# Information Systems and User Resistance: Theory and Practice*

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*User resistance to information systems development and use has plagued the computing community for decades. In this paper, we survey the literature, summarizing the key concepts associated with resistance. Using a case study, we seek to show how resistance occurs in practice. It is shown that resistance is a complex phenomenon which defies simple prescriptions.*

## 1. INTRODUCTION

User resistance to the development and implementation of computer-based information systems (IS) is legendary and can take many forms. It can range from the physical sabotaging of a new system, as was the case of the US postal workers pouring honey and inserting paper clips in their data-entry devices,[15] to the simple non-use of a system,[59] to the more subtle and covert political manoeuvring which accompanies a system which is perceived to redistribute organisational power.[13,41] User resistance to change is seen by many IS professionals as the primary reason why there have been so many failed information systems.[23,37,39,46] In this paper, we wish to explore the issue of resistance in some detail, surveying what is theoretically known about the subject from the literature, and then providing a case study showing how resistance can manifest itself in practice. The case study demonstrates some of the complexity of user resistance and shows that blanket prescriptions regarding IS implementation are often inappropriate. Such an exploration is felt to be valuable as we hope it will shed light on what has traditionally proved to be a highly problematic area.

## 2. RESISTANCE TO CHANGE

Resistance to change may be defined as an adverse reaction to a proposed change which may manifest itself in a visible, overt fashion (such as through sabotage or direct opposition) or may be less obvious and covert (such as relying on inertia to stall and ultimately kill a project). It could occur fairly quickly, remain latent for a short period of time and then emerge, or lay dormant for a considerable time only to appear later.

### 2.1 Resistance – a pejorative term?

In discussing the issue of resistance, a problem which immediately arises is the loaded nature of the term. 'Resistance' typically conjures up images of unlawful or unwarranted acts. It is viewed in this pejorative way because change is perceived to be positive by those who are its advocates (and their agents). Consequently, resistance needs to be eradicated or neutralised.[50] This appears to be the basis for the concentration in the litera-

ture on strategies for overcoming resistance.[1-3,9,30,55] Yet change need not always be beneficial (either for the user or occasionally for the sponsoring party), in which case resistance can be legitimate and a force to be encouraged. Even beneficial changes may encounter resistance which has been legitimised through the norms of the groups concerned and accepted as such by the rest of the organisation. For example, people might resist change because of the fear of loss of jobs and/or status. They may also resist based on the desire for continuity and a loyalty to the old methods – a belief in the *status quo*. Moreover, because change is often accompanied by uncertainty (real or perceived), there are good reasons for accepting resistance as the normal behaviour of individuals and groups. Resistance, therefore, can be seen as a normal reaction to change. Child[11] (p. 195) goes so far as to refer to it as 'a universal phenomenon'.

### 2.2 Behaviours associated with resistance

There are a variety of behaviours characterised as resistance. For example, Fried[19] notes that hostility is the natural consequence of organisational change. Hostility manifests itself in overt, aggressive action which can range from reduced job efficiency to leaving the organisation. Fried draws an analogy between people's emotions and reactions to organisational change with the layers of skin on an onion. The outer skin corresponds to a person's overt aggressive actions which he will exhibit due to change. Overt aggressive actions are caused by frustration – the second layer of the onion. He states:

Frustration results when an external barrier stands between a motivated individual and his goal. Frustration is born of the conflicts that arise between the requirement to accept the externally imposed change and the forces driving the individual to reject change. The intensity of the conflict depends on what the individual perceives the impact of change to be on his goals or needs.

Conflict is the third layer of the onion. At the core of the onion is: 'the threat to the satisfaction of human needs'. Based on how the individual perceives the change and its effect on his goals, he may adopt a number of dysfunctional behaviours such as: regression, aggression and hostility, or the tendency to blame others.

Similarly, Dickson and Simmons[14] have three categories of behaviours exhibited by people experiencing change. They are:

(1) aggression – a behaviour which represents an attack (either physically or non-physically) with the intent of injuring or causing harm to the object presenting the problem;
(2) projection – a behaviour exhibited when the person blames the systems for causing difficulties;
(3) avoidance – occurs when a person defends himself from the system by avoiding or withholding from it.

Sanders[57] suggests that when the change is in the form of a computer-based system, employees will react by: withholding data, providing inaccurate data, distrusting computer output, and showing lowered morale.

Of course there are other types and ways of categorising behaviour drawing on the organisational change literature[11, 12, 29, 52, 62] but they do not differ substantively from that presented above.

## 2.3 Scope of resistance

Resistance may occur at various stages of the systems development life-cycle and can manifest itself at different organisational levels. During the life-cycle, resistance may occur during systems analysis where users are unwilling to participate in requirements specification; during implementation where users take no role or interest in system introduction; or during operation where they refuse of use the system (as is illustrated in the case study to follow). It is not uncommon for resistance to lie dormant throughout the analysis and implementation phase, only to emerge when the system is operational resulting in low productivity, low effectiveness, high labour turnover, disputes, absenteeism, psychological withdrawal and aggression.[37, 39]

Resistance during operation can also be found at various levels of the organisation, reflecting the behaviours noted by Dickson and Simmons:[14]

(a) Manual workers indulging in outright sabotage of new machinery;[15]
(b) White-collar workers using the computer as a scapegoat for every difficulty encountered,[51] inputting incorrect data[1] and maintaining alternative sets of manual records;[41]
(c) Management failing to use, or give credence to, the output produced by a new information system.[59]

## 2.4 Causes of resistance

The causes of resistance are many and varied, and have been extensively debated in the literature. The primary causes of resistance can be discussed in terms of the following.

### 2.4.1 Innate conservatism

Ginzberg and Reilley[20] contend that resistance to change has much to do with an innate conservatism: a reluctance to change the status quo. Inertia plays a major role in resistance. They write:

It must be recognised that many people, though by no means all, do not like to be disturbed. They prefer to stay with the work they know, rather than take on a new assignment (p. 29).

### 2.4.2 Lack of felt need

Sanders[57] suggests that individuals resist change because they have not been convinced of the merits of the change. In order for people to respond positively to change, they must feel change will bring them benefits. If the present system is perceived as satisfactory, they may be difficult to convince.[54]

### 2.4.3 Uncertainty

An aspect which relates to the above two factors, is that of uncertainty. Uncertainty provokes fear in the individual. Employees may see change as a threat and possess a fear of: losing their jobs, being transferred away from their friends, being unable to acquire the needed new skills, and losing status and prestige. Sanders[57] makes the interesting observation:

... changes sought by some may appear to others to be a threat – a threat which prevents them from satisfying certain basic needs or one which decreases the level of their need satisfaction. That a proposed change does not actually affect an employee's need satisfaction may be irrelevant from a resistance standpoint. What is relevant in this situation is if the employee believes that he is threatened.

### 2.4.4 Lack of involvement in the change

Individuals often resist change on the grounds that they have been excluded from the decision-making process associated with the change. This relates to two aspects of involvement: (1) involvement in the decision to change (i.e. to initiate the development of an information system); and (2) participation in the development of the information system. Regarding the former, it is likely that depending on who requests the change, the reactions will be different. Eveland[17] notes:

A great deal of what has been characterised as 'resistance to change' is not so much resistance to changing oneself as it is resistance to being changed by others (p. 4).

In the case of the latter, it is frequently believed that resistance is produced because users are not involved in the development. In order to mitigate resistance user participation is advocated. Participation is thought to produce commitment, knowledge about the change, enhanced system quality, and a safe-guarding of individuals' interests.[6, 28, 34, 48]

### 2.4.5 Redistribution of resources

Change, in the form of a computer-based information system, represents both a threat and a challenge to individuals and the various interest groups. The threat arises from the disruption of the status quo and a potential attack on the groups' interests. The challenge is to improve or defend those interests in the redistribution of resources occasioned by the introduction of a new system. These resources include departmental budgets, equipment, staff and territory; and individual authority, status, salary, roles, etc. Moreover, as noted by various authors,[4, 5, 7, 30, 42, 45, 52] the implementation of a new system may have a direct bearing on the ownership and control of information which has important repercussions for power.

### 2.4.6 Organisational invalidity

The issue of organisational invalidity has been increasingly invoked as the cause of resistance to new systems.[21,43] Invalidity is defined as a mismatch between specific features of system design and characteristics of the existing organisation, including elements of organisational structure. The core idea is that resistance arises because the system does not 'fit' the individuals' and groups' work patterns, or the structure of the organisation (e.g. the reporting relationships between individuals, groups and departments).

### 2.4.7 Lack of management support

A frequently cited reason for resistance is that of lack of management support.[1,26] As an important function of management is leadership, it is incumbent upon them to exercise this role during the development, implementation and operation of an information system. If management is not seen to support and encourage the change, organisational workers are unlikely to be willing advocates of the system.

### 2.4.8 Poor technical quality

Resistance is more likely to occur in systems which are cumbersome to use, 'unfriendly', unreliable, lack functionality and slow. If users find the technical quality of the system to be low, they are unlikely to welcome it, with the result that they would be disinclined to use it.[31,60,61]

### 2.4.9 Personal characteristics of the designer

A consistent thread in the last two decades of writing in IS development is the difficulties that many system developers have in interacting with users.[6,8,25,33,47,51,53,56] The culture of systems staff inculcates a belief in its own mission to civilise organisations.[19,51] Systems staff are often portrayed (with some justification) as being fascinated with the technical aspects of information systems. This is in contrast to users who are normally only interested in technology to the extent of its impact upon their work. Bjorn-Andersen and Hedberg[6] write:

...people have to be fascinated by technology in order to devote their lives to designing information systems, and if they are fascinated by technology, they are likely to see particularly the technological opportunities and constraints in the design problem which they face. Information systems have benefited from computer developments over the last decades, and it is very likely that people who wanted to work with computers have found it particularly attractive to become systems designers.

### 2.4.10 Other causes of resistance

There are, of course, other causes of resistance which are noted in the literature. Training, for example, is often mentioned as a reason why systems are not used. If users are not properly trained to use the system or are not trained on the facilities available, they may choose to avoid it.[36] Education, or more specifically lack there of, is also thought to contribute to resistance.[24] Users who are not educated on what to expect from the system may wind up with expectations which cannot be met and lead to system non-use.[10,22] Another cause of resistance which has been discussed in detail in the literature is that of 'cognitive style'. It is argued that if the system's mode of presentation does not match the cognitive style of the users, they will not use it.[27,44,63] Other causes of resistance abound, but they often involve individual characteristics of the users and/or systems.

### 2.5 Resistance a complex phenomenon

While the literature often tends to portray resistance as the normal reaction to change, it is clearly the case that it is a complex phenomenon which cannot be described in a simple causal fashion. Change need not, and in fact does not always lead to resistance. Lawrence,[35] for example, feels that resistance is contingent upon how change affects the social aspects of the job, i.e. the established relationships in the organisation. Only if there is a change to the social aspects would resistance be likely. More generally, the basic causes of resistance to change are many and varied, and occur as a tangle of different threads. It is the interaction of the various threads that produces a particular instance of resistance, making it extremely difficult (if not impossible) to see resistance in terms of a simple causal relationship. In contrast to the view held by, for instance, Sanders[57] and Dickson and Simmons,[14] resistance to change is not a simple acceptance or rejection of a proposed change; there are individual attitudes which colour a person's view of change and degree of acceptance/rejection. Mumford and Banks[49] noted four sources of these attitudes: (a) variables within the individual, (b) variables in the situation, (c) variables in the change strategy adopted, and (d) the perceived consequences of the change.

Additionally, some view change as a challenge which provides excitement and stirs interest. Moreover, resistance to change need not be counter-productive. Some resistance may lead to an undesirable change not being implemented, or at least being re-thought. For example, resistance to the implementation of a new information system on the part of the users does not necessarily signal resistance to all information systems; it may be the case that the resistors might support a new system, but not the one which is proposed.[50] Resistance is used to obtain changes in the proposed system. These changes may be major or minor. Unfortunately, too often the changes requested are major, but are perceived by the IS department to be relatively minor, resulting in even more user resistance.

In summary, resistance to change can be seen as a complex phenomenon whose particular causes and manifestations vary considerably. Machiavelli[40] may have said it best when he wrote:

...there is nothing more difficult to arrange, more doubtful of success and more dangerous to carry through than initiating change ... The innovator makes enemies of all those who prospered under the old order, and only lukewarm support is forthcoming from those who would prosper under the new. Their support is lukewarm partly from fear of their adversaries, who have existing laws on their side, and partly because men are incredulous, never really trusting new things unless they have tested them by experience. In consequence, whenever those

who oppose the changes can do so they attack vigorously, and the defence made by the others is only lukewarm. So both the innovator and his friends are endangered together (p. 51).

While we cannot illustrate all of the facets of resistance mentioned above, a case study is an excellent vehicle for demonstrating many of them. The method used here involves intensive interviews of a number of key individuals in an organisation drawn from systems staff, users and non-user managers. This permits multiple perspectives to be obtained. The method focuses specifically on *critical incidents*, episodes that occur during or after systems development which are crucial to the progress of the system.[50] Resistance, in one of its various forms, would be a typical incident. The method involves a non-directive interviewing technique, producing verbatim transcripts, and systematically interpreting these transcripts. The method is qualitative in nature but it is only through such approaches that the richness of organisational processes can be understood.*

## 3. THE WARWICK CASE STUDY

### 3.1. Background to the system

Some of the more spectacular examples of resistance and its consequences have been cited above. In other cases, resistance may be far more muted and therefore not addressed at all by those who introduce information systems into organisations. We now describe one such case in a medium-sized New England insurance company where the authors conducted intensive interviewing of underwriting staff and managers at several branches. The case shows one commercial underwriter's struggle to come to terms with a new computer system. Extracts from interviews with her and other staff at a new branch office in Connecticut are presented below.

In the late 1970s computerisation of the personal lines (a structured, rule-based task) had been successful and had brought significant efficiency benefits to the company. When the system was further developed for the commercial underwriters to use, the results was far less successful, with many of the commercial underwriters by-passing the system or using it minimally for documentation only. Resistance to the system by the commercial underwriters was not overt; they simply stopped using it:

*Underwriter*: People just stopped using it. Especially underwriters.
*Interviewer*: Completely stopped using it?
*Underwriter*: Completely stopped using it. They just wasted too much time, too much bother, and they especially stopped using them when they were under a lot of pressure. When they had to get a lot of work out in a short period of time. They just stopped using it. They just by-passed the whole thing.
*Interviewer*: And did it all manually.
*Underwriter*: They tried to have it all done manually. Even the documentation – they just put a note in the file saying, 'Too much to do to document the system. System wasn't operating.' Or the best line actually: 'The system was down. Had to paper-document.' That's what they'd tell the rater and put it on file.
*Interviewer*: Sort of covering their tracks.

*Underwriter*: Yes. Just, 'System was down.' Because they just couldn't handle it. Now when things got slower and you had a lot of time, that's when we started to play with the system, to see how we could use it.
*Interviewer*: What did the head office do? I mean, they must have noticed that you weren't using it.
*Underwriter*: I don't think so. You know, as long as the stuff got issued, which it had to by rules set down by the admin department.

In the next sections, we will examine how this resistance arose and suggest some of the issues which contributed to the situation.

### 3.2 Company culture

The Warwick† is a small but rapidly growing insurance company with its home office in Cambridge, Massachusetts. It has 18 branches, mainly in the North-East, but also as far away as the West Coast. At the time of the research, it had 2800 employees and expected to do over a billion dollars' worth of business in that year. Unlike many large companies, it handles only insurance underwriting, and it deals with the public only through agents,

Service to customers and agents is an important part of the company culture. It can also provide a competitive advantage because some agents prefer Warwick and other smaller companies to the larger ones because of their better, more personal service. Because of its size, it was possible for the President to meet and know most of the underwriting staff by name. Branches can decide what lines of business to write, and can alter their rates in order to be more competitive. They are run as profit centres and are evaluated on their trade ratios.

The decentralisation of the company is also reflected in the career structure. Whereas in the large companies, a successful career path usually leads to the home office, in the Warwick, home office staff are eager to get back into the field as managers in the branches.

### 3.3 Computerisation of personal lines

The System for Policy Processing (SPP) had been developed as a personal lines system, and upgrading computerisation on personal lines was one of the main reasons Warwick bought SPP. In insurance generally, personal lines were the first to be computerised because the policies were already fairly standardised and the underwriting was routine. There were fewer types of policies in personal than in commercial lines, and the work of the personal lines underwriter was far more rule-based. They were also a prime target for computerisation because there were a large number of policies with small premiums, and competition was intense in this field. In the Warwick, computerisation assisted in keeping expenses down to about half those of commercial lines for about the same dollar volume of business. Whereas computerisation brought great savings to personal lines, it appeared that these were gained at the expense of certain features of the job: increased boredom, greater control, intensification of labour, lower status, and proneness to computer down-time.

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* This case was part of a larger study involving a number of commercial and public organisations.

† The name and location of the company have been disguised to protect confidentiality.

## 3.4 Computerisation of commercial lines

### 3.4.1 *The job of the commercial underwriter*

The job of the commercial underwriter is characterised by variety, high levels of discretion, pressure and high rewards. So far as the insurance company is concerned, it is an important boundary-spanning role, which links the administrative core of the organisation with the customers, via agents.

Commercial underwriting, compared with personal lines, was described as a craft, in that more judgement was necessary. One underwriter compared it with the work of a doctor or lawyer. Judgement came into whether to accept or reject an application. Although at the extremes some applications could be almost automatically accepted or rejected according to the company's guidelines, the commercial manager at the Cambridge branch estimated that some 80% of the applications handled by commercial underwriters required judgement. Commercial underwriters also had some scope for negotiating prices. Because premiums were large, and a number of variables had to be taken into account, agents could bargain with underwriters for discounts.

There was more variety in the type of property insured, and some of the insured would be operating on more than one location – a contractor for example – so that many different factors had to be taken into account in accepting a risk and pricing it. These skills were reflected in the number of commercial as compared to personal lines underwriters required for roughly the same premium levels (i.e. 8 to 4). In determining whether to accept an application, the commercial underwriters also had to coordinate the activities of others: engineers would be asked to survey sites and make reports; the financial position of the customer might be assessed. The underwriter described her role as being at the hub of a wheel.

*Interviewer*: You characterise it as a kind of hub.
*Underwriter*: Right.
*Interviewer*: And all these other functions are on the periphery.
*Underwriter*: They are the extensions. And everything kind of comes through underwriting ... Even when underwriting was the hub of the wheel, they had almost little control because you had to depend upon all these other departments to get things done on time. And they couldn't possibly. So you were just juggling.

Commercial underwriters therefore exercised considerable discretion in their work and often had to make decisions about complex situations. They were correspondingly better paid and had higher status than personal lines underwriters. They had more education, and while personal lines underwriters sometimes came up from the ranks of the raters, commercial lines underwriters did not. They had more influence in their branch office, and were more likely to be promoted.

Whereas personal lines underwriters, especially after computerisation, were evaluated on quantity, commercial lines underwriters were evaluated on quality. In the Cambridge branch, the underwriters' work was reviewed semi-annually by their manager, who would pull perhaps 50 of their files covering 17 or 18 categories and see whether she agreed with their judgements. She could see the underwriter's personality expressed in their work. In addition, commercial lines underwriters would be evaluated on quantitative measures such as growth of premiums and numbers of policies in force in their territories, and their loss ratio, as well as qualitative factors such as co-operativeness, service to agents, and personal development. The work of individual underwriters would also be reviewed by a team from the home office when they came to audit the branch every two years, and inspect a selection of files.

Underwriters exhibited a strong attachment to paper records, with some justification. The written record was extremely important to underwriters in several ways:

(1) it provided the background to their decisions;
(2) it contained the history of the account which was especially important for renewals;
(3) it might have to be consulted by other underwriters;
(4) it was used for evaluation purposes;
(5) it was used to provide information to agents about policies in force;
(6) it contained legal documents which might have to be used in court.

### 3.4.2 *Introduction of computer systems in commercial lines*

Computerisation of commercial lines proceeded in stages. From 1982, all policies were still manually issued and rated, but would then be sent to the data processing centre at the home office to have the information keyed in to a data base for purposes of reporting to various bureaux and rating organisations. Gradually, types of policies which were more homogeneous and more standardised were also rated and issued on the computer. The first such policies were workman's compensation and commercial auto. These were packages bought from SPP and modified by Warwick. A third product, the Business Owner's Policy, was developed in-house at the Warwick.

### 3.4.3 *The Connecticut branch*

Connecticut was a new branch. It opened at the end of 1983 and its volume of business doubled in less than 2 years and was expected to increase from $17 to $23 million in the following year. Much of this was due to the growth in commercial lines. This vast increase led to problems in moving things through the office and it was in this context that computerisation of commercial lines was introduced into the Connecticut branch from its inception.

Individual users in the branches were not involved in the design. The project team at the home office acted as their surrogates in that. Branches were given a great deal of leeway in implementing the system reflecting the decentralised culture at Warwick. But the consequence of this was an unsystematic approach to implementation.

## 3.5 Rejection of the computerisation of commercial lines

Several issues appeared to contribute to the rejection of SPP by the commercial underwriter and these are illustrated below. It did not seem that any *one* of the issues in isolation would have precipitated her decision; it was the combination of problems which tipped the balance against the system.

### 3.5.1 *Management support*

Although SPP was the same system throughout the branch network, the decentralised structure of Warwick meant that each branch had some discretion over its implementation and use. At the Connecticut branch, the manager took a softly-softly approach to introducing SPP, letting each underwriter work at their own pace.

*Interviewer*: So from your point of view, you're not going to force [them] to use it.

*Manager*: There's been no need to at this point. It's been an evolutionary thing. People are using it more and more. It just seems to be happening. And over time, the new underwriters that come on board will be trained by the old underwriters and inevitably, this is just the way the work will evolve. I think it's probably the smartest way to do it, because then you don't create sort of hesitation or fear on anybody's part to use it.

Indeed, the commercial manager at Connecticut exhibited a strong reluctance to use his terminal.

*Underwriter*: ... our manager didn't even use the computer. In fact, he asked for it to be taken out. He didn't even want it in there.

The manager also appointed an underwriter to liaise with the project team which appeared to be another sign of his unwillingness to take responsibility.

At the Cambridge branch, the underwriting manager decided to 'encourage' her underwriters to use the system by removing the top sheet of the underwriting document, forcing her staff to retrieve the relevant information from SPP. This form of coercive strategy (i.e. 'kicking the crutch away') was in stark contrast to Connecticut's *laissez-faire* approach and illustrates the variety of methods possible even in one organisation.

### 3.5.2 Technical quality

The acceptance of the system was not aided by the poor technical quality of SPP, at least as it was initially provided. It is well known that awkward, unreliable, user-unfriendly systems with poor response times are going to have more acceptance problems. All these issues were apparent in SPP to some degree and are illustrated in the extracts below:

#### Codes

*Underwriter*: ...even the way they had you enter data was unfriendly, because you had to convert yeses and noes into 1's and 2's and you had to convert, like year 1 was really year 0. All these things went against your normal train of thought. So that made it difficult.

#### Screen problems

*Underwriter*: As a matter of fact, this system was so unfriendly that you couldn't scroll backwards. You could only go forward. And if you wanted to go back to screen 2, you couldn't go from screen 6 to screen 2. You had to go all the way back to the beginning and go to screen 2.

*Underwriter*: ...we had tried to ask for one documentation screen, just give us one blank screen. And we'll put all the documentation in it. And they couldn't do it.

*Interviewer*: Couldn't or wouldn't?

*Underwriter*: Their 'couldn't' was simply that they'd have to restructure the entire system ... We had to put different pieces of information on different screens, which was annoying. Especially since you can't scroll backward. So you say to yourself, why use it?... We didn't really get used to using four different screens.

#### Format

*Manager*: There are some things that I personally don't care for. We're used to dealing with $8\frac{1}{2}'' \times 11''$ pages. That's how our policies are. That's how our letters are. That's what our memos look like. I'd like that same format because that would aid in acceptance too. They're wider than they are high, so it's not the same format. But that would be user-friendly, if you had an underwriter who could look at a file and see his policy like this – and see the exact same thing on the screen – they'd jump at it ... Right now we're operating dual systems. Because the format is not equal to the paper file ... the systems people don't care what our paper looks like.

#### Paper/computer dual system

*Underwriter*: For an underwriter, it was very difficult to use the system because we were still using paper as three-quarters of the file and a computer for a quarter of it. It almost included double work, now, because you had to put into the computer the fact that you had used other policies, maybe an auto policy and a property policy, and umbrella policy. And you also had to put in the cross file. You had to do a lot of cross-filing.

#### Cross referencing

*Underwriter*: What ends up happening generally at the Warwick, when a policy comes in or an account comes in it used to all get the same number. Every policy got the same number. Then they ended up changing it. But you kept the same policy number for as long as you had the policy. So, if you had it for ten years you still had the same policy number. They would give you a different suffix. Well, what ended up happening when it went into the computer, the computer now took it from say a six-digit number to an eight or nine-digit number. So now again you have the problem of cross referencing.

#### Reliability

The communication lines to head office suffered frequent down-times. Personal lines were paralysed if SPP was not available, but for commercial lines it was just another reason not to use the system.

*Administrator*: ... and we've had 2 or 3 days recently where our system was down. The control unit was down. Personal lines was dead.

#### Response time

*Manager*: They originally designed it to have a 7-second response time between when you keyed in the information and when you got the information back. There are times at heavy usage that it takes minutes and then it becomes totally ineffective. ... if they have to wait, it's just a frustration and they just say, 'To hell with it.'

### 3.5.3 *Changed relationships within the branch*

If SPP did not fit the individual commercial underwriter's mode of working, it had an even larger impact upon relationships inside the Connecticut branch. In each case SPP made life more difficult for them.

## Reversal of status between personal and commercial lines

*Underwriter*: I alluded to it a little bit before with ego. The commercial lines underwriters are usually paid more. ... In a branch office, they got listened to more. ... So you now had the commercial lines underwriting department kind of stranded sitting there and the personal lines underwriters department just like laughing at them. Here we've been on this for a year and a half now, and you guys can't even figure out how to use this. They could watch the commercial lines department crawl, before they could walk on these. It was an awkward time. Now the personal lines department felt that they had a skill that commercial lines department didn't have and they felt that they should be compensated – a lot of salary disputes over it, too. And just again, egos. One is fighting the other ... .

## Conflict with administration department

Before computerisation of commercial lines, an accommodation had been worked out between the commercial underwriters and the administration department.

*Underwriter*: It's interesting because even before the computer started to work, there had more or less been a problem between the underwriting and the clerical department with different rules. Though we had straightened it, we had really worked hard in the office to kind of straighten this whole thing out that when we had the administration department kind of lapse a little bit on their time frames, then we would make a more conscious effort to be more aware of their time frames. So we found a nice middle ground.

The computer-based system changed the relationship between commercial underwriters and administration/raters. It was the underwriters who had a relationship with the agents, knew what they wanted, and what the time constraints were from the agent's point of view. In their relations with agents, they could afford to be flexible, while the administration/rating were held to rigid time-limits. But the computerised system enabled the administration/raters to process the computerised policies quickly, which meant they could now meet their deadlines, even though it was not convenient to either the underwriters or the agents. For example, handling policy renewals revealed SPP's rigidity. The underwriters had to work hard to overcome this problem.

*Underwriter*: What used to happen is that you could call up your policies, call up your files any time you wanted. Normally they came out 90 days in advance. But if you were running behind you could say, 'No, I'm going to hold off 15 days. I'll take them at 75 days. Or 60 days.' Unfortunately, the computer did not have that lock put into it. They would come out in 90 days, and if you did not get them back into the system within 20 days or make some notation in the system within $X$ amount of time, it would spit out another and say 'what's going on' ... .
*Interviewer*: So it was coming out too soon for you.
*Underwriter*: We had no control. The underwriter had no control when these things spit out.

## Relationships with raters

The raters worked in the administration department. Before SPP they were swamped with paper work. After its introduction, SPP transformed the paper processing completely.

*Underwriter*: The rating department loved the computer. It cut their work down incredibly. They could sit around now, you know, as we used to, waiting for them to finish. There were days when, while we were waiting, we literally stopped working, we would go into a conference. They were so backed up we have to give them a break. Now it was the other way around. Now some of them were standing around idle, so they loved the system. It cut down on their work immensely ... But we hated it.

The new system also revealed the deep-felt animosity between some of the underwriters and the raters. The underwriters' 'top dog' status was threatened by their inability to master the system initially.

*Underwriter*: I didn't have quite the problem that some of the other underwriters had because I had a great relationship with my raters. So I had no problems walking up to them, and saying, 'You know, I'm real dumb, I don't know how to do this.' But some of the guys had real big problems going to some of the raters who were probably women, saying 'Could you help me?' It was more of an order, more of a command, and the young girls, they were only between 18 and 21. They weren't going to help them. For sabotage, that was great, because a lot of the gals hated this one guy I worked with and sabotaged his work as much as they could. 'Well, try this.' Send him back to his computer, and of course it wasn't going to work, and they knew the answer they were giving him wasn't going to work.
*Interviewer*: Well, deliberately.
*Underwriter*: They did it deliberately. Gave him wrong instructions, etc.
*Interviewer*: Just to put one over on him.
*Underwriter*: Yes. To say, 'Ha ha, you don't come down and ask me for help, or demand help.'

## Relationships with agents

Commercial underwriters knew that agents would prefer to receive their policies all together, rather than the computer-based ones first and the rest later. The previous arrangement was changed overnight with the introduction of SPP.

*Underwriter*: And then the computer came in and wiped it all out. It wasn't wiping it out for all the policies – just the policies that were computer-issued. So what we were finding was happening was that rating was taking up all the computer-issued policies out of the work to be done, issuing them all. The agent would now have the computer-issued policy within $X$ number of days, and have to wait for the hand-typed policy 30, 35 days later. It wasn't really making you look better. It was making you look worse because agents like things to come in one packet. They like their policies all at once. It makes it much easier for them. They don't have to hold them, and look for them, wait for them and keep checking on them. We tried to explain that. This was one of the biggest beefs that all the agents had of all companies. And if we could correct that one problem for them, we would look golden. Even if we gave it a day after, two days after renewal, as long as they knew they were going to get all their policies together. But it didn't work. They just kept pumping out because of their time limits. They just keep pumping them out. We'd send little notes that the rest of the policies would have to be hand-typed, da-da-da-da [indicating with her hands], they'd be along in 14 days or something.

The system did, however, bring some benefits to the agents. In this respect SPP overcame a perennial problem in insurance companies – the mailroom.

*Underwriter*: They loved to be able to get on their computer and write me a message versus sending it by mail or all that. The agents loved that. That was probably one of the biggest

things that the agents appreciated. Because ... they knew [there] was going to be at least a 12-hour turnaround. Where[as] in the mail, by the time it gets to the mailroom, which is what the agents hated the most, the insurance company mailroom. Because stuff gets lost, it's amazing.

### 3.5.4 *Control by head office*

In the insurance company, the eighteen branch offices had been run largely autonomously. The type of business each office wrote was a matter for them to determine.

*Underwriter*: It [computerisation] also took a lot of the autonomy, the decentralisation that the [company] was so proud of in their company, away. They used to run it like eighteen separate companies, and you felt that at a branch office, you could know your environment much better than they could know it [in head office]. They entrusted their management and their underwriters to know the environment even though they're in Massachusetts and you're in California.

Under the manual system, the commercial underwriters enjoyed a considerable flexibility in work procedures. Documentation, a key task in underwriting, was a good example. When an underwriting decision is made, it is not always possible to document the process because of the pressures of other work.

*Underwriter*: If you have an account that you know you've not done proper or you haven't had time to fully document though you know your decision is good, they hide those...
*Interviewer*: So there are ways of hiding the problems.
*Underwriter*: I wouldn't even call it a lot of times the problems. It was just if you were working on a couple of large accounts at once and your underwriters really didn't have time to do a terrific job actually hand-documenting the decisions say that you and he or you and she came up with, you put that off and do it later, just to keep the paper moving.

When the head-office auditors came to verify that procedures were correctly followed, the underwriting staff could offer up accounts together with any explanations in an accompanying report.

*Underwriter*: ... And we used to be able to send them reports orally. So you had your own way of embellishing one way or the other.
*Interviewer*: Or making yourself look a bit better.
*Underwriter*: Exactly. Or not even that. Making yourself look a little bit worse. If you knew they didn't want high growth, you could slow your growth down. ... But you could always explain something in a report.

With the new system, head office had control of the underwriting database. Instead of offering up accounts for auditing purposes, the head office auditors could select the ones they wanted with no chance for the underwriter to offer written or verbal explanations.

*Underwriter*: Now what was happening was that they were pulling this stuff up on the computer with no explanation.
*Interviewer*: No way of you interpreting.
*Underwriter*: And calling down, 'What the hell is going on here? I see your increase. You just had a production of 20 per cent. You know we've kind of asked you to stay at 15'. Whereas having been able to write a report, you could say, 'Well, gee. One account just went on the books from the last quarter', and such and such ... And it always seemed to work well. But now we were being put in a defensive position instead of offensive in that way. The other thing they used to do a lot was they'd come down and audit ... The manager

used to send them a list of our larger accounts to whatever mix they wanted. Now they just pulled if off the computer.

It was clear that the new system, designed as a centralised strategy to underwriting, did not 'fit' the organisation's decentralised structure. Using a head office database afforded a degree of integration of procedures unknown before in the company.

## 4. DISCUSSION

This case study of a commercial underwriter's struggle to come to terms with a new computer system illustrates many of the issues associated with resistance. As far as the commercial underwriter was concerned, SPP was an accepted fact. However, much of her time was spent either avoiding the system or neutralising its impact upon her work. Whereas the effects of personal lines computerisation were largely positive and the company had faced few acceptance problems, the same was not true of commercial lines where SPP disturbed the existing delicate balance of work practices, resulting in much conflict and stress.

Resistance occurred at the operation stage of the system life-cycle. It could not have occurred earlier as the commercial underwriters were not involved in the design; the project team acted as their surrogates. Resistance was passive; the commercial underwriter avoided using the system whenever possible. Resistance occurred among the professionals, the commercial underwriters. The clerical staff (personal lines underwriters, raters, etc.) did not resist and in many ways welcomed the changes because: (1) it gave them a skill advantage over the 'top dogs [the commercial underwriters]'; and (2) it cut down the drudge of paperwork dramatically.

Interestingly, the benefits for the agents were mixed. The combination of computer-produced and manually typed policies meant that they had to keep track of a customer's record, a task they resented. On the other hand, communications with the underwriters had improved because of the new system.

As with the comments in the introduction of the paper, the causes of resistance appeared to be many and complex in this case. Referring to the issues discussed under section 2.4 (Causes of Resistance), we can see many examples manifest in the Warwick case. The underwriter had a keen attachment to paper – an example of *innate conservativism* – for various legitimate reasons and exhibited little *felt need* to move to a computerised system. Besides, SPP covered only certain aspects of the underwriting task. It appeared that head office were the sponsor and believed that the success of one system (personal lines) could be extended to another area of high cost (commercial lines) in the hope of gaining further economic advantage.

The system suffered from *poor technical quality*. This can be seen from the extensive comments in the case concerning the screen design, the coding system, the reliability of the system, and its occasionally unacceptable response time. As mentioned before, the underwriters were *not involved* directly with the design of SPP. Moreover, the system was not introduced in a way that would enhance its changes of acceptance. At the Connecticut branch there was *minimal training*.

Although head-office management was keen to see SPP a success, the local manager at the Connecticut

branch had not caught their excitement. He did not resist SPP directly, but *neither did he support the system* nor encourage his staff to use it. His example of removing his computer from his office appeared to be a clear signal to his staff that this system was not a high priority.

*Organisational invalidity* appears to be the concept which offers the best explanation for resistance. SPP did not match the individual underwriters, the group within the branch, and in their dealings with head office. The design team had not understood the task of the underwriter, or if they had, they produced a system which ignored the needs of the underwriter. For example, the system removed overnight the delicately balanced arrangement between underwriters and administration over renewing policies. Administration, working under imposed targets had, before SPP, required that renewals be made a certain number of days before due date. This was a legal requirement. The client must be given sufficient warning that insurance cover is to be withdrawn. The commercial underwriter was able to accommodate administration's constraints although with very little margins at times of pressure. The computer system allowed for no such flexibility. Ninety days before renewal date, a reminder was produced and if not actioned within twenty days a system of errors and warnings was invoked which required time-consuming corrective procedures from the commercial underwriter. This is one of many illustrations of the way the system disrupted the working relationships previously enjoyed by the underwriter.

The failure to appreciate the craft of underwriting was seen in the lack of 'fit' at the branch level. SPP severely disrupted the balance of power between the different groups in the branch – an example of *redistribution of resources*. This was surely an unintended and unplanned consequence of the system and appeared to be poorly handled by head office and particularly by those at the branch office. The underwriting manager exhibited a reluctance to manage the consequences of introducing the system, exposing his group to a great deal of conflict with others at the branch.

Despite the inappropriateness of SPP to match the 'craft-like' nature of the commercial underwriter's task, she showed a commendable professionalism in persevering with her work. SPP was a system which was here to stay. That was an accepted fact. However, the job must take precedence. Consequently, the underwriter spent a considerable part of her time inventing excuses not to use the system, attempting to neutralise its major inconveniences, and covering her tracks in the process:

... you became good at circumventing [the problems] because it gets to be a political ball game. You really can't undermine what the computer department is trying to do yet you know you are in for short-term, long-term problems... you can't complain. It's one of those things you do quietly. Everybody

found different ways. Maybe they won't find it. Maybe they won't ever see it ... A lot of crisis management to get the job done, because our basic philosophy was that the customers and the agents were first and foremost.

The system did not 'fit' the decentralised structure of the firm. The previous independence of the branch was now being threatened by SPP, which potentially provided head office with a level of integration normally associated with a centralised company. Thus, for the company, SPP provided the worst of both worlds. For the commercial underwriter, their work was now far more dependent upon the work of other groups. They also had to deal with two systems: one manual and the other an awkward, computer-based one. The company, on the other hand, had provided an expensive system for underwriters who spent a significant amount of their time avoiding its use. Several writers have argued that if you want to radically change a company's structure, you should not use systems development as a means to achieve that goal.[41] In this case, and in many similar cases, there was no intention to change the structure, yet it occurred. But instead of the changes being managed, they were haphazard and disruptive to organisational life.

On the surface, there appeared to be a choice between Connecticut's approach of *laissez faire* which allowed users to avoid the system and Cambridge's approach to coerce the underwriters into using the system. However, a third approach would have been to design a system which was both technically sound and organisationally valid. But this would have required more resources – time and money – and skills beyond those found in many systems developers. The alternative to this, however, is to produce systems that users do not want and spend a significant amount of time avoiding.

## 5. CONCLUSION

In this paper, we have attempted to show how resistance can manifest itself in practice. It is clear from the case study that resistance is a complex phenomenon which defies simple explanation and analysis. The literature offers the systems developer numerous simple platitudes such as 'sell the system',[58] 'build a prototype',[16] 'user involvement',[38] 'enlist a sponsor',[30] 'divide the systems project into manageable chunks',[1] and 'user friendly interfaces'.[60] While such platitudes are potentially helpful on the surface, they miss the richness and complexity of systems development – in particular, the social and political nature of organisational change.[32] The development and implementation of computer-based information systems is a type of major organisational change. Only those development strategies which view such change in terms of social and political processes are likely to prove satisfactory.

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