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The Governance Gap

Preparing Professions for Digital Transformation

Sean McDonald and Ben Gansky

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Executive Summary

One of the most prevalent — and concerning — trends in the ongoing digital transformation of society is the way that complexity is weaponized to avoid accountability. Regardless, the public interest services that provide our most fundamental protections — systems such as health care, law and urban planning — are increasingly intermediated and heavily influenced by technology. What makes these particular professional services unique is that they are defined by existing — and legally enforceable — duties that require them to assume responsibility for protecting the individual and, ideally, collective interests of those they serve.

Duty-bearing professions have protections built into the way they perform their services, none of which are legally obviated by the ways those professionals use technology. The organizations responsible for preserving a field's core integrities are typically non-governmental professional governance institutions that set norms, ethical rules and practice standards. To date, professional governance has been a largely unused avenue to governing digital rights or transformation in practice; yet, the authors argue, it represents an opportunity to catalyze accountability around the use of technology. The authors focus on regulated, duty-bearing industries specifically to point to the triangulation that they identify as the governance gap.

The governance gap is the gap between the emergent realities of the (increasingly digital) practice of a regulated profession, the mechanisms for participation in the process of setting professional standards, and the education infrastructure to teach emergent professionals how to navigate both. While a range of factors contribute to the governance gap, the point is that professions are designed to be learning ecosystems and professionals are neither trained to participate in them, nor are they supported to respond to emergent, practical realities such as digital transformation.

While the governance gap is not created by digital transformation, the scale and scope of digital transformation of professional relationships are a generational adaptation challenge. The challenge of “keeping up” with digital transformation is *not* “to integrate these tools as rapidly as possible”;

it is to secure the core integrity of professionals' responsibilities in the context of a rapidly digitizing world. This challenge is going unaddressed by the institutions historically responsible for maintaining the integrity of duty-bound professional practice, not least because professional training programs fail to systematically train their students to participate in the governance of their own fields. The authors' recommendations focus on the role of professional education programs — typically degree-granting training programs that equip students with the credentials to become a certified professional. The authors' argument is that bridging the gap between digitally transformed professional practice and professional governance will require training new professionals to do so. The governance gap frames not only a problem but an opportunity: a valuable potential surface for focused, politically aware intervention toward restoring core integrities to high-impact professions, relationships and services amid digital transformation.

Introduction

Over the years, there has been a wide range of narratives used to diffuse rational concerns about the failures of digital technology interventions, from the moral imperative of “innovation” to the unapproachable unexplainability of “artificial intelligence” to the convenient faux confusion of technology companies navigating absentee and conflicting regulation. In the midst of this semi-intentional confusion, privately owned technologies have become a core part of the strategic evolution of nearly every aspect of society, including those areas that are historically protected. Nearly every major aspect of our interactions with the public interest services that provide our most fundamental protections — systems such as health care, law and urban planning — are both increasingly intermediated by technology and designed to be administered in ways that are heavily influenced by technology. What makes these particular professional services unique is that they are defined by existing — and legally enforceable — duties that require them to assume responsibility for protecting the individual and, ideally, collective interests of those they serve. Duty-bearing professions have established protections and rights built into the way they perform their services, none of which are

legally obviated by the ways those professionals use technology. The practical complexities of digitally intermediated accountability are often in direct conflict with the operational needs of the core duties of highly regulated professions in ways that not only frustrate accountability but also threaten the future of their practice (for example, Dean and Talbot 2023).

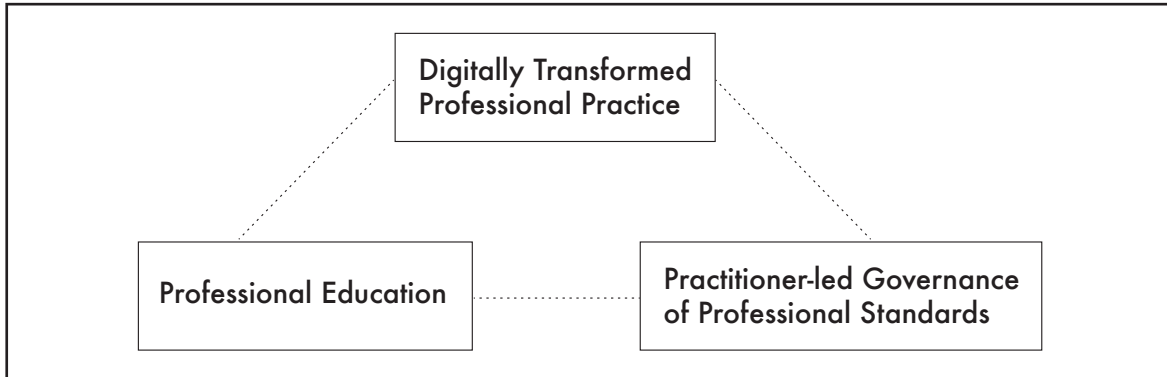
Non-governmental professional governance institutions, norms and standards are opportunities to catalyze important, under used political leverage in the establishment of accountability around the use of technology in sensitive and vulnerable contexts. At a fundamental level, professional governance has the ability to help define what counts as “reasonable” practice standards, including in the ways that professionals in protected industries adopt and use new technologies. The “reasonable” standard is how many Western legal systems evaluate the accountability — and liability — that professionals should face based on decisions they make, including in practice. And when professional governance bodies, such as the American Medical Association, state bar associations and/or professional urban planner institutes, set standards around practice, they help catalyze a range of systems that enforce accountability to adopt those heightened standards.

To date, professional governance has been a largely unused avenue to establishing high-integrity standards of digital rights or transformation in practice, even as it relates to the core provisions of their industries. That is both a product of complex political economies and an opportunity for new and emerging professionals to engage, reappropriating extant power to define the future of their industries — and preserving their unique protections. Focusing on regulated, duty-bearing industries is an intentional, narrowing choice, both in an effort to explore structural commonalities, and to specifically point to the triangulation that the authors identify as the governance gap. The governance gap is the gap between the emergent realities of the (increasingly digital) practice of a regulated profession, the mechanisms for participation in the process of setting professional standards and the education of emergent professionals in how to navigate both. While there are a range of factors that contribute to this governance gap, the simple point is that professions are designed to be learning ecosystems that evolve through participatory governance, however flawed.

Yet professionals are neither trained to participate in that governance, nor are they commonly supported in developing the expertise necessary to respond to important, emergent realities, such as digital transformation. Those factors result in a governance gap. The governance gap frames a problem as well as an opportunity: a valuable potential surface for focused, politically aware intervention toward restoring core integrities to high-impact professions, relationships and services, amid digital transformation. The authors’ recommendations focus on the role of professional education programs, typically degree-granting training programs that equip students with the credentials to become a certified professional. These programs tend to lack specific training for both how to engage with the digital dimensions of professional practice and how to participate in relevant professional governance associations’ standards-setting and dispute resolution processes. The authors’ argument is that bridging the gap (see Figure 1) between digitally transformed professional practice and professional governance will require training new professionals to do so.

The pervasive digital intermediation of relationships among professionals and between professionals and their clients, patients and others presents professional governance with a generational adaptation challenge. The challenge of “keeping up” with digital transformation is *not* “to integrate these tools as rapidly as possible”; it is to secure the core integrity of professionals’ responsibilities in the context of a rapidly digitizing world both within and without professional practice. This challenge is going unaddressed by the institutions historically responsible for maintaining the integrity of duty-bound professional practice, not least because professional training programs fail to systematically train their students to participate in the governance of their own fields. This — the absentee governance of digital transformation by professional institutions, coupled with the lack of training for emerging professionals to participate in their own fields’ governance — is the governance gap.

Figure 1: The Governance Gap



Source: Authors.

The Governance Gap in Digital Transformation

Governance issues surrounding digital technologies continue to collect headlines. “Governance” is one of those broad terms whose flexibility can be both an asset and a liability. Most generically, governance can mean any system of giving and maintaining order (see, for example, Bevir 2007). For the authors’ purposes, governance is the means by which a system adapts itself such that it maintains the integrity of its internal and external relationships while achieving its objectives over time. Digital governance, then, encompasses the various ways in which an organization or system tunes its engagement with digital tools and services so that their use strengthens, rather than undermines, its mission.

In headlines, as elsewhere, the most common mistake in any discussion of technology governance is an overemphasis on technology and an underemphasis on governance. One consequence is that attention gets focused on the sites where digital technologies are developed, rather than on the sites in which these technologies are deployed. It is absolutely true that some technology governance problems arise from contexts of development, for instance, environmental degradation from “cloud computing” facilities (for example, Lally, Kay and Thatcher 2022; Monserrate 2022) or exploitative and unsafe labour conditions for workers in the machine-learning data supply chain (for example,

Altenried 2020; Dzieza 2023; Gray and Suri 2019; Jones 2021; Miceli and Posada 2022). These are undoubtedly important and urgent issues. Although the authors admire the activism and advocacy of design justice (for example, Costanza-Chock 2020) and participatory design movements (for example, Asaro 2000; Bødker, Dindler and Iversen 2017; Le Dantec and DiSalvo 2013) as they more deeply involve system subjects, in particular development processes, these kinds of engagement practices alone cannot resolve the governance dilemmas that inevitably emerge “downstream.”

The authors’ focus here is on precisely these dilemmas: loosely speaking, issues arising in contexts of technology *deployment* (deployment inside of relationships, industries and professions that are both heavily regulated and, critically, hold practitioners responsible for the harms they cause). Scholars in information systems, science and technology studies, and digital sociology have exhaustively demonstrated how sociotechnical systems encode and reproduce particular forms of social relations through their deployment in particular social contexts (for example, Abdur-Rahman and Browne 2021; Ajunwa 2021; Benjamin 2019; Bowker and Star 2000; Braun and Grisson 2023; Chun 2021; Eubanks 2018; Noble 2011). All of these digital dynamics are known but not influential in professional education or governance in ways that help practitioners adapt. And, in many cases, professionals’ inability to ensure that their digital tools adequately meet their legal duties incurs large amounts of legal liability for them and undermines the integrity of their services. The professional relationships affected are often the

first point of contact for larger public services and political economies. Doctors, for example, are the first point of contact a patient has with the health-care system — and when the tools they use leak private health data to advertisers, for example, that both creates liability for the practitioner and diminishes the credibility of health care’s ability to protect patients at all (for example, Feathers et al. 2022; Feathers, Palmer and Fondrie-Teitler 2022).

As the authors previously described (Gansky and McDonald 2022), the political economy of digital technology industries inevitably produces effects that appear to be, from the vantage of technology developers, “unanticipated consequences” (cf. Parvin and Pollock 2020). The whole economic premise of modern digital technology development hinges on a model necessitating that products scale beyond single sites, communities and spheres of use in pursuit of exponential growth. For both technologists and their investors, the race to adoption at scale is an overriding priority (Hanna and Park 2020). “Blitzscale” requires a level of executive centralization, disregard for context and asymmetrical power that is, in and of itself, a problem (Alkhatib 2021; Bloch-Wehba 2019; Campolo and Crawford 2020). In tandem with these economic incentives, the cultural and political movements toward “open data” and open-source software are engines for the production of digital technology and its building blocks, which are explicitly without leverage for the regulation of downstream uses (for example, Collington 2019; Karhu, Gustafsson and Lyytinen 2018; O’Neil et al. 2022; Peng, Mathur and Narayanan 2021; Widder et al. 2022). If we are to accommodate this political economy, we must focus our governance efforts not on “solving issues upstream” at the sites of development, but on governance in context, which is to say, at the sites of deployment.

Locating agency, accountability and leverage in the context of technology development is no mean task (for example, Cooper et al. 2022; Nissenbaum 1996). Doing the same in the context of technology deployment is an even more wicked problem, given the heterogeneity, volume, distributedness and interdependence of many sites of technology deployment. Rather than attempt to articulate generic principles that can be applied across any variety of contexts, the authors reject this “view from nowhere” and instead focus on the particular experiences and situations of a limited set of actors. The groups on which the

authors focus here have historically been singled out for their high impact on individuals’ and communities’ lives and are currently awash in digital transformation schemes. They include the medical, legal, policy and teaching professionals already referenced; the authors refer to these groups below as duty-bound professions. The authors strategically focus on these professionals as communities with the leverage and incentive to participate in governing how digital technologies are used in their high-impact areas of practice.

These duty-bound professions bear several common characteristics in that their practitioners are granted certain privileges by the state:

- These privileges are “paid for” by the assumption of particular responsibilities.
- These responsibilities are granularly specified by formalized groups of said practitioners.
- These formalized groups, typically known as professional associations, also specify how individuals must be trained in order to meet their responsibilities, and (some of) the consequences of failing to do so in the course of professional practice.

In other words, duty-bound professions are governed by professional associations with the intent of ensuring that professionals are capable of meeting their responsibilities, and that they in fact do so.

The remainder of this paper is organized as follows: first, the authors give a historically situated overview of the origins of professional governance institutions in terms of the varied needs they were designed to serve and how these needs have, over time, driven the development of particular governance capacities and mechanisms. They then describe some of these capacities and mechanisms in the context of the ongoing digital transformation of professions, observing where these extant means of governance have failed to adapt their professions and where opportunities for doing so might reside. The paper concludes with recommendations for supporting the participation of professionals in their own fields’ adaptation to the emergent realities of digitally transformed practice.

Professions as Civic Arenas

Some professions, such as doctors, nurses, lawyers, public planners and accountants, are highly regulated. Generally speaking, these professions are regulated because they serve important roles for the healthy functioning of individuals and society, and their relationships with the people they serve — their patients, clients and others — tend to involve a fundamental asymmetry. The people served by these kinds of professionals are in a state of vulnerability because of some combination of urgency (“I’m going into labour!”) and unequal knowledge (i.e., about the law, anatomy and so forth). The ways in which these professions are regulated are all designed to establish and secure the core integrity of their relationship to the people they serve, often in an effort to protect people as they resolve their most important needs. For the most part, the people joining these professions do so with the intention of serving a public good, whether that good is the promotion of health, the protection of rights or the public accessibility of shared space.

Professional regulation, as a set of standards, accreditation, training, dispute resolution and so forth, is participatory — and the participants are the professionals being governed. That is to say that while some of the rules for professionals come from governments (via legislation and/or regulatory agencies), many, if not most, of the restrictions and requirements around professional conduct are arrived at through negotiations among the professionals concerned. The same goes for standards of reasonable and responsible practice. Professionals’ consensus is given strength by government recognition of their expertise and given currency through government granting of special privileges (i.e., a monopoly on the offering of certain forms of goods and services, such as prescription medication or surgery). This is how professional governance works in theory — and, occasionally, historically. But professional governance institutions have been subject to the same enervating political economic forces as any given governance institution.

Many, perhaps all, of our collective institutions have revealed their systemic biases, brittleness and openness to capture by well-resourced interests.

The result has been a massive loss of trust in these institutions, up to and including national and transnational governance bodies. The authors’ argument here is not for naive trust in the inherent goodness of collective institutions. Governance is the collective action and adaptation infrastructure of aligned groups — and its integrity survives on good-faith participation. The authors argue that these institutions, including those for professional governance, are too important and still too useful to be abandoned — and that the primary way in which governance is *ever* improved is through participation. In the next section, the authors will discuss the needs that gave rise to professional associations and how the relationship between the state and private governance (in the form of professional associations) has changed over time.

A Brief History of US and UK Professional Governance

The historical trajectory of professional associations has been driven by a set of collective action needs (or functional requirements) that emerged through the development of practices and the codification of professions in areas with high social impact. The emergent needs include the need for the state to leverage specialist knowledge, the need for professionals to converge on and codify best practices, the need for training of new professionals, and the desire of professionals to secure and enlarge their privileges and social prestige.

Contemporary professional governance in North America traces its lineage primarily to British professional associations. Legal and medical practitioners in the United Kingdom have channelled their professional governance through associations since at least the thirteenth century. Professional associations grew out of several kinds of emergent needs: the state’s need for expertise in regulating high-risk/high-complexity areas (such as medicine); professionals’ desire to learn from each other and to advance the collective standards of practice; the ambition of workers in burgeoning professions to be perceived as respectable and

expert (in other words, as *professionals*); and, having succeeded in minting themselves as professionals, the need for such professionals to demarcate and police who is and is not permitted to identify as such. Through addressing these needs and desires, professional associations developed a set of mechanisms and practices for governing professional conduct and adapting the practice of the profession to internal and external changes.

When professions first emerged in the medieval era, they were heavily regulated by the state through an assortment of standards, restrictions and conditional privileges. In some contexts, rather than public employees or political figures administering these policies, state power was directly delegated. For instance, as early as the mid-1500s in England, “the Royal College of Physicians was incorporated...The members were given certain privileges and in addition were to have ‘the oversight and scrutiny, correction and government of all and singular physicians’... Under an Act of 1540 the four Censors of the College were given power to enter apothecaries’ houses, to examine drugs, and to destroy them if defective....[It] was characteristic of the times that powers and duties of so extensive a nature were granted to vocational associations that they may be regarded as organs of State” (Carr-Saunders and Wilson 1933, 298–99). This increasingly extensive regulation by proxy, however, led to a complex thicket of laws that became “clumsy and often ineffective...the machinery which had been created became an encumbrance, and in the eighteenth and early nineteenth centuries it was swept away or allowed to fall into [disuse]” (ibid., 305).

At the same time (roughly during the eighteenth century), a separate but parallel growth in proto-professional associations was unfolding among what we would now call communities of practice (cf. Lave and Wenger 1991; Wenger 1998). Rather than serving the regulatory needs of the state, these societies aimed to bring together skilled practitioners with the goal of raising the standard of collective practice through sharing knowledge and promoting research on new working methods and instruments. The members of these “beneficial societies” “called themselves civil engineers, architects, and so on. To them these titles indicated men who had attained to a certain degree of competence in their own sphere. But the public accorded these titles to any one who laid claim to them, whether

competent or not, and in consequence the skilled practitioners came to desire that the competent should somehow be distinguished and protected. It was hoped to achieve this end by limiting admission to the clubs to those who could show evidence of competence” (Carr-Saunders and Wilson 1933, 301–2). To build prestige around their newfound professional identities, then, it was necessary for these societies to “raise the standards of competence and to improve the methods of testing them” and “to distinguish between honorable and dishonorable practitioners [through]...the formulation of ethical codes” (ibid.).

A new form of interdependence between government and professional associations leveraged the testing and certification capacities that the latter had built up: “It became apparent that there must be some guarantee that practitioners of certain professions possess a minimum competence. Therefore Parliament...enacted that there should be a list of practitioners, that only persons of proved competence should get on to the list and that to persons on the list all or some of the professional functions should be reserved” (ibid.). The privilege of compiling and maintaining these lists went to the professional associations. We see this mechanism in action today with, for example, state bar associations, “registered” professions such as urban planning and medical certification boards; who is allowed to claim the privileges of a professional as granted by the state depends on who the professional association grants the official honour of identifying as such.

It was at roughly this stage of development in the United Kingdom that American professional associations began to proliferate, including the American Medical Association (founded in 1847), the American Society of Civil Engineers (1852), the National Education Association (1857) and the American Bar Association (1878). Along with the development of standard-setting, training and certification capabilities, professional associations increasingly found themselves involved in public affairs: “Their solicitude for education implies that certain aspects of the educational organization of the country are to them a matter of concern.... Because they are repositories of special knowledge and experience, on the one hand they are approached by public and private bodies for help and advice, and on the other hand they are moved to present their views on matters of public policy touching their own special sphere” (ibid., 303).

To meet the needs of the sponsoring/cooperating state and of professionals themselves, professional associations across varied fields have developed roughly equivalent mechanisms for self-protection (securing labour protections and guarding their monopoly on state-granted privileges), public advisement (in their capacity as repositories of specialist knowledge), study (toward the advancement of collective knowledge and practice), and certification (standard setting for competence and ethics through professional education).

The character of a particular field is an outcome of how relationships within it are structured, both in general and in particular. For example, the character of the field of medicine is a result of relational factors such as the unique authority of doctors to prescribe medications, doctor-patient confidentiality and the location of interactions on the doctors' (rather than patients') turf (see, for example, Foucault 1994). These relational aspects of medicine are shaped at the intersection of law, culture, economics and technology, and are often codified and standardized within the bounds of professional governance institutions. Of course, professional governance associations cannot control the whole ecosystem within which their professions act; in medicine, for instance, particularly as practised within the United States, insurance companies have become an increasingly central actor, in a sense an extra person in the room with doctors and their patients.

Ultimately, what these professional governance institutions focus on is what any governance regime focuses on: managing the terms of relationships so that interactions between entities (for example, lawyers and clients, judges and bailiffs, technology vendors and information technology departments) move a system toward its professed goals, whether that is, for example, health, justice or wealth accumulation. Toward these ends, professional associations also govern through dispute resolution and related rule setting, particularly around the integrity of relationships. The subject matter of these conflicts might include what constitutes acceptable levels of risk in professional practice, how conflicts of interest are to be managed, and how information may or may not be confidential in particular contexts. Professional governance institutions are the infrastructure by which fields come to understand, adapt to and influence environmental changes with relevance to their context of practice, whether those changes are, for

instance, in the policy or regulatory environment, cultural movements or technological changes.

Professional governance, then, is in theory the locus of responsibility for maintaining the integrity of relationships within a profession amid changes in the field's operating context, in pursuit of the animating purpose and principles of the field. This requires navigating a tension between adaptation and conservation. Influence from incumbent interests may tilt the field toward excessive conservatism in the form of rent seeking, while external actors seeking to extract value from involvement in the field might incline professional governance institutions toward allowing changes misaligned with the field's core duties, often countenanced by strategic silence or pulled punches for infractions of existing standards. Professionals, regardless of their field, are not typically prepared by their educational programs to engage actively in the governance of their field. The absence of this training, together with the internal and external dynamics just mentioned, contribute to the persistent challenges faced by professional governance institutions.

If we think of fields of practice as evolving networks, then not only does each professional rely on the network, but the network also relies on them, for sensory and adaptive capacity. What happens when these networks face the pressures of profound change to a field's operating environment?

Digital Transformation, Deferred Maintenance and Crisis

For better or for worse, the ways in which a number of fields are changing the most rapidly is through the adoption and use of digital technology. The digital transformation of high-impact professions has been going on for more than 50 years now (Westin 1971; Westin and Baker 1973; Kling 1996; Star and Ruhleder 1996). While nearly every field has a dedicated community of professionals, institutions and third-party vendors focusing on how to solve field-critical problems using technologies, widespread professional adoption and use of technologies in professional practice

is more commonly driven by actors and factors external to the professional in question rather than the product of a deliberate governance process tuned to the integrity of a profession's duties. Said in a slightly more direct way, the institutions that are designed to establish and govern the world's most important professions are not driving or controlling the key ways in which their fields are evolving. Digital transformation has supplanted, if not replaced, the daily practice of a range of important functions; it has also replaced the vision for the improvement, maintenance and growth of regulated, duty-bearing fields, which is, fundamentally, a failure of governance.

The sequence of onset, response and “recovery” processes surrounding the COVID-19 pandemic were, and remain, world-altering events — not least for the massive changes wrought by related mass digital transformations of how fundamental public services and industries function. The COVID-19 crisis revealed, among other things, a cumulative neglect of professional governance institutions and their related incapacity to evolve and adapt. We do not train professionals to participate in the evolution of their profession and, as a result, we are watching them be captured, commodified and in the process of losing their core integrities.

Confronted with the needs of rapid digital transformation during the COVID-19 pandemic, many professions realized they do not have much clarity or infrastructure guiding, let alone governing, the digital transformation of their field of practice. From its onset in early 2020, the COVID-19 response made it impossible for a number of services and industries to continue to operate as usual. For instance, critical services such as courts and hospitals adopted video conferencing in place of in-person visits. While this might seem like a small (and necessary) change, the ways in which professionals, whether doctors or lawyers, communicate and interact with the people they serve, is both regulated and protected in order to ensure they are fair. The ways that major services adopted communications technologies not only impacted how important fields communicate, but also who can access them at all, and shape the quality of service delivery along the lines of degrees of access (cf. Bannon and Adelstein 2020; Eubanks 2018; Pors and Schou 2021; Schou and Pors 2019).

In Want of Adaptive Capacity

Technological advancement is, and always has been, a part of every regulated field — the way that industries cope with advancement is, historically, a major catalyst for governance (Carr-Saunders and Wilson 1933). That is not to suggest the process is smooth: professional governance and regulation emerge in reaction to avoidable failures more often than methodical success. What is perhaps different, if anything, about the rapid digital transformation of duty-bound professions is that there have now been many catastrophic failures, with very little commensurate response from professional governance bodies (for example, Cox 2021; Feathers et al. 2022; Feathers, Palmer and Fondrie-Teitler 2022; Fondrie-Teitler, Waller and Lecher 2022; Wells 2023). In other words, what is most unique about the risks and harms of digital transformation is not strictly about any new technology but the increasingly glaring absence of a useful response from most professional governance bodies.

Professional governance is not just a matter of equity; it also determines effectiveness and long-term legitimacy — the kinds of things that professional governance bodies are designed to protect. The response to the COVID-19 pandemic demonstrated how poorly structured these bodies were to adapt with any kind of uniformity, consistency or principled coherence. In other words, the response to the COVID-19 pandemic demonstrated the degree to which chaotic change, especially in the use of digital tools in response to emergencies, is easy, but governed, effective and systemic change is hard.

Locating Professional Governance in Practice

Most fields' governance bodies wield a considerable amount of power to set the standards for practitioners, but it is a much more mixed bag in terms of possessing the authority to investigate whether those standards are being met or taking action against those who fail to do so.

The paradox of professional governance, then, is that even though professional governance bodies are comprised of members of the profession, focused on setting rules of practice for other practitioners, they are extremely — if not wholly — dependent on systems run by people outside the profession for enforcement.

So even though most professional governance institutions can trace their founding to well-recognized needs, acknowledged by public and private interests alike, their ability to compel those same groups to act accordingly is, at best, limited and, at worst, intentionally manipulated to avoid meaningful accountability. That same consensus, while an initial strength, may also be a founding design flaw: most professional governance bodies were not designed to impose their will on resistant professionals and, as a result, rely on a combination of well-intentioned practitioners, third parties and legal systems to ensure standards get implemented in practice. In other words, professional governance bodies' authority is limited by the sources of leverage and influence they are able to exert over practitioners, in order to incentivize good practice.

As described above, the common needs that gave rise to public governance bodies also typically define what kinds of enforcement leverage are available to underlying institutions. For example, most regulated professions set a range of requirements for would-be members of their field, such as years of education in an approved program and/or the passage of a series of tests, that serve as a prerequisite for certification. As a result, those professional governance bodies' primary enforcement authority is their authority to bestow, suspend and revoke an individual's right to practise their chosen profession. That is not only a relatively blunt instrument of enforcement for something as nuanced as a professional field of practice, but it also heavily frontloads the governance bodies' influence toward the beginning of professionals' careers. The most recognized professional governance bodies, such as bar and medical associations, have the most influence over the members of their field during the certification process, where they are able to set standards through accreditation, practitioner coursework and practical requirements. Very few professional governance bodies develop the capacity to adjudicate accountability or resolve disputes that arise from practice, let alone

investigate whether their members are practising in line with their certification commitments.

While every industry has its own unique history, most professional governance institutions' authority is limited in relatively similar ways, both because they arise from similar needs and because they rely on many of the same external communities to realize and enforce their norms. Over time, each of these fields has imported the political economies and logistical complexities of each of those systems, too.

This is a (highly) illustrative description of those political economies, highlighting how the purpose of different kinds of professional governance institutions frames the leverage they are able to wield, and how that shapes practitioner incentives. As with any analysis conducted at this level of abstraction, the purpose is to highlight common dynamics and opportunities, as opposed to asserting the completeness or universal applicability of each one.

Education and Certification

Many of the most recognizable professional governance institutions are those that are responsible for educating, certifying and credentialing new professionals. These are typically organizations such as bar associations in law, medical associations and professional specialization bodies in medicine, and urban planning associations in public planning. Each of these organizations is responsible, in part, for overseeing the accreditation of professional schools; the baseline curriculum necessary to be a “general” practitioner; and, typically, a set of proficiency and ethical testing requirements. These same organizations also typically set ongoing education and certification requirements, meaning that they also maintain at least an administrative relationship with professionals throughout the course of their careers. In some ways, these professional governance bodies have the most powerful and direct leverage over practitioners, in that they directly control whether an individual is able to practise.

And yet, that authority is bounded by a relatively limited purview and an even more limited number of ways to exert that authority. While these organizations are able to set standards for the education and preparation of professionals, they may or may not have much role in setting

the standards of practice for their field. In other words, professional governance bodies whose power emanates from professional certification tend to focus on the procedural accomplishment of a volume of coursework, instead of the realization of the underlying teachings. As a result, their influence is predominantly focused on administrative compliance instead of, necessarily, upholding the core integrities of their field.

Similarly, certification-focused professional governance institutions have the mandate to procedurally review the conduct of education institutions, programs and individual practitioners, but their power to do so is fairly binary and relatively severe. Revoking a professional school's accreditation, for example, likely results in relatively extreme consequences (such as shutting down the school) and so tends to be rare, even in cases of egregious abuse. The same is typically true for individual professionals: by the time a person is eligible to be a practitioner, they have invested a lot of time and money, and removing their licence to practise can render all of that worthless. While there is a large variety of reasons that credentialing professional governance bodies use their considerable leverage sparingly, it is clear that educational standards in duty-bearing professions are not an effective defence against the politics or economies that define their practical realities. In order to achieve the goals of governing the field amid the evolving realities of practice, professional certification bodies will need more capacity to link the standards they set to their mechanisms of enforcement, facilitating higher volume and more diverse participation in both.

Self-Governance through Ethics, Labour and Political Advocacy

Professionals, like any community, have a set of distinct interests that require collective representation, negotiation and implementation. That said, no profession is uniform and each community's interests, like each individual's professional interests, are context dependent. For example, when a government is considering regulating how lawyers practise, all practising lawyers may have the same reaction, but far more likely, that regulation will benefit some while requiring change from others. One of the most important and active types of professional governance is navigating and

negotiating internal cleavages in order to represent a unified front to external actors.

In the same way that professionals have a vested, if not gatekeeping, interest in internally setting their educational standards, they also need to collectively organize for their interests with all of the external communities that define the realities of their practice. The way that professions engage with, for example, national governments, plays a significant role in both how they are allowed to practice, as well as the shape of their governance bodies. For example, in the United States, medicine is privatized, meaning that doctors not only have to negotiate the shape of substantive regulation of their field, but they also have to organize to negotiate for adequate labour policies and protections to safeguard their interests when those interests are unaligned with their employers'. By contrast, in the United Kingdom, the National Health Service is both a government body and by far the largest employer of medical professionals in the country. As a result, American medical associations tend to specialize in either issue area, whereas the British Medical Association represents its members across both issue areas.

Despite the variety of issues that collective action governance organizations address, their power is more focused on negotiating with external actors, such as governments, than their influence over their members. While these organizations are often organized narrowly (by geography, issue and/or specialization within the field), their impact is typically applied across their specializations. For example, while bar associations are common general purpose legal governance bodies, there are other organizations, such as the Criminal Law Solicitors' Association and the American Intellectual Property Law Association, which focus on representing the interests of specific communities within the practice of law. While these organizations often play a valuable role in advancing the interests of their members, the gains they win apply across their respective fields of practice. So, when a specialist governance organization wins a change to policy, regulation or practice, those changes typically apply to everyone, regardless of whether they are members of the organization that won the change.

While the value of these organizations can seem obvious from the perspective of the field of practice, ensuring that external actors recognize the diversity and specialization of large industries

and engaging practitioners in collective action in practice, they can struggle to gain and maintain members. At a systemic level, these organizations individualize the costs of the failings of professional governance institutions, requiring precious time and money in service of ambiguous gains. And, even where a professional governance and advocacy organization is clearly effective, it still has the effect of asking a subset of professionals to cover the costs of protecting everyone who shares their interests. Regardless of industry, many — if not most — of the membership-based professional governance institutions that were created for advocacy have had to develop additional services in order to gain, retain and engage members.

Practitioner Support Services

One of the primary roles of private professional governance is to contribute to forming the identity of a field. That can take many forms, but one of the most common is for professional governance associations to offer services that help professionals identify as part of the larger community of practice. In practice, that often involves a blend of educational, commercial and social services, such as hosting annual conferences, facilitating business development through partnerships and specialist information, and curating social experiences to help professionals connect. In many cases, these services are the most visible and tangible expression of what a governance organization does, often eclipsing any other role or particular function, including its ability to govern.

Service-based professional organizations do not always see themselves as governance bodies and may or may not have any capacity to regulate or manage members. As a result, their primary tools to influence the behaviour of members and practice of their field are social and reputational, meaning that the most they can do is shame and/or exclude members from events they organize. While there are certainly cases where those pressures are powerful, they have not proven to give service-based professional organizations much direct leverage to shape the definition, governance or enforcement of agreed norms. Instead, these organizations tend to facilitate relationships, both between members and aligned interests, and then leverage the value of those relationships to compel collective action.

Professional Governance as Relationship Infrastructure: Standards, Rights and Oversight

Most regulated professions involve at least one, if not many, power asymmetries by design (for example, between doctors and patients, financial advisers and clients, and so forth). These asymmetries can easily turn exploitative. As a result, most of the substance of professional governance ethics and rules focuses on defining relationship power dynamics instead of dictating specific types of practice. For example, most of the rules that bar associations promulgate focus on defining appropriate ways to solicit and treat clients, how lawyers relate to clients and manage their resources, and how to manage conflicts of interest so that the lawyers' interests do not get prioritized over their clients'. Very few of these rules affirmatively impose a specific practice, instead focusing on the dynamics of the underlying relationship and specifically prohibiting behaviours that are obviously exploitative. Here are a few illustrative examples of the kinds of rules that are typical for professional governance rules.

Conflicts of Interest

One of the greatest risks to the integrity of any regulated profession is that practitioners may exploit their power asymmetries in ways that compromise how directly they are able to serve their clients' interests. At a minimum, that means that professionals are ethically, if not legally, prevented from considering their own interests and benefits in ways that might shape their service, such as a doctor who stands to gain from prescribing one medicine over another. Conflict of interest rules go further, though, in many professions, also making sure that professionals cannot serve or represent two people or organizations who have conflicting interests (for example, lawyers must check whether they [or their firm] represent anyone with directly opposing interests before taking on a client). Professional governance bodies not only help set relationship standards that require a clear articulation of interests, but they also typically interpret how those standards manifest in day-to-day practice.

Risk, Investment and Gambling

Regulated professions not only need to adhere to technical standards of performance, but they often also have to determine, typically in contexts where the outcomes are unknowable, what constitutes a reasonable risk to take on a client's behalf. In some cases, these decisions can be extremely complicated. For example, a doctor treating a patient who is not responsive to conventional therapies may recommend participating in a trial for an emerging treatment, even if it has not been proven to work. That, typically, is an acceptable risk because it is considered to be in the client's interests and directs the patient into the care of others within the profession. By contrast, for example, lawyers often need to hold client assets for some period of time (for example, as a retainer for services), and there are clear and strict rules about what lawyers are allowed to do with that money. They are not, for example, allowed to gamble that money, which constitutes a clear and obviously inappropriate amount of risk, but, in some cases, lawyers may be able to invest that money, even though the eventual outcome is also uncertain. Here, too, professional governance bodies typically focus on the reasonability and appropriateness of the risk, as opposed to definitively promoting or prohibiting specific actions, unless they are overtly exploitative.

Confidentiality and Third Parties

A significant number of regulated professions also require the exchange of confidential, sensitive and otherwise valuable information, in order to accomplish their intended goals. This practice is so common across professions that even governments, which typically want access to as much information as possible, recognize the public interest in enabling professionals to hold and protect sensitive information — even from them. This is broadly called “privilege,” a legal recognition that professionals not only have a responsibility to get and use sensitive information to perform their work, but they also have a responsibility to manage that information in ways that do not subject their clients to additional risk or harms. In some cases, that means protecting information from police, commercial competitors or others, who would otherwise seek to capitalize on private revelations, such as insurers. Those responsibilities were relatively straightforward in analog eras, typically requiring professionals to

keep their documents in locked, or otherwise safe, facilities. Amid digital transformation, however, that seemingly simple responsibility has increased exponentially: now, nearly every element of the client and service provider relationship involves the exchange of data, passing through a range of corporate and digital systems, all of which can become a point of exploitation. While regulated professions have always had a responsibility to protect their clients' confidentiality, the degree of expertise and effort involved has changed dramatically. That change in context is an example of what provokes the need and opportunity for professional governance, as well as demonstrating how, without intervention, the status quo practice creates opportunities for novel exploitation.

Professional Governance Is Relational, Flawed and Increasingly Digital

As described above, professional governance tends to focus on the “how” and “why” a professional enters into a relationship, as opposed to dictating the “what” of the services that professional will provide. This is not to suggest that professional governance bodies do not offer specific or concrete rules — they do, but they just tend to focus on the things that can be used, by professionals or others, to inappropriately leverage relationships. For example, most professions have relatively specific rules about how practitioners handle client money, whether/when sexual relationships are appropriate and how professionals communicate. While there is almost infinite potential for nuance in each of those core areas, the digital transformation of professional communication has done the most to change the relationship dynamics underpinning professional service delivery in recent history and has resulted in a whole host of issues that require governance.

Professional Governance as a Strategic Intervention

In order to understand the strategic and political value of professional governance, it is worth providing a brief overview of how professionals are held accountable for their work. At a basic level, professions are both regulated by government actors and can be sued in court by the people they may have harmed. While both governmental regulators and direct liability are important mechanisms for professional accountability, and thus integrity, they are very differently accessible and responsive to individuals. Regulators tend to focus on setting standards and precedent that shape the design of a professional practice or service, whereas the ability to bring a professional to court (often called a “direct right of action”) is intended to address specific behaviours and create redress for those harmed. While there are many other differences, here the authors are going to focus on direct liability and how individuals can seek justice from professionals, because it is also where professional governance bodies can have the most impact, whether toward improving contextual accountability or preventing it.

The Role of Professional Standards and Rights in Enforcement

Nearly every legal process that holds professionals accountable uses a standard of liability that tries to determine the “reasonableness” of a professional’s decision, in context. So, for example, when doctors respond to a health emergency, even in a strictly voluntary capacity, they are expected to do so at a professional standard, and so can counterintuitively face increased liability for harms they cause. Similarly, when lawyers are confronted by the police, there is an expectation that they understand their rights and the law more readily than the average person, and so are less able to defend harmful decisions with claims of ignorance. In both cases, a professional’s responsibility is not determined as an absolute but based on what a “reasonable professional” would do in the circumstance.

Courts, of course, are not experts in every field, nor every circumstance, so they often look to the relevant professional governance bodies, standards and guidance in order to interpret what constitutes “reasonable” practice. The power to define

reasonable practice of a profession in ways that are then implemented by state law enforcement is a significant, and largely underused, power of private professional governance. It is also a largely indirect power, in that courts neither uniformly rely on professional governance bodies, nor are they required to in order to credibly define “reasonable” practice. Courts, however, are at present the only way that those harmed by professionals can advocate for themselves or seek justice, and so they are a critical component of professional governance, public-facing legitimacy and justice, more broadly.

Courts are also not the only actors determining professional accountability — there is a range of actors beyond courts and regulators that set and shape professional standards. One of the most important actors in any professional, commercial ecosystem is the insurance industry and, more specifically, the malpractice insurance industry. Practitioners are typically required to hold malpractice insurance, whether as a condition of their certification or by government standards, which also gives insurers a de facto state-sponsored role in defining “reasonable” practice.

Malpractice insurers calculate their rates based on risk exposure, meaning that they essentially commodify the risk profile of different types of practice, in order to determine how much to charge practitioners for their policies. One major factor in that calculation is whether a practitioner is likely to get taken to court for the way they work — a cost that malpractice insurers typically cover. Assessing that risk, however, in areas of emergent practice, for example, in the ways that technology shapes practice, is difficult — and especially difficult in the absence of governance standards, clarity around who has a direct right of action or collective consensus about what constitutes appropriate action. This is especially true for digital transformation, where both rights and standards are largely extant — and the threats are existential.

Digital Transformation in Professional Governance

Although a significant amount of the focus of any professional governance centres on accountability, the vast majority of the activities that define digital and professional governance are not. The surface area of professional practice in need of governance includes the ways that professionals and practitioners structure their relationships, such as procurement and due diligence standards, contractual agreements, and software and data design decisions. In each of these examples, professionals make important decisions about how their relationships will work, whether with their clients, their service providers and/or the other actors they rely on. While contracting standards may not carry the same excitement or sense of victory when achieved as a victory in court, they typically do more to shape professional relationships.

The role of professional governance is to create standards of practice that establish and articulate the broader set of responsibilities and accountabilities that define the relationships that underpin practice. Those standards are typically addressed through common business practices and, as a result, can be hard to identify, let alone intervene in.

The same is true, practically, of digital transformation. When a profession, or an individual practitioner, starts to use technology, whether knowingly or not, they functionally import all of the cultural, business and political economies that shape that technology. For example, when hospitals begin using electronic health records, they begin to depend on the company that builds that system, whether that company pays any direct attention to their needs, the people they serve or the maintenance of the tools over time. Similarly, when judges start to admit evidence that comes from technology, such as using a cellphone's location data to determine its owner's location, they also import novel means of analysis, and often in ways that are, at best, imperfect and, at worst, wrong. And when urban planners create services or tools that require users to log in with their phone, or the internet, they lock out the significant percentage of people who are unfamiliar with, or do not have access to, the internet. Within each of

these acts of digital transformation, the technology is a proxy for the relationships that it is designed to support, and in each of these examples, the use of a technology changes those relationships in seemingly innocuous yet fundamental ways. Here are three illustrative examples of where and how professional and digital governance intersect to shape, if not change, the underlying relationships.

Due Diligence (Standards/Duty-Based)

Within reason, duty-bearing professionals are responsible for the outcome of their work, even more so than the procedures they use to achieve that outcome. For example, regardless of whether a doctor uses a scalpel or a laser, if the operation goes badly, the doctor can be held accountable. If, however, the scalpel or the laser malfunctions, then the company that produced that tool may also be held accountable. Ultimately, the questions that define the underlying accountability come down to how the decision to use the tool was made; in other words, the relationship between the doctor, the tool producer and, in some cases, the person who made the decision to use the tool. That decision may have been made directly by the doctor, but it may also have been made by someone else, such as an administrator in charge of the hospital in which the doctor works.

The role of professional governance is not to decide whether a doctor should use a scalpel or laser, but to set standards about who should make that decision; what degree of rigour and/or technical analysis should be required; and how the accountabilities surrounding its misuse, malfunction and abuse should be handled. Those decisions are typically made not in courtrooms, but through the process by which the decision to procure the tool was made. The way that most professions set standards for this process and others like it is called due diligence. Due diligence is a set of standards that define the appropriate rigour that duty-bearing professionals must use in making high-impact decisions.

Due diligence is especially tricky in areas of emergent practice because it may be difficult to understand, let alone analyze, what exactly is happening or how the use of a tool may ultimately shape the accessibility, legitimacy or quality of professional service. This is also why due diligence standards for digital tools are so critical for duty-bearing fields, both because professionals are

already making these decisions at an alarming rate, with little to no professional guidance, and because, regardless of the rate of change within a profession, the underlying responsibilities and accountabilities should always be clear to the people who are most harmed by their mistakes.

Contractual (Direct/ Agreement-Based)

Most duty-bearing professions are also defined by contracts — essentially, the agreements between the people and institutions involved in the delivery of the underlying services. Contracts are the legal articulation of an agreement between the parties, and they are typically built on a bit of a lie. The underlying idea of contracts is that the parties involved in a relationship are able to freely and fairly negotiate the terms of those relationships on an individual basis — an idea that is both impractical in most cases and no longer the reality (see, for example, Lemley 2006; 2023).

Most relationships in duty-bearing fields have become defined by what are called “boilerplate contracts,” which means that they are prefabricated contracts, typically drafted by the more powerful party, that dictate the terms of the relationship. For example, when you hire a lawyer, you typically sign a retainer agreement (a contract that the lawyer has written and may or may not be willing to change based on a client’s needs). Boilerplate contracts were designed for high-volume, low-stakes relationships, such as when you buy a movie theatre ticket or leave your car with a mechanic. They were not designed for high-impact relationships, such as those you have with your doctor or lawyer, and, as a result, using boilerplate contracts in those contexts can significantly exacerbate the power asymmetry between a professional and those they serve.

Similarly, boilerplate contracting has been the industry standard in technology, largely because it serves the technology industry’s asymmetrical power over those they serve and facilitates the rapid scaling and expansion so integral to the industry’s prevalent business model. That means that when a professional begins using a technology in high-impact ways, they are typically doing so under the authority of a boilerplate contract that they have signed. That, functionally, means that professionals are often the ones who agree to, and rely on, contracts that are inappropriate

for the importance of the work they do and the impact that it can have on the people they serve.

At the individual level, most duty-bearing professionals feel overwhelmed, incapable and, possibly, exploited by their inability to directly negotiate for relationships with technology providers. And that is both the need and the opportunity for professional governance bodies, which are able to act collectively by doing things such as set contractual standards for the field. Professional governance may not be a cure-all for the misuse of boilerplate contracting, but articulating and improving the contracting standards for practitioners both eliminates dangerous ambiguity and enables individuals to call on the collective power of their profession, both of which are hugely important to preserving the cohesion, consistency and integrity of the field.

Complicating Enforcement (Asymmetrical Authority)

Regardless of the best procedural and contracting safeguards, the ultimate question is: What happens when it all goes wrong? In other words, how do the people who experience a problem (whether a professional, a technology provider or a client) understand, fix and redress the harms that occur as a result? While the answer to that question has never been straightforward, the intermediation of technology has added significant complexity and ambiguity to the answer. It is worth noting that ambiguity in accountability in asymmetrical relationships almost always acts to empower the powerful and marginalize the harmed.

Take the digitization of a city as an example: when an urban planner designs a new development, they increasingly embed technology in the plan, whether in the form of new sensors, software or algorithms. In each case, the planner is collecting and using data in ways that speed, if not fully automate, decisions about how people interact with physical infrastructure. And, by doing so, the planner introduces ambiguity about how those decisions are made and who bears responsibility for them.

Say, for example, that a “smart streetlight” has been designed to measure the speeds of passing cars and, when a car is going too fast, change the next traffic light to “stop” in order to slow the speed of traffic. For an urban planner, that might seem like a benevolent decision: the typical consequence of speeding is a fine, which is worse for a driver. What

happens, however, if that change in light occurs based on an incorrect measurement or in ways that change traffic signals suddenly, causing another driver facing that light to get into an accident? If you are the harmed driver, it is nearly impossible to know what caused the light to change. Even assuming the driver was able to identify their accident as the product of an automated decision, the introduction of multiple layers of technology makes understanding accountability almost impossible. Typically, for example, the streetlight, the software it uses and the algorithms that software employs in decisions are made by different companies, all of whom have contracted in ways that hold each other harmless for the problems they cause. And it is entirely reasonable to argue that, as with the example above, the responsibility for the use — and failure — of all of those technology arguments does not fall exclusively on the technology provider, but on the urban planner who created the original design, possibly without even articulating their own requirements.

The purpose of this example is not to illustrate the culpability of any single party; it is to demonstrate that the digital transformation of duty-bearing fields often significantly complicates, if not altogether obfuscates, exactly how accountability is enforced, especially for those to whom accountability is owed. Even once identified, when a professional governance body has not set a usable standard of practice, it creates ambiguity about who bears responsibility for a decision; who has the power or responsibility to change it; and, ultimately, ensures that the negative impacts will fall on the professional forced to make a decision and the person they are supposed to serve.

That is the role of professional governance in digital transformation: to be able to articulate and set collective standards for the relationships, responsibilities and accountabilities involved in the use of technology. Unfortunately, across a wide range of professions, that problem is made even more complicated by the fact that professional governance bodies have done very little to meaningfully articulate, enforce or even teach incoming professionals what those relationships should look like, let alone how they can participate in changing or improving them over time.

The State of Professional Digital Governance Standards

While practice varies slightly, most professional governance in duty-bearing fields has only addressed digital transformation reactively and ambiguously. Rather than set standards, most professional governance bodies have either imported ill-fitting, technology-defined standards such as “privacy” and “security” to more professionally contextualized concepts such as “privilege” and “duty,” or used their influence to place all responsibility for understanding, mitigating and remediating technology’s potential for harms on individual practitioners. In many ways, this approach makes sense: viewed case by case, technology is a tooling choice that does not, or at least should not, meaningfully alter the already established ethical and practical commitments professionals make. And, importantly, the use of technology is not a defence — or a good excuse — when things go wrong.

Realistically, however, technology decisions are not made on a case-by-case basis; they are, just as commonly, made at the level of the hospital, the law firm or the city. In each of those cases, decisions to use technology are not only made at the collective level, but they may also be made by people who were not trained in the profession their decisions affect, meaning they are neither aware of the requirements or influenced by the professional governance body. In these cases, it most often falls to the professional who interacts with individual patients or clients to identify, explain and fix the problems that technology introduces into their field of practice. And without the power of collective, professional governance to establish those standards, individual professionals are placed in a position where they are set up to fail to correct the mistakes technology introduces at the rate they are being made. Said slightly differently, the rate at which most professions are digitally transforming has revealed, while exacerbating, large gaps in professional governance.

This is not a technology problem; it is a governance problem exacerbated by technology, and until duty-bearing professions invest in rebuilding their capacity for collective

participation (as opposed to individualizing their most important responsibilities), it is a problem that will continue to get worse. The problem is deeply rooted and addressing it will require interventions on multiple levels.

The Education/Practice/Standards Disconnect

At a very basic level, there are three defining gaps that start at the very beginning of a professional's experience, which enable cultures that result in professionals outsourcing the governance of their new profession.

- **“How is practice changing?”** Very few professionals are taught to critically engage with technology. That is, while an increasing number of professional schools teach students “how to use x technology,” decision making around the technology in question is rarely, if ever, framed with reference to professional duties and ethics. Most professionals do not leave their training with the ability to see “digital governance” or “the professional governance of digital transformation” as a type of problem, let alone one they can engage.
- **“How do we contribute to standards of practice?”** Most professional schools also do not teach practitioners how to engage in the governance bodies that define their area of practice. At a basic level, this limits how many people participate, and, importantly, it means that even professionals, when they encounter problems in need of governance solutions, struggle — if not fail — to set new standards that would solve the problem for others. This is a professional civics problem and one that is only tied to digital transformation by the rate at which it is changing practice.
- **“How would I even start?”** Without clear understanding or governance, professions are unable to take — let alone complete — the collective steps needed to engage with technology. That problem starts with education, where the tendency is to teach technologies as specializations or competitive advantages, as opposed to relationship categories or tooling decisions that require specific, limited and contextual standards.

Given the rate at which duty-bearing professions are digitizing, exercising discretion in the use of

digital tools is not a specialty; it is a foundational aspect of day-to-day practice at nearly every level. Almost every doctor, lawyer or urban planner in active practice will use digital tools so commonly, they may not realize there is an alternative or difference between them, and failing to teach them to understand the implications of that use is a critical “future of practice” issue. And without the engagement of formal institutions, such as training programs and governance bodies, there is little hope of realizing the value and opportunity of professionally governed technologies.

Recommendations for Bridging the Gap: Applied, Experiential Education in Professional Schools

Thus far, the authors have described the governance gap in terms of professional associations' incapacity/unwillingness to take on governance of the digital aspects of professionals' practice as part of their purview, and the lack of capacity building for professionals themselves to productively participate in the governance activities of these associations. In response to this gap, the authors turn to two models of professional training that offer both metaphorical inspiration and precedents for gap-bridging interventions: teaching hospitals and legal clinics.

Both teaching hospitals and legal clinics reflect the key insights of scholars of learning Étienne Wenger and Jean Lave, whose pioneering work in the 1990s established the term “community of practice” (Lave and Wenger 1991; Wenger 1998): namely, that effective learning always occurs in the context of practice, and that learners best acquire knowledge and skills in the presence of practitioners actively doing their work. Teaching hospitals acknowledge a key truth for health-care professionals: that there are already patients with acute needs, along with emerging professionals in need of training. The teaching hospital joins instructors with advanced students to observe

the practice of medicine and, under close supervision, to begin practising their profession.

Legal clinics acknowledge a different truth germane to the field of law practice: that most folks in need of legal services cannot afford them. Traditionally, legal clinics offer pro bono services to clients in need of legal representation. Like teaching hospitals, they give students the opportunity to practise their professional duties under the close supervision of instructors in a context where they are working with real clients with acute needs.

Drawing from these models, we can envision a training program, embedded in professional education, that draws students into supervised practice that both addresses urgent needs and targets their interventions toward contexts where the work otherwise would not get done for lack of resources. The authors' proposal has the following features: a program within established professional training structures that prepares students for performing their professional duties under supervision; gives them structured and supervised opportunities to do so, specifically, in cases that pertain to the use of digital tools and services by professionals in their own field; and ultimately guides them to represent this work to their professional governance body in terms of its reproducibility/broader applicability.

The goal is to provide emerging professionals with the knowledge and skills to effectively and contextually triangulate between their field's institutional governance, their field's continuous digital transformation, and the values and duties that form the core of their profession's identity.

The authors call this model the Digital Governance Design Clinic, and over the next two years, they will be piloting this program in the fields of law, medicine and urban planning with university partners. The authors' intent is to build infrastructure for emerging professionals to learn through doing to become active participants in their fields' governance of digitized practice, and in so doing, to begin to proactively address the multitude of normative hazards arising from the governance gap.

Conclusion

This move should not be construed as adding professional education to the equation of digital transformation governance, full stop. Rather, the authors' proposal is about identifying and working with forms of structural leverage. Publicly traded corporations and private equity funds operate under the influence of a particular form of structural leverage: the primacy of protecting and growing shareholder value. Shareholders are legally capable of enforcing this priority onto company officers, even if the influence on corporate behaviour is more often exerted through softer means. Care for shareholder value is a priority whose neglect carries tangible and meaningful consequences; in other words, there is structural leverage around this value.

Professional governance institutions supply some ready-made and some nascent forms of structural leverage of their own; for instance, through licensing requirements. In many cases, professional governance institutions already feature mechanisms that could be effectively used for accomplishing what the authors consider to be the gold standard for any form of governance: adaptive capacity, situated contextually. Participating in the development and maintenance of structural leverage through these institutions is precisely what the authors' proposal aims to do. They argue that training and supporting existing and nascent professionals in high-integrity contexts (for example, law, medicine, social work, public planning) for participation in their fields' governance in order to evolve professional standards for digital transformation is an actionable, plausible and scalable strategy for governing technologies.

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