NEW SERVICE DEVELOPMENT MODEL FOR PROPERTY MANAGEMENT COMPANY

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Abstract

To enhance the service quality of property management companies (PMCs), this study focuses on no service quality evaluation but the new service development so that the companies can design new and critical services to meet consumers' needs. Service positioning and design are two primary issues for new service development. Accordingly, a three-dimensional property management service development architecture, which describes service positioning and service context, was schemed previously to be the reference for creating the new service development model for PMCs. In the model, Service Demand Map (SDM) and Service Providing Map (SPM), two graphical service positioning tools, need to generate to delineate the distributions of consumers' service requirements and PMCs' service products respectively. By overlapping analysis of SDM and SPM, the service vacancy of a PMC can be discovered subsequently. According to the PMC's service vacancy, a new service with its context can be designed finally by using axiomatic design methodology and service blueprint philosophy.

KEYWORDS: property management, service map, service blueprint, service design.

INTRODUCTION

Due to the nature of service orientation, not only high service quality is commonly pursued by property management companies (PMCs), but also adopting a customer orientation is one of the primary recommendations to increase the value of property management (Anderson, 2008). Generally, the professional services provided by PMCs could be summarized into three categories, namely (1) building/facility maintenance, (2) home-life/commercial-added services, and (3) real assets management. Variant services would be necessarily provided to meet heterogeneous clients' requirements. Not only basic/common services respectively within each category need to be served, but new/creative services are essential for specific consumers. Accordingly, the integrity of property management services would be one critical factor to keep PMCs' competition advantages. For the basic/common services, the primary issue is to improve service quality delivered to consumers; for new/creative services, discovering and developing the necessary new services would be the vital subjects for PMCs' managers. This study is eager to search a New Service Development Model (NSDM) for PMCs so that managers could create services with their distinguishing characteristic for the specific consumers' needs.

Generally, services and the corresponding contexts such as delivery activities and specifications would be developed according to what managers think customers' requirements. Based on the gap model of service quality (Parasuraman et al., 1985), therefore, the distance between what consumer's expect and management perception is the first/original gap possible to decrease the service quality. Since a clearly survey is the key to narrow the first gap, Parasuraman et al. (1985) proposed "service quality determinates" to evaluate consumers' expectation of services. Ling and Chong (2005), Siu et al. (2001), and Hoxley (2000) applied Parasuraman's service model to assess the service quality in construction industry. However, determining the consumers' service quality requirements can only evaluates the service quality gap between consumers' expectation and management perception. The service vacancy, the potential cause increasing the first gap of the service gap model, is necessary to investigate. That is, the service gap is the summation of the service quality gap resulted from current/existing services, and the service vacancy resulted from the misunderstanding of heterogeneous consumers' needs. For decreasing the service quality gap, modifying the existing service level delivered to match consumers' expectations is the primary issue; for filling in the service vacancy, new services are needed to develop. As a result, discovering the service vacancy is the first mission of the NSDM.

Moreover, once the vacancy could be investigated, the new service with its context needs to be designed subsequently. A number of academic works on new service development were published in Anglo-American literature back in the seventies and eighties, they add up to no more than a relatively rudimentary discussion; however, the single most compelling criticism of the new service development literature is the lack of thereof (Bullinger et al., 2003). Accordingly, a service design method, combining the concept of service blueprint (Shostack, 1984) and the axiomatic design methodology (Suh, 2001), is proposed in NSDM.

Summarily, discovering service vacancy and new service design are two functions of NSDM. To discover the service vacancy, this paper addresses the service map which is a graphical service positioning tool, to generate a PMC's Service Demand Map (SDM) and Service Providing Map (SPM). Then, the service vacancy can be discovered by overlapping analysis of SDM and SPM. The new service product with its context can finally be designed corresponding to the service vacancy by using axiomatic design methodology and service blueprint philosophy. Following the concept of NSDM, the purpose of not only matching clients' requirements, but also supplementing a PMC's original services by new service can be fulfilled.

Service development architecture proposed by this study is introduced in the following sector, which is the key idea to develop NSDM. The details of NSDM and conclusions including discussions are described finally.

SERVICE DEVELOPMENT ARCHITECTURE

To develop new service according to PMCs' service vacancy, this study combines the service map and service blueprint to address the idea of Service Development Architecture which is the original concept to generate PMCs' new service development model. Figure 1 shows the compositions of the service architecture. The service map, as shown in Figure 1(a), provides the function for positioning the service vacancies; the service blueprint as shown in Figure 1(b) brings the concept structure to be the service context of the services on the service map.

Integrating the service map and service blueprint into a three-dimensional framework, an architecture with service positioning and service context expression functions is developed as Figure 1(c) shows.
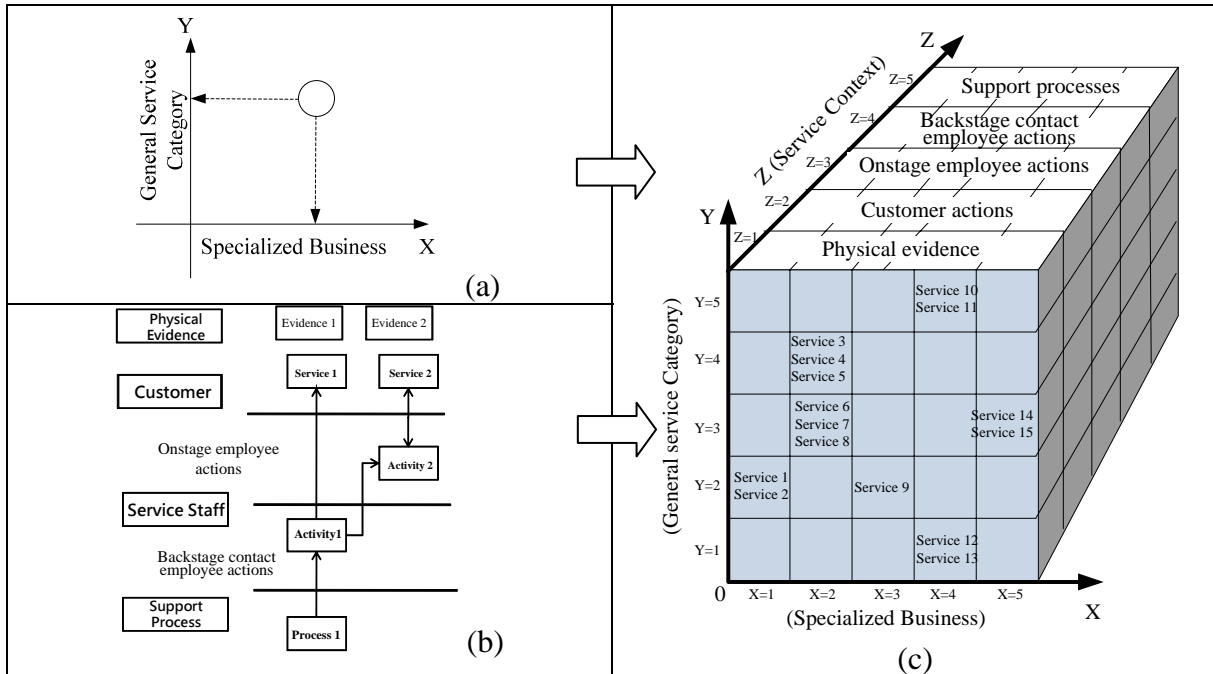

Figure 1: Concept of Service Development Architecture: (a) service map, (b) service blueprint (Shostack, 1984), (c) prototype of service development architecture

Service Map

The Service Map is the key idea proposed in this paper. This idea not only brings a graphic tool to position/classify services, but also provides a way to determine the service vacancy of a service company. Figure 1(a) shows the coordinate of the service map. The x axis denotes the specialized business categories of the service company. That is, different service companies have variant specialized business categories. Figure 2 shows the specialized business categories of property management companies summarized by this study. The y axis denotes the general categories of services. That is, the service categories in the y dimension are universal to all service businesses. Five service categories, namely, (1) consulting & information update, (2) administrative service, (3) planning & evaluation, (4) Professional labor providing service, and (5) equipment support (as shown in Table 1), were surveyed and re-classified.
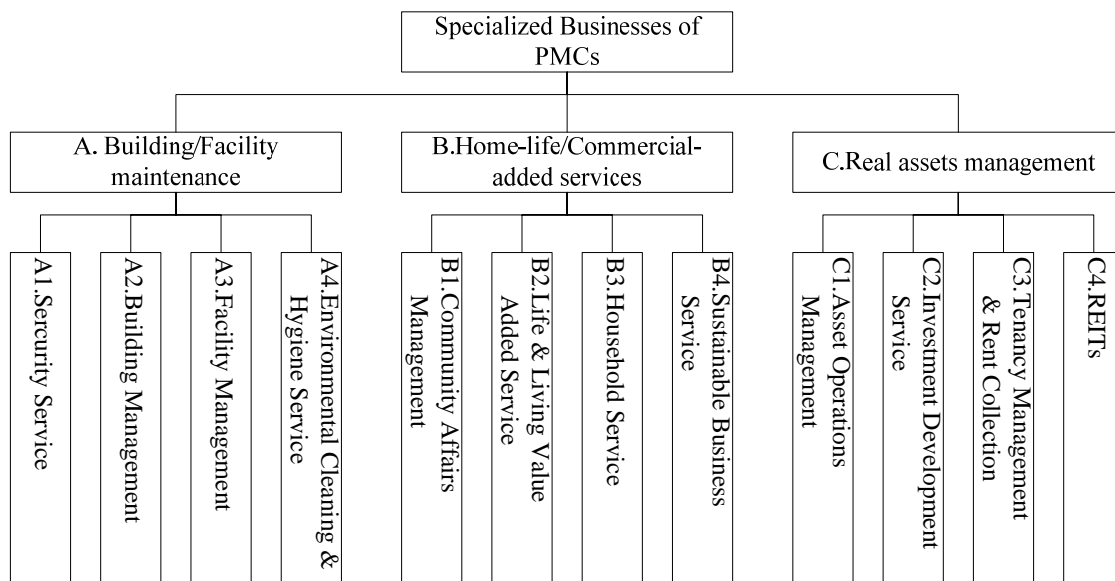
Figure 2:Specialized Businesses Dimension of Property Management Companies (PMCs)

Table 1: General Service Categories within Service Map

General Service Category	Definition
Consulting Services & Information Update	Services providing necessary information or information platforms for consumers.
Administrative Service	Services for dealing with/assisting to deal with consumers administrative matters.
Planning & Evaluation	Services providing project/alternative planning and implementation.
Professional labor providing service	Providing licensed labours to consumers, such as nursing staff.
Equipment support	Providing/arranging specific materials, hardware, equipments or places for consumers.

The y dimension denoting general service categories provides a guideline for developing new services. Unlike the x dimension, the specialized business, no professional classification thought but focusing on what raw functions services may provide brings an additional direction for managers to regard their professionals distributed in the x dimension of service map. Integrating the general service categories (shown in Table 1) and PMCs' specialized business scopes (shown in Figure 2), the service map of the PMCs was generated as Figure 3 shows. The PMCs' service map are divided into 60 sub-service-areas by 12 PMCs' specialized business scopes and five general service categories. Therefore, property management services provided/needed can be classified into the corresponding sub-service-categories as shown in the x-y plan in Figure 1(c).
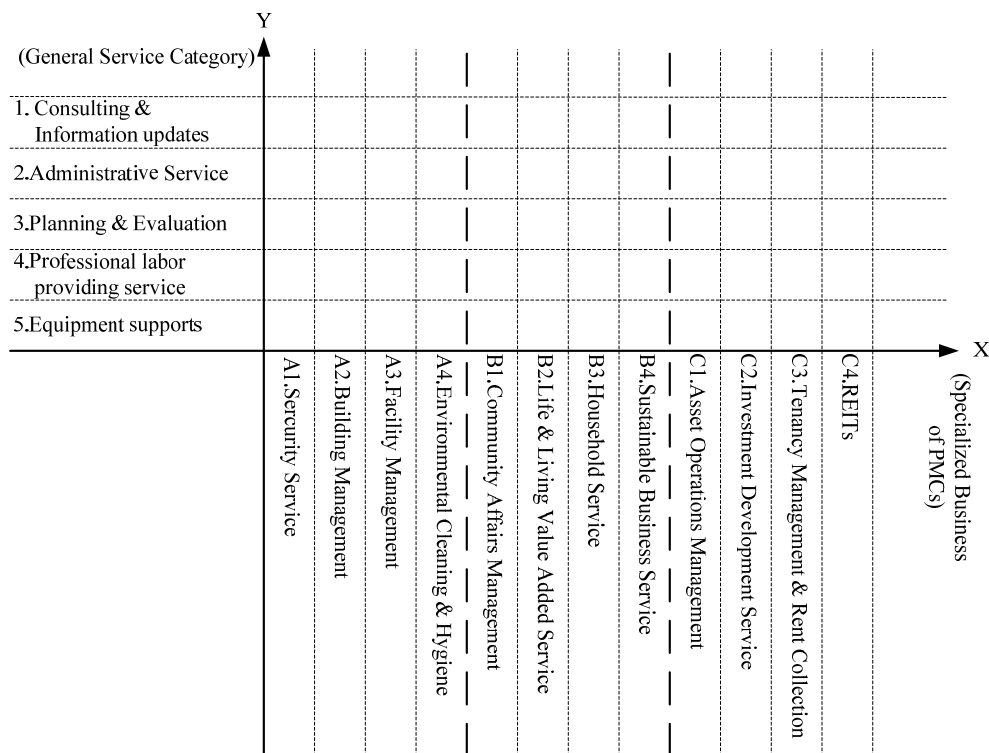
Figure 3: Property Management Service Map

Service Context

The service map only indicates the services' categorical locations; however, to develop new service, a service schema to be a reference for designing a service is necessary further due to the intangible nature of services. To this end, the service context was be schemed to be the z dimension in the service development architecture as shown in Figure 1 (c).

This study paper applied the service blueprint addressed by Shostack (1984) to be the schema of service context. The service blueprint includes the description of all the activities for designing and managing services. With the descriptions, the service blueprint was divided into four layers namely, (1) Customer layer, (2) Onstage Contact Employee Layer, (3) Backstage Contact Employee Layer, and (4) Support Process Layer as shown in Figure 1 (b). By interacting among layers, services can delivered to consumers with physical evidences.

Service blueprint provides not only a concept to delineate the delivery of services, but also a structural service context for designing a service. Accordingly, integrating the service map and service blueprint into the service development architecture, services vacancies can be determined on the service map, and the new service filling in the vacancy can be designed according to the schema of service context.

NEW SERVICE DEVELOPMENT MODEL

Based on the proposed service development architecture, this paper addresses the New Service Development Model (NSDM) for property management companies. Two purposes, (1) discovering the service vacancy and (2) designing new service, are assigned to NSDM. In

NSDM, the service demand map and service providing map need to be created formerly. Then, service vacancies can be discovered and positioned on the service map by overlapping service demand and service providing maps. Therefore, new services matching the consumers' necessary for the determined vacancies can be designed finally.

Service Demand Map Creation

Service demand map derived from the idea of service map is proposed in NSDM to reveal the consumers' service demand strength of each sub-service-area. The service demand strength can be investigated by questionaries for service clients.

Take the example of service demand strength investigation in this paper, the questionary survey for consumers' demand weight of each specialized business in service map was preliminarily completed; while the requirement density scoring for each general service category was evaluated also by consumers. Then, the demand strength of each sub-service-area can be calculated by Equation (1) and (2).

$$d_{xy}= (W^c_x \times RD_y) \tag{1}$$

where d_{xy} is the demand strength corresponding to the xth specialized business of property management and y^{th} general service category; W^c_x is the clients' demand weight of xth specialized business; RD_y is requirement density corresponding to the yth general service category of clients.

$$\overline{D}_{xy} = \frac{d_{xy}}{Max(d_{xy})} \tag{2}$$

where $\overline{D}_{xy}$ is the normalized demand strength corresponding to the d_{xy}.

Filling the calculated $\overline{D}_{xy}$ in the each sub-service-area in the service map of PMCs, the property management service demand map can be generated as Figure 4 shows.

		$x=A1$ A1.Security Service	$x=A2$ A2.Building Management	$x=A3$ A3.Facility Management	$x=A4$ A4.Environmental Cleaning & Hygiene	$x=B1$ B1.Community Affairs Management	$x=B2$ B2.Live & Living Value Added Services	$x=B3$ B3.Household Service	$x=B4$ B4.Sustainable Business Service	$x=C1$ C1.Asset Operations Management	$x=C2$ C2.Investment Development Service	$x=C3$ C3.Tenancy Management & Rent Collection	$x=C4$ C4.REITs
1.Consulting & Information updates	(Y=1)	38	5	4	16	13	100	67	11	16	0	8	4
2.Administrative Service	(Y=2)	38	3	4	16	27	100	67	11	8	0	4	1
3.Planning & Estimating	(Y=3)	38	3	4	8	13	100	67	11	16	1	8	0
4.Professional labor providing service	(Y=4)	56	5	8	24	27	67	100	5	16	1	8	0
5.Equipment supports	(Y=5)	56	5	8	16	13	33	33	11	0	0	0	0

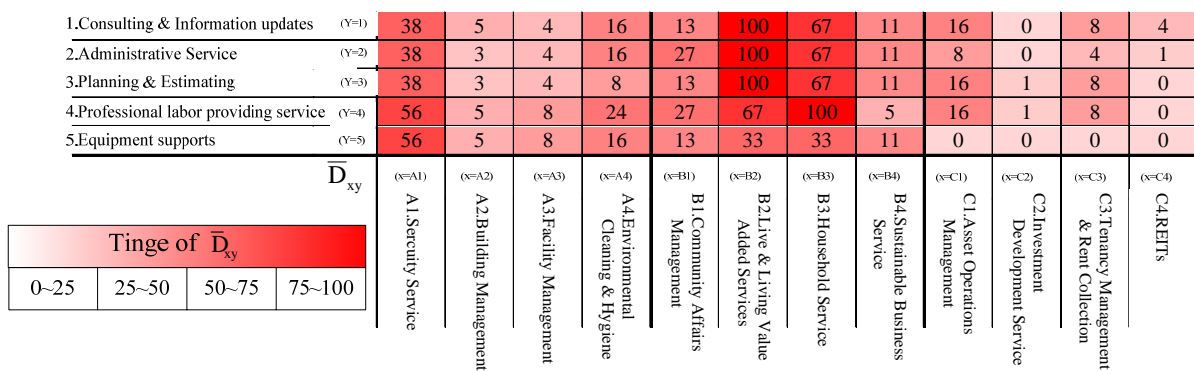| Tinge of $\overline{D}_{xy}$			
0~25	25~50	50~75	75~100

Figure 4: Property Management Service Demand Map of Clients in Case Study

In Figure 4, each sub-service-area has different tinge of red according to the value of $\overline{D}_{xy}$. Higher $\overline{D}_{xy}$ has darker tinge of red so that managers can see the consumers' primary necessaries on the service demand map.

Service Supplying Map Creation

The service supplying map, also derived from the idea of service map, is proposed to reveal the service-supplied strength of each sub-service-area of a PMC. Similar to the service demand strength investigation for the service demand map, service-supplied strengths can be evaluated by the same questionary survey and scoring methods, except the interview target, the managers of PMCs. Using Equation (3) and (4) the normalized service-provided strength, denoted by $\overline{S}_{xy}$, can be calculated. Using the calculated $\overline{S}_{xy}$, a PMC's service supplying map can subsequently generated as Figure 5 shows.

$$s_{xy}= (W^s_{xy} \times SD_{xy}) \tag{3}$$

where s_{xy} is the service-supplied strength corresponding to the xth specialized business of property management and y^{th} general service category; W^s_x is the PMC's supplying weight of xth specialized business; SD_y is PMC's current service supply density corresponding to the yth general service category.

$$\overline{S}_{xy} = \frac{s_{xy}}{Max(s_{xy})} \tag{4}$$

where $\overline{S}_{xy}$ is the normalized service-supplied strength corresponding to the s_{xy}.

$\overline{S}_{xy}$	(x=A1) Sercuity Service	(x=A2) Building Management	(x=A3) Facility Management	(x=A4) Environmental Cleaning & Hygiene	(x=B1) Community Affairs Management	(x=B2) Live & Living Value Added Services	(x=B3) Household Service	(x=B4) Sustainable Business Service	(x=C1) Asset Operations Management	(x=C2) Investment Development Service	(x=C3) Tenancy Management & Rent Collection	(x=C4) REITs
1.Consulting & Information updates (Y=1)	0	0	15	0	29	0	0	0	6	0	6	0
2.Administrative Service (Y=2)	100	8	15	33	29	0	0	0	6	0	0	0
3.Planning & Estimating (Y=3)	100	0	0	0	0	0	0	1	6	0	6	0
4.Professional labor providing service (Y=4)	100	11	23	49	29	20	9	0	6	0	0	0
5.Equipment supports (Y=5)	0	0	15	0	0	0	0	0	0	0	0	0

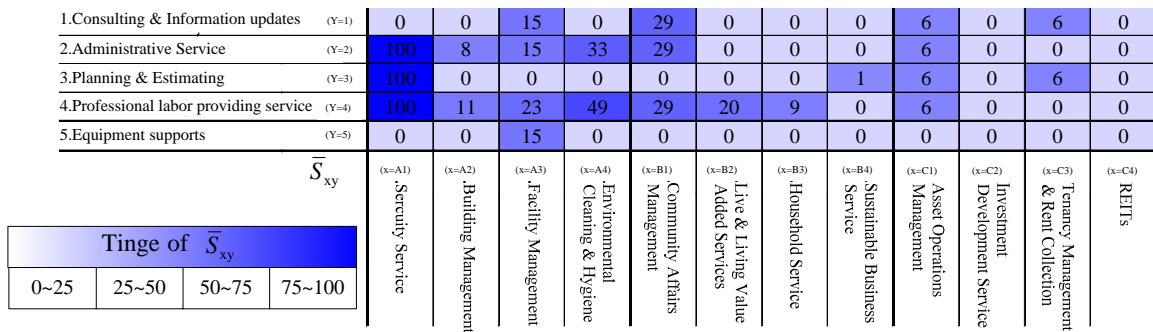| Tinge of $\overline{S}_{xy}$			
0~25	25~50	50~75	75~100

Figure 5: Property Management Service-Supplying Map of PMC in Case Study

In Figure 5, different tinges of blue were assigned to different degrees of $\overline{S}_{xy}$. The service allocations with their provided strength are visualized in the service providing map.

Service Vacancy Analysis

By overlapping a PMC's service supplying map and service demand map, service vacancies can be determined. The vacancy degree of service, denoted by SVD, needs to be calculated according to Equation (5) in the beginning of the overlapping process. Then, based on the value of SVD, a PMC's service vacancy map can be made as Figure 6 shows.

$$SVD_{xy} = (\overline{D}_{xy} - \overline{S}_{xy}) \tag{5}$$

where SVD_{xy} is the PMC's vacancy degree of the services in the xth specialized business of property management and y^{th} general service category for the investigated clients.

Tinge of SVD_{xy}								
-100~-75	-75~-50	-50~-25	-25~0	0	0~25	25~50	50~75	75~100

		A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
1.Consulting & Information updates	(Y=1)	38	5	-11	16	-16	100	67	11	10	0	2	4
2.Administrative Service	(Y=2)	-62	-5	-11	-16	-2	100	67	11	2	0	4	1
3.Planning & Estimating	(Y=3)	-62	3	4	8	13	100	67	10	10	1	2	0
4.Professional labor providing service	(Y=4)	-44	-6	-15	-25	-2	47	91	5	10	1	8	0
5.Equipment supports	(Y=5)	56	5	-7	16	13	33	33	11	0	0	0	0
SVD_{xy}		(x=A1)	(x=A2)	(x=A3)	(x=A4)	(x=B1)	(x=B2)	(x=B3)	(x=B4)	(x=C1)	(x=C2)	(x=C3)	(x=C4)
		A1.Serucity Service	A2.Building Management	A3.Facility Management	A4.Environmental Cleaning & Hygiene	B1.Community Affairs Management	B2.Live & Living Value Added Services	B3.Household Service	B4.Sustainable Business Service	C1.Asset Operations Management	C2.Investment Development Service	C3.Tenancy Management & Rent Collection	C4.REITs

Figure 6: Property Management Service Vacancy Map of PMC in Case Study

This paper takes the distance between service demand strength and service-supplied strength as the service vacancy degree. The higher the value of SVD is; the longer the distance from the clients' service demands to the PMC's service supplying would be. Positive SVD values imply services provided by the company might be insufficient; negative SVD values imply the service company provides more services than clients' necessaries.

Taking the service vacancy map from a case study as an example, Figure 6 shows the service vacancy of the PMC. The service vacancies exist in the red area such as area(B2, 1) and area(B2, 5). The darker the red is, the bigger the service gap would be. Therefore, managers can develop new services for the darker red areas, e.g. area(B2,1), area(B2,2), area(B2,3) and area(B3,4), for filling in the investigated service vacancies.

New Service Design

After the service vacancy is determined, the new service, being not served by the PMC, needs to be designed for delivering. According to the service development architecture, new services' contexts can be schemed referred to the service structure of the service blueprint. Therefore, this paper adopts the axiomatic design process for designing a new service.

Figure 7 shows the mapping relations between each domain of axiomatic design and action layer of service blueprint. The customer domain integrates the customer needs (CNs) which are the service vacancies in this study. The functional domain provides function requirements (FRs) to meet each CNs, where the FRs are treated as new services. The physical domain is the set of design parameters (DPs) which can provide FRs in functional domain. In this paper, DPs are taken as the activities to deliver services of the onstage contact employee and backstage contact employee layers within the service blueprint. The last process domain is the aggregation of process variables (PVs) for fulfilling each DP. This study treats PVs as head office support processes in the bottom layer of the service blueprint. Accordingly, by

using zigzag decomposition method of axiomatic design process, elements within axiomatic design process and service blueprint can finally be designed to match the requirements of service vacancies.
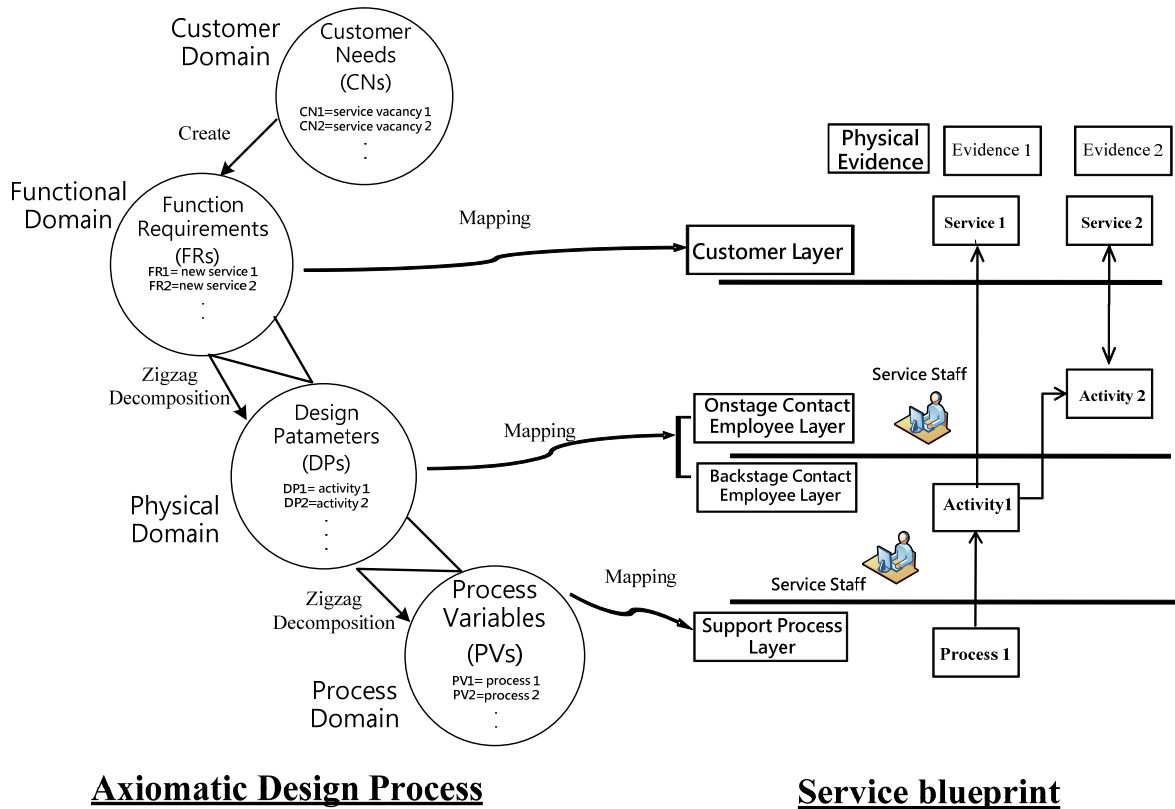

Figure 7: Mapping between Service Design Process & Service Blueprint

Summarily, NSDM provides a concept process including four steps, namely, (1) service demand map creation, (2) service supplying map creation, (3) service vacancy analysis and (4) new service design, to develop new services. Using NSDM, managers can discover service vacancies with visualized tools and also design new services systematically.

CONCLUSIONS

This paper claims not only enhancing the quality of existing services, but also filling in the service vacancy is the way to eliminate the service gap between consumers' expectation and property management companies' management perception. Accordingly, a New Service Development Model (NSDM) is addressed for property management companies so that managers can discover the vital service vacancy and design the necessary new service further to decrease the service gap.

NSDM was developed based on the Service Development Architecture proposed by this study. The service development architecture is the composition of the "service map" and the "service context". The service map is a graphic tool to reveal the positions of service companies' products and consumers' service demands. The service context is the blueprint, depicting the service delivery activities, of the service products existing in the service map.

Therefore, the service development architecture brings a reference model for developing new services, and NSDM is now a developing model from the idea.

In NSDM, by overlapping the service providing map and the service demand map, both derived from service map, the service vacancy can be determined according to the distance from the consumers' expectations to the service company's perception; using axiomatic design methodology and service blueprint concept, the new service context can designed to match consumers' needs. That is, using NSDM, different service companies will discover different new necessary services to fill in their variant service vacancies.

However, service vacancy discovering and service context design are not sufficient for new property management service development. Service pricing would be the next primary issue after the new service discovered. For a property management company, different service delivery methods would cause different service pricing strategies. For example, in Taiwan, due to limitation of business regulations, a new service, such as rent service and safety assurance, may be delivered by outsourcing as the property management company has no licenses or government's permissions. The service context will vary with delivery methods, and so does service pricing. For this reason, the pricing component is the future work to improve NSDM.

REFERENCES

Anderson, V. (2008) View from the top: executive perceptions of the value of learning. Strategic HR Reviews, 7(4), 11-16.

Parasuraman, A., Zeithaml A. V. and Berry L. L. (1985) A Conceptual Model of Service Quality and Its Implications for Future Research. The Journal of Marketing, 49(4), 41-50.

Ling, F. Y. Y., Chong, C. L. K. (2005) Design-and-build contractors' service quality in public projects in Singapore. Building and Environment, 40(6), 815-823.

Siu, Gladys K. W., Bridge A. and Skitmore, M. (2001) Assessing the service quality of building maintenance providers: mechanical and engineering services. Construction Management and Economics, 19(7), 719-726.

Hoxley, M. (2000) Measuring UK construction professional service quality: the what, how, when and who. International Journal of Quality & Reliability Management, 17(4), 577-526.

Shostack, G. Lynne (1984) Designing Services that Deliver. Harvard Business Review, 62(1), 133-139.

Bullinger, H.J., Fahnrich, K.P. and Meiren, T. (2003) Service Engineering – Methodical Development of New Service Products. International Journal of Production Economics, 85, 275-287.

Suh, N.P. (2001). Axiomatic Design: Advances and Applications, Oxford University Press.

Kingman-Brundage, J. (1989) The ABCs of Service System Blueprinting. European Journal of Marketing, 18(4), 36-44.