

Empirical Study on the Application of Strategic Management Tools and Techniques in the Japanese Companies

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Abstract

Companies are under pressure to develop management strategies with a focus on intensifying global competition due to big changes in the business environment and the wave of globalization. Even though management strategy tools and techniques were developed over half a century ago in the academic field of business administration, little research has been found on how much these are used in Japanese companies. Furthermore, it is necessary to clarify how effective the management strategy tools and techniques actually are. This study examines the usage (usage quantity and rate) of 26 main strategic management tools and techniques used in a preceding study, with KAIZEN, ISO9001, BCP (Business continuity plan) which are thought to be spreading in Japanese companies in the manufacturing and retail industries. Because the managers' awareness (how much interest they have in the tools and awareness of their effectiveness) is considered to influence organisational performance, we decided to use the statistical method such as regression analysis. The results of the analysis show that there were tools and techniques that had a high to low usage rate and it is clear that there is a difference in the usage rate between industry (manufacturing industry and retail industry). Also, when using such tools and techniques, we could substantiate that they have a positive influence on organisational performance (financial performance and nonfinancial performance). Regarding managers' awareness, the more the companies are interested in tools and techniques and have awareness of their effectiveness, the higher the organisational performance. It is suggested that it is important for managers in Japanese companies, to be familiar with the tools and techniques and that they be used in a timely and appropriate manner.

Keywords: Strategic management tools and techniques, Strategic planning, Organisational performance

1. Introduction

The business environment of companies is rapidly changing. Especially with the spread of electronic commerce and the globalization of production, Japanese companies are pressured into formulating management strategy focusing on the increase of global competition. In addition, new technologies such as IoT, AI, and robots have been appearing one after another and so the development of new products and new markets utilizing these technologies has become important for companies.

Chandler (1962) was the first person to define strategy in the academic management field. He defined strategy as, "the determination of the basic, long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals". After nine years Andrews (1971) defined strategy as, "the pattern of objectives, purposes, or goals and the major policies and plans for achieving these goals, stated in such a way as to define what business the company is in or is to be in and the kind of company it is or is to be". We can understand that both Chandler and Andrews considered strategy to be what companies needed to do to achieve future goals. The most famous definition of corporate strategy in the field of modern corporate strategy is by Michael E. Porter from Harvard business school, who was also selected as the "World's No.1 Business Thinker" (The European Business Forum 2017) and it is, "deliberately choosing a different set of activities to deliver a unique mix of value" (Porter 1986). This way of thinking puts emphasis on the superiority and worth of their own company compared to other companies. Based on this, he devised Value chain analysis and Porter's 5 forces analysis. Also, Mintzberg (1987) thought it a necessity to consider not only future directions but also environmental changes due to the passing of time and defined strategy into 5 types 'Plan, Ploy, Pattern, Position, Perspective'. On the other hand, from the standpoint of the Resource Based View (RBV), Barney (1997) defined strategy as, "a pattern of resource allocation that enables firms to maintain or improve their performance". Thus, although many scholars have made various definitions of strategy, there is still no universal and unified definition (Mintzberg and Quinn 1996; Yap et al. 2012; Nickols 2016). It is said that to unify the definition of strategy is difficult but "achieving goals and objectives" is a common element of

many definitions. Therefore, in this paper, strategy is defined as, "the method necessary for a company to achieve objectives and goals in a changing environment".

According to Tse (2010), "strategic management means a broader term than strategy and is a process that includes top management's analysis of the environment in which the organisation operates prior to formulating a strategy, as well as the plan for implementation and control of the strategy". It has been over half a century since Chandler appeared, during this time, many strategic management tools and techniques have been developed (Gunn & Williams, 2007; Wagner & Paton, 2013). There are various opinions concerning the definitions of strategy tools and techniques, but if we follow the definition of Knott (2006), it could be said, "strategy tool is used to encompass the full range of concepts, ideas, techniques and approaches that structure or influence strategic thinking, decision-making and strategy implementation activity".

Will companies actually use these tools and techniques for management strategy decision-making? This paper analyzes the actual usage of management strategy tools in Japanese companies, the difference in usage rate among industry types and reveals the impact on the company performance, while being aware of the issues.

2. Literature Review

Strategic management tools and techniques are also called, "strategic (planning) tools and/or techniques", "management tools and/or techniques", "Business management tools and/or techniques", "strategic analysis tools and/or techniques" or "strategic toolkits". Even though there are some differences in these terms and contents, each researcher uses them accordingly to suit the research objective. Therefore, unified academic definitions, as with the definition of "strategy" still have not been established (from now it will be referred to as 'strategic management tools and techniques'). All terms have in common to offer tools and techniques which are useful for various decision-making by managers during the process of planning and implementing strategies.

From about the 1990s, studies on strategic management tools and techniques have been carried out. The first researchers in the field were Prescott & Grant (1988) (Qehaja et al. 2017). Using 11 dimensions, (time, costs, managerial skills, advantages, limitations, etc.) they assessed 21 available tools and techniques that managers used when formulating management strategy (Political and country risk analysis, BCG industry matrix, Critical success factors, Value-chain analysis, etc.) and publicized the results. Webster et al. (1989) assessed 30 tools and techniques which would be needed when making strategic management plans and evaluated if these were of practical use for strategic decision-making for managers and practitioners.

Rigby et al. (1993; 2015) who belong to a consulting firm, the Bain & Company, have been continuously investigating the use of management tools by executives in companies all over the world and have made public reports since 1993. By 2015, it had reached 13,000 respondents from more than 70 countries in North America, Europe, Asia, Africa, the Middle East and Latin America. (15th survey). This report identified that out of about 25 tools and techniques used all over the world, the most used tool was CRM (Customer Relationship Management), followed by Benchmarking and then Employee Engagement Surveys. And it shows (1) there are different ranks for each tool and technique in chronological order and (2) each region had different ranks (the most used tools and techniques were CRM and Benchmarking in the EMEA region, CRM (Customer Relationship Management) in the the North America region, Strategic Planning in the Latin America region and Big Data Analysis in the APAC region (Rigby & Bilodeau 2015).

After 2000, research has been carried out on the actual usage situation of strategic management tools and techniques in many countries including developing countries. Stonehouse & Pemberton (2002) revealed the most used tools in the manufacturing industries and medium and small businesses in the service industry in the UK were Business Financial Analysis, SWOT analysis, key competencies. Aldehayat & Anchor (2009) examined the situation of 14 strategic planning tools and techniques used in the financial, service and industrial companies in Jordan and found the most commonly used technique was financial analysis. Following that were PEST analysis, Porter's 5 force analysis, Analysis of key (critical) success factors, Core capability / competence analysis, SWOT analysis, etc. Kalkan & Bozkurt (2013) checked the usage of 24 strategic planning tools and techniques at companies in various sectors in Turkey, Antalya city. The results showed that strategic planning, HR (Human Resources) analysis, TQM, CRM and Financial analysis were used frequently. Nedelko et al. (2015)

checked the usage of 25 management tools at companies in Slovenia and Croatia. The most used tools, in descending order, in Slovenia, were outsourcing, benchmarking, Core Competencies, Knowledge Management, Total Quality Management but in Croatia they were Mission and Vision Statements, Benchmarking, Core Competencies, Customer Relationship Management, Customer Segmentation. Despite being almost similar, it shows that there are differences, especially among the most frequently used tools. Furthermore, Vaitkevičius (2007) examined how much Lithuanian managers use the 12 strategic management tools in business practice, which revealed the fact that many managers use SWOT analysis.

In addition to country-by-country studies, Global level studies, targeting many countries, were implemented by Tapinos (2005), O'Brien (2009), Tassabehji & Isherwood (2014), Rigby & Bilodeau (2015). Qehaja (2017) compared and analyzed these four studies, and found that SWOT analysis and Benchmarking were ranked high for the most used strategic management tools and techniques in three of the studies. For managers' strategic management, the tools and techniques used and the frequency of use, not only differs for each region (Rigby et al. 2015) but depends on the each country. Clark (1997) conducted a global comparison of the usage of 66 strategic management tools between the United Kingdom and New Zealand, identifying the differences between them and found out companies were mainly using 33 tools, which is half of the tools. In addition, Frost (2003) analyzed the usage of strategic tools in Australia, Singapore, Hong Kong, and Malaysia with reference to Clark's research (1997). Gurianova & Purmonen (2017) investigated the usage of strategic management tools and techniques for Finland and Russia's SMEs, and found out Benchmarking was the most used in Finland and Outsourcing was the most used in Russia and there were big differences in the usage rate. Vaitkevičius (2007) revealed the results of an investigation into the awareness and practical usage of management tools for managers in the manufacturing, retail, wholesale and service industries in Lithuania. Their tools and techniques were Mission, Strategic Goals, Vision, Strategic Alternatives, Management Structure, SWOT Analysis, Porter's 5 Forces Model, PEST analysis, Product Portfolio Matrix, DELFI Method, Management Style, and Scenario Model.

Furthermore, several important studies were conducted to clarify a clear relationship between strategic tools and management performance. This is important research from the perspective of adaptability from theory to practice (Rigby, 1994; Iseri Say et. al, 2006; Rigby, 2001; Afonina 2015; Efendioglu, et al. 2010). However, utilization of strategic management tools and techniques was not demonstrated to have a positive effect on organizational performance or financial performance in all studies.

Universal results, such as commonly used tools and techniques, could not be obtained due to the industry type, corporate culture, business environment, management style, targeted by researchers, differing from country to country (Qehaja et al. 2017). There is also the problem of it being difficult to make a simple comparison because the number of strategic management tools and techniques studied by researchers is different.

3. Hypotheses

Firstly, We will clarify what proportion of Japanese companies use strategic management tools and techniques. Next we will analyze the relationship between classification by industry and organizational performance empirically about usage of strategic management tools and techniques in Japanese company.

As most manufacturing industries of major corporations in Japan export their products abroad, small and medium-sized business are related to them through part manufacturing. In other words, most of the manufacturing industry have a lot of competitors because they have a competitive relationship with overseas companies and so it is considered highly necessary to formulate a clear strategy. On the other hand, as retail companies are especially dependent on the demand of the local community, most of them are unrelated to global competition and competitors are limited within the local area. For that reason, it could be said that that is why there are differences in the usage of strategic management tools and techniques between the manufacturing and retail industries, and in manufacturing, the usage quantity and frequency of use is higher. Furthermore, if tools and techniques are useful for formulating management strategies, it can be thought to have a positive impact on organizational performance. Therefore, we will clarify the relationship between the rate of usage and organizational performance. In addition, as the management policy of managers is important too, we would like to examine the strong interest in the tools and techniques of management strategy, the recognition of effectiveness and and influence on organizational performance. For the reasons mentioned above, we formulated

the hypotheses below.

- H1:** In Japanese companies, the usage rate of strategic management tools and techniques is different depending on the industry type. (In the manufacturing industries the usage rate is higher than in the retail industry and more tools are used.)
- H2:** In Japanese companies, if the company uses a higher quantity of tools, organisational performance is higher.
- H3:** When managers have a deep interest in management strategy tools, it has a positive influence on organization performance
- H4:** The more supervisors strongly recognize the effectiveness of management strategy tools, the higher the organisational performance.

4. Methodology

4-1. List of strategic management tools and techniques

In prior research, the number of strategic management tools and techniques as the subject of research is different depending on the researcher. In this research, we chose common tools and techniques and added tools KAIZEN, ISO9001 and BCP (Business Continuity Plan) which were assumed to be frequently used in Japan.

KAIZEN is a management tool which can be practiced by top management of a company on workers, and it is a Japanese term which means “constant improvement” or “continuous improvement” (Imai 1986; Imai 1997; Ohno et al 2009). In Japan, its use is expected to spread not only in manufacturing industries such as the Toyota motor company but to other industries. It is said to be one of the reasons for the success of Japanese management, focusing on products and quality of service (Womack, Jones & Roos 1990). In addition, ISO9001 is a standard which recognizes that a certain criteria for products and quality of service has been met and for which more than one million have been acquired worldwide. It seems to be prevalent because Japanese companies, exporting to western countries, have focused on that for a long time. Additionally, since The Great East Japan Earthquake in 2011, the necessity to prepare BCPs at Japanese companies has increased, and seminars have been held throughout Japan (Yamori & Asai, 2017). We selected that as Japan is prone to earthquakes and that is why it seems many companies are installing BCP.

In the end, 26 strategic management tools and techniques were selected. These were benchmarking, SWOT analysis, scenario analysis, market share analysis, PEST analysis, key (critical) success factors, Porter’s 5 forces, mission and vision statement, PPM (Product Portfolio Management), Ansoff’s matrix, VRIO analysis, strategy canvas, ISO9001, TQM (Total Quality Management), supply chain management, KAIZEN, employee satisfaction management, customer satisfaction analysis, marketing mix (4p), STP analysis, CRM (Customer Satisfaction Management), knowledge management, value chain management, financial analysis, balance scorecard, BCP.

4-2. Measurement of Organisational Performance

Organisational performance is defined as “a set of financial and nonfinancial indicators which offer information on the degree of achievement of objectives and results” by Lebars & Euske (2006). In this study, the following five items are used as an index of organisational performance. A self-recognized, five point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) will be used for each question and the total value will be used as the objective variable.

- (1) Financial indicator of organisational performance
 - income and expenditure for latest three years (tendency to be profitable)
 - profit margin on sales is higher than the industry average
- (2) Non-financial indicator of organization performance

- market share of the main products and services is higher than the industry average
- the frequency of the development of new products is higher than other companies in the same industry
- turnover rate of regular employees is lower than the industry average

4.3 Demographics of respondents

Regarding the attributes of the respondents (see Table 1), the main age group was 40s and 50s in manufacturing industries and retailing, and it turns out that this generation is a leader in formulating management strategy. Regarding job positions, in both the manufacturing and retail industries, within the managers, there were many positions higher than section manager but very few subsection managers. Also, most managers were male. As for the age of the companies, the majority of companies were founded over 50 years ago. There were few young companies founded under 10 years ago.

Table 1 . Demographics of respondents

Subjects	Description					
Industry type	Manufacturing	n=250				
	Retail	n=124				
Age	Manufacturing	21-29	30-39	40-49	50-59	60-70
		0.4%	2.9%	31.6%	52.6%	12.7%
	Retail	21-29	30-39	40-49	50-59	60-70
		0.9%	13.8%	26.7%	44.0%	14.7%
Job position of manager	Manufacturing	Subsection manager	Section manager	Department manager	Director or above	
		2.4%	34.0%	42.0%	20.8%	
	Retail	Subsection manager	Section manager	Department manager	Director or above	
		3.2%	27.4%	30.6%	38.7%	
Gender	Manufacturing	Male	Female			
		99.6%	0.4%			
	Retail	Male	Female			
		96.8%	3.2%			
Years after foundation	Manufacturing	1-9	10-19	20-29	30-49	50-
		2.8%	4.4%	7.2%	19.6%	66.8%
	Retail	1-9	10-19	20-29	30-49	50-
		4.8%	16.9%	14.5%	23.4%	54.9%

5. Results and Discussion

According to Table 2, compared by industry, generally, the usage rate of strategic management tools and techniques is higher in the manufacturing industry than in the retail industry. In the manufacturing industry, SWOT analysis (79.6%) has the highest rate, which is higher than retailing (61.3%). This is statistically significant at a 0.1% level. SWOT analysis was a method developed and introduced in the 1960s, identifying strengths, weaknesses, opportunities and threats in a 2x2 matrix (Learned, et al 1969). This can be analyzed simply, not only for the internal environment of companies but for the external environment of companies and the term is easy to understand. Based on this, managers can formulate appropriate strategies (Thompson, et al 2007; Balamuralikrishna 1995).

The next highest usage rate of tools and techniques for market analysis are Market share analysis and Customer satisfaction analysis, between the manufacturing industry and retail the difference isn't statistically significant at the 5% level. Vision and Mission statements have a high usage rate in foreign countries, and are tools with a

high usage rate, ranking 3rd (66.0%) in manufacturing and 5th (54.8%) in retail in Japanese companies too.

Benchmarking has a high usage rate in the manufacturing industry which is a statistically significant difference to the retail industry. Financial analysis is a tool used in over half the amount of companies in both industries, which means it is important to analyze the situation of sales, income and property regardless of the business field. KAIZEN and ISO9001, which seem to be popular in Japan, have a high usage rate in the manufacturing industry and is used by over half of the companies but the usage rate is significantly lower in retail.

Table 2. Usage proportions of strategic management tools and techniques (Chi-square test)

Tools and techniques	Manufacturing industry(%)		Retail industry(%)		Value	Asymp. Sig. (2-tailed)
	Used	Never used	Used	Never used		
SWOT analysis	79.6	20.4	61.3	38.7	14.277	.000
Market share analysis	72.8	27.2	69.4	30.6	.484	.486
Vision and mission statements	66.0	34.0	54.8	45.2	4.396	.036
Customer satisfaction analysis	64.0	36.0	66.1	33.9	.165	.685
Benchmarking	62.8	37.2	44.4	55.6	11.485	.001
Financial analysis	60.0	40.0	58.9	41.1	.044	.834
ISO9001	59.6	40.4	30.6	69.4	27.797	.000
Key success factor analysis	55.2	44.8	45.2	54.8	3.346	.067
KAIZEN	53.2	46.8	33.1	66.9	13.508	.000
Scenario analysis	52.8	47.2	40.3	59.7	5.165	.023
Employee satisfaction analysis	52.4	47.6	50.0	50.0	.191	.662
Supply chain management	45.2	54.8	27.4	72.6	10.985	.001
PPM	44.8	55.2	29.0	71.0	8.618	.003
BCP(Business continuity plan)	43.6	56.4	26.6	73.4	10.155	.001
Ansoff's matrix	40.0	60.0	24.2	75.8	9.132	.003
Marketing mix(4P)	38.0	62.0	37.9	62.1	.000	.986
CRM	37.2	62.8	31.5	68.5	1.199	.273
TQM(Total quality management)	36.8	63.2	19.4	80.6	11.790	.001
Value chain analysis	36.8	63.2	25.0	75.0	5.229	.022
Balanced scorecard	36.8	63.2	28.2	71.8	2.717	.099
Porter's 5 forces analysis	36.4	63.6	24.2	75.8	5.643	.018
Knowledge management	35.2	64.8	14.5	85.5	17.460	.000
STP analysis	34.8	65.2	25.8	74.2	3.090	.079
PEST analysis	32.4	67.6	26.6	73.4	1.310	.252
Strategy canvas	24.0	76.0	20.2	79.8	.695	.404
VRIO analysis	14.0	86.0	12.1	87.9	.259	.610

Table 3. Mean number of strategic management tools and techniques used

	N	Mean	SD	t	df	Sig.(2-tailed)
Manufacturing industry	250	12.28	7.397	3.621	372	.000
Retail industry	124	9.41	6.919			

Apart from the above, the tools that have statistical significance at the 5% level are scenario analysis, supply chain management, PPM, BCP (Business continuity plan), Ansoff's matrix, TQM, Value chain analysis, Porter's 5 force analysis and Knowledge management. It is statistically significant at the 5% level for over half (14) of the 26 investigated tools and techniques used and in all of them, the manufacturing industry usage rate was higher than in the retail industry. In addition, there is a statistically significant difference between the mean number of strategic management tools and techniques used; Manufacturing is 12.3 and retail is 9.4 (see table 3). From the above, Hypothesis 1 is supported.

The three tools with the lowest usage rate were VRIO analysis, strategy canvas, PEST analysis in the manufacturing industry and VRIO analysis, Knowledge management, TQM in retail. VRIO analysis had the lowest usage rate in both industries.

Table 4. Reliability statistics

Variable	Cronbach's alpha	Cronbach's alpha based on standardized items	N of items	Items
Organizational performance	.711	.727	5	Tendency to be profitable (latest 3 years) Profit margin on sales is high Market share of product/service is high Frequency of product/service development is high Turnover rate of regular employees is low

Regarding organizational performance, cronbach's alpha in subscale 5 sections is 0.711 (Cronbach's alpha based on standardized items=0.727) . This exceeds 0.70, so it is reliable. (Nunnally 1978; Cortina 1993)

Table 5. Multiple regression analysis

Variables	B	SE	β	t	Sig.	VIF
(Constant)	9.632	.634		15.200	.000	
The number of tools used	.082	.024	.159	3.462	.001	1.049
Managers interested in strategic management tools and techniques (Yes=1, No=0)	1.248	.491	.114	2.541	.011	1.006
Recognition of effectiveness of strategic management tools and techniques	1.849	.198	.429	9.355	.000	1.044
R-squared				.255		
Adjusted R-squared				.249		

Dependent Variable : Organizational Performance

To test Hypothesis 2 to 4, the Multiple regression analysis, which adopted organizational performance for the dependent variable, was implemented (see Table 4). Each variance of inflation factor (VIF) of the independent variables is under 2.0, so it can be said that multicollinearity problem doesn't exist. The result of this regression analysis showed that the three independent variables explained 24.9% of variance in organisational performance (F = 42.149, p < .001). From the result of this analysis, it shows that the usage quantity of strategic management tools and techniques has a positive influence on organisational performance. Also, the supervisor's interest in strategic management tools and techniques has a positive influence on organizational performance. Additionally, it was revealed that if the manager strongly recognizes the effectiveness of strategic management tools and techniques, it has a positive influence on organizational performance. The more supervisors strongly recognize the effectiveness of management strategy tool, the higher the organisational performance. From the above, Hypothesis 2, 3 and 4 are supported.

6. Conclusion

In our research, we compared by industry the usage of strategic management tools and techniques in Japanese companies and analyzed usage quantity and the relationship between awareness of the tools and organizational performance. According to the qualitative review of strategic management tools and techniques that Qehaja et al.(2017) executed, it showed SWOT analysis was the most used in 22 studies (88%) of the 25 studies worldwide. From our research, it was also found that SWOT analysis is highly regarded as a tool and techniques with a high usage rate in both the manufacturing industry (ranked 1st) and the retail industry (ranked 3rd) in Japanese companies. On the other hand Strategy canvas and VRIO analysis had the lowest usage rate. It seems to be not widespread because it is a relatively new tool compared with other analyzing tools.

The hypothesis shows several points, (1) managers in the manufacturing industry have a higher usage rate of strategic management tools and techniques than in retail (14 tools out of 26 tools) and the average usage quantity is high too, (2) when the company's usage quantity of strategic management tools and techniques is high, the higher the organizational performance, (3) when company managers have a strong interest in management strategy, the higher the organizational performance, (4) when supervisors of the company have deeper awareness of the effectiveness of management strategy tools, the higher the organizational performance. Managers and administrators need to select the best strategy, obtaining lots of information from inside and outside of the company for decision-making. The results of this study suggest that it is important managers and supervisors are interested in and fully familiar with a range of strategic management tools and use them in the appropriate planning process.

In the future, it will be necessary to identify the differences that arise when comparing the service industry and the wholesale industry to clarify the differences industry by industry. Furthermore, it will be necessary to investigate and analyze several points such as when the individual strategic management tools and techniques are used, the degree of effectiveness, limitations and challenges.

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