job resources buffer the ill effects of job demands [24].

A key resource that influences the extent to which increasing job demands lead to strain and burnout is autonomy (i.e., job control and job decision latitude) [14]. Autonomy is defined as “the experience of behavior as choiceful and self-endorsed at a high level of reflection, rather than pressured or coerced” and—along with competence and relatedness—is a basic psychological need essential to work [35, p. 276]. Dissatisfaction resulting from loss of autonomy is associated with increased emotional exhaustion, turnover intention, and absenteeism over time [35]. Studies show that many physicians are becoming increasingly dissatisfied with their reduced autonomy [36, 37], which is a problem because autonomy has been found to buffer the impact of work overload [38].

Recent studies highlight the role of information and communication technologies (ICTs) as job resources, noting their ability to enhance employees’ flexibility and their control over when and where they work [39, 40]. The role of ICTs, autonomy, and other job resources as moderators of job demands is modeled in Figure 1, with strain and burnout more likely when key job resources are low and job demands are high. In this study, we focus mainly on the Job Resources component (highlighted in gray in Figure 1) in our theoretical development of a model of burnout.



**Figure 1. Interaction effects of job demands and job resources – Adapted from [17]**

## 2.4. Institutional logics

Institutional logics are the “socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality” [41, p. 804]. They influence the patterns of engagement of individuals and groups in an organizational, societal, or political context [19, 42]. Institutional logics establish the rationale that underpins institutions and provides meaning and organizing principles for institutionalized practices [43, 44, 45]. As such, the institutional logics perspective allows examination of the institutional influences on individual decision making and behavior [23].

Contemporary institutional analyses have characterized organizations as institutionally plural, and subject to multiple logics that may be in competition with each other [21, 22]. This competing logics perspective has been used in several IS studies [46, 47, 48]. Multiple logics have also been evidenced in examinations of healthcare in the US and elsewhere. One influential study investigated how US healthcare has transformed from a field dominated by a professional logic of medical care to one where multiple logics—which include the logic of the market and the logic of the democratic state—co-exist [49]. Another study [50] examined the healthcare system in Canada and found evidence of two logics (medical professionalism and business-like healthcare) where ongoing struggles among actors holding different logics resulted in a contentious co-existence between physicians and the state [50]. Another study examined adoption and use of EMR systems in hospitals and private practices, and identified four institutional logics that included medical professionalism, private sector managerialism, technical design, and regulatory oversight which exhibited both complementary and competing tendencies [51].

Through an evaluation of the healthcare related institutional logics literature, we identified four logics that compete for control and influence. These logics—medical professionalism, private sector managerialism, regulatory oversight, and customer-driven market—are summarized in Table 2.

**Table 2. Competing logics in healthcare**

Logics [key references]	Brief Description
<b>Medical Professionalism</b> [50, 51, 52]	Physician-controlled care focusing on the physician-patient relationship and delivery of high-quality, medically necessary services
<b>Private Sector Managerialism</b> [50, 51, 53]	Business management of care focusing on financial accountability, cost containment, operational efficiency, and health maintenance
<b>Regulatory Oversight</b> [51, 54]	Government oversight of care focusing on regulatory policies to shape healthcare in service of the public interest
<b>Customer-Driven Market</b> [49, 54, 55]	Patient-driven care focusing on patient preferences and services based on market demands

The logic of *medical professionalism* [50, 51, 52] emphasizes a physician-led care team focused on the physician-patient relationship and the delivery of high-quality, medically necessary services. The medical professionalism logic combines a logic of science (i.e., physicians providing medical treatment that maximizes health outcomes and patient safety) and a logic of care (i.e., physicians providing care that addresses each patient’s unique needs and preferences) [53, 56]. Medical professionalism is arguably the preferred logic that guides the day-to-day work of physicians engaged in frontline care delivery. One reflection of that preference is the many accounts of physicians lamenting the change in their work where they now spend less time caring for patients and more time documenting the care provided because the requirements for clinical documentation have increased significantly with the digitization of medical records [9, 10].

In contrast, the *private sector managerialism logic* [50, 51, 53] dictates a business management approach to care delivery that focuses on financial accountability and cost containment as primary drivers of how care is structured and delivered. In this logic, physician work is heavily influenced by healthcare

administrators through control of financial resources. An example of how private sector managerialism competes with medical professionalism is the use of relative value units (RVUs) to determine reimbursement for medical services based on the resources (i.e., physician work, practice expenses, and professional liability insurance) required to provide the service. Although RVUs were established in 1989 as a fee schedule for Medicare reimbursement, private insurance payers adopted the system to determine fee-for-service payments, thus tying RVUs directly to revenue streams [57]. Over time, RVUs have been coopted by healthcare administrators toward physician control, becoming the primary performance appraisal mechanism wherein physician compensation and bonuses are tied to RVU ‘production’ [58]. This can result in strain for physicians because they can generally only increase RVUs by seeing more patients, which reduces the time spent with each patient. The result is that the focus of care delivery can shift from what is best for individual patients to an assembly line mentality in which patients are moved through the process as quickly as possible.

The logic of *regulatory oversight* [51, 54], where government regulation’s shaping of health policy to serve the public interest also competes with medical professionalism by establishing requirements on how care must be documented and public health data reported. These activities can impose significant time requirements on physicians, thereby reducing the time available for providing patient care. An example of how regulatory oversight competes with medical professionalism is the enactment of the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 in the U.S., which mandated the adoption of EHR systems and the demonstration of their ‘meaningful use’. The meaningful use program was designed to improve quality, safety, efficiency, and reducing health disparities; engage patients and families in their health; improve care coordination within and across healthcare organizations; improve population and public health; and ensure adequate privacy and security protection for patients’ personal health information [59]. The program provided monetary incentives through direct payments to physicians for adopting an EHR and reporting on its meaningful use, as well as penalties through reduced Medicare reimbursements if physicians chose not to participate or did not meet the phased criteria for meaningful use. Nearly a third of healthcare providers reported issues with meaningful use requirements, and solo and private practices were particularly challenged because they lacked expertise and resources to comply with the reporting requirements [60]. Physicians often had to commit substantial time and resources for the

meaningful use requirements that would have previously been spent on patient care, which put additional strain on them.

Increasingly, medical professionalism is also competing with the logic of *customer-driven market*, which has as its focus patient preferences and services based on market demands [49, 54, 55]. This logic has risen in prominence in the last decade driven by consumer-focused marketing efforts from pharmaceutical companies and medical device manufacturers as well as an increase in the use of online social networks by consumers to find and discuss medical treatments and outcomes outside the traditional physician-patient relationship. An example of how customer-driven market competes with medical professionalism is a growing trend for patients to enter the physician-patient relationship with expectations for specific treatments or services based on information they have found through Google, social media, or other sources [61]. Patients use the information they have gathered to make demands of their physician rather than seek the physician's expertise in determining the best course of treatment (e.g., demanding that the physician prescribe a specific medication or even the specific dosage of a medication). The physician's training and experience are thus discounted by these patients, which puts strain on the physician-patient relationship.

## 2.5. Technology control

Progressive bureaucratization in pursuit of economic efficiency has resulted in an iron cage for modern workers [62]. Employers seek to control the work of employees to maximize productivity using control mechanisms that include imposing demands (e.g., setting meetings, requesting extra work), monitoring employees (e.g., direct observation), and modeling expected behaviors [63]. Technology is increasingly being used to automate and extend those control mechanisms. For example, by enabling employees to be constantly connected via emails and instant messages, organizations expect the employees to be reachable anytime [64]. Thus, technology can require employees be on call after-hours and to process large volumes of information [40]. Technology interrupts employee non-work activities [65] and subjects employees to a loss of control of their attention and a sense of overload [39].

Technology control can also become more insidious through the process of reification. "Reification implies that man is capable of forgetting his own authorship of the human world, and further, the dialectic between man, the producer, and his products is lost to consciousness" [66, p. 89]. It occurs when social structures and institutions are treated like

natural objects that "are what they are" rather than as human constructs, open to interpretation, contestation, and change. It reproduces existing social orders, putting them beyond the purview of cognizant production through human agency and automating practices [18]. In this way, reification promotes social learning and socialization [67].

Technology-based reification is an inevitable consequence of capitalism's quest for productivity enhancements, which are furthered through technology-based monitoring and control [18]. Through reification, technology is imbued with power to shape work practices and lives [68]. It comes to be viewed as more indispensable to work practices than the workers that produced the technology and those that use it [68]. Technology-based reification and its negative consequences need not be deliberate, but often are the unintended as the workforce comes to take for granted technology-driven practices [69].

By reinforcing specific practices or algorithmic enforcement of rules and norms, technology reifies institutions by making them a "thing", giving institutions a facticity and rigidity that preempts the discursive negotiations that otherwise occur in daily life [18]. Technology solidifies the taken-for-grantedness of practices and curtails the reflexivity of human action and may even bypass human volition entirely in executing practices (i.e., this is what we do because this is what the technology requires/allows us to do). Through such reification, technology progressively acquires "its own logic, its own law of motion" [70, p. 494] and mediates or breaks down individuals' relationships with society. In this way, technology serves to "distort and oppress the human lives" it purportedly serves [71, p. 7].

## 3. Theory Development

At the intersection of job demands/resources models of burnout, competing institutional logics, and technology control through reification, we develop five propositions about technology-related burnout that can help better explain physician burnout.

### 3.1. Proposition 1: Technology-based reification of competing logics contributes to strain and burnout (P1)

We theorize that when technology reifies competing logics, the technology—which was intended to be a job resource—becomes a source of increasing job demands while simultaneously reducing worker autonomy that could have buffered the impact of those increasing demands [14].

Technology is considered a business resource that can improve individual and organizational

performance [72] and HIT has been found to improve the quality and efficiency of healthcare delivery [73]. However, the reality of today's healthcare environment in the U.S. is that after widespread adoption of EHRs and other HIT to improve care quality and efficiency, physicians are now spending much more of their time interacting with computers to meet the requirements of insurers and regulators, which means less time providing care to patients. This change in work conflicts with the physician's preferred logic of medical professionalism as science and care are forced to take a backseat to the other logics (private sector managerialism, regulatory oversight, and customer-driven market), which are reified by electronic health records and other digital technologies. Often, the increased job demands imposed by those technologies exceed the benefits they provide as a resource and consequently the technology increases strain and burnout rather than reducing it as a resource should.

### **3.2. Proposition 2a: Technology foregrounds competing logics (P2a)**

Competing logics represent institutional contradictions, i.e., "opposition or disjunction of structural principles of social systems, where those principles operate in terms of each other but at the same time contravene one another" [74, p. 141]. Such contradictions, when foregrounded, tend to engender conflict. Externalized, this conflict manifests as interpersonal or inter-group struggles. Internalized, it manifests as cognitive dissonance. We propose that technology foregrounds the logics of private sector managerialism, regulatory oversight, and customer-driven market, which often contradicts the physician's preferred logic of medical professionalism. Both intrapersonal and interpersonal conflict can result from these competing logics and both externalized conflict and internalized dissonance contribute to burnout [e.g., 75].

The private sector managerialism logic is foregrounded in physician's work by the EHRs and billing systems in hospitals and clinics that are configured to tie physician compensation to RVU generation, thereby emphasizing speed and efficiency over quality of care. Similarly, the regulatory oversight logic is foregrounded for physicians by those same systems which are also configured to emphasize meaningful use attestation and other regulatory requirements that impose considerable documentation time and effort on physicians who would rather spend that time delivering patient care. The customer-driven market logic is foregrounded in the physician-patient relationship primarily through a different set of technologies that include online search and social

media. Those technologies are increasingly encouraging patients to demand services from their physicians, which has the effect of diminishing the role of the physician in the care process.

### **3.3. Proposition 2b: Technology demands that workers enact competing roles (P2b)**

Logics are each associated with a different practice repertoire it legitimates [e.g., 76]. For example, the practice of voting is legitimated within the logic of democracy [45]. Competing logics that operate concurrently therefore demand that the worker enact the disparate practice repertoires or roles associated with each logic [22]. Specifically, in addition to their traditionally normative caregiver role, physicians today are required to enact the roles of administrative bureaucrat, regulator, and salesperson. Indeed, HIT directs physician's attention to these diverse roles, increasing role demands and a concomitant role overload that has been associated with burnout [e.g., 77, 78, 79].

### **3.4. Proposition 3a: Technology usurps human agency in enacting logics (P3a)**

Technology usurps human agency by placing social relations and even the self itself beyond the control of the actor [80]. In the context of medical practice, technology thus can preclude physicians from providing the kind of care dictated by their preferred logic of medical professionalism, coercing instead courses of action they deem detrimental to patient welfare (e.g., truncating conversations with patients to allow extra time in which the physicians can see a few more patients). For some critical theorists, the only way to break the ensuing cycle of helplessness is through violence [81]. Barring the option of violence, such helplessness is associated not only with physical, but also with emotional exhaustion [82] which, in turn, is associated with burnout [79].

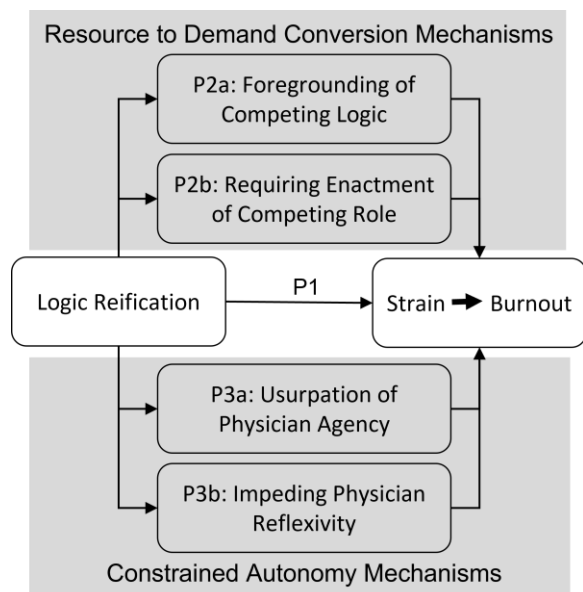
### **3.5. Proposition 3b: Technology acts "behind the backs" of physicians, impeding reflexivity (P3b)**

In 1967, Garfinkel [83, p. 68] satirized extant views of the individual as a "cultural dope", devoid of reflexivity and doomed to substitute their own judgment with compliance. He and other sociologists criticized this view of individuals, spotlighting instead their agency and knowledgeability in everyday action [84]. While neo-Marxists allow that individuals also are cognizant agents, they highlight the fundamental disconnect between conditions of reification and the

human reflexivity necessary for free agency [85]. Specifically, reification of social orders permits the social order to function “behind the backs of agents” and precludes individuals from recognizing the conditions of their hegemonic control and therefore attacking and deconstructing them [86, p. 60].

Reflexivity impediments can occur via filtering tests and other data visible to physicians or the treatment options available to their patients. Reflexivity can mitigate burnout and increase workers’ sense of well-being [87]. The absence of reflexivity, on the other hand, dooms organizations and societies to reproduce social ills [70, 71].

We summarize our theoretical model in Figure 2. The model depicts two sets of mechanisms through which logic reification by technology contributes to burnout—by converting the ICT resource into a demand and by constraining autonomy.



**Figure 2. A theoretical framework for burnout due to competing logics and job demands-resources**

## 4. Discussion

Prior studies have pointed to extensive negative consequences of burnout for workers, their organizations, and society. Yet, we do not fully understand how burnout comes about. Reflecting on the “dark side” of information technology use, IS and organizational researchers have considered micro-level antecedents to burnout [27]. They also have considered burnout as arising from the competition between work and non-work demands [28, 29]. However, these explanations for burnout do not fully explain how technology can induce it. In addition, most of these explanations remain at individual, interpersonal, and organizational levels, with little

attention paid to institutional issues that influence the work and lives of workers.

In this paper we develop a macro-social perspective on physician burnout in the context of the current U.S. healthcare environment. Drawing on the institutional logics perspective, we contribute a systemic perspective to burnout by highlighting the role of technology in reifying logics that compete with physicians’ preferred logic of medical professionalism. In doing so, we offer insight into the serious societal problem of physician burnout that has especially worsened during the COVID pandemic.

### 4.1. Practical contribution

Our research offers practitioners a more complete explanation for the problem of physician burnout that can worsen physician shortages, leading to a decrease in overall access and quality of healthcare in the U.S. [2, 6]. Specifically, our findings indicate that healthcare administrators and regulators must confront and closely examine the “dark side” of HIT that is increasingly a source of physician burnout, the consequences of which may significantly offset any gains in value enabled by the technology. Our findings also challenge IT developers to consider how the technologies they create could engender “dark side” effects for physicians and other users and how those effects could be mitigated.

### 4.2. Directions for future research

IS researchers may note similarity of the burnout phenomenon with “technostress” since they both are the outcomes of work-related stress. Technostress—the stress experienced by professionals because of the pervasive use of ICTs in their day-to-day work—can also result in exhaustion and turnover [88, 89]. It can occur due to factors such as information overload, inability to deal with uncertainty and complexity of IS, and a sense of insecurity due to rapid advances in IS at work [90]. Some studies have also pointed to the increasing spillover of technostress from work to home [91]. Technostress may be considered a strain in our model (Figure 2) that could lead to burnout if the strain is significant and prolonged. Thus, our model can be used to extend the technostress literature. The study of technostress (and related examination of burnout) in healthcare can provide a useful perspective to understand how healthcare workers (especially physicians) across clinical specialties respond to an increasingly technology-intensive work environment [89]. Currently, few studies adequately capture the complexity of the institutional context in healthcare.

## 5. Conclusion

This research highlights the “dark side” of technology use in the healthcare context that contributes to physician burnout. It specifies the reification of competing logics and associated mechanism through which this occurs. This research thus makes important contributions to our understanding of burnout by examining it as an institutional problem and identifying the competing institutional logics that have been brought to bear on the practice of medicine in the U.S.

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