

Measuring the core competencies of service businesses: A resource-based view

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Abstract—Recently, more and more organizations attempt to provide service businesses to increase their customer satisfaction, organizational profit, and market share. Despite service businesses have contributed to the economic growth and employment in many countries, their productivity growth is still stagnating. In the resource-based view (RBV), the resources and capabilities of an organization are seen as the leverage for developing the core competencies, which are the key to create and sustain its competitive advantage. To quote an old sage: “No measurement, no management.” Measuring the core competencies of service businesses is vital to the competitive advantages of organizations around the world. Based on the RBV, this paper aims at proposing a model to measure and improve the core competencies of service businesses, with various indexes of the resources and capabilities. The model encompasses the recently proposed Service Innovation Capability Maturity Model (SICMM™) and will be illustrated through case studies. Finally, recommendation for practice will be presented and discussed.

Keywords—service businesses measurement model; resource-based view; core competencies; resources and capabilities

I. INTRODUCTION

As today’s market is becoming more customer-focused, globalized, and rapidly-changing, organizations are facing a more competitive environment [1][2][3]. In this environment, how an organization develops and sustains its competitive advantage is a fundamental question for both academia and industry [4]. With the advent of Service Dominant Logic (SDL) [5], business scholars and practitioners begin to be aware that the competitive advantage of an organization may be enhanced via service business activities [6]. In view of SDL, more and more organizations aim at raising their customer satisfaction, business profit, and market share via providing better services [7]. However, the stagnating economic growth of service businesses today still makes it harder for an organization to enhance its competitive advantage through services [8].

The search for the competitive advantages of organizations has led to the development of the resource-based view (RBV) of organizations, which provides an answer to explain performance differences among organizations [9][10]. The RBV was firstly derived from the pioneering work in [11]. However, it has become more

commonly associated with the work of [9][10][12][13][14]. From the RBV, the competitive advantage of an organization can be derived from the core competencies, which are formed by the leverage of its valuable, rare, costly-to-imitate and nonsubstitutable resources and capabilities [15]. In order to compete in today’s Service Economy Age, it is important for an organization to identify and utilize the strategic resources and capabilities, so as to develop the core competencies for its service businesses.

To quote an old sage: “No measurement, no management.” An organization should measure the core competencies of its service business first, so that a more effective management and improvement can be performed over them. In academia or industry, however, there is a lack of comprehensive measurement model for the core competencies of service businesses. Hence, this paper aims at developing a model for measuring and improving the core competencies of service businesses. The model includes comprehensive measures of the resources and capabilities related to service businesses. Two case studies are adopted to illustrate how the proposed model can be employed to assess the core competencies.

The remaining of this paper is organized as follows: Section II reviews the related work; Section III presents the research methodology of this paper; Section IV explains the proposed model with two case studies; Section V presents the conclusions.

II. RELATED WORK

A. What are Service Businesses?

Service businesses are organizations that provide services to customer for value creation purposes. They range from technology- and skills-intensive service to low-technology and low-skilled service businesses [16]. Based on [17], we define service as a deed, a process, or a work performed by its providers together with a customer in order to create desired experience for the customer. Such an experience is time-perishable, intangible, and heterogeneous, and is co-created and consumed simultaneously by the customer. In addition, the content of service can be experiences, information, knowledge or skills, i.e., most of the values provided by services are not from the possession of physical products [18]. Unlike the product businesses, the provision

of physical products is a facilitating activity in service businesses.

Many studies into service also seek to differentiate them from product. Compared with product, [19] concluded the nine differences for service. Namely, 1) customers do not obtain the ownership of service; 2) service is ephemeral and cannot be inventoried; 3) intangible elements dominate the value creation of service; 4) service has greater involvement of customers in experience creation; 5) people may form part of experiences in service; 6) service has greater variability in its operational inputs and outputs; 7) many services are difficult for customers to evaluate; 8) time factors, such as waiting time, may be key to service value as well; 9) some services also can be delivered via electronic channels. Moreover, knowledge-based services have additional characteristics, such as credence properties, high customization, complexity, risk, uncertainty, and high value added [20]. Accordingly, the core competencies for service businesses are quite different from those for product businesses, and should be specifically identified for an organization.

B. The Competitive Advantage of Service Businesses

By definition, the competitive advantage occurs when an organization holds a unique position that allows it to outperform its competitors [21]. Based on [22], we categorize the competitive consequences into the five types: **1) long-term competitive advantage, 2) mid-term competitive advantage, 3) short-term competitive advantage, 4) competitive parity, and 5) competitive disadvantage.**

In [23], the competitive advantage of service businesses can be measured by six dimensions: **1) competitiveness** (e.g. relative market share and position, sales growth, and measures of customer base), **2) financial performance** (e.g. profitability, liquidity, capital structure, and market ratios), **3) quality of service** (e.g. reliability, responsiveness, aesthetics/appearance, cleanliness/tidiness, comfort, friendliness, communication, courtesy, competence, access, availability, and security), **4) flexibility** (e.g. volume flexibility, delivery flexibility, and specification flexibility), **5) resource utilization** (e.g. productivity, and efficiency), and **6) innovation** (e.g. performance of the innovation process, and performance of individual innovators). The former two dimensions measure the results of competitive performance; while the remaining dimensions measure the determinants of competitive success. Subsequently, the resources and capabilities related to service businesses are identified based on these six performance dimensions.

C. The Resources Related to Service Businesses

Following [24], the value of a resource refers to its potential to create the competitive advantage to an organization or the value to a customer. In [25], the seven key resources (financial, physical, legal, human, relational, organizational, and informational resources) were adopted to develop core competencies for improving service competition. Besides, [26] also argued that technological resources of an organization are also vital to service

businesses. Therefore, we adapt these eight key resources of an organization for this study and the discussion is as follows.

1) **Financial resources** such as the current and potential cash resources of an organization, access to financial markets, cost of capital, etc. [24].

2) **Physical resources** such as the physical raw materials, buildings, equipments, other facilities, etc. [24].

3) **Legal resources** such as the patents, trademarks, copyrights, licenses, trade secrets, etc. [24].

4) **Human resources** such as the knowledge and skills of employees, employee relations, etc. [24].

5) **Relational resources** such as the public images, social relations with customers, partners, competitors, unions, nonprofit organizations and governments, etc. [24] [27].

6) **Organizational resources** such as the organizational policy, structure, culture, routines, etc. [24][27].

7) **Informational resources** such as the information and knowledge about the service businesses and stakeholders of an organization, and external environments, etc. [24][28].

8) **Technological resources** such as the stock of technologies, which include the information technologies (IT) and nonIT technologies within an organization [10][29].

D. The Capabilities Related to Service Businesses

Following [22], we define the capabilities as the capacities (and abilities) to utilize the resources of an organization for carrying out its service businesses. In addition to acquiring the potential resources, the capabilities are also the key to transferring these resources into the performance of service businesses. Many researchers have introduced different ways to classify the capabilities of service businesses. Based on the work of [30], we categorize the capabilities of service businesses into three types, namely, the service mainstream capabilities, dynamic capabilities and supporting capabilities. The associated practices for each capability are depicted as follows according to Deming's Plan-Do-Check-Act cycle.

1) **Service mainstream capabilities:** The Service mainstream capabilities create, deliver and maintain customer's service experience. By integrating the Value Chain [31] and the Service Profit Chain [32], we propose the six service mainstream capabilities as follows:

a) Service diffusion capability[31]

- Plan for service diffusion.
- Acquaint customers and other stakeholders (e.g. partners and employees) with service packages.
- Induce customers to purchase service packages.
- Facilitate customers' purchasing.
- Check the performance of service diffusion.
- Improve the performance of service diffusion.

b) Service order processing capability[33][34]

- Plan for service order processing.
- Facilitate customers' ordering.

- Negotiate with customers in establishing, bundling, and maintaining service orders and service level agreements (SLA).
- Identify and connect suitable service providers to offer services.
- Support service order billing and invoicing.
- Check the performance of service order processing.
- Improve the performance of service order processing.

c) ***Service inbound logistics capability [31]***

- Plan for service inbound logistics.
- Identify related stakeholders (e.g. partners and employees) and acquire their inputs for delivering service packages.
- Integrate the related inputs for delivering service packages.
- Check the performance of service inbound logistics.
- Improve the performance of service inbound logistics.

d) ***Service delivery and experience generation capability [32][35][36]***

- Plan for service delivery and experience generation.
- Create and maintain facilitating conditions for service delivery and experience generation.
- Delivery service packages to meet the value proposition to customers.
- Create customized experience for each customer in accordance with the SLA.
- Check the performance of service delivery and experience generation.
- Improve the performance of service delivery and experience generation.

e) ***Service continuance capability [31][37]***

- Plan for service continuance.
- Collect and analyze the feedback from the served customers.
- Induce the served customers to repurchase.
- Develop procedure and policy for service return and recovery.
- Check the performance of service continuance.
- Improve the performance of service continuance.

f) ***Service maintenance capability [35][36][37]***

- Plan for service maintenance.
- Analyze the events and incidents from existing service delivery.
- Develop solutions and preventions for the events and incidents.
- Fix and enhance the available services.
- Check the performance of service maintenance.
- Improve the performance of service maintenance.

2) ***Dynamic capabilities:*** According to [27], the dynamic capabilities renew the competencies to achieve

congruence with the changing business environment. The four dynamic capabilities are identified as follows:

a) ***New service development capability [7]***

- Plan for new service development.
- Identify the requirements of a new service.
- Transform service requirements into service concepts and value propositions.
- Design the new service.
- Develop service components required by the new service, and perform tests on each of them to ensure quality.
- Assemble all service components into the new service, and implement integration tests and acceptance tests.
- Transfer the new service, which have been integrated and tested, into the available service system for formal operation.
- Measure and evaluate the new service.
- Check the performance of new service development.
- Improve the performance of new service development.

b) ***Innovation capability[7]***

- Plan for innovation.
- Collect and analyze important data to find the niches where innovation efforts should be focused on.
- Generate, evaluate and select ideas for innovation, and develop potential solutions.
- Design and execute a series of pilot experiments to test the solutions, and select the most appropriate solution.
- Train the associated stakeholders, deploy the selected solution for formal operation, and monitor its performance.
- Foster learning from experience and facilitate knowledge sharing in order to induce other innovations.
- Check the performance of innovation.
- Improve the performance of innovation.

c) ***Organizational learning capability[38]***

- Plan for organizational learning.
- Establish and nurture the culture of organizational learning.
- Facilitate organizational learning from internal and external environments.
- Transform service business via organizational learning.
- Check the performance of organizational learning.
- Improve the performance of organizational learning.

d) ***Innovation & change management capability[39]***

- Plan for innovation and change management.

- Create and maintain the readiness of innovation and change.
- Implement the protection, management and leverage of innovation results.
- Empower stakeholders to accept and embrace innovations and changes in their current business environment.
- Check the performance of innovation and change management.
- Improve the performance of innovation and change management.

3) **Supporting capabilities:** According to [31], the supporting capabilities assist the above two types of capability to perform in more efficient or effective ways. We categorize the supporting capabilities into three groups as follows.

3.1) *Strategic supporting capabilities:*

a) *Strategy development capability[37]*

- Plan for strategy development.
- Segment the service market.
- Target the market segments.
- Develop the strategies for these segments.
- Check the performance of strategy development.
- Improve the performance of strategy development.

b) *Service portfolio management capability[37]*

- Plan for service portfolio management.
- List inventory of services and ensure business cases and validate portfolio data.
- Maximize the portfolio value, align, prioritize and balance supply and demand.
- Finalize the proposed portfolio and authorize services and resources.
- Communicate decisions, allocate resources and charter services.
- Check the performance of service portfolio management.
- Improve the performance of service portfolio management.

c) *Public relationship management capability[40]*

- Plan for public relationship management.
- Develop and implement public relationship strategies.
- Create and maintain public images.
- Create, enhance and maintain relationships with the public, governments and other nonprofit organizations.
- Identify, resolve and prevent potential crisis situations.
- Identify the potential targets for external media and communication, and develop and select appropriate solutions for the targets.
- Collate and analyze media and communication coverage.

- Check the performance of public relationship management.
- Improve the performance of public relationship management.

d) *Customer relationship management capability[41]*

- Plan for customer relationship management.
- Acquire new customers and create relationship.
- Retain old customers and maintain relationship.
- Exploit old customers and enhance relationship.
- Check the performance of customer relationship management.
- Improve the performance of customer relationship management.

e) *Partner relationship management capability[42]*

- Plan for partner relationship management.
- Explore, identify, and select potential partners for relationships building.
- Establish relationship values with strategic partners.
- Maintain and enhance the relationships with strategic partners.
- Check the performance of partner relationship management.
- Improve the performance of partner relationship management.

3.2) *Organizational supporting capabilities:*

a) *Financial and accounting management capability[35][37]*

- Plan for financial and accounting management.
- Establish financial policy.
- Assist in financial planning and budgeting.
- Provide financial valuation.
- Develop, select and maintain financial investment portfolio.
- Manage financial risks and provide related hedging solutions.
- Identify and acquire financial resources.
- Utilize and manage available financial resources.
- Perform bookkeeping, journal entries, accounting reporting.
- Implement internal auditing in finance and accounting.
- Generate financial and accounting information for decision-making.
- Check the performance of financial and accounting management.
- Improve the performance of financial and accounting management.

b) *Organizational resource management capability[43]*

- Plan for organizational resource management.
- Identify and acquire organizational resources.
- Utilize and manage available organizational resources.

- Measure, evaluate and report the performance of utilizing specific organizational resources.
 - Check the performance of organizational resource management.
 - Improve the performance of organizational resource management.
- c) **Legal management capability[43]**
- Plan for legal management.
 - Identify and acquire legal resources.
 - Utilize and manage available legal resources.
 - Measure, evaluate and report the performance of utilizing specific legal resources.
 - Check the performance of legal management.
 - Improve the performance of legal management.
- d) **Human resource management capability[44]**
- Plan for human resource management.
 - Recruit and hire human resources.
 - Train and coach human resources.
 - Provide personnel performance evaluation and management.
 - Establish personnel policy.
 - Establish a suitable reward system.
 - Provide team building programs.
 - Identify the targets for internal media and communication, and develop and select appropriate solutions for the targets.
 - Create employee relationships, and develop solutions to enhance and maintain employee relationships, e.g., internal marketing, reward system, and etc.
 - Cultivate leadership of human resources.
 - Effectively lever available human resources.
 - Check the performance of human resource management.
 - Improve the performance of human resource management.
- e) **Process management capability[36]**
- Plan for process management.
 - Define the processes and the input-process-output (IPO) details.
 - Integrate and streamline the processes.
 - Measure and improve the processes.
 - Check the performance of process management.
 - Improve the performance of process management.
- f) **Project management capability[36]**
- Plan for project management.
 - Plan for project execution.
 - Acquire needed resources for the project.
 - Measure, monitor and control the projects.
 - Integrate with collaboration management process.
 - Check the performance of project management.
 - Improve the performance of project management.
- g) **Collaboration management capability[35][36]**
- Plan for collaboration management.
 - Identify potential internal and external partners for collaboration.
 - Establish agreements with partners for collaboration.
 - Measure, monitor and control the collaboration.
 - Check the performance of collaboration management.
 - Improve the performance of collaboration management.
- h) **Reporting and presentation capability[37]**
- Plan for reporting and presentation.
 - Identify strategic information of service business needed to be reported and presented.
 - Develop appropriate service reports and presentations.
 - Validate and release the results of service reports and presentations.
 - Check the performance of reporting and presentation.
 - Improve the performance of reporting and presentation.
- i) **Quality management capability[36]**
- Plan for quality management.
 - Define quality targets and metrics.
 - Implement the metrics and evaluate service quality.
 - Identify the quality issues and implement improvements.
 - Check the performance of quality management.
 - Improve the performance of quality management.
- j) **Requirement management capability[36][37]**
- Plan for requirement management.
 - Understand service requirements, eliminate the requirement gaps and obtain customers' commitment to the requirements.
 - Manage and trace requirement changes.
 - Assure consistencies between outcomes and requirements.
 - Check the performance of requirement management.
 - Improve the performance of requirement management.
- k) **Risk management capability[36]**
- Plan for risk management.
 - Identify the potential risk from internal and external environments.
 - Define the parameters and risk sources of service business.
 - Measure, analyze and mitigate the risk of service business.
 - Check the performance of risk management.
 - Improve the performance of risk management.
- l) **Capacity and availability management capability[36]**

- Plan for capacity and availability management.
- Define the targets and measures of capacity and availability.
- Measure, analyze, monitor, and report the capacity and availability data.
- Develop suitable solutions to improve the capacity and availability.
- Check the performance of capacity and availability management.
- Improve the performance of capacity and availability management.

m) Measurement and analysis capability[36]

- Plan for measurement and analysis.
- Define the measurement objectives based on organizational objectives.
- Select measurement and analytic techniques.
- Measure, analyze, and store the measurement data.
- Communicate the measurement and analysis results with the stakeholders.
- Check the performance of measurement and analysis.
- Improve the performance of measurement and analysis.

3.3) Technological supporting capabilities:

a) Physical resource management capability[43]

- Plan for physical resource management.
- Identify and acquire physical resources.
- Utilize and manage available physical resources.
- Measure, evaluate and report the performance of utilizing specific physical resources.
- Check the performance of physical resource management.
- Improve the performance of physical resource management.

b) Environmental protection capability[45]

- Plan for environmental protection.
- Diffuse the environmental protection concepts to the stakeholders.
- Identify the environmental opportunities and problems in service businesses.
- Develop the environmental eco-safe solutions.
- Check the performance of environmental protection.
- Improve the performance of environmental protection.

c) Technological resource management capability[43]

- Plan for technological resource management.
- Identify and acquire technological resources.
- Utilize and manage available technological resources.
- Measure, evaluate and report the performance of utilizing specific technological resources.
- Check the performance of technological resource management.

- Improve the performance of technological resource management.

d) Security management capability[37][46]

- Plan for security management.
- Define and identify the vulnerable targets in service business.
- Measure and analyze the vulnerable targets.
- Develop security actions to protect the targets.
- Check the performance of security management.
- Improve the performance of security management.

e) Information and knowledge management capability[47][48]

- Plan for information and knowledge management.
- Identify information and knowledge required by and available from stakeholders and external environments.
- Create, retrieve and store information and knowledge from stakeholders and external environments.
- Utilize, disseminate, and manage the information and knowledge for value creation.
- Measure, evaluate and report the performance of utilizing and disseminating specific information and knowledge.
- Check the performance of information and knowledge management.
- Improve the performance of information and knowledge management.

E. The Core Competencies of Service Businesses

The core competencies are defined as a cluster of the potential resources and capabilities enabling an organization to achieve the competitive advantage of its service businesses [22]. There are four criteria for assessing these resources and capabilities: 1) “**Is it valuable?**” means that the possessed capability or resource allow an organization to neutralize threats or exploit opportunities, 2) “**Is it rare?**” means that the possessed capability or resource cannot be obtained easily by many other competitors, 3) “**Is it costly to imitate?**” means that other organizations must obtain the possessed capability or resource at a much higher cost, 4) “**Is it nonsubstitutable?**” means that there is no potential equivalent substitute to the possessed capability or resource [22]. The mappings between the four criteria and competitive consequences are shown in Table I.

III. METHODOLOGY

Figure 1 depicts the relationships between the core competencies and competitive advantages in the Input-Process-Output (IPO) model. The resources of an organization are taken as the inputs and processed by the capabilities to generate the performance of service businesses, and the available resources and capabilities are regarded as the core competencies of an organization, which can produce better performance for service businesses.

TABLE I. THE MAPPINGS BETWEEN THE FOUR CRITERIA AND COMPETITIVE CONSEQUENCES

Is this possessed capability or resource _____?				Competitive consequences
<u>Valuable?</u>	<u>Rare?</u>	<u>Costly to imitate?</u>	<u>Non-substitutable?</u>	
Yes	Yes	Yes	Yes	Long-term competitive advantage
Yes	Yes	Yes	No	Mid-term competitive advantage
Yes	Yes	No	Yes/No	Short-term competitive advantage
Yes	No	Yes/No	Yes/No	Competitive parity
No	Yes/No	Yes/No	Yes/No	Competitive disadvantage

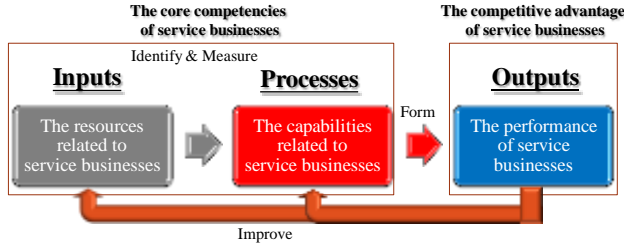


Figure 1. The Conceptual Framework of This Paper.

The resources and capabilities, and their associated practices related to the performance of service businesses, have been identified in the Section II above. The identification of the core competencies (in terms of the available resources and capabilities) and their associations with the competitive consequences can also be derived according to Table I. In the following section, we use two case studies from two different industries to illustrate the proposed model; one is a service provider of financial planning and the other is a service provider of information technology. By assessing the checklist in the Appendix, we have interviewed with the stakeholders of each firm and collected the data for the model. According to the results derived from the model, the suggestions for service improvement are then proposed to each firm.

IV. CASE STUDIES

The company background, core competencies, and related discussions and suggestions in each case are described as follows.

A. Case Study of Firm A

Firm A is a service provider of financial planning in Taiwan, and was established in 1979. It provides the services mainly including tax and retirement planning for individuals and firms, and staff retention planning for firms. Today, it has 8 million New Taiwan Dollar (NT\$) in capital, nearly 200 employees, and about NT\$500 million in annual turnover.

With Firm A's current core competencies, its long-term competitive advantages are still insufficient to compete with competitors. Fortunately, Firm A owns the mid-term and short-term competitive advantages of the core competencies:

- the human, relational, organizational, informational, and technological resources (in the dimension of Resources)
- the capabilities of service delivery and experience generation, service continuance, and service maintenance (in the dimension of Service Mainstream Capabilities)
- the capabilities of human resource management, customer relationship management, requirement management, quality management, public relationship management, information and knowledge management, process management, organizational resource management, legal management, capacity and availability management, risk management, and environmental protection (in the dimension of Supporting Capabilities)

As a whole, Firm A outperforms mainly in its service experience delivery, after-sales services, relationship management, human resource management, process management, and information management. In order to survive or have better performance in the long term, Firm A needs to seek some potential advantages (e.g. introducing new technologies or managerial strategies) to upgrade the current core competencies into valuable, rare, costly-to-imitate and nonsubstitutable ones. Besides, the lack of the dynamic capabilities and strategic supporting capabilities is also a problem of creating long-term competitive advantages, thus developing these capabilities is vital for Firm A.

B. Case Study of Firm B

Firm B is a service provider of information technology in Taiwan, and was established in 2009. It provides the services mainly including IT solutions and information processing. It has NT\$ 300 thousand in capital and 6 employees, and has been incubated by the Innovation and Incubation Center (IIC) of National Chengchi University (NCCU) in Taiwan.

The current core competencies are concluded as follows after conducting an interview with Firm B:

- the human, relational, and organizational resources (in the dimension of Resources)
- the service continuance capability (in the dimension of Service Mainstream Capabilities)
- the organizational learning capability (in the dimension of Dynamic Capabilities)
- the capabilities of human resource management, customer relationship management, requirement

management, and quality management (in the dimension of Supporting Capabilities)

As a whole, Firm B outperforms mainly in its after-sales services, organizational learning, relationship management, human resource management, quality management, and organizational culture. According to the assessment result derived from Table I, Firm B owns nothing but the short-term competitive advantages for its service businesses. This result may be attributed to that Firm B is a newly-established miniature firm, and has too few resources and capabilities to create the long-term competitive advantages. In order to quickly overcome this disadvantage, Firm B could obtain the temporary resources and capabilities by allying with other firms, utilizing its current core competencies (e.g. the relational resources and relationship management capability) to facilitate the alliance.

V. CONCLUSIONS

In today's Service Economy Age, an organization needs to develop, manage, and maintain its core competencies to sustain its service businesses. Knowing the way to effectively measure the core competencies is crucial to the success of an organization. According to the RBV, the resources and capabilities of an organization can be the leverage for developing the core competencies. This study proposes a model consists of the eight types of resource and three types of capability in order to measure the core competencies of service businesses. Furthermore, two case studies are analyzed to validate the practicability of the model. The results show that the model can be an effective supporting tool in identifying and improving the core competencies for service businesses.

The direction of future research is to apply this model to and collect the benchmarking data from various types of service organizations in order to conduct more in-depth studies. This will not only improve and enhance the model, but also provide more insights to scholars and practitioners. Moreover, future work could also focus on the impact of the core competencies on the associated performance of service businesses.

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REFERENCES

- [1] S.A. Broen, and P.W. Coopers, *Customer Relationship Management: A Strategic Imperative in the World of e-Business*, 1st ed., New York: John Wiley & Sons, Inc., 1999.
- [2] C.J. Thompson, and Z. Arsel, "The Starbucks brandscape and consumers' (anticorporate) experiences of globalization," *The Journal of Consumer Research*, vol. 31, Dec. 2004, pp. 631-642.
- [3] S. Rasoul, S. Hamid, and M. Morteza, "Investigation of leather industry competitiveness in Iran", *Journal of Fashion Marketing and Management*, vol. 13, 2009, pp.343-357, doi: 10.1108/13612020910974483.
- [4] R.P. Rumelt, D. Schendel, and D.J. Teece, "Fundamental issue in strategy," Harvard Business School Press, Cambridge, M.A., 1994.
- [5] S.L. Vargo, and R.F. Lusch, "Evolving to a new dominant logic for marketing," *Journal of Marketing*, vol. 68, 2004, pp. 1-17.
- [6] U. Karmarkar, "Will you survive the services revolution?," *Harvard Business Review*, vol. 82, Jun. 2004, pp. 100-108.
- [7] E.Y. Li, L.W. Chen, and C.L. Shen, "A framework for the service innovation capability maturity model," *Joint Conference of The 4th International Conference of Operations and Supply Chain Management and The 15th Asia Pacific Decision Sciences Institute (ICOSCM & APDSI 2010)*, Hong Kong • Shunde • Guangzhou, China, Jul. 25–31, 2010.
- [8] H.L.M. Kox, "The contribution of business services to aggregate productivity growth," *Industrial Organization*, EconWPA, 2004.
- [9] B. Wernerfelt, "a resource-based view of the firm," *Strategic Management Journal*, vol. 5, Apr.-Jun. 1984, pp. 171-180, doi: 10.1002/smj.4250050207.
- [10] J. Barney, "Firm resources and sustained competitive advantage," *Journal of Management*, vol. 17, Mar. 1991, pp. 99-120, doi: 10.1177/014920639101700108.
- [11] E. Penrose, *The Theory Of The Growth Of The Firm*, Oxford: Oxford University Press, 1959.
- [12] C.K. Prahalad, and G. Hamel, "The core competence of the organization," *Harvard Business Review*, vol. 68, May/Jun. 1990, pp. 79-91.
- [13] R.M. Grant, "The resource-based theory of competitive advantage: implications for strategy formulation," *California Management Review*, vol. 33, Spr. 1991, pp. 114-135.
- [14] M. Peteraf, "The cornerstones of competitive advantage: A resource-based view," *Strategic Management Journal*, vol. 14, Mar. 1993, pp. 179-191, doi: 10.1002/smj.4250140303.
- [15] V. Theoharakis, L. Satjos, and G.J. Hooley, "The strategic role of relational capabilities in the business-to-business service profit chain," *Industrial Marketing Management*, vol. 38, Dec. 2009, pp. 914-924, doi: 10.1016/j.indmarman.2009.04.006.
- [16] F.W. Suijker, A.E. Kuypers, M.F. van Dijk, H.L.M. Kox, and H.P. van der Wiel, "De Commerciële Dienstverlening: een heterogene sector met gunstig groeiperspectief. Den Haag: Centraal Planbureau, report no. 17.
- [17] J.A. Fitzsimmons, and M.j. Fitzsimmons, *Service Management: Operations, Strategy, Information Technology*, 6th ed., New York: McGraw-Hill/Irwin, 2008.
- [18] Australian services network/department of industry, science and resources - ASN & DISR, "The Australian services sector review 2000", 2000.
- [19] C.H. Lovelock, and J. Wirtz, *Services Marketing: People, Technology, Strategy*, 5th ed., Prentice-Hall, 2004.
- [20] R.W. Jackson, and P.D. Cooper, "Unique aspects of marketing industrial services," *Industrial Marketing Management*, vol. 17, pp. 111-118, 1988.
- [21] C.W., Hofer, and D. Schendel, "Strategy formulation: Analytical concepts," West Publishing. St.Paul, 1978.
- [22] M.A. Hitt, D.R. Ireland, and R.E. Hoskisson, *The Internal Environment: Resources, Capabilities, and Core Competencies in Strategic Management - Competitiveness and Globalization*, South-Western College Publishing, 1999.
- [23] L. Fitzgerald, R. Johnston, T.J. Brignall, R. Silvestro, and C. Voss, *Performance Measurement in Service Business*, 2nd ed., London: The Chartered Institute of Management Accountants, 1991.
- [24] S.D. Hunt, *A General Theory of Competition*, CA: Sage, Thousands Oaks, 2000.
- [25] S.H. Seggie, and D.A. Griffith, "The resource matching foundations of competitive advantage: An alternative perspective on the globalization of service firms," *International Marketing Review*, vol. 25, 2008, pp. 262-275, doi: 10.1108/02651330810877207.
- [26] M. Ajar, "Toward a framework for technology in service encounters," *Journal of Managerial Issues*, vol. 4 Dec. 1995.

- [27] D.J. Teece, G. Pisano, and A. Shuen, "Dynamic capabilities and strategic management," *Strategic Management Journal*, vol. 18, Aug. 1997, pp. 509-533, doi: 10.1002/(SICI)1097-0266.
- [28] R. Smith, "Harnessing competencies, capabilities and resources", *Research Technology Management*, vol. 51, Oct. 2008, pp. 47-53.
- [29] E.Y. Li, J.S. Chen, and Y.H. Huang, "A framework for investigating the impact of it capability and organizational capability on firm performance in the late industrializing context," *International Journal of Technology Management*, vol. 36, 2006, pp. 209-229.
- [30] D.J. Collis, "Research note: How valuable are organizational capabilities?," *Strategic Management Journal*, vol. 15, Winter 1994, pp. 143-152, doi: 10.1002/smj.4250150910.
- [31] M.E. Porter, *Competitive Advantage*, NY: Free Press, 1985.
- [32] J.L. Heskett, W.E. Sasser, and L.A. Schlesinger, *The Service Profit Chain*. New York: Free Press, 1997.
- [33] G. Chen, Q.Z. Kong, and P.Y. Benain, "SP-to-SP service ordering specification and its implementation, " *Proc. IEEE Network Operations and Management Symposium (NOMS 98)*, IEEE Press, Feb. 1998, pp. 80-89, doi: 10.1109/NOMS.1998.654844.
- [34] R. Niu, *Service Order Processing:Manual Instructions and Specifications*, SAP, 2007.
- [35] ISO/IEC, *BS ISO/IEC 20000 - information technology service management: A Pocket Guide*, Van Haren Publishing, 2006.
- [36] CMU/SEI CMMI Product Team, *Capability maturity model integration for services (CMMI-SVC) V1.2*. CMU/SEI-2009-TR-001, 2009.
- [37] OGC/TSO, *An introductory overview of ITIL V3: A high-level overview of ITIL*, itSMF Ltd, 2007.
- [38] C. Argyris, and D. Schon, *Organizational Learning: A theory of action perspective*, MA: Addison-Wesley, 1978.
- [39] M. Singh, and D. Waddell, *E-Business Innovation and Change Management*, IGI GLOBAL, 2004, doi: 10.4018/978-1-59140-138-4.
- [40] J. Blythe, *100 Great PR Ideas: From Leading Companies Around The World*, Cyan Communications, 2007.
- [41] M. Battora, and M. Battor, "The impact of customer relationship management capability on innovation and performance advantages: testing a mediated model," *Journal of Marketing Management*, vol. 26, Aug. 2010 , pp. 842-857, doi: 10.1080/02672570903498843.
- [42] D.T. Wilson, "An integrated model of buyer-seller relationships,"*Journal of the Academy of Marketing Science*, vol. 23, 1995, pp.335-345.
- [43] J. Morecroft, R. Sanchez, and A. Heene, *Systems Perspectives on Resources, Capabilities, and Management Processes (Advanced Series in Management)*, Pergamon, 2002
- [44] R.S. Schuler, and I.C. MacMillan, "Gaining competitive advantage through human resource management practices," *Human Resource Management*, vol. 23, 1984, pp. 241-255, doi: 10.1002/hrm.3930230304.
- [45] A.J. Zur, J. Evans, and K. Bridson, "Corporate social responsibility orientation and organisational performance within the retailing sector," *European Association for Education and Research in Commercial Distribution (EAERCD)*, Guilford, Surrey, UK., Jan. 2009.
- [46] Bridgefront, *HIPAA Security Standards & Implementation Specifications*.
- [47] C.W. Choo, *Information Management For The Intelligent Organization: The Art Of Scanning The Environment (Asis Monograph Series)*, Information Today, 2002.
- [48] V.P. Kochikar, *The Knowledge Management Maturity Model - A Staged Framework for Leveraging Knowledge*, unpublished manuscript, 2002.

Appendix. A checklist for identifying the strategic resources and capabilities of service businesses in an organization or a strategic business unit (SBU)

Resources	Not possessed	Is this possessed resource ?			
		Valuable?	Rare?	Costly to imitate?	Nonsubstituteable?
● Financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Physical resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Legal resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Human resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Relational resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Organizational resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Informational resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Technological resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Capabilities	Not possessed	Is this possessed capability ?			
		Valuable?	Rare?	Costly to imitate?	Nonsubstituteable?
1. <u>Service mainstream capabilities</u>					
● Service diffusion capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Service order processing capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Service inbound logistics capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Service delivery and experience generation capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Service continuance capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Service maintenance capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. <u>Dynamic capabilities</u>					
● New service development capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Innovation capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Organizational learning capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Innovation & change management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. <u>Supporting capabilities</u>					
3.1. <u>Strategic supporting capabilities</u>					
● Strategy development capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Service portfolio management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Public relationship management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Customer relationship management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Partner relationship management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2. <u>Organizational supporting capabilities</u>					
● Financial and accounting management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Organizational resource management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Legal management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Human resource management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Process management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Project management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Collaboration management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Reporting and presentation capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Quality management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Requirement management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Risk management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Capacity and availability management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Measurement and analysis capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3. <u>Technological supporting capabilities</u>					
● Physical resource management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Environmental protection capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Technological resource management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Security management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Information and knowledge management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>