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Towards an Ethical Interaction Design: the issue of including stakeholders in law-enforcement software development

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ABSTRACT

In the public sector (particularly in the UK in light of recent reforms i.e. the Local Government Act 2000, etc.) a greater degree of accountability and public involvement or intervention has become the norm in public infrastructure projects, partially under the rubric of “stakeholder engagement”. This paper seeks to discuss public involvement in a law-enforcement technology (Isis), which operates on a covert basis in the detection and prevention of child abuse activities across a number of social networking facilities. Our contribution to the development of Isis is to perform an ethics centered consultation process with stakeholders who will contribute to the design and deployment of the end software package. To that end, we have sought to develop a “Modified Participatory Design” approach, utilizing the knowledge gained from the HCI community with regards to more traditional design projects and adapting this body of work to questions of ethics, privacy, corporate and civic responsibility, monitoring and awareness issues, etc. in an effort to create a fluid and agile communication process between stakeholders and designers, thus taking account of the ethical issues around Isis as design occurs.

Author Keywords

Participatory Design, Ethics Centred Development, Stakeholder Engagement, New Public Management, Socio-technical Considerations

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Increasingly, issues of (but not exclusive to) government expenditure are being exposed to scrutiny facilitated by governmental actors in various forms under the rubric of stakeholder engagement. The Local Government Act (UK) of 2000 set out requirements for local authorities to involve public consultations on items as diverse as planning applications, environmental policy, public

housing, schools and education, investment in the arts and culture, neighborhood policing and local crime prevention, health care commissioning, distribution and development, and IT infrastructure development. Stakeholders have been called upon from diverse and dispersed organizations and regions, cast in any number of roles and asked any number of questions on the topics listed above, without significant guidance from the Home Office or the Department for Communities and Local Government (DCLG) on what qualifies as sufficient stakeholder engagement.

Our study, involving stakeholder engagement around a software package (Isis) – which analyses the exchange of child abuse media and captured conversations over social networking forums, assessing the ages of co-conversants and attempting to flag instances where it appears child abuse may be imminent – presents us with similar problems mentioned through the management literature dealing with the issue of “who is properly known as a stakeholder?”. We are attempting to address the ethical considerations around internet monitoring technologies which seek to ameliorate the problems of internet child abuse. To this end, we have sought to develop a “modified participatory design” approach to software development, in which we are attempting to place ethical considerations, as our stakeholders define and illustrate them to us, at the centre of the design process in an agile and responsive manner. In what follows, we will discuss the history of stakeholder consultation, how stakeholder engagement is situated in this particular project (along with a description of the technical aspects of the project), how we envision the insights of participatory design as being beneficial to this type of project, and share some preliminary findings from our ethics centered engagement exercises. We will conclude by discussing how ethics and (modified) participatory design were envisioned at the proposal stage of the project, and how those plans are panning out in practice. In an environment where social responsibility is increasingly prevalent amongst numerous projects, industries and economic sectors, we hope to offer some practical advice on the process of stakeholder engagement as we have found it to this point in the project.

A BRIEF HISTORY OF STAKEHOLDER ENGAGEMENT

The “stakeholder”, first introduced by Freeman (1984) has become a nearly ubiquitous agent in the process of

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corporate – and now governmental – accountability. Freeman was concerned with the consideration of corporate responsibility beyond profit maximization, a response to the increasing influence of shareholders who were neither accountable to, or in the proximity of, the facilities held by companies they owned. Stakeholders were intended to bring a balance to the corporate world, and in his initial assessments, Freeman stated that “...any individual who can affect or is affected by the achievement of the organisations objectives...” was rightly described as a stakeholder (*ibid*; 46). The broad definition was enthusiastically welcomed as a concept, although in practice problems arose quite quickly, i.e. where does one accept that someone affects or is affected by said objectives? In the ensuing twenty-five years, numerous management theorists have attempted to delineate legitimate, illegitimate, passive, active, primary, secondary, tertiary, etc... stakeholders. Of note in software development is McManus (2004).

Stakeholder engagement became paradigmatic in the business academy through the 1980s and 90s, often encapsulated by the exemplar of the Ben and Jerry’s case study (c.f. Lager, 1994). As the business academy began to merge with the interests of political science, under the descriptor of either Governance or New Public Management, the techniques of the board room filtered into the realm of public policy management (see Behn, 2003; Dunleavy and Hood, 1994; Gilliat, Fenwick and Alford, 2000; Flynn and Talbot, 1996; etc.). The central theme of the movement was ‘what’s good for business is good for government’. Stakeholder engagement filtered into UK public policy in 2000, and since then has been a significant force in Evidence Based Decision Making. Although entrenched in legislation, little concrete guidance is to be found on stakeholder engagement.

We have undertaken a stakeholder consultation exercise in which we expect our representatives will inform us of ethical issues as well as development considerations. Due to the sensitive nature of the data this software collects, an ethics component of the project was submitted with the technical development funding application. Whilst partially fulfilling the requirements of stakeholder engagement in sensitive public systems, we also seek to use stakeholder insights in the actual design of the software itself. Our ambition is to utilize a “modified participatory design” technique, which allows the stakeholder to contribute to the design of the software package in a similar fashion to the way that users have contributed to previous design projects.

THE ISIS SOFTWARE

Within Isis a toolkit is being developed that will support law enforcement in identifying the activities of paedophiles – in particular sexual “grooming” behaviours within social networks and the production and distribution of child abuse media. The toolkit draws heavily upon natural language processing techniques, analysing chat logs to identify the properties of the language that is being used. Sophisticated statistical analysis techniques allow for the creation of language profiles for certain groups or individuals. These have

already been successfully used to automatically distinguish between speech from a number of distinct demographics (Rayson et al. 1997; Rayson, 2008). As part of Isis, these techniques will be extended to allow the differentiation of child and adult language, and by extension the detection of adults masquerading as children. Law enforcement personnel will also be able to build language profiles of known paedophiles, which could then be used to assist in determining if they are re-offending. In addition to the language analysis, the Isis toolkit also includes functionality to monitor in real-time the activities that are occurring on file sharing networks. The data that is gathered can support law enforcement in determining who is distributing child abuse media, and track its distribution over these networks (Hughes et al. 2006).

“MODIFIED PARTICIPATORY DESIGN”

Participatory design approaches see the user as a valuable and vital part of the interaction design team. The methods are widely accepted, long-established members of the user-centred toolbox (Muller & Kuhn, 1993). They have been adapted and extended over the years as new user groups and challenging contexts have been addressed by HCI researchers and practitioners. Druin, for example, developed a form of participatory design called ‘cooperative inquiry’ that accommodates children as design partners (Druin, 2002).

A key feature of participatory design is the way end-users help shape the future practices and technologies that impact on their lives. In our work, the “end-users” can be seen as a diverse set that includes abused children, parents, law-enforcement agencies, service providers, the wider society and even perpetrators. The sensitive and complex nature of the systems we are building has led us to use a series of end-user proxies and intermediaries as discussed in the next section. In this respect, our approach has been similar to that used in developing world contexts where trusted, experienced people act as access points to the wider community (Jones *et. al.* 2008).

Conventional participatory design involves end-users helping to form interface concepts and artefacts. Our work, in contrast, aims at forming a shared understanding of, and agreement on, the ethical concepts and issues raised during system development. In working in this way, we are attempting to put into practice, in concrete ways, the aspirations and broad concerns of value sensitive design (Friedman, 1996).

STAKEHOLDER DEFINITION, SELECTION AND ANALYSIS

As we are developing the project for a law enforcement agency, and moreover against a background of increased academic and public interest regarding monitoring technologies and the collection, use and safeguarding of personal data, our approach since Isis’ inception has been to identify and consult with what we have identified as “relevant stakeholders”.

A series of introductory, 'internal' consultations were first held at the level of the project development group. These yielded several important outcomes inasmuch that they shaped practical and ethical decisions around design features of the research and facilitated the development of an early framework for ethical engagement. Critically, these consultations enabled the development group to consider a series of prevailing requirements and constraints imposed by law enforcement as a key stakeholder and end user group, e.g. mandatory compliance with legal, procedural and ethical codes of conduct that govern the orchestration of research within policing contexts, the management of police information, intelligence collection, assessment and analysis, evidentiary standards, etc. These "top down" requirements served to uphold the interests of our associate law enforcement agency and its own stakeholders, while creating a bounded context both for the development of the tools and further initiatives of stakeholder engagement over the lifetime of the project.

Further 'internal' reviews of Isis' envisaged functionalities and operational context established that, while the prospective user pool (i.e. relevant law enforcement) is relatively small, there exists a potentially large group of other stakeholders that would bear an interest in the development and deployment of the toolkit. We expect these 'external' stakeholders to have a significant input into the development of Isis as well, and we have gone to some lengths to learn from their expertise. Although we initially envisaged an exercise which brought all potential stakeholders together in a single meeting, it quite soon became clear that subdividing the stakeholders by relevant background and expertise was necessary to achieve our desired ends. We will briefly describe some of our engagement groups, and justify our selection criteria in what follows:

The online industry

In recent years, the private sector has become increasingly engaged with policing and public security initiatives under the rubric of public private partnership (Grabowsky, 2007). Some such companies, by virtue of various abuses of online products or services, have identified a distinct need to protect their brand and reputation from association with illegal activities such as the sexual exploitation of children and now work with law enforcement to combat this phenomenon under the banner of their codes of practice and Corporate Social Responsibility (CSR) programmes (e.g. VISA, 2007; ISPA UK, 2007). In many cases, ISPs and social networking sites are deploying their own monitoring facilities as well, which serves to inform both the ethical considerations involved with Isis and the practical activities of doing offender identification. Given the implication that the very facilitating of these online crimes is (inadvertently) supported by the online industry (c.f. Taylor and Quayle, 2006), the mutual orientation to the problem of criminal control has been a consistent theme for our work.

Youth and offenders

Children and online offenders were identified as primary stakeholders early in the process of stakeholder definition; these are the key protagonists in suspect exchanges whose data will be surveyed and captured in support of Isis' monitoring capability. The notion of youth and offenders as primary stakeholder groupings raises a number of immediate questions and concerns around the mobilization of 'sensitive' stakeholder groups and how their engagement with Isis' ethical consultation process might be managed responsibly in the context of a public infrastructure project.

The conceptual development of offender and youth involvement has been somewhat challenging. There is a limited amount of information we are in a reasonable position to share with either of these groups in terms of the projects aims and practicalities, and as such, they will likely be unaware of their impact on the project. Of central importance is the need to balance data protection with child protection, while upholding the interests of children and victims to ensure they are not compromised in any way by virtue of their association with the project. Furthermore, as Isis is a covert device, we are not interested in showing known offenders the final product. Notwithstanding these 'project-centric' considerations, the inclusion of these groups as stakeholders also invokes a comprehensive series of legal and ethical codes and practices that govern the design and conduct of the participant design methodologies. Each stakeholder grouping presents a series of bespoke requirements and constraints that affect the nature its engagement with these consultations, notably in terms of the design of suitable modes of mobilization and engagement.

The law enforcement community

Although we work closely with a UK law enforcement agency with a remit for child protection, it has become quite clear through our interaction with them that they are not the sole agency who would be interested in Isis' application. They, along with other associates, have been introducing us to partnered agencies which have operational contact with our associates, in the interest of garnering further insights into both design and ethical considerations. One of our initial concerns was that were we to achieve our aims with Isis, we may in fact uncover such a significant number of ongoing areas of concern and possible threats to children that our associates, and as a result their affiliates, would be overburdened with the *duty of care* to investigate any credible threat to children. It is already accepted practice that our associates must perform a triage exercise when new cases come to their awareness; now with Isis being a possible law enforcement tool, our associates are forced to consider their own ethical concerns and obligations when assigning their action plans and investigative priorities. They have stated that should Isis overwhelm them with possible threats, it would be institutionally counterproductive and likely disposed of. Even to test Isis is placing a strain on our associates which is potentially beyond their budgetary and operational capacities, and we are again left considering how to make

the software work effectively and in an ethically sound fashion while accommodating the capacities of the very agencies we hope to support.

Privacy advocates

Our final group has proved the most problematic in terms of definition and engagement. It is not self apparent who might rightly qualify as a “privacy expert”, although we are all too aware that there must be some input from those who have this expertise. Interestingly, one of our most promising leads in finding the appropriate targets for consultation came from our law enforcement associates, who have sought information from lawyers with expertise in the Regulation of Investigatory Powers Act (RIPA). We have also sought input from the UK Privacy Commissioner’s office, and a number of academics with expertise in the ethics of digital privacy. However there are very few clear cut indications of how we might know that we had adequately engaged with the privacy community. We would suggest that if we operate within the remit of existing legal statutes, we can make a solid case for the ethical propriety of Isis, but that perhaps this is not the sole case for suggesting so, and consulting with privacy experts can lead to alternative readings of statutes and perhaps insights on how these considerations can be worked into software design and investigatory practice.

METHODOLOGICAL IMPACTS: THE ETHICS TOOLKIT

We would like to emphasise that there is no “one size fits all” solution to doing stakeholder engagement. As Mitchel, Agle and Wood (1997) assert, there is a constantly evolving and fluid relationship between recognised stakeholders, non-stakeholders, stakeholder motivations, justifications, proximities, etc. As their work on “stakeholder theory” clearly articulates, the concerns of consultation need to be reconsidered for each and every occasion of consultation and each and every group of stakeholders. Our academic enterprise becomes deciding how to deal with the stakeholder evaluations of the design project, and how to incorporate those evaluations and considerations into the development process in a practical way.

Initially we think it quite important to establish in no uncertain terms what stakeholder engagement means to software developers, law enforcement personnel and ethics professionals. Some of the problems we face are in determining how the feedback loop can actually be applied in light of practical suggestions from the stakeholder community. We have had diverse opinion on the function of stakeholders coming from our partners – are they intended to offer a consensus view or are they intended to have diverse opinions? Do they evaluate the software or is the ethics team intended to convince stakeholders of the propriety of the project? And can anyone actually evaluate what levels of privacy are appropriate for any other person? By establishing in advance what developers expect from ethicists and vice versa, clear lines of accountability and practice would ensure the validity of the feedback loop. One thing to be clear on is while only developers really have access or

licence to discuss technical issues in detail, *anyone* can claim licence to discuss ethical issues.

Secondly, our project description, submitted to our funding bodies, states that we are intended to incorporate findings from the field of computer ethics which suggest that a higher degree of ethical assessment occur during the development of software, thus creating a more “ethically aware” environment in which the software engineer works. Projects similar to Isis are occurring around the world, and in the private sector, as we have been witness to through our research, ethics is not a central concern to those developing monitoring software. In one instance, a software package we have been exposed to which assist in “relationship tracking”, having both an ISP and PC based platform, continuously returns chat data to the software developer’s office for further analysis and specification of their tool. Although this sort of activity is certainly covered in end user agreements, and is as such not an illegal activity, there is some question about the level of disclosure that parents are receiving, or what chat participants are aware of when they log into this company’s client chat programs. It is legally mandated in the UK and many other western countries now to inform, for instance, conversants engaged with corporate entities over the telephone that they are (or could be) recorded (typically for quality, training or research purposes). Why is a similar stance not mandated towards CMC? We would suggest that by exploring these types of issues in conjunction with the Isis project, we will develop a toolkit to assist developers, those in the IT industries and policy makers in deciding the level of obscurity which our stakeholders indicate is appropriate. Again, referring back to the “no one size fits all” issues with ethics centred stakeholder engagement, we hope to find themes, patterns or practical solutions to the practical problems of engaging stakeholders and deciding propriety. One such tool is seeing the current “state of play” between private industry and those who engage with private industry, and examining how our stakeholders relate to the public private divide, in light of our project being in the domain of public infrastructure.

CONCLUSION

We have sought to explore the ways in which “stakeholders” have entered into public infrastructure projects, and the ways that we, as a software design team might engage with an ethics centred stakeholder consultation. While the literature in the management academy suggests systematic methods for finding, retaining and engaging with stakeholders, we would suggest that there are very complex justifications that need to be made when designing these projects, which quite likely defy formalisation. There is much to be learned from stakeholders, and we seek to explore the way stakeholder expertise can be incorporated in the design of software as it is developed in a proactive and responsive fashion. We see stakeholder engagement as an exercise in learning from those we seek opinion from, and advocate a fluid and agile mode of incorporating their perspectives into the development of public infrastructure and software design.

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