

## CHAPTER 4

## **CHAPTER 4**

### **TECHNOLOGICAL CAPABILITY ASSESSMENT**

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#### **4.1 INTRODUCTION**

This chapter highlights the assessment on the technological capabilities of the three selected companies. The assessment is based on the factors that are to be considered in putting the companies under different types, as has been discussed in Chapter 2. It is also based on the finding of the case study discussed in Chapter 3. In doing the assessment, information gathered from the interviews with the management team and the writer's personal experiences and knowledge would be extensively applied.

One of the simplest approaches in assessing the technological capabilities is by applying the Strength, Weakness, Opportunity and Threat (SWOT) Analysis. The analysis is derived from the interviews on the management teams and visits to the companies' premises as described in Chapter 3. The main purpose of conducting SWOT analysis is to provide an overview of the company's performance and the challenges facing the business. This analysis will then be used as a basis for providing

recommendations to improve company's technological capabilities. The recommendations are listed in Chapter 5.

## **4.2 SWOT ANALYSIS**

### **4.2.1 Malaysian Mining Corporation-Defence.**

- **Strength.**
  - **Financial/ Investment Capability.** MMC has strong financial base, particularly with the support from its parent companies, MMC Engineering Group Berhad, and Malaysian Mining Corporation Berhad. Both are listed in the Kuala Lumpur Stock Exchange (KLSE) main board. MMC Defence is therefore, able to undertake any major project, current as well as in the future.
  - **Parent Company's Track Record.** MMC Berhad has been in existence since 1928 and has long established a reputation as a strong player in Malaysian corporate circle. This gives MMC Defence an added advantage in bidding for any government contract. Its Chairman's strong political connection with the nation's present leadership has further reinforced its name as a reputable company.

- **Specialisation.** MMC Defence's focus on investing in and developing armoured vehicle technology has proven to be the company's strategic strength. There is no other Malaysian company as capable as MMC Defence in undertaking armoured vehicle refurbishment and modification activities. Over the years, it has gained the trust and respect of the Ministry of Finance and Ministry of Defence by producing quality output.

- **Strategic Alliances.** MMC Defence has established a chain of strategic alliances with well-known defence equipment manufacturers such as Cadillac Cage of the USA, Alvis of UK and Henschel of Germany. It is thus, in the best position to solicit technological assistance in any engineering project.

- **Weaknesses**

- **Lack of Manufacturing Capability.** Presently, the company does not have the facilities for manufacturing armoured vehicles parts, let alone the whole vehicle. It is only capable of conducting refurbishment and modification works.

- **No Dedicated R&D Department.** MMC Defence set-up does not have R&D organisation. This may hinder and discourage any

innovative ideas among the staff. R&D facilities provided by the parent company is shared by the other subsidiaries and may not be suitable for defence R&D, which is confidential in many cases.

- **Opportunities**

- **Establishment of Tank Brigade.** With the modernisation of the MAF underway, the army is expected to beef up its firepower and mobility by establishing a tank brigade. The current contract is only to cater for the inventory of one regiment. A tank brigade needs a full complement of three regiments. Thus, further purchases of tanks can be expected in the next Malaysia Plan.
- **Life Span of Present Armoured Vehicles.** The first generation armoured vehicles purchased in the early 1970s have seen better days. The weapon technologies incorporated then are now obsolete and new and state-of-the-art fleet of armoured vehicles is urgently required. Furthermore, the more urbanised nature of warfare now, has increased the requirement for a rapid deployment of combat personnel with sufficient armour protection.
- **The Need to Upgrade the Performance of Present Fleet of Armoured Vehicles.** The second generation of APCs such as the

- KIFV are still mechanically reliable but have reduced its operational performance. KIFVs for example, are due for first overhaul of engines after being in the service for nearly eight years. MMC can also expect the army to make a feasibility study on weapon system upgrading.

- **Threats**

- **Shrinking Defence Budget.** As a developing nation, the government is putting more emphasis on economic development rather than increasing defence capabilities. With no imminent military threats and peaceful environment the nation is enjoying now, a high allocation for defence expenditure is foreseeable.
- **Increasing Shift Towards Air Superiority.** The air power plays an increasingly important role in modern day military forces. Aircraft has superior advantages due to its speed, longer range and more devastating weaponry as opposed to using tanks or armoured vehicles. Fighter aircraft is also more expensive than tanks that raising a squadron of RMAF unit is costlier than raising a tank regiment. The annual 3% to 4% from GDP allocated for defence budget is not likely to change but there is a likelihood that it may be reduced.

- **Social Perception Towards the Industry.** Military is often associated with violence and brutality. Building a strong defence industry may not be acceptable to the majority of the people. Many companies are quite reluctant to venture into defence-related businesses for fear of being rejected by shareholders and the high risk the business may face.

#### **4.2.2 Diversifies Resources Berhad- Defence Technology (DRB-DEFTECH)**

- **Strength.**
- **Financial/Investment Capability.** DRB-DEFTECH has been recording impressive financial performance since its formation in 1997. It registered a pre-tax profit of RM 45 millions in 2001, an increase of 16% from year 2000. With strong financial standing, DRB-DEFTECH is able to invest in enhancing the technological capability. The successful bidding for the RM 1 billion APC contract will enable the company to further strengthen its financial performance for the next five years.

- **Parent Company's Reputation and Performance.** DRB-HICOM is one of the biggest conglomerates in the country and the government's interest is reflected by it being listed under Permodalan Nasional Berhad (PNB), the government investment arm. The company enjoys a preferential treatment in many government contracts.

- **Manufacturing Capability.** The company can have access to manufacturing facilities available in other subsidiaries of DRB-HICOM. Beside its limited manufacturing facilities in the Peramu Jaya Complex, two other sister companies, Master Builders Malaysia (MBM) and Automotive Corporation Malaysia (ACM) , are situated within the vicinity.

- **Strategic Alliances.** DRB-DEFTECH has managed to form strategic alliances with reputable manufacturers in both commercial and defence sectors. This will enable them to embark on collaborative projects to develop technological capabilities.

- **Weakness**

- **No Dedicated R&D Department.** The organisational structure



- does not cater for R&D establishment. R&D efforts are done on ad-hoc basis although small financial allocation is given.
  
- **Distance Between Corporate Office and the Plants.** The company's manufacturing complex in Pekan is very far from defence industrial hub in the Klang Valley that it poses some management and logistic problems.
  
- **Lack of Armoured Vehicle Engineering Experience.** DRB-DEFTECH started as a soft-skinned vehicle supplier, but is now entering into armoured vehicle modernisation project. Compared to MMC Defence, it lacks the skill and knowledge in armoured vehicle technology.

#### • **Opportunities**

- **Economic Life Span of Present Soft-skinned Vehicles.** The earlier generation of troop carrying and logistics vehicles (those purchased in early 1980s ) have reached their economic life span and need to be replaced with new ones. There are approximately 2,000 units that are scheduled to be phased out in the next three years.

- **Requirement for New Technology.** In line with the development in automotive technology, the army also needs to equip its fleet of vehicles with new equipment and systems such as the ABS, tyre self-inflatory system, infra-red painting and GPS. The company should be prepared to undertake all these upgrading plans.

- **Threats.** It is strongly felt that all Malaysian defence- related companies face the same threats that have been discussed in paragraph 4.2.1.

#### **4.2.3 Pesaka Astana**

- **Strength**

- **Innovation Capability.** PA is actively pursuing innovative projects, mostly using its own internal resources. It has managed to manufacture its own brand product through system integration, which is considered a feat for a new company.
- **Management Style.** PA is an owner-managed rather than manager-managed company. The owner and CEO, Mr. Rafii Sain is a resourceful and dynamic person, who is able to take PA to greater

heights. Management decision making is found to be fast as the chain is cut short by the owner-cum CEO.

- **Emphasis on Technological Development.** The management is putting much emphasis on building PA's technological capabilities by relentlessly continuing to acquire latest automotive technology and IT. The company seems to be willing to invest in technological advancement as evident by its collaboration with CNIM, a French company, to promote the modular Assault Bridge. This is considered a breakthrough for a Malaysian company. PA's R&D efforts are also commendable.

- **Weakness**

- **Financial/Investment Capability.** PA is a privately owned company and its entry into the local defence industry is considerably new. Compared to DRB and MMC, the company is not financially strong to invest heavily in high-risk ventures.
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- **Small Market Segment.** Specialised vehicle sector is a small market segment in comparison with general-purpose vehicle sector. In term of economy of scale, the pricing strategy should be thoroughly considered to remain profitable.

- **Opportunities**

- **Extended Market.** Beside the existing customer such as the Armed Forces and Police, PA can also look for prospective customers that require customised vehicles. Logging, construction, freight forwarding and civil engineering sectors can be the target to increase clientele.
- **Maintenance Services of Present Specialised Vehicles.** PA can study the feasibility of providing maintenance services of the present fleet of specialised vehicles held by the Royal Engineer Regiment, Royal Services Corps and REME Corps. Although many of them are not supplied by PA, the company can develop the required technological capability to undertake the task.

- **Threats.** Refer to threats faced by MMC Defence.

### 4.3 OVERALL ASSESSMENT

#### 4.3.1 Technological Capability Rating

	DRB-DEFTECH								
	Low	Med	High	Low	Med	High	Low	Med	High
Awareness			✓			✓			✓
Alliances			✓			✓			✓
Core Competence		✓			✓				✓
Facilities		✓				✓			✓
HRD		✓			✓			✓	
Investment Cap.			✓			✓		✓	
Innovation Cap.		✓		✓					✓
Management		✓			✓				✓
Manufacturing Capability		✓				✓			✓
R&D Effort		✓			✓				✓
Tech. Strategy		✓			✓			✓	
ToT		✓			✓			✓	
TOTAL	0	9	3	1	6	5	0	4	8

**Table 4.1: Technological Capability Rating**

Table 4.1 above illustrates the ratings given to the three companies, based on the SWOT Analysis conducted earlier. The technological capability ratings include the following dimensions:

- **Awareness.** It refers to the ability of the management to recognise the role of technology in competitiveness.
- **Alliances.** Denotes the efforts in establishing strategic alliances with reputable foreign companies and its effects on own technological capability development.
- **Core Competence.** Refers to the success of the company in defining its individual technological strength and building up a unique advantage in specific areas.
- **Facilities.** Refers to the infrastructure and equipment available and their state of technological advancement. To affect productivity and quality of product.
- **Human Resource Development.** Refers to the extent of skill development training provided to the employees and incentives for innovation provided by the company.

- **Investment Capability.** Refers to the financial standing that reflects ability to invest in infrastructure acquisition.
- **Innovation Capability.** Refers to the extent of innovative projects carried out by the company and whether it is successfully turned into marketable products.
- **Manufacturing Capability.** Refers to the company's ability to provide facilities for manufacturing products under license or on joint-production.
- **R&D Efforts.** Refers to the emphasis on and allocation provided for R&D activities.
- **Technology Strategy.** Refers to the process by which vision, mission and objectives are set and communicated within the company.
- **Transfer of Technology.** Refers to the amount of benefit gained from ToT arrangement with foreign alliances.

4.3.2 Technological Capability Matrix

The rating above gives an overall assessment on the capabilities of each individual company. It is worthwhile analyzing that the three companies have attained a satisfactory level of technological capability, although they have not reached the desired level of capability. It is also interesting to note that Pesaka Astana, a private entity and a late entry into defence industry, has been able to rise to a respectable level of technological capability. The level can be best illustrated by using the matrix as shown in figure 4.1.

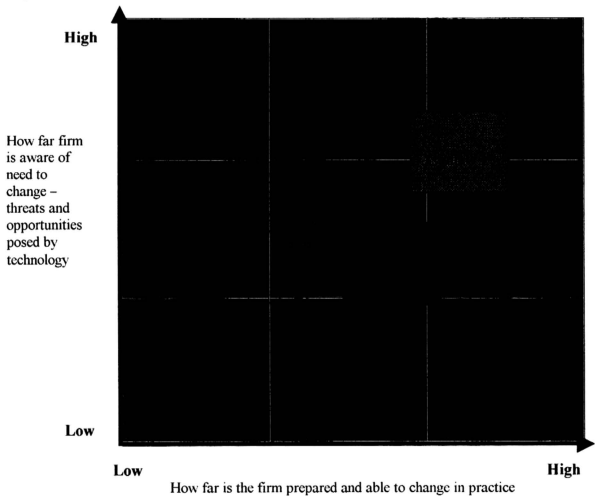


Figure 4.1: Firm Technological Capability Matrix



#### 4.4 SUMMARY

The capability level of each company can be summarised as below:

- **MMC-Defence.** It recognises the need for continuous improvement in technological capabilities .It tends to react to possibilities but is unable to shape and exploit events to their advantage. For instance, it was unable to dominate the refurbishment programme of APC although it has developed the expertise and experience. However it has strong in-house capability and should be able to provide the army with the required capability, especially in the maintenance of armoured vehicles and tanks. The appointment of MMC-Defence as the local agent for the supply of main battle tanks will enable the company to further boost its capability in tank technology
- **DRB-DEFTECH.** It has a clear sense of the need for technological capability development. It has the resources to impact any changes require because of it corporate strength. However it tends to be too diversified that it loses its focus on the assembly of dual-use trucks, in which it has developed high expertise. Its continuous technical co-operation with the MAF will ensure that its product will be well accepted

Overall, the company is able to provide the soft-skinned vehicles according to specification. However, it needs to improve its capability in armoured and tank technology.

- **Pesaka Astana.** As a private company, the performance of PA in the local defence industry is quite impressive. It has been able to develop technological capabilities and create a niche market for its products. It manages to produce its own brand of product under the name of AMDAC and keeps innovation alive and active in the company

Although the market for special purpose vehicle is small in Malaysia, the company is still able to remain active by penetrating the regional market. It has also formed strategic alliances with reputable foreign companies from which it is able to diffuse the technology. The company can be useful contributor to the army in particular and the nation in general, as it tries to position and develop a system of innovation for the future. Its close co-operation with the army in R&D activities is a sign that AMDAC products will remain in the inventory for a long time. The company has greatly benefited from the ToT arrangement with its strategic alliances.