# A holistic approach for strategic development for the Macau Gaming Industry through SWOT, Balanced Scorecard, and QFD

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## Introduction

This strategic development workshop was convened in January, 2006, by the Macau Gaming Research Association ( http://mgra.org.mo ) to:

1. Review the current situations for the gaming industry in Macau;
2. Explore factors affecting the future development of the gaming industry;
3. Identify actions for the industry to take collectively and/or individually through the BSQ analysis.

The team comprised of eight representatives coming from the industry and various higher educational institutes. Five of the team members are holders of doctoral degrees.

Strategic formulation and implementation are important responsibilities for top executives in any organization. Strategy development is about analyzing existing and desired statuses and then deciding the most effective means (hows) to achieve the respective objectives (whats). Strategy formulation is usually a complicated process which requires adopting a systematic approach to diagnose the external factors and to match these external factors with the internal capabilities of the organization (Weihrich, 1982). The failure and success of an organization is closely linked to how effective the strategies are developed, implemented and monitored. There are a wide range of different approaches to strategic development, e.g. Profit Impact of Marketing Strategy, BCG Matrix, McKinsey's GE Matrix, Porter five forces, McKinsey's 7S, SWOT, Quality Function Deployment, Balanced Scorecard, ADL life-cycle Matrix (Feurer et al.,1997; Kaplan & Norton, 1996, 2001, 2004; Weihrich, 1982; Ip and Koo, 2004; Crowe et al., 1996). Feurer et al. (1997) define strategy as the determination of the basic goals and objectives of an enterprise and the adoption of courses of action and the allocation of resources necessary for carrying out these goals. Put simply, strategy is the means to achieve important and long term corporate objectives. A meaningful objective should be: Specific, Measurable, Achievable, Result-oriented, and Time-bound (i.e. SMART).

Strategic development normally applies to an individual organization and not collectively for a group of organizations within an industry. The reasons are obviously simple.

Firstly it is difficult to agree collectively on a strategy for the individual companies within a specific industry who would have different objectives to achieve. Secondly, in the absence of a coordinating scheme, it would be also difficult to implement an "industry" strategy. However under an oligopoly situation, the casino operators (i.e. the gaming concessionaries and

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sub-concessionaries) can and perhaps should collaborate together in a coordinated manner to strive for a healthy development for the most important industry in Macau. The industry co-ordination idea was discussed in the Macau Legislative Assembly. The "industry strategies" would work if these are perceived to yield win-win results to the industry which is comprised of the casino operators, the promoters, the junket operators, the VIP room operators, and the Macau SAR Government.

There are always some limitations in adopting the use of any single strategic tool. The integration of BSC, SWOT, and QFD provides a more practical, comprehensive, and systematic approach to diagnose the organization and to build a holistic strategic framework (Koo, 1998; Koo et al., 2005; Ip and Koo, 2004). A good strategic formulation approach should be: simple to apply, relevant, effective, efficient, systematic, democratic, involving concerned parties, flexible, easily understood, comprehensive, and succinct. The success criteria of the gaming industry are to achieve: healthy growth; best utilization of resources; and win-win situation for all concerned.

Kaplan and Norton (1996) point out that the Financial perspective measures in the Balanced Scorecard are the ultimate and most important performance indicators for any business. The non-financial indicators are the "causes (drivers)" and the financial indicators are the "effects (outcomes)". It is important to establish the cause-and-effect relationship among the various BSC measures, which can clearly explain the strategic map of the organization. However Kaplan and Norton (1996) suggest using correlation to establish the cause-and-effect relationships among the various BSC measures. Correlation relation is a necessary condition and is not a sufficient condition in establishing a cause-and-effect relationship. In this respect, Koo (1997) proposes to use statistical tool like LISREL (Linear Structural Equation Modeling) to explore the cause-and-effect relationship. However the LISREL approach is rather complicated and it requires historical data for computation and these data would normally be non-existent at the time of developing the strategies. The adoption of QFD in the BSQ approach fills this research gap neatly. QFD enables the management team in an organization to subjectively and collectively quantify the "cause-and-effect" relationship in a democratic manner. The individuals of the management team score their perceived strengths of cause-and-effect relations on a scale of 10 points. If obvious discrepancy exists among the subjective scores, they are encouraged to clarify the reasons for their scores to eliminate possible misunderstanding. These constructive dialogues can help remove communication problems, reach consensus views, and enhance subsequent co-operation in implementing the strategies.

## Balanced Scorecard - SWOT – Quality Function Deployment

### Balanced Scorecard (BSC)

Balanced Scorecard has been widely regarded as a contemporary approach to measure and manage the performance of a company (Hepworth, 1998) and it can link up the strategies and vision of an organization (Gadd, 1995). The foundation of Balanced Scorecard rests on two common-sense sayings:

- What you measure is what you get
- If you cannot measure it you cannot manage it

Thus measurement and management virtually have become inseparable (Kaplan and Norton, 1996; Koo, 1998). A quadruple-perspective approach to measure and manage corporate performance by BSC is more comprehensive and balanced than a mono-perspective approach of using merely financial indicators (Hepworth, 1998). Financial measures are lag indicators which are measures of historical performance. Non-financial measures (e.g. customer, process, and learning & growth) are leading indicators which are the performance drivers (Kaplan and Norton, 1996; Beiman et al., 2003). Balanced Scorecard helps organizations solve two key issues: effective corporate performance evaluation and strategic implementation. BSC is strategic because it embraces the setting of objectives and the process in achieving them. A sustainable strategic position requires systematic activities that mutually reinforcing each other. BSC is built on a series of hypotheses which constitute a strategy map. It is of paramount importance to be able to describe strategies. It has been argued earlier that what cannot be measured cannot be managed. Kaplan and Norton (2004) supplement this by saying: "you cannot measure what you cannot describe". The following five management principles help FOCUS the strategies of an organization:

- Formulate strategies in operational terms;
- Organize development efforts towards strategic objectives;
- Change through executive leadership;
- Use strategies as continuous processes;
- Set strategies in every one's task.

BSC combines objectives, planning, and follow-up tasks and can coordinate, under the corporate philosophies, the conflicts arising from the various management systems.

### Strengths Weaknesses Opportunities Threats (SWOT)

The origin of SWOT was SOFT (Satisfactory (good in the present), Opportunity (good in the future), Fault (bad in the present), Threat (bad in the future)) which came from the research work on corporate planning conducted at Stanford Research Institute from 1960-1970. The

SOFT analysis was presented in a seminar at Zurich in 1964 and Urick and Orr changed the F to a W and called it the SWOT (Humphrey, 2005). Weihrich (1982) modified SWOT (or TOWS) in the format of a matrix, matching the internal factors (i.e. the strengths and weaknesses) of an organization with its external factors (i.e. opportunities and threats) to systematically generate long-term strategies and/or short-term tactics and/or one-off action plans that ought to be undertaken by the organization. Internal factors refer to those factors that can be controlled or manipulated by the organization. The perceived importance and performance of each of these internal factors can be rated collectively on a Likert scale of 1 (least important or worst performed) to 10 (most important or best performed). If a large difference occurred among some of these perceived importance or performance scores, the concerned executives should state their reasons so that compromise can be reached and possible misinterpretation of the terms can be clarified. The dialogue helps reduce misunderstanding and strengthen mutual support in subsequent strategy implementation. The measurements on perceived importance and performance produce a useful by-product, namely "perceived performance gap". The perceived performance gaps are operationally defined as the differences between the perceived importance and perceived performance. The larger the perceived performance gaps (i.e. important yet poorly performed internal factors) are the more urgent it is to improve on those attributes. The perceived performance gaps are the "areas for improvement" with quantifiable priority.

The next step is to discard those internal factors which are perceived to be less important. Those remaining internal factors are the key internal factors. Obviously those which are rated subjectively as well performed are the perceived strengths and those which are rated to be less well-performed are the perceived weaknesses. These "real" strengths and weaknesses can be used in the SWOT analysis.

Through a brainstorming exercise, the external factors relating to the Social, Technological, Economic, and Political perspectives (i.e. STEP or PEST) can be identified. Those external factors which are favourable are termed opportunities and those which are unfavourable are threats. In order to prioritize these subjectively determined opportunities and threats, opportunity matrix (success probability vs. attractiveness) and threat matrix (probability of occurrence vs. seriousness) introduced by Kotler (2000) were used in a modified form. The success probability, attractiveness, probability of occurrence, and seriousness were subjectively and collectively rated on a Likert scale ranging from 0 to 10. Similar to the earlier arrangement if large differences occur among some of these scores, the concerned executives should give their supporting reasons for their scores.

SWOT matrix matches the external factors with the internal factors. Positive impact from

favourable factors (S -strengths and O -opportunities) are maximized and negative influences from unfavourable factors (W -weaknesses and T -threats) are minimized. These are depicted in Table 5 as: maxi-maxi SO; mini-maxi WO; maxi-mini ST; and mini-mini WT. It is better to label each strength, weakness, opportunity, and threat as S1, S2, S3, … for different strengths; O1, O2, O3, … for the various opportunities; and so on. In the maxi-maxi SO quadrant, S1O2 represents the outcome (i.e. action item that the organization should undertake in the light of the prevailing circumstances) from matching strength 1 and opportunity 2. This kind of matching continues for the remaining of all internal and external factors, with similar possible outcomes grouped together such as S1O1O2O3 in the maxi-maxi quadrant in the SWOT analysis matrix. The reasons why SWOT matches internal factors with external factors are obvious. Firstly, matching external factors (e.g. opportunities and threats) are meaningless as both are beyond the control of the organization concerned. Secondly, internal factors (i.e. strengths and weaknesses) are not matched among themselves because in the absence of specific external stimuli, the improvement direction for future development is purposeless.

Should we first start with the some "predetermined" objectives and then work out the SWOT analysis under the constraint of the need to achieve these objectives? Or should we work out the SWOT analysis first under no constraint at all and then determine the SMART objectives for the strategies revealed from matching the internal and external factors? A pragmatic and rational approach should be hierarchical. For the strategies at corporate level there should not be any pre-determined objectives which may otherwise restrict the needed corporate transformation in response to the changes in external environment. However when the corporate strategies have been determined by the SWOT analysis, the subsequent SWOT analyses at lower corporate levels should be guided by the top level strategic objectives. This will help align the efforts from all units within the group to yield synergetic benefits. In conducting SWOT analyses at the lower levels, due considerations must be given to the corporate objectives, i.e. in supporting the achievement of corporate goals what internal strengths and weaknesses would the concerned units have and what external opportunities and threats would they face. Using this hierarchical approach, the utilization of resources and employee efforts can be aligned.

## Quality Function Deployment (QFD) – the House of Quality

QFD is a system which translates the customer needs into the requirement of every process undertaken by the organization, from research, product design and development, to production, distribution, packaging, marketing sales and services (ASI, 1987). The QFD has been widely used in the manufacturing sector and it links up manufacturing design direct with the voice of customers (Akao, 1990). Burn (1994) describes QFD as a comprehensive method to enable

every employee in the organization to contribute to the achievement of corporate goals. QFD can translate the needs and wishes of the customers into design requirements for product and service and it focuses on delivering value by understanding customers' requirements and then deploying these customer expectations throughout the development process (Terninko, 1997). QFD was later used to develop corporate strategies (Crowe, et al., 1996). The voice of customers provides useful guidelines for the corporate business focus and in this respect, the top management can be the internal customer of the QFD. As the QFD matrix resembles the shape of a house, it is also known as the House of Quality (Figure 1).

**BSQ strategic model**

This is a holistic strategic model by integrating the BSC, SWOT and QFD approaches. The followings are the procedures in adopting BSQ model:

*Step 1: Nominal Group Technique (NGT) to scan the external environment*

The NGT is an improved format of brainstorming. All participants were allowed some time (say, 10 minutes) to think over the issue on an individual basis. They could jot down their ideas/suggestions. They were then asked individually in turn to read out their points (i.e. round robin). When one has exhausted his points, he can pass simply to the next one and can again contribute in the later rounds when new ideas sparkle after hearing what the other have said. Like in the brainstorming session, during the course of ideas solicitation no query or criticism would be made. The round robin ceases when no further idea can be generated by anyone in the group. NGT has some advantages over the brainstorming. Firstly, all participants were allowed a short duration at the beginning to organize their thoughts on the subject and secondly everyone is allowed a fair chance to express his/her ideas to avoid being dominated by a few outspoken and forceful members. Then the various ideas are discussed, reviewed and categorized. The participants were reminded to scan the external environment via four perspectives viz. Social factors, Technological factors, Economic factors, and Political factors (i.e. using STEP or PEST acronym).

*Step 2: Subjective prioritization and classification of external factors into opportunities and threats*

External factors are those that are beyond the control of any individual organization and yet it is being affected by these factors either favorably or unfavorably. Favorable external factors are opportunities and unfavorable factors are threats. Factors which are neither likely to affect the organization nor strong in magnitude should be ignored. The "real" perceived opportunities and threats are systematically determined collectively and openly. Each external factor identified through the NGT exercise is rated on a scale of 0 to 10 on the probability of

occurrence (0 being the extremely unlikely to occur,… , 10 being the most likely to occur) and on the impact magnitude (+1 being the least favorable impact magnitude,… , +10 being the most favorable impact magnitude; similarly -1 being the least unfavorable impact magnitude,… , -10 being the most unfavorable impact magnitude) individually by all participants. When a large discrepancy occurs among the ratings, participants are encouraged to explain their reasons behind. This open and democratic arrangement will help bridge any communication gap and build up rapport and understanding.

The probability of perceived occurrence score is multiplied by the perceived impact magnitude score to generate the perceived importance score. Positive "importance score" signifies favorable external factor as an opportunity. Negative "importance score" signifies unfavorable external factor as a threat. The strategy development team then decides which external factors with low importance scores should be ignored. After some discussions, it was agreed that those items with absolute importance scores less than 30 would be dropped (the shaded items in Table 1 below).

**Table 1: Ranking of perceived importance of external factors for gaming industry in Macau**

| External factors (O = Opportunity ; T = Threat) | Average of perceived Probability of occurrence | Average of perceived Impact Magnitude | Average of perceived Importance score |
|---|---|---|---|
| O- China's Economic Development | 8.43 | 7.86 | 67.4 |
| O- FIT Policy | 8.00 | 7.43 | 63.3 |
| O- HK-Zhuhai-Macau Bridge | 6.57 | 7.57 | 50.1 |
| O- CRM | 6.29 | 6.29 | 41.4 |
| O- Automation Technology | 5.43 | 6.29 | 36.4 |
| O- RMB Re-valuation | 4.43 | 7.14 | 32.0 |
| O- Labour Import Policy | 5.00 | 5.57 | 27.6 |
| O- Infrastructural Support | 5.00 | 6.71 | 26.7 |
| O- Internet | 4.14 | 6.29 | 23.7 |
| O- Land Supply | 2.14 | 5.86 | 12.3 |
| O- Law on Casino Operations | 0.29 | 6.29 | 3.0 |
| T- China Policy on Gaming | -4.00 | 5.29 | -0.6 |
| T- Tourist average nights per stay | -4.14 | 6.29 | -29.7 |
| T- Regional competition | -5.86 | 6.43 | -37.0 |
| T- Labour Supply | -4.71 | 7.86 | -39.7 |

| | | | |
|---|---|---|---|
| T- Control on RMB flow | -8.57 | 5.00 | -42.3 |
| T- AML Legislation | -6.57 | 6.14 | -42.3 |

*Step 3: Subjective prioritization of internal factors into strengths and weaknesses*

The corresponding Balanced Scorecard perspective descriptions are bracketed after each internal factor (F=financial; C=customer; P=process; L=Learning and growth). The importance of each factors were then rated subjectively and collectively on a scale of 1 to 10 (1 being most unimportant, .., 10 being most important). Where large differences in rating scores occurred, they were encouraged to explain the reasons. These candid discussions actually improved mutual understanding among the members of the management team. The arithmetic means were computed and sorted in descending order and depicted in Table 2 below. Factors with means below an agreed figure could be considered to be relatively unimportant and could be deleted in determining the strengths and weaknesses for the SWOT analysis. In this exercise, the team agreed to keep all factors.

**Table 2: Ranking of importance of internal factors**

| **Key Internal Factors for the Gaming Industry in Macau** | Importance score |
|---|---|
| Industry Growth in Supply (F) | 8.6 |
| Ability to attract Investor (F) | 8.3 |
| Upgraded Facility (C) | 8.0 |
| Infrastructure Development –Tradeshow (C) | 7.7 |
| Service Standard (P) | 7.6 |
| Utilization of HR (L) | 7.4 |
| Optimal scale of operation (C) | 7.1 |
| Marketing Technology (C) | 6.9 |
| Contribution to Macau well-being (F) | 6.6 |
| Industry Norm (P) | 6.1 |
| Coordination / Co-opetition (C) | 5.7 |
| Synergetic utilization of Attractions (P) | 5.7 |
| Capitalize Macau Uniqueness (P) | 5.3 |
| Industry survey on Customer Service (C) | 4.7 |

The team then rated the performance of the internal factors on a scale of 1 to 10 (1 being least well performed,…, 10 being best performed). A useful by-product can be derived by operationally defining “performance gaps (i.e. areas for improvement) as the difference between the perceived importance and the perceived performance of each internal factor’. The major

performance gaps for the gaming industry in Macau are: Infrastructure development – tradeshow; Use of marketing technology; Introduction of service standard; Adoption of coordination or co-opetition arrangement; and Determination of optimal scale of operation.

**Table 3: Importance, Performance and Performance gap scores for various internal factors**

| **Key Internal Factors for the Gaming Industry in Macau** | Importance score | Performance score | Performance gap |
|---|---|---|---|
| Infrastructure Development –Tradeshow (C) | 7.7 | 3.1 | **4.6** |
| Marketing Technology (C) | 6.9 | 2.3 | **4.6** |
| Service Standard (P) | 7.6 | 4.3 | **3.3** |
| Coordination / Co-opetition (C) | 5.7 | 2.7 | **3.0** |
| Optimal scale of operation (C) | 7.1 | 4.4 | **2.7** |
| Industry Norm (P) | 6.1 | 3.6 | 2.5 |
| Industry Growth in Supply (F) | 8.6 | 6.1 | 2.5 |
| Upgraded Facility (C) | 8.0 | 5.6 | 2.4 |
| Industry survey on Customer Service (C) | 4.7 | 3.0 | 1.7 |
| Utilization of HR (L) | 7.4 | 5.9 | 1.5 |
| Synergetic utilization of Attractions (P) | 5.7 | 4.4 | 1.3 |
| Capitalize Macau Uniqueness (P) | 5.3 | 4.7 | 0.6 |
| Contribution to Macau well-being (F) | 6.6 | 6.1 | 0.5 |
| Ability to attract Investor (F) | 8.3 | 8.9 | -0.6 |

As all the items listed in Table 3 are important to the success or failure of Macau gaming industry, the relatively well performed factors are “strengths” and those relatively less well performed factors are “weaknesses” (see Table 4 below). After some discussions, the team agreed that those internal factors with performance scores over 4.5 were reckoned as “strengths” and those below 4.5 were treated as “weaknesses”. Together with the external opportunities and threats identified in Table 1, these systematically derived strengths and weaknesses in Table 4 can be used in the SWOT analysis.

**Table 4: Internal strengths and weaknesses of the Macau gaming industry**

| **Key Internal Factors for the Gaming Industry in Macau** | Importance score | Performance score | Performance gap |
|---|---|---|---|
| **Perceived strengths** | | | |
| S1- Ability to attract Investor (F) | 8.3 | **8.9** | -0.6 |
| S2- Industry Growth in Supply (F) | 8.6 | **6.1** | 2.5 |
| S3- Contribution to Macau well-being (F) | 6.6 | **6.1** | 0.5 |
| S4- Utilization of HR (L) | 7.4 | **5.9** | 1.5 |
| S5- Upgraded Facility (C) | 8.0 | **5.6** | 2.4 |
| S6- Capitalize Macau Uniqueness (P) | 5.3 | **4.7** | 0.6 |
| **Perceived weaknesses** | | | |
| W8- Optimal scale of operation (C) | 7.1 | **4.4** | 2.7 |
| W7- Synergetic utilization of Attractions (P) | 5.7 | **4.4** | 1.3 |
| W6- Service Standard (P) | 7.6 | **4.3** | 3.3 |
| W5- Industry Norm (P) | 6.1 | **3.6** | 2.5 |
| W4- Infrastructure Development –Tradeshow (C) | 7.7 | **3.1** | 4.6 |
| W3- Industry survey on Customer Service (C) | 4.7 | **3.0** | 1.7 |
| W2- Coordination / Co-opetition (C) | 5.7 | **2.7** | 3.0 |
| W1- Marketing Technology (C) | 6.9 | **2.3** | 4.6 |

*Step 4: Constructing the SWOT matrix*

The internal factors and external factors are matched pair by pair, with positive impacts (i.e. from Strengths and Opportunities) maximized and with negative impacts (i.e. from Weaknesses and Threats) minimized. The rational responses to the combinations of internal and external factors were summarized in the four quadrants, i.e. Maxi-Maxi SO; Mini-Maxi WO; Maxi-Mini ST; and Mini-Mini WT. As we are in an era of changes, the SWOT analysis should be conducted at least annually and as and when major events which would affect the organization, have occurred. Thus SWOT analysis should be 3-dimensional with time as the third dimension.

**Table 5: SWOT matrix of the Macau gaming industry**

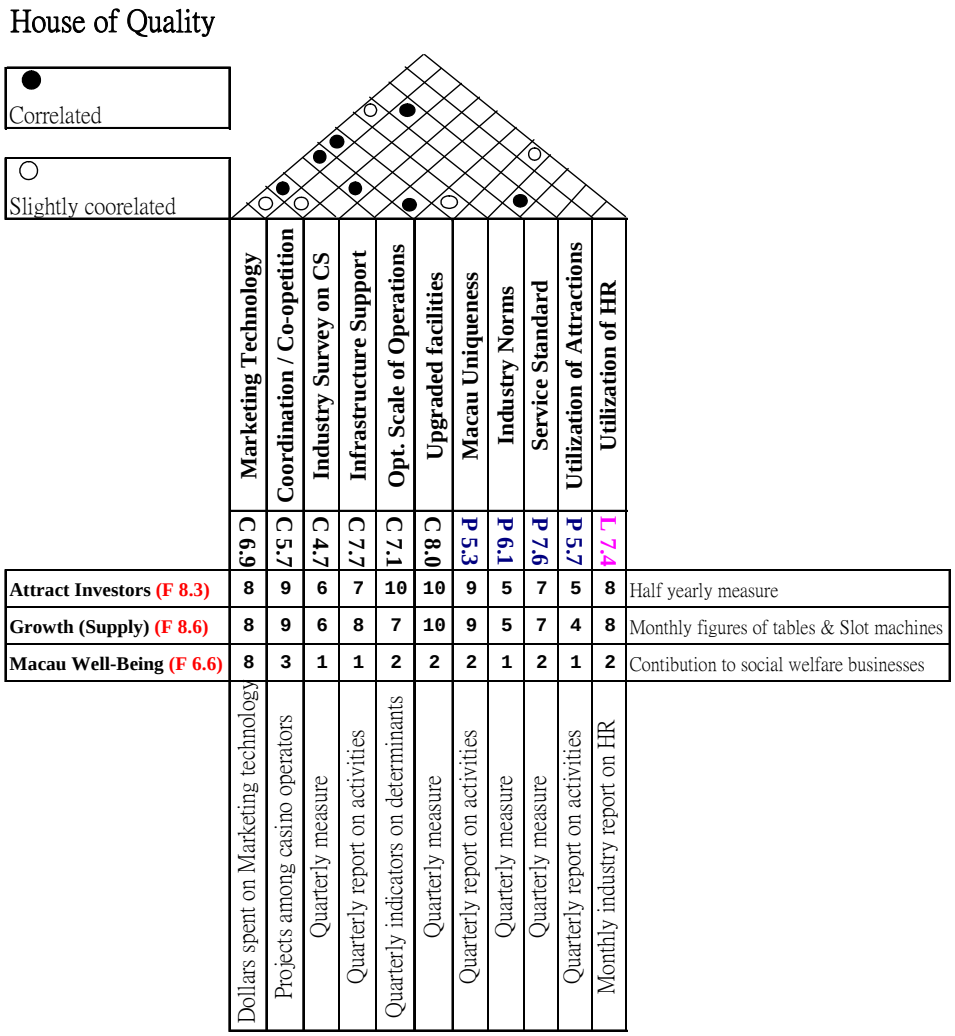
| SWOT | **Internal Strengths:**<br>S1: Good ability to attrac Investors<br>S2: Strong industry Growth (Supply)<br>S3: Good contribution to Macau's well-being<br>S4: Good utilization of HR<br>S5: Well upgraded Facilities<br>S6: Ability to capitalize Macau's Uniqueness | **Internal Weaknesses:**<br>W1: Poor use of Marketing Technology<br>W2: Inadequate Coordination / Co-opetition<br>W3: Lack of Industry survey on Customer Service<br>W4: Lack of Infrastructure Development (Tradeshow)<br>W5: Lack of Industry Norm<br>W6: Lack of Service Standard<br>W7: Poor synergetic utilization of Macau attraction<br>W8: Unclear optimal scale of operation |
|---|---|---|
| **External Opportunities**<br>O1: China's Economic Development<br>O2: FIT Policy<br>O3: HK-Zhuhai-Macau Bridge<br>O4: CRM technology<br>O5: Automation Technology<br>O6: RMB Re-valuation | **Maxi-Maxi SO**<br>S1O1O2O3: IPO<br>S2O1O2O3O6: Expand casino operations<br>S3O1-O4: Legislation on tax contribution to well being o Macau<br>S4O1-O4: Investment on HR<br>S5O1-O4: **Upgrade casino facilities**<br>S6O1-O4: **Establish Macau Casino Association to promote Macau Casino uniqueness** | **Mini-Maxi WO**<br>W1O4: Share of customers' database<br>W1W3W4O4:**Creation of industry indicators**<br>W1W2W3O1O2O5: **Integration of facilities among different casino operators**<br>W7O1O5: Joint R&D on new games/automation<br>W8O1O2: Launch of study or optimal scale of casino operations |
| **External Threats:**<br>T1: Regional competitio<br>T2: Labour Supply<br>T3: Control on RMB flow<br>T4: AML Legislation | **Maxi-Mini ST**<br>S1S2T1:Low Cost Carriers/ casino joint airline service<br>S1S2T1:**Free docking charge for airlines**<br>S4S6T1:Import of labor<br>S6T4: Enact "appropriate" AML law | **Mini-Mini WT**<br>W1T1: CRM/Database marketing<br>W2T2: Joint training/ recruitment<br>W4T1: Compliance of concessionary contract with flexibility<br>W6T1: Improve customer service |

*Step 5: Building the House of Quality (QFD)*

The cause-and-effect linkages among the financial measures (as lagging indicators) and the non-financial indicators (as the leading indicators) are useful in explaining the sequence of hypotheses between the outcome measures and the performance drivers. The QFD can help establish subjective casual relationships among the financial versus non-financial factors. The importance scores in Figure 1 below come from Table 4 above (i.e. figures after each BSC notation e.g. Attract Investors is a financial measure with importance score of 8.3). The

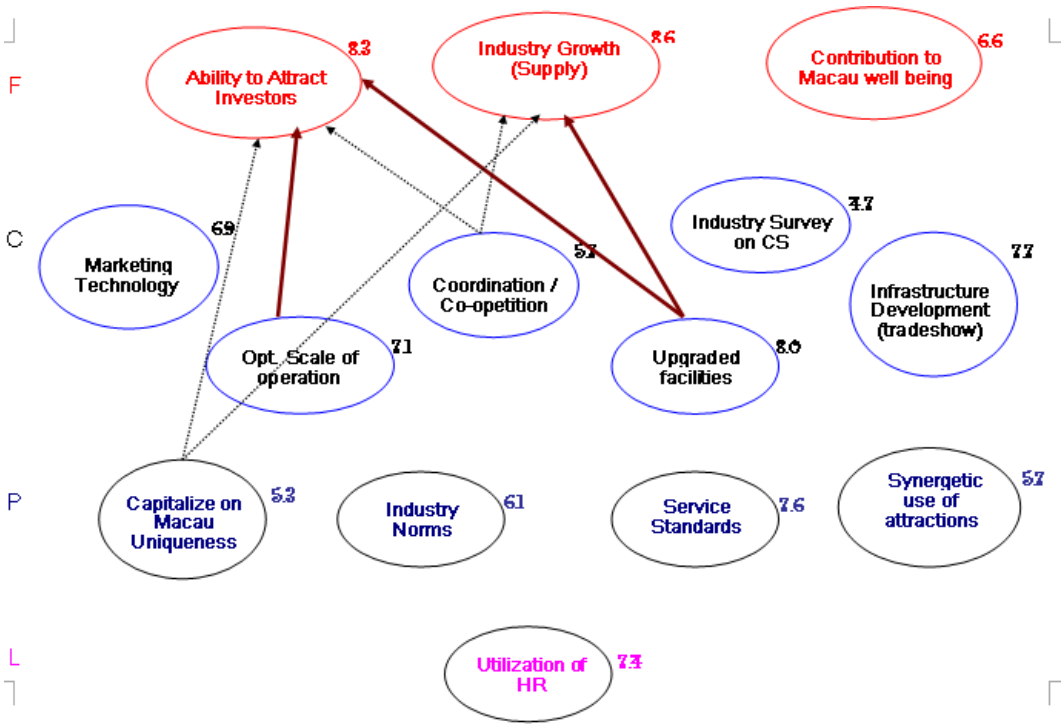
magnitudes of the perceived causal relationships range from 1 to 10 (i.e. the figures in the rectangular matrix in the centre of the QFD with 10 being the strongest perceived cause-and-effect relationship) were results of mutual agreement among the team members. The solid and empty circles in the “roof-top” represent the degree of perceived extent of correlations among some of the non-financial measures. The BSC measures are shown in the lower portion and the right-hand portion of the House of Quality.

**Fig. 1: The House of Quality for BSC measures for the gaming industry**




The QFD enables a succinct way of depicting the relationship among the various internal factors. The perceived causal relationships with magnitudes over 8 are shown in the figure below. These strong cause-and-effect relations are represented by thick (for 10 point magnitude) and dotted (for 9 point magnitude) lines respectively.

**Fig. 2: The cause and effect relationships among the BSC measures**




*Step 6: Prioritizing the strategies and setting SMART objectives*

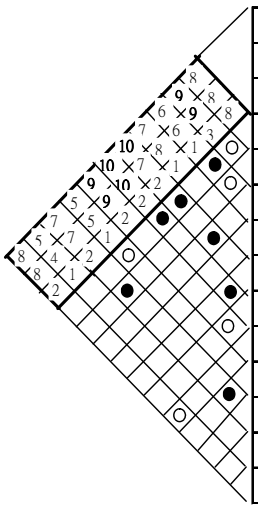
The strategies identified from the SWOT analysis were then prioritized by the team. SMART (i.e. Specific; Measurable; Achievable; Result-oriented; and Time-bound) objectives were set and agreed for the top five strategies.

**Table 6: The SMART objectives of top five strategies**

| Strategies identified from SWOT | SMART objectives |
|---|---|
| Upgrade casino facilities | Quarterly update of casino facilities upgrade progress |
| Free airline docking | Feasibility report by end 2006 |
| Integrate facilities among different operators | Feasibility report by end of 2007 |
| Establish Macau Casino Association to promote Macau Casino uniqueness | Memorandum of Understanding by mid 2006 |
| Creation of key industry indicators | By mid of 2006 |

In order to link up the House of Quality (HOQ) with the respective strategies, the HOQ in Figure 1 can be modified as shown in Figure 3 below.

**Fig. 3: The "modified" House of Quality**

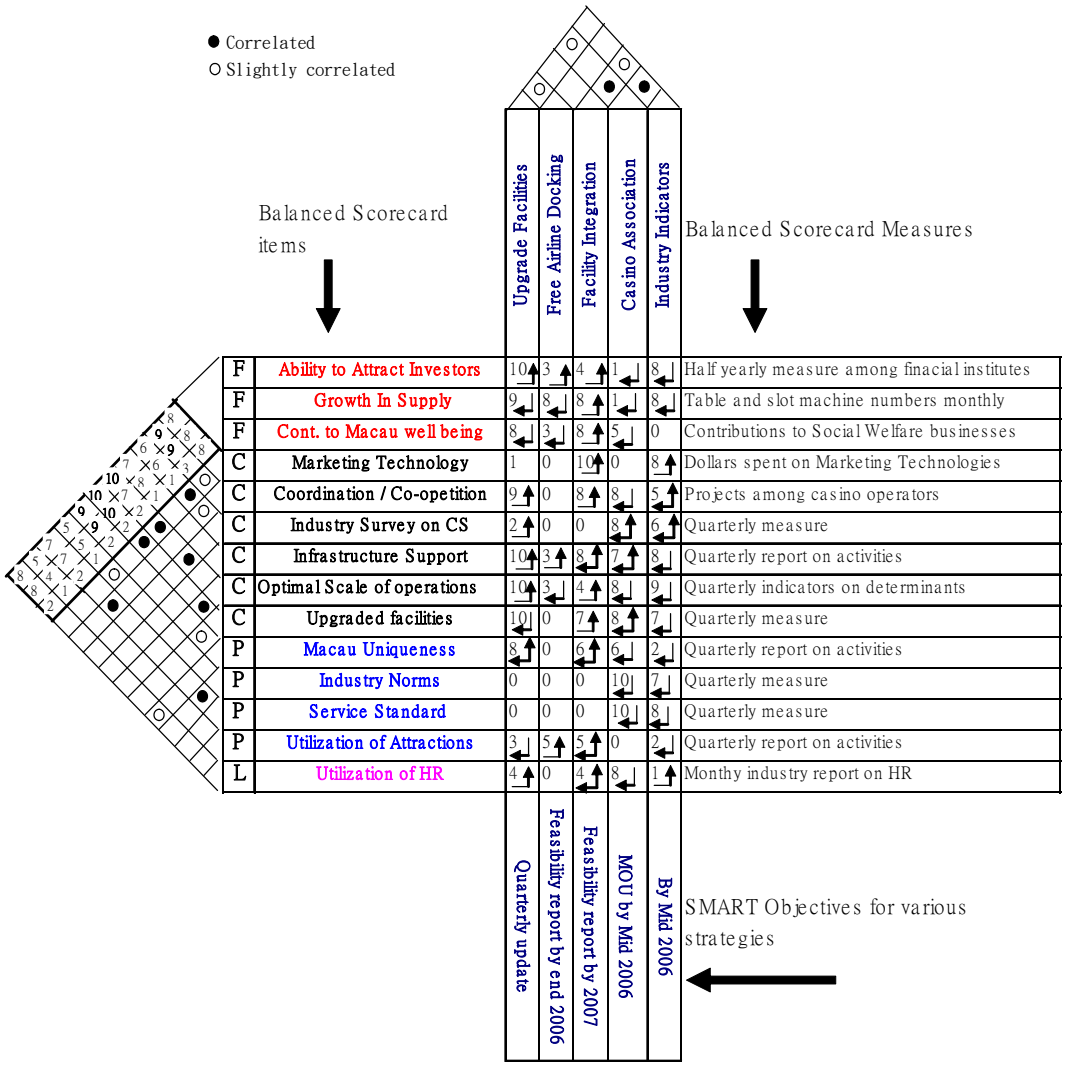


| | BSC items: | Measures |
|---|---|---|
| Financial | Ability to Attract Investors | Half yearly measure among finacial institutes |
| Financial | Growth In Supply | Table and slot machine numbers monthly |
| Financial | Cont. to Macau well being | Contributions to Social Welfare businesses |
| Customer | Marketing Technology | Dollars spent on Marketing Technologies |
| Customer | Coordination / Co-opetition | Projects among casino operators |
| Customer | Industry Survey on CS | Quarterly measure |
| Customer | Infrastructure Support | Quarterly report on activities |
| Customer | Optimal Scale of operations | Quarterly indicators on determinants |
| Customer | Upgraded facilities | Quarterly measure |
| Process | Macau Uniqueness | Quarterly report on activities |
| Process | Industry Norms | Quarterly measure |
| Process | Service Standard | Quarterly measure |
| Process | Utilization of Attractions | Quarterly report on activities |
| Learning | Utilization of HR | Monthy industry report on HR |

This modified HOQ is then combined with the strategies to become the Duplex House of Quality –DHOQ (see Figure 4 below). The numbers embedded in the matrix in Figure 4 represent the perceived extent of cause and effect relations among the internal factors listed on the left-hand side of the HOQ. The top five strategies are listed on the upper part of the DHOQ. The causal relations can be bi-directional, i.e. the internal factors can cause the successful implementation of the respective strategies and on the other hand the successful implementation of any specific strategy can contribute to the internal factors. The bended arrows represent a cause and effect impact with causal directions by any specific internal factor on the strategy (e.g. "Ability to Attract Investors" has a very strong impact on successful launch of "Upgrade Facilities" strategy). Similarly the successful launch of strategies can also strengthen the internal factors (e.g. "Upgrade Facilities" strategy would result in an improved "Upgraded Facilities").

The term "Duplex House of Quality" is coined here to explain the fact that two otherwise disjoint HOQs are merged effectively to depict the various perceived casual relationships.

**Fig 4: The "Duplex" House of Quality for the gaming industry in Macau**




**Conclusion:**

The case example of Strategic Development for the gaming industry in Macau has been used to illustrate how three powerful strategic tools viz., Balanced Scorecard, SWOT, and Quality Function Deployment can been fused effectively and seamlessly as a new holistic strategic formulation technique which should have a wide application in many organizations.

This new holistic model is called the "BSQ model" (acronym for the three traditional strategic tools that make up the model). This BSQ approach has the following EFFECTIVE advantages:

- **E**ffective integration of BSC, SWOT and QFD to yield synergetic benefits;
- **F**lexible to adapt to changes in external challenges;

- **F**air and open approach during the development stage;
- **E**asily understood by all concerned;
- **C**ommunication enhancement for all concerned;
- **T**eam-based approach to ensure smooth implementation of strategies;
- **I**mbedded opportunities to clarify different views to avoid misunderstanding;
- **V**ery simple and easy to apply as no sophisticated mathematics is needed;
- **E**xamining and quantifying the real internal and external factors systematically.

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