Governing With Information Technologies

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ABSTRACT
This paper outlines the project highlights for the research project, Governing with Information Technologies.

Categories and Subject Descriptors
K.4.1 [Computers and Society]: Public Policy Issues-Regulation,

General Terms
Legal Aspects

Keywords
Law, Policy, Defaults, Open Standards

1. BACKGROUND
Visions of Digital Government see people easily accessing government information while simultaneously encouraging a more efficient, transparent and accountable government. The implementation of these visions requires government to carefully consider the design of information technologies or "code", i.e., the physical hardware, software and architecture of information technologies. This research seeks an understanding of how choices in code can govern or regulate society. This will improve the ability of digital government to meet societal goals and concerns through modifications of code.

2. ACTIVITIES
The research project involves several different activities. The first activity, which is completed, is the development of a theoretical framework for how code regulates. The next step is the identification of salient regulatory characteristics for code, which can be manipulated or modified. Our current research involves refining our understanding of these governance characteristics through case studies and experimental methods. Two governance characteristics our research is focusing on are defaults and open standards. We are currently completing our work on defaults and are in the process of collecting data on open standards.

2.1 Recursive Regulatory Model (RRM)
Our first research contribution is the development of a theoretical framework, the Recursive Regulatory Model (RRM). It provides policymakers and technologists with a framework for analyzing how code affects public policy issues. RRM is a technology-centered approach that allows society to understand how code is developed, used, and shaped by society. Consequently, RRM can provide solutions for contemporary issues, such as the privacy concerns with Radio Frequency Identification (RFID) technology. RRM's solutions are an improvement over past approaches that overlook the role of technology in affecting societal concerns.

The RRM framework and an understanding of computer science have led to our second research contribution. Our research identified several governance characteristics of code, which are analogous to "knobs and levers" that policymakers can manipulate to influence behavior [2]. Examples of these characteristics include defaults, standards, transparency, and modularity. The regulatory potential of these characteristics led us to conduct further research on the role of defaults and open standards.

2.2 Defaults
The first governance characteristic we analyzed is defaults [1]. Defaults are widely acknowledged as a technological method for enacting social policy. Microsoft's update to its XP operating system changed the default settings for the built-in firewall. The new default setting turns on the firewall to enhance computer security. This example suggests how policymakers could use governance characteristics to address societal concerns. The recognition of the power of defaults has led us to study defaults from several perspectives including human-computer interaction, cognitive psychology, behavioral economics, and legal studies. The result of this is a nuanced understanding of why defaults work and how policymakers should set defaults to promote social welfare. In fact, we offer policymakers decision trees to aid in deciding how defaults should be set. This research project is in its final stages

2.3 Open Standards
A second governance characteristic our research is examining is open standards. There are well known examples, such as the Internet protocols, where open standards that have proved extremely valuable. The ability of users to avoid lock-in and choose between multiple competitors has led governments, such as Massachusetts, to push for open standard technologies as part of its technological procurement. Our goal is to push beyond the anecdotal recognition of open standards by collecting empirical data on the effects of open standards.

One part of our project focuses on collecting quantitative data on a random set of open standards developed by the IETF, the exemplar of open standards organizations. The results indicate a power law relationship in the impact of open standards. A few standards have a very high disproportional impact, while there are many other standards that have very minimal impact. This relationship should not be surprising, because standards are analogous to other decisions that fit the power law relationship,

such as web blogs, because people can freely choose between many standards. The next step is to understand the implications of this relationship and how standards organizations can use this to their advantage.

A second part of the open standards project considers government's role in adopting and promoting open standards. To examine the issues, we began a case study on the open standards policy created and implemented by Massachusetts. Massachusetts announced it would switch over its public electronic documents to an open standard format by the year 2007. The announced plan was swiftly approved but controversy was long to follow it, as opposition emerged from Microsoft, whose proprietary file format would not longer be used, because it was not an open standard.

The case study offers a number of lessons. The common thread is that government policy towards open standards is akin to any other political policy. For it to be successful, it needs to recognize several factors. First, open standards are a useful for a number of reasons including reducing vendor lock-in, lowering costs, and promoting innovation. In adopting an open standards policy, government must further recognize, before any substantial policy changers are undertake, that there will be other groups, values, and interests that may be affected. It is important to recognize the potential negative effects upon these groups. Finally, an open standards policy requires a knowledgeable and committed support. Without this type of support, detractors can reduce or eliminate such a policy.

3. CONCLUSION

The goal of our research is to provide a theoretical informed, but grounded understanding of how information technology affects society. After all, the design of these systems affects the interaction between citizens and government, as well as a wide variety of public policy domains including privacy, intellectual property, free speech, and accessibility. An understanding of the relationship between information technology and individuals is crucial to the effective implementation and operation of digital government.

4. ACKNOWLEDGMENTS

The authors wish to thank the National Science Foundation for its continued generous support of our work.

5. REFERENCES

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The project web page is located at
http://www.governingwithcode.org