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THE APPS FOR JUSTICE PROJECT: EMPLOYING DESIGN THINKING TO NARROW THE ACCESS TO JUSTICE GAP

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INTRODUCTION

Lawyers cost money. Typically, a lot of money. As of 2012, the average billing rate for attorneys nationwide was $295 per hour.[1] That number stands in contrast to the recent statistic that almost fourteen percent of United States citizens live at or below the poverty line.[2] While a small minority of the poor can engage an attorney to help them with their law-related problems and navigate the justice system, a significant segment of people facing income constraints do not have access to professional legal assistance for civil law matters.[3] Even for middle-income Americans, a legal problem requiring more than a few hours of a lawyer's time can quickly destroy a household budget, devour savings, and lead to over-indebtedness and financial distress.[4] The Legal Services Corporation, the independent nonprofit established by Congress to provide financial support to legal services organizations, has observed that nearly one million low-income people who seek help for civil legal problems are turned away because of the lack of adequate resources.[5] A 2007 study of U.S. legal aid programs revealed that, in aggregate, there was one attorney available for every 6415 low-income clients.[6] The United States is in

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1. Dan Gustafson et al., *Pro Se Litigation and the Costs of Access to Justice*, 39 WM. MITCHELL L. REV. 32, 32 (2012).

2. BERNADETTE D. PROCTOR ET AL., U.S. CENSUS BUREAU, INCOME AND POVERTY IN THE UNITED STATES: 2015 CURRENT POPULATION REPORTS 13 tbl.3 (2016), https://www.census.gov/library/publications/2016/demo/p60-256.html [https://perma.cc/8D7R-79SS] (revealing that 13.5% of individuals surveyed were below the poverty line in 2015). For more details on how poverty is calculated in the survey, see *id.* at 43.

3. Luz E. Herrera, *Encouraging the Development of "Low Bono" Law Practices*, 14 U. MD. L.J. RACE, RELIGION, GENDER & CLASS 1, 1 (2014).

4. *See id.* at 2–3.

5. LEGAL SERVS. CORP., DOCUMENTING THE JUSTICE GAP IN AMERICA: THE CURRENT UNMET CIVIL LEGAL NEEDS OF LOW-INCOME AMERICANS 9 (2009), http://www.lsc.gov/sites/default/files/LSC/pdfs/documenting_the_justice_gap_in_amer ica_2009.pdf [https://perma.cc/UK4X-UEGN].

6. *Id.* at 21. The income threshold used in this study was at or below 125% of the federal poverty guidelines in 2009. *Id.* at 20.

the midst of an access-to-civil-justice crisis, and ranks fiftieth out of sixty-six developed nations in providing affordable access.[7]

A consequence of the dearth of legal aid and other *pro bono* resources is that many individuals end up representing themselves,[8] a process known as *pro se* representation.[9] In Maine, a Supreme Court Justice estimated that between seventy-five and eighty percent of people who appear before a judge on non-criminal matters represent themselves.[10] *Pro se* representation can have wide-ranging consequences, for both the unrepresented individual and the legal system. An individual unfamiliar with the legal system in the United States is likely to find it bewilderingly complex. Moreover, when surveyed, sixty-two percent of judges report that outcomes for *pro se*

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7. Herrera, *supra* note 3, at 1–2 (quoting Mark David Agrast et al., *Rule of Law Index*, THE WORLD JUSTICE PROJECT 21, 103 (2011) ("Access to civil justice requires that the system be affordable, effective, impartial, and culturally competent.")).

8. AM.ERICAN BAR ASS'N COAL. FOR JUSTICE, REPORT ON THE SURVEY OF JUDGES ON THE IMPACT OF THE ECONOMIC DOWNTURN ON REPRESENTATION IN THE COURTS (2010), https://www.americanbar.org/content/dam/aba/publishing/abanews/1279030087coalition_for_justice_report_on_survey.authcheckdam.pdf [https://perma.cc/2XQM-TF4Z] (showing a steady rise in the number of *pro se* litigants); N.H. SUPREME COURT TASK FORCE ON SELF-REPRESENTATION, STATE OF N.H. JUDICIAL BRANCH, CHALLENGE TO JUSTICE: A REPORT ON SELF-REPRESENTED LITIGANTS IN NEW HAMPSHIRE COURTS 2 (2004), https://www.courts.state.nh.us/supreme/docs/prosereport.pdf [https://perma.cc/83P7-Z7Q3] ("One party is *pro se* in 85% of all civil cases in the district court and 48% of all civil cases in the superior court."). Sixty percent of the judges surveyed said that fewer litigants were being represented by counsel. JUDICIAL COUNCIL OF CAL., CALIFORNIA STATEWIDE ACTION PLAN FOR SELF-REPRESENTED LITIGANTS 11 (2004), http://www.courts.ca.gov/documents/selfreplitsrept.pdf [https://perma.cc/49FJ-FLFF] ("Over 4.3 million of California's court users are self-represented.").

9. *Pro se* ("for oneself") representation is common in courts that address legal issues typically faced by low-income individuals, including landlord-tenant issues, probate, and family law. *See generally* NAT'L. CTR. FOR STATE COURTS, PRO SE STATISTICS (2006), https://www.nacmnet.org/sites/default/files/04Greacen_ProSe StatisticsSummary.pdf [https://perma.cc/QC4Z-WLDG].

10. *See* Judy Harrison, *Lawyers to be Stationed in Libraries Across State to Offer Free Legal Advice,* BANGOR DAILY NEWS (Apr. 29, 2013, 9:25 AM), http://bangordailynews.com/2013/04/28/news/state/lawyers-to-be-stationed-in-libraries-across-state-to-offer-free-legal-advice/ [https://perma.cc/2C3H-R7HN]. A recent study commissioned by the Justice Action Group in Maine found that Maine's civil legal aid organizations' statewide monetary impacts associated with direct professional legal aid services totaled an estimated $37 million. *See* TODD GABE, JUSTICE MAINE, ECONOMIC IMPACT OF CIVIL LEGAL AID IN MAINE 1 (2016), http://www.justicemaine.org/wp-content/uploads/Gabe-Report-Submitted-November-14-2016.pdf [https://perma.cc/8NQB-2WME] ("this includes a mixture of one-time and reoccurring payments; as well as a combination of federal dollars received (and their associated multiplier effects), other monetary awards (e.g., child support), cost savings to Maine communities (e.g., avoided costs of General Assistance), and higher incomes for workers in Maine.").

litigants were less likely to be successful.[11] *Pro se* litigants also slow down an already clogged civil court system, putting a greater burden on judicial resources, because of their lack of familiarity with both procedural and substantive law.[12] Without the benefit of professional legal advice or other helpful resources, individuals may not know when they can do something to prevent a small legal problem from escalating.

This is particularly important because much of the emphasis on the delivery of legal services that have been historically available for low-income individuals and families are *ex post* and litigation-focused.[13] Even if a low-income person is able to access professional assistance, that person will likely contact a lawyer after the problem arises, when it is too late to take preventative measures. At that point, resolution of the problem typically involves adjudication, which is adversarial by nature.

Many legal needs are *ex ante* and transactional, such as credit repair, tenant rights, and public benefits, to name a few. A failure to address a legal need *ex ante* can cause collateral consequences *ex post*. An improperly completed form requesting reasonable accommodations can result in summary eviction litigation when a disabled individual cannot pay rent, for example.[14] This failure disproportionally affects the most disadvantaged and vulnerable communities, including women, children, minorities, and immigrant populations.[15] This systemic issue implicates an urgent need to

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11. AM. BAR ASS'N COAL. FOR JUSTICE, *supra* note 8, at 10. The Coalition for Justice linked representation type with case outcomes and concluded that the absence of professional legal representation hurts a litigant's odds for success. *Id.* at 3.

12. *Id.* at 12. The report also noted an increase in *pro se* litigants who did not qualify for legal aid, but likely could not afford an attorney to represent them in court. *Id.* at 5.

13. *See What is Legal Aid*, LEGAL SERVS. CORP., https://www.lsc.gov/what-legal-aid [https://perma.cc/85H2-E8MH] (listing the types of programs funded by the Legal Services Corporation and indicating that most are litigation-focused).

14. *See* U.S. Dep't of Hous. & Urb. Dev., Joint Statement of the Department of Housing and Urban Development and the Department of Justice: Reasonable Accommodations Under the Fair Housing Act (May 14, 2004), https://www.justice.gov/crt/us-department-housing-and-urban-development [https://perma.cc/XC73-YPT6] ("[H]aving formal procedures may aid individuals with disabilities in making requests for reasonable accommodations and may aid housing providers in assessing those requests so that there are no misunderstandings as to the nature of the request, and, in the event of later disputes, provide records . . . .").

15. *See* Rebecca Buckwalter-Poza, *Making Justice Equal*, CTR. FOR AM. PROGRESS (Dec. 8, 2016), https://cdn.americanprogress.org/content/uploads/2016/12/07105805/MakingJusticeEqual-brief.pdf [https://perma.cc/Y4HY-JRBP].

develop new strategies and tools to address both exigent legal problems, as well as law-related concerns, before they rise to the crisis level.

In addition to developing new means to address *ex ante* legal issues, strategies and tools designed to increase access to justice must also reflect the fact that poor individuals and families approach legal problems differently from the non-poor, as a direct result of their poverty.[16] Poverty captures and monopolizes an individual's attention, resulting in reduced productivity and a diminished ability to process new information.[17] People living in poverty direct a tunnel-like focus on the scarcity they experience and its immediate consequences, which alters the way they perceive the world.[18] This *tunneling* (as it is called) on the scarcity is involuntary; one's attention is diverted to what is lacking.[19] Preoccupation with the scarcity is consuming and often overwhelming, leaving less mental bandwidth to attend to other matters.[20] It is not that the poor do not have less mental bandwidth to begin with, but rather that the "experience of poverty" reduces the available bandwidth, and in so doing imposes additional barriers to effective self-help.[21]

Moreover, when a person is facing a legal problem or crisis, it is often accompanied by feelings of anxiety and uncertainty.[22] These feelings may trigger performance-minimizing mental states that curb the person's effective deployment of information that may otherwise be helpful.[23] As the poor spend more time managing their scarcity and navigating the public programs with which they must interact, they also suffer from a pure time deficit.[24] This deficit, coupled with an understandable preoccupation with compelling short-term problems, leaves little cognitive bandwidth to engage in long-term planning, thus compromising good decision-making.[25] Therefore, in order to be able to effectively deploy available helpful information, such as information about legal rights or self-help guides, the

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16. SENDHIL MULLAINATHAN & ELDAR SHAFIR, SCARCITY: WHY HAVING TOO LITTLE MEANS SO MUCH 63 (2013).

17. *Id.* at 27.

18. *Id.* at 29.

19. *Id.* at 34.

20. *Id.* at 13.

21. *Id.*

22. D. James Greiner et al., *Self-Help Reimagined*, 92 IND. L.J. 1119, 1129 (2017).

23. *See id.* at 1128.

24. *Id.*

25. *Id.*

organization deploying the information must help the affected person to overcome their negative crippling emotions.[26]

The lack of available resources to make civil justice available to all, coupled with the fact that existing strategies fail to account for the research on cognitive capacity and other deployment challenges faced by the poor, explains in large part why a high percentage of low-income individuals facing legal problems fail to take action to respond to them.[27] Such a failure to respond in a timely fashion to a nascent legal problem can lead to an escalation of the initial problem and the emergence of new ones.[28]

The access-to-justice community has begun to respond to this intensifying crisis in ever-more creative and innovative ways. Recent years have seen an expanding array of both technology and non-technology-based tools designed with the purpose of helping people who cannot afford market-rate lawyers.[29] Such innovations have recently led to adjustments in funding for legal aid programs[30] and in advancements in self-help and assisted-self-help tools.[31] These advancements include online client intake systems,[32] self-help triage programs,[33] legal diagnostic tools,[34] robot lawyer chat systems,[35] and

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26. *Id.* at 1129–30.

27. Many do nothing even when the legal system proposes to intrude forcibly into their lives. For example, in the United States, there is at least an eighty percent default rate in debt collection actions. *Id.* at 1138 n.83.

28. *Id.* at 1126 n.25.

29. *See, e.g., Fill Out Legal Forms Faster*, LawHelp Interactive, https://lawhelpinteractive.org/ [https://perma.cc/73HL-JJZV]; *Resources for Self-Represented Litigants*, Ill. Sup. Ct., http://www.illinoiscourts.gov/CivilJustice/Resources/Self-Represented_Litigants/self-represented.asp [https://perma.cc/9JQ2-PTXQ].

30. *See Technology Initiative Grant Program*, Legal Servs. Corp., http://www.lsc.gov/grants-grantee-resources/our-grant-programs/tig [https://perma.cc/4Y7P-UEFF].

31. Although legal expert systems have grown in popularity, an underlying question of determinacy remains. Are most consumer-oriented legal issues definite enough to systematize? Can the legal analysis process be reduced to a series of logic expressions? *See generally* Harry Surden, *The Variable Determinacy Thesis*, 12 Colum. Sci. & Tech. L. Rev. 1 (2011).

32. *See, e.g., Online Intake and Online Screen Systems*, Legal Servs. Nat'l Tech. Assistance Project (Mar. 2012), https://lsntap.org/content/online-intake-and-online-screen-systems-0 [https://perma.cc/A462-NGHR].

33. *See, e.g., SRLN Brief: Examples of Legal Aid Online Intake and Triage Projects*, Self-Represented Litig. Network (Aug. 30, 2017), https://www.srln.org/node/458/srln-brief-examples-legal-aid-line-intake-and-triage-projects-srln-2015 [https://perma.cc/9F3E-ZFPT].

34. *See, e.g., Triage Diagnostic Tool to Assess Potential for Self-Representation in New Mexico*, Access & Ct. Innovation, http://legaltechdesign.com/access-

legal expert system applications.[36] These tools have the potential to be scaled to serve millions more people and make possible a system that provides effective legal help to everyone who needs it, when they need it, and in a form they can use.

The Apps for Justice Project ("Apps for Justice" or the "Project") has focused on the development of one such solution to the access-to-justice crisis. Launched in 2016 and funded with a grant from the Maine Economic Improvement Fund, Apps for Justice has developed practical, technology-based tools (applications, or "apps") that enable low- and moderate-income residents to address their legal and law-related problems. The apps, written at a fourth-grade reading level to best serve the widest audience, use plain language rather than legal jargon.[37] Additionally, drawing on the literature from distance education, public health, behavioral economics, experimental psychology, cognitive psychology, and sociology, each app includes links to positive self-affirmation exercises and employs psychologically affirming language.

This Article describes both the evolution and development process of the project and proceeds in four parts. Part I discusses the legal technology ecosystem, including the emerging prominence of legal expert systems. Part II describes the origin of, and motivation for, the Apps for Justice Project at Maine Law School. Part III describes the human-centered design thinking process used to develop the Rights of Tenants in Maine app ("RTM") and the Maine Family Law Helper app ("MFLH"). Part IV assesses the legal and ethical questions surrounding the use of algorithms to supplant the role traditionally reserved for legal service providers. Finally, this Article concludes with a discussion of how the Apps for Justice Project will continue in its efforts to provide legal help for low-income individuals and makes some predictions for the future of technology's role in bridging the access-to-justice gap.

I. THE LEGAL TECHNOLOGY ECOSYSTEM AND ACCESS TO JUSTICE

The universe of consumer-facing legal technology is in a period of exponential growth. While legal research databases have been around for many years, in recent years there has been a fundamental

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innovation/triage-diagnostic-tool-to-assess-potential-for-self-representation/ [https://perma.cc/NDW4-DQMX].

36. *See, e.g.,* DONOTPAY, https://donotpay-search-master.herokuapp.com/ [https://perma.cc/P7A6-2HUU].

36. *See, e.g., id.*

37. *See* Greiner et al., *supra* note 22, at 1156.

shift in the types of legal technologies brought to market.[38] Legal expert systems are one of the tools that have been gaining increasing popularity and acceptance.[39]

Legal expert systems have been described as "systems that contain representations of knowledge which can be deployed in the solving of given problems."[40] They can address complex problems by using logic maps and conditional statement (e.g., if-then) rules to mimic human expert decision-making.[41] By harnessing the power of artificial intelligence ("AI"), these systems process volumes of unstructured information inputs to yield useful outputs.[42]

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38. *See* Steve Lohr, *A.I. Is Doing Legal Work. But It Won't Replace Lawyers, Yet*, N.Y. TIMES (Mar. 19, 2017), https://www.nytimes.com/2017/03/19/technology/lawyers-artificial-intelligence.html [https://nyti.ms/2np9ybO].

39. *See id.*

40. Richard Susskind, *Expert Systems in Law: A Jurisprudential Approach to Artificial Intelligence and Legal Reasoning*, 49 MOD. L. REV. 168, 172 (1986) (examining previous work on expert systems in a variety of fields, the application of expert system design and use to legal analysis, and the possible impacts on future legal practice). Such expert systems have the potential to augment practitioner knowledge, and in some cases, preserve that knowledge to aid clients when the practitioner is no longer able. *Id.* at 175. Susskind predicted that legal expert systems would be the next logical step forward from computer-aided legal instruction, distinguishing true expert functions from document retrieval used in Lexis-like systems. *Id.* at 176–77. Susskind offers examples of expert systems from the fields of chemistry, geology, and medicine that performed analytical tasks more efficiently than a human being. *Id.* at 174.

41. *See, e.g.*, *Neota Logic Announces the Launch of Compliance HR Joint Venture with Littler Mendelson*, NEOTALOGIC (May 6, 2015), http://www.neotalogic.com/2015/05/06/neota-logic-announces-the-launch-of-compliancehr-joint-venture-with-littler-mendelson/ [https://perma.cc/FUJ9-65XS]. Neota Logic (the platform chosen by the Apps for Justice Project team) has worked with a number of global law firms to produce expert systems to be used by attorneys and even directly by clients. *Id.* To illustrate, Neota collaborated with the employment and labor law firm Littler Mendelson to create ComplianceHR, a suite of applications to help answer routine employment questions. *Id.* One product in this suite, Navigator IC, interviews an employee to help determine whether they should be classified as an employee or independent contractor. *Id.* The system tailors questions to evaluate each scenario under legal tests such as the Internal Revenue Service's 20 Factor Test and the Fair Labor Standards Act Economic Realities Test. *Id.* At the end of the interview process, NavigatorIC produces a risk assessment with a summary of applicable state and federal employment law, and rates each individual on the likelihood of classification as an employee versus an independent contractor. *Id.* Such a rating system helps human resources professionals prioritize which individuals should be subject to employee protections. *Id.*

42. ROSS Intelligence, software built upon the IBM Watson development platform, is an example of a successful legal expert system in the private sector. *See Products*, IBM WATSON, https://www.ibm.com/watson/products.html [https://perma.cc/BCS9-JZCW]; ROSS INTELLIGENCE, http://www.rossintelligence.com [https://perma.cc/2XVL-TG2F]; Karen Turner, *Meet 'Ross,' the Newly Hired Legal Robot,* WASH. POST (May 16, 2016), https://www.washingtonpost.com/news/

Consumers are using expert systems in various fields, one of which is tax preparation. TurboTax, a tax return preparation software product, offers a useful illustration of a developed expert system.[43] TurboTax democratized income tax return preparation by compiling voluminous tax rules and employing internal logic, reducing the consumer's burden to answering a sequence of simply-phrased questions.[44] Legal expert systems similarly have the potential to democratize legal problem solving by simulating the logical reasoning of attorneys to produce answers to consumers' common law-related questions.[45]

Legal expert systems can also be used to increase law practice efficiencies by taking over rote tasks typically performed by lawyers and legal assistants and by reducing variability in the quality of legal services.[46] The growing market opportunity for the use of machine intelligence in law has the potential to help lawyers deliver low-cost legal services to a larger market, pairing the need for legal help among low- and middle-income Americans with automation.[47]

innovations/wp/2016/05/16/meet-ross-the-newly-hired-legal-robot [https://perma.cc/ T9QK-YNG7]; *Watson Takes The Stand*, THE ATLANTIC: SPONSORED CONTENT, http://www.theatlantic.com/sponsored/ibm-transformation-of-business/watson-takes-the-stand/283/ [https://perma.cc/U2Y8-9S5W]. The result of "hiring" ROSS been a 30.3% reduction in research time, 42.9% increase in relevant authorities retrieved in the research process, an estimated $8,466 to $13,067 increase in annual revenue per attorney, and a 176.4% to 544.5% overall return on investment. DAVID HOULIHAN, BLUE HILL RES., ROSS INTELLIGENCE & ARTIFICIAL INTELLIGENCE IN LEGAL RESEARCH (2017), http://bluehillresearch.com/wp-content/uploads/2017/01/RT-A0280-ROSS-BR-AIBank-DH1.pdf [https://perma.cc/7BEG-ZCKB].

43. *See* TURBO TAX, http://www.turbotax.com [https://perma.cc/S3B4-7Q5J].

44. *See* Tim Gray, *Taking Tax Software for a Walk*, N.Y. TIMES (Feb. 11, 2012), http://www.nytimes.com/2012/02/12/business/yourtaxes/tax-software-is-put-through-the-paces-review.html [https://nyti.ms/2mFqTKD].

45. *See* Lorelei Laird, *Expert Systems Turn Legal Expertise into Digitized Decision-making*, A.B.A. J. (Mar. 17, 2016), http://www.abajournal.com/ news/article/expert_systems_turn_legal_expertise_into_digitized_decision_making [https://perma.cc/6SB6-ULCH].

46. *See* Frederick L. Trilling, *The Strategic Application of Business Methods to the Practice of Law*, 38 WASHBURN L.J. 13, 70–71 (1998) (emphasizing the importance of technologies that can provide the greatest efficiency for the lowest cost, with a focus on improvement, rather than duplication, of existing processes).

47. John O. McGinnis, *The Great Disruption: How Machine Intelligence Will Transform the Role of Lawyers in the Delivery of Legal Services*, 82 FORDHAM L. REV. 3041, 3042 (2014); *see also* Michael Chiu et al., *Four Fundamentals of Workplace Automation*, MCKINSEY Q. (Nov. 2015), http://www.mckinsey.com/ business-functions/business-technology/our-insights/four-fundamentals-of-workplace-automation [https://perma.cc/QJ8P-NTQ2]. Not just low-level occupations are ripe for automation; higher-level occupations like attorneys and business executives have significant numbers of functions that can be automated. The theory is that such automation will allow those attorneys and executives to pursue creative work and

Indeed, Legal Services Corporation has identified legal expert systems as one of the key tools that can be used by legal aid organizations and state and national bar associations to close the access-to-justice gap.[48] For example, the Florida Legal Access Gateway ("FLAG"), a collaborative project between the Florida Bar and state public service organizations, has developed legal expert systems that connect users with educational information about divorce and eviction.[49] FLAG offers its systems not only on the web, but also on kiosks installed in state courthouses.[50] Apart from education, the applications offer clients the option of accessing self-help forms or completing an eligibility screener to determine whether they qualify for free or reduced-cost legal aid.[51]

Legal services providers have also developed conversational user interfaces, or chatbots, which engage users in a written or spoken problem-solving dialog. One such tool for developing chatbots is GuideClearly.[52] GuideClearly allows non-technically trained individuals to develop functional applications, using a drag-and-drop interface.[53] Pine Tree Legal Assistance, a legal services organization in Maine, used GuideClearly to develop an eligibility screener to help individuals determine whether they are eligible for assistance under Section 17 of MaineCare, a state benefits program for individuals with

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interpersonal client service, tasks that a machine cannot perform. Expert systems are simply one tool that will enable greater amounts of higher-level workplace automation.

48. LEGAL SERVS. CORP., REPORT OF THE SUMMIT ON THE USE OF TECHNOLOGY TO EXPAND ACCESS TO JUSTICE 1 (2013) (listing top targets as "(1) document assembly for self-represented litigants; (2) better 'triage'—that is, identification of the most appropriate form of service for clients in light of the totality of their circumstances; (3) mobile technologies; (4) remote service delivery; (5) expert systems and checklists; and (6) unbundled services").

49. *See Welcome to the Florida Legal Access Gateway (FLAG)*, FLA. LEGAL ACCESS GATEWAY, http://applications.neotalogic.com/a/floridatriage-production [https://perma.cc/8UZT-8839].

50. *See* Dara Kam, *Kiosks Could Help Floridians Get Access to Legal Aid*, CBSMIAMI.COM (May 15, 2015, 9:41 PM), http://miami.cbslocal.com/2015/05/15/kiosks-could-help-floridians-get-access-to-legal-aid/ [https://perma.cc/2RSX-2HVD].

51. *Id.*

52. *See* Cosima Mielke, *Conversational Interfaces: Where Are We Today? Where Are We Heading?*, SMASHING MAG. (July 18, 2016), https://www.smashingmagazine.com/2016/07/conversational-interfaces-where-are-we-today-where-are-we-heading/ [https://perma.cc/7GZP-F3PD]; *see also Chat Bot*, WEBOPEDIA, http://www.webopedia.com/TERM/C/chat_bot.html [https://perma.cc/M28S-DA88].

53. GUIDECLEARLY, http://www.guideclearly.com [https://perma.cc/323R-3N96].

certain mental health disorders.[54] Although there are 124 questions in the eligibility screener, and 216 unique paths for users to follow, the complex decision tree is invisible to the individual user, who only sees one question at a time.[55] The answer provided by the user determines the nature of each subsequent question.[56] As soon as the user provides an answer that would make them ineligible for services under Section 17, the chatbot informs the user of their ineligibility and offers them other resources.[57]

Another innovative non-profit organization, JustFix.nyc, has developed an app that provides a platform for tenants to document their rental housing conditions and then connect with a professional working at a local tenants' rights organization.[58] The tenant gathers and uploads evidence and then the application uses that evidence to file court forms and prepare for legal action.[59] Tenants can also use the tool to track responses from landlords and ongoing case developments.[60] Without the framework provided by the AI driving JustFix.nyc, tenants or legal aid attorneys could easily overlook some aspect of the case history or make mistakes filling out a housing form manually.[61] JustFix.nyc's mission is to use technology tools to augment, but not replace, the existing non-profit tenants' rights organizational ecosystem.[62]

These examples demonstrate just a few of the ways technology is being used to help provide information and services to people who need legal assistance. Further, they predict that the future of legal expert systems will mirror the direction that the field of medicine is headed—computers and experts working in tandem.[63] For example,

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54. *See MaineCare Section 17: What's Really Going On?*, PINE TREE LEGAL ASSISTANCE (Sept. 2017), http://ptla.org/mainecare-section-17-eligibility [https://perma.cc/WKF5-2U6T].

55. Jack Haycock, *MaineCare Section 17: Using GuideClearly*, https://schd.ws/hosted_files/2017tigconference/b5/MaineCare%20Section%2017%20-%20Using%20GuideClearly.pdf [https://perma.cc/VSP6-FNN9].

56. *Id.*

57. *MaineCare Section 17, supra* note 54.

58. *Product and Services*, JUSTFIX.NYC, https://www.justfix.nyc/about/product-and-services [https://perma.cc/L8S3-S7S8].

59. *Id.*

60. *Id.*

61. *See id.*

62. *Our Mission*, JUSTFIX.NYC, https://www.justfix.nyc/our-mission [https://perma.cc/Z5KS-3NP2].

63. *See generally* Jim Guszcza, Harvey Lewis & Peter Evans-Greenwood, *Cognitive Collaboration: Why Humans and Computers Think Better Together*, DELOITTE INSIGHTS (Jan. 23, 2017), https://dupress.deloitte.com/dup-us-en/deloitte-review/issue-20/augmented-intelligence-human-computer-collaboration.html

in the field of radiology, a 2016 study compared the error rate of human physicians against AI when diagnosing slide images of lymph node cells for signs of metastatic breast cancer.[64] The error rate for the AI alone was 7.5%, and 3.5% for the physician alone.[65] However, when the physician's review was combined with the AI, the error rate was reduced to just 0.5%.[66] A similar combined human and AI diagnostic approach could be applied to more efficiently and cost-effectively help low income individuals who encounter legal problems.

II. THE APPS FOR JUSTICE PROJECT AT MAINE LAW

Maine is a poor state[67] with an aging[68] and geographically dispersed population.[69] The recession of 2007 had a severe impact on the already tenuous economic health of the State, which has seen a wave of closings of paper mills, shoe manufacturers, and other factories, and has led to a painfully slow economic recovery.[70] As a

[https://perma.cc/E4G3-YT3M] (describing how more contemporary examples of AI are designed to create a symbiotic relationship between humans and the technology—using human knowledge to improve on AI design, and AI logic to improve on human decision-making).

64. EXEC. OFFICE OF THE PRESIDENT, NAT'L SCI. & TECH. COUNCIL COMM. ON TECH., PREPARING FOR THE FUTURE OF ARTIFICIAL INTELLIGENCE 20–21 (2016) (referencing Dayong Wang, *Deep Learning for Identifying Metastatic Breast Cancer*, ARXIV (June 18, 2016), https://arxiv.org/pdf/1606.05718v1.pdf [https://perma.cc/J8YG-47AF]).

65. *Id.*

66. *Id.*

67. *See   Maine*,   SPOTLIGHT   ON   POVERTY   &   OPPORTUNITY, https://spotlightonpoverty.org/states/maine/ [https://perma.cc/K4CW-SWHK].

68. *See* AGING & DISABILITY SERVS., ME. DEP'T. OF HEALTH & HUMAN SERVS., MAINE'S STATE PLAN ON AGING 2016–2020, at 10 (2016), http://www.maine.gov/dhhs/oads/trainings-resources/documents/STATEPLANONAGING2016-2020DRAFT.pdf [https://perma.cc/5PEQ-B3AH].

69. Some Maine residents would need to drive over two hours to reach the nearest civil legal services office. According to Google Maps, a resident of Jackman, near the Quebec border, would need to drive 108 miles or approximately two hours and nine minutes to reach the closest Pine Tree Legal Assistance office in Augusta. *See* Driving Directions from Jackman, Maine to Pine Tree Legal Assistance Office in Augusta, Maine, GOOGLE MAPS, https://www.google.com/maps/dir/Jackman, +Maine+04945/Pine+Tree+Legal+Assistance+Inc,+Green+Street,+Augusta,+ME/ [https://perma.cc/5DZ9-EWGS].

70. *See, e.g.*, Darren Fishell, *Here's Another Sign of Maine's Slow Economic Recovery*,   BANGOR   DAILY   NEWS   (Aug.   18,   2016), http://thelevel.bangordailynews.com/2016/08/18/economy/heres-another-sign-of-maines-slow-economic-recovery/   [https://perma.cc/SEN6-8GBY];   Edward   D. Murphy, *Economic Growth in Maine Stagnant, 47th in Nation, Report Says*, PORTLAND PRESS HERALD (June 10, 2015), http://www.pressherald.com/2015/06/10/

consequence, employment rates have been adversely affected, leaving many people with basic needs unmet in the areas of housing, healthcare, personal safety, and economic security.

There is also a pressing need for affordable legal services in the state. Legal services organizations in Maine have never had the resources to address the needs of all who come through the door.[71] Maine lawyers historically have had a relatively high rate of participation in *pro bono* practice, but despite these efforts, significant numbers of litigants arrive in court without representation.[72] On average, over fifty percent of Maine residents seeking protection from abuse orders arrive at court without attorney representation.[73]

Out of this access-to-justice crisis grew the Apps for Justice Project. The goals of the Project are to: (1) create practical, technology-based tools that will enable low- and moderate-income consumers to address their legal and law-related problems, independent of, and in tandem with, professional assistance; and (2) assist solo and small firm practitioners in handling a larger volume of these clients, increasing automation, and shifting some of the more rote work from the attorney to an algorithm.

In order to achieve these goals, the Project decided to develop apps under two service models: self-help internet resources for *pro se* litigants and tools for pro-bono and low-bono practitioners, including solo attorneys, legal services organizations, institutional clinics, and attorneys offering alternative representation methods such as unbundled legal services. For each model, the initial goals included: (i) the development of working partnerships with low- and moderate-income consumer legal services providers in order to identify the

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report-economic-growth-in-maine-stagnant-lowest-in-new-england/ [https://perma.cc/V7PL-4JZY].

71. *Cf.* Kevin Hancock & Nan Heald, *Maine Voices: Civil Legal Aid Programs Extend 'Justice for All' to Maine's Most Vulnerable*, PORTLAND PRESS HERALD (June 5, 2017), http://www.pressherald.com/2017/06/05/maine-voices-civil-legal-aid-programs-extend-justice-for-all-to-maines-most-vulnerable/ [https://perma.cc/GWW9-R9FJ] (describing the current threats to Pine Tree Legal Assistance funding sources and the desperate need for civil legal aid in Maine). *See generally* PINE TREE LEGAL ASSISTANCE, DONOR IMPACT REPORT (2015), https://ptla.org/sites/default/files/2015_Annual_Report_Web.pdf [https://perma.cc/YF2D-9DRV] (documenting Pine Tree Legal Assistance's impressive work with limited funding while noting there is always more work to be done).

72. *See* Scott Dolan, *For Portland Attorney, Donated Legal Work Gets Its Just Reward*, PORTLAND PRESS HERALD (June 30, 2015), http://www.pressherald.com/2015/06/29/award-winning-portland-lawyer-says-her-unpaid-work-brings-other-rewards/ [https://perma.cc/Z4GZ-RRJV].

73. *Id.*

need; (ii) the identification of a market for the distribution of these apps; (iii) the development of prototype apps to prove out the utility of this project; and (iv) the development of proposed business models for the potential monetization of these apps. Apps for Justice received funding from the Maine Economic Improvement Fund for the first phase of the Project.[74]

III. EMPLOYMENT OF DESIGN THINKING

The Apps for Justice Project was launched by mapping the Project tasks in accord with the design thinking process. Design thinking forced the Project to address the fundamental question of how human-centered design can solve problems, uncover new ideas, and make law more accessible, usable, and engaging.[75] The Project team used a five-step framework to tailor the design of the proposed tools to effectively and efficiently serve its audience: (i) discovering the context and need for the product or system, (ii) synthesizing the information discovered, (iii) building a prototype product based upon the information discovered, (iv) testing the prototype with potential product users, and (v) revising and improving the evolving product prototype.

A. Discovery

The first step in this design process was one of discovery. Discovery involves the development of a thorough and nuanced understanding of the problem and the stakeholders.[76] The Project team started the process of discovery by visiting the state courthouse in Portland, Maine, in order to observe the types of civil proceedings and the number of *pro se* parties appearing. The team then held a series of meetings with private attorneys, legal services providers, and clinic staff attorneys in order to understand the common legal problems faced by them and their clients and began to identify target areas where a legal expert system could offer an effective intervention. The Project team engaged these attorneys in both free

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74. The Apps for Justice Project Phase II is currently in development. The Project expects to expand the concept into a course offering, where six to eight students a semester will partner with legal services providers to identify common and compelling legal problems faced by consumers and use design thinking and technology tools to address these problems.

75. *See* LEGAL DESIGN LAB, http://www.legaltechdesign.com/ [https://perma.cc/H838-6PTW].

76. *See generally* ANDREW ABBOTT, THE SYSTEM OF PROFESSIONS: AN ESSAY ON THE DIVISION OF EXPERT LABOR (1988).

flowing conversations and more structured interviews. Interviews included questions about process, communication, client access to technology, and client emotional and psychological concerns.[77]

The team gathered much useful information from these visits, conversations, and interviews. For example, the Project team discovered that client intake for legal services and low-bono attorney service providers in the family law field was particularly time consuming and inefficient.[78] Further, Maine's own judicial data from cases filed in 2016 indicate that, 78% of cases had one unrepresented party, while both parties went unrepresented in 56% of cases.[79]

When asked about the possible utility of an automated client intake and document assembly system, one attorney mused:

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77. Example guided interview questions included: (1) What are the biggest process challenges you face in your practice (intake, document requests, record keeping, communication, getting clients to show up for meetings, etc.)? (2) What are the biggest substantive challenges in your practice (getting client background information/getting client's story/ getting clients to follow your advice)? (3) When (in what context) do you find yourself re-inventing the wheel (e.g. power of attorney forms, health care directives)? (4) How do you communicate with your clients (paper letters, emails, calling, texting)? (5) What communication challenges do your clients have? How do you stay in contact with your clients (internet cut-off, unpaid cell phone bill, moving a lot – assisted housing to assisted housing)? (6) What is the work that you put off? What is the work that you dread doing? In what situations do you tend to procrastinate? Have you thought about how technology can address this? (7) What are your clients' biggest complaints/concerns about dealings with your office? Your staff's complaints? Your complaints? (8) What percentage of your client base has access to a computer? A smart phone? (9) How much do you know about the people who you don't or can't serve? Do you know what happens when they leave your office? (10) Do you have a sense of the unmet need for legal services in your area/town? Have you seen many *pro se* parties when you are in court? (11) What non-legal problems do your clients (or prospective clients) present? How, if at all, do you deal with their non-legal problems? (12) Describe the typical mental state of a client during your first meeting/conversation (distraught/stressed, etc.). (13) When you have a stressed out/distraught client, tell me how you go about dealing   with   them   and   their   stress   (ignore   it,   deal   with substance/problem/referral/address it/ reassure client, etc.).

78. One attorney who has been practicing criminal and family law for eighteen years expressed that it would be beneficial for her family law clients to receive intake materials before the first meeting, given that her typical intake process, coupled with filling out the divorce forms, takes approximately forty-five minutes at a fee of $200 per hour. Interview with Solo Practitioner in Oxford Cty., Me. (July 17, 2016) (notes on file with authors). During these intake meetings, the attorney spends a good deal of time teaching her client about family law terminology. *Id.* This process is made more difficult because many of her clients faced literacy and cognitive challenges. *Id.*

79. FAMILY DIV., ADMIN. OFFICE OF THE COURTS, REPORT TO THE JOINT STANDING COMMITTEE ON JUDICIARY OF THE 128TH LEGISLATURE AND THE MAINE SUPREME JUDICIAL COURT ON CASES HANDLED BY THE FAMILY DIVISION OF THE MAINE DISTRICT COURT 4 (2017), http://www.courts.maine.gov/reports_pubs/reports/pdf/fd_report_2016.pdf [https://perma.cc/RL6P-KTPS].

> We spend over an hour in the first client meeting gathering preliminary information and filling out forms, when we could cut it down to 30 minutes or less. [An intake expert system] . . . would allow us to serve more clients, and save our clients time and money. The first client meeting for family law cases takes 50-75% longer than it should, because of time spent determining the client's background information, and filling out court forms. Clients are spending more money than they need to, and our attorneys are restricted from taking on more clients by spending this time gathering information and filling out paperwork.[80]

Another lawyer observed that such a system could reduce the error rate in completing the needed financial disclosures required by their intake process, and thus reduce the amount of effort spent fixing the errors.[81] A public-interest immigration lawyer further observed that his clients are frequently dealing with other legal and non-legal issues, in addition to immigration issues, such as how to access public benefits, pay or contest a speeding ticket, report crimes of domestic violence, enroll in English language classes, or press a neglectful landlord to provide sufficient heat in the winter.[82] This attorney lamented that due to limited resources, his firm typically is unable to advise the clients on these matters and is forced to refer them to other public interest organizations—which may or may not have the resources to provide assistance.[83]

The discovery phase of the Apps for Justice Project affirmed several points: (i) there is an excess of underrepresented clients in the state, particularly presenting family law and tenant problems; (ii) the majority of clients have access to a computer, either at home, at a relative's home, or at a local library; and (iii) the majority of clients have access to a smartphone.[84] Based on the results of these and other interviews, the Project team decided to focus its app-building attention on a tenant's rights app and a family-law intake app.[85]

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80. *See* Interview with Solo Practitioner, *supra* note 78 and accompanying text.

81. The director of a legal incubator specializing in family law and business planning went on to express frustration with the process of getting a client's background information, especially for clients with limited representation agreements. Interview with Dir. of Legal Incubator, Portland, Me. (Feb. 24, 2016) (notes on file with authors).

82. Interview of Attorney with Public Service Organization Specializing in Immigration Law, Cumberland Cty., Me. (Feb. 29, 2016) (notes on file with authors).

83. *Id.*

84. *Id.*

85. *See* ME. ADMIN. OFFICE OF THE COURTS, MAINE STATE COURT CASELOAD 5 YEAR TREND, http://www.courts.maine.gov/news_reference/stats/pdf/year-trend/statewide.pdf [https://perma.cc/G7NA-V6K5]. There are a significant number of

B. Synthesizing the Results of Discovery: Defining the Mission and Mapping the User's Problems

In developing the tenants' rights app (Rights of Tenants in Maine or "RTM"), the Project team determined that the most compelling and common tenant concerns were derelict living conditions, issues respecting utility delivery and payment, security deposit returns, and eviction and threats of eviction.[86] The law is clear in outlining the respective rights of landlords and tenants with respect to these issues,[87] and the Project team determined that each concern could be manageably addressed by an app (or "by a well-designed app").

It was more challenging to synthesize the information that was gathered about the needs of users seeking help in the realm of family law. Because of resource constraints (including time and grant funds) the Project determined that the Family Law Helper app would be limited to addressing users with or without children who were seeking a divorce. After developing multiple iterations of problem identification and solution maps, the Project Team determined that both apps should address their guidance to a typical user in crisis,

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cases in these areas of law filed each year in the Maine courts. *Id.* Forcible entry and detainer cases represented twenty-two percent of all Maine non-family civil actions in 2015. *Id.* Family cases numbered over 22,000 in 2015. *Id.*

86. Instances of low-income tenants presenting complaints about their rental unit conditions are particularly common in Maine. *See* Leslie Bridgers, *Super-tight Apartment Market Torments Renters, Redefines Parts of City*, PORTLAND PRESS HERALD (Nov. 15, 2015), http://www.pressherald.com/2015/11/15/super-tight-apartment-market-torments-renters-redefines-parts-city/ [https://perma.cc/7CX7-LQBN]. Exemplifying Maine's aged housing stock and acute under-supply of rental units, Maine's largest city, Portland, is in the midst of an unprecedented housing development boom, with market rate condos displacing what was once affordable rental housing. *See* Tux Turkel, *No Vacancy: Landlords Capitalize on 'Insane' Market*, PORTLAND PRESS HERALD (Nov. 15, 2015), http://www.pressherald.com/2015/11/15/landlords-use-power-hot-market-charge-pick-best-tenants-upgrade-properties-sometimes-neglect/ [https://perma.cc/8FX9-AT2W]; *see also* Leslie Bridgers, *Influx of Affluence a Two-edged Sword, but End Result is Neighborhood Transformed*, PORTLAND PRESS HERALD (Nov. 15, 2015), http://www.pressherald.com/2015/11/15/influx-affluence-two-edged-sword-end-result-neighborhood-transformed/ [https://perma.cc/5WT4-MZZP]. Many remaining rental units are in a state of disrepair, with renters having little leverage to make demands of landlords. *See* Tux Turkel, *Some Buildings Neglected as City Attempts to Strengthen Enforcement of Housing Codes*, PORTLAND PRESS HERALD (Nov. 15, 2015), http://www.pressherald.com/2015/11/15/spotty-inspections-gaps-records-diverse-causes-violations-impede-enforcement-housing-codes/ [https://perma.cc/AAT6-K4S5].

87. *See, e.g.*, ME. REV. STAT. ANN. tit. 14, § 6021-A (2017) (treatment of bedbug infestation); ME. REV. STAT. ANN. tit. 14, § 6033 (2017) (return of security deposit); ME. REV. STAT. ANN. tit. 14, § 6021 (2017) (implied warranty and covenant of habitability).

both acknowledging how common their problems are, and recognizing their distressed emotional state.

1. Diagnosis

In an effort to mimic the thought process of lawyers, the Team brainstormed ways to retrieve the user's information that would help the system diagnose the problem.[88] Diagnosis typically relies on a series of answers to questions in order to bring information about the situation into the expert system for analysis.[89] These questions are designed to secure a user's attention and keep them engaged so they will stick with the task until they reach the "action plan" screen.

The Project team also recognized that it needed to progress from ill-structured problems to well-structured ones.[90] Many of the problems presented by individuals in the legal context are ill-structured problems, meaning that there is no clear and obvious solution to them.[91] An example of an ill-structured problem is a tenant's living situation causing them extreme stress. This ill-structured problem needs to be transformed into a well-structured problem—one that can yield an effective solution through the application of an appropriate algorithm—by the discovery of the source of the stress (for example, a bedbug infestation).[92] To accomplish this, the Team identified and simplified the universe of sources of a tenant's stress. Once the four primary sources of tenant stress were identified,[93] each was broken down into discrete sub-

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88. *See generally* ABBOTT, *supra* note 76.

89. *See* JOHN R. ANDERSON, COGNITIVE PSYCHOLOGY AND ITS IMPLICATIONS 307 (6th ed. 2005) (noting that because of the importance of structuring the problem, problem decomposition is an extremely important element of instruction).

90. *See generally* Herbert Simon, *The Structure of Ill Structured Problems*, 4 ARTIFICIAL INTELLIGENCE 181 (1973), http://digitalcollections.library.cmu.edu/awweb/awarchive?type=file&item=33783 [https://perma.cc/P6TW-3V2L]. Simon assesses whether "ill-structured problems" ("ISPs") are inherently inscrutable to AI problem solving methods in ways that "well-structured problems" ("WSPs") are not. *Id.* Problems of individuals in the "real world" are ISPs, but they are transformed into WSPs when prepared and formalized for a problem solver. *Id.* at 186. In the examples provided, the ISP can be transformed into a series of much smaller WSPs. The process can be modeled as alternating between solving problems in a well-structured subspace and modifying the broader problem space. *Id.* at 192. Accordingly, even if the original problem space is not defined, it is still possible to apply general problem solving techniques to an ISP.

91. *See id.* at 181.

92. *See id.* at 182.

93. The four primary sources of tenant stress that the Project team identified were: (1) habitability and condition of the rental unit; (2) issues with utility charges and payments; (3) return of security deposit; and (4) eviction.

issues. When a user identifies a particular sub-issue as their problem, the app is designed to lead them to a tailored solution.[94]

Figure 1. Logic Map

2. *Inference and Treatment*

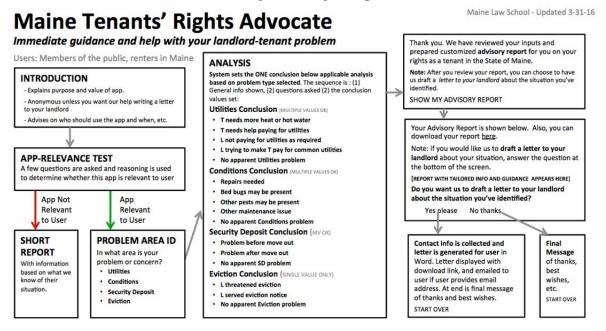Once ill-structured problems are transformed into well-structured problems, a user can be asked a series of clear diagnostic questions. The user's answers can then be matched with stored schemas, which lead to a "diagnosis" and then a "treatment." This process is similar to the inference an attorney follows when interviewing a client and forming a legal strategy.[95] To infer is to navigate between the diagnosis and treatment, which requires the evaluation of possible treatments, the rational assessment of their likelihoods of success, and

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94. *See* ALLEN NEWELL & HERBERT A. SIMON, HUMAN PROBLEM SOLVING 810 (1972) (explaining that problem-solving is a process of search to get from an initial state to a goal state via a set of operators, which provide the actions that can be taken to move away from the present state towards the goal state).

95. Gary L. Blasi, *What Lawyers Know: Lawyering Expertise, Cognitive Science, and the Functions of Theory*, 45 J. LEGAL EDUC. 313, 348–55, 391–96 (1995) (arguing that the primary function of lawyers is as decision-makers and problem-solvers who can recognize patterns that allow them to match the current set of circumstances with a stored problem schema or import other problem schema by analogy).

the sorting between possibilities based on the facts of the situation, legal convention, and professional judgment.[96]

To illustrate, an app could diagnose that an eligible tenant is living in an unheated unit, and the system would make an inference that the landlord may be violating the law. The app could match this inference to a treatment plan in the form of a demand letter to the landlord notifying the landlord that the tenant is aware of her rights, ideally curbing the need to resort to costly legal process.[97] Conditional logic controls the user's path through the app toward treatment, narrowing the number of possible paths, which are strung together into decision trees and if-then tables to provide what appears to be intuitive navigation through complex reasoning.[98]

3.   *Human-Centered Tools for Confronting Complex and Emotional Topics*

The key to the application of design theory is to make the design of systems human-centered.[99] The team knew that the app needed to speak to potential users in a language that was readily understood, communicating through a visual and verbal dialog that is low-text and relies instead on expressive graphics. Further, the team recognized that addressing a person's mental state when that person is faced with a high-stakes legal problem is also essential to the app's utility.

As the Project team began to map the user's path through the expert system, the team designed and included regular content overviews in the form of lists, outlines, and headings. The goals of these overviews are to provide the user with a clear map of the app's content, facilitating both reading comprehension and subject-matter recall, as well as to ensure that the user is aware of where they have been and where they are going.[100] A heading can also serve a

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96. *Id.*

97. *See generally* NILS J. NILLSON, PRINCIPLES OF ARTIFICIAL INTELLIGENCE (1980); ELAINE RICH & KEVIN KNIGHT, ARTIFICIAL INTELLIGENCE (2d ed. 1991); PATRICK H. WINSTON, ARTIFICIAL INTELLIGENCE (1984) (reviewing the basic principles of AI, describing the contours of the field in terms of the search through the problem space and the use of heuristics to narrow the number of possible paths from the initial state to the goal state).

98. *See generally* NILLSON, *supra* note 97.

99. *See* MARGARET HAGAN, USER-CENTERED LEGAL DESIGN 1 (2015), http://www.courts.ca.gov/documents/BTB_23_PRECON_Usable_1.pdf [https://perma.cc/CA8K-TFMH].

100. *See* Percy W. Marland & Ronald E. Store, *Some Instruction Strategies for Improved Learning from Distance Teaching Materials, in* DISTANCE EDUCATION: NEW PERSPECTIVES 137–56 (Keith Harry et al. eds., 1993).

signaling function, identifying the topic at hand as distinct, and indicating that in the author's judgment, the topic is important.[101] The use of topic headings can reduce the processing burden imposed by transitions between issues, which would otherwise require a reader to suppress their focus on the current topic and fit the new topic into context.[102] Finally, headings emotionally prepare the user for the task ahead, providing readers with the context required to integrate the new information.[103]   Headings are especially effective when the content is less structured and when users have lower levels of reading ability.[104]

The apps also liberally use simple graphics and match text with thematic illustrations.[105] Graphic communication has been found to appeal to users with lower reading ability, solidifying understanding of complex concepts, clarifying natural textual ambiguities, and providing a secondary source of information that the reader can use to verify comprehension.[106]   In numerous studies comparing illustrated text with non-illustrated text, reading comprehension of illustrated text information was far greater.[107]

It is not enough, however, to simply pair text with imagery; the nature of the imagery should have a direct correlation to learning outcomes.[108] The Project used simple and self-explanatory imagery in its apps based on findings that cartoon and stick drawings led to the greatest reader comprehension.[109] The pairing of simple pictures with

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101. *See generally* Robert F. Lorch & Elizabeth P. Lorch, *Effects of Headings on Text Recall and Summary*, 21 CONTEMP. EDUC. PSYCHOL. 261 (1996).   A study revealed that topic headings increased the number of topics that university students recalled and improved the speed with which they processed topic sentences. *See generally id.*

102. *See generally* Jukka Hyona & Robert F. Lorch, *Effects of Topic Headings on Text Processing: Evidence from Adult Readers' Eye Fixation Patterns*, 14 LEARNING & INSTRUCTION 131, 132–33 (2004).

103. *See generally* JAMES HARTLEY, DESIGNING INSTRUCTIONAL AND INFORMATIONAL TEXT (3d ed. 1994).

104. *See* GARY R. MORRISON ET AL., DESIGNING EFFECTIVE INSTRUCTION 84 (6th ed. 2011).

105. *See generally* Erlijn van Genuchten et al., *Examining Learning from Text and Pictures for Different Task Types: Does the Multimedia Effect Differ for Conceptual, Causal, and Procedural Tasks?*, 28 COMPUTERS IN HUMAN BEHAV. 2209 (2012).

106. *See generally* W. Howard Levie & Richard Lentz, *Effects of Text Illustrations: A Review of Research*, 30 EDUC. TECH. RES. & DEV. 195 (1982).

107. *Id* at 198.

108. *See generally id.*

109. In 1986, a physician examined how different types of pictorial representations influence patient understanding of a booklet on osteoarthritis. *See generally* JMH Moll, *Doctor-patient Communication in Rheumatology: Studies of Visual and Verbal*

difficult text also helps to assuage anxiety by demystifying what may first appear to be mysterious subject matter.[110]

Apart from imagery, the Project team focused its attention on the types of language used. Most "plain language" material written for consumers is presented at a far higher reading level than the audience for whom it is intended.[111] It has been estimated that twenty percent of the United States adult population read below the fourth grade level, and less than half read above a tenth grade level.[112] However, the team incorporated a number of strategies for making written materials more readable, even when addressing technical subject matter.[113] The Project team found that adults learn better when written explanations are concise, include few words,[114] and use the active voice, strong verbs, and plain words.[115] In addition, reading materials should be written in a conversational style and in the present tense, with any technical terms explained, and limiting the use of transition phrases, such as "however" or "regardless."[116]

Beyond reading difficulty, language tone and emotional content have a strong impact on whether the reader will be spurred into taking problem-solving action.[117] Affirming language that acknowledges the difficulty of the user's problem and reinforces the user's rights and self-image, serves to reduce stress reactions.[118] The order of threatening and affirming language may also be relevant to a

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Perception Using Educational Booklets and Other Graphic Material, 45 ANNALS RHEUMATIC DISEASES 202 (1986).

110. *See generally id.*

111. Susan B. Bastable et al., *Literacy in the Adult Population, in* NURSE AS EDUCATOR: PRINCIPLES OF TEACHING AND LEARNING FOR NURSING PRACTICE 189, 206 (Susan B. Bastable ed., 2d ed. 2003).

112. *Id.* at 216. To that end, if the audience's reading level has not been tested, materials should be written at the fifth grade level, as the average reading level in the general population lies between the fifth and eighth grade levels. *Id.* at 207.

113. *See generally id.*

114. Another study focused on the use of plain language in legal communication to members of the general public. Subjects were asked to choose their preferred passage in multiple pairs of passages. In each pair, one passage was written in plain language and the other in technical language. The overwhelming majority of the subjects, regardless of education level, preferred the plain language versions. *See* Christopher Trudeau, *The Public Speaks: An Empirical Study of Legal Communication*, 14 SCRIBES J. LEGAL WRITING 121, 121 (2011–2012).

115. *See generally id.*

116. Bastable et al., *supra* note 111, at 217–18.

117. *See generally* Crystal Celestine Hall, Decisions Under Poverty: A Behavioral Perspective on the Decision-making of the Poor (June 2008) (unpublished Ph.D. dissertation, Princeton University).

118. *Id.*

client's mental state.[119]   Materials that emphasize the threatening information before the coping information leave readers more energized to act than materials that placed the coping information first.[120] Thus, in the design and construction of both apps, the Project team sought to balance these factors and to place the content to best maximize the likelihood of thoughtful, constructive action on the part of the user.

C. The Development of Prototype Apps

After defining the Project's mission, mapping the problem, identifying potential treatments, and brainstorming the most effective communication strategies, the team began the first iterations of apps. After reviewing a number of platform options, including available training materials, the Project decided to use the Neota Logic platform to build these expert systems. Neota has a commitment to, and track record of, supporting *pro bono* practice and legal aid.[121]

As noted above, the Project developed two different models of apps: one designed to be used directly by consumers as a self-help assistance tool and the other designed to be used by legal services or low-bono lawyers, allowing them to leverage their ability to provide more efficient and cost-effective representation.   This section describes the features and functionality of the two prototype apps: (1) Rights of Tenants in Maine and (2) Maine Family Law Helper.

1.   *Rights of Tenants in Maine*

RTM is designed to be used by self-represented tenants in Maine. The app guides a tenant through a series of interview questions to isolate the problems the tenant is facing with their living conditions. This analysis separates legitimate problems the landlord may be required to remedy from concerns that may not be recognized under Maine law. After identifying each concern, RTM helps the tenant craft a demand letter to the tenant's landlord, and provides a path for escalation if the attempts to remedy the living conditions fail. RTM opens with an introductory page, informing users of what the app is designed to do and providing an introduction to the type of help the

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119. Steven Prentice-Dunn et al., *Effects of Persuasive Message Order on Coping with Breast Cancer Information*, 16 HEALTH EDUC. RES. 81, 81 (2001).

120. *Id.*

121. *See* Hyona & Lorch, *supra* note 102; *see also Neota Logic and Pro Bono*, NEOTA   LOGIC,   http://www.neotalogic.com/pro-bono/   [https://perma.cc/W9GR-SPQP]. Neota Logic has a developing pro bono initiative, licensing its platform to law schools and public interest law organizations. *Id.*

app can offer. The most fulsome information is available for current tenants living in Maine in private housing with no public subsidy.[122]

After a disclaimer noting that what is being provided is not legal advice but helpful information,[123] the app begins by asking a series of eligibility questions, designed to identify and diagnose the user's concerns and transform them into well-structured problems. Using conditional logic, RTM interacts with the user, narrowing their concerns and developing an action plan. In the process, the app provides education so that the tenant better understands his or her rights and the steps he or she will need to take to exercise them.

To illustrate, if a user identifies a problem with the condition of their apartment, she selects "Condition" and she is then guided to the "Conditions" path. On this path, she is asked to further identify the specific problem or problems s/he is facing. The user is then presented with a sequence of questions regarding the physical state of his/her home. These questions read:

(1) Does your apartment have bedbugs? (yes/no)

(2) Does your home have rodents, roaches, or other pests? (yes/no)

(3) Is there a problem with the common areas of your building? (yes/no)

(4) Is there a problem with your hot water? (yes/no)

(5) Do you have enough heat in the winter? (yes/no)

(6) Do you have a problem with your electricity? (yes/no)

(7) Is there a problem with your toilet or other bathroom fixtures? (yes/no)

(8) Is there a problem with your kitchen appliances? (yes/no)

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122. If a user is renting in another state, they are off-boarded to the Legal Services Corporation website, so they can find the contact information of legal assistance resources in their state. If the user is living in public housing or is using a rent subsidy program, they are guided to the Maine State Housing Authority website. If the user is considering renting a unit but has not yet rented one, they are led to a "treatment" that identifies the issues to think about when considering entering into a lease.

123. The disclaimer reads:

We have tried to make this app as accurate as possible. It is up to date as of May 2016. Laws, however, can change from time to time, and we cannot promise that this information will always be up to date and fully correct. This information is not legal advice. The authors of this app are not acting as your lawyer. Your use of this system does not form an attorney-client relationship with any party. Rather, this system is designed to give you information about your rights and responsibilities as a tenant in Maine so you can make better decisions for yourself.

Rights of Tenants in Maine: Disclaimer, APPS FOR JUST. PROJECT, U. ME. SCH. L., http://umaine.neotalogic.com/a/rtm-demo [https://perma.cc/SY9T-QATS].

(9) Does your apartment or rental house currently require any of the following specific repairs? (select those that apply)

  a. holes in the walls

  b. broken windows

  c. broken doors

  d. broken locks

  e. a leaky roof

  f. mold

  g. leaky pipes

  h. leaky faucets

  i. leaky radiators

If, for example, the tenant's apartment has insufficient heat and suffers from a pest infestation, her action plan will be tailored to those specific problems. The action plan begins by restating the user's problems and then educates her about their rights under the law. It then guides her through the steps she can take herself to seek redress before requiring a lawyer's assistance.

The first step in the action plan is "call your landlord." To help a tenant who may be intimidated by the confrontation, the action plan provides a script. The script prompts the tenant to ask the landlord, in a civil and professional manner, to fix the heat and call the exterminator and provides the tenant with language to assert their legal rights. Second, the app strongly suggests a follow-up letter to the landlord that repeats the call for assistance and restates anything the landlord agreed to do during the tenant's call. Third, if the landlord still has not addressed the problem, RTM provides a script that can be used to call the local code enforcement officer. Finally, if the problem remains unresolved, the action plan provides links to other legal resources.

After setting forth the action plan and providing downloadable copies of the call guidance, RTM offers the tenant help drafting the follow-up landlord letter. With the goal of generating a positive and proactive response by the landlord, the tenant is given the option of a "polite letter" or a "polite but more assertive letter." In this example, the tenant would explain in her own words, or by selecting from the preset prompts, that her heater is unable to heat her apartment above fifty-five degrees and that she had spotted evidence of roaches, as well as identify when the problems started and list any steps she already took to attempt to fix them. RTM then generates a letter composed in plain (but professional) language, in an active voice, with minimal legal terminology and a clear request for timely

assistance from the landlord. Finally, after RTM generates the draft letter (downloadable in either PDF or MS Word formats), the app gives the tenant instructions for mailing the letter via first class mail.[124]

In addition to downloading the call scripts and the letter to her landlord, the tenant can download or print the action plan itself for later reference. Similar tools (scripts and letter generation) are provided in the utilities and security deposit paths of RTM. The eviction path provides a slightly different set of resources with more information about the steps the landlord will be required to take in a legal eviction.[125] It also provides a letter generation tool to propose an accommodation for any unpaid rent, and a script for a follow-up phone call to the landlord. In each situation RTM follows the same structure: first, diagnosing and framing the particular problem; then, informing the tenant about her relevant rights and pertinent resources; and finally, helping the tenant communicate her polite and professional request to their landlord. If the request is successful, both the landlord and the tenant will benefit by minimizing conflict and reducing transaction costs. Even if the tenant's request is not successful and matters grow more litigious or fraught, she is then able to show that s/he made reasonable and civil efforts at resolving the conflict.

The language used in the app was tested using the Flesch-Kincaid Grade Level Readability Formula to confirm that it was understandable by the largest possible segment of the population.[126] There are headers and overviews to guide the user through the app, keeping the user focused on the task at hand. Simple drawings are used to illustrate concepts, thus increasing user comprehension.[127]

The app and scripts also include a number of affirmations, designed to encourage self-agency and promote self-care. These affirmations

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124. "Mail the letter - BUT - don't just put a stamp on the letter. Take your letter to a U.S. Post Office and ask for a first class stamp and a tracking number. A tracking number will give you proof your letter was delivered." *Rights of Tenants in Maine: Your Polite but More Assertive Letter Is Ready*, APPS FOR JUST. PROJECT, U. ME. SCH. L., http://umaine.neotalogic.com/a/rtm-demo [https://perma.cc/3ESU-6SP4].

125. *See generally Rights of Tenants in Maine: Issue: Eviction*, APPS FOR JUST. PROJECT, U. ME. SCH. L., http://umaine.neotalogic.com/a/rtm-demo [https://perma.cc/3ESU-6SP4].

126. *See generally The Flesch Grade Level Readability Formula*, READABILITYFORMULAS.COM, http://www.readabilityformulas.com/flesch-grade-level-readability-formula.php [https://perma.cc/2ZS3-ZNA6].

127. Due to budget limitations, the Project was unable to hire an artist, and had to make do with clip art. In the future, the Project hopes to be able to illustrate apps using a uniform graphic style.

are timed to provide the tenant with additional support in coping with the anxiety generated by learning more about their legal situation, and to provide positive encouragement after they take each incremental action.

The app also includes explicit stress reduction tools, such as deep breathing and emotion-balancing exercises, throughout all issue paths of RTM. These tools are provided to help the tenant overcome any predisposition towards *tunneling* or otherwise limiting her cognitive bandwidth.[128] Thus, these deceptively simple exercises can increase the tenant's chance to effectively process and deploy the information provided by the app. Moreover, these exercises can be incorporated into the tenant's problem-solving technique on an ongoing basis, whether dealing with the tenancy concerns at hand, or when tackling any other problem, legal or otherwise, that may develop in the future.

2. Maine Family Law Helper

The Maine Family Law Helper app ("MFLH") is designed to be used by the clients of legal services organizations and private sector low-bono legal service providers. The app guides a new client through the initial intake process in a divorce action. Through the interview process, MFLH captures the data necessary to complete the complaint and summary sheet for a divorce action in Maine. The interview process is also designed to be distinct from the questions listed in the court forms—MFLH is not simply an electronic version of those forms, which do not always present information in a manner and with language that is intuitive for a *pro se* litigant to follow.[129] Instead, MFLH asks questions in a logical flow based on distinct topics.

Further, MFLH uses conditional logic to streamline the intake process. For example, MFLH asks the user if they have any children. If the user responds "no," then no further questions about children are asked during the interview process. But if the user responds "yes," then MFLH seeks to determine how many children the user

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128. *Tunneling* and cognitive bandwidth limitations are previously explained in detail. *See supra* Introduction.

129. A *pro se* litigant is not likely to be familiar with many terms in this court form, such as plaintiff, defendant, title to real estate, and jurisdiction, and the form does not include any accompanying definitions. Further, the form references parental rights and responsibilities, but does not distinguish that this procedure is only intended for unmarried couples with children, as opposed to married couples seeking a divorce. *See FM-004 Complaint for Divorce with Children*, ST. ME. JUD. BRANCH, http://www.courts.maine.gov/fees_forms/forms/pdf_forms/fm/FM-004,%20Rev.06.16 Divorce%20with%20Children%20Approved.6.7.16.pdf [https://perma.cc/CZL8-6Z3L].

has and generates distinct sets of questions for each child, depending on the number provided by the user.

At the end of the interview process, the app auto-fills a set of forms, relying on the data gathered during the interactive intake process. The app then emails the court forms to the lawyer. Using MFLH means that a lawyer can spend less time manually filling out forms for the client, resulting in increased efficiency for the service provider, and lower legal costs for the client.

The interview process in MFLH is divided into multiple topics: contact information, eligibility, problem type, history, plaintiff data, defendant data, child data, and feedback for attorney. MFLH begins the interview by capturing the user's contact information and then proceeds to basic eligibility questions, including whether the user meets the residency requirement in the state of Maine.[130]

Once the user passes the eligibility threshold, the app proceeds into data collection. MFLH first asks about whether the user has children from their marriage. The answer determines whether the user is engaging in a divorce with or without children, each of which includes separate complaint forms. Next, MFLH seeks to gather information about the user's history, such as whether the client or the client's spouse has ever filed for divorce from the other, and if so, the status of that action. MFLH proceeds to determine the reasons for why the user is filing for divorce, and offers a default explanation of the most common reason, irreconcilable differences.[131] MFLH then gathers personal information that will inform the court forms, such as married and maiden names, physical and mailing address, and marriage location and date. This section includes a related question of whether the user would like to change their name, a common procedure that is tangentially related to the divorce process. Finally, the section includes the ability to choose the court in which the action will be filed by linking to a list of corresponding towns and courthouses in the state of Maine. The next section, regarding questions about the spouse, features parallel questions.

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130. Residency options include: I have lived in Maine for the last six months; I have lived in Maine for the last six months AND my spouse and I were married in Maine; I have lived in Maine for the last six months AND my spouse and I were living in Maine when we decided to get divorced; my spouse has lived in Maine for the last six months; and none of these options apply to me. *See* ME. REV. STAT. ANN. tit. 19-A, § 901(1) (2017).

131. For the statutory basis of permissible reasons for granting divorce, see ME. REV. STAT. ANN. tit. 19-A, § 902 (2017). Reasons include adultery, impotence, extreme cruelty, desertion for three consecutive years, alcohol or drug abuse, neglecting to provide support, and cruel and abusive treatment. *Id.*

If the user previously selected that she had one or more children from the marriage, MFLH will ask a series of questions about the children, separating out answers for each child. These questions include past addresses for the children over the last five years, and information about any other court cases involving the children, any other people who may have custody of the children, and whether any of the children are on public assistance.

At the end of each section MFLH displays a completion screen, which serves several purposes. The screen motivates the user to keep moving through the app with supportive language. Further, the screen serves to track the user's progress and help her to estimate how much time she has spent in the app so far and how much time is remaining. This is designed to encourage users not to quit the interview process prematurely. Finally, the completion screen screen-prints the answers to the questions in order to give the user the opportunity to return to previous screens and correct any inaccurate information.

Finally, after the data collection process is complete, MFLH generates a PDF document for each court form, auto-completes the court forms using the data input by the user, and sends an email to the attorney with the auto-completed court forms attached. The attorney can then edit the forms as needed or contact the client for clarification.

During the design process, the Project Team considered whether it would be more efficient for clients to electronically fill out the PDF forms directly. The Project team ultimately determined that although this would be technically feasible,[132] the risk of user error was high because the structure and wording of the court forms is not aligned to varying reading levels. The chance of the user filling out the wrong forms, or misinterpreting the forms' contents is high[133] as the official forms are not designed to be completed by a litigant, independent of professional assistance—they are structured in such a way that all of the questions appear at once, presenting a more psychologically demanding scenario than an app that can meter out questions a few at a time, in logical groupings.[134]

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132. *See Court Forms*, ST. ME. JUD. BRANCH, http://www.courts.maine.gov/fees_forms/forms/#fm [https://perma.cc/XL7L-V3T2].

133. *See, e.g., FM-004 Complaint for Divorce with Children, supra* note 129. The usage of "[i]rreconcilable marital differences exist between the parties" without any explanation of what this means may lead to misinterpretation or even a user utilizing the wrong forms.

134. *See, e.g., FM-006 Complaint for Determination of Parentage, Parental Rights & Responsibilities, Child Support*, ST. ME. JUD. BRANCH,

D. User Experience Testing

1. *Rights of Tenants in Maine*

Ninety-six potential app users located in the halls and common spaces of seven state courthouses were offered a $10 gift card to test a beta version of RTM in July and August of 2016.[135] Each user was provided with a guided tour through the RTM, which was displayed on a tablet. The users were then asked to answer a series of survey questions, in order to elicit the users' general impressions of the app, its usability and design, as well as to learn more about the interactions users have with both the legal system and technology.[136]

Of the test users interviewed, over 55% (54) had previously encountered a "worrying" legal problem.[137] Many explained that they were unable to take action because of a lack of money, a lack of knowledge about how to find legal help, a distrust of lawyers based on previous experience, or anxiety-induced paralysis.[138] Several reported only taking action when they had no other choice, such as once the "court papers were delivered."[139] Others were more proactive, but had compassion for why many may not be: "I did take

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http://www.courts.maine.gov/fees_forms/forms/pdf_forms/fm/FM-006,%20Rev.%2006.16Complaint%20for%20PRR.FINAL6.29.16.pdf [https://perma.cc/W462-WZBH].

135. User testing was conducted in the state District Courthouses in Rumford, Bridgton, York, Biddeford, Springvale, Lewiston, and Portland, Maine.

136. Sample Questions from the court survey included: (1) OK, now that you've tried it out, please tell me your general impressions of the app. (2) And how about someone who isn't as good with this kind of thing as you are, how would they do with this app? (3) What kinds of rent problems have you ever worried about? (Have you ever had any of the kinds of problems the app shows?) (4) So, something brought you here today. What did you do to prepare for coming here? What did you do to deal with that problem, who did you try to get help from? (5) What did you do or find out then? Did it help you? How (Why not)? (6) Have you ever felt helpless by an overwhelming legal problem? (7) What kept you from taking action? (8) What got you to finally take action? (9) What has been the hardest part of addressing your legal problems without a lawyer? (10) Do you have access to a smartphone? (11) Do you have access to a computer? (14) Did the app ask the right questions, did it work for you the way you thought it would? (15) Did the questions make sense to you (were they understandable)? (16) In what ways do you think the app would help you feel less stress? (17) In what ways do you think the app would help you solve your legal problems? (19) How likely are you to read the action plan again after you've created it? (20) If you could improve one thing in this app, what would it be?

137. Rights of Tenants in Maine Test User Survey, Apps for Justice Project, Univ. of Me. Sch. of Law [hereinafter Survey] (on file with authors).

138. *Id.* at 5.

139. Test User Responses, Apps for Justice Project, Univ. of Me. Sch. of Law [hereinafter Responses] (on file with authors).

action but people are afraid they may be evicted if they say something. Landlords are formidable."[140]

Almost 33% (32) of respondents had experience with landlord-tenant legal disputes in the past and 15% (15) were actively concerned that they would have problems with their landlord in the near future.[141]   Among respondents that had experienced how courts adjudicate landlord-tenant claims, either *pro se* or represented, the majority believed that *pro se* litigants would be hamstrung by a lack of knowledge of the law and procedure.[142]   When asked what had been (or would be) the hardest part of addressing their legal problems without a lawyer, many respondents focused on the confusing requirements of legal procedure. "Procedural [s]tuff—I don't know who to talk to, when to talk, what to do in court, where to go, what the process is once I'm in the courtroom."[143] Others felt impugned by their lack of resources: "[n]ot having the money to do it. It all being new. I don't think of myself as a criminal, but [in this process] I feel like one."[144] Many simply felt bewildered: "I don't know what's going on. No one tells me anything . . . [you] need someone to speak for you that knows the system[]."[145]

Many participants reported bad behavior by landlords as one of the most stressful parts of the process. "Landlords can pull one over on you. They aren't always right. They threaten you, make you feel bad. You listen to a landlord, but he says whatever he wants because we don't know what's right."[146] "With the landlords here, they don't work with you. Don't talk with you and try to solve issues. [I'm a]fraid to deal with them."[147] Indeed, one participant was interrupted in the middle of testing RTM and was unable to finish providing feedback because they had received a text from their building manager informing them that their utilities were about to be cut off because the landlord's attempt at eviction had been dismissed by the court.[148]

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140. *Id.*
141. Survey, *supra* note 137, at 6.
142. *Id.* at 6–7.
143. Responses, *supra* note 139.
144. *Id.*
145. Survey, *supra* note 137, at 7.
146. Responses, *supra* note 139.
147. *Id.*
148. *Id.*

Further, many respondents believed that *pro se* litigants would have trouble establishing legitimacy and being treated fairly.[149] As one put it, the challenge was "[g]etting my side heard respectfully and being regarded as a human being. It is cold hearted."[150] Others felt that lawyers "take advantage[] of being here [in court] every day and knowing the law."[151] Moreover, there was a strong appetite for a third party to explain the law: "I am not quite sure about my responsibilities and the landlord's responsibilities. Something written by someone such as the law school, who is not a landlord, would be reliable."[152]

Most users did not specifically respond to the explicit stress mitigation and affirmation exercises, but those that did found them helpful and grounding.[153] "[I l]ike the deep breathing exercises – it helped, [] came at the right time and didn't make you feel like an idiot."[154] "I really liked the deep breathing exercises. It [r]eally [w]orks. It was thoughtful to put in. People in these situations are looking for a little compassion."[155] While the majority of users reported that using the app would make them feel less stressed, most credit it to the increase in their knowledge and in gaining new "options."[156] That said, 17% (16) of users reported that the emotional support aspect of the apps were the most helpful component.[157] As one user put it: "I would use it in stressful times. I like that it's like your mother[, e]ncouraging."[158] Others framed their feedback more pointedly: "[i]t helped instead of just talking at you."[159]

Turning to the technology needed to leverage RTM, the vast majority of users reported having access to a computer or smartphone: 82% (80) reported access to a smartphone and 84% (82) reported having access to a computer at home, at work, or at the local library.[160] Of test users with access to both, 39% (38) used their smartphone more[161] and 28% suggested that they would be more

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149. Survey, *supra* note 137, at 7.
150. *Id.*
151. Responses, *supra* note 139.
152. *Id.*
153. Survey, *supra* note 137, at 13.
154. *Id.*
155. Responses, *supra* note 139.
156. Survey, *supra* note 137, at 12.
157. *Id.* at 18.
158. Responses, *supra* note 139.
159. *Id.*
160. Survey, *supra* note 137, at 7–8.
161. *Id.* at 9.

likely to use the app if their access to technology improved (both in terms of devices and internet speeds).[162] Others suggested that RTM or an equivalent app should be available at kiosks at the courthouse "so you could use it right here."[163] What is apparent from the access statistics is that while smart phones are generally ascendant, many of the target users do still access the internet through computers. As such, RTM and similar apps need to be designed with enough flexibility to accommodate the spectrum of devices used by the client base and optimized to use the lowest possible amount of bandwidth to allow reliable access across the spectrum of devices—from a fully functional library or home laptop with a direct internet connection, to a low-cost smart phone running on a discount carrier.

Of the users surveyed, 43% (42) found the step-by-step landlord contact and escalation instructions of the action plan to be the most helpful aspect of RTM.[164] Another 33% (32) found the letter generation tool and call scripts to be the app's most valuable component because it could help them communicate in an appropriate and effective way.[165] "This would be helpful for starting a conversation with the landlord, a reasonable one."[166] Further, "the letter made me feel smart—not everyone can write like that."[167] Several commented on how the letter and scripts would help in keeping things civil with their landlord because often "[t]hey are hostile, and it is hard not to be hostile back."[168]

Although the majority of the qualitative responses to the app itself were positive, the most useful feedback for iterative development, and for the Apps for Justice project moving forward, was the constructively critical feedback. A number of test users desired a more polished and professionally designed interface with more developed help features, such as live chat and search functionality.[169] This included requests for "bolder letters and colors"[170] as well as "[a] little more flash . . . [because i]t looked like a Wikipedia page—well maybe better than that, but not much."[171] Several users brought up the importance of expanding the design to provide text-to-speech

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162. *Id.* at 17.

163. Responses, *supra* note 139.

164. Survey, *supra* note 137, at 18.

165. *Id.*

166. Responses, *supra* note 139.

167. *Id.*

168. *Id.*

169. Survey, *supra* note 137, at 14, 16–17.

170. *Id.* at 1.

171. *Id.* at 14.

functionality to provide access "[f]or the learning disabled, for those who cannot read, or are illiterate."[172]   Given the low capital investment in RTM's design, this feedback is not unexpected and it reinforces the Project's understanding of how important, and expected, design has become as a signal of quality in all segments of the marketplace, not just among high-end products and services.

Many users expressed concerns about the density and presentation of information, particularly in the action plan, which was perceived as too long.[173] As one tester put it "[t]he only thing I didn't understand was the real big page [the action plan]. It was too much stuff."[174] Conversely, some users felt that despite the length, "[t]he app isn't 'lawyerly' at all—doesn't use a lot of legal words that could be confusing."[175]   Such feedback should be of particular note to attorneys (a species not known for its brevity) that get involved in application development.

Despite concerns of information overload, 61% of users wanted more information on additional topics, such as housing discrimination and how "[l]andlords make [harassment and discrimination] look like something else . . . [m]ost people learn to live with it because they don't want to cause ripples."[176] Similarly users asked for more information or dedicated apps addressing lease terms, public and subsidized housing, courtroom and legal procedure, resources for immigrants, and additional tools to use for seeking other forms of help, such as more links to local charities, aid organizations, and state agencies.[177] Notwithstanding the helpful criticisms, over 86% (84) of the test users reported that they would use RTM if facing a housing crisis.[178]

One test user, a landlord, expressed frustration that legal aid organizations do not provide help to them, and requested that a version of the app be crafted to provide landlords with guidance on their rights and responsibilities.[179]   This brings up a number of important concerns and issues beyond the mandate of RTM, which are worth exploring. Landlords are a diverse group, and many do not fit into the archetypes that dominate the depictions of landlord in the

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172. Responses, *supra* note 139.

173. Survey, *supra* note 137, at 15–17.

174. Responses, *supra* note 139.

175. *Id.*

176. Survey, *supra* note 137, at 1, 14.

177. *Id.* at 14–17.

178. *Id.*

179. Responses, *supra* note 139.

media or popular imagination (be it the aristocratic patrician, the money-grubbing slum lord, or otherwise). Indeed, the Project team's observation of forcible entry and detainer proceedings at the Cumberland County Courthouse was peppered with *pro se* landlords.[180] These ranged from some landlords that were clearly proficient in the eviction process, while others were as intimidated by the experience as the tenants they were attempting to evict. As such, the question must be asked: is some percentage of landlord misbehavior arising out a lack of understanding of the rules? Moreover, would everyone involved benefit from a clearer understanding of their obligations under the law?

2.   *Maine Family Law Helper User Testing*

Completing user testing with MFLH was a greater challenge than for Rights of Tenants in Maine due to the absence of client data tracking by lawyers, the lack of a technology ecosystem in Maine, and the potential testers' law practices' high client volume and limited time availability.

First, the low-bono law practices with which the Project engaged did not track the types of specific issues presented by their family law clients or at what point in the process clients sought professional legal assistance. In hindsight, the Project should have gathered data on the types of clients that engage each firm (such as divorce, parental rights, and post-judgment modification), and more importantly, *when* they engage the firm during their divorce actions. The team assumed incorrectly that during a divorce action, the majority of clients retain an attorney at the beginning of the process, before filing an action in court. Instead, the Project learned from its testing partner firms that most of their clients engage an attorney after attempting to take legal action on their own. The clients typically file for divorce, become overwhelmed by procedural challenges, and then engage a lawyer to untangle the knot.

Second, many of the Maine lawyers the team spoke to were not familiar with the ascendance of new law practice technologies. Maine

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180. Lois R. Lupica and Sage M. Friedman attended a Cumberland County Courthouse housing proceeding on Nov. 10, 2016 (notes on file with authors). Similarly, a report from 1998 observed that in Massachusetts Northeast Housing Court, over half of the landlords appearing in court for summary eviction cases represented themselves. Bos. Bar Ass'n, Report On Pro Se Litigation 16 (1998), https://www.bostonbar.org/prs/reports/unrepresented0898.pdf [https://perma.cc/W8CA-8UWJ].

is home to only one legal technology startup[181] and very few non-legal technology startups.[182] As a result, the proposal to test the app was often greeted with skepticism, which the team speculates was born out of unfamiliarity with the nascent law practice and technology movement.

Third and finally, the Project's testing partners were small law firms with fewer than five attorneys, engaged in volume-based practices.[183] Often juggling six days per week of client meetings, the attorneys had little time to arrange application testing for their clients. However, given the research findings on the impact of expert systems on law,[184] the Project team speculates that it is likely that expert systems would improve efficiencies for these attorneys.[185]

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181. *X2X*, ANGELLIST, http://www.angel.co/x2x-community [https://perma.cc/VR7L-5MVJ].

182. AngelList is a popular directory website for startup companies and the investors who fund them. AngelList only features 205 startup companies in Maine, and only one of those is a legal technology company. In contrast, AngelList features 359 startup companies in New Hampshire. *Compare Maine Startups*, ANGELLIST, http://www.angel.co/maine [https://perma.cc/DQG4-WC8U], *with New Hampshire Startups*, ANGELLIST, https://angel.co/new-hampshire [https://perma.cc/E88H-XQZJ].

183. The recent Legal Trends Report from the practice management software company Clio highlighted that on average, small firms only bill twenty-eight percent of hours worked in a given day. *Legal Trends Report*, CLIO (Sept. 19, 2016), http://www.clio.com/blog/legal-trends-report/ [https://perma.cc/2LBZ-97H7]. Assuming an eight-hour workday, that amounts to 2.2 billable hours.

184. *See* Trilling, *supra* note 46, at 70–71; *see also* McGinnis *supra* note 47, at 3042.

185. Initially, the project team identified two attorneys who would identify clients to test MFLH directly and provide feedback to the team. The first attorney operates a legal incubator in Cumberland County, Maine, and the second attorney operates a general practice with a focus on family and criminal law in Oxford County, Maine. Both attorneys were motivated to participate in testing based on potential time-savings for the attorney, and cost-savings for the client.
Feedback form questions for the attorney included:
    1. What were your/your clients' general impressions of the website?
      a. Generally positive
      b. Generally negative
      c. Neutral
    2. Did clients approach you with any of these problems: (check all that apply)
      a. Could not log into the website
      b. Did not understand the questions
      c. Confused by the flow of the questions
      d. Not enough time to complete the questions
      e. Encountered a bug that prevented them from completing the questions.
    3. On average, how much time did you save per client by using this website?
      a. More than 1 hour
      b. 1 hour

E. Revising and Improving the Evolving Product Prototype

Upon consideration of user feedback for RTM, the team worked to revise the app to try to minimize the text and further simplify the language. This led to the review of a number of aesthetic design choices, including decisions about color, font size, and style. The team continues to propose improved versions of the app and may continue to engage in user experience testing with both potential users and legal professionals.

Feedback for the presentation of Maine Family Law Helper was similar to that received in response to the RTM app. As with RTM, the team plans to continue minimizing text and improving the design aesthetic, but also wants to improve the prototype for MFLH through more extensive user testing. From the initial attempts at MFLH user testing, the team learned to build in sufficient time to form a working relationship with each partner law firm. Based on the ever-changing nature of those practices, extensive time may be required to ensure that the Project can identify the ideal client testers for MFLH. Moreover, with software designed for low-bono law firms white label products would be required.[186] The Project team worked with each of

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    c. Less than 1 hour

    d. I saved no substantial amount of time

    e. I spent more time than I saved assisting clients with the website

Feedback form questions for the client included:

    1. When you first saw the website, what did you think it was supposed to do?

    2. To what extent did the questions make sense to you?

      a. All of the questions made sense.

      b. Most of the questions made sense.

      c. Some of the questions made sense.

      d. Most of the questions did not make sense.

      e. None of the questions made sense.

    3. Did your stress level change after using the website?

      a. Yes, I felt less stressed.

      b. Yes, I felt more stressed.

      c. No, my stress level did not change.

    4. If you struggled with the website, how did you seek help?

      a. I did not struggle with the website.

      b. I contacted my attorney.

      c. I contacted a friend or family member.

      d. I browsed another legal website.

      e. I stopped using the website entirely.

    186. *See White Label Product*, INVESTOPEDIA, http://www.investopedia.com/terms/w/white-label-product.asp [https://perma.cc/8V5U-5T39] ("A white label product is manufactured by one company and packaged and sold by other companies under various brand names. The end product appears as though it has been manufactured

its law firm partners to create customized white label versions of MFLH for each firm. This was in part to ensure consistent branding for the clients, but also to avoid client confusion that could arise from asking clients to contact the law firm and complete intake procedures through an apparent third-party.

IV. THE UNAUTHORIZED PRACTICE OF LAW?

The use of technology-based tools to deliver legal information and legal assistance raises the issue of whether these tools implicate (or should implicate) the rules prohibiting the unauthorized practice of law ("UPL").[187] In light of the rapidly changed and changing legal profession, it is not at all clear what activities and service provision models constitute the "practice of law."[188] For example, a number of jurisdictions have noted that "[t]he focus of the inquiry is, in fact, 'whether the activity in question require[s] legal knowledge and skill in order to apply legal principles and precedent.'"[189] Going beyond courtroom appearances, a few jurisdictions have included "the preparation of legal documents, their interpretation, the giving of legal advice, or the application of legal principles to problems of any

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by the marketer. The benefit for the manufacturer and the marketer is that the manufacturer can concentrate on making the product or service and focus on cost savings, and the marketer can invest in marketing and selling the product."). In this context, a white label product would be a version of MFLH that appeared to be the individual service of each partner law firm.

187. Mathew Rotenberg, *Stifled Justice: The Unauthorized Practice of Law and Internet Legal Resources*, 97 MINN. L. REV. 709, 710–11 (2012) (Originally targeted at real estate agents and others with the potential for infringing upon the domain of licensed attorneys, and ostensibly designed to protect the public, almost every jurisdiction (except Arizona) has adopted rules prohibiting the unauthorized practice of law. Most of the unauthorized practice rules were adopted prior to emergence of the proliferation of technology-based self-help tools.).

188. *See generally* Deborah L. Rhode, *Policing the Professional Monopoly: A Constitutional and Empirical Analysis of Unauthorized Practice Prohibitions*, 34 STAN. L. REV. 1 (1981).

189. Bd. of Overseers of the Bar v. Mangan, 763 A.2d 1189, 1193 (Me. 2001) (defining the "[t]he term 'practice of law'" as a "term of art connoting much more than merely working with legally-related matters") (internal citation omitted); Att'y Grievance Comm'n of Md. v. Shaw, 732 A.2d 876, 882 (Md. 1999) (noting that the practice of law includes "utilizing legal education, training, and experience [to apply] the special analysis of the profession to a client's problem") (internal citations omitted). The *Shaw* court further noted that "the Hallmark of the practicing lawyer is responsibility to clients regarding their affairs, whether as advisor, advocate, negotiator, as intermediary 'between clients, or as evaluator by examining a client's legal affairs." *Id.* at 883 (quoting *In re* Application of R.G.S., 541 A.2d 977, 980 (Md. 1988)).

complexity" in their "law practice" definition.[190] The fact is that the contours of the definition of UPL remain ill-defined in most jurisdictions when technology-based tools are providing legal information and services.

An early case discussing the scope of "unauthorized law practice" addressed the question of whether a self-help book providing information to consumers about will and trust preparation constituted law practice.[191] In ultimately deciding that the book should not be enjoined from being published, the New York Court of Appeals noted that when there is no "personal contact or relationship with a particular individual," nor the "relation of confidence of trust so necessary to the status of attorney and client," there is no "practice of law."[192] This and other decisions addressing self-help books have informed how regulators have thought of, and are thinking about, whether technology-based self-help tools violate UPL rules.[193] Like do-it-yourself books, legal apps provide legal and law-related information to consumers. Most legal apps, however, are more interactive than books, although the interaction is between a consumer and a computer, rather than a consumer and a lawyer. For example, apps typically include algorithms that guide users through a series of questions and decision-trees, diagnose law-related problems,

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190. *Shaw*, 732 A.2d at 883 (quoting Lukas v. Bar Ass'n of Montgomery Cty., 371 A.2d 669, 673, *cert. denied*, 280 Md. 733 (1977)). In *Shaw*, the court noted that the practice of law includes "'utilizing legal education, training, and experience [to apply] the special analysis of the profession to a client's problem.'" *Id.* at 882 (quoting Kennedy v. Bar Ass'n of Montgomery Cty., 561 A.2d 200, 208 (Md. 1989)).

191. *See generally* NORMAN F. DACEY, HOW TO AVOID PROBATE (1990). The book sold over 600,000 copies in its first two years of publication. *See also* New York Cty. Lawyers' Ass'n v. Dacey, 54 Misc. 2d 564 (N.Y. Sup. Ct. 1967), *aff'd in part, modified in part*, 28 A.D.2d 161 (N.Y. App. Div. 1967), *rev'd sub nom.*, 21 N.Y.2d 694 (N.Y. 1967) (reversing the state trial court and appellate division's determination that the book constituted UPL).

192. *See Dacey*, 21 N.Y.2d at 694 (finding similarly that because there was no client interaction or connection, the court held that the developer of a "do-it-yourself-divorce-kit" was not engaged in the unauthorized practice of law); *see also* State v. Winder, 42 A.D.2d 1039, 1039 (N.Y. App. Div. 1973).

193. *See, e.g.*, Grievance Comm. of Bar v. Dacey, 222 A.2d 339, 348–49 (Conn. 1966) (drawing a line between providing information and drafting legal documents); Fla. Bar v. Brumbaugh, 355 So. 2d 1186, 1191 (Fla. 1978) (noting that "courts have prohibited all personal contact between the service providing such [self-help] forms and the customer, in the nature of consultation, explanation, recommendation, advice, or other assistance in selecting particular forms, in filling out any part of the forms, suggesting or advising how the forms should be used in solving the particular problems."); *see also* Janson v. LegalZoom.com, 802 F. Supp. 2d 1053, 1064 (W.D. Mo. 2011) (finding the unauthorized practice of law because LegalZoom tools went beyond that "of a notary or public stenographer."); Benjamin P. Cooper, *Access to Justice Without Lawyers*, 47 AKRON L. REV. 205, 210–13 (2014).

and ultimately offer law-based information, action plans, or legal forms.[194]   Moreover, as technology becomes more advanced, computer programs will make greater use of artificial intelligence and become more "human-like" in their problem-solving ability, further blurring the line between the provision of information and the "application of legal principles to [complex] problems."[195]

In light of the demand for these tools created to address the unmet need for legal services, the self-governing legal profession must reconsider the definition of the unauthorized practice of law to account for creative solutions being developed to expand access to civil justice. State bar associations and courts should consider the adoption of safe harbors for interactive legal software under UPL rules. Engaging in semantic gymnastics as to whether a computer program goes beyond the provision of scrivener services[196] fails to

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194. In the context of law-related technology, the few courts and bar associations that have addressed the scope of the UPL rule have come to a variety of conclusions. In some cases, the analysis and conclusion turned on the specific type of law-related technology at issue. For example, most jurisdictions have found that a program that provides a consumer with general information about legal rights and processes, or provides users with blank forms for them to complete is not the "practice of law." *See, e.g.*, State v. Despain, 460 S.E.2d 576, 578 n.2 (S.C. 1995) (noting that the sale of blank legal forms does not constitute unauthorized practice of law); *see also In re* Thompson, 574 S.W.2d 365, 366 (Mo. 1978). In contrast, programs that offer a series of online questions, and based on the answers given, provide tailored information or advice, have been deemed by some states (for example, Pennsylvania, Ohio, and Connecticut) to violate the UPL rules. *See, e.g.*, Pa. Bar Ass'n Unauthorized Practice of Law Comm., Formal Op. 2010-01, 7 (2010) (concluding that "the offering or providing of [in Pennsylvania] of legal document preparation services . . . [beyond the supply of preprinted forms] either online or at a site in Pennsylvania is the unauthorized practice of law and thus prohibited."); *see also* Lowry v. LegalZoom.com, No. 4:11CV02259., 2012 WL 2953109 at *1 (N.D. Ohio July 19, 2012); Quintin Johnstone, *Connecticut Unauthorized Practice Laws and Some Options for Their Reform*, 36 CONN. L. REV. 303, 304 (2004). Litigation, however, has led to the approval of law-technology tools in a number of jurisdictions (South Carolina, Missouri, Washington, and California). *See generally* Medlock v. LegalZoom.com, No. 2012-208067, 2013 BL 367583 (S.C. Oct. 18, 2013); Janson v. LegalZoom.com, 802 F. Supp. 2d 1053 (W.D. Mo. 2011); Webster v. LegalZoom.com, B240129, 2014 WL 4908639 (Cal. Ct. App. Oct. 1, 2014) (settlement agreement available   at   http://www.ldalitigation.com/docs/Settlement_Agreement.pdf [https://perma.cc/XA3B-DQQE]);   Assurance   of   Discontinuance,   *In   re* LegalZoom.com (Wash. Sup. Ct. Sept. 15, 2010), http://www.keytlaw.com/blog/wp-content/uploads/2010/09/Assurance-of-Discontinuance.pdf   [https://perma.cc/UC5N-WPSU].

195. *Shaw*, 732 A.2d at 883.

196. *See, e.g.*, *Janson*, 802 F. Supp. 2d at 1064 (finding the unauthorized practice of law because LegalZoom tools went beyond that "of a notary or public stenographer").

address a fundamental problem in our legal system: most individuals cannot afford a lawyer to address their legal issues.[197]

CONCLUSION

As the Project's term was coming to an end,[198] the concern was how best to finalize the prototype apps, maintain them, and continue to develop legal expert systems addressing other areas of the law. The Project decided to submit a proposal for a course offering at Maine Law, the Apps for Justice Lab, which would create regular classes of law students that could continue building and maintaining legal expert systems. The course was recently approved, and starting in Spring 2018, the first cohort of students will work in teams to (i) collaborate with a legal services provider to identify a legal or law-related problem commonly faced by low- and moderate-income consumers, (ii) research and develop skills to deconstruct law and non-law related solutions to a specific legal problem, (iii) develop design and algorithmic thinking skills to map out multiple versions of the identified solutions, (iv) create a user-friendly app, able to be effectively used by the target population, and (v) engage in user testing and revision of the app. The Project team expects that the Apps for Justice Lab will provide a rigorous educational experience that will prepare students to practice law using twenty-first century technology.

Several law schools are already offering similar courses. Georgetown Law School offers a course on legal expert system design using the tools A2J Author and Neota Logic to develop their own systems.[199] Over the course of a semester, groups of collaborating

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197. *See generally* Cynthia L. Fountaine, *When is a Computer a Lawyer?: Interactive Legal Software, Unauthorized Practice of Law, and the First Amendment,* 71 U. CIN. L. REV. 147 (2002).

198. The grant term was for a period of eighteen months.

199. *See generally* Tanina Rostain, *Thinking Like a Lawyer, Designing Like an Architect: Preparing Students for the 21st Century Practice,* 88 CHI.-KENT L. REV. 743 (2013); Roger Skalbeck, *Tech Innovation in the Legal Academy,* THE NEW LIBRARIAN (2012), http://www.aallnet.org/mm/publications/products/aall-ilta-white-paper/tech-innovation.pdf [https://perma.cc/545F-YGAH]. At Vanderbilt in 2016, students have developed apps for immigration, Medicare, and foreclosure assistance; and at Georgetown in 2015, students developed apps addressing various areas of law such as disability rights, child welfare, and government benefits. *See Technology in Legal Practice,* VAND. L. SCH., http://law.vanderbilt.edu/courses/340 [https://perma.cc/NQJ5-GE3W]; https://law2050.com/2016/04/21/vanderbilt-law-students-building-apps-for-access-to-justice/ [https://perma.cc/9HNX-Y7KE]; *Vanderbilt Law Students Build Apps for Access to Justice,* LAW 2050, https://law2050.com/2015/04/15/vanderbilt-law-students-build-apps-for-access-to-justice/ [https://perma.cc/C98K-V2H3].

students design, develop, and present an expert system to a panel of legal community members for evaluation.[200] The course begins with an overview of the logic behind a legal problem and then continues into the mechanics of how to analyze that problem with expert system software.[201]   When reflecting on lessons learned in offering this course, the professors noted that the process of building these apps pushed students to think from the perspective of their clients in a much more in-depth manner than a typical intake interview.[202]

Likewise, Chicago-Kent offers an expert system practicum in which the professors emphasize the process of thinking like the client, instead of like the typical attorney.[203] The course curriculum begins with exercises on the construction of plain language instead of legal language, continues with a direct contact phase in which students shadow *pro se* litigants through their court hearings, and concludes with the construction of a legal expert system.[204]

The Project team hopes to build on the experience of these and other course offerings, but to more pointedly incorporate the design thinking process, including learning about how to relay information to people who are under extreme performance minimizing stress. The measurable results of the Apps for Justice Lab will be a cohort of law graduates with greatly increased understanding of, exposure to, and experience with using twenty-first century legal tools.   Another measureable outcome will be the design and development of original technology-based applications that will be available to address both *ex post* and *ex ante* legal problems and concerns. These technology-based apps will have great potential to improve the effectiveness and efficiencies of legal problem-solving as well as the practice of law.

With respect to the issue of how to disseminate the finalized apps so they are widely available and thus used, there are a number of options: (i) license them to non-profit law-related organizations, for no fee or a low fee, (ii) license them to low-bono law firms to be used in connection with client representation, (iii) provide them to the court system so that they can be offered to unrepresented litigants, or (iv) license apps that address non-consumer issues to small business

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200. *See* Rostain, *supra* note 199.

201. *Id.*

202. *Id.*

203. *See* Ronald W. Staudt, *Access to Justice and Technology Clinics: A 4% Solution*, 88 CHI.-KENT L. REV. 695, 712 (2013) ("While the law school curriculum effectively can teach law students to write for other lawyers, rarely is there any focus on teaching students to communicate complicated legal concepts to clients.").

204. *Id.*

start-ups or incubators to facilitate economic and business development. The Access to Justice Lab will also provide training for law students interested in opening their own practices, or taking over a retiring solo practitioner's practice.

The Apps for Justice Project is but one example of how to approach the development of legal expert systems that address the law-related challenges faced by those experiencing scarcity and external threats that lead to inertia. There are many more legal expert systems in the process of development across the globe.[205] The momentum that is building around this and similar projects shows that the legal community increasingly recognizes that there are now ways to scale legal assistance so that even without lawyers, a greater number of low-income people are able to be helped as they address their legal problems. This growing enthusiasm is inspiring and reflects a trend that the Project team is hopeful will only continue to accelerate as attorneys embrace design thinking and legal technology.

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205. *See, e.g.,* DoNotPay, https://donotpay-search-master.herokuapp.com/ [https://perma.cc/6HAN-LWBD] (showing a chatbot created to dispute parking tickets in the U.K., now operating in the United States and addressing many other issues, including suing Equifax and providing free legal guidance to refugees); *see also Robot Lawyer,* Robot Lawyers Pty Ltd, https://www.robot-lawyers.com.au/ terms-of-use [https://perma.cc/W2ZL-XD54] ("[h]elping unrepresented people tell their story," an Australian legal expert system provides guidance on entering a guilty pleas for traffic offenses, assault charges, DUI charges, drug charges, and theft charges.); *Robot Lawyer Lisa,* AI Tech Support Ltd, http://robotlawyerlisa.com/ [https://perma.cc/JF4L-TKUW] (noting that AI created NDAs and contracts assisting small businesses in the U.K.).