

Proposal for a Signature Initiative at the University of Pittsburgh:
The Institute for Technology, Innovation, and Governance
December 3, 2019

Executive summary

The *Institute for Technology, Innovation, and Governance* at the University of Pittsburgh [*PittX*, to be pronounced “Pitt Tek”] offers an opportunity to comprehensively *re-imagine and re-build the research university* for decades to come, using the University of Pittsburgh School of Law [*Pitt Law*] as a catalyst. *PittX positions Pitt as a unique, top-line, first-of-its-kind environment for integrated, systematized creativity.*

That vision has three pillars:

One is *bringing people together*. *PittX* is a key hub in a multi-functional, multi-disciplinary network of university-based research and teaching about technology and innovation themes. The future of research, the future of education, and the future of work and social life are being built *right now* on connections and overlaps among historically distinct fields. To remain relevant, universities – which still rest on foundations built on those distinctions – must change in fundamental ways.

Two is *breaking down barriers*. *PittX* embodies the de-siloing of higher education, research, and scholarship. The re-built university must move away from housing “law” topics only in the law school, “management” topics only in the business school, “computing” topics only in the school of computing, “economics” only in the economics department, and so on.

Three is *practicing what it preaches: innovation*. *PittX* is a pilot, meaning that it will rely on principles and practices of innovative design: built, test, measure, refine, build again and, eventually, scale up. As an organization, *PittX* is agile, flexible, and adaptable.

PittX provides a *first-of-its kind* organizational environment at the *heart of the University of Pittsburgh* where researchers on innovation policy, law, and practice gather to blend diverse research interests, research strategies, and thinking styles. *PittX* is a magnet for researchers and students who want to build and draw on a talent pool to produce (i) exceptional new research on how innovative technologies are produced and governed; (ii) exceptional new teaching and

Naming

PittX offers a compelling, novel brand identity. The complete, formal name of the entity matters less so long as it communicates the concepts of innovation and technology. The unit might be a “center,” “institute,” “lab,” “works,” “forum,” or something else.

learning opportunities for students; and (iii) a pathbreaking vision of what the 21st century University of Pittsburgh can and should be.

Background and history: the problem statement

(i) Challenge 1: Sources and impacts of innovation

The key motivators and levers for action are *innovation and creativity*, broad concepts that animate progress across all sectors of society; *technology* in all forms, embodiments of innovation and creativity across multiple social sectors; and *governance*, a broad framework for systematizing understanding and advancing the impact of innovation within and across every field. Each of these domains, today, represents marketing hype, or market capitalism racing ahead of social goals and values, as much as actual transformational potential. The university must supply those domains with cross-disciplinary rigor, to go beyond the hype.

Doing that means much more than simply training students in STEM fields, and much more than simply preparing them somehow to thrive in a dynamic economy. The university's goal must be *understanding* the multiple sources and impacts of innovation, so that not only do graduates succeed, but communities benefit from the development and distribution of technology-based innovation, both in the short term and over the longer term. To achieve that goal and to place Pitt at the *forefront* of innovation-based education, *PittX* is a *research-driven* initiative, leading to student success.

PittX both practices and preaches innovation. *PittX* is a first-of-its-kind investment in higher education, combining (i) boundary-breaking and boundary-spanning research on designing and implementing effective systems for governing technology-based innovation, and (ii) global leadership. *PittX* uses Pitt's program in law, legal research and scholarship, and legal education to guide the future of the university with respect to the uses of knowledge and innovation. Law itself is only the hub, the central node creating bridges and pathways among innovators and innovation-themed organizations – a role that the legal field traditionally has excelled at – in a novel network of *innovation* research.

(ii) Challenge 2: The future of the university

Like virtually all major American research universities today, the University of Pittsburgh operates in a fragile equilibrium of revenue, expense, student selectivity, faculty productivity and impact, community engagement, and staff opportunity and satisfaction. That equilibrium is under enormous stress. All around Pitt, at local, regional, national, and international scales, the university has witnessed profound economic, cultural, and technological shifts during the last few decades. During that time, Pitt's essential institutional and intellectual architecture – schools and departments, fields and disciplines – has changed only incrementally. In that respect, Pitt is essentially representative of research universities across the US.

For Pitt and for any research university to flourish in the century ahead, a massive investment in new thinking and new practice is needed. If the continued purposes of the

university are producing and disseminating new knowledge to improve the human condition, how are those purposes best fulfilled and sustained, looking ahead? That question must be addressed both conceptually and pragmatically, thinking about how the organizations and institutions of the university can best enable the work that must be done.

The transformation of the university at a large scale requires material investment accompanied by broad and deep innovative thinking. Modern theories of innovation teach that this sort of transformational investment is best organized in ways and in spaces that allow experimentation and exploration. The constraints of timeworn institutional pathways and expectations must be set, carefully, aside.

Lockheed needed its Skunk Works for advanced systems development; the Bell System needed Bell Labs for its “idea factory”; many of the transformative inventions that now define Silicon Valley were incubated at Xerox PARC. All of these are or were institutions that brought people together across fields and disciplines, encouraging them to operate *outside of historical silos*, and to think and act boldly and imaginatively. *PittX is that vehicle, that university-based Skunk Works, for the transformation of higher education.*

(iii) Challenge 3: Law’s place in modern society

Law and legal institutions have been critical parts of universities since their earliest conception centuries ago, in Bologna and Paris. At the University of Pittsburgh, law has an equally long history. Instruction in law was introduced to the university in the early 1840s, and Pitt’s first law degrees were conferred in 1847. Pitt’s School of Law was founded in 1895 and was a charter member of the Association of American Law Schools.

The centrality of law to higher education and to Pitt makes it essential that Pitt Law lead a venture that aims to transform the university itself. That is precisely *because* law and legal institutions, as core university domains, are themselves ripe for re-imagination, renewal, and re-establishment. What are law and public policy *for*, today? What are they capable of? Technology-based change is outpacing the ability of existing public and private institutions even to conceive of how to measure their benefits and harms. What roles must law play in imagining the futures of technology?

Law has long been the mediator and the stabilizer, a needed bulwark against disruptive social change. But stability and mediation, while essential, are no longer enough. The classic view of lawyers, as both protectors of durable values but also as obstacles to innovation and social reform, must change. How law contributes to social welfare must be re-engineered. Law is no longer simply a “regulator” of complex technical and economic systems. Law is now part and parcel of designing and building those systems in the first place. *Law, like every profession today, must be grounded in innovation, creativity, and technology.*

For lawyers, policymakers, and designers and other technologists to participate effectively in both new regulation and new design, researchers of all stripes must combine to

understand ways in which fields and disciplines, once distinct, can be integrated. Engineers and computer scientists must work collaboratively with public health and social work professionals, with social scientists, and with management experts, among others. All of them must collaborate with law, lawyers, and legal scholars. Law and legal education, in short, are no longer simply about studying law and teaching lawyers. A law school is no longer a stand-alone academic unit. It must become a critical hub for supporting, enabling, and building multi-functional bridges in the university environment. *PittX* is that hub, anchored in Pitt's School of Law.

The solution: a pilot

PittX is a physical and virtual gathering place, where researchers from across the University of Pittsburgh and across relevant disciplines and domains beyond Pitt gather frequently and regularly to explore and build collaborative research programs and products directed to relationships among law and governance, technology, and innovation and creativity.

Research on innovation, creativity, technology, and governance must be systematic as well as integrated. The key to *PittX* is bringing the university's core strengths as a research institution together and bringing them to the fore, in ways that highlight innovation and technology as primary objects and subjects rather than as by-products of or add-ons to conventional disciplinary thinking. The phrase sounds like a paradox, but *PittX* is directed to "systematizing innovation."

Research on the modern world must take account of the vast diversity of human motivation and experience as well as technical logics, rule sets, and system design. Anything less is unhelpful or worse; students and policymakers alike need the full portrait. No program, unit, or school at the University of Pittsburgh focuses today on that breadth. We are not aware of any program, unit, or school at any other university that is based on that ambition. *PittX* does exactly that.

How?

Research problems

The research threads that *PittX* combines are these:

Researchers on innovation and creativity traditionally build from foundations in the humanities (philosophy, literature, history, music, art and art history), social science (psychology, sociology, anthropology, and economics), and institutions (management, including the firm and the market), but they often overlook or stereotype researchers on law and governance.

Researchers on technology design and development, including both product and process design and system modeling, build from foundations in natural and physical sciences, engineering, and computing, but they often overlook or stereotype lessons from both researchers on innovation and creativity and researchers on law and governance.

Researchers on law and governance build from foundations in public policy analysis, but they often stereotype or ignore researchers in history, philosophy, and certain social sciences, and researchers on technology design and development.

Some critical research worlds – such as public health, social work, and education – are often omitted altogether from all three perspectives, or find themselves pioneering their own paths in innovation, with few purposeful connections to other disciplines.

PittX's agenda of research problems and challenges will be framed partly in large-scale, continuing terms, such as "innovation and climate change," "innovation and public health," "innovation and equity," "innovation and markets," and/or "innovation and community." It will also be framed partly in smaller-scale, more ad hoc terms, grounded in the research interests of specific researchers and research groups. Research problems and challenges will emerge from partnerships between PittX and existing units at Pitt that address innovation, creativity, and technology topics. It is expected and planned that the smaller-scale research projects can and will be aggregated strategically in order to secure durable research sponsorship to fund PittX infrastructure.

The initial problems to be defined, the scope and scale of the research collaborations to be pursued, and the details of *PittX's* organizational design are all to be determined by researcher participants, to a significant degree, once an outline of the enterprise is implemented and funded. A tentative budget and project timeline is included at the end of this proposal.

Organizational setting

PittX operates initially in a workshop framework, operated by a senior staff member as coordinator and overseen by a faculty researcher.

The workshop component is simultaneously physical, virtual, and conceptual.

Physically, *PittX* consists of an actual shared space on or near Pitt's campus. Researchers and students use the space to convene regularly, both formally and informally, to develop and share ideas and to develop, share, and disseminate their work. This workshop setting is conducive to a variety of different teaching models in addition to a wide range of innovative research. In appearance and design, the *PittX* space should resemble a modern, open, "co-working" space more akin to the shared space that supports open collaboration and innovation in the for-profit world rather than the conventional classroom / conference room / faculty office environment that usually characterizes a university department or lab.

Virtually, *PittX* includes technology resources that will enable meaningful remote and virtual collaboration and participation by researchers both distributed across Pittsburgh and around the world.

Conceptually, a critical first goal of *PittX* and a primary object of the workshop setting is to develop a shared semantic syntax to enable researchers from different disciplinary backgrounds to communicate and collaborate effectively.

“Innovation” and “creativity” as problems and opportunities are not described or identified in common terms by law professors, management professors, engineering professors, computer science professors, public health professors, and arts and rhetoric professors. *PittX* may produce new research fields in themselves, but it must create and provide space to incubate new research vocabularies. Big, transformative, interdisciplinary problems can be tackled effectively only if different researchers can communicate effectively with one another. *This may be the most critical sense in which PittX brings people together, breaks down disciplinary silos, and produces research of immense novelty and importance. PittX leads globally by setting the terms of the research conversations going forward.*

Within the *PittX* workshop setting, and building on that infrastructural project, *PittX* consists of research clusters organized around themes and topics devised by *PittX* researchers. The clusters provide both structure, ways to align researchers from different backgrounds and shared interests, and fluidity, as research problems scale up and scale down, existing problems are addressed, and new problems emerge and attract different researchers.

Members of each research cluster will design their own research programs, collaborative methods, and systems for diverse strategies for publication and dissemination. Each of these programs will include robust and frequent collaboration with other members of other research clusters and with colleagues from outside of the University of Pittsburgh. Regular large-scale outward-facing events will be critical as “inflection points” to amplify and signify the critical and pathbreaking model that is being constructed at *PittX*. These should take place at different scales and in both virtual and face-to-face modes.

Specific problems might include:

Ethical and justifiable use of artificial intelligence in public health, social services, and criminal justice
Global privacy standards for biomedical applications
Understanding benefits and harms of global financial and cybersecurity platforms
Strengths of resource sharing strategies as alternatives to exclusive property rights systems in addressing global coordination problems
Blending energy sustainability strategies with strategies for combatting climate change
Developing norms and laws defining and governing armed conflict in the era of cyber-warfare
Reconciling modern empirics of cognition with classical theories of the mind

Participants

PittX focuses on the researcher rather than the research. Researchers vary in temperament, ambition, and talent. Across the University of Pittsburgh, there exists a cadre of individual researchers who are eager to reach beyond their home departments and research areas and who are eager to participate in broader, blended research programs. *PittX* begins as a place where these ambitious, innovative researchers can meet and build intellectual and

operational connections. These are people whose intrinsic motivation to transform the world leads them to want to join, rather than wait to be asked. These researchers are not only welcome, but essential. *PittX* is their call to action.

Research teams will be assembled and drawn from existing University of Pittsburgh research faculty and graduate and PhD students, and also from post-doctoral fellows funded wholly or partly through the *PittX* budget. *Disciplinary or domain-related expertise is less critical to identifying relevant researchers than an attitude that looks for opportunity and engagement with others. PittX will be populated by people with an innovation, growth-oriented mindset.* Full-time researchers affiliated with *PittX* will be encouraged to participate on dissertation committees in schools and departments outside of their formal academic homes, wherever possible. Both housing and funding PhD students and participating in PhD committees is part of a strategy of building *forward* from Pitt's existing foundations in innovation and technology. *Present PittX researchers must train their successors and equip them to succeed beyond Pitt.*

Money is budgeted both to support internal Pitt researchers as affiliates (to acquire their time, and to support their *PittX* research) and to bring guest researchers and visiting researchers to *PittX* for both short-term and long-term residencies.

Because a critical mass of committed researchers is needed to get *PittX* launched effectively, *PittX* begins with a full-time coordinator, a dedicated full-time faculty Director, and at least 1-2 post-doctoral fellows or junior researchers.

PittX will be seeded with formal affiliations with relevant other centers and institutes currently operating at the University of Pittsburgh, providing critical early bridges to *PittX* as a hub and also to each other. Partnerships and affiliations with centers and institutes at other universities, both in the US and around the world, will be pursued both by *PittX* itself and by individual research clusters.

PittX will sponsor a grants program within the University of Pittsburgh to provide seed funding to early stage research projects by potential *PittX* members.

Possible institutional linkages

Among the existing units that might link to *PittX* and partner on research ideas and problems are:

Center for Behavioral Health and Smart Technology (Medicine)
Organizational Innovation Lab (SSOE)
Product Innovation Center (SSOE)
Digital Studies & Methods (Dietrich)
Public Health Dynamics Lab (Public Health)
Digital Humanities Research Network (DHRX)
MOMACS (School of Computing and Information)

Students

PittX research clusters sponsor and lead student-facing opportunities, including courses and seminars, and also participatory, experienced-based, and project-based credit-bearing opportunities, for both undergraduate and graduate students across the University of Pittsburgh. To the greatest extent feasible, all student-themed opportunities will include students from multiple domains, disciplines, schools, and departments. There should be no strict line dividing the research programs of *PittX* from the curricular design and teaching aspects of *PittX*. Nor

should there be any strict line, in practice and function, dividing participants from *PittX* from participants from any other Pitt school, department, or program.

Including students makes *PittX* is a true hub for research and teaching regarding governance of technology-based innovation, providing a bridge for University of Pittsburgh citizens to find and collaborate with each other in an integrated, innovative intellectual community. *PittX* is a pool – a genuinely shared resource of ambitious, highest quality intellectual engagement and activity.

Student-facing programs will focus on solving on real world technology innovation problems. *PittX* will not partner with clients in one-to-one service relationships, as in a classic law school “clinic.” Workable problems will be identified by collaborating with stakeholders within the University of Pittsburgh (the Innovation Institute, for example) and/or by working with community and industry partners in Western Pennsylvania and beyond, borrowing from models used in the Swanson School of Engineering and the Learning Research and Development Center.

Putting that vision into practice requires developing new research-based curricula, new pedagogy, new assessment models, and new modes of engagement with the communities, industries, fields, and disciplines that are expected to employ Pitt graduates. Technology design and deployment are important parts of those curricula. Formal leadership training, business judgment, collaboration, problem solving, and project management skills also will be important parts. Training in classic professional analysis by lawyers and by other professionals will be blended rather than siloed to maximize the utility and impact of innovation-based thinking and action in the 21st century. *PittX will instill the same innovation mindset in Pitt students and graduates that it will convene in the form of PittX researchers.*

A pilot in what sense?

PittX functions as a pilot in two, related senses.

First, *PittX* is a pilot in *de-siloing* the research university, allowing an institution that operates at Pitt’s scale and breadth to build capacity for much-needed flexibility, dynamism, economies of scale, and contemporary multi-functional relevance.

Second, *PittX* is a pilot in its focus on organizational adaptability and evolution. *PittX* will launch at a comparatively small scale, ensuring that opportunities for internal innovation and experimentation are maximized and ensuring that careful assessment of benefits and costs can be conducted.

As with all pilots, successes should be carefully incubated, institutionalized, and expanded. Failures – incomplete or unsuccessful research strategies or collaborations – are parts and parcel of any pilot, and are opportunities for adaptation and evolution. *PittX* will be substantively and organizationally agile in ways that higher education research programs rarely are. The vision is that *PittX serves as a template for innovating in additional respects across more of the full University of Pittsburgh program*, so that cross-functional, bridge-building research and

teaching becomes the new normal across all of Pitt, rather than the exception. *The purpose of PittX is to incubate transformation of the University of Pittsburgh.*

Because *PittX* focuses on people as much as on problems, the initial concept animating *PittX*, summarized above, is under-specified. Much of the content of the workshop format, including the problems to be researched, the researchers to participate, and how success will be defined and evaluated, remain for later elaboration. The initial design is a rough cut, to be refined and improved on the basis of experience, including both success and failure.

Both initial and ultimate success of *PittX* requires recruiting and enabling innovative leadership to advance the vision in ambitious ways, and recruiting, supporting, and enabling a cadre of ambitious researchers and teachers to develop their own ways of leveraging their shared interests. *PittX* must focus early and strongly on its function as a magnet for researchers, must have the financial and cultural resources to create its own institutional identity (branding), must provide effective resources to participants and partners (money, space, technology support, administrative assistance), and must offer a credible and visible platform to participants who wish to use their affiliation to build research collaborations.

Over time, as *PittX* is institutionalized at larger scales, its initial, catalytic emphasis on innovative and transformative researchers will be blended with the University of Pittsburgh's organizational expectations: budget regularity, accountability, and standards of academic excellence.

Pragmatic benefits, no meaningful non-material costs

Linking disciplines and functions in the *PittX* environment offers operational efficiencies and budget opportunities, supplementing its impact in intellectual terms. *PittX* germinates small-scale, informal collaborations across fields but also provides a research environment custom-tailored to generate large-scale research collaborations of the sort that are specifically attractive to research sponsors. *PittX* provides a setting in which individual school-based appointments of faculty candidates with diverse interests, and joint appointments in multiple schools or departments, are made more attractive and feasible. *PittX* offers a flexible array of opportunities to recruit and retain additional researchers, particularly post-doctoral fellows.

Critically, at present the University of Pittsburgh has no cross-unit function, organization, or research project that systematically tries to synthesize related efforts and researchers across the university in technology, innovation, and law and public policy. *PittX* provides precisely that resource.

Why law?

The School of Law is an especially apt and essential catalyst for *PittX*. As subject matter, law and governance are neither less nor more important than any other research domain with respect to the futures of innovation and technology. As method and practice, law is almost uniquely heterodox in the context of modern university research. In their research approaches,

law professors and law schools share few if any core methodological commitments. They draw freely from social sciences, the humanities, and even some aspects of natural and physical sciences, engineering, and computing. The intellectual freedom and flexibility that defines modern legal scholarship offers a perfect foundation for *PittX*.

In some respects, law schools generally and Pitt Law specifically appear to be poor sources for *PittX*. That apparent weakness reveals a central strength. *The vision here is that enabling a new research vision across the university will simultaneously give critical new energy and purpose to the university's component units – beginning with law.* Critical points from the perspective of the legal world itself are:

- Technology-based innovation is transforming the legal profession. “The legal profession” is increasingly an inapt phrase to describe what is now better referred to as “the legal services industry.” Few observers predict with confidence what the “legal services” industry will look like in ten or twenty years, but virtually all agree that the shape of the profession as it existed in the second of the 20th century – large private law firms setting the pace with respect to professional norms, organizational practices, and hiring and training patterns – is being eroded today by leadership, impact, and competition from consulting firms, in-house corporate law departments, and start-up technology companies. The pace of change is uneven across those sectors, but one thing is certain: The current institutional character of legal education evolved in sync with a profession keyed to the expectations of large law firms. Law schools that continue to measure themselves by those firms run a significant risk of under- or non-performance. *In a new professional world, law schools need a new vision.*
- Law schools are likely permanently smaller educational units than they were 10-15 years ago. Enrollments in law schools have trended downward over the last decade. Fewer new lawyers are being hired today, globally as well as nationally, compared to a decade ago. Experts generally agree that US legal education is approaching a new equilibrium in terms of numbers of prospective students nationally, for reasons relating to technology innovation, globalization in professional practice, and demographics. Law schools that rely primarily on tuition revenue to fund operations are experiencing financial challenges and, in turn, must renew their operating models and/or their institutional identities in order to demonstrate their value to their parent institutions. *Law schools need to build their vision by linking explicitly to their parent institutions.*
- Law schools as such are far from innovative. The core of the institutional and intellectual framework that defines American law schools today, teaching students to “think like a lawyer” before being molded into practitioners in private law firms, is a recognizable descendant of the last great period of institutional innovation in legal education: the creation of the case method of instruction at Harvard, in the early

1870s. Law students have been trained in essentially the same way for more than 140 years. *Law schools' history of path-dependency makes them poor candidates for building a new vision on their own.*

As a first step in building a new vision based on law, *PittX* recasts the largest-scale challenges posed by innovation as *governance* rather than law alone, where *governance* means formal and informal *systems* of rules, practices, histories, cultures, and technologies that combine to guide and shape human behavior. *Governance* in this expanded sense is an essential multi-functional and multi-disciplinary part of innovation and innovation systems.

New professionals of all stripes, not only lawyers, must be trained in *governance*. Given the threats and opportunities that stem from technology design and development, they must be trained specifically in theories, policies, and practices of *technology-based innovation*. Social, cultural, economic, technological, legal, and political *systems* and *institutions* are intertwined to promote, guide, and regulate effective development and distribution of innovation.

Peer assessment

The national and international context

A handful of national universities have recently launched new efforts aimed either at synthetic approaches to innovation, or at transformation of the university. The University of Toronto recently received a significant new gift to catalyze a large-scale innovation-in-society program. Texas A&M University recently launched a "School of Innovation," the Dean of which is the former Dean of that university's law school. Georgetown University hosts the Red House, which aims "to accelerate educational innovation that allows higher education to more effectively and equitably benefit society." "Grand Challenges" programs at a number of universities (Columbia, University of Pennsylvania, Georgia Tech, UCLA among them) aim to synthesize research from multiple fields to attack 21st century-scale social problems.

These programs are representative of the state of the market today: Neither Texas A&M's school nor Toronto's program appears to be committed to re-forming higher education; Georgetown's program appears to prioritize the question of the university as such, rather than innovation and technology as comprehensive themes. Grand Challenges do not (yet) aim at comprehensive re-institutionalizing the research university. None purports to be a world-leading effort to synthesize research on innovation across the breadth of the institution in order to re-imagine its very character.

Other efforts to re-imagine higher education have focused explicitly on transforming the student experience, focusing on interdisciplinary training in science and technology. Notable is "Station 1," founded by MIT professor Christine Ortiz. This approach appears to detach STEM teaching from the university's classic commitment to research excellence.

The legal education context

Existing innovation-themed efforts at the intersection of legal education and higher education take one of three forms, each generally to the exclusion of the others.

One form highlights the roles of law and regulation in the innovation economy, focusing on innovation in technology, in arts and culture, in business, and/or in some social sector, and building on law's strengths as a "connector" discipline. Numerous law schools have advanced successful research centers on this model.

A second form highlights the legal profession itself as an object of analysis. Leading law school research centers on the changing roles of lawyers include well-established programs at Harvard, Stanford, and Georgetown.

A third cluster of programs has emerged around the theme of competence-based legal education, taking into account the novel demands of the new, technology-driven economy. New lawyers are being trained in leadership skills, design thinking, business aspects of changes to the legal profession, and technology development, at times in partnership with industry, with business faculties, and/or with engineering faculties.

No law school and no university has attempted to integrate these three distinct perspectives on technology-based innovation and law or to scale their efforts to the level of the university as a whole. With the possible exception of Swinburne, in Melbourne, no law school has successfully identified and advanced innovation as a central, sustained theme of its overall mission and vision, linked to the related vision of the university. No law school has highlighted governance as a key lens for organizing its research program, for training future generations of lawyers, and for aligning its contributions to the university with the needs and interests of the rest of the institution. No university has looked to law as a critical opportunity to rethink its institutional character and contribution to the global good. *PittX* constitutes Pitt's opportunity to do all of those things.

PittX and the Plan for Pitt

PittX substantially advances each of the pillars of the University of Pittsburgh's strategic plan, the Plan for Pitt. *By linking innovation, technology, and governance in a single enterprise, PittX changes not only the culture of legal education and the legal profession, to set standards and meet the needs of communities today and far into the future. It changes the culture of higher education itself. PittX sets Pitt apart in precisely the way that Pitt aspires to do via the Plan for Pitt.*

The Plan for Pitt prioritizes (1) educational excellence, (2) pioneering research, (3) community strength, and (4) the university's global reach, all while (5) securing an adequate resource base and (6) embodying both top value in economic terms and (7) critical values in terms of community ideals and justice, including diversity and inclusion as pathways to excellence.

(1) Educational excellence.

PittX develops and implements transformative yet rigorous research-based understandings of *technology* and *innovation* that will provide essential foundations for the continued flourishing of every related unit at the University of Pittsburgh; its faculty, students, and graduates; the communities that Pitt serves; and, if *PittX*'s efforts bear the abundant fruit that Pitt intends they should, communities and professions well beyond Pittsburgh. *PittX* reaches broadly and inclusively across not only the legal profession but also communities and disciplines outside of law and fields of practice across industry, government, and the not-for-profit sector.

(2) Pioneering research.

Governance of technologies, institutions, and organizations has emerged in recent years as a central domain of problem-identification, problem-solving, and research and teaching in a host of fields, including management, economics, political science, sociology, public health, and public policy. The pioneering innovation of *PittX* is prioritizing innovation and governance as a field of systematic study and practice for law in tandem with other professions and disciplines, and seeing that field as embodied in a hub that connects the partner domains to one another.

(3) Community strength.

The University of Pittsburgh is situated in the middle of a challenging and challenged collection of communities in Western Pennsylvania, which means that *PittX* has ample opportunities and resources to move quickly to build collaborations with many different community partners. For them, effective innovation and technology design and governance can mean the difference between community recovery and renewal or continuing struggle. Pitt and Pittsburgh are also homes to leading-edge efforts to build a regional economy on top of a new technology-enabled, services-based, globally-linked infrastructure. Industry participants in those efforts will provide a rich pool of partners and supporters for *PittX*, in all of its efforts.

(4) and (5) Economic sustainability.

Coordinating and linking critical research on technology-based innovation and governance, across law, public health, computer science, engineering, and more, will maximize Pitt's ability to secure sponsorship for large-scale research collaborations. The hub for connections and pool of resources that constitutes *PittX* will enable individual schools and

Data governance research at Pitt

Ad hoc research collaborations centered on data collection and analysis have highlighted strong cross-campus interest in the design and implications of governance, as part of systems design and analysis. Researchers in the School of Medicine, the Graduate School of Public Health, the Swanson School of Engineering, the School of Computing and Information, the Graduate School of Public and International Affairs, and the Dietrich School of Arts and Sciences have looked to Pitt Law for leadership in research on governance as a key part of their systems-oriented research. *PittX* offers an environment for building and sustaining those research collaborations on a systematic basis.

departments to share and therefore economize on administrative expenses and research expenditures associated with common interests. Opportunities to work in the *PittX* setting make joint appointments more feasible. A variety of research-based appointments opportunities may be available, creating flexibilities in recruitment that are not present in Pitt's current environment.

(7) The *values* proposition.

Over the course of the 20th century, law, legal education, and the legal profession built research and teaching around technocratic and bureaucratic practices and institutions: private law firms and government organizations. Other professional disciplines built around comparable institutions and organizations. Professional training in universities followed suit, creating the silos that now must be broken down. Across numerous professions, historical organizational forms are eroding, and new ones are forming. In law, the forms and styles of large private law firms continue to dominate the cultural conversation about the practice of law, and by extension often dominate cultural conversations about legal education. Yet the majority of new law school graduates, including the majority of Pitt Law graduates, build careers elsewhere.

Emerging relationships among law, technology, and society – and parallel relationships among professional and other scholarly domains – have been obscured within the university by the fact that the university environment still houses researchers and trains graduates in settings tethered to 20th century organizational design. Technology-based innovation today makes clear, critical examination of those relationships urgent.

US research universities absorbed massive amounts of sponsored research funding during the postwar period, allowing them to reach the pinnacle of the global research pyramid but also entangling them in related technocratic and bureaucratic challenges. As the scale and character of research sponsorship changes, contemporary scientific research makes clear, critical examination of relationships among innovation and governance is urgent as well.

For universities to matter in the 21st century, for research to matter in the 21st century, and for university graduates to succeed in the 21st century, new organizations and institutions need to take root. PittX offers a critical pathway forward to realizing what those new forms should be.

Impact

Implemented ambitiously and effectively, *PittX* develops scalable models of genuinely collaborative, novel modes of research, teaching, and professional practice directed to the impacts of technology and innovation on society. *PittX* demonstrates the viability and usefulness of a de-siloed model for professional research and education and the capacity for applying that model to other domains at the University of Pittsburgh and at other universities.

Identifying and measuring the impact of *PittX* will be critical in order to determine the character and pace of additional University of Pittsburgh investment. Possible relevant measures include:

- Faculty recruitment and retention
- Student recruitment and placement
- Number, size, and contributions of external partners recruited from higher education, philanthropy, government, and industry
- Traditional and novel measures of scholarly impact
- Sustainability of the operating budget in terms of internal (hard) money and external (soft) support
- Metrics associated with institutional identity and branding

To maximize its potential, *PittX* must be supported by an effective and forward-leaning marketing and communications program. The existence, operation, and lessons of *PittX* must be shared widely.

Leadership

PittX will be overseen by a Director, a full-time senior member of the University of Pittsburgh faculty. That faculty member will have primarily responsibility for developing and implementing strategic planning and partnerships for *PittX* and for building and guiding the rest of the team, including affiliated faculty and other researchers, teachers, and partners.

An experienced staff coordinator will be recruited to support the Director. This new appointee should have experience with institutional advancement and relationship development, anticipating the need to supplement and eventually replace Pitt support with third-party support.

Additional leadership and administrative support can be recruited if/when additional funding, such as third-party sponsorship, is secured.

Risk Assessment

There are risks associated with moving forward with a transformative innovation-themed proposal, and risks associated with not moving forward.

Risks of acting

It is possible that the barriers to effective multi-disciplinary and trans-disciplinary endeavor remain as substantial as they have been, historically. Much of *PittX*'s success depends on the initiative and adaptability of its leadership in finding and securing effective partners and participants, both inside the University of Pittsburgh and beyond it. The agility and flexibility associated with innovation in action may prove to be fragile and unsupported in practice, in light of the university's established organizational culture. Like all universities, the University of

Pittsburgh has a long track record of failed efforts to innovate organizationally, at large and small scales.

Risks of not acting

Failure to invest in a strategy for building capacity for multi-functional research and teaching means that the University of Pittsburgh runs a meaningful risk of falling behind its peer institutions in competitions for research sponsorship, excellent faculty, and ambitious students. Pitt's ability to achieve distinctiveness and greatness across its full breadth, in global competitions for talent and impact, will be compromised. The longer Pitt waits to act, the greater these opportunity costs become.

Resources and Financial Analysis

The proposal is for *PittX* to be funded initially by Pitt at the level of \$1mm per year. The proposed budget in brief (numbers include salaries or stipends and estimated benefits):

Compensation and benefits

1. \$AB,000 (no benefits) associated with the *PittX* Director, a full-time tenured faculty member. Of this amount, \$CD,000 would be a stipend as compensation for service; \$EF,000 would be the cost of recruiting additional adjunct faculty to teach courses removed from the Director's ordinary faculty teaching package. That amount could be adjusted in light of possible recruitment of new full-time faculty affiliated with *PittX*.
2. \$GHI,000 compensation (salary plus benefits) for the coordinator of *PittX*.
3. \$JKL,000 stipends (no benefits) needed to recruit and retain individual research affiliates of *PittX*.
4. \$MNO,000 compensation (honoraria, stipends, travel reimbursements and/or salary plus benefits, depending on appointment length and type, for visiting researchers [\$PQR,000 x 3 annualized full-time researchers, or \$STU,000 x 2 plus the balance divided among multiple short-term researchers].

Materials and administrative support

5. \$VWX,000 support for workshops, conferences, and convenings; marketing and communications.
6. \$XY,000 technology support for collaboration in practice.

Space

7. \$ZA,000 support for physical co-working space, either acquired or renovated within the University of Pittsburgh portfolio, or leased from a commercial partner.

Milestones

Phase 1 to be complete by the start of the Fall 20XX semester

- Appointment of the Director of *PittX*.
- Recruitment of a coordinator.
- Recruitment of an initial *PittX* research group.
- In partnership with Pitt leadership, documentation of initial program area activities and goals.
- Identification of physical space(s) for *PittX*.
- Launch of the *Workshop* on a pilot basis.
- Specification of at least 2 significant convenings to be hosted by *PittX* during 20XX-20XX.
- Execution of “soft launch” (internal) *PittX* operations.
- Execution of “soft launch” communications plan regarding *PittX*.

Phase 2 to be complete by the start of the Fall 20XX semester

- Recruitment of industry, campus, and community partners to *PittX* as per the initial plan.
- Execution of full communications plan regarding *PittX*.
- Secure at least 1 third-party sponsorship or grant to support *PittX*-based research.
- Execution of “public launch” of *PittX*.

Phase 3 to be complete by the start of the Fall 20XX semester

- Recruitment of additional full-time faculty research cluster leaders.
- Measurable uptake/impact of *PittX*-supported research.
- Secure at least 1 additional third-party sponsorship or grant, reducing continuing University of Pittsburgh hard-money support to no more than \$XYZ,000 / year.

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