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Performance Measurement System Mechanisms and Service Process Type

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ABSTRACT

The paper adds to the stream of Performance Measurement System (PMS) research with understanding the relationship between service activities and PMS design. Focusing on the association between service process types and the ways of measuring activities, the study provides a preliminary exploratory study on the practical aspect of PMS design. Using a combination of both survey and in depth interviews, the findings show that service type has insignificant relationship with choice of measurement mechanisms. Instead other factors, strategy, intensity of competition and size, determine the measurement approaches. More importantly, the results indicate that the PMS mechanisms of professional service firms are not much different from that of mass service firms. The evidence, thus, suggests that PMS is designed in a way that matches the organizational objectives rather than focuses on the uniqueness of service businesses.

Keywords: Performance Measurement System; PMS mechanisms; service process type; professional services; mass servicesy.

INTRODUCTION

A Performance Measurement System (PMS) is a management control tool that guides organizational efforts towards a specific objective and determines the

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success of the efforts through indicators of work performed and the result of activities (Otley, 1987; Neely, 1999). The system ensures the attainment of key success factors provides a scorecard, justifies the use of resources as well as providing feedback for driving future improvements. In implementing strategy, PMS continues to evolve to denote changes in the business environment and identifies ways to achieve those objectives (IFAC, 1998; Anthony & Govindarajan, 2007). The system should be tailored according to the requirements of individual organization and be constantly monitored the business performance. In addition, a PMS is also an instrument to facilitate an organizations' decision-making, control, learning, communication and provides the motivation for individuals to perform at their best (Nanni, Dixon & Vollmann, 1992; Simons, 2000).

At the same time, the intensified competition demands firms to compete on several levels simultaneously. Quality, knowledge, competence and reputations are among factors that are becoming critically important in developing competitive advantage (Nixon & Burns, 2005). Hence, a number of multidimensional PMS models have been developed in response to the growing needs for a sophisticated system that provides a broad scope of information such as the Results and Determinants Framework (RDF) for Performance Measurement in Service Businesses (Fitzgerald, Johnston, Silvestro & Voss, 1991), the Performance Pyramid (Lynch & Cross, 1991), Balanced Scorecard (Kaplan & Norton, 1992), and Kanji's Business Scorecard (2002). Unfortunately, even though these frameworks are undoubtedly valuable, their adoption is often constrained by the fact that they are simply a framework, proposing the areas to be measured, but offer very little guidance on how to measure them (Neely, Mills, Platts, Richards, Gregory, Bourne & Kennerly, 2000).

Obviously, having the right set of measures, without taking into consideration suitable mechanisms to operationalize them, is insufficient in designing an effective PMS. A number of researchers have emphasized that the benefits of the PMS framework are only realized when the organization is able to translate the measurement dimensions into actionable measures (Lillis, 2002; Tangen, 2004, 2005; Tuomela, 2005). Likewise, Neely et al. (2000) stress that for any framework to be of practical value; the process of operationalizing the framework should be really understood. Again, the issue is raised by Tangen (2005) who argues that the way activities are measured (i.e. measurement mechanisms) should be part of the PMS design agenda. Despite the concern, the literature is still silent. Therefore, in view of Tangen's (2005) assertion, the study attempts to add to the limited knowledge in this area by exploring the variation in PMS mechanisms, focusing on the practices in service sector.

Notably, PMS issues have been extensively explored in the manufacturing sector. Often the argument is to directly apply the same concepts, tool and techniques to the service sector. Besides a bias towards manufacturers, there are circumstances that the existing instruments fail to grasp due to uniqueness

of service activities. For that reason, Anthony and Govindarajan (2007: 616) have argued that, "*...management control in service industries is somewhat different from management control in manufacturing companies*". As matter of fact the need to study service organizations has been emphasized by a number of researchers (Brignall & Ballantine, 1996; Modell, 1996; Chenhall, 2003). Considering the limited work pertaining to the service sector, therefore, this study attempts to fill the gap by examining the significance of service activities in determining the measurement mechanisms.

Accordingly, the study offers several contributions to the service PMS design and management accounting literature. First, the exploratory investigation of the PMS mechanisms provides some guidance on how the appropriate measures can be introduced and ultimately used by service managers. Second, the study explores the relevance factors in determining the measurement mechanisms. Considering the deregulation affects the service sector generally, the study makes a contribution to the literature by examining the practices of a wider range of service industries to generate generalizable findings. Rather than restricted to a specific organization/industry, the study removed the traditional perception that insists that each industry's activities and problems are unique. Instead, the focus is on the commonalities that exist between them in facing the consequences of the services revolution. Finally, given the paucity of empirical investigation involving Malaysian service sector, this study attempts to fill the gap and contribute a meaningful PMS knowledge to the practitioners as the wave of liberalization requires Malaysian service firms to be controlled and managed effectively and efficiently.

The remainder of this paper is organized as follows. Section 2 develops an understanding on service organizations, the PMS mechanisms, and the focus of the study. This followed by hypotheses development in Section 3. Section 4 discusses on the research method. The findings are presented in Sections 5 and 6. Finally the conclusion provides an overview of the most salient issues arising from the study.

SERVICE ORGANIZATIONS AND PMS MECHANISMS

Service Organizations

The twentieth century witnessed a tremendous development of service industries. Economically, the term 'service' is often defined not by what it is, but rather by what it is not. Hence, economic reports used to identify activities as "service producing" that are not "goods producing" (Metters, King-Metters & Pullman, 2003). Grönroos (1990: 27) provides a more detailed definition, "*…a service is an activity or series of activities of a more or less intangible nature that normally, but not necessarily, take place in interactions between the*

customer and service employees and/or physical resources or goods and/or systems of the service producer, which are provided as solutions to customer problems." By this definition, services encompass a wide variety of industries, such as transportation, financial services, lodging, education, entertainment, telecommunications and an array of Internet-based services (WTO, 2005).

Many service managers believe that each of these industries or sub-sectors is unique and shares little in common with other industries. But when such uniqueness and differences exist, little learning can take place (Lovelock, 1983). However, the basis of this study is the opposite with the emphasis on the commonalities that exist between the services that distinguish them clearly from other sectors, which will also have implications for how to measure performance. Using Fitzgerald et al.'s (1991) service process model the previously disparate service industries are integrated and unified. The model integrates the industries based on six measurement dimensions a) equipment/people focus; b) contact time per customer; c) degree of customization, d) degree of discretion, e) value added back/front office, and; f) product/process focus. Viewed on a continuum, each of the dimensions poses an element of uncertainty in the control process, as controlling people-based firms such as consultancies may be different from equipment-based organizations such as freight services (Fitzgerald et al. 1991; Md. Auzair & Langfield-Smith, 2005). Positioned at the high end of the continuum, professional services require considerable judgment to meet customer needs, with most of the services tailored according to customer requirements. Whereas, mass services on the opposite end are relatively stable with most of the service products predetermined prior to customers' participation in the service process. The variation in the operational conditions between both service types, thus, supports the claims that professional service firms are more likely to face higher task uncertainty as compared to mass services (Modell, 1997; Silvestro, 1999).

Considering the lack of research on the significance of types of service businesses, involving a wider spectrum of services sectors, this study attempts to empirically examine the influence of service process type in designing PMS from a broader perspective. The question poses whether the service process types (i.e. professional services and mass services) have a significant effect in the design of service organizations' PMS mechanisms.

PMS Mechanisms

PMS mechanisms refer to the methods used to measure activities (Fitzgerald et al., 1991). Although service management theory argues that PMS design in service organizations are contingent upon the type of service operations, chosen strategies and intensity of completion, Brignall and Ballantine (1996) in their normative study propose that the measurement mechanisms in the service sector are highly determined by the type of service process. They argue that in

professional services, for example, the emphasis is on the service quality of highly paid front-office staff, whereas in mass services the utilization of expensive equipment would be more important than that of staff, most of whom will be back-office staff. Using Fitzgerald et al. (1991) service process type model, Brignall and Ballantine (1996) suggest that there will be a significant difference in the way professional and mass services in measuring their activities Additionally, Fitzgerald et al. (1991), based on the Results and Determinants (RDF) framework, postulate that the way of measuring differ significantly in measuring the determinants (i.e. service quality, flexibility, resource utilization and innovation), but not for measuring the result dimensions (i.e. competitiveness, financial performance). Yet, not many studies have attempted to address the issue, except a brief case study conducted by Fitzgerald et al. (1991). In view of these arguments, this study attempted to carry out a preliminary investigation to justify the validity of the proposed theory. Hence, extending Fitzgerald et al.'s (1991) observation, this study will provide empirical evidence by exploring the ways to measure each of the four determinants.

Service Quality

Undoubtedly, it is easier to measure the quality of a tangible product than the quality of service. Evaluating the level of service quality is more elusive, and, thus, it is often described as the satisfaction of customer expectation (Parasuraman, Zeithaml & Berry, 1985). Customer expectations, however, involve lot of other things that relate to the service delivery process. The providers are expected to exercise their judgment in their respective positions, and behave appropriately. The behavioural notion consists of elements of friendliness, warmth, politeness, anticipation of customer needs, speed and communication both verbal and non-verbal. At the same time, location, size, the layout and reliability of the services are among other factors that influence customer expectation (Haywood-Farmer, 1988). Fitzgerald et al. (1991) encapsulate all these elements in their service quality dimension. The process is very subjective and, therefore, the quality of a service is very much contingent upon the customers' own perceptions (McLaughlin & Coffey, 1990; Metters et al., 2003) Since quality is a comparison between customer expectation and actual performance, the information should come from the customers themselves. The evaluation can be done at various stages of the delivery process and involves both soft and hard measures. Soft measures are subjective measures that cannot easily be observed and must be collected by talking to customers, employees and others. Whereas, hard measures relate to those activities that can be counted, timed or measured through audit, such as, customer waiting time and number of complaints. In addition, quality measures also come from the internal source, generated by employees and management within an organization. The evaluation is to ensure that the level of performance does meet its own internal specification

of quality (Silvestro, Johnston, Fitzgerald & Voss, 1990; Lovelock, Wirtz & Hean, 2002). Possible mechanisms to measure service quality can be structured and unstructured questioning of customers, as well as internally generated measures that can be formal such as staff appraisal or quality audit. However, professional service firms are expected to measure quality internally using formal approach and externally through informal/unstructured customer interviews. Conversely, in mass services, the relationship between is more of between the organization and the customer, rather than between the staff and the customer. Thus, formal approach which includes well-structured surveys may be suitable to assess the service quality standard.

Service Flexibility

Much of the literature on flexibility has been restricted to the analysis of manufacturing activities (Coffey & Bailly, 1991). The few studies on services describe service flexibility as the ability to which a service firm adjusts its service process to adapt to changes occurring in the market (Mills, 1986; Fitzgerald et al., 1991). In general, there are three different types of service flexibility that are volume, delivery speed and specification flexibility (Fitzgerald et al., 1991). The ability of a service provider to meet the fluctuation in demand explains the volume flexibility. However, the definition of volume differs across sectors. For example, a car rental service will consider the number of cars rented as the volume, while for a bank, volume refers to the number of transactions processed. Next, is delivery speed flexibility referring to the ability to respond to customer requirements in terms of speed or processing time, and, finally, the specification flexibility looks into the ability to meet individual customer requirements.

The ability to be flexible, however, varies according to the nature of the service process. In people-based services, such as consultancy services, there tends to be greater scope for providing short-term flexibility compared to equipment-based services like car rental services. In a consultancy firm, the ability to reassign people to match the changes in demand can be implemented immediately to respond to customer requirements. However, in car rental services, adapting to different customer needs may result in changes in service design and even capital investment, which cannot be made in the short-term. Hence, the mechanisms should differ across the different types of service process ranging from immediate and temporary response such as hiring part-time workers to a longer-term decision such as investing in new technology (Fitzgerald et al., 1991).

Resource Utilization

Resource utilization is a dimension that evaluates how organizations efficiently utilize and transform resources into service values. The concept that is rooted in the manufacturing environment is often referred to as productivity (Fitzgerald

et al., 1991; Grönroos & Ojasalo, 2004; Johnston & Jones, 2004). Despite the importance of this dimension in service activities, little empirical work has been undertaken in this area. In fact, service productivity receives very little attention in management accounting literature.

Traditionally, productivity measures the amount of output produced, relative to the amount of input used, with a constant value assumption. Given the nature of service operations, measuring service productivity is difficult, as the constant value assumption no longer holds. The problem may not be obvious in fast food services where the input and output are easily defined, but in other types of services, such as consultancy or legal services, this can be a problem. The service provider's knowledge, experience, creative activity or ability to offer advice together with inseparable customer participation in the service delivery process complicates the process of measuring the input. Indeed, measuring the output is even more difficult as the output is hard to define. Some researchers argue that the quality for both the input and output is pertinent in service businesses and should not be treated in isolation (McLaughlin & Coffery, 1990; Nachum, 1999; Vourinen, Järvinen & Lehtinen, 2002). Meanwhile, other researchers argue that that the nature of service operations is an important consideration and thus suggests people-based services should be largely defined in terms of labour hour, while in equipment-based services will be determined by a mix of human and non-human resource utilization ratios (Fitzgerald et al., 1991). However, to capture the intangibility and variability of services input and output is not an easy task and poses a challenge in measuring service productivity.

The difficulty to calculate the value of outputs or even the inputs leads to use of financial and non-financial measurement for service productivity. Nonetheless, Grönroos and Ojasalo (2004) strongly recommend that it should be financially measured, as this is the best way to encapsulate the quantitative and qualitative variation caused by the nature of service processes. Accordingly, service productivity may be measured as the ratio between total revenue (and/or revenue from a given service) and total costs (and/or cost of producing the service).

Service Innovation

Similarly, service innovation has also been largely neglected by management accounting researchers. Due to researcher bias towards product innovation, service innovation has hardly been examined (Miles, 2003). Despite the limited research in service innovation, Fitzgerald et al. (1991) have long recognized innovation as a key source of competitive advantage. Innovation is the development and implementation of new ideas and knowledge to meet the present and future marker requirements (Van de Ven, 1986; Fitzgerald et al., 1991). It can be a development of a totally new idea or a combination of a new

and old one, which can improve the existing product or services. In services, new ideas can be related to a product, a service or the process of service delivery.

Although there is a lack of literature on process innovation, the importance of innovation has been acknowledged, as studies examine the relevance of MCS in controlling and coordinating product innovation activities. However, the current state of research displays a largely incoherent body of literature. Abernethy and Stoelwinder (1991) and Verona (1999) argue that the use of formal control in monitoring innovation hinders the development of new ideas. Ammabile (1998) reiterates that formal control demands results, which often kill rather than support the development of new ideas. However, other researchers, such as Otley (1999), perceive that MCS can actually stimulate innovation. Through MCS, managers can use the information to reduce uncertainties, while standards and procedures act as a means to block innovation excess and enhance effectiveness. The competing arguments lead to inconclusive decisions and, in fact, the empirical studies in the area (Davila, 2000; Bisbe & Otley; 2004) present contradictory conclusions.

In relation to PMS, a prior study finds that both financial and non-financial measures are equally likely to be used in measuring innovation activities (Davila, 2000). In addition, Fitzgerald et al. (1991) strongly suggest that the measurement should encapsulate the result as well as the performance of the innovation process that could be measured along three dimensions: cost, effectiveness and speed of the innovation process.

SERVICE PROCESS TYPE AND PMS MECHANISMS

There is a growing concern that there is limited guidance on how to measure or operate the measurement systems. Tangen (2004, 2005) argues that performance measurement designs are simply frameworks with a strong academic and philosophical basis. To benefit from these frameworks managers have to translate the measurement dimensions or perspectives into actionable measures, which is not easy (Otley, 1999; Lillis, 2002; Tuomela, 2005). As proposed by Fitzgerald et al. (1991) and Brignall and Ballantine (1996), the service process type is the main factor that explains how performance will be measured, which is expected to differ between the process types. Since the process type will certainly vary between service businesses, the consequences will be on measurement mechanisms. Taking this factor into consideration, the present study attempts to test the theory as an exploratory research on a much broader view. Based on the earlier discussion, the following hypothesis is suggested:

H1: PMS mechanisms will be different between professional service and mass service firms.

RESEARCH METHOD

The study combined both quantitative and qualitative methods (i.e. use of questionnaire surveys and a series of post-survey interviews). The data collection process started with the surveys, while the interviews commenced immediately after analyzing the survey responses. In line with the objective of the present study to establish generalized findings of PMS mechanisms in service organizations, greater emphasis was placed on the questionnaire survey.

Survey Method

Sample

The sampling frame for this study was private service firms operating in Malaysia, based on data provided by the Department of Statistics, Malaysia and the Central Bank of Malaysia. An extensive search of directories/portals was then undertaken to compile the mailing list for every service sector. Samples were randomly selected from the lists. The unit of analysis was either an independent service firm or a core business unit depending upon the size of the firm, similar to Chenhall (2005).

Survey data was collected by administering a mail questionnaire survey to top management of service firms or general managers of strategic business unit of 1000 service organizations operating in Malaysia. The respondents were chosen as they are in positions with the most comprehensive knowledge of PMS in the organizations. Of these, 121 companies (12%) sent complete responses. 92% of the respondents were local-owned firms, while foreign firms were only 6.7% and 0.8% was a combination of both. Respondents covered a variety of service sectors representing the diversified service industry. Table 1 presents the profile of responding firms by sector, age and number of employees.

Measurement of Variables

Service Process Type was measured using Fitzgerald's et al. (1991) six-measurement scheme that Md. Auzair and Langfield-Smith (2005) reconstructed into survey questions. A seven-point scale was used, with one indicating a greater emphasis on mass services, and seven indicating a greater emphasis on professional service process. When subjected to factor analysis, all items were equally divided and loaded on two components. Although all loadings were higher than 0.50, the reliability of the second component, comprising equipment/people focus, level of customization and discretion, was below 0.5 and therefore excluded from further analysis (refer to Table 2). The classification of service process type, thus, was based on length of contact time per customer, value added back/front office and product/process focus, with a Cronbach alpha of 0.592.

Table 1 Profile of the Responding Firms

	Frequency	%
Service activities		
Computer & related services	11	9.2
Consumer banking	8	6.7
Corporate banking	6	5.1
Education	14	11.8
Health services	9	7.6
Hotels	15	12.6
Insurance	9	7.6
Post and telecommunication	8	6.7
Professional(i.e. accounting, consultancy, engineering, legal firms)	13	10.9
Restaurants	3	2.5
Transportation	11	9.2
Wholesale and Retail Trades	12	10.1
Total	119	100.0
Missing	2	
Total	121	
Ages of service firms		
10 years and below	46	40.7
Between 11 to 20 years	28	24.8
Between 21 to 30 years	22	19.5
Above 30 years	17	15.0
Total	113	100.0
Missing	8	
Total	121	
Total number of employees		
Below 100	45	37.8
Between 100-149	8	6.7
Between 150-199	6	5.1
200 and above	60	50.4
Total	119	100.0
Missing	2	100.0
Total	121	

PMS mechanisms were measured using a 40-items instrument, which was partly based on, Fitzgerald et al. (1991) discussion on service quality and flexibility measurement mechanisms. In an attempt to increase the generalizability of the findings, the study transformed Fitzgerald et al.'s (1991) qualitative

Table 2 Summary Results of Factor Analysis

Variables	# of items	Eigenvalue	% of Variance	Cronbach Alpha
Service Process Type				
Product/process focus		1.653	55.097	0.592
Short/long term contact	n/a			
Back/front office				
PMS Mechanisms				
Service Quality Mechanisms	7	4.324	61.776	0.888
Service Flexibility Mechanisms			72.278	
Short-termism capacity	3	2.244		0.782
Longer-termism capacity	3	2.222		0.753
Temporal flexibility	2	2.149		0.926
Functional flexibility	4	2.058		0.705
Resource Utilization Mechanisms			73.293	
Efficiency of internal capacity	4	2.539		0.825
Labour productivity	2	1.858		0.792
Service Innovation Mechanisms			70.022	
Services acceptance	3	2.217		0.807
Knowledge creation	3	1.984		0.710

findings into seven-point Likert scale questions where managers were asked to identify to what extent a particular mechanism was implemented in their firms, ranging from "not at all" (1) to "extensively" (7) use of the identified techniques. Meanwhile, reviews of literature in related disciplines, such as service operations management and management science, were undertaken to identify the recent measurement techniques associated with the four RDF determinants, including productivity and innovation dimensions. Additional measures were adapted from Edgett and Snow (1997) and U.K. 2005 R&D Scoreboard to form the survey questions. However, only common measurement mechanisms were listed as the possible responses as the aim of the measurement was not to identify the mechanisms. Instead the aim of the study was to test whether there is a significant difference between professional and mass service measurement mechanisms.

Accordingly, the survey divided into four sections with each section measuring a specific dimension (refer to Appendix):

a. Service quality mechanisms – the study conceptualized quality mechanisms with regard to generating service quality information from internal and

external sources. All items loaded onto one factor with a Cronbach alpha of 0.888.

b. Service flexibility mechanisms – service flexibility was defined as the ability to respond to changes in service specifications or demand. Capacity flexibility and labour flexibility are the two major sources of flexibility (Fitzgerald et al., 1991). Accordingly four components were extracted during factor analysis (refer Table 2). Three items were loaded on Factor 1 and Factor 2, which reflected the capacity flexibility. Factor 1 reflected the decision or ability to be flexible in the shorter period with relatively less investment compared to approaches loaded on Factor 2. Thus, Factor 1 could be labelled as 'short-term capacity approach' and Factor 2 as 'long-term capacity approach'. Meanwhile, Factor 3 and Factor 4 dealt with flexibility in labour. Factor 3 encompassed part-time and temporary workers, which could be interpreted as 'temporal flexibility'. Whereas, Factor 4 was more of 'functionality flexibility' by which the same employees were responsible for a variety of tasks. The Cronbach alphas for all four factors were above 0.70 indicating satisfactory internal reliability of the scales.

c. Service resource utilization mechanisms – resource utilization mechanisms looked into firms' choices of measuring the efficiency and effectiveness of input and output in their service delivery processes. Six items were factor analyzed that loaded onto two factors, 'efficiency of internal capacity' and 'productivity of labour' (refer to Table 2). The Cronbach alphas were 0.825 and 0.792 respectively.

d. Service innovation mechanisms – service innovation defined as a process that includes generation, development or improvement in a product, a service or delivery process (Fitzgerald et. al, 1991). The roles of PMS are to monitor and measure the development and adoption of innovations (Damanpour, 1996). Focusing on the measurement mechanisms, hence, two potential alternatives to support the measurement of firms' innovative actions were identified (refer Table 2). Factor 1 signified the measures on the implementation or acceptance of an innovation, while Factor 2 concentrated on the elements of knowledge. Hence, "service acceptance measure" and "knowledge creation" could describe how innovation would be practically monitored or measured. The scales also reported high internal reliability with Cronbach alphas of 0.807 and 0.710 respectively.

Descriptive statistics for the variables in this study are presented in Table 3.

Results

The service process types were classified into sets of similar group using cluster analysis. Using a two-step cluster analysis the optimal or "best number" of clusters is automatically determined. The objectives of this technique are to

Table 3 Descriptive Statistics

Variables	Theoretical range	Actual range	Mean	S.D.
Service Process Types	1-7	2.33-6.67	4.592	1.063
PMS Mechanisms				
Service Quality	1-7	2.29-7.00	5.030	0.982
Short term capacity	1-7	2.33-7.00	4.546	1.079
Long term capacity	1-7	1.00-7.00	3.731	1.698
Temporal flexibility	1-7	1.00-7.00	3.767	1.731
Functional flexibility	1-7	2.75-7.00	4.964	0.982
Internal capacity efficiency	1-7	3.00-7.00	4.888	0.961
Labour productivity	1-7	2.50-7.00	5.038	1.091
Service acceptance measures	1-7	3.67-7.00	5.340	0.899
Knowledge creation	1-7	3.33-7.00	4.991	0.870

minimize within cluster variation and maximize between cluster variations. Consistent with Md. Auzair and Langfield-Smith's (2005) classification of service process type, Table 4 shows that the service process types were successfully clustered into two service groups, i.e. professional and mass services. The means of professional and mass services were 5.59 and 3.83 respectively, presenting a clear distinction between the two service process groups (refer to Figure 1). The error-bar chart graphically displays the distribution and means of the two service types at 95% confidence interval.

Table 4 Distributions of Service Process Types

		Frequency	Percent	Mean	Std. Deviation
Cluster	Professional Service	52	43.3%	5.5897	.50967
	Mass Service	68	56.7%	3.8284	.66789
	Combined	120	100.0%	4.5917	1.06332
Excluded Cases		1			
Total		121			

Subsequently, the hypothesized relationship was examined using t-test analysis. The adequacy of the data was assessed by testing for the normality, homogeneity of variance of residuals and the appropriateness of the linear models. The results indicated that the inherent assumptions of the model used were validated.

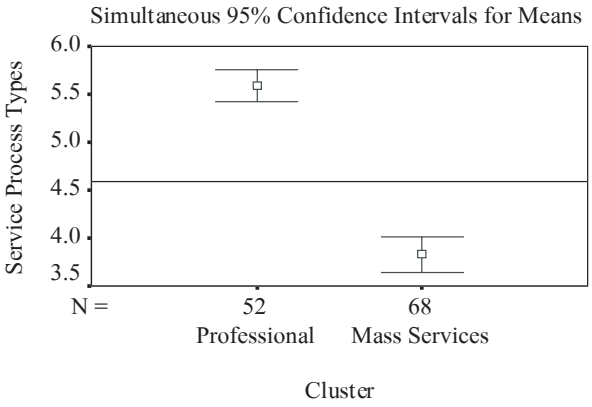

Figure 1 Classification of Service Process Type

Hypothesis Testing

A series of independent t-tests were undertaken to examine the variation in the level of emphasis on each component of measurement mechanisms, between professional and mass services. Concentrating on the four RDF determinant dimensions (Fitzgerald et al., 1991) the hypothesis was tested. The results of the t-tests are presented in Table 5. The comparison between professional and mass services shows that only the mechanism in supporting services long-term flexibility capacity presents a significant difference between professional and mass services ($p < 0.05$). The result indicates that mass services are more likely to place more emphasis on long-term service flexibility as they are often equipment-based services as opposed to professional services. Given that most of the mechanisms did not reveal any strong distinction, there was insufficient evidence to support H1. The findings, therefore, may not support the theory that service process types have a strong influence on PMS mechanisms as suggested by the literature (Fitzgerald et al., 1991; Brignall & Balantine, 1996).

POST-SURVEY INTERVIEWS

Interview Procedures

A series of post-survey interviews was conducted to complement the quantitative findings. The respondents were those who had answered the mailed self-administered survey and indicated their willingness to be contacted for

Table 5 Summary Results of T-tests for Service Process Type

RDF Determinants (Fitzgerald et al., 1991)	Measurement Mechanisms		Mean	T	Sig. (2-tailed)
Quality of Service	Service quality	Professional (52) Mass Services (68)	5.2033 4.8725	1.748	0.083#
Flexibility	Short term Capacity	Professional (51) Mass Services (68)	4.4703 4.6028	-.662	.509
	Long term Capacity	Professional (51) Mass Services (68)	3.3529 4.0147	-2.135	.035**
	Functional Flexibility	Professional (51) Mass Services (68)	4.9804 4.9559	.134	.894
	Temporal Flexibility	Professional (51) Mass Services (68)	4.0000 3.4853	1.475	.143
Resource Utilization	Efficiency of internal capacity	Professional (52) Mass Services (68)	4.9567 4.8346	.689	.492
	Labour Productivity	Professional (52) Mass Services (68)	5.2308 4.8897	1.711	.090#
Innovation	Service Acceptance Measures	Professional (49) Mass Services (58)	5.3537 5.3277	.149	.882
	Knowledge Creation	Professional (49) Mass Services (58)	4.9592 5.0169	-.342	.733

**p < 0.05; #p < 0.10

any follow-up questions. Initially 25 respondents out of 121 usable responses indicated their readiness to be contacted. Eight service firms were excluded prior to any contact. This included two companies that had ceased operations due to merger and acquisition and another six due to dispersion of locations. In addition six managers refused to participate, which was generally for reasons related to time pressures resulting in twelve interviews with a partner and managers of various service businesses. Thus, the purpose of the interviews was to understand the factors that determine the selection of measurement approaches, based on the experiences of the twelve local-owned service firms. Subject to cluster analysis as discussed earlier, the twelve respondents were identified as either professional or mass service firms. Eight of the interviewed firms were mass services, while the other four were professional service firms (refer to Table 6). Once the managers agreed to be interviewed, a letter explaining the purpose and interview protocol was mailed to each of them. Each interview took approximately 30 minutes to one and a half hours.

Table 6 Profile of Post Interview Respondents

Interviewee	Service Types	Position
	Professional Service Firms	
1	Corporate banking	Operations General Manager
2	Education	Human Resource Manager
3	Hotel	Housekeeping Manager
4	Legal Service	Partner
	Mass Service Firms	
5	Computer services	Operations Manager
6	Consumer banking	Operations Manager
7	Insurance	Head, Corporate Performance Management
8	Telecommunications	Strategic Planning General Manager
9	Telecommunications	Operations Managers
10	Broadcasting	Operation Manager
11	Transportation	Operations General Manager
12	Wholesale and retail trades	Human Resource Manager

Interview Analysis

A quality service is highly valued by customers. Recognizing the importance of service quality in developing firm's competitive advantage (Nixon & Burns, 2005), all twelve firms undertook various means to measure the quality of their services. The practice at a private learning institution is an example that demonstrates the use of internal and external evaluation. Emphasizing the quality of teaching, several mechanisms were implemented including a classroom observation where a senior professor would evaluate one's teaching skill through a classroom observation. There were also peer review evaluations and an annual student satisfaction survey to appraise the teaching quality. The use of multiple mechanisms was to ensure that the strategic focus of delivering high quality teaching was attainable.

A few firms even implemented an automated system that could constantly monitor the quality of service provided. For example, a queue management system was introduced at one of bank to monitor customer waiting time. To make sure the target to serve a customer within two minutes waiting time was met which is part of the corporate mission to become the most efficient bank in Malaysia, the top-level management could check the record generated by the system. Customer satisfaction surveys are another effective approach to assess the service quality. However, it is an expensive mechanism and normally conducted once a year in larger firms. As an alternative, a few firms chose to estimate their customer satisfaction based on the number of complaints.

Although the decision to rely solely on the number of complaints is rather questionable, the mechanism seems to work well in these firms.

Similarly, the mechanisms to support service flexibility vary between firms. Most of the firms preferred to address the issues through short-term flexibility. Without long-term commitment, the firms can easily adjust their capacity according to the fluctuation in demand. The use of part-time and temporary workers, as well as multi-skilled staff is one approach to be flexible. Multiskilling was a common approach at the legal and IT service firms, while the retail firm, hotel and learning institution practiced 'temporal flexibility'. However, short-term flexibility is a momentary solution, which requires managers to continually monitor and react to the unpredictable changes in demand. On the other hand, larger firms are more likely to go for a long-term flexibility approach by investing in technology such as Internet banking and buying new machines. In situations where automation is less appropriate, firms will appoint agents or even outsource their business, where the performance of the external parties will always be monitored.

The way to measure resource utilization or productivity, however, has not been widely discussed among managers. In equipment-based services, the performance of the equipment is certainly associated with productivity. However, it is rather unclear how the productivity of the people is determined. Their productivity is assumed acceptable whenever the targeted KPIs are met. Generally, firms associate productivity and training. The importance of training is supported when a manager stated that:

> *In terms of productivity, our staff training is number one. Our budget on training is high. This year we are expecting half a million will be spent on internal training where we get people to come and train inside. Besides that, there is external training and even going abroad, which we have done over the years.*

Almost all the firms highlight their high training costs and commitment to training. In fact, several firms made the number of training days one of the KPIs. Another manager added that:

> *Attending a training programme is part of the KPIs where everyone has to attend a certain number of skill enhancement programmes. Each staff needs to attend at least 6 days of training per year. For the supervisor's scorecard, he not only looks at his attended programme but also his subordinates' training measures. Therefore, his training days target should be his minimum 6 days requirement as well as the average training days for the people under his supervision.*

The interview findings seem to suggest that knowledge enhancement via attending a formal training programme is the key for better productivity. Based on the managers' responses, it is assumed that an increase in training is positively related to a greater level of productivity. Although, there is insufficient empirical

evidence to associate training days/costs with productivity, the enhancement of service standards through training is indeed emphasized in the recent Ninth Malaysia Plan mid-term review (EPU, 2008). Notably, the importance of training can improve the service quality, which subsequently improves customer satisfaction.

Meanwhile, empirical evidence revealed that Malaysian companies placed lesser emphasis on innovation (Jusoh, Ibrahim & Zainuddin, 2007); relatively, the bigger service firms appear to be more involved in service innovation as opposed to smaller size firms. Their commitment was supported where there is a special product development unit in each of the firms. The responsibilities of the unit are similar between the larger firms. The unit not only identifies the potential new product but also conducts a commercial study on the marketability of the product. However, costs were perceived to be the main factor that often undermines the innovative effort. Smaller size firms are relatively less committed towards service innovation with uncertain demand for innovative services, shortage of skilled personnel and costs among the factors preventing them.

Generally, there is no clear distinction between the measurement mechanisms used by the professional service firms and mass service firms. Instead, the decision to use a particular measurement mechanism depends on the firm's strategic intention and its financial capacity to invest/finance the measurement technique. In most cases, larger firms are financially stable, and thus, able to implement various mechanisms to support their PMS. The interview findings are, therefore, consistent with the quantitative analyses that report no significant difference between the professional services and mass services measurement mechanisms. For that reason, Fitzgerald et al.'s (1991) and Ballantine and Brignall's (1996) assumption is not supported in this study. Alternatively, the study proposed that size and strategic competitiveness are the factors that determine the measurement mechanisms used by the service firms.

DISCUSSION AND CONCLUSION

A review of past studies shows that PMS has been an important means of control in both professional and mass service firms (e.g. Davis and Albright, 2004; Abernethy, Horne, Lillis, Malina & Selto, 2005; Mohd. Amir, Nik Ahmad & Mohamad, 2009). This exploratory investigation indeed was an attempt to understand the variation of PMS mechanisms among service firms. Normatively, theory claims that PMS mechanisms are largely influence by the type of service businesses. Hence, it was hypothesized that PMS mechanisms will differ between professional services and mass services. However, the findings show minor differences between the professional and mass services, suggesting that service type has an insignificant influence. Further analysis was subsequently undertaken and demonstrated that the choice of measurement mechanisms are instead determined by the business strategy, competition and size. The evidence,

thus, suggests that PMS is designed in a way that matches the organizational objectives rather than focuses on the uniqueness of service businesses.

The service firm's strategic emphasis, which is part of their business plan, determines a suitable means of supporting devices in generating reliable information. The strong influence of strategy in designing PMS is consistent with the literature (Chenhall, 2003, 2005). Notably the linkage between strategy and organizational goals establishes the relationship between organizational vision and individual actionable activities. In fact, Bourne, Neely, Platts and Mills (2002) highlight that the lack of actionable vision and strategy, and ambiguity in strategy and operations linkages are reasons behind PMS failure. Meanwhile, the strong influence of intensity of competition in determining the way of measuring activities is in line with Hoque, Mia and Alam's (2001) findings. The accuracy of the market study and strategic choice are essential, as they form the business plan that becomes the basis for selecting those initiatives that will maximize impact on performance.

Firms' size, which has been found to correlate with net assets (Pugh, Hickson, Hinings & Turner, 1969; Chenhall, 2003), is another determinant. Size provides organizations with resources to implement a particular mechanism as some mechanisms are rather expensive, especially for small size service firms. This validates Burn and Waterhouse's (1975) argument that larger size firms are more likely to implement formal controls, which are comprised of sophisticated technologies, as opposed to smaller size firms that choose to use interpersonal controls.

Accordingly, the insignificant influence of service process type suggests the removal of the myth that perceives all service activities and problems as unique. Instead, focusing on commonalities across the service sector, like manufacturing, which also consists of multidimensional industries, where the different manufacturing process dimensions are grouped into a single category has facilitated the sharing of ideas and techniques. Applying a similar argument to the service environment is expected to stimulate a crossover of ideas and understanding of appropriate management control methods and techniques to the service sector. Obviously, a change in the traditional view of services is required to promote communication and learning processes between service businesses.

An implication of the study for the theory is that it looks at the operationalized aspect of PMS design. A number of researchers have emphasized that the benefits of the PMS framework will only be realized when the organization is able to translate the measurement dimensions into actionable measures (Lillis, 2002; Tangen, 2004, 2005; Tuomela, 2005). Despite this concern, there is hardly any discussion in this area. Hence, the present findings provide a preliminary understanding pertaining to influential factors that determine the choice of PMS mechanisms. Meanwhile for service managers the insignificant effect service process type may allow firms to observe and learn from the experiences

of other service firms in developing their own PMS. This counters the traditional view that each service business is different and provides empirical evidence that the difference in service activities do not matter in designing a PMS. With this broader perspective, the study hopes to give a new view of the service sector towards implementing PMS.

However, the results should be interpreted in light of several limitations. First, the study suffered all the limitations inherent in using cross-sectional research design where data is a snapshot of the firms' practices in dynamic environments. A single empirical study as this, in any case, could not be viewed as conclusive. Hence, the study should be part of a larger empirical longitudinal investigation to enhance the understanding of PMS practices among service firms in Malaysia. Nonetheless, the result could be a fruitful input for future study. Second, the objective to observe the practice of PMS among service organizations on a broad scale limits the ability to go in depth. Third, the questions are based on 'soft data' based on the perception of the respondents. Especially during the interviews, the study depended heavily on the verbal respond of respondents. The final limitation is the low response rate, which limits the statistical power of the results and application of more advance statistical techniques. However, the credibility of the findings can be scrutinised in future research.

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APPENDIX

SERVICE QUALITY

Please indicate how extensive the extent to which the following approaches are used in monitoring your service quality.

	Not at all						*extensively*
a. Unstructured customer interviews	1	2	3	4	5	6	7
b. Standardized customer surveys (e.g. service comment cards, telephone surveys)	1	2	3	4	5	6	7
	Not at all						*extensively*
c. Analysis of individual customer complaints (i.e. result in action taken for the individual complaints)	1	2	3	4	5	6	7
d. Equipment/facilities quality measures (e.g. equipment availability; online banking response time)	1	2	3	4	5	6	7
e. Staff appraisal	1	2	3	4	5	6	7
f. Management inspection	1	2	3	4	5	6	7
g. Quality audit	1	2	3	4	5	6	7
h. Quality control	1	2	3	4	5	6	7

SERVICE FLEXIBILITY

1. Please indicate the extant of used of the following approaches in response to fluctuations and changes in service demand.

	Not at all						*extensively*
a. Negotiate the delivery dates with customers	1	2	3	4	5	6	7
b. Redefine service scope	1	2	3	4	5	6	7
c. Introduce automated self service facilities	1	2	3	4	5	6	7
d. Extend your operating hours	1	2	3	4	5	6	7
e. Use of intermediary (i.e. appointment of agents)	1	2	3	4	5	6	7
f. Externalize the service product (i.e. outsource or franchise)	1	2	3	4	5	6	7

2. To be flexible with your workforce, do you practise the following techniques?

	Not at all						*extensively*
a. Job scheduling	1	2	3	4	5	6	7
b. Multi-skilling (i.e. use of the same worker for multiple tasks)	1	2	3	4	5	6	7
c. Job rotation	1	2	3	4	5	6	7
d. Staff transfer between units	1	2	3	4	5	6	7
e. Part time worker	1	2	3	4	5	6	7
f. Temporary worker	1	2	3	4	5	6	7

RESOURCE UTILIZATION

To what extent do the following mechanisms support your productivity measures?

	Not at all						*extensively*
a. Labour costs	1	2	3	4	5	6	7
b. Utilization of labour (e.g. number of man days; chargeable man-hour)	1	2	3	4	5	6	7
c. Resources allocated for new knowledge acquisition (e.g. training costs, attending conferences)	1	2	3	4	5	6	7
d. Investments in equipments/facilities	1	2	3	4	5	6	7
e. Utilization of equipment/facilities (e.g. number of rooms occupied, number of machine hours, return on investment)	1	2	3	4	5	6	7
f. Productivity index (i.e. predetermined standard levels of productivity)	1	2	3	4	5	6	7

SERVICE INNOVATION

To what extent are the following mechanisms used in monitoring your innovative efforts?

	Not at all						*extensively*
a. Project costs (e.g. meet unit cost objectives; training costs)	1	2	3	4	5	6	7
b. Customer acceptance (e.g. fulfil customers' needs)	1	2	3	4	5	6	7
c. Service performance level (e.g. improve performance specification, meet quality specification)	1	2	3	4	5	6	7
d. Timing measures (e.g. product launched on time)	1	2	3	4	5	6	7
e. Creation of new knowledge (e.g. develop new technology; enhance skills to handle new technology)	1	2	3	4	5	6	7
f. Transmission and application of knowledge (e.g. create new service product; create new market; capture higher market share)	1	2	3	4	5	6	7