

**Market Survey Analysis and Business
Development of DMS Technologies**

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Comments by the Faculty

Marketing is an important branch of any organization. It is like a main branch of a tree. Organizations are more focused towards satisfying the needs of the customers and retain them with them for longer periods. To achieve this, customers should be aware of the existing as well as new products in the market. The customers are more careful than before in selecting a product. They look for optimum return for what they invest. They need products which are cost effective and of good quality. Due to these factors, organizations are also more focused in establishing quality standards of their products in the market. Increased competition makes the organization to be innovative and release their products appropriately into the market. It is the marketing team that plays an important role in taking products to the customers and gain their confidence in terms of cost and quality. They identify the needs of the customers from time to time and help the organizations to produce new products.

Among several products, Printed circuit boards (PCB) are those which are being used to complete the electrical circuits for the connecting components. The present study was carried out by Ms. Rakhi Laddar at DMS Technologies Pvt. Ltd. Mysore.

The main objective of the study was to understand the position of DMS in the PCB market and to establish a technical partnership between DMS and companies who use PCB. The student was successful in achieving the objectives by adopting marketing strategies. One important strategy that she adopted was to meet the companies directly and present the profile of DMS in an effective way. She is successful in establishing the technical partnership between DMS and companies by a regular follow up, which is very important in marketing. It is interesting to note that she along with her friends, developed a brochure which is attractive than before.

The sales pipeline method has been adopted to establish a technical partnership with customers by introducing DMS and to understand the needs of different segments of the market. To understand the position of DMS in the market, SWOT analysis was used. Fundamental statistical analysis, of the data collected from the companies through a questionnaire, revealed that companies are interested in entering into a technical partnership with DMS.

The study ends by concluding that DMS has good scope to increase its customer base by adopting effective marketing strategies. Recommendations made at the end helps DMS to increase their market share as well as to expand their business.

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Introduction to Printed Circuit Board Industry

Printed Circuit Board (PCB) is a base board, primarily used to serve as a circuit board to complete the electrical circuits for the connecting components. The first PCB production in India started in 1960s and has made a mark with the advent of globalisation in segments like defence, aeronautics, medical instruments, computer peripherals and consumer electronics. Today, PCB market accounts to Rs.4000 Crores, and general consumer electronics alone account to Rs.1450 Crores followed by broadcasting and communication. This demand is mainly satisfied by importing boards from China, Taiwan, Hong Kong, Korea and US. China tops the list while India stands eighth in world position of PCB manufacturing countries. Domestic manufacturers mostly cater across electronics applications in India except motherboards, mobiles and high-end telecom equipment.

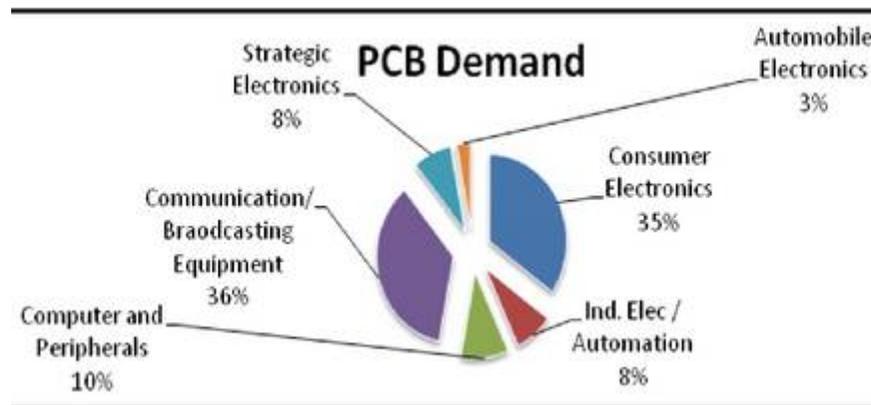


Figure 1

Brief profile of the company

DMS Technologies Pvt. Ltd. is an ISO 9001:2008 certified company having the certificates granted by Underwriters Laboratories (UL), numbered UL 94V-0 no. E 327931 and Electronic Component Logistic Instructions (LCSO) Indian Defence, providing end to end solutions for high technology Printed Circuit Boards. It was incorporated in the year 2008 under the provision of the Companies act 1956.

DMS Technologies charter is to build high reliability boards for industrial, medical, automotive, defence and telecom industries. It has an expertise of producing double sided and multi-layer boards with its capacity ranging from 50000m² for double sided and 30000m² for multilayer boards up to 18 layers. The Circuit boards manufactured are RoHS compliant with a finishing of Hot Air Solder Levelling (HASL), lead free HASL and Electrolysis Nickel Gold (ENiG). Apart from quality, DMS also focuses on delivering the products on the right time, which has become the main Unique Selling Proposition (USP) of it, delivering the finished products in just 2 working days. It also gives its customers an option to go for special type of PCB's that include buried via, blind via, metal core and metal clad.

Keeping the customers happy has always been the motto of DMS. It has developed a customer centric approach and favours customization to meet the needs of its customers of all levels. With its approach to deliver quality products on right time at the right price, has helped it to develop a large customer base of 250 companies within 3 years of inception and it continues to grow bigger.

Objective of the study

- ◆ To establish a technical partnership with customers by introducing DMS and to understand the needs of different segments of the market
- ◆ To understand DMS position in the market
- ◆ To analyse the strengths and weakness of DMS in the market
- ◆ To understand the client attitude about DMS

Methodology

The following methodologies have been adopted to achieve the above objectives. We present these with respect to each objective separately.

Objective 1: To establish a technical partnership with customers by introducing DMS and to understand the needs of different segments of the market.

The sales pipeline method has been adopted to establish a technical partnership with customers by introducing DMS and to understand the needs and different segments of the market see Hutt (2011).



Figure 2: Sales Pipeline

Lead Finding Activity

The study started with identifying companies in south India, who use PCB as a major component in their product. This was followed by obtaining contact information of the companies from various primary and secondary sources.

Primary sources

The information and the contact details of the key persons of the company were obtained from Business 2 Business (B2B) portals, www.hotfrog.com and www.tradeindia.com. These included the company's annual turnover, its inception year, the products it deals with, and key contact details of the company. This proved useful as companies were selected based on their annual turnover.

Secondary sources

- ♦ Visiting competitor's website and contacting their customers.
- ♦ Business magazines and the brochures obtained from the trade fairs.
- ♦ DMS's marketing partner, "SM Electronics" old contacts, which proved useful for the grievance and feedback drive.

Suspects

Once, the e-mail id of the company is obtained, the profile of DMS and the details of the raw materials used in manufacturing PCB's are forwarded to the customer.

Cold Calling

A regular follow up is done to get the customer's feedback about the profile and the pricing (Price matrix is disclosed only if a company shows interest in having a technical partnership with DMS).

Prospects

If the customer is convinced, they send an order in form of a GERBER file, and the Computer Aided Manufacturing (CAM) department analyses the

GERBER file in detail and gets back with the quotation in a maximum of 3 hours. In this phase, the customer has an ability to buy the product and converts himself to a prospect.

Customers

If the customers were convinced with the pricing, they would place a purchase order. This is the phase where the prospects evaluate the company and convert themselves as potential customers. If the customer is not convinced, negotiation happens between the Chief Technical Officer and the customer.

Client

If the customer is satisfied with the delivery and quality of the product, he places the order and turns into a client, by partnering into a long term technical partnership. If the customer still has a doubt, then he places a sample order for the second time to inspect the quality of the boards.

Objective 2: To understand DMS position in the market, BCG matrix has been constructed and the matrix gives the classification of DMS products.

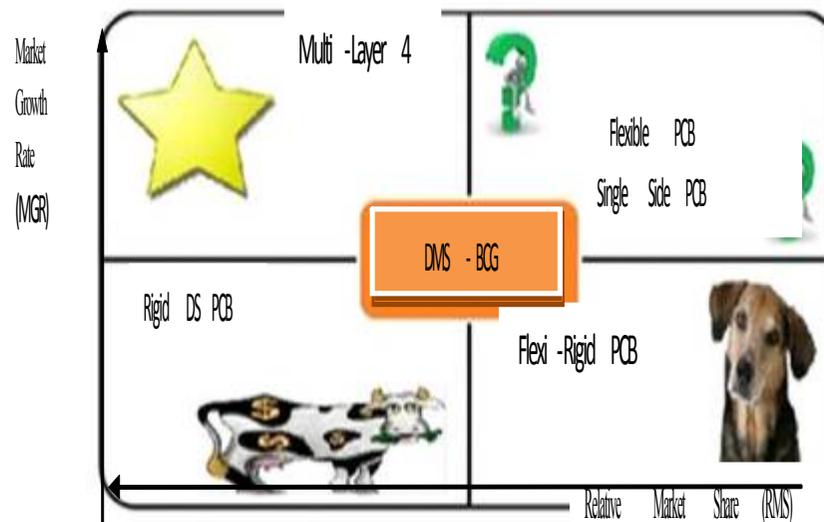


Figure 3: BCG Matrix

Cash Cows

Rigid PCB constitutes more than 70% of DMS's revenue. Customers prefer rigid boards, because of their durability, guarantee for life time, short lead time and their tooling charges. The DL PCB's take less time to manufacture and the defect rate is close to 3%.

Stars

Multi-layer 4 PCB's are picking up demand and constitute around 25% of DMS's revenue. This is the second largest selling product for DMS Technologies and many telecom customers prefer this as it is more compatible for their products.

Question Marks

Flexible PCB costs more and fetches huge profit margins. The raw material for flexible PCB comes from China in rolls, and once the roll is opened, it must be utilised completely and the left over raw material goes in scrap. The disadvantage here is that, the minimum number of orders DMS can take is 1000 boards. If the customer places an order below 1000, the order is rejected because a lot of raw material gets wasted. Stocking the raw material for a long time reduces its shelf life and the boards made from this material gets rejected in the final inspection and testing phase due to low quality issues. Till date, the revenue generated for DMS from Flexible PCB is not more than 5% of its total sales revenue.

Dogs

Flexi – Rigid PCB's have constituted less than 1% of DMS's sales revenue. Till date DMS has had only 1 order of 100 Flexi-Rigid PCB's. There is no point in stocking the raw materials for this type of boards, as again the minimum quantity expected by DMS is close to 1000 boards. DMS should stop asking customers about placing orders for Flexi–Rigid PCB's.

Objective 3: To study the strengths and weakness of DMS using SWOT analysis :

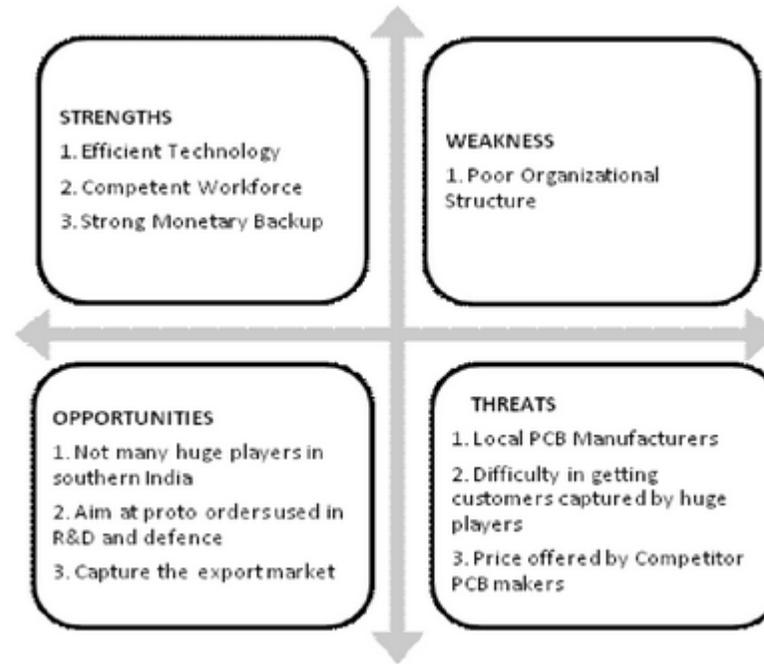


Figure 4 : SWOT Analysis

Strengths

Efficient Technology: DMS uses time tested technology and the machines are imported from European & US market to give a high end output for maximum customer satisfaction.

Competent Workforce: The employees of DMS are highly qualified and trained to be productive even at the extremes. Regular training sessions are implemented to ensure enhanced technical capability by the employers.

Weakness

Poor Organisational Structure: The managing director is responsible for many tasks from solving the queries of the customers to taking care of the delivery of the finished PCBs on time. There is no proper structure of management as result of which maximum work pressure is loaded on a single person.

Opportunities

Not many huge players in South Indian market: DMS has got all the privileges of having the latest technology and competency to produce the best PCBs in the world. The south Indian market has not more than 5 big players. They are unable to move ahead because of poor marketing strategy.

Aim at proto orders used in R&D and defence: Proto orders refers to orders in the range of 1 to 50 PCBs. R&D and defence organisations generally go for orders which are small in number but high in quality precision. They are ready to pay premium price for small lead time.

Capture the export market: Exports can be a huge revenue generator for DMS. This could be achieved through new technology and competent work force.

Threats

Local PCB manufacturers: The local PCB manufacturers give away the boards at half the price compared to DMS. Though quality has been an issue with these boards, this attracts customers who give order in bulk.

Difficulty in getting customers captured by large players: The customers are loyal to their existing suppliers and they refuse to try new PCB manufacturers as they receive quality products from them.

Price Offered by competitors: The PCB market is generally price driven. Lower the price offered by a manufacturer, customer attraction is more. Established players are able to do so with the use of competent technology and experienced workforce which gives a very high productivity resulting in a lower cost of production.

Objective 4: To understand the attitude of companies who are willing to enter into technical partnership DMS.

In order to understand the needs of the customer, a questionnaire has been prepared and used to collect important data from the companies in PCB market. This includes questions like, type of PCB, payment mode, interest to establish technical partnership with DMS etc. This questionnaire has questions that are limited to understand the product needs of the clients and their interest to establish a technical partnership with DMS. This analysis is meant to understand the perception of the companies towards DMS and

their interest to enter in to technical partnership with DMS technologies.

The data has been collected from 160 companies and was analyzed using fundamental statistical methods. The fundamental analyses include standard estimation procedures, constructed appropriately as per the objectives specified. After this, cluster and discriminant analyses were used to segment the customers, based on their preferences and interests, using SPSS (Statistical Package for Social Sciences). One can refer to Levine and Rubin (2002).

Fundamental statistical analyses

Based on the questionnaire, the following variables have been identified for analyses. These variables are classified according to their behavior as qualitative and quantitative variables.

Qualitative variables:

- ◆ Awareness about DMS
- ◆ Interest in DMS profile
- ◆ Type of board purchased
- ◆ Payment mode
- ◆ Interest to establish technical partnership with DMS

Quantitative variables:

- ◆ Frequency of orders.
- ◆ Annual turnover.

Important findings from data analysis

- ◆ There are 152 (95%) who didn't hear about DMS. Out of these, 127 (83%) showed interest in the profile of DMS and out of this, 52 (41%) said that they are interested to become a customer of DMS. It is to be noted that this is a good sign that companies are interested to enter into technical partnership with DMS and DMS has to improve its customer base by supporting these companies with their products. Though it seems to be less, at initial stages it is a good percentage and by involving them and gaining confidence of these clients, DMS can extend their customer base in future.

- ◆ Using this, a 95% confidence interval was constructed for those who didn't hear about DMS, are interested in DMS profile and who are interested to become a customer of DMS. The interval (0.28, 0.54), showed that in future, the percentage of individuals who are interested to enter into a technical partnership with DMS may stretch up to 54% above and 28% below. It indicates that if DMS wishes to improve their sales, it is suggested that they have to take appropriate steps immediately to include those companies who are interested to enter into technical partnership with them. If not, there is a chance that they may lose the interest of these clients and may end up with only 28% in future. If they take appropriate steps, then they can extend their customer base up to 54%. Once this upper bound is achieved, there is every chance that they can go beyond this and can expand their customer base.
- ◆ Note that out of 160, 101 (63%) clients said that they are ready to enter in to technical partnership. Out of these 101, 70 agreed for immediate partnership and 31 in near future. Out of these 70, 56 (80%) purchase from local vendors and 44 out of these said that they are ready to purchase from DMS by entering into technical partnership. This aspect is highlighted in the analysis as to inform DMS that there is good scope to expand their business. A confidence interval (0.53, 0.72), constructed for all those clients who are interested to be with DMS, shows that clients are interested in DMS products and it is correct time for DMS to frame marketing strategies to expand their business.
- ◆ Among 160, 120 (75%) preferred double layered PCB and out of these, 87 (72%- inclusive of future and immediate) preferred to purchase from DMS. This also shows that companies are interested to purchase from DMS and it also reflects that companies are interested in purchasing from a standard company like DMS which has a good profile in PCB market. The confidence interval (0.63, 0.81) shows that DMS has got good chance to capture market by improving its marketing strategies.
- ◆ Another important finding is that, 135 (84%) of the companies preferred credit of 30 days. This shows that most of the companies prefer credit transactions. DMS should take this as a caution note before it enters into a technical partnership with these companies. The companies which have an annual turnover of less than Rs.1 Crore, and who are currently buying PCBs from the local vendors, choose 30 day credit period as their payment mode.

- ◆ Companies buying PCBs from SHOGINI have an annual turnover of more than Rs.1 Crore and show 100% willingness in having a technical partnership with DMS.
- ◆ The companies, whose annual turnover is greater than Rs.5 Crore, choose advance as their payment mode and buy PCBs from Shogini or other big suppliers. They show their willingness to work with DMS in near future as they believe in quality boards.
- ◆ PCB designers contribute to almost 1250cr business, Computer Peripherals (a field not touched by DMS), has a potential market, of about 1000cr.
- ◆ LED and Street Lighting business contributes to nearly 800cr.

Cluster Analysis

Cluster analysis is a multivariate procedure, which is suited for segmentation purposes, and is involved in identifying groups of target customers who are similar in buying habits, demographic characteristics and psychographics. The variables taken into account are the frequency of purchase, the mode of payment, the company's annual turnover, the boards they buy and the liking of company profile. Based on the above data, the method used was Euclidian square method and 2 clusters were derived using SPSS.

Discriminant Analysis

Discriminant Analysis is used to distinguish between 2 or 3 sets of objects or people, based on knowledge of some of their characteristics.

Here, the clusters obtained from cluster analysis were used as the grouping variables and the factors used for classifying were the frequency of purchase, the mode of payment, the company's annual turnover, the boards they buy and the liking of company profile. A lot of variation was seen between the classifying factors.

The equation formed is

$$Y=0.644*\text{PAYMENT}-2.109*\text{LIKING}+1.609*\text{PROFILE}+0.964*\text{BUY PCB}-0.782$$

Here, Y is the response variable and indicates the decision by the technical officer to give the product asked by the customer looking at its payment mode, present supplier and the willingness to work with DMS. The remaining factor i.e. the frequency of purchase is not apt for discriminating between

the two groups i.e. irrespective of the fact, how many ever times a month the customer places the order, it will not affect the decision of the top management to give the PCBs to the customers.

When a new customer arrives, the company can collect the above details and calculate the value of y . If y falls in the limit $(0, 2.032)$ then DMS can trust the customers, and deliver the order. If the value of y is between $(-0.96, 0)$ then the company will have to be careful in taking a purchase order. A thorough company background check can be done, its relation with other suppliers and customers can be seen before making any decision.

Recommendations

- ♦ **Good partnership with customers:** When the existing customers were contacted it was found that they were unhappy with the delivery model of DMS. They were not contacted at regular intervals to check if there is any requirement of PCBs as a result of which they lost many orders. DMS should have a dedicated managing team who take care of all these issues and help maintaining a healthy relationship with the existing customers.
- ♦ **Just-In-Time methodology** for procurement of raw materials: DMS should search for suppliers who can provide raw materials when there is a need. This will reduce the cost of storing huge amount of raw materials and increase the productivity.
- ♦ **Concentrate on direct selling:** The marketing of DMS is done through SM Electronics, Bangalore because of which they are losing on the profit margin. If marketing is done by them, margins will rise by 1%- 2%, giving more revenues to the company.
- ♦ **Internet orders:** There should be options of receiving orders online. Customers should be able to place the orders through certain format by which they can provide all the necessary details to initiate the manufacturing of PCBs.
- ♦ **Customer centric approach:** DMS must have a customer centric approach in formulating various policies. The must try keeping their existing customers happy providing discounts on price if they go for bulk orders. Care must also be taken to know the feedback of the existing customers.

- ♦ **E Commerce Technology:** E Commerce to be used to maintain the record of the orders being taken, status of manufacturing done and attendance of the employees. This will enhance the efficiency of the system.

Conclusion

Market research is an important function that links the consumer, customer and public to marketer through information. A regular follow up is required to keep the customers informed about the company. The research makes an attempt to find the potential market in south India in a lucid and organised manner. While information is the key, but operational effectiveness will go a long way in ensuring the information is used effectively towards the end of achieving the organisation goals. The overall response of the market towards DMS has been highly optimistic and looks forward to have a technical partnership in future. It is highly recommended that DMS should now have a dedicated marketing team who will work on attracting the potential customers towards the company.

References

- Michael D Hutt (2011). Business Marketing Management (10th edition). CENGAGE Learning.
- Richard I. Levin, David S. Rubin (2002). Statistics for Management (7th edition). Pearson.

Web References

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<http://www.ipcaindia.org/pdffiles/PCBindustryscenarioupdate.pdf>

Appendix: Questionnaire

1. Have you heard about DMS?
 - a. Yes
 - b. No

2. Where do you buy your PCBs from?

3. How frequently do you place the order in a month?

4. Did the company profile interests you?
 - a. Yes
 - b. No

5. What type of board do you usually purchase?
 - a. Double Layer
 - b. Multi Layer
 - c. As per the requirement

6. Annual Turnover of the company?

7. Payment mode during the purchase order period?
 - a. Cash On Delivery
 - b. Credit of 30 days
 - c. 50% Advance

8. Do you wish to have a technical partnership with DMS?
 - a. Yes
 - b. NO
 - c. In Near Future

