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Enochs of the modern workplace
The behaviours by which end users intentionally resist information system implementations

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Abstract

Purpose – This paper aims to expose the behaviours through which modern professional people commonly obstruct information system (IS) implementations in their workplace. Users often resist IS implementations, and it has been established that this can cause an implementation to fail. As the initial analysis of an on-going research project, this paper does not yet seek to present IS resistance as a good or a bad thing, it simply identifies and codifies forms of IS resistance.

Design/methodology/approach – Inductive interviews with IS implementers threw light on 29 resisted projects across 21 organisations. Interviewees were introduced to established theories of attitude change from social and cognitive psychology then asked to reflect on their experiences of IS implementations using these theories as a lens.

Findings – Although it is not claimed that all approaches by which users obstruct IS implementations are identified here, we believe that those most commonly deployed have been uncovered. It is also revealed that such behaviours result from negative user attitudes and that their impact can be significant. They can emotionally or psychologically affect system champions and can often cause implementation projects to fail.

Research limitations/implications – Our method was based on an epistemic assumption that significant understanding is found in the experience and knowledge (tacit and explicit) of IS implementation experts. The paper's contents are drawn from reflections on a combined 302 years of experience using attitude change psychology as a lens. Using this method, a range of obstructive behaviours was identified. Although it is claimed that the obstructive behaviours most commonly deployed have been unveiled, it is not probable that this list is comprehensive and could be appended to using alternative approaches.

Practical implications – This paper has significant implications for stakeholders in IS implementations. It enables project risks originating from users to be better identified, and it highlights the critical role that negative user attitudes can play in an implementation.

Social implications – This paper considers a common area of conflict in professional organisations, modelling its nature and effect. It also encourages system champions to consider user attitude cultivation as a critical part of any implementation project.

Originality/value – The contribution of this research is twofold. In the arena of user resistance, it is the first to focus on how implementations are resisted and is accordingly the first to identify and taxonomise forms of IS resistance. A contribution is also made to an ongoing literature conversation on the role of attitude in technology acceptance. This paper is the first to focus, not on user attitudes but on how negative attitudes are manifest in behaviour.

Keywords Technology acceptance, User behaviour, User attitudes, User resistance

Paper type Research paper

Overview

Most information system (IS) implementation projects are delayed, cancelled before completion, go over budget or deliver an under-utilised system (Johnson, 1995; Goldfinch, 2007; Standish Group, 2009). High-profile failures are routinely reported in the popular press (Wright, 2011; Matier and Ross, 2012). A common cause of such outcomes is user resistance (Lyytinen and Hirscheim, 1987; Hirschheim and Newman, 1998; Cooke and Peterson, 1998; Beaudry and Pinsonneault, 2005; Kim and Pan, 2006) and, although IS research generally views this as neither a good nor a bad thing (Hirschheim and Newman, 1998; Lapointe and Rivard, 2005; Ferneley and Sobreperez, 2006; Laumer and Eckhardt, 2012), it is an established area of research and something for which a better understanding is sought.

People hold a complex range of attitudes (Rosenberg et al., 1969) that affect judgements and behaviours (Krosnick and Petty, 1995; Petty et al., 1995) and negative user attitudes related to an IS implementation can cause resistance (Angst and Agarwal, 2004; Zhang and Sun, 2009; Kim et al., 2009; Donat et al., 2009; Alsajjan and Dennis, 2010, Lee, 2011). The focus of this paper is not the reasons why implementations are resisted but how. It is the behaviour of those users who, holding negative attitudes, seek to obstruct IS implementations.

This research was policy-driven and intends to have immediate application, informing the practice of those who participate in IS implementations. Empirical interviews were conducted with 15 senior IS implementation practitioners who recalled 29 projects across 21 organisations that, with differing degrees of success, had been obstructed by user behaviour. These behaviours are here captured, thematically arranged and presented as a taxonomy using an historic analogy in which each taxon is referred to as a type of modern day Enoch. Table I summarises each Enoch in one or two sentences, providing an easy to reference and memorable overview. It is hoped that this will enable practitioners to better understand user behaviours and to reflect on their own projects with an improved appreciation of the role that user attitudes and behaviours play in IS implementations.

To begin, this paper introduces the historical analogy through which the results are later presented. An overview is then provided of existing literature that debates the effect of attitude on user acceptance and resistance during IS implementations. The next section describes the inductive research method used in this research. The approaches by which users commonly obstruct IS implementations are then presented as a taxonomy, discussed and their effectiveness considered. As is the norm in IS research, this paper makes no attempt to categorise user resistance as a good or a bad thing.

The Enoch and Luddite analogy

Without prompting, three interview subjects referred to the Luddites by way of analogy. They had experienced what they viewed as Neo-Luddite behaviour. It is this image of Neo-Luddism that inspired the analogy used here. Viewed by some as heroes and by others as villains, the Luddites were a large but secret society that opposed mechanisation during the industrial revolution. They took their name from the fictional Ned Ludd (or King Ludd) who in a story had smashed up two knitting frames with a hammer in a fit of passion. The Luddites saw mechanisation as a threat to their livelihood and way of life and like their fictional role model were vigorous in their opposition to technology. For five years from 1811 to 1816, the Luddites threatened and

Subject	Years of relevant experience	Brief profile
1	10	Project manager in a large, highly regulated energy generation company. A specialist in health and safety systems
2	15	Senior member of a consultancy group focused on IS in manufacturing
3	34	Program manager who has held senior positions with well-known information technology vendors, government organizations and in a private consultancy. UK representative on multiple international committees
4	10	Lead systems analyst and team leader in a large logistics company
5	10	Customer-facing project manager for an international hi-tech solutions company
6	41	Program manager who held senior information technology management positions in three blue chip companies and a government body; chair of several national user groups; UK representative on multiple international committees; served as an expert witness in over 300 information technology-related cases
7	33	Main board director for a well-known, international USD multibillion manufacturing group
8	8	Senior manager. Head of accountancy systems in a blue chip financial services group
9	15	Consultant project manager. Formerly Head of information technology for a regional newspaper and in a Further Education college
10	14	Head of Information Systems in a British University
11	14	Consultant program manager. Lead program in four blue chip financial services groups, a government department and a national catering group. Formerly a technical team leader
12	30	Team leader and project manager in a blue chip financial services group
13	26	Analyst programmer and technical lead who moves jobs every 18-24 months. His former employers include high street banks, major information technology vendors, large industrial groups, "dot com" start ups and the public sector
14	28	Senior manager. Several positions held in a major telecommunications company
15	14	Systems Analyst/Business Analyst for a petroleum company, a large retail company and in a financial services group

Table I.
Interviewee profiles

physically attacked those considered responsible for mechanisation such as employers, vendors and magistrates. They rioted, fought with government soldiers and broke into factories to physically destroy hundreds of mechanised looms using a sledgehammer, known as an Enoch or Enoch's hammer – Enoch Taylor being a well-known blacksmith who manufactured sledgehammers. In response, the British Government sent 12,000 troops into Luddite areas, generous rewards were offered for information and, in 1812, a legislation was passed that made machine breaking a capital crime. Despite such swift and draconian government measures, Luddite actions continued for several years and, although Luddite activities often involved hundreds of men, relatively few were arrested and fewer still were executed. For an interesting and reasonably authoritative text on the Luddites, the reader is referred to Bailey (1998).

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The Luddites and their Enochs have of course gone, but potentially passionate group resistance to technological development is still common and, in the modern workplace, the vandal-like and violent techniques of the Luddite have been replaced by a series of more subtle and lawful techniques.

Literature on the impact of attitude on user behaviour during IS implementations

Although the impact of many different factors on user acceptance/resistance of IS implementations has been investigated, covering topics as diverse as age (Morris and Venkatesh, 2000) and self-efficacy (Compeau and Higgins, 1995) (Webster and Martocchio, 1992; Harrison and Rainer, 1992; Agarwal and Prasad, 1998; Venkatesh and Morris, 2000; Chakraborty et al., 2008) work on the role that user attitudes play has been surprisingly limited. In 2009, two papers (Zhang and Sun, 2009; Kim et al., 2009) argued that this omission was largely due to a perception that user attitudes are not important (Usoro, 2000). Observing this phenomenon, Kim et al. (2009) point to researchers such as Venkatesh and his colleagues (Venkatesh and Davis, 1996, 2000; Venkatesh et al., 2003) who dropped the construct of attitude from evolutions of the technology acceptance model (TAM) (Davis, 1989; Davis et al., 1989), arguing that its role was minimal to insignificant with respect to behavioural intention. Despite being a central tenet of TAM, attitude is omitted altogether from later models such as the "unified theory of acceptance and use of technology" (Venkatesh et al., 2003). Literature reviews on the importance of user attitude expose erratic and inconclusive results (Zhang and Sun, 2009; Kim et al., 2009). Zhang and Sun (2009) and Kim et al. (2009) argue that the cause of this confusion was an inadequate view of attitude structures. Presenting more complex attitude structure models, these papers demonstrate attitude to be a highly significant, if not a crucial component (Zhang and Sun, 2009; Kim et al., 2009).

Kim et al. (2009) present social psychology research that strongly supports the impact of attitude on behaviour, information processing and social judgement (Krosnick and Petty, 1995; Petty et al., 1995), implying that behaviour related to technology adoption cannot rationally be exempted. They observe that: "Despite the importance of attitude in predicting an individual's behaviour, research on IT adoption has discounted the role of attitude in explaining technology acceptance behavior" (p. 67). This is a clear contrast; social psychology literature supports the impact of attitude on all behaviour, but technology acceptance researchers tend to dismiss it. Explaining the results of those who found attitude to be insignificant, Kim et al. demonstrate that existing research up to 2009 had ignored attitude strength. Subjects with no previous experience of a technology ordinarily approach it with an open mind. Although user attitudes are technically present, they are weak to the point of insignificance. However, if stronger attitudes are present, generally because of prior experience with the technology, attitudes significantly impact behaviour. This proposition is supported by an earlier paper (Zanna and Rempel, 1998) that did not directly mention attitude. Zanna and Rempel propose that user perceptions form using three inputs, past behaviours, affective information and cognitive information. If users are experienced, past behaviour is the most dominant. This link between experience and the importance of attitude is supported by a later paper (Lee, 2011) which found that, within a project, the role of user attitudes increases as a project commences and users gain experience.

Zhang and Sun (2009) differentiate between "attitude towards an object", "attitude towards behaviour" and "behavioural intention" over time, a well-established dissection of attitude loosely based on the work of Fishbein and Ajzen (1975; Ajzen and Fishbein, 2005). When attitude is viewed in these terms, its role in an IS implementation becomes clear (Zhang and Sun, 2009). Although significant, Zhang and Sun's research is of a relatively introductory nature; their notable contribution being the introduction of Ajzen and Fishbein to the debate. Discussions of attitude structures are readily available in psychology (Ajzen, 1989); even with a passing interest, looking up a Wikipedia (2012) definition of attitude immediately uncovers a proposed composition based on ABC (affect, behaviour and cognition). Likewise Kim *et al.* merely incorporate attitude strength. With hindsight, these contributions were both relatively simple but are significant, as they dismantle existing perceptions. Although psychology reveals much about attitude structure, user resistance and acceptance literature have virtually ignored it and, as a result, failed to observe the important role that user attitudes play.

Donat *et al.* identified attitude as the "third order of the digital divide". Examining Australian information and communications technology (ICT) adoption they observed that: "Attitudes can serve as an important dimension when explaining the adoption and diffusion of new technologies" (p. 37). In their research, causes of ICT adoption and none adoption are identified and viewed from an attitude change perspective. The "digital divide" is referred to as the gap (division) between those with and those without effective access to technology. The first order of the digital divide is understood to be physical access to technology, the second being the ability to use it (Donat *et al.*, 2009) and, as already mentioned, attitude is the third (Donat *et al.*, 2009). Many people capable of acquiring a technology and learning how to use it do not because of their negative attitudes. Not being directly related to IS implementations in an organisational setting, the work of Donat *et al.* is not strictly relevant, but it demonstrates the fundamental point that negative attitudes are a potentially significant obstacle. Interestingly, Donat *et al.* likewise did not have a simplistic view of attitude, assuming it to have behavioural, emotional and cognitive dimensions (Rosenberg *et al.*, 1969). In 2010, while developing a TAM descendent for internet banking, Alsajjan and Dennis (2010) found that behavioural intentions were intrinsically linked with user attitudes.

Debates about the factors that decide the relevance of user attitudes and how the results of previous research can be explained continue (Kroenung and Bernius, 2012). However, no current significant research considers user attitudes to be irrelevant. There is strong, if not overwhelming, evidence to suggest that user behaviour with respect to acceptance or resistance of an IS implementation is affected by attitudes (Angst and Agarwal, 2004; Zhang and Sun, 2009; Kim *et al.*, 2009; Donat *et al.*, 2009; Alsajjan and Dennis, 2010, Lee, 2011). In this paper, the debate on the role of attitude in IS implementations is taken a stage further. First, it is demonstrated that negative attitudes among a potential user base can have a critical impact, ultimately stopping a system from going into production. Second, the user behaviours that can occur as a direct result of these negative attitudes are identified and modelled into a taxonomy.

This research also contributes to the canon of literature on technology acceptance and user resistance, a long-established area of research. In the 25 years since TAM (Davis, 1989) was first unveiled, many evolutions of it have been developed (Malhotra and Galletta, 1999; Venkatesh and Davis, 2000; Moon and Kim, 2001; Venkatesh *et al.*, 2003; Saadé and Bahli, 2005; Schepers and Wetzels, 2007; Boakye *et al.*, 2012), troubled

projects have been investigated to understand better the factors that contribute to success or failure (Hirschheim and Newman, 1988; Fitzgerald and Russo, 2005) and a range of theories and perspectives has been used to help understand user reactions better (Hee-Woong and Kankanhalli, 2009; Jones *et al.*, 2005; Allen *et al.*, 2013; Selander and Henfridsson, 2012). However, the tendency in this domain has been to focus on the circumstances that cause resistance and, in some cases, the impact of that resistance, whereas the specific focus of this research is user resistance behaviours.

An inductive method based on expert interviews

This paper presents the first theme to emerge from a larger inductive investigation into attitudes, attitude change and their effects on IS implementations in which user behaviours were examined through a lens of selected attitude change theories emanating from social and cognitive psychology, namely, the elaboration likelihood model (Petty and Cacioppo, 1986), cognitive dissonance theory (Festinger, 1957) and an amalgamation of those that have evolved from social identity theory (Chaiken and Eagly, 1976; Tajfel and Turner, 1979; Turner, 1982; Mackie *et al.*, 1992; Reicher and Hopkin, 1996a, 1996b; Hogg, 1996; Kameda *et al.*, 1997). The elaboration likelihood model and cognitive dissonance theory already have a significant presence in IS implementation literature (Zhang and Sun, 2009; Kim *et al.*, 2009; Mak *et al.*, 1997; Bhattacherjee and Sanford, 2006; Hee-Woong *et al.*, 2007; Shumarova and Swatman, 2007; van Birgelen *et al.*, 2008; Broeckelmann and Groeppel-Klein, 2008; Behrend, 2009; Liao *et al.*, 2009; Bajaj and Nidumolu, 1998). What made this investigation unique was its inductive nature and epistemology. Existing studies had been deductive and tended to be case-study based. While reviewing literature, it became apparent that existing work had unveiled a knowledge lacunae of considerable breadth meriting an inductive study that, not being focussed on a particular concern, workplace or project, would simply investigate the whole area with a view to discovering "whatever was encountered". This paper presents the first outputs to emerge from this investigation.

Defining IS implementation expertise and selecting interview candidates

Our method was based on an epistemic assumption that significant understanding and good practice is found in the knowledge (tacit and explicit), practice and oral traditions of IS implementation experts; an assumption reflected in the remuneration packages such people demand. Commercial and industrial sectors clearly respect systems integration experience and the expertise of those with a history of successful delivery. However, the word expert should be used with caution, as there is no agreed definition of "an expert" or of "expertise" that spans all subject matters (Hoffman *et al.*, 1995; Gobet and Campitelli, 2007; Germain and Ruiz, 2009). The only real cross-domain consensus is that expertise constitutes a blend of domain-specific knowledge, skills and experience (Germain and Ruiz, 2009). Qualifying criteria are topic-dependent (Germain, 2006) and establishing a robust definition of an expert for any given subject could prove to be a significant research venture in its own right (Germain, 2006; Gobet and Campitelli, 2007). With respect to IS implementation experts, no definition exists. Hoffman *et al.* (1995) surveyed definitions of "experts", proposing a return to craft guilds' terminology for expert professionals. It is a significant observation that, failing to find clear definitions of "experts" in modern literature, they opted to revive a mediaeval taxonomy. Accordingly, Hoffman *et al.* present a taxonomy with seven respective categories,

namely, naivette, novice, initiate, apprentice, journeyman, expert and master. At one end of this comprehensive spectrum is the naivette "who is totally ignorant of a domain" (p. 132) with masters being those who are the expert in a sub-domain, "whose judgements set the regulations, standards or ideals" (p. 132). However, most relevant is their definition of an expert:

> The distinguished or brilliant journeyman, highly regarded by peers, whose judgements are uncommonly accurate and reliable, whose performance shows consummate skill and economy of effort, and who can deal effectively with rare or "tough" cases. Also expert is one who has special skills or knowledge derived from extensive experience with subdomains (p. 132).

Avoiding an extended etymological debate, it would be hard to argue that any definition of an expert is not to some extent arbitrary, particularly one that attempts to cover "all professionals"; however, this provided a useful basis from which a candidate selection criterion was defined. IS implementation experts are highly regarded by their peer group and are referred to using distinguishing terminology, such as "leader", "expert", "best" or "strongest"; have practitioner experience in excess of eight years; have played a lead role in the introduction and implementation of at least three major systems and have participated in many more; have a proven track record of dealing effectively with exceptional ("tough") user acceptance issues; and have expertise that has been recognised by a professional organisation in that they have been promoted to, or appointed to, a position which differentiates them from "journeymen". The numeric values contained in these guidelines (years experience and number of implementations) were based on the corporate recruitment experience of one of the researchers. Interview candidates who met this definition of an "IS implementation expert" were then selected from a range of organisations over multiple sectors.

Estimating the correct number of purposively sampled subjects is also known to be problematic (Guest *et al.*, 2006; Onwuegbuzie and Leech, 2007); general guidance is that data gathering should continue until the point of saturation (Onwuegbuzie and Leech, 2007). Guest *et al.* (2006) reviewed the commonly used term "theoretical saturation" in academic literature, finding that, although it was routinely proposed as a milestone for selecting a sample size, the same literature:

> […] did a poor job of operationalizing the concept of saturation, providing no description of how saturation might be determined and no practical guidelines for estimating sample sizes for purposively sampled interviews (p. 60).

They go on to review work where the "number of interviews" is suggested, exposing an erratic set of figures. Although Guest *et al.* observe that many papers suggest small numbers to be adequate (perhaps, only five or six participants), ultimately it has to be concluded that no one can say how many interviews are enough. In this research, the interviews were relatively long (typically, an hour and a half) and being conducted by an experienced practitioner, they were intensive and productive. Accordingly, it was predicted at the outset that saturation might be reached quickly. Although no initial figure was predicted, 23 potential subjects were originally identified, of which, 15 were interviewed, at which point it was apparent that no significant new data were forthcoming. Subjects were primarily found through the personal network established by the primary researcher during his 20-year career. Those previously unknown to him were recommended by those who were. A brief profile of the 15 subjects is provided in Table I.

The approach taken to elicit and analyse expert knowledge
Eliciting expert knowledge, although difficult (Kidd, 1987), is a proven empirical technique exploited in a wide range of applications and disciplines (Hoffman *et al.*, 1995). With respect to the role of user attitude and behaviour in IS implementations, however, this research represents the first study of its kind. Modelling the epistemology on the famous "four stages of competence model" (often attributed to Maslow) and Kolb's (1984) experimental learning theory, it could be said that experts have significant *unconscious* and *conscious competence* that causes them to recognise, understand and manage phenomena that are related to user attitude and behaviours. *Concrete experience* (Kolb, 1984) that, although present, subjects may or may not have reflected on or *abstractly conceptualised* (Kolb, 1984). During the interviews, we attempted to facilitate this through learning and to capture the discussions that ensued. Each subject was interviewed individually. Interlocutions on average lasted 89 minutes during which time subjects were taught the fundamental principles that underpin various attitude change theories to a level that facilitated *reflective observation* (Kolb, 1984) and *abstract conceptualisation* (Kolb, 1984) enabling their experiences of occasions where attitude and attitude change had affected user behaviours during an IS implementation to be verbalised, recorded and discussed. To achieve this learning, the interviewer, who is both an experienced practitioner and educator, used a series of graphics, explanations and examples. Through discussion, each subject's understanding of the relevant theory was brought to a level where *reflective observation* (Kolb, 1984) and *abstract conceptualisation* (Kolb, 1984) could be achieved. Their understanding of the theory was neither deep and durable nor precise, but was adequate. Interlocutions were recorded and transcribed. Data then underwent a thematic analysis, producing a series of major themes, each of which was divided into a series of sub-themes. This paper presents one such major theme and each Enoch represents a sub-theme. Although generally not considered an essential part of thematic analysis, the results presented in this paper have been reviewed and verified by five of the original subjects.

In total, the 15 subjects spoke for 22 hours and 20 minutes, producing 137,495 words of discourse. On average, each subject had worked full time for four different organisations, representing 60 in total. In many cases, their employers had been consultancies executing projects for client companies, allowing a greater breadth of experience. During interview, 160 projects across 57 separate organisations were referenced from a range of sectors, including financial services, health care, catering, logistics, manufacturing, retail, media, hi-tech, education, pharmaceuticals, international standards and energy production. With respect to the specific theme that is the focus of this paper – obstructive user behaviours – there were 19,355 words of relevant discourse. In addition to talking in general about their experiences of this subject, direct references were made to 29 projects across 21 separate different organisations.

The Enochs of the modern workplace
In this section, the relevant empirical interview discussions are summarised under seven emergent themes. Each theme, each "Enoch", describes one identified approach by which modern professional users obstruct IS implementations. The taxonomy of Enochs outlined in this section is later summarised (Table I). Each Enoch here highlighted represents a tool that can be legally deployed in a range of professional

environments for the purpose of obstructing an IS implementation. In the following text, when it is said that an implementation *failed*, this implies that it was cancelled before completion and that the system never went into production.

Enoch 1 seeking and inventing inadequacy

This Enoch refers to determined, detailed and constant negative critique. Given time with a system, negatively motivated users can find endless faults in even the best environments. To continue the analogy, this hammer is always at hand. Some subjects considered such behaviour to be inevitable when user attitudes are negative. Consider, for example, the following quotations from Subject 3: "they would have pulled holes in it till kingdom come, every last little thing would have been wrong and life would have been a nightmare"; "you will have hell for years from that department because they will pick at absolutely everything"; and "if we get the one that we want, they will forever be picking holes in it". As well as considering this an inevitable outcome of negative attitudes, subjects also expressed frustration with this, possibly because of its effectiveness. The following quotes all relate to IS implementations that failed:

> They will find every reason, it could be the smallest things, the smallest feature the smallest piece of [company shibboleth used] that hasn't quite been ironed out, or is not quite reported in the way that they think it should be, and they will find every reason to say that that's not good enough (Subject 8);

"I am really embarrassed because all they see is like: pick, pick, pick, pick, pick, fault, fault, fault, fault, fault, fault" (Subject 12); "the negative attitudes are just, [sigh] you know, they find fault with every [interviewer interrupts]" (Subject 12). Subject 11 spoke about users extending this criticism to the wider work environment and how system participation might, for example, interrupt lunch. Subject 14 described users who attacked the system's documentation in a similar manner, going through it with a fine toothcomb determined to find fault. This Enoch appears to be commonplace and on occasion, with persistence, it has proven to be effective.

Enoch 2: passive resistance

In some cases, users simply do not participate. No objection or discussion, just passive non-participation. In a busy and pressured environment, this is often viewed as an acceptable behaviour. Sometimes, genuine workplace pressures will cause a system to go relatively unnoticed. In other cases, potential users may actively ignore it. This phenomenon may occur at different stages in the process. During development, users may not provide necessary contributions, thus obstructing training and systems analysis. The latter two of the following quotes refer to failed implementations: "They don't help you to find that trivial correction" (Subject 8):

> I said "look we need to train some of your guys, you need to release a couple of people to come on some training", "we're too busy can't do it", "but it won't be implemented without your people", "I'm sorry we can't do it" and that was the total response (Subject 3);

"if we'd been more successful in getting the initial levels of engagement, we would have gone on to be more successful […] but we couldn't get it started"(Subject 2).

Alternatively, "workarounds" allow nominally established systems to be ignored. Talking about a secure document repository, subject one said:

[…] weeks and weeks of filling in forms to get the individual documents […] I will just ring a few mates and get them to send me a hard copy, that won't be up to date but at least I can get it.

In response to this, the interviewer specifically asked: "So your response is to work around using the system?" to which she simply answered "Yes". Subject 12 described a similar situation where a system lay dormant, while people used personal contacts to get the information they needed. This latter system, although technically complete, never went into production.

Enoch 3: deceptive participation
Deceptive participation was not raised during any interview, but Subject 12 mentioned it over lunch after the interview. She critiqued the empirical method suggesting that, routinely, user groups make noises that imply participation, while the system champion is around then, once they have gone, the system is forgotten. This was clearly a scenario she was familiar with. Accordingly, it has been included.

Enoch 4: saturation and overload
Users invoking system paralysis through unpredicted usage. One subject provided an example of when users had intentionally overloaded a system:

[…] everyone sort of phoned each other up, where all the terminals were, and they sort of got something on screen and said "right were gonna press return guys, 3-2-1 now" [interviewer laughs] and all 39 terminals pressed return, it took about 40 seconds for the last one to respond because of course, the system sort of went druffff […] he sort of smiled and said "your response time isn't very good", so I went down to the head office and said "we've got a problem here, an angry bunny" (Subject 3).

Another subject described a similar event where user motivations were unclear. The cause might have been poor systems analysis or deliberate user obstruction; in either case, this system only stayed in production for a few weeks before this unpredicted usage caused its decommissioning:

[…] it enabled people to report their own accidents. Anyone who felt something had happened [subject laughs] could report it, so you got this influx of people who had an axe to grind, feeling responsible and wanting to put stuff on the system, so you had all these accidents and incidents reported like, "the railing needs painting blue" and they had to back track on the system eventually because all these people felt that they had to report […] all of these union members were just filling the system with, reporting the same wobbly path stone or whatever, and it would all land on one manager's desk and no-one told him it was coming, he just suddenly got all these actions on his desk and he had to go through separate paper work for each one, to close each one of them off (Subject 1).

Enoch 5: lobbying
Users raising objections with senior actors in an attempt to obstruct progress. Subject 12 spoke about one occasion where lobbying "contributed" to project failure but expressed that it had been *passive resistance* (Enoch 2) which did the real damage. Although he had often experienced lobbying, he had found its effects to be limited as the complaints "never really got to the senior ones". The subject who spoke about lobbying the most (Subject 14) likewise had found it to be more of an obstruction than a fatal attack. Talking about ultimately successful projects, Subject 14 said: "they would whinge

enough, then they would want it to move up the line", "we want the top guy to come in and take a grilling"; "it made things uncomfortable":

> […] they were a customer and if a customer came in with a complaint, I would then have to go in and say "well in actual fact, I don't think that it's [a] reasonable complaint".

When asked if much of his time was occupied with diplomacy, he responded: "Yes quite a lot, and there's an awful lot of that, there is an awful lot of diplomacy needed in organisations".

Another subject described a project where lobbying not from "normal users" but from a production manager had led to project failure. The seniority of this apparently vexatious actor, made him influential and able to effectively lobby directors. In the following quotations, frustration of Subject 2 is apparent:

> […] and then we discovered that the biggest jack the lad in the whole organisation, a guy who'd been divorced three times, run off with six secretaries, blah blah blah blah blah [voice raises in tone] he did it because he was a Luddite, he didn't like technology, so he polluted the attitude of the whole organisation towards this system […] what it wasn't was a failure of, unmotivated users or poor models of user acceptance or poor strategies towards implementation or technology adoption […] a third of a million pounds and they dumped it for SAP [voice turns passionate] and SAP wasn't going to be any better, it wasn't going to fix that guy who was a pain in the arse […] the production manager stuffed it.

The senior position of this actor empowered his lobbying, enabling it to deliver a fatal blow.

Enoch 6: regicide and personal attack
In this Enoch, users target not the system but those who champion it. Personal attacks against system champions were raised by two subjects. Subject 14 described situations where:

> […] they haven't taken the time to evaluate the system installed they have just said "this is a ridiculous system, I am not happy with it" and instead of going for any particular flaw, they just go for the individual.

Such attacks can be aimed directly at the champion or they might seek their social alienation. The following quotations refer respectively to both scenarios:

> I think that most of this is on a personal level, certainly when you are involved in providing some new infrastructure you can get, sort of attacked in terms of, it could be an e-mail, it could be a missive saying "this guy's an idiot", "he doesn't know what he's doing […] there have been a number of cases like that where it has been of a personal nature" (Subject 14).

> […] there was a real resistance […] you see I didn't have the [department name] background, my background was in [department name]. "He doesn't know anything". Their whole philosophy was "actually [subject's name] is wrong" (Subject 11).

Enoch 7: procedural obscurity
An implementation can be upset when users do that which is technically permitted but unexpected. Subject 9 implemented a system that included a configurable front end, allowing users to personalise their desktops: "allowing them to feel that they have given their system more of a personal touch" (Subject 9) then one user installed a screen saver

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that offended his colleagues. Although this caused the concept of empowering users to configure their own desktops to be re-considered, it was ultimately resolved between the individual and their line manager. A second example comes from an occasion when a subject was seeking the authorisation of an international standards committee to proceed with his implementation. In his words:

> […] you have a roll call by country and the country votes to as whether it supports or does not support the proposition […] so I presented the case and he then proposed the roll call, but when he proposed the roll call he switched suddenly to French […] which is still an official language of [name of standards body], he did this for the simple reason that when you convert to French […] the USA becomes États-Unis and comes right up the calling order, and the whole idea was to bring the USA, who was voting "no" on this committee, to bring it right up the roll call so that the smaller countries like [country names] which were lower down would follow the USA as the big boy (Subject 6).

Finally, Subject 14 spoke about users looking for documentation standards that they would claim the system hadn't met:

> […] instead of being reasonable about accepting some new technology, they would put some barriers up and say "you haven't included the proper documentation", when they had done, it could have been a valid argument but it wasn't a valid argument, time and time again I would go down and say well look "you know they have done it to the new standard, we have got the new documentation, its been handed over", but I could see there was a resentment (Subject 14).

In each case, this Enoch was not successful in causing little more than an inconvenience.

Conclusions and discussion

Negative user attitudes can cause resistance. This research has identified a range of obstructive behaviours through which resisting users often seek to derail IS implementations in professional environments. An inductive method based on expert interviews has for the first time allowed expert experiences of user resistance behaviours to be gathered from multiple projects spanning several sectors and organisations. Using an historical analogy, these behaviours have been arranged in a taxonomy in which each taxon is presented as a modern day Enoch, a potentially destructive behavioural tool that disgruntled users can deploy. It is hoped that this behavioural taxonomy which is briefly summarised below (Table II) will enable practitioners to better understand user behaviours, the effect of negative attitudes, the affiliated project risks and their impact on IS implementations.

With respect to the parameters that dictate an Enoch's effect or govern which of the Enochs are more effective, limited data emerged. However, it is clear that a broad spectrum of impacts is possible, ranging from total project failure to the negligible or simple to counteract. In the projects discussed, Enochs 1 (seeking and inventing inadequacy), 2 (passive resistance), 4 (saturation and overload) and 5 (lobbying) had on occasion caused implementations to fail. Enoch 5 (lobbying) only led to failure when the instigator was someone senior. It was, in fact, found to be quite ineffective when invoked by more junior staff. Enoch 7 (procedural obscurity) was the least effective, causing little more than an inconvenience. No reports of Enochs 3 (deceptive participation) or 6 (regicide and personal attack) causing project failure were forthcoming; however, given the effectiveness of other Enochs, this should be considered a possibility. What is clear

	Enoch name	Description
Enoch 1	Seeking and inventing inadequacy	Persistent and detailed negative critique. As no IS is beyond criticism, this Enoch is always at hand
Enoch 2	Passive resistance	No debate or objection, the system and/or the implementation project are simply ignored
Enoch 3	Deceptive participation	The system champion is given the deceptive impression of success, but no one intends to continue participating upon their departure
Enoch 4	Saturation and overload	Users paralyse the system through unpredicted usage, demonstrating it to be "not fit for purpose"
Enoch 5	Lobbying	Appeals and objections are raised with senior actors demanding the implementation be withdrawn
Enoch 6	Regicide and personal attack	A system's champions are alienated and/or pursued through formal complaints and grievance procedures. In this case, the IS is not the target but those who champion it
Enoch 7	Procedural obscurity	An organisation's procedures or regulations are investigated to find or invent ways in which the implementation was not "correctly" executed

Table II.
Seven Enochs of the
modern work place

is that obstructive user behaviours have the potential to cause implementation failure. Subjects were all aware of this and, in some cases, reflected on their own naivety when, during earlier projects, they had assumed that success was inevitable when user participation was "obligatory".

No correlation was found between the Enochs deployed and either the user objections or the type of implementation. However, subjects were sometimes able to predict which Enochs might be deployed based on their observation of past group behaviours or the more prevalent Enochs in a given organisation. In other cases, they could spot the early signs of an Enoch's emergence. Such insights often enable pre-emptive measures to be taken that will limit an Enoch's effect or discourage its deployment. Alternatively, champions might come to an early realisation that insurmountable problems lie ahead. In either case, system champions found it beneficial to have an awareness of what might emerge. Within the confines of this research, little more can be said on an Enoch's effect, its likelihood of emergence, forms of manifestation or appropriate counter measures. These are peculiar to each organisation and occurrence and are topics for future research.

Although interview subjects were often able to defend their systems from Enochs, there was a consensus that this often required substantial effort. Subject 8 believed that, theoretically at least, user attitudes could always be turned around, causing them to accept the system but that the amount of effort required to do so was often prohibiting:

You've got to work hard, to restore […] the relationship, restore their confidence in you, restore their faith and recreate the bond […] build their confidence, build them up to trust you again and then start to bring them on the journey with you.

She also expressed that the way to do this is often "unique […] to the individual", requiring each person to be individually nurtured, which, in many cases, is not realistic. Although she believed that, theoretically, user attitudes could always be turned around, she acknowledged that this often was not realistically achievable. The overriding and undisputed view of subjects was that avoiding hostility in the first place was the best approach. Even for projects that ultimately succeeded, they described occasions where they had been emotionally or psychologically affected by hostilities and many more where substantive effort had been required to overcome problems. There was a consensus that, during implementation projects, care should be taken to cultivate and nurture user attitudes in the hope of avoiding hostility and the deployment of Enochs. This aligns with the social and cognitive psychology view that strong and established attitudes are difficult if not impossible to change (Brock and Balloun, 1967; Batson, 1975; Frey, 1986; Burris *et al.*, 1997). With respect to IS implementations, although user attitudes will progressively strengthen and affect user behaviour (Zhang and Sun, 2009; Lee, 2011), during a user's early encounters with a system, they are absent or weak and open to change (Kim *et al.*, 2009; Zhang and Sun, 2009). Good practice is to nurture user attitudes from the earliest stages to reduce the probability of later hostilities.

As well as contributing to theory, this research has significant implications for those who champion IS implementations. Perhaps the most important message being that the edicts of senior actors do to not necessarily render users powerless to resist IS implementations and that care should be taken from the outset to cultivate positive user attitudes. When negative attitudes or the deployment of Enochs start to emerge, this needs to be quickly addressed before they "take hold" and become increasingly problematic to resolve. With respect to the motivations of objecting users, a good practice emerged in which time is taken to understand and diagnose a user's objections. It was understood that users can be vexatious or selfish, but likewise objections can be caused by inadequate understanding or through a user's ability to notice potential problems that system champions have overlooked. Management response to Enochs thus needs to be tailored according to the cause of the hostility. During interview, it was apparent that subjects did not object to resistance when users were motivated by the greater good of the organisation; indeed, they viewed this as a standard part of the project communications. There was also a general acceptance that some systems should be resisted and that the emergence of resistance in many cases should cause champions to reflect.

To conclude the Luddite analogy, a final historical irony might be observed. In February 1812, Spencer Perceval's Conservative government, intent on stamping out Luddite activity, introduced the Frame Breaking Act that made machine-breaking a capital crime, and troops were sent in to control Luddite areas. These draconian measures had little effect on Luddite activity, thousands continued to take part, whereas very few were executed. The irony is that, in an unrelated incident a short while later, Perceval himself fell victim to a violent death at the hands not of a disgruntled Luddite, but of an irate merchant.

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