



BSQ strategic formulation framework

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A hybrid of balanced scorecard, SWOT analysis and quality function deployment

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Abstract *The hybrid of the balanced scorecard, SWOT analysis and quality function deployment creates a pragmatic approach for managerial and consultant practitioners to translate vague strategy into action. Sun Tzu's Art of War is further incorporated to develop a more structured strategic formulation framework. Nevertheless, many modern practitioners are, in fact, unfamiliar with this profound principle of strategy that was written some 2,400 years back. Despite the establishment of a theoretical framework, so far there have not been many published papers about the pragmatic implementation and holistic strategy development. Thus, a case study, in the form of a strategy workshop of a professional institute in Hong Kong, has been used to delineate the aforesaid translation of strategy.*

Introduction

The combination of balanced scorecard (BSC), SWOT analysis and quality function deployment (QFD) provides a pragmatic approach for managerial and consultant practitioners to build a strategic framework (Koo, 1998). The term, "BSQ" strategic formulation framework, adopted in this paper, is an acronym for the above three separate strategic approaches being merged into one single effective tool.

In addition to the aforesaid hybrid, Ko and Lee (2000) further incorporate Sun Tzu's *Art of War* (STAW) to demonstrate a comprehensive strategic formulation framework (SFF) for the banking industry of Hong Kong. STAW is recommended to people who are interested in strategy (Chen, 1994; Vroman, 1997). STAW has also been formatted in various principles applicable to business people (McNeilly, 1996). This masterpiece of strategy, as one of the world's earliest and certainly its most unusual military treatise, help readers improve their negotiating skills, develop self-discipline and pinpoint obstacles that block opportunity (Wing, 1988).

Nevertheless, it is important to note that this profound 5,600-word classic of strategy, written by Sun Tzu centuries back, was dedicated to ancient warfare not business (Rarick, 1996). The translated opening statement of STAW is "War is a matter of vital importance to the state; the province of life or death; the road to survival or ruin. It is mandatory that it is thoroughly studied" (Griffith, 1982). The original contents were all about war, military, tactic, combat, battle, weapon, conflict and so forth. The supreme aim of war, according to STAW, was not to win 100 victories in 100 battles but to subdue the enemy without fighting. Recent leading English translations



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have been written in a more general universal style that lend themselves to the applicability of the Art of Strategy to anyone, at anytime, in any situation (McNeilly, 1996; Rarick, 1996; Wing, 1988). For instance, the translation by Wing (1988) is inclined to strategic management. Take the same opening statement as an example, "Strategy is the great Work of the organization. In Situations of life or death, it is the Tao of survival or extinction. Its study cannot be neglected." If we read through the original Chinese script, there are no supplementary comprehensible headings as are found in most English translations. Thus, the suitability of translating the 13 themes exactly into 13 "Hows" for formulating a strategic framework is debatable (Ko and Lee, 2000).

Sun Tzu expounded on the philosophical concept of strategy, implications, practicality, and subtlety, the latter being deeply rooted in Chinese intellectual tradition and historical past (Chang, 1976). Not many Western modern practitioners are capable of formulating organizational vision by means of, e.g. the profound philosophy of Tao; the strategy of destroying and decision (Ko and Lee, 2000); the use of camouflage; and the creation of illusion (Wing, 1988).

User-friendliness as a prerequisite for a strategic management tool is gaining in popularity. It is risky for practitioners to employ the entire military strategy to SFF in case they are not sure about the underlying thoughts. Even though STAW offers richness of management thought and there must be parts of STAW which can be incorporated into SFF, the application of the aforesaid hybrid model without STAW is complicated enough to confuse the average practitioner. Thus, use of SFF without STAW, the primitive model developed by Koo (1998), is recommended.

Kaplan and Norton (1996) emphasize that financial perspective should be the ultimate goal in BSC. This paper also illustrates how Koo's model can be used to translate the strategy into action for a non-profit-making organization. A case study of HKQMA, in the form of a strategic workshop, has been used to demonstrate the power of the BSQ model. Parts of the data have been altered to protect HKQMA's interests. Hopefully, this paper can serve as a piece of knowledge providing another pragmatic strategic formulation framework using a similar but simpler approach.

Review of BSC, SWOT and QFD

SWOT analysis

SWOT analysis has been a popular platform of environmental analysis after Jack Welch tripled General Motor's productivity growth rate (Slocum *et al.*, 1994). Weihrich (1982) has further developed the model into a well-structured matrix. Due to the emphasis on the influences of external factors, threats and opportunities, the analysis is also called "TOWS". The standalone conventional SWOT analysis composed largely of catchall guidelines lacking explicit underpinnings is always challenged for generating shallow misleading results (Hill and Westbrook, 1997; Valentin, 2001). Thus, integrating contemporary strategic management theory into SWOT analysis is proposed, to gain more penetrating strategic insights (Valentin, 2001).

Balanced scorecard

BSC is considered as a radical approach to measurement and management (Hepworth, 1998), and enables linkage between an organization's strategies aiming at ultimate vision (Gadd, 1995). The merits of BSC have been well documented (Brown and McDonnell, 1995; Kaplan and Norton, 1996; Noci, 1995). A holistic balanced

measurement of the four perspectives, namely financial, customer, internal business process and learning provides a better indication of the performance of an organization than merely the traditional financial data (Hepworth, 1998).

Quality function deployment

Quality function deployment (QFD) has been used extensively in a manufacturing setting for years. The strength of QFD originally linked up direct customer requirements with production design (Akao, 1990). Koo (1998), *inter alia*, pioneered the application of “Whats” and “Hows” of QFD to BSC. In his model, QFD quantifies and prioritizes the relationships of (internal/external) factors and actions structurally in financial, customer, process and learning perspectives.

BSQ methodology

BSQ framework

The methodology is based on an integrated framework composed of BSC, SWOT and QFD. HKQMA, a non-profit-making association, is used as a case study to demonstrate how to build an organizational strategic plan.

Major assumption

The executive committee (Exco) is composed of 13 members, who are assumed to represent “the voice of the customer” (Akao, 1990). Through a two-day workshop, the survey obtained through focus groups is able to translate the voice of the customer as per the horizontal portion of Figure 1.

Rating

In contemporary quality management, four response categories, from strong = 9 to no = 1 (Ko and Lee, 2000), are always used to indicate a contrasting degree of agreement or disagreement. In order to compare the findings with HKQMA’s previous survey, a ten-point Likert scale, in which 1 refers to least important and 10 refers to most important, is used in this case.

The strategic workshop

The Exco members of HKQMA, a non-profit-making association in Hong Kong, convened a two-day strategic workshop at the end of 2002 to formulate and review its strategy and tactics for the coming year. Through the focus group meetings with Exco members, they developed BSC measures. It may not be easy for outsiders to fully understand the below-mentioned headings written and shown on tables, but the emphasis of this paper is on demonstrating procedural guidelines rather than on disclosing the real strategy deployed by HKQMA. Steps taken in developing BSC are shown as follows.

The first step: generating salient external factors by prioritization

By means of nominal group technique, tentative external factors of opportunities/threats were identified for the SWOT analysis. Using the guideline of STEP (social, technical, economic and political), the participants voiced their perceptions of external factors and voted on the rating of each attribute (Table I). The columns, success probability and attractiveness, shown in Table I are calculated based on a ten-point

Opportunities	Success probability	Attractiveness	Importance-ranking
O1. Lack of recognized certifications in HK	6.7	8.0	54
O2. The demands of quality service	6.4	7.9	51
O3. (Quality Award Index (QAI)	6.6	7.0	46
O4. Lack of operational standards for SMEs	6.9	6.4	44
O5. The cooperation between China, HK and Macau	6.1	6.9	42
O6. SME grants	4.4	7.1	32
O7. Popularity of the Internet	4.7	6.3	30
O8. Government recommendations for high-tech	3.1	4.3	13

Table I.
Importance-ranking of
opportunities

Likert scale. The score of each success probability and attractiveness column is the average of the participants' rating.

The importance-ranking (or priority) of Table I is operationally defined as the product of success probability and attractiveness. In order to simplify the strategic formulation at this stage, opportunities are rank-sorted in descending order and those of less importance are excluded. The participants have agreed to eliminate those salient factors with a probability ranking below the importance score of 42.

Likewise, the calculations of probability of occurrence and seriousness of threats are shown in Table II on the basis of the participants' perceptions similar to Table I. Those threat rankings with less priority, the boxes, are excluded in Table II.

The second step: environmental analysis of internal factors

External factors, opportunities and threats shown in Tables I and II are those uncontrollable factors, while internal factors, strengths and weaknesses, are to a certain extent controllable and changeable within the control of the organization.

Kotler's checklist for performing strengths/weaknesses analysis provides an effective preliminary identification of core performance measures (Kotler, 2000 p. 78). Organizations using this checklist should review the original measures and make necessary amendments, if needed. After minor modifications to meet HKQMA's needs, the perceived importance of each measure in descending order is listed (Table III). The descriptions in Table III are in line with BSC perspectives, e.g. financial, customer, internal process and learning.

In addition to QFD's strategic prioritization, six sigma, a rigorous and disciplined managerial practice also emphasizes that identifying the critical to quality (CTQ) takes precedence over all quality-management processes. When applying the concept of CTQ

Threats	Probability of occurrence	Seriousness	Importance-ranking
T1□Individual financial deterioration	7.7	7.9	61
T2□Economic recession	7.7	7.9	61
T3□Retrenchments of corporate members	7.6	7.9	59
T4□Less support from local government	5.7	6.0	34
T5□Competitions	5.4	4.6	25
T6□High-tech	3.9	4.1	16

Table II.
Importance-ranking of
threats

Performing strengths/weaknesses analysis	Importance score	Performance score	Performance gap
Income (financial)	9.4	<input type="checkbox"/>	<input type="checkbox"/>
Number of membership (financial)	9.0	<input type="checkbox"/>	<input type="checkbox"/>
Customer retention <input type="checkbox"/> customer <input type="checkbox"/>	8.8	<input type="checkbox"/>	<input type="checkbox"/>
Visionary, capable leadership <input type="checkbox"/> learning <input type="checkbox"/>	8.3	<input type="checkbox"/>	<input type="checkbox"/>
Customer satisfaction <input type="checkbox"/> customer <input type="checkbox"/>	8.1	<input type="checkbox"/>	<input type="checkbox"/>
Service quality <input type="checkbox"/> customer <input type="checkbox"/>	8.1	<input type="checkbox"/>	<input type="checkbox"/>
Company reputation <input type="checkbox"/> customer <input type="checkbox"/>	7.6	<input type="checkbox"/>	<input type="checkbox"/>
Flexible or responsive <input type="checkbox"/> learning <input type="checkbox"/>	7.1	<input type="checkbox"/>	<input type="checkbox"/>
Geographical coverage <input type="checkbox"/> customer <input type="checkbox"/>	6.5	<input type="checkbox"/>	<input type="checkbox"/>
Vision (learning)	6.5	<input type="checkbox"/>	<input type="checkbox"/>
Financial stability <input type="checkbox"/> financial <input type="checkbox"/>	6.4	<input type="checkbox"/>	<input type="checkbox"/>
Entrepreneurial orientation <input type="checkbox"/> learning <input type="checkbox"/>	6.4	<input type="checkbox"/>	<input type="checkbox"/>
Product quality <input type="checkbox"/> customer <input type="checkbox"/>	6.4	<input type="checkbox"/>	<input type="checkbox"/>
Sales force effectiveness <input type="checkbox"/> customer <input type="checkbox"/>	5.9	<input type="checkbox"/>	<input type="checkbox"/>
Innovation effectiveness <input type="checkbox"/> customer <input type="checkbox"/>	5.9	<input type="checkbox"/>	<input type="checkbox"/>
Promotion effectiveness <input type="checkbox"/> customer <input type="checkbox"/>	5.6	<input type="checkbox"/>	<input type="checkbox"/>
Cash flow <input type="checkbox"/> financial <input type="checkbox"/>	5.5	<input type="checkbox"/>	<input type="checkbox"/>
Ability to produce on time <input type="checkbox"/> process <input type="checkbox"/>	5.4	<input type="checkbox"/>	<input type="checkbox"/>
Technical manufacturing skill <input type="checkbox"/> process <input type="checkbox"/>	5.0	<input type="checkbox"/>	<input type="checkbox"/>
Distribution effectiveness <input type="checkbox"/> customer <input type="checkbox"/>	4.9	<input type="checkbox"/>	<input type="checkbox"/>
Pricing effectiveness <input type="checkbox"/> customer <input type="checkbox"/>	4.8	<input type="checkbox"/>	<input type="checkbox"/>
Market share <input type="checkbox"/> customer <input type="checkbox"/>	4.1	<input type="checkbox"/>	<input type="checkbox"/>
Facilities <input type="checkbox"/> process <input type="checkbox"/>	4.1	<input type="checkbox"/>	<input type="checkbox"/>
Capacity <input type="checkbox"/> process <input type="checkbox"/>	3.6	<input type="checkbox"/>	<input type="checkbox"/>
Economics of scale <input type="checkbox"/> process <input type="checkbox"/>	2.5	<input type="checkbox"/>	<input type="checkbox"/>

Table III.
Internal (strengths and weaknesses) analysis

to the service industries, HKQMA has to exclude less important factors, the boxes, so that HKQMA can focus on those really “important” internal factors. There might be dangers in excluding if HKQMA was a newly born association. Nevertheless, HKQMA has been established for more than 20 years and it has kept records of all these strategic workshops longitudinally. Reviewing these records can minimize the risk of excluding. In addition, HKQMA is navigated by a team of experienced practitioners and academics. It is fair to assume that the Exco is unlikely to exclude significant factors from the strategic formulation framework.

“Performance gap” is operationally defined as the difference between importance score and performance score. The higher the performance gap, the higher the need for HKQMA to improve in that particular aspect. This is shown in Table IV.

To classify the internal factors into strengths and weaknesses as per SWOT, those factors scoring lower than 6.8 were agreed by the HKQMA Exco members as weaknesses. The results are shown in Table V.

The third step: completing the development of the SWOT matrix

The third step is to combine high priority importance ranking of opportunities with internal factors based on BSC’s four perspectives to develop the SWOT matrix, in which a set of strategies is identified as per Table VI. After completing the development of the matrix, it is always meaningful to compare the latest SWOT matrix with the previous one so as to trace the longitudinal trend of HKQMA. In this aspect, HKQMA has adopted SWOT analysis to develop its strategies over the past few years.

Performing strengths/weaknesses analysis	Importance score	Performance score	Performance gap
Income (financial)	9.4	6.3	3.1
Number of membership (financial)	9.0	4.3	4.7
Customer retention□customer□	8.8	4.0	4.8
Visionary, capable leadership□learning□	8.3	6.9	1.4
Customer satisfaction□customer□	8.1	5.6	2.5
Service quality □customer□	8.1	6.3	1.8
Company reputation□customer□	7.6	7.0	0.6
Flexible or responsive□learning□	7.1	6.0	1.1
Geographical coverage□customer□	6.5	7.1	-0.6
Vision (learning)	6.5	6.4	0.1
Financial stability□financial□	6.4	7.8	-1.4
Entrepreneurial orientation □learning□	6.4	6.8	-0.4
Product quality □customer□	6.4	7.0	-0.6

Table IV.
Variation of importance
– performance analysis

Internal measures	Importance score	Performance score	Performance gap
<i>Strengths</i>			
S1 Financial stability□financial□	6.4	7.8	-1.4
S2 Geographical coverage□customer□	6.5	7.1	-0.6
S3 Company reputation□customer□	7.6	7.0	0.6
S4 Product quality □customer□	6.4	7.0	-0.6
S5 Visionary, capable leadership□learning□	8.3	6.9	1.4
S6 Entrepreneurial orientation □learning□	6.4	6.8	-0.4
<i>Weaknesses</i>			
W1 Vision (learning)	6.5	6.4	0.1
W2 Income (financial)	9.4	6.3	3.1
W3 Service quality □customer□	8.1	6.3	1.8
W4 Flexible or responsive□learning□	7.1	6.0	1.1
W5 Customer satisfaction□customer□	8.1	5.6	2.5
W6 Number of membership (financial)	9.0	4.3	4.7
W7 Customer retention□customer□	8.8	4.0	4.8

Table V.
Performance gap

The fourth step: building the house of quality

Based on the data collected from the previous steps, the elements are accommodated in the house of quality of QFD shown in Figure 1. QFD was used to develop systematically subjective cause-and-effect relationships among the BSC financial perspective. In other words, financial stability, income and number of members, are the “Whats” on the horizontal portion, while geographical coverage, organization reputation, service quality and the like are the “Hows” on the vertical portion. The bottom of the figure provides more detailed explanations of the “Hows”.

In this case, the circular spots shown on the roof of the house are the correlations among “Hows”. Having the attitudinal ratings on causal relationship in numerical value in the middle of the house, HKQMA can prioritize the actual implementations.

The final step: strategic prioritization

In Figure 2, the higher score has the higher importance for the HKQMA. The bold arrows represent the scores of 10, the highest causal linkage as perceived by the HKQMA Exco members.

Table VI.
HKQMA SWOT matrix
for the year 2002-2003

HKQMA SWOT analysis 2002-2003	<p><i>Strengths</i></p> <p>S1 Financial stability <input type="checkbox"/> financial <input type="checkbox"/> S2 Geographical coverage <input type="checkbox"/> customer <input type="checkbox"/> S3 Company reputation <input type="checkbox"/> customer <input type="checkbox"/> S4 Product quality <input type="checkbox"/> customer <input type="checkbox"/> S5 Visionary, capable leadership <input type="checkbox"/> learning <input type="checkbox"/> S6 Entrepreneurial orientation <input type="checkbox"/> learning <input type="checkbox"/></p>	<p><i>Weaknesses</i></p> <p>W1 Vision (learning) W2 Income (financial) W3 Service quality <input type="checkbox"/> customer <input type="checkbox"/> W4 Flexible or responsive <input type="checkbox"/> learning <input type="checkbox"/> W5 Customer satisfaction <input type="checkbox"/> customer <input type="checkbox"/> W6 Number of membership (financial) W7 Customer retention <input type="checkbox"/> customer <input type="checkbox"/></p>
<p><i>Opportunities</i></p> <p>O1 Lack of recognized certifications O2 The demands of quality service O3 Quality Award Index (QAI)</p>	<p><i>Maxi Maxi</i></p> <p>S0 O1O4S1-S6 Organize local professional exam O2O4S1-S6 Regulate service index O4O3S1-S6 Provide professional award scheme O4S1-S6 Expand service to the greater China region O2S1-S6 Advocate QCC to schools in HK</p>	<p><i>Mini Maxi</i></p> <p>W0 W2O1 Apply ISO certification for HKQMA W3W5W6W7O2 Enhance service to member</p>
<p>O4 Lack of operational standards for SMEs O5 The cooperation between China, HK and Macau</p>	<p>O2S1-S6 Advocate QCC to schools in HK</p>	<p><i>Mini Mini</i></p> <p>WT W1W2W5W6T1-T3 Enhance life-long learning service to member/potential member</p>
<p><i>Threats</i></p> <p>T1 Individual financial deterioration T2 Economic recession T3 Retrenchments of corporate members</p>	<p><i>Maxi Mini</i></p> <p>ST S3S5S6T1-T3 Enhance consultancy service</p>	<p><i>Mini Mini</i></p> <p>WT W1W2W5W6T1-T3 Enhance life-long learning service to member/potential member</p>

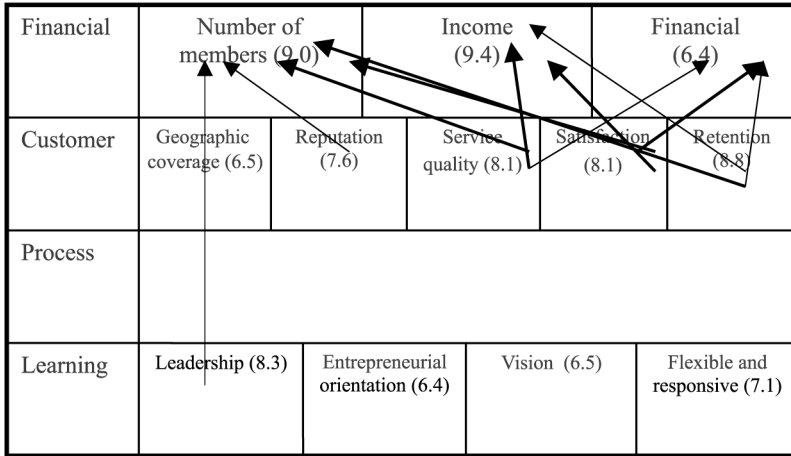


Figure 2.
A strategy into action

Figure 3 shows how each strategy is compared to one another on a pair-wise basis. As a result, the top strategies are (a) local qualification in quality, (g) enhance membership service, (i) life long learning for members and so forth in descending order.

After the participants had formulated the holistic strategic plan for HKQMA at the top level, the Exco then initiated a more detail action plan and assigned its members to take action accordingly. Another similar framework can be formulated, beginning with SWOT analysis, to further develop the specific strategy at an operational level.

Conclusion

Theoretically, Ko and Lee (2000) using 13 “Hows” of STAW into SFF are impressive. Nevertheless, it is complicated for the average Western practitioner to master this

- a) Local Qualification in quality
- b) Service Index
- c) Quality Award for SMEs
- d) Expand Service
- e) School QCCs
- f) ISO for HKQMA
- g) Enhance Membership Service
- h) Consultancy
- i) Life-long Learning for Members

	a	b	c	d	e	f	g	h	i	
a										8
b	a									3
c	a	c								5
d	a	b	c							0
e	a	e	c	e						4
f	a	b	c	f	e					1
g	a	g	g	g	g	g				7
h	a	b	c	h	e	h	g			2
i	a	i	i	i	i	i	g	i		6

Figure 3.
Pair-wise comparison of strategies

ancient strategy, which was originally applied to warfare. When preparing a SFF, the necessity of using STAW is in doubt. The authors have delineated a similar strategic formulation framework without STAW. “Hows” developed in this case are largely based on Kotler’s checklist for performing internal (strengths and weaknesses) analysis. Having a well-structured framework with using familiar managerial terminology, such as market share, customer satisfaction and product quality, the checklist provides practitioners with an effective preliminary identification of core performance measures at an early stage.

Managerial implications

BSQ framework is a powerful management tool. Compared with Ko and Lee’s model, it is easier for participants to develop their own BSQ frameworks. However, it still takes time for the average participant to digest these quantitative processes. In such a case, it is recommended to invite someone knowledgeable about the quality tools to sit in the strategic formulation meetings.

This strategic formulation framework is developed on the basis of perceived importance and performance. This is because “rubbish in – rubbish out”, a misinterpretation of the environmental external and internal factors by the participants, may derail an organization from the right track. Remedial actions such as leading the meeting by an experienced moderator, lecturing the participants about the methodology, asking the participants to prepare for the meetings in advance, encouraging the involvement of the participants, making an interactive discussion, and exhausting more environmental factors for selection can minimize the derailment.

HKQMA, a small non-profit-making association, is a kind of unitarist organization where there is no conflict of interests among the members. However, in the pluralist enterprises, strategic prioritization is sometimes subjected to the aforesaid conflict. A certain group of participants may dominate the enterprise’s directions against “the voice of the customer”.

Using traditional focus groups is an effective strategy to produce data and insights. Nevertheless, with facial expressions and body language, a small group of members can dominate the ways of translating strategy into action. It may be the case that those who desire to please the interested party involved may second the proposal for nothing more than a political reason. If not properly managed, a well-structured managerial approach can be distorted into a political tool that tells “true lies” in a convincing format. Thus, the moderator has to judge if a secret ballot or any other appropriate form of voting is needed.

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