

# The Use of Multiple Informants in Public Administration Research: Data Aggregation Using Organizational Echelons

**Gareth Enticott**

*Cardiff University*

**George A. Boyne**

*Cardiff University*

**Richard M. Walker**

*University of Hong Kong*

## ABSTRACT

Surveys are an important methodological tool in public management research. Multiple informant surveys are held to have considerable methodological advantages over elite surveys (the practice of surveying a top manager, e.g., a chief executive). Although in principle multiple informant surveys can provide a more accurate organizational picture, problems of data aggregation arise in practice. To promote better use of multiple informant surveys, this article reviews approaches to aggregating organizational data. It provides the first empirical test of echelon methods of data aggregation for public management research. We find significant differences between echelon aggregations, elite surveys and unstandardized forms of aggregations (e.g., a simple mean). These results support our argument that careful theoretical and empirical analysis of multiple informant surveys data is required to provide valid and reliable measures of organizational properties.

Methodological choices have the potential to fundamentally affect what we know about public organizations. Simple changes to the way organizational data are collected, processed, and analysed can alter the statistical representation of organizational characteristics. If methodological choices are not made carefully, the danger is that the reliability and validity of survey data are lost. In short, if surveys do not or cannot adequately represent public organizations, then they offer no advantage over any other methodological approach.

This article argues that previous research has used surveys in ways which present skewed pictures of public organizations. Specifically, we suggest that public management research needs to attend to the problems of creating organizational accounts from survey data. This is for two reasons. First, undue weight is often given to the views of senior executives rather than managers at lower levels. These “elite surveys” fail to reflect the variety of organizational views found in multiple informant approaches (Phillips 1981; Walker and Enticott 2004). Second, where multiple informant approaches have been used, questions remain over

Address correspondence to the author at [enticottg@cardiff.ac.uk](mailto:enticottg@cardiff.ac.uk).

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the most appropriate way of aggregating data. A key issue is the need to ensure an accurate and comparable representation of organizational characteristics across units of analysis.

The aim of this article is therefore to explore how different forms of data aggregation affect understandings of public organizations. Specifically, we argue that only aggregation techniques that accommodate “organizational variety” should be relied upon. We illustrate the effects of different methods of data aggregation upon measures of organizational characteristics. Using “echelon” approach of Aiken and Hage (1968), a range of different organizational aggregations are empirically tested. The results highlight significant differences between alternative forms of organizational aggregation and show that particular attention should be paid to organizational variety when designing surveys of organizations, be they public, private, or nonprofit.<sup>1</sup>

### **COLLECTING ORGANIZATIONAL DATA IN PUBLIC MANAGEMENT RESEARCH**

Organizations order and structure diverse systems, parts, and people. Although this ordering gives the organization a seemingly coherent structure, different parts play different roles. For example, local councils that form the system of local government in the United Kingdom deliver a wide range of services. Each has its own operating codes and legacy of managerial actions. As such, managers’ values and behavior may vary according to the part of the organization to which they belong. In conducting public management research, it is therefore vital for this organizational variety to be accommodated within the methodologies that are deployed. Otherwise, what is supposedly a measure of a whole organization may actually represent only a single level or subunit.

This is all the more important if public management researchers are to take advantage of performance data for complex or multipurpose public agencies. In the United Kingdom, for example, the comprehensive performance assessment (Audit Commission 2002) provides performance scores for all local councils. In the US scorecards are now a feature of the assessment of government agencies through the program assessment rating tool regime, whereas in China indexes are being developed to assess the performance of cities and provinces. Using these scores offers the chance to examine the relationships between performance, organizational characteristics and managerial practices. However, this depends on the ability of managerial surveys to reflect organizational variety and allow consistent comparisons to be made between organizations. In other words, the survey responses must cover different subunits and levels within organizations and must be comparable between organizations.

These issues of organizational variety and comparability have been ignored or hampered by some aspects of public management research methodologies. Two problems limit the development of accurate organizational data: the use of elite surveys and ensuring organizational comparability.

#### **The Problem of Elite Surveys**

Elite surveys are a common tool in management research. Informants are selected according to their “reliability” and/or “knowledgeability.” Reliable informants are judged to be

<sup>1</sup> The scope of this article is confined to organizational echelons. It is, however, possible to apply this approach to other units of analysis, notably networks which have become important vehicles for the delivery of public services over the last decade. The application of an echelons approach would see the use of an multiple informant survey in each organization in the network. Aggregation could be taken at the level of each organization (if the purpose of the study was to understand behavior in the network) or at the network level (if the purpose was to examine the effectiveness of the network).

senior managers who have worked within the organization for a long time and/or have extensive knowledge of it (Hambrick 1981; Cusumano and Takeishi 1991). Rather than surveying a range of organizational informants with these qualities, the elite survey takes only one organizational actor—usually the chief executive or another top manager—based on the logic that this person has the “best vantage point for viewing the entire organizational system” (Snow and Hrebiniak 1980, 320). Any other approach would, according to Hambrick (1981, 271), result in “considerably less accurate information.”

Rather than obtaining perceptions from various parts of the organization, just one person is surveyed (Bowman and Ambrosini 1997). Although this approach is commonplace within public management research (Brudney et al. 1999; Meier and O’Toole 2001), the assumptions made by elite surveys are fragile. For example, the correlation between length of tenure and knowledge is tenuous (Phillips 1981, 398–9; Seidler 1974). Also, the notion that a single “most reliable informant” exists within an organization has been dismissed as a myth (Phillips 1981). Chief executives may be less likely to provide an accurate organizational account than frontline staff (Purcell 1999). The social desirability thesis (Podsakoff and Organ 1986) suggests that chief executives are likely to portray their organization in a positive way. Such behavior is consistent with resource dependency theory (Wilson 1989) and institutional isomorphism (DiMaggio and Powell 1983)—managers pretend to have adopted fashionable organizational practices to gain legitimacy from sponsors.

Equally, disagreement between top managers within organizations is not unusual, either in the public or private sector (Starbuck and Mezias 1996). Various studies within the private sector have documented widespread disagreement between chief executives and their senior management teams (Hambrick and Mason 1984), within the senior management itself (Bowman and Ambrosini 1997; Payne and Pugh 1976; Wooldridge and Floyd 1989, 1990), and between senior and lower managerial levels (Phillips 1981; see also Bagozzi and Phillips 1982; Bagozzi et al. 1991; Kumar et al. 1993). These disagreements are sometimes linked to policy failure (Harris and Crane 2002; Fineman 1997) and poor organizational performance (Bourgeois 1980; Dess 1987; Dess and Origer 1987).

Analyses of public organizations show that frontline workers have different priorities than their senior managers (Guest 1999; Lipsky 1980; Purcell 1999; Walker and Enticott 2004) and that only modest levels of agreement between them can be found when assessing the impacts of managerial reform (Enticott 2004). At best, evidence from elite surveys “needs to be treated with caution—it does not necessarily paint an accurate picture” (Walker and Enticott 2004, 432). At worst, elite surveys “should be abandoned [and] wherever possible . . . be validated by the reports of other informants” (Phillips 1981, 411).

An alternative to elite surveys is multiple informant surveys. The assumption behind multiple informant surveys is that more accurate accounts can be obtained by surveying a range of actors located in different parts of an organization. Survey respondents may be differentiated according to managerial level, department, or any other method which reflects a variety of views within the organization. The use of multiple informant surveys in public management research is largely confined to analysis at the individual rather than the organizational level (e.g., Brewer and Selden 1998, 2000; Rainey et al. 1995; Selden and Brewer 2000). Results are either presented separately for different managerial levels (Phillips 1981; Walker and Enticott 2004), the most senior executives (Rainey et al. 1995; Selden and Brewer 2000), or organization-wide means (Brewer and Selden [2000]; and articles including Pandey and Garnett [2006]; Pandey and Moynihan [2006] from the

National Administrative Studies Project II). Elsewhere, some surveys have weighted samples, for example surveys of US Federal government agencies, but revert to an organization-wide mean when the data are aggregated.

### **The Problem of Comparability**

The problem of comparability can be stated thus: How should the responses to multiple informant surveys be combined to generate a measure that applies to the organization rather than each individual taken separately? Central to any method of data aggregation is an accurate portrayal of organizational variety. This requires the sample of respondents in each organization to in some way reflect the same aspects of organizational variety. As James (1982) points out, simply aggregating all responses from each organization is likely to produce unreliable and incomparable results. The percentages of respondents drawn from different subunits and levels may vary substantially across the organizations that are surveyed. Thus, in order to compare organizational accounts, aggregation techniques need to provide a standardized and comparable unit of analysis. Without procedures to ensure comparability between organizational accounts, the scores for different organizations will run the risk of reflecting variations in the types of respondents rather than variations in the attributes that are supposedly being measured.

Aiken and Hage (1968) argue that resolving this problem can be best achieved through what they call the echelon approach to data aggregation. The echelon approach relies on standardizing the calculation of organizational scores. In short, it uses a multiple informant methodology to gain responses at preidentified points—called echelons—in the organizational hierarchy. Equal weight is given to each echelon, and organizational scores are calculated from the means of the echelons—in effect a weighted aggregate. The method therefore captures internal organizational variety but in a standardized and comparable format.

If careful consideration is given to the identification of these echelons, this technique potentially offers considerable advantages. First, “it focuses on the sociological perspective of organizational reality . . . by obtaining measures from all levels and all departments, the total structure is portrayed and reflected in the organizational score” (Aiken and Hage 1968, 918–9). Second, this standardization of the aggregation process eliminates the bias derived from the unweighted responses of individuals.

Data aggregation using echelons is therefore recommended where organizations have distinct structural elements or where data sets are disproportionately loaded with particular categories of informant. For example, the multiple informant survey of Payne and Mansfield (1973) elicited higher response rates from “lower level personnel.” To avoid giving them too much weight, they constructed a five-echelon data aggregation process reflecting the most important subunits of the organization. These ranged from units responsible for the whole organization, through to the supervisory and operating levels. The informants in their echelon therefore included: the managing director, production managers, plant managers, foremen, and direct workers.

The choice and number of echelons used, however, needs to be justified empirically and/or theoretically. Phillips’ (1981) study, for example, finds statistically significant differences between the responses provided by two echelons. Payne and Mansfield (1973) argue that differences of perception between organizational subunits provide a strong empirical basis for selecting echelons for aggregation. Aiken and Hage (1968) use

assumptions about perceptual agreement to justify their selection of echelons. They surmise that people in similar organizational/managerial roles will think in similar ways. Alternatively, echelons might be based on internal departmental divisions. Pennings (1973, 692), for instance, suggests that departmental data can have smaller dispersion “because departments tend to have a more homogeneous arrangement of social positions.” The precise number of echelons is, however, likely to reflect both practical and theoretical concerns. The more echelons identified, the greater the response rate required. Thus, although Seidler (1974) used 10 echelons per organization, if survey responses are not received for each echelon in each organization, the comparability of organizational scores is threatened by structural bias.

Studies using the echelon approach potentially provide a more accurate picture of the organization and avoid distorting it through a simple averaging process. For Payne and Mansfield (1973), this means not only more reliable results but also greater levels of statistical significance. Their echelon aggregations provided more statistically significant results than a standard mean that takes no account of the organizational roles and locations of respondents. An additional 20 statistically significant correlations of organizational climate and contextual variables ( $p < .1$ ) are recorded when echelon aggregations are used rather than standard means.

### **ILLUSTRATING THE EFFECTS OF ECHELON AGGREGATIONS: EMPIRICAL EXAMPLES FROM ENGLISH LOCAL GOVERNMENT**

Our discussion suggests that public management research would benefit from multiple informant surveys and appropriate methods of data aggregation. The echelon procedure of Aiken and Hage (1968) has the potential to resolve the tricky problem of data aggregation. It offers a way of accommodating differences in perception between managerial levels and subunits. In doing so it, it permits valid interorganizational comparisons of data gained from multiple informant surveys. It is particularly useful for correcting the possible bias from the more numerous responses by lower managerial levels that these surveys often produce.

However, the precise impact of the echelon approach on empirical findings has not been the subject of extensive research. In those studies where it has been employed, its ability to represent organizational variety may be overstated. Aiken and Hage (1968, 918) admit echelon aggregations provide “strikingly similar results” to those derived from standard means. Correlations of variables derived from the two approaches range from 0.85 to 0.94 in their data set, leading to the conclusion that the weighting effect of echelons may in fact prove to be insignificant. Nevertheless, the extent to which echelon aggregation provides enhanced statistical results should not be the main reason for its employment. Rather, its justification should lie in its ability to reduce the effect of systematic errors and make measures of different organizations comparable by aggregating responses in a way which reflects their internal variety. Furthermore, empirical evidence on the problems of echelon aggregation is limited: only 14 organizations are analyzed by Payne and Mansfield (1973) and 16 by Aiken and Hage (1968). The approach has also not been tested on data from surveys of public sector organizations.

The remainder of this article therefore assesses the implications that data aggregation using echelons has for public management research. First, it explores the relationships between organizational scores produced with echelon aggregations and an “elite survey.” Second, it compares results between echelon aggregations and a normal arithmetic mean.

Third, it examines how different weights within the echelon procedure further affect measures of organizational characteristics.

### Context

This analysis is based on the English system of local government. Local councils account for around 25% of public expenditure, operate in a specific local geographical area, have elected members, and employ professional career staff. The majority of councils operate a Westminster-style cabinet system with scrutiny committees (though a very small number have elected mayors), and they have discretion in the scope of their service delivery within national legislative frameworks. Although they are not all purpose (e.g., health is provided by health authorities), education, social, welfare, environmental, and regulatory services are typically provided by comprehensive authorities in urban areas of England. Other areas operate a two-tier system with county councils administering education and social services and district councils providing environmental, welfare, and regulatory functions. Variation in purpose reflects variations in size: the smallest authority, a district, serves a population of 25,000 and the largest, a county, 1.3 million. The mean population is 187,000.

The existence of council subunits and tensions between different levels of management (Lipsky 1980) make them an excellent choice for testing the effects of echelon aggregation. Moreover, since 1997, local councils have been subject to a continual range of managerial reforms aimed at delivering improved levels of performance (Walker and Boyne 2006). For evaluations of such reforms to be reliable, researchers need data that accurately reflect organizational attributes.

### Methods

Data for this analysis were collected using a multiple informant survey of English local authorities in **summer 2001**. Respondents to the survey were **corporate officers** (the chief executive officer and corporate policy officers with cross-organizational responsibility for service delivery and improvement) and **service officers**. The latter include two groups of officers with specific service delivery responsibilities: **chief officers** are more senior and are ultimately responsible for the service and **service managers or front-line supervisory officers** who are typically assistant directors.<sup>2</sup> These officers worked in a range of services, including leisure and culture, education, housing management, planning, social services, and waste management. For each authority, questionnaires were sent to between **10 and 32** officers, dependent on authority type, the services it provided, and the allocation of managerial roles (in some authorities the same officer was responsible for two or more “key services”). The study sought to undertake a census of the **388 local authorities** in England, of which **318** agreed to participate in the research. Following a pilot, the survey was distributed to **4,184 officers** by e-mail in these 318 local authorities (for a description of this process, see Enticott 2003). Responses were received from **2,355 officers**—a response rate for individual respondents of 56%—in **314** local authorities, giving an organizational response rate of 81%.<sup>3</sup>

<sup>2</sup> Chief officers include Director of Education or the Director of Planning. Service managers include Head of School Organization and Planning and Head of Business Efficiency.

<sup>3</sup> The data used in this article were drawn from a study where the remit did not include surveying **frontline staff**. There is, however, no a priori reason not to include them within organizational analyses.

**Table 1**  
Summary of Data Aggregation Approaches

Title	Definition
Unstandardized mean	Simple mean
Elite survey	Highest level of respondent from each authority
Two-layer echelon	Mean of corporate officers and service officers
Three-layer echelon	Mean of corporate officers, chief officers, and service managers
Weighted corporate echelon	Weights: 65% corporate officers, 20% chief officers, and 15% service managers
Weighted service echelon	Weights: 15% corporate officers, 20% chief officers, and 65% service managers

### Data Aggregations

Our analysis is based on **six organizational aggregations** (summarized in table 1). Two control aggregations are employed: first, a simple mean of individual respondents in each local authority has been calculated (labeled *unstandardized mean*). This unstandardized organizational mean represents the average response of all respondents in an organization on a particular survey item. This mean allows comparisons to be drawn with the echelon approach. Second, an elite survey score has been calculated by using only the most senior respondent in each organization (labeled *elite survey*). This allows comparisons between elite surveys and the organizational scores from multiple informant surveys.

Four echelon aggregations were calculated. The first (labeled *two-layer echelon*) was calculated by averaging responses in each of two groups: corporate and service officers in each organization. The two scores were then averaged to produce an overall organizational score. The second echelon aggregation was based on three managerial layers. For each organization, separate means for corporate officers, chief officers, and service managers were calculated and then averaged to produce an organizational score (labeled *three-layer echelon*).

These echelons can be justified empirically and theoretically. Analysis of all survey respondents at the individual level shows that there are **significant differences** ( $p < .05$ ) **between the views of managers at different levels in the organizational hierarchy**. The two-layer echelon reflects the split between policy formulation and implementation for corporate and service officers. The three-layer echelon reflects a further distinction between service officer roles. Chief officers are the most senior service-level respondents and are responsible for translating corporate policy into service-specific policies. Service managers are responsible for implementing these policies. The distinctiveness of these three roles therefore provides strong theoretical grounds for this echelon aggregation (Walker and Enticott 2004).

These echelon procedures attach **equal weight** to each layer. Two more echelons were calculated using the three-layer approach but changing the weight attached to each managerial layer. For some survey questions, there might be a priori justifications for giving greater weight to some layers than others. Extra weight may be added where prior research has established that corporate officers are **more knowledgeable about some aspects of the organization than** service managers and vice versa. Research suggests that senior managers may know a lot about their organization's strategy but little about its culture—for example, where leaders become isolated from the day-to-day practices of lower level managers and

workers, organizational failure may follow (Kets deVries and Miller 1987; Staw et al. 1981).

We have calculated two echelon scores that reflect this criterion of differential knowledgeability. The first (labeled *corporate-weighted echelon*) gives most weight to corporate officers (65%) compared with chief officers (20%) and service managers (15%). The second (labeled *service manager-weighted echelon*) reverses these weights, so service managers have most weight (65%), chief officers remain the same (20%), but corporate officers are substantially lower (15%).<sup>4</sup>

## Measures

We analyze differences between echelon aggregations across four groups of survey variables. First, respondents were asked 11 questions on the structure of their organization. Second, they were asked nine questions on the culture of their organization. Third, respondents were asked eight questions relating to how their organization formulated its strategy. Finally, they were asked nine questions relating to their organization's strategy content. All questions required a response along a seven-point Likert scale (agree → disagree). Full details of all questions and descriptive statistics are provided in the table A1. These variables have been chosen for illustrative purposes. However, they do relate to key managerial reforms within the public sector. This analysis should therefore have broad implications for studies that use survey data on public organizations.

## Data Analysis

To ensure comparability, the analysis uses data only from those organizations from which we were able to develop each of the organizational scores identified above. Organizations with missing respondents and/or responses to our chosen measures were excluded. This provides a total of 176 organizations for analysis.<sup>5</sup>

Our analysis focuses on the extent of significant differences and the direction of these differences across organizational scores. First, as the different echelon aggregation scores are taken from nonindependent samples, we have used paired *t*-tests to explore significant differences between them. In total, 301 paired *t*-tests were conducted. Second, to measure the direction of significant differences, we have calculated the difference between mean values for each organizational score. This allows us to highlight the variations between

4 Other echelon aggregations were considered but dismissed because of their effect on sample size. A four-layer echelon, for example, based on two levels of corporate respondent and two layers of service respondent could only be calculated for 74 organizations. Similarly, there is a strong rationale for echelons to be based on subunits (departments). However, the absence of some subunits in different types of council creates problems of comparability.

5 The reduction in the *N* from 314 to 176 within the survey sample has some influence on the representativeness of the sample and the generalizability of the results. The sample used in this analysis is of authorities that are more likely to be under labour control with larger populations ( $F_{6.997}^{**}$ ), are more ethnically diverse ( $F_{12.601}^{***}$ ), and are more deprived ( $F_{9.058}^{***}$ ). There are, however, no statistically significant differences for social class ( $F_{1.117}$ ), the local tax base (council tax  $F_{2.017}$ ), local residents assessment, their satisfaction with their local authority ( $F_{1.457}$ ), or performance among the upper tier authorities that report the Core Service Performance score ( $F_{1.311}$ ). However, there are fewer significant differences between the 176 authorities within the sample and all 388 authorities in England. The sample authorities were more likely to have larger populations ( $F_{2.106}^*$ ) than all other authorities. It is possible that smaller organizations may offer more coherent on attitudes to management and organization; however, we do not feel that this will fundamentally affect presented in this article or detract from our central argument.

aggregations and identify if any of them provide significantly higher ratings for specific variables. However, in the absence of theories of **knowledgeability** in public organizations, we cannot draw any conclusions on which echelon aggregation scores are most accurate.

The analysis is focused upon four main comparisons:

1. Elite survey and echelon aggregations: differences were calculated between the elite survey and the two- and three-layer echelons. These calculations allow a comparison of single and multiple informant methodologies and an understanding of the effect they have on organizational scores.
2. Unstandardized mean and echelon aggregations: differences were calculated between the normal mean and the two- and three-layer echelons. This allows us to highlight the effect of standardizing the aggregation procedure.
3. Echelon aggregations: differences were calculated between the two- and three-layer aggregations. This is to show the extent to which different types of echelon aggregations produce significantly different scores and highlight the care needed in selecting the most appropriate organizational echelons to survey.
4. Knowledgeability: differences were calculated between a three-layer weighted corporate echelon, a weighted service manager echelon, and the unstandardized mean. This allows an exploration of the potential effects of variations in respondents' knowledgeability on organizational scores.

## RESULTS

Table 2 summarizes the extent to which there are significant differences as indicated by the size and sign of *t*-statistics between organizational aggregations. Findings relating to our four main comparisons are detailed below.

### Comparing Elite Surveys and Echelon Aggregations

Comparisons can be made between the elite survey and the two unweighted echelon aggregations by comparing the *t*-statistics in columns 1 and 2 in table 2. Where *t*-scores are statistically significant ( $p \geq .05$ ), **positive scores** indicate that echelon aggregations provide significantly more positive perceptions than the elite survey.<sup>6</sup>

The elite survey shows a number of differences from the organizational scores produced by echelon aggregations. As would be expected, the differences grew as the echelons became more disaggregated—the two-layer echelon offered 13 differences and the three-layer echelon 18. The sign on the coefficient was in the same direction for variables that were statistically significant in both two- and three-echelon groupings. Of the **31** significant coefficients, **just over half (18) were negative**. In other words, elite survey respondents, that is senior organizational members, typically are more likely to agree with the survey statements. These findings add further weight to the argument that **different organizational members have different perceptions of organizational**

<sup>6</sup> For all comparisons, the precise differences can be checked by comparing the means provided in the table A1.

**Table 2**  
Differences between Methods of Data Aggregation

	Two-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Three-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Unstandardized Mean and Three-Layer Echelon <sup>b</sup> <i>t</i>	Unstandardized Mean and Two-Layer Echelon <sup>b</sup> <i>t</i>	Three-Layer Echelon and Two-Layer Echelon <sup>c</sup> <i>t</i>	Unstandardized Mean and Corporate- Weighted Echelon <sup>d</sup> <i>t</i>	Unstandardized Mean and Service- Weighted Echelon <sup>d</sup> <i>t</i>
Structure							
Written policies and procedures are important in guiding the actions of employees in the authority/service	3.624*	4.362*	-2.484*	4.542*	4.894*	5.322*	-3.234*
There is extensive use of staff task and project groups in the management of our authority/service	-2.849*	-1.963	-0.304	0.184	0.349	0.194	1.063
Decentralization was a major part of our approach to organization	-1.270	-0.954	-0.060	0.188	0.187	-0.278	2.006*
Centralization was a major part of our approach to organization	-0.149	-0.253	0.276	-0.289	-0.442	-0.377	0.769
When our results deviate from our plans, the decisions to take appropriate corrective action usually comes from top management or politicians	-6.930*	-7.088*	3.254*	-4.243*	-5.737*	-6.151*	5.148*
Control is devolved to service managers	2.124*	3.039*	-1.915	4.267*	4.477*	4.337*	-0.069
There is a well-developed framework of clear performance measurement and targets to drive what we do	1.100	2.485*	-1.738	5.880*	4.808*	5.527*	-2.618*
There are clear links between the objectives and priorities of the service and those of the authority as a whole	-0.342	0.900	-1.703	3.268*	3.454*	3.478*	-1.211
Significant changes to internal communications were a major part of our management approach	-2.491*	-2.033*	0.988	0.894	-0.075	0.477	-0.176

*Continued*

**Table 2 (continued)**  
Differences between Methods of Data Aggregation

	Two-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Three-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Unstandardized Mean and Three-Layer Echelon <sup>b</sup> <i>t</i>	Unstandardized Mean and Two-Layer Echelon <sup>b</sup> <i>t</i>	Three-Layer Echelon and Two-Layer Echelon <sup>c</sup> <i>t</i>	Unstandardized Mean and Corporate- Weighted Echelon <sup>d</sup> <i>t</i>	Unstandardized Mean and Service- Weighted Echelon <sup>d</sup> <i>t</i>
Significant changes to External communications were a major part of our management approach	-2.296*	-2.393*	0.632	-1.591	-1.872	-2.432*	1.003
Enhancing coordination and joint working was a major part of our approach to organization	-1.857	-1.002	-0.987	0.927	1.503	1.108	1.092
<b>Culture</b>							
The authority's mission, values, and objectives are clearly and widely owned and understood by all staff in the authority/service	-0.675	0.531	-1.000	3.474*	2.961*	3.404*	-0.895
The authority/service is prepared to take risks where appropriate	0.242	1.290	-1.633	2.863*	3.562*	3.827*	-1.269
The authority/service is at the forefront of innovative approaches	0.909	2.235*	-2.491*	4.418*	5.045*	4.995*	-2.739*
Most managers place the needs of users first and foremost when planning and delivering services	3.238*	4.660*	-2.530*	7.650*	6.572*	7.934*	-4.664*
There is a strong focus on continuous improvement in our authority/service	3.265*	4.850*	-3.141*	7.780*	7.383*	8.686*	-5.638*
There are strong incentives for managers to achieve step change in performance in this service	-0.702	0.528	-0.923	4.261*	3.521*	3.795*	-1.171
This authority/service cares about its staff	1.432	2.687*	-1.783	4.885*	4.879*	5.760*	-2.290*

*Continued*

**Table 2** (continued)  
Differences between Methods of Data Aggregation

	Two-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Three-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Unstandardized Mean and Three-Layer Echelon <sup>b</sup> <i>t</i>	Unstandardized Mean and Two-Layer Echelon <sup>b</sup> <i>t</i>	Three-Layer Echelon and Two-Layer Echelon <sup>c</sup> <i>t</i>	Unstandardized Mean and Corporate- Weighted Echelon <sup>d</sup> <i>t</i>	Unstandardized Mean and Service- Weighted Echelon <sup>d</sup> <i>t</i>
There is a high level of trust between top management and staff	-0.988	0.577	-1.747	4.362*	4.274*	5.091*	-0.891
There is a high level of trust between officers and politicians	-0.863	-0.264	1.080	2.660*	1.128	1.231	1.412
Strategy process							
When the service/authority formulates strategy, it is planned in detail	1.784	3.065*	-2.576*	5.096*	5.354*	5.727*	-2.486*
When the service/authority formulates strategy, options are identified and evaluated before the best option is selected	1.646	2.887*	-1.728	5.910*	5.096*	6.094*	-2.363*
The strategy with the greatest political support is usually adopted as our policy	-3.346*	-4.142*	0.406	-5.565*	-4.794*	-5.288*	3.513*
When we make strategy, we produce policy options which are very similar to those we already have	1.389	0.416	0.385	-2.571*	-2.010*	-2.059*	0.139
Strategy develops through an ongoing process of adjustment	0.984	1.330	-1.572	1.013	1.821	1.796	-2.594*
When we make strategy, we produce broad goals and objectives	0.632	0.945	-1.123	0.817	1.417	0.920	0.426
Strategy develops through a process of bargaining and negotiation between groups or individuals	-1.234	-1.405	0.619	-1.127	-1.262	-1.491	-0.403

*Continued*

**Table 2 (continued)**  
Differences between Methods of Data Aggregation

	Two-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Three-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Unstandardized Mean and Three-Layer Echelon <sup>b</sup> <i>t</i>	Unstandardized Mean and Two-Layer Echelon <sup>b</sup> <i>t</i>	Three-Layer Echelon and Two-Layer Echelon <sup>c</sup> <i>t</i>	Unstandardized Mean and Corporate- Weighted Echelon <sup>d</sup> <i>t</i>	Unstandardized Mean and Service- Weighted Echelon <sup>d</sup> <i>t</i>
Strategy is made in consultation with our external stakeholders	-0.398	0.492	0.403	3.626*	2.378*	3.249*	-0.657
Strategy content							
Externalization was a major part of our approach to organization	-5.067*	-5.422*	3.775*	-2.783*	-4.736*	-4.674*	5.146*
Contracting out/outsourcing was a major part of our approach to organization	-2.099*	-2.504*	2.937*	-1.202	-2.820*	-2.686*	3.788*
Developing local strategic partnerships was a major part of our approach to organization	-6.025*	-6.175*	2.956*	-3.234*	-4.970*	-5.391*	4.567*
Developing statutory partnerships was a major part of our approach to organization	-8.279*	-9.494*	6.699*	-4.532*	-9.527*	-8.820*	6.544*
Providing new services to new users was a major part of our approach to service delivery	0.093	0.768	-1.008	1.846	2.208*	2.946*	-2.600*
Providing new services to existing users was a major part of our approach to service delivery	1.352	2.168	-0.716	4.332*	3.541*	4.881*	-5.695*
Providing existing services to new users was a major part of our approach to service delivery	-1.384	-0.726	0.130	1.469	0.997	1.778	-2.108*
Making minor modifications was a major part of our approach to service delivery	1.162	1.468	-0.634	1.711	1.850	2.270*	-1.137

*Continued*

**Table 2 (continued)**  
Differences between Methods of Data Aggregation

	Two-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Three-Layer Echelon and Elite Survey <sup>a</sup> <i>t</i>	Unstandardized Mean and Three-Layer Echelon <sup>b</sup> <i>t</i>	Unstandardized Mean and Two-Layer Echelon <sup>b</sup> <i>t</i>	Three-Layer Echelon and Two-Layer Echelon <sup>c</sup> <i>t</i>	Unstandardized Mean and Corporate- Weighted Echelon <sup>d</sup> <i>t</i>	Unstandardized Mean and Service- Weighted Echelon <sup>d</sup> <i>t</i>
Doing away with services was a major part of our approach to service delivery	-1.807	-2.065*	1.454	-1.351	-1.977	-1.939*	1.941
Total number of significant differences (out of 37)	13	18	10	23	24	29	19

Note:  $N = 176$ .

<sup>a</sup>Positive sign shows that the echelon aggregation provides more positive assessment than the elite survey.

<sup>b</sup>Positive sign shows that unstandardized mean provides more positive assessment than the echelon aggregation.

<sup>c</sup>Positive sign shows that the three-layer echelon provides more positive assessment than the two-layer echelon.

<sup>d</sup>Positive sign shows that the unstandardized mean provides significantly more positive assessments than the knowledgeability weighted echelon.

\* $p < .05$

characteristics, notably those between senior and more junior staff. The results also indicate that senior staff are likely to portray their organization in a positive light. For example, senior managers were significantly more likely to offer responses that conformed with the expectations of the government's reform agenda: focusing on customers, undertaking rational planning, contracting-out services to the private sector, and entering partnerships with other organizations (see Walker and Boyne 2006 for a summary of the agenda). These findings provide some empirical support for the social desirability thesis and/or reflect the extent to which managers have a personal stake in creating perceptions that their organizations are well managed and highly productive (DiMaggio and Powell 1983).

Given the higher means typically reported by senior officers on a survey that examines management reform and service improvement, the result reported here suggests that the findings of studies that rely upon the elite sampling approach should be treated with a "pinch of salt"—reported results are likely to be higher than that for the organization as a whole. The significant contrast between perceptions within the elite survey and those in the echelon aggregations offers support for the wider use of multiple informant surveys within public management research.

### **Comparing Unstandardized Means and Echelon Aggregations**

Columns 3 and 4 provide comparisons between the unstandardized mean and the two echelon aggregations. Where *t*-scores are statistically significant ( $p \geq .05$ ), positive coefficients indicate that the unstandardized mean provides a more positive perception of the survey item than the echelon aggregation.

The findings reported in table 2 also suggest that where studies have used unstandardized means they are likely to have misrepresented the organizations studied because of the sampling bias inherent in this approach. The findings are consistent with our expectations: the lower the number of echelons the greater the difference with the unstandardized mean (this is because the echelon procedure minimizes the weight given to the increased number of lower ranked service managers, which remains present in a simple averaging process). The three-layer echelon is the most similar to the unstandardized mean: of all six combinations of aggregation explored in this article, these two approaches produce the fewest significant differences (10 of 37). In the sample used for this article, this reflects the larger number of organizational members lower down the hierarchy and, therefore, produces more similarities between the two methods of aggregation.

The two-layer echelon draws out more differences than the three-layer approach—23 of 37 possible differences. The two-layer approach gives equal weight to senior managers and service managers/frontline supervisory staff. It therefore captures many of the views of junior and senior staff and draws out differences from an unstandardized approach. In other words, the equal weighting within the two-layer echelon helps to de-emphasize the perceptions of respondents in organizational subunits that dominate the total sample.

The comparison of the unstandardized means with echelon approaches indicates that these alternative methods of aggregation to the organizational level make a difference in the results obtained. Studies that have used an unstandardized mean have failed to take account of variations in the composition of respondents across organizations and may have produced misleading results.

### Comparing Echelon Aggregations

The results reported in column 5 of table 2 present *t*-test scores that examine the difference between the two types of echelon aggregation. Where *t*-scores are statistically significant ( $p \geq .05$ ), positive scores indicate that the three-layer echelon provides significantly more positive perceptions than the two-layer echelon.

Table 2 shows that there are **significant differences** between the two types of echelon aggregation (24 in total). The results reported here also suggest that different groups of officers make different assessments for different aspects of management and organization. Notably, the three-echelon approach, giving equal weight to three groups of officers, results in consistently higher means for organizational culture and greater variations between the two- and three-layer echelons in assessments of strategy content. Additional research in other types of organizations and different settings is needed to validate such findings. These significant differences highlight the importance of **considering the theoretical and empirical bases for each echelon before aggregating**. In this case, the incorporation of additional echelons for service managers and chief officers in the three-layer echelon presents a different picture of organizational characteristics.

### Knowledgeability

Attaching different weights to the organizational echelons also provides significant differences with the unstandardized mean. The weights may be justified according to different knowledgeabilities of the respondents (Guest 1999; Purcell 1999). Where it can be established that some respondents are more likely to know about facets of the organization, their response can be given greater emphasis within the echelon aggregation process. However, the public management literature does not provide any indication as to which organizational members are most knowledgeable, particularly in relation to the facets of organizational behavior identified in this research.

Instead, by way of illustrating the effects of knowledgeability, our weighted echelons are based on two assumptions applying to all questions: **either corporate officers or service managers know most about the organization**. *t*-test statistics exploring these assumptions are presented in columns 6 and 7 of table 2. Comparisons can be made between the unstandardized mean and echelon aggregations weighted by knowledgeability by comparing the *t*-statistics in columns 6 and 7 in table 2. Positive scores ( $p \geq .05$ ) indicate that the unstandardized mean provides significantly more positive perceptions than echelons weighted for knowledgeability.

Echelons that weighted corporate officers as most knowledgeable produced the most statistically significant coefficients—29 of 37. Of particular interest in this set of results are the differences reported in the direction of the statistical tests. Comparisons between the unstandardized mean, the service-weighted echelon, and the corporate-weighted echelon reveal 16 survey items for which these three types of aggregation are significantly different from each other. However, in each of these cases, the direction of significance is different: means for the service-weighted echelons are higher than the unstandardized mean but are lower for corporate-weighted echelons. A similar effect is detected for the unweighted echelons. That these differences are present is not unexpected—the disparity in results merely shows the extent to which different aggregation methods **camouflage** perspectives from different groups of respondents. Some aggregation methods—corporate weighting,

and to a lesser extent two layer echelons—will accentuate the views of corporate respondents. Other methods will highlight other respondent types, but in each case, they will diverge from the unstandardized mean and in opposite directions.

These differences reveal the potential for respondents' knowledge to affect the statistical representation of organizations. Knowledgeability issues can be assessed through **factual or proxy questions** (e.g., length of tenure) within surveys. However, a more fine-tuned analysis of knowledgeability, focusing on **specific aspects** of organizations (e.g., culture, structure, performance) may help to provide more accurate organizational aggregations compared with either unstandardized means or equally weighted echelons.

## CONCLUSION

This article has considered a series of methodological challenges in survey research on public sector organizations. Multiple informant surveys that are capable of capturing organizational variety have been proposed as a better method than elite surveys. These surveys potentially offer a more accurate organizational picture, **but they are beset by issues relating to data aggregation**. This article has attempted to empirically explore how different methods of data aggregation affect understandings of public organizations.

Our results demonstrate that **the way data are collected and aggregated has an important bearing on the representation of organizational characteristics**. First, our results reveal that data gained through elite surveys are significantly different to that from multiple informant surveys. Approximately, half the variables used were significantly different when the elite survey was compared to results from a multiple informant survey. These results provide further weight to calls for public management research to survey more respondents within each organization (Walker and Enticott 2004). Second, our results reveal that the methods used to aggregate data also have a significant bearing on knowledge of organizational characteristics. Unstandardized means were significantly different to echelon-weighted means, whether they involved two or three echelons. Table 3 compares the maximum difference in mean values between all possible aggregation combinations. Comparisons of the unstandardized aggregation and the elite survey revealed a maximum difference of 0.625 (on a scale from 1 to 7 and in response to the survey item: “developing statutory

**Table 3**  
Maximum Mean Differences by Aggregation

	Elite Survey	Two-Layer Echelon	Three-Layer Echelon	Corporate-Weighted Mean	Service-Weighted Mean
Unstandardized mean	0.625	0.138	0.145	0.271	0.238
Elite survey		0.518	0.648	0.362	0.863
Two-layer echelon			0.252	0.164	0.345
Three-layer echelon				0.416	0.166
Corporate-weighted mean					0.509

partnerships was a major part of our approach to organization”). Three other comparisons above 0.5 were also observed. Comparisons between other aggregations were lower: 0.138 for the two-layer echelon and 0.145 for the three-layer echelon. However, other aggregation combinations provide greater variations. In particular, the maximum difference between means from the elite survey and the two-layer echelon was 0.518, for the three-layer echelon 0.648, and 0.863 for the service-weighted mean on the same survey item. Table 3 suggests therefore that some of these differences are not inconsiderable and the difference will vary according to the combination of aggregations. Third, public management researchers need to direct more effort at **discovering who are the most knowledgeable organizational members in relation to specific organizational facets**. Echelon aggregations based on different hypotheses of knowledgeableability revealed further potential for organizational accounts to vary significantly. Further research establishing who is more likely to know about what will help fine-tune these aggregation procedures. Otherwise, echelon aggregations which are weighted by aspects of knowledgeableability will remain, at best, guesswork.

We believe that **echelon aggregations can offer more fine-grained analysis of public organizations than the approaches of elite surveys or unstandardized means have to date**. They can be used to examine issues within organizations in more depth than has been possible hitherto, by for example making comparisons between different echelons (Walker and Brewer, 2008; Walker and Enticott 2004). An organizational echelons approach can also provide more robust data **at the organizational level** in multiple regression models and for techniques such as **hierarchical linear modeling (HLM)**. A three-level HLM model with performance measured at the service recipient level, organizational variables, and contextual measures will provide more valid and reliable results if the organizational variables are drawn from knowledgeable organizational echelons. On this basis we hope that this approach to surveying becomes more widespread in public management research. We recognize that this could lead to the adoption of many different types of sampling schemes over the next few decades and might increase the difficulty of synthesizing research findings and accumulating knowledge in the future. However, it is likely to lead to more accurate portrayals of organizational life in public management studies.

Although there is a strong case for using organizational echelons, an important question remains: What form of aggregation should be used? Our analysis provides no objective way of deciding whose opinion is most accurate. As a result, our conclusions are that **the choice of echelon should be theoretically and empirically justifiable and represent the social reality of the organization** (Aiken and Hage 1968). **At the very least, unstandardized forms of aggregation appear to be theoretically unacceptable**. Without an even balance of respondents from different managerial layers or subunits, there is no sense in which organizational aggregations can be comparable: respondents may be drawn disproportionately in some organizations from only one managerial layer and disproportionately from a different layer in others. Selecting the number of echelons for analysis is also difficult. The two- and three-layer echelon aggregations analyzed here can be justified on theoretical and empirical grounds, but they provide significantly different results. **Our preference is for the two-layer echelon**. It reflects the most significant **managerial fissures** within public sector organizations (between the senior management team and other organizational members) and, crucially, is less likely to lead to the exclusion of organizations from statistical analyses because of missing respondents.

**Table 4**  
**Guidelines for Data Aggregation**

Question	Answer	Survey Type	Respondent	Aggregation
1. What is the focus of observation: that is, who are you interested in?	Thoughts of distinct group of officers (e.g., chief executives) Behaviour within organizations (go to question 2)	Single-respondent/elite survey	Most knowledgeable	Not required
2. What is the unit of analysis?	Distinct organizational subunit (although proceed with care: results may not have relevance for the whole organization) Organization, networks or multiple layers (go to question 3)	Single-respondent/elite survey	Most knowledgeable	Not required
3. Are there a priori reasons to expect different responses from between parts of the organization?	No (previous studies indicate organizational consensus)	Single-respondent/elite survey	Most knowledgeable	Not required
	Yes (consider question 4)	Multiple informant survey	Most knowledgeable at all levels of the organization	Use echelon aggregation: number depends on extent of differences
4. What resources are available?	Plenty	Multiple informant survey	Targeted to as many echelons as resources allow and/or justified by theory	Use echelon aggregation: number depends on extent of differences
	Few	Elite or single-respondent survey	Most knowledgeable	Not required

These results provide an illustration of the echelon methodology in aggregating data. This is one way of resolving some of the problems relating to aggregation. Whether it is the best may depend on a range of factors. A pertinent question to ask is therefore: is it possible to suggest a clear set of criteria for selecting appropriate aggregation schemes? Table 4 provides some initial guidelines to sample selection and data aggregation. We recommend beginning by asking a series of interlinked questions. First, what is the focus of the observation? If the aim of the study is to investigate the thoughts of a particular group of organizational actors (e.g., chief executives) toward a new policy initiative, then that requires surveying only those officers. In that case, a single-respondent survey may be used. If the focus is instead on the impact of a policy intervention upon behaviour within an organization, a different approach will be required based on the answer to a second question: what is the unit of analysis? If the impact of policy reforms can be judged to be largely contained within **one organizational subunit**, then an elite survey sent to the most knowledgeable respondent in that subunit may be appropriate. If, on the other hand, the policy intervention under analysis affects **multiple organizational** levels or if the unit of analysis is a **networked organization**, then it is likely that an elite survey will not be sufficient. Instead, a third question should be asked: are there a priori reasons to expect respondents from different parts of the organization to respond in different ways? If there are no reasons to assume that responses will be different, then an elite survey may be used, but with care: without existing survey data for each organization, it may be impossible to establish levels of agreement. Where such data exist, however, analyses of **organizational level standard deviations and/or intraclass correlations** may provide justification for the use of an elite survey (Enticott 2004), particularly if this organizational consensus can be shown to have existed over time. In all other cases, it would seem likely that a multiple informant survey would be of most benefit, but in reaching this decision, researchers will need to ask one final question: what resources are available to the research team? Multiple informant surveys require considerable resources to construct a sampling frame, code data, and construct organizational aggregations. **Where these resources are unavailable, elite surveys may proceed but in the knowledge that the responses may be partial and skewed.** Where resources allow for multiple informant surveys, they should proceed but with due regard to a theoretical justification for each organizational echelon selected which should include an assessment of the extent of differences between echelons. Answering these questions before selecting a survey methodology may be useful in determining the approach to data collection and aggregation.

These are only tentative guidelines, and further consideration of the best ways of aggregating data is required if organizational scores can be trusted within analyses of public organizations. The use of multiple informant surveys therefore requires researchers to engage with the question of **“what exactly is an organization”**? Answers to this question not only determine who is included and excluded from organizational studies, but if researchers adopt many different definitions of public organizations and use different types of sampling schemes, they may also increase the difficulty of synthesizing research findings in future. We recognize that these findings present challenges to public management researchers. One option would be to hide behind the conclusion of Aiken and Hage (1968) that **there are “no satisfactory solutions to aggregating data.”** However, the challenges this article identified makes the search for new solutions a worthwhile and necessary endeavor. Otherwise, public management research may be based on inaccurate measures of the characteristics of public organizations.

**APPENDIX****Table A1**  
**Measures and Means**

	Unstandardized Mean	Elite Survey	Two- Layer Echelon	Three Layer Echelon	Corporate- Weighted Echelon	Service- Weighted Echelon
Structure						
Written policies and procedures are important in guiding the actions of employees in the authority/service	4.967	4.691	4.888	5.013	4.825	5.051
There is extensive use of staff task and project groups in the management of our authority/service	4.859	5.034	4.855	4.864	4.852	4.828
Decentralization was a major part of our approach to organization	2.628	2.734	2.623	2.629	2.638	2.557
Centralization was a major part of our approach to organization	2.703	2.733	2.711	2.695	2.718	2.674
When our results deviate from our plans, the decisions to take appropriate corrective action usually comes from top management or politicians	4.048	4.583	4.137	3.973	4.234	3.895
Control is devolved to service managers	5.081	4.851	5.004	5.117	4.959	5.083
There is a well-developed framework of clear performance measurement and targets to drive what we do	5.046	4.869	4.938	5.080	4.880	5.115
There are clear links between the objectives and priorities of the service and those of the authority as a whole	5.098	5.057	5.031	5.131	4.993	5.132
Significant changes to internal communications were a major part of our management approach	5.066	5.230	5.047	5.045	5.051	5.070
Significant changes to external communications were a major part of our management approach	5.074	5.287	5.110	5.061	5.147	5.042
Enhancing coordination and joint working was a major part of our approach to organization	5.233	5.355	5.213	5.254	5.201	5.201

*Continued*

**Table a1** (continued)  
Measures and Means

	Unstandardized Mean	Elite Survey	Two- Layer Echelon	Three Layer Echelon	Corporate- Weighted Echelon	Service- Weighted Echelon
Organizational culture						
The authority's mission, values, and objectives are clearly and widely owned and understood by all staff in the authority/service	4.544	4.517	4.477	4.563	4.443	4.569
The authority/service is prepared to take risks where appropriate	4.463	4.385	4.399	4.498	4.342	4.501
The authority/service is at the forefront of innovative approaches	4.708	4.580	4.621	4.751	4.560	4.782
Most managers place the needs of users first and foremost when planning and delivering services	5.359	5.074	5.237	5.399	5.160	5.460
There is a strong focus on continuous improvement in our authority/service	5.413	5.057	5.275	5.470	5.175	5.553
There are strong incentives for managers to achieve step change in performance in this service	3.836	3.800	3.746	3.854	3.712	3.872
This authority/service cares about its staff	4.926	4.726	4.820	4.965	4.741	4.999
There is a high level of trust between top management and staff	4.532	4.512	4.450	4.567	4.390	4.558
There is a high level of trust between officers and politicians	4.678	4.686	4.625	4.657	4.640	4.635
Strategy process						
When the service/authority formulates strategy, it is planned in detail	4.752	4.526	4.653	4.803	4.584	4.825
When the service/authority formulates strategy, options are identified and evaluated before the best option is selected	4.951	4.703	4.829	4.986	4.752	5.025
The strategy with the greatest political support is usually adopted as our policy	4.954	5.312	5.070	4.945	5.110	4.847
When we make strategy we produce policy options which are very similar to those we already have	3.480	3.440	3.532	3.473	3.545	3.476

*Continued*

**Table a1** (continued)  
Measures and Means

	Unstandardized Mean	Elite Survey	Two- Layer Echelon	Three Layer Echelon	Corporate- Weighted Echelon	Service- Weighted Echelon
Strategy develops through an ongoing process of adjustment	4.726	4.629	4.704	4.756	4.670	4.802
When we make strategy, we produce broad goals and objectives	5.275	5.207	5.258	5.297	5.247	5.263
Strategy develops through a process of bargaining and negotiation between groups or individuals	4.097	4.231	4.122	4.083	4.145	4.109
Strategy is made in consultation with our external stakeholders	5.322	5.282	5.256	5.315	5.232	5.338
Strategy content						
Externalization was a major part of our approach to organization	3.648	4.201	3.730	3.553	3.839	3.458
Contracting out/outourcing was a major part of our approach to organization	3.741	3.977	3.773	3.671	3.846	3.606
Developing local strategic partnerships was a major part of our approach to organization	5.027	5.564	5.106	4.951	5.208	4.850
Developing statutory partnerships was a major part of our approach to organization	5.082	5.707	5.189	4.937	5.353	4.844
Providing new services to new users was a major part of our approach to service delivery	3.595	3.534	3.547	3.622	3.487	3.687
Providing new services to existing users was a major part of our approach to service delivery	4.322	4.092	4.214	4.339	4.137	4.505
Providing existing services to new users was a major part of our approach to service delivery	4.215	4.293	4.177	4.212	4.145	4.290
Making minor modifications was a major part of our approach to service delivery	4.844	4.711	4.806	4.857	4.775	4.878
Doing away with services was a major part of our approach to service delivery	2.104	2.250	2.137	2.073	2.170	2.042

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