

STRATEGY, STRUCTURE AND PROCESS IN THE PUBLIC SECTOR: A TEST OF THE MILES AND SNOW MODEL

RHYS ANDREWS, GEORGE A. BOYNE, JENNIFER LAW AND RICHARD M. WALKER

We present a comprehensive empirical application of the Miles and Snow (1978) model of organizational strategy, structure and process to the public sector. We refine the model by distinguishing between strategy formulation and implementation, and applying it to 90 public service organizations. Although the empirical evidence shows that organizational strategies fit the Miles and Snow categories of prospector, defender and reactor, the relationship between these strategies and organizational structures (for example, centralization) and processes (for example, planning) is less consistent with their model. Conclusions are drawn for public management theory and practice.

INTRODUCTION

The argument that organizations should adopt coherent and distinctive strategies, and adapt their internal characteristics to reflect these strategies, has a venerable status in the management literature. Research on private organizations suggests that a 'fit' between strategies, structures and processes is likely to be associated with better performance (see Donaldson 1996), and studies of nonprofit organizations have begun to explore links between strategy and other organizational characteristics (Osborne 1998). However, most quantitative empirical research on 'strategic fit' examines the relationship between strategy and structure (see, for example, Rueckert and Walker 1987a; Russell and Russell 1992) or strategic choice and strategy formulation (see, for example, Segev 1987; Ketchen *et al.* 1996). As yet, no quantitative studies have fully explored strategy, structure and process. Moreover, very little research has been conducted on patterns of organizational strategy in the contemporary public sector, or on the links between strategies and other organizational characteristics (Boyne and Walker 2004). This is a timely and important topic because recent public management reforms emphasize the value of a comprehensive approach to strategy, and governments in various nations have exhorted public agencies to align their internal arrangements with their service objectives (Pollitt and Bouckaert 2004).

In this paper we explore these issues by applying Miles and Snow's (1978) model of strategic management to a set of public organizations. Miles and Snow argue that organizational strategies, whether in the public, not-for-profit or private sectors, fall into a small number of ideal types. Furthermore, each of these strategies – in particular, the relative levels of centralization and planning – is associated with distinctive organizational structures and processes. We extend the Miles and Snow model to the public sector in order to answer two main research questions. First, do public organizations follow the strategies that they postulate? Second, to the extent that such strategies exist within public organizations, are they related to structures and processes in the ways predicted by Miles and Snow?

Rhys Andrews is a Research Fellow at Cardiff Business School. George A. Boyne is Professor of Public Sector Management at Cardiff Business School. Jennifer Law is a Principal Lecturer in Public Management at the University of Glamorgan. Richard M. Walker is Professor of Public Policy and Management in the Department of City and Regional Planning, Cardiff University and the University of Hong Kong.

In the first part of the paper we review the Miles and Snow model and derive a series of testable hypotheses from their arguments. In the second part of the paper we outline our data and empirical methods. We then investigate whether public organizations have distinctive strategies, and whether each of these strategies is associated with different internal structures and processes.

THE MILES AND SNOW MODEL

Miles and Snow (1978) developed a typology of organizational strategies that contained four 'ideal types':

1. Prospectors are organizations that 'almost continually search for market opportunities, and . . . regularly experiment with potential responses to emerging environmental trends' (Miles and Snow 1978, p. 29). These organizations often pioneer the development of new products.
2. Defenders are organizations that take a conservative view of new product development. They typically compete on price and quality rather than on new products or markets and 'devote primary attention to improving the efficiency of their existing operations' (Miles and Snow 1978, p. 29).
3. Analysers represent an intermediate category, sharing elements of both prospector and defender. Analysers are rarely 'first movers' but, instead, 'watch their competitors closely for new ideas, and . . . rapidly adopt those which appear to be most promising' (Miles and Snow 1978, p. 29).
4. Reactors are organizations in which top managers perceive high levels of environmental uncertainty but lack any consistent strategy for responding to this. A reactor 'seldom makes adjustment of any sort until forced to do so by environmental pressures' (Miles and Snow 1978, p. 29).

Conant *et al.* (1990) criticize research on strategy content that places organizations in mutually exclusive boxes and assumes that each organization has only a single strategic stance which can be easily observed – for example, a prospector or defender (see, for example, McDaniel and Kolari 1987; James and Hatten 1995). Desarbo *et al.*'s (2005) empirical test of the Miles and Snow model found evidence of hybrid strategic stances within organizations, suggesting that strategic choice is messy and complex rather than neat and simple. Public organizations, in particular, are likely to pursue a mix of strategies at the same time because they are expected to satisfy a range of conflicting and competing goals, goals that are judged by an array of diverse constituencies (including citizens, service users, the media, regulators and politicians) (see Boyne 2003). It is therefore inappropriate to categorize organizations in the public sector as belonging solely to a single type; strategy variables are 'continuous, not categorical' (Boyne and Walker 2004, p. 236). This logic implies that the 'analysers' category is redundant because it is 'essentially an intermediate type between the prospector strategy at one extreme and the defender strategies at the other' (Ruekert and Walker 1987b, p. 17). Organizations are likely to be both prospecting and defending to some extent (although the balance will vary with the priority attached to these stances, and that attached to a reactor strategy). Consequently, although evidence on the degree of prospecting and defending provides some indication of an analyser-like stance, in our test of the Miles and Snow model, 'analysing' is not treated as a discrete strategy.

Strategies and organizational characteristics

Miles and Snow (1978) argue that strategy is a way of adjusting the relationship between an organization and its environment, and that internal structures and processes in turn must fit the strategy if this adjustment is to be successful. Organizations face not only an 'entrepreneurial' problem (which strategy to adopt), but also an 'administrative' problem (the selection of structures and processes that are consistent with the strategy). Miles and Snow argue that administrative systems have both a 'lagging' and a 'leading' relationship with strategy:

As a lagging variable, the administrative system must rationalize, through the development of appropriate structures and processes, the strategic decisions made at previous points in the adjustment process. As a leading variable . . . the administrative system will facilitate or restrict the organization's future capacity to adapt. (Miles and Snow 1978, p. 23)

Thus, over time, strategy, structure and process reinforce each other: organizations choose an administrative system that is consistent with their strategy then find that this system continues to propel them in the same strategic direction. The result is a cycle of mutual cause and effect which tightens the relationship between a strategic stance and a set of organizational characteristics. This leads to the view that prospectors and defenders have distinctive structures and processes, whereas reactors, lacking a coherent and stable strategy, have no consistent internal arrangements.

The major aspect of organizational structure which Miles and Snow (1978) discuss is the extent of decentralization. They argue that, for defenders, 'the solution to the administrative problem must provide management with the ability to control all organizational operations centrally' (1978, p. 41). This is because a defender is attempting to maximize the efficiency of internal procedures. A defender thus resembles a classic bureaucracy in which 'only top-level executives have the necessary information and the proper vantage point to control operations that span several organizational subunits' (Miles and Snow 1978, p. 44).

By contrast, a prospector spreads power much more widely between parts of the organization, because it is encouraging flexible and innovative behaviour that will allow it to locate and exploit opportunities for new ventures. The prospector's administrative system 'must be able to deploy and coordinate resources among many decentralized units and projects rather than to plan and control the operations of the entire organization centrally' (Miles and Snow 1978, p. 59). Power is devolved to middle managers and front-line staff so that they can apply their 'expertise in many areas without being unduly constrained by management control . . . jobs are broadly defined in order to permit maximum autonomy' (Miles and Snow 1978, p. 62). Floyd and Woolridge's (1992) research in 25 private organizations in the US found that middle managers in prospecting firms reported significantly higher involvement in decision-making than their counterparts in defending firms.

It is possible that public organizations are more likely to decentralize decision making than their counterparts in the private sector, since street-level bureaucrats (such as teachers, police officers and social workers) require considerable discretion in their dealings with clients (Lipsky 1980). However, given that public organizations are expected to vary in the extent to which they prioritize different strategies, we still anticipate that defending will be associated with greater centralization of decision making as efforts to concentrate on core activities are likely to require top-down control mechanisms. By contrast, bottom-up

approaches to decision making may enable public managers to develop and implement their own solutions to the 'entrepreneurial problem'. For example, Olson *et al.*'s (2005) study of 228 US marketing firms revealed that prospectors employ a high proportion of specialized professionals to engage in exploratory behaviour and, therefore, devolve decision making to maximize the impact of professional expertise.

Reactors, unlike defenders or prospectors, have no predictable organizational structure: some may be centralized while others are decentralized. Reactors 'do not possess a set of mechanisms which allows them to respond consistently to their environments' (Miles and Snow 1978, p. 93). Such reluctance to centralize or decentralize decision making could be more prevalent in public organizations because they are subject to a wider range of competing external pressures than private firms. It is therefore probable that the relationship between reacting and decentralization will be especially weak in the public sector.

This set of arguments leads to the following hypotheses on the links between organizational strategies and structures in public organizations:

- H1: a prospector strategy is positively related to decentralization;
- H2: a defender strategy is negatively related to decentralization;
- H3: a reactor strategy is not related to the extent of decentralization.

Turning from organizational structures to processes, Miles and Snow (1978) distinguish between the extent of planning associated with different strategies. In a defender,

the planning sequence proceeds through a series of steps which allows the organization to exploit current and foreseeable environmental conditions fully. These steps mainly involve the setting of output and cost objectives which are then translated into specific operating goals and budgets. (Miles and Snow 1978, p. 43)

By contrast, the planning process in a prospector is broad and tentative. Prospectors are poised to expand or contract their activities, depending on the opportunities or threats that they face, so the planning cycle is seldom systematic or complete. In a prospector,

organizational objectives are allowed to coalesce around current areas of prospecting and thus seldom achieve a stable equilibrium. Unlike the defender, whose planning process is usually finalized before implementation begins, the prospector must often directly engage a new problem or opportunity before detailed planning can be completed. (Miles and Snow 1978, p. 61)

Thus, whereas the defender is a rational planner, the strategy process in a prospector is similar to 'logical incrementalism' (Quinn 1980). Both defenders and prospectors plan, but the former do so formally and precisely, whereas the latter follow a more informal and iterative process.

The value and role of planning within strategic management has long been a source of interest and debate amongst organizational theorists (see, for example, Langley 1988; Mintzberg 1994). It is only in more recent times, however, as the desire of politicians to exert ever greater control over public service professionals has gathered pace, that the influence of these debates has become apparent (see Clarke and Newman 1997; Pollitt and Bouckaert 2004). However, attempts to establish managerialist patterns of control in the public sector must contend with distinctive operational realities. Public organizations are expected to be responsive to the demands of a multiplicity of external clients and stakeholders (Boyne 2003). Thus, although they are increasingly required to produce strategic and business plans, and adopt formalized decision-making processes, these

procedures may often be cosmetic exercises which bear little relation to the actual way in which decisions are made (see Llewellyn and Tappin 2003). Given the complex social and political environment that they face, public organizations may be predisposed towards an incremental 'muddling through' of the process of strategy formulation (Lindblom 1959). Nevertheless, the relative priority accorded to prospecting or defending could pick up variations in the commitment to formal planning within public organizations. For example, Ketchen *et al.* (1996) and Gibbons and O'Connor (2005) have uncovered positive relationships between defending and rational planning amongst private firms.

Finally, reactors again are predicted to exhibit a range of approaches to planning. In a reactor, 'management does not fully shape the organization's structures and processes to fit a chosen strategy' (Miles and Snow 1978, p. 93). The absence of a clear vision about where the organization is headed, and the reliance on external pressures to shape strategy, makes it difficult if not impossible for reactors to plan. Segev (1987) finds a consistently negative relationship between reacting and rational planning. These arguments lead to the following hypotheses:

- H4: rational planning is more positively related to a defender than a prospector strategy;
- H5: logical incrementalism is more positively related to a prospector than a defender strategy;
- H6: a reactor strategy is not consistently related to either rational planning or logical incrementalism.

Most of Miles and Snow's (1978) arguments on organizational processes concern strategy formulation. This neglects the implementation stage of strategy, which is widely considered to be crucial in public organizations (O'Toole 1986; Mazmanian and Sabatier 1989; O'Toole 2000). Therefore we also test H4 to H6 on measures of strategy implementation.

DATA AND METHODS

Unit of analysis

The organizational context of our analysis is local government in Wales. Our units of analysis are the service departments within a local authority. We study the strategy, internal structure and process in different departments in order to identify whether the relationship between the variables is consistent with the Miles and Snow model. Although local authorities themselves may have varying managerial and political priorities, individual departments can participate in their determination and often have distinctive approaches to strategic issues (see Dibben 2006). Indeed, results were obtained that were similar to those presented below when controlling for local authority effects. Thus, by analysing service departments in a single local government system, other potentially salient influences on strategy, structure and process, such as the policies of higher tiers of government or legal and regulatory constraints, are held constant.

Our statistical analysis was conducted in two years: 2002 (90 cases) and 2003 (62 of those cases). Similar results were obtained for the 2002 data when the cases were restricted to the sub-set for 2003 (a copy of the full questionnaires for 2002 and 2003 together with the data are available on request). The distribution of these units of analysis by service department is shown in table 1. The departments are representative of the diverse operating environments faced by local authorities in Wales, including urban, rural, socio-economically deprived, and predominantly Welsh- or English-speaking areas.

TABLE 1 *Sample of service departments*

	2002	2003
Benefits and revenues	12	5
Education	10	8
Highways	9	6
Housing	8	7
Leisure and culture	11	5
Planning	8	4
Public protection	10	7
Social services	13	12
Waste management	9	8

Methods

Data on strategy, structure and process were derived from an electronic survey of managers in Welsh local authorities conducted in the years 2002 and 2003. Electronic surveys offer a number of advantages, such as cost-effectiveness and user responsiveness (see Enticott 2003), over postal surveys. The survey explored informants' perceptions of organization, management and performance. Survey respondents were asked a series of questions assessing strategy, structure and process in their service. For each question, informants placed their service on a 7-point Lickert scale ranging from 1 (disagree with the proposed statement) to 7 (agree with the proposed statement). We collected data from different tiers of management to ensure that our analysis took account of different stakeholder perceptions within the service departments. This surmounts sample bias and measurement error problems associated with surveying informants from only one organizational level. Heads of service and middle managers were selected for the survey because research has shown that attitudes differ between hierarchical levels within organizations (Payne and Mansfield 1973; Walker and Enticott 2004). Although t-tests revealed statistically significant differences between the mean scores of each echelon for the majority of our survey items, the spread of responses across the items for each echelon was broadly similar.

Survey data were collected in the autumn of 2002 and the autumn of 2003. Information (including email addresses) for up to ten key senior and middle managers in every service department were provided by the corporate policy unit in 17 of the 22 Welsh authorities agreeing to participate in the study. The sampling frame in 2002 consisted of 198 services and 830 informants; in 2003, 198 services and 860 informants. Responses were received from 46 per cent of services (90) and 29 per cent of individual informants (237) in 2002, and 31 per cent of services ($n=62$) and 25 per cent of informants ($n=216$) in 2003. The 2002 survey explored strategic stance and strategy formulation processes, and the 2003 survey examined strategy implementation processes. Time-trend tests for non-respondent bias (Armstrong and Overton 1977) revealed no significant differences in the views of early and late respondents in either year.

The survey was sent to informants as an Excel file attached to an email. Informants were assured of the confidentiality of their responses and responses within each service were aggregated to generate organizational level data suitable for our analysis. The average score of respondents within a service was taken as representative of that service. So, for instance, if in one authority there were two informants from the social services

department, one from services for elderly people and another from children's services, then the mean of their responses was used.

By piloting in 2002 and 2003, we improved the survey instrument by adding a glossary of terms, and further questions about the nature of services, and stressed the need for respondents to provide an 'honest appraisal'. We also clarified the split between service-level and authority-wide questions and made the technical terms used in the instrument more accessible. We used a number of techniques to control for the potential influence of common method bias on our statistical results. First, psychological and temporal remedies were used in the design of our questionnaire (Podsakoff and Organ 1986). The items measuring strategy in the 2002 survey were placed in a different section of the questionnaire than those measuring structure and process. The order of individual items measuring specific concepts such as rational planning and logical incrementalism was also partially merged to control for priming effects. In addition, items drawn from our 2003 survey generated on average a 72 per cent difference from the 2002 survey in the composition of the respondents for each service. Second, our piloting process resulted in improvement of many survey questions and increased the emphasis on respondent anonymity, reducing the likelihood of item ambiguity and evaluation apprehension (Tourangeau *et al.* 2000). Finally, we tested for the presence of common method biases using two partial correlation procedures:

1. Partialling out respondents' perceptions of staff satisfaction as a proxy for the potential influence of 'general affectivity' (Brief *et al.* 1988);
2. Partialling out the average correlation between population density, as an independent 'marker variable', and the study measures (Lindell and Whitney 2001).

These processes revealed broadly similar results to those presented below, indicating that common methods bias is not a serious problem.

Measures

Strategy

The full descriptions of our measures of organizational strategy are listed in table 2. A prospector strategy was operationalized through four measures of innovation and market exploration, since these are central to Miles and Snow's (1978) definition of this orientation. The specific measures are derived from Snow and Hrebiniak (1980) and Stevens and McGowan (1983). The Intra-class Correlation Coefficient (ICC) for the prospecting measures was .53, signifying a statistically significant level of perceptual agreement amongst individuals within the same service departments ($p > .001$). To explore the extent to which Welsh local authorities displayed defender characteristics, informants were asked three questions assessing whether their approach to service delivery was focused on core activities and achieving efficiency (Snow and Hrebiniak 1980; Stevens and McGowan 1983; Miller 1986). The ICC for the defending measures was .34 ($p > .001$). Reactors are expected to lack a consistent strategy and to await guidance on how to respond to environmental change. We therefore asked our informants five questions about the existence of definite priorities in their service and the extent to which their behaviour was determined by external pressures. We again based these measures on prior work (Snow and Hrebiniak 1980), taking particular care to avoid leading questions by excluding the term 'react' from the relevant items. The ICC for the reacting measures was .41 ($p > .001$). To determine if there are distinct underlying strategic stances amongst services in Welsh local government the survey items were factor analysed (see table 2).

TABLE 2 *Measures of organizational strategy and principal component analysis*

Measures	X	SD	Factor 1	Factor 2	Factor 3
We continually redefine our service priorities (P)	4.98	1.31	-.31	.71	.07
We seek to be first to identify new modes of delivery (P)	4.59	1.38	-.20	.86	.01
Searching for new opportunities is a major part of our overall strategy (P)	5.05	1.20	-.38	.74	.20
We often change our focus to new areas of service provision (P)	4.38	1.22	.11	.82	-.16
We seek to maintain stable service priorities (D)	5.12	1.17	-.09	.07	.79
The service emphasizes efficiency of provision (D)	5.36	0.93	-.34	.31	.62
We focus on our core activities (D)	5.17	1.03	.00	-.19	.79
We have no definite service priorities (R)	2.27	1.04	.77	-.21	-.07
We change provision only when under pressure from external agencies (R)	1.87	0.87	.89	-.04	-.12
We give little attention to new opportunities for service delivery (R)	2.08	0.87	.70	-.41	-.10
The service explores new opportunities only when under pressure from external agencies (R)	2.00	0.87	.90	-.05	-.07
We have no consistent response to external pressure (R)	3.03	1.23	.47	-.35	-.23
Eigenvalues			3.31	2.95	1.79
Cumulative variance			27.60	52.21	67.10

Notes: N = 90; Rotated Factor loadings.

Key: P = prospecting; D = defending; R = reacting.

This produced three statistically significant and clear factors explaining 67.1 per cent of the variance in the data.

The measures of prospecting, defending and reacting load on one common factor each. The eigenvalues for all three factors are high, suggesting that the services sampled in this study display distinctive strategies. The rotated factor loadings for each strategic orientation are highlighted in table 2 and are all above 0.4, indicating that they are important determinants of the variance explained by the factors (Hair *et al.* 1998). The prospecting and reacting factors have excellent Cronbach's Alpha internal reliability scores of .82 and .84 respectively (Nunnally 1978). Although the defending factor has a comparatively low Cronbach's Alpha score of .60, it is nevertheless suitable for exploratory analysis of new scales (Loewenthal 1996). To test the argument that organizations display a range of strategic stances, a single confirmatory factor score was created for each group of items (that is, prospecting, defending and reacting) and the correlations between these un-rotated factors were analysed.

Table 3 highlights that there is a small positive correlation between prospecting and defending (.17), suggesting the presence of some overlap between the two strategic stances, which, in turn, may mean that some services pursue both strategies. By contrast, negative correlations between reacting and the other strategic stances (–.47 for prospecting, and –.33 for defending) imply that reactors are far less likely to engage in prospecting or defending. This implies that (at least for this data set) in the public sector reacting is the most distinctive of Miles and Snow's strategic archetypes.

TABLE 3 *Correlations between strategy archetypes*

	Prospecting	Defending	Reacting
Prospecting			
Defending	.17+		
Reacting	-.47**	-.33**	

Note: N = 90; + $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$. (One-tailed tests).

Structure

A range of items from the survey were used to measure organizational structures (the precise operationalization of these is shown in table 4. For organizational theorists, the relative degree of centralization within an organization is signified by the 'hierarchy of authority' and the 'degree of participation in decision-making' (Hage and Aiken 1967). Hierarchy of authority refers to the extent to which the power to make decisions is exercised at the upper levels of the organizational hierarchy, while participation in decision-making pertains to the degree of staff involvement in the determination of organizational policy (Glisson and Martin 1980; Carter and Cullen 1984). Our measures of organizational centralization therefore evaluate whether senior managers usually make strategic decisions and whether most staff in the organization have input in decisions (see Hart and Banbury 1994). The lower level of respondent agreement for the centralization measures ($ICC = .20p > .05$) is probably attributable to the different dimensions of organizational structure that these two measures are tapping. To gauge the expectation that a reactor has no predictable organizational structure, we posed the statement: 'There is no internal pressure to create or develop strategy' (Inkpen and Choudhury 1995).

Strategy formulation

To explore processes of strategy formulation, informants were asked five questions that assessed the extent to which the approach to strategic decision making in their service followed established formal procedures, and two questions on logical incrementalism, all of which are drawn from prior studies (see table 4). Single rational planning and logical incremental factors for these measures were then extracted using principal components analysis. Our measures of rational planning sought to capture the use of formal organizational processes to make strategy (Hart and Banbury 1994), the assessment of alternative strategy options (Bailey *et al.* 2000), and the use of target-setting (Bailey *et al.* 2000). The ICC for the planning measures was .53 ($p > .001$), and the Cronbach Alpha score of .86 demonstrates their excellent scale reliability (Nunnally 1978). The key characteristics of logical incrementalism are an ongoing process of adjustment to new circumstances and negotiation with key stakeholders (Hart and Banbury 1994). These concepts were separately captured in the questions we posed on logical incrementalism. The ICC for the incrementalism measures was .39 ($p > .001$), with a satisfactory Cronbach Alpha scale reliability coefficient of .59 (Loewenthal 1996). Finally, given that a reacting organization is expected to wait for signals in the external environment to shape ITS strategic stance, it is not expected to have a coherent approach to making decisions. To tap this likelihood we turned to Inkpen and Choudhury's (1995) work on strategy absence and posed the statement: 'There is no discernible strategy process'.

TABLE 4 *Measures of organizational structure and process and hypothesized relationship with strategy*

Concept	Variable definition	Hypothesized relationship with				
		X	SD	Prospecting	Defending	Reacting
Structure	Strategy for our service is usually made by the head of service	4.74	1.34	–	+	NS
	Most staff have input into decisions that directly affect them	4.96	1.36	+	–	NS
	There is no internal pressure to create or develop strategy	2.23	1.09	–	–	++
Formulation	Strategy making is a formal procedure in our service	5.28	1.21	+	++	NS
	Strategy is based on formal analysis of the service's needs	5.18	1.09	+	++	NS
	We assess alternative strategies	4.84	1.30	+	++	NS
	We follow precise procedures to achieve targets	4.68	1.42	+	++	NS
	Targets in the service are matched to specifically identified citizen needs	4.71	1.22	+	++	NS
	Strategy is made on an on-going basis	5.46	0.95	++	+	NS
	Strategy develops through negotiation with external stakeholders (e.g. voluntary / private sector groups)	5.06	1.22	++	+	NS
	There is no discernible strategy process	2.18	1.14	–	–	++
N		90				
Implementation	We use a project/business plan to implement strategies	5.57	1.04	+	++	NS
	When implementing strategies we have clearly defined tasks with targets	5.53	0.93	+	++	NS
	When implementing strategies we regularly review progress against targets	5.51	1.00	+	++	NS
	We implement strategies by piloting them initially and then implementing them in full	4.20	1.38	+	++	NS
	When implementing strategies we often refine and amend them as we go along	5.28	0.90	++	–	NS
	We improve the implementation of our strategies by getting all of the affected groups involved in their development	5.12	1.03	++	–	NS
	There is no discernible approach to implementing strategies in our service area	2.75	1.09	–	–	++
N		62				

Notes: ++ = strong positive relationship; + = positive relationship; – = negative relationship; NS = no significant relationship; for explanation of the hypothesized relationships, see text on pages 7–8.

Implementation

Rational planning and logical incremental factors were constructed for our implementation measures using principal components analysis. Informants were asked four questions on the presence of formal procedures in their approach to implementing strategies in their service. A key element of the rational approach is that formulation and implementation are sequential activities (Thompson 2000). Rational implementers are likely to define tasks clearly, through formal methods such as business or project plans, which identify tasks with targets, and permit reviews of progress (Hart 1992). As part of the evaluation of appropriate strategies, the organization may also pilot them before full implementation

(Bryson 1995). Each of our measures sought to tap these features of a planned approach to implementation (see table 4, above). The ICC for the rational implementation approach measures was .35 ($p > .001$), and the Cronbach Alpha score was .76.

A logical incremental approach to implementation is less rigid. Organization members are active participants in the process of implementation (Rajagopalan and Rasheed 1995), continually adapting strategies as they are implemented. Our two measures of a logical incremental approach to strategy implementation capture these ideas of adjustment (Hart 1992) and negotiation (Nutt 1986). The ICC for the incremental implementation measures was .38 ($p > .001$), with an acceptable Cronbach Alpha score of .60 (Loewenthal 1996). In addition, we included the statement 'there is no discernible approach to implementing strategies' in order to test directly whether reactors lack consistent processes (Inkpen and Choudhury 1995).

STATISTICAL RESULTS

The relationship between strategic stance and the internal characteristics of the Welsh local services which were part of the study is investigated through bivariate correlations. These were used because we are interested in the closeness of the links between the variables. As noted above, Miles and Snow (1978) argue that strategy, structure and process all influence each other in a sequence of mutual dependence. In order to examine if there are statistically significant differences between the correlations for different stances (as suggested in H7 and H8), pairwise testing of z-transformed standard errors is used (Blalock 1979).

Organizational structures

The Miles and Snow model suggests that 'prospecting' is associated with decentralization, 'defending' with centralization and 'reacting' with neither pattern of power distribution. The bivariate correlations that test these arguments are presented in table 5. The findings provide some support for H4 on the link between organizational strategy and structure. Table 5 shows that a prospector strategy is positively correlated with participation in decision making. There is a moderate positive correlation between prospecting and our measure of staff input into decision making, and no statistically significant correlation between prospecting and hierarchy of authority. Coupled with the negative correlation with the absence of pressure to develop strategy, these findings suggest that services which emphasize a prospector strategy are more likely to have the type of structure specified in the Miles and Snow model. This mirrors the available evidence on the link between prospecting and decentralization in public and non-profit organizations. For example, Doty *et al.*'s (1993) analysis of a range of private and public organizations in the US showed that prospectors were more likely than either defenders or reactors to be decentralized.

TABLE 5 *Correlations between strategy and structure*

	Prospecting	Defending	Reacting
Strategy for our service is usually made by the head of service (HA)	.05	.27**	-.25**
Most staff have input into decisions that directly affect them (PD)	.38**	.16+	-.44**
There is no internal pressure to create or develop strategy (NS)	-.19*	-.06	.18*

Notes: N = 90; + $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$. (One-tailed tests).

Key: HA = hierarchy of authority; PD = participation in decision-making; NS = no structure.

The statistical results provide some support for H2. A defender strategy is positively correlated with the degree of hierarchical authority. This finding reflects most of the available evidence from previous studies (Doty *et al.* 1993; Brown and Iverson 2004). However, a weak positive correlation between a defender strategy and participation in decision making is also present. This suggests that strategic decision making in defending services is conducted by senior managers with some staff involvement.

H3 is supported by the statistical results. A reactor strategy is positively correlated with an absence of identifiable pressure to make strategy from any part of the organization. Table 5 shows moderate negative correlations between reacting and strategy-making by service heads (−.25) and staff input into decision-making (−.44). Our results therefore confirm Miles and Snow's contention that reactors lack a consistent organizational structure. Our findings from the public sector provide broad support for Miles and Snow's arguments on strategy and structure. Although defenders are, as predicted, more hierarchical than prospectors, participation in decision making may be associated with a prospector or defender strategy. Overall, local authority services in Wales seem to be utilizing decentralized decision making when prospecting, and a lower degree of staff involvement when defending. The inconsistent association between a reactor strategy and the extent of centralization implies that Welsh local services which prioritize reacting are less likely to have a clear internal distribution of power over organizational strategy.

Formulation

Strategy formulation is a key issue in public management and is a central element of the Miles and Snow typology. However, remarkably few studies have explored the relationship between strategy content and process, and where studies have been undertaken they provide contradictory evidence (see Segev 1987; Ketchen *et al.* 1996; Gibbons and O'Connor 2005). Table 6 shows the results of our test of the relationship between strategy content and process. All of the correlations presented in table 6 are in the hypothesized direction. Prospecting and defending are positively related to rational planning and logical incrementalism, and reacting is negatively related to both styles of strategy formulation. However, the relative magnitude of the correlation coefficients for prospecting and defending are inconsistent with H4 and H5.

Rational planning was argued to be most strongly associated with a defender stance. However, the evidence is contrary to our expectations, because prospectors and defenders are equally likely to be rational planners (see table 6, final column). This appears to be inconsistent with the limited number of studies that have examined the relationship between strategic stance and strategy formulation (Segev 1987; Ketchen *et al.* 1996; Gibbons and O'Connor 2005). However, although these studies uncover a positive relationship between defending and rational planning, they do not test whether this differs from its link with prospecting. The findings for our measures of logical incrementalism follow

TABLE 6 *Correlations between strategy and formulation process*

	Prospecting	Defending	Reacting	Differences
Rational planning formulation factor	.40**	.31**	−.48**	(P = D) > R
Logical incremental formulation factor	.25**	.23*	−.48**	(P = D) > R
There is no discernible strategy process	−.48**	−.35**	.65**	R > (P = D)

Notes: N = 90; *p ≤ 0.05; **p ≤ 0.01. (One-tailed tests).

TABLE 7 *Correlations between strategy and implementation process*

	Prospecting	Defending	Reacting	Differences
Rational planning implementation factor	.31**	.10	-.23*	(P = D) > R
Logical incremental implementation factor	.09	.07	-.28*	(P = D) > R
There is no discernible approach to implementing strategies in our service area	-.19+	-.02	.27*	R > (P = D)

Notes: N = 62; +p ≤ 0.10; *p ≤ 0.05; **p ≤ 0.01 (One-tailed tests).

a similar pattern – the correlations for prospecting are not significantly different from those for defending, which contradict H5.

Support is found in the correlations for H6: reacting is negatively associated with both rational planning and logical incrementalism. Reactors have been found to display a consistent negative relationship with rational planning in other studies (Segev 1987). Our findings on the strategy formulation processes of reactors are given further weight by the results for the strategy absence variable. This is associated positively with reactors and negatively with both defenders and prospectors. The results of the pairwise analysis clearly confirm these results. They show that the reacting correlation coefficients are significantly different from those for both prospecting and defending. These findings indicate that a prospector and a defender strategy are equally likely to be associated with rational planning and logical incrementalism, with reactors unlikely to be associated with either style of formulation. The clearest conclusion to be derived from these findings is that reactors are statistically different from prospectors and defenders on measures of strategy formulation.

The context of public organizations may play an important role in determining the relationship between strategy content and strategy processes. The policy context in Wales has given priority to the adoption of a number of models of rational planning. From 1998 to 2001, Welsh authorities were required to implement the statutory Best Value regime. This involved a planning process focused on systematic environmental scanning, consultation with key stakeholders, both internal and external, and assessments of the competitiveness of service delivery. The Best Value regime also included an action plan which was laden with targets and required an annual process of monitoring and reporting against achievements (Boyne *et al.* 2002). Best Value was superseded by the Wales Programme for Improvement in 2002, which yet again stressed a process of rational planning. While the extent to which planning activity impacts on the actual process of strategy formulation in the public sector is debatable (Llewellyn and Tappin 2003), our results may (in part) reflect the pressure on both prospecting and defending services to assimilate rational planning into their existing strategy-making processes.

Implementation

Although Miles and Snow (1978) and others (Hart 1992; Parsa 1999) have predicted a link between strategy content and implementation, there is no empirical evidence which tests these hypotheses, either for private or public organizations. Some studies examine specific strategic characteristics rather than broad strategic stances. For example, Golden (1990) found that successful innovations in human services involved an incremental approach to implementation. Using bivariate correlations and pairwise analysis of z-transformed standard errors, we test whether the connections postulated by Miles and Snow exist.

The findings presented in table 7 do not provide support for H4. A rational approach to implementation is not more positively associated with a defender than a prospector strategy. In fact, the reverse is true. The results show that it is a prospecting strategy that is more strongly associated with rational planning. There is a moderate correlation between prospecting and our planned implementation measure (.31), but only a weak but positive relationship for a defender strategy. Although these results seem to imply that prospecting requires planned implementation while defending does not, pairwise analysis of the standard errors for the correlation coefficients did not reveal a statistically significant difference between the correlations for planning.

Our results do not support H5 which predicts that logical incrementalism is more positively associated with prospecting than defending. There is a positive correlation between prospecting and incremental implementation (.09). However, this correlation is not significantly different to that for a defending strategy. These results indicate that there is little difference between prospecting and defending services in their use of incremental implementation processes.

Our next hypothesis (H6) is supported by the statistical results. The extent of reacting is not positively related to either a rational planning or a logical incremental process. There is a negative correlation between a reactor stance and our measure of rational implementation. A negative correlation is also evident between reacting and an iterative approach to implementation. In all cases, the correlation coefficients are significantly different from those for both prospecting and defending services. In addition, reacting services are significantly more likely to 'lack a discernible approach' to implementing strategies, which is consistent with service departments' disagreement with statements that they are either rationalists or incrementalists.

The results imply that there are few differences between implementation processes in defending and prospecting public organizations. Indeed, a rational approach to implementation appears to be more strongly associated with prospecting than defending. This may be because prospecting services feel more need to control and monitor the implementation of a variety of innovative strategies that are being pursued simultaneously. Our results reflect the work of Simons (1987) who found that prospecting organizations in the private sector monitored outputs closely, and that defenders used their control systems less intensively. Implementation in a defender may be regarded as stable and routine, and therefore requires less scrutiny. Our evidence also suggests that reacting public organizations behave in ways predicted by Miles and Snow: an incoherent strategy is reflected in an inconsistent style of implementation.

Table 8 summarizes the findings from our hypothesis testing. Table 8 shows that our findings for structure largely support the hypotheses, while those for strategy formulation and implementation do not. However, there is wide variation between the support gained

TABLE 8 *Summary of findings*

	Correlations for which hypothesis confirmed			
	Prospecting	Defending	Reacting	
Structure	3/3	2/3	3/3	8/9
Strategy formulation	1/3	1/3	3/3	5/9
Strategy implementation	1/3	1/3	3/3	5/9
	5/9	4/9	9/9	18/27

for the hypotheses in relation to strategy itself, with only the reacting results providing unequivocal confirmation of the Miles and Snow model. Overall, while our findings problematize Miles and Snow's arguments, they also suggest that the model may be more valuable for the empirical analysis of some organizational characteristics than others (that is, structure and strategy formulation).

CONCLUSIONS

Miles and Snow (1978) provide a classic model of strategic management, arguing that organizations should adopt coherent and distinctive strategies and adapt their internal characteristics to these strategies. In this paper we have presented a comprehensive empirical application of this model to public sector organizations. Our findings show that public services do have distinctive and coherent strategies which fit the Miles and Snow categories of prospector, defender and reactor. However, internal structures and processes are not consistently related to these strategies in the ways predicted by Miles and Snow. Organizational structure has the closest relationship to the Miles and Snow model of strategy. Although both prospecting and defending services are associated with participation in decision making, this is much stronger for prospectors. Reacting services, as predicted, have no clear internal distribution of involvement in strategy making, but are particularly unlikely to decentralize decisions. For formulation and implementation, there are few differences in the processes prospecting and defending services use. Miles and Snow argue that defenders are more likely to be rational and prospectors incremental, but our evidence indicates that this is not the case. Nevertheless, services with a reacting stance are, as predicted, less likely than prospectors and defenders to have a consistent style of both formulation and implementation. These findings have important theoretical and practical implications.

Our evidence shows that public organizations can have consistent strategies which fit the Miles and Snow categories. However, the fact that the processes of formulation and implementation are only loosely coupled to strategy content contradicts one of the central elements of the Miles and Snow model. Thus, while our analysis implies that the model can furnish valuable insights into strategy in the public sector, it appears to be unable to account for potential linkages with important internal characteristics.

It is conceivable that the overlap in our findings for the processes associated with prospecting and defending is indicative of a generic strategy of 'analysing' within Welsh local government service departments. These organizations appear to be both prospecting and defending, and may therefore want to ensure that they have the appropriate processes for pursuing either strategy. Although the correlation between defending and prospecting is relatively low, Welsh local service departments could be concluding that similar processes are conducive to the development and implementation of both strategies. Alternatively, it may be the case that the findings for formulation and implementation reveal something important about sector differences. For example, Welsh local authorities are now expected to have formal planning procedures embedded in their strategy process, whether these really reflect the reality of the strategy process or not. These complexities surrounding planning in the public sector present significant problems for policy-makers seeking to design organizations that are 'fit for purpose'. Thus, Miles and Snow's arguments provide illuminating pointers towards improving the links between strategy and structure, but more research is required into the connections

between strategy and process. Furthermore, despite the insights we have gained, there are some important methodological and conceptual limitations of our findings.

Our analysis has been conducted on a specific group of public organizations in a particular time period, which leaves open the possibility that our results are an artefact of where and when we chose to conduct the survey. To what extent are the findings replicated in other settings and time frames? It is conceivable that these results are relevant only to Welsh local service departments, especially given the distinctive nature of the planning regime introduced by the Welsh Assembly Government. Moreover, our use of cross-sectional data does not permit us to thoroughly explore the 'leading' and 'lagging' effects of strategy and other organizational characteristics. Longitudinal studies of strategy in public organizations could assess the reciprocal processes of causation hypothesized by Miles and Snow.

Prospectors and defenders have distinctive strategies but similar approaches to formulation and implementation. Given the isomorphic pressures towards the implementation of rational planning faced by all Welsh service departments, it may have been necessary to develop survey items that carefully separated a pro-planning attitude from mere adherence to statutory requirements. This could uncover significant differences between the strategy-process linkages of those defending organizations that were inherently disposed towards rational planning and those prospecting organizations that adopt such formulation and implementation processes to maintain their first-mover advantage. While reacting services in Wales may also have been constrained to adopt such processes, it is likely that the negative correlation between reacting and rational planning is a reflection of their intrinsic inability to introduce predictable management systems. Indeed, reactors are the only category where our evidence consistently fits the Miles and Snow model.

Reacting services have no clear distribution of power or identifiable approach to formulation or implementation. Organizations that react are distinctive not only in their lack of a coherent strategy, but also in the diversity of their internal characteristics: they are unlikely to be centralized or decentralized, and equally unlikely to have rational or incremental processes. This apparent incoherence may indicate that they continuously adapt their characteristics to whatever external signal is most powerful at any given time. Reacting may not be a coherent or stable management strategy at all, but simply indicates a total absence of strategic management. Indeed, the negative correlations between reacting and the other strategic stances suggest that it is rarely adopted in tandem with alternative strategies, confirming its position as the 'lemon' of strategic orientations (Woodside *et al.* 1999). Subsequent studies of the nature of reacting should explore the extent to which an active policy of reacting can be distinguished from an inability to strategize altogether.

We have shown that certain aspects of the Miles and Snow model are supported by data on the strategies and internal characteristics of public organizations, but that there may be sector-specific issues which the model cannot fully explain, most notably those pertaining to the organizational processes that they are expected to display. Future research needs to build on our work, not only by examining the link between strategy, structure and processes in other public sector contexts, but also whether these are related to other important variables, such as managerial characteristics (see Thomas and Ramaswamy 1996) or perceived environmental uncertainty (see Buchko 1994). Finally, it will be essential to evaluate whether public organizations that achieve the tightest fit between strategies and organizational characteristics are also the highest performers.

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