



A Study on Small & Medium Enterprise: Using Marketing Analytics in India from Logistics Perspective

KEYWORDS

Entrepreneurs, International trade, Small to medium-sized enterprises, Europe, Marketing Analytics

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ABSTRACT *This paper aims to focus on the determinants influencing the internationalization of small and medium-sized enterprises (SMEs) in India. The objective is to investigate and evaluate the business environment and, then, examine the importance of developing and promoting entrepreneurship to allow SMEs in India to develop a competitive position in the international marketplace. An overview is provided of the current economic situation facing SMEs in India. Then factors necessary for the expansion of the business will be discussed, along with the challenges of overcoming the resource gaps to be identified. We have conducted empirical surveys along with the use of SPSS statistical tools to predict the potential of revenue growth in SME sector. Information is provided concerning the current situation for SMEs in India and the challenges encountered as they face a business environment that is becoming more competitive. We also found that SMEs are increasingly more integrated to global economy and not limited to regional/international activities. Quantitative analysis shows that there is significant potential for SME for next couple of year despite economic uncertainty. This paper integrates entrepreneurship, and the resource-based internationalization of SMEs in India, specifically focusing on the use of technology.*

INTRODUCTION

In an exacting economic environment, small and medium sized enterprises (SMEs) have been presented with a challenge; to progressively increase the profitability of their businesses against a backdrop of commonly weak demand. This report summarizes the results of research into the performance and competitiveness of SMEs in this business environment, with a specific focus on attempts by SMEs to 'internationalize' their businesses and how this impacts on their growth

The definition of SMEs

Small and medium-sized enterprises (SMEs) are a very heterogeneous group. SMEs are found in a wide array of business activities, ranging from the single artisan producing agricultural implements for the village market, the coffee shop at the corner, the internet cafe in a small town to a small sophisticated engineering or software firm selling to overseas markets, and a medium-sized automotive parts manufacturer selling to multinational automakers in the domestic and foreign markets. The owners may or may not be poor; while the firms operate in very different markets (urban, rural, local, national, regional and international) which embodies different levels of skills, capital, sophistication and growth orientation, and may be in the formal or the informal economy. Statistical definition of SMEs varies by country but is usually based on the number of employees, value of sales and/or value of assets. Due to its ease of collection, the most commonly used variable is the number of employees. The EU, a large number of OECD members, transition and developing countries set the upper limit of number of employees in the SMEs between 200-250, with a few exceptions such as Japan (300 employees) and the USA (500 employees).

Global economic integration is changing the competitive paradigm in which all businesses operate, requiring an international expansion strategy to positively impact long-term growth and survival (Karagozoglu and Lindell, 1998). The small business sector has become more important as they emerge as a dominant force impacting the growth of national economies (Shridhar, 2006). Although, there are a number of disadvantages inherently faced by SMEs as they transition into international environments (Chen and Huang, 2004).

Managers of non-exporting SMEs perceive the international environment as being risky, unprofitable and unmanageable, primarily due to misinformation and lack of experience with global business (Malekzadeh and Nahavandi, 1985). SMEs, due to their size limitations, often have limited financial capital and a lack of necessary human resources. Many operators of small businesses lack experience in developing an international strategy (Tesar and Moini, 1998). There are also disadvantages related to a lack of competitive power as a consequence of the size of the organization. SMEs have difficulty in influencing global pricing as they rely on only a small customer base, and are limited in expansion due to minimal access to financial resources (Kalantaridis, 2004). Faced with the need to overcome significant weaknesses, the strategic importance of SMEs has been identified in several factors. They are responsible for growing employment at a faster rate than organizations; they increase the competitive intensity of the market and reduce the monopolistic positions of large organizations; they encourage the development of entrepreneurial skills and innovation. Larger SMEs in the USA, account for three out of every four new jobs and contribute to providing over half of the gross domestic product (Underwood, 2004). From 1992 to 1999, the number of SMEs that were involved in exporting increased over 100 percent, to nearly 97 percent of all exporting firms in the USA, and accounting for \$168.5 billion in value (Underwood, 2004).

SMEs typically provide capabilities that their larger customers do not have nor cannot cost-effectively create such as:

[1]Agility in responding to changes in technologies, markets, and trends;[2] Efficiency due, in part, to less bureaucracy;[3] Initiative and entrepreneurial behavior on the part of employees resulting in higher levels of creativity and energy and a greater desire for success;[4] Access to specialized proprietary technologies, process capabilities, and expertise; Shorter time-to-market because operations are small and focused; [5]Lower labor costs and less restrictive labor contracts;[6] Spreading the costs of specialized capabilities over larger production volumes by serving multiple customers;[7] Lower cost, customer focused, and customized services, including documentation, after-sales support, spare parts, recycling, and disposal.

SMEs' international competitiveness

As trade barriers are removed, logistics and communication costs fall, small and medium-sized enterprises have adapted to new challenges to stay competitive in an international marketplace. These developments have also opened up opportunities for SMEs. Their integration into the global economy has prompted them to develop new international activities such as attempting to open new markets; adding more value to their products and services; while reducing their cost base. Assessing an SME's international competitiveness requires consideration of the economic, political and social aspects within the SME's country of origin, as much as looking at the SME itself. Both levels of analysis have to be taken into account in this research:

At the macro level, 'national' competitive advantages, such as access to new technologies, skilled labour, market structure, logistics and infrastructure.

The micro level, company-specific competitive advantages, such as price, quality, service, responsiveness and innovation

Time Series Model Overview

A time series is a set of observations obtained by measuring a single variable regularly over a period of time. In a series of inventory data, for example, the observations might represent daily inventory levels for several months. A series showing the market share of a product might consist of weekly market share taken over a few years. A series of total sales figures might consist of one observation per month for many years. What each of these examples has in common is that a variable was observed at regular, at known intervals over a certain length of time. Thus, the form of the data for a typical time series is a single sequence or list of observations representing measurements taken at regular intervals.

One of the most important reasons for doing time series analysis is to try to forecast future values of the series. A model of the series that explained the past values may also predict whether and how much the next few values will increase or decrease. The ability to make such predictions successfully is obviously important to any business or scientific field.

The Time Series Modeler procedure estimates exponential smoothing, univariate Autoregressive Integrated Moving Average (ARIMA), and multivariate ARIMA (or transfer function models) models for time series, and produces forecasts. The procedure includes an Expert Modeler that automatically identifies and estimates the best-fitting ARIMA or exponential smoothing model for one or more dependent variable series, thus eliminating the need to identify an appropriate model through trial and error. Alternatively, you can specify a custom ARIMA or exponential smoothing model.

Design of Marketing Predictive Analytics Methodology

The study has drawn upon recent studies of SMEs; from IHS proprietary data and reports; and most significantly from primary research of SMEs through an online survey.

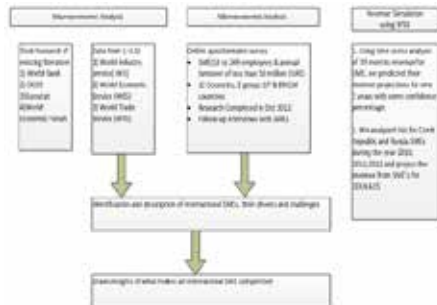


Figure 1 – Approach of Marketing Predictive Analytics Methodology
Source – Author & I.H.S Survey

Note: The SME sample for the primary research is based on 410 respondents – owners or members of the senior management team at SMEs having between 10 and 249 employees. The questionnaire is available with the author upon request.

Performance indicators

We identified a group of high-performing SMEs based on their average annual growth rate over last three years. These were defined as SMEs who have achieved:

More than 10% average annual growth rate over last three years for G7 countries (on average, the G7 countries had a 1.58% growth in GDP).

More than 20% average annual growth rate over the last three years for BRICM countries (on average, the BRICM countries had a 5.84% growth in GDP)

The study also classified SMEs by key competitive advantage; were they "efficiency" or "innovation" driven. Of course, all SMEs have a mix of both criteria but, through our research, we were able to classify two groups according to their predominant business characteristic. Efficiency-driven companies compete on the basis of efficient production processes, quality product improvements and well-organized logistics services. Innovation-driven companies compete by providing new or unique products / services creating their own market

Revenue Analysis Methodology

We performed several revenue analyses with various statistical methods and based on different customer segmentations (e. g., customer classification according to the industry or loyalty codes) to receive the prediction with the highest possible quality.

In the end we selected three methods with the best performance across India:

- Prediction of total revenue
- Separate predictions of mean revenue per invoice and of number of invoices, for the whole SME sector together
- The fitting of the time series and the predictions were created in SPSS Modeler with Expert Modeler function.

Process:

- We used customer relationship management (CRM) to gather information about customers along with their account number.
- Each customer is uniquely identified and may have many account number associated.
- The revenue per month aggregated by account number for each country for last 40 months

We identified the SME customer segment based on the revenue and run the SME revenue analysis. Also the clustering with SME was based on the following:

- Sales channel –it is defined as "A channel to market is the method of getting your product into the customer's (the end user's) hand. This can either be through direct sales, or through a reseller."
- Loyalty Code – it is defined as "Customer loyalty is all about attracting the right customer, getting them to buy, buy often, buy in higher quantities and bring you even more customers"

The following value was predicted using the time series model

- Prediction of total revenue
- Prediction of mean revenue per invoice and of number of invoices

The quality of the model could be improved if the total revenue was divided into 2 individual time series:

Total revenue = number of invoices * mean revenue per invoice.

The number of invoices and the mean revenue per invoice are then analysed separately. This brings new insight into the revenue analysis, because the series usually behave differently and this knowledge can be integrated into the further decision process (e. g., although the total revenue is constant, the mean revenue is decreasing while the number of invoices is rising).

Empirical Results and Analysis:

Our first group of interests in international SME that operation in two or more countries; typically 70% of country respondents



Figure 2 – – Graph representation of International SME Operation in 2 or more countries
Source I.H.S Survey 2012

International SMEs have developed multi-faceted international activities

Small and medium-sized enterprises are affected by globalization while being increasingly forced to think and act internationally. The first finding of this study is that SMEs' internationalization no longer has a limited focus on exporting / importing, but has become a much more differentiated business activity encompassing subcontracting as well as technical or commercial cooperation. SMEs may be engaged in cross-border partnerships and foreign investments to capitalize on new opportunities.

Although smaller SMEs are less internationalized than bigger SMEs, but even for them, internationalization is today a reality. While 80% of SMEs with 50 to 249 employees are operating at an international level, 66% of SMEs with 10 to 49 employees are international. One point to notice nevertheless is that the size difference is still marked when analyzing the share of small-sized enterprises with more complex forms of internationalization, or a combination of more than one form of internationalization.

The modern SME may well be engaged in international business activities beyond IMPORT/EXPORT

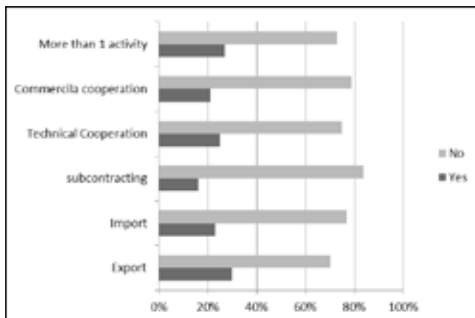


Figure 3: Percentage of SME's involved in international business activities
Source: I.H.S Survey 2012

Note: Technical cooperation defined for example, sharing

know-how technologies etc. Commercial cooperation defined as marketing, distribution etc.

Our survey identified a high number of SMEs having international activities within their first five years of existence. For instance, while 27% of all SMEs have more than one international activity, this indicator rises to 31% of SMEs with less than five years of trading, despite having had less time to expand their businesses (a general assumption would likely be that the figure would be much lower for younger SMEs). This demonstrates a growing trend towards the internationalization of SMEs.

Young international SMEs are a reality of today's economy and are, in our survey, responsible for an important part of SME internationalization. Recent literature points to a growing number of such firms trading internationally within the first five years of their creation. These 'born global' SMEs see themselves as international rather than national players.

Interestingly, these 'born global' SMEs are also more prevalent in BRICM countries (24%) than in G7 countries (13%). The rationale behind could be that BRICM based small and medium-sized enterprises are strategically more focused on international markets than their G7 peers.

Logistics Service:

A World Bank study on logistics performance - "Connecting to Compete" - includes an index built around a survey of logistics professionals who evaluate the logistics environment in the countries where they work, providing information on the quality of infrastructures, the performance of core services, the ease of trade clearance procedures, and the time, cost, and reliability of import and export supply chains. The logistics performance (LPI) is the weighted average of the country scores on the six key dimensions:

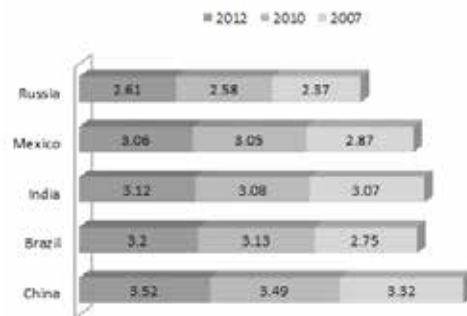


Figure 4- Logistics Performance Index
Source: World Bank

Logistics Performance Index overall score reflects perceptions of a country's logistics based on efficiency of customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. The index ranges from 1 to 5, with a higher score representing better performance. The data is derived from Logistics Performance Index surveys conducted by the World Bank in partnership with academic and international institutions, and private companies/ individuals engaged in international logistics. The 2009 round of surveys covered more than 5,000 country assessments by nearly 1,000 international freight forwarders. Respondents evaluate eight markets on six core dimensions on a scale from 1 (worst) to 5 (best). The markets of the respondent's country are chosen based on three considerations; the most important export and import markets, random selections, and, for landlocked countries, neighbouring countries that connect them with international markets. Scores for the six areas are averaged across all respondents and aggregated to

a single score using principal components analysis. Details of the survey methodology and index construction methodology are in Arvis and others' Connecting to Compete 2010: Trade Logistics in the Global Economy (2010).

For BRICM SMEs logistics are seen as having a strong positive effect on their business performance

The table below shows the percentage of G7 SMEs and BRICM SMEs that consider logistics as having a "strong positive effect" on their business performance. BRICM SMEs consistently value logistics services higher than their G7 peers, often to a factor of 2 or more. On average, 14% of G7 SMEs consider logistics services as fundamental to their strong business performance compared with 27% of BRICM-based SMEs.

Table 1 – What effect do you think logistics can have on the following aspect of your business performance?

Business Performance	SME's	Bricm Sme's
Increasing Sales	27%	38%
Opening new markets	26%	38%
Accessing new products, materials or suppliers	21%	31%
Differentiating your products or service offering	20%	28%
Reducing your need for long term capital	16%	21%
Reducing Operating cost	15%	19%
Reducing Stock obsolescence	14%	18%

Source I.H.S survey 2012

International competitive advantages - Internationalization as a driver to performance

Internationalization is seen as an opportunity to increase sales, while additionally affects the firm's competitiveness in other ways too. For instance, through improved cost-efficiency by subcontracting abroad; developing know-how and technology competencies via technical cooperation; and extending product ranges through commercial partnerships.

From our survey, we observe two interesting findings:

- For 41% of SMEs, the main reason to develop international activities is to access new markets.
- For 31% of our respondents, the main reason to develop international activities is linked to long term business growth ('Access to know-how and technology' and 'Diversification of product / service portfolio').

Encouraged by initiatives from the World Trade Organisation (WTO) and the General Agreement on Tariffs and Trade (GATT), as well as regional agreements such as MERCOSUR and the EU Single Market, subcontracting, technical and commercial co-operation can strengthen the ability of SMEs to compete successfully at the international level while continuing to maximise their local strengths. One example of can be found in the northern Mexican regions. Small and medium-sized enterprises there have developed a specific form of cross border partnership that takes advantage of the innovative US business environment, allowing access to know-how and technology.

Table 2: Question: What are your main reasons to increase your international business activity?

Reason to increase international activities	International SME's
Access to new markets	41%
Access to know-how and technology	17%
Diversification of product/service portfolio	14%
Additional production capacity	11%
High labour cost in the domestic market	7%
Access to cheaper raw material	4%
Access to capital	3%

Access to labour force	2%
More flexible regulation	1%

Source I.H.S. survey 2012

Revenue Analysis Result

The total revenue of India shows increasing trend as well. The difference of the level of the third model (model based on the cluster analysis) is caused by incompatibility between data sources; cluster analysis needs additional customer data which weren't available in CRM for all the accounts, so this algorithm cannot be applied to Indian revenue prediction. We chose the simplest model – direct prediction of the total revenue. According to this model, the revenue should increase from by 39%.



Figure 5 - Comparison of the predicted total revenue calculated with 3 different methods
Source - Author

Conclusion:

So, do SMEs that trade internationally perform better? Our research strongly suggests that they do.

We were surprised by the high proportion of our sample that traded internationally. Given this sample profile it is reasonable to expect that international SMEs figure significantly in our high-performers category; but they do outperform their domestic-only peers. So the idea of internationalization being a driver of business performance is certainly supported by our results. The reasons for this could be that international SMEs transfer best practice developed internationally to their overall business, as well as the idea that SMEs which expand internationally are more likely to be ambitious.

Evidently, SMEs are increasingly integrated into the global economy and not limited to regional / national activities, but in fact have gone beyond what is often the first step of internationalization; exporting / importing. Among the SMEs surveyed, 73% of companies had at least one international activity and, among them, 43% were involved in exporting activities – SMEs are not just local service providers.

Further points of interest with regard to international SMEs which support our conclusion include:

International SMEs perform better than the average domestic SME; 26% of the international SMEs in the sample were high performers, while only 13% of the domestic-only SMEs were measured in that study. In fact, more than 30% of our respondents see the increase of their international activities as a way to improve their long term business growth through acquisition of knowhow and product diversification.

SMEs are increasingly focused on doing business internationally, with younger companies which are more likely to be engaged in overseas markets despite having had less time to grow their businesses. Often referred to as 'born global', these young international SMEs are a reality of today's economy often exploiting the spread of inexpensive communication technologies and efficient logistics services.

SMEs in BRICM countries are more likely to have international activities than SMEs in G7 countries: one explanation for this is that a real business driver is to set up strong business

relationships with high consumption per capita developed markets. In fact, 70% of BRICM high-performing SMEs have the majority of their international clients, partners and sub-contractors in developed countries. This also suggests they are better placed to respond to opportunities in new geographical markets than many G7 SMEs in the future.

High-performing international SMEs cited three key challenges to their export efforts; 'lack of knowledge of foreign markets', 'high customs duties in the destination country' and 'establishing contacts with foreign partners / customer base.' Governments looking to boost the competitiveness of their SMEs should take serious consideration to these factors.

Logistics is seen as having a positive effect on many aspects of a SME's performance with a distinct difference between G7 countries (where logistics is seen as a way to reduce operating costs) and BRICM countries (where logistics is seen as a means to differentiate their product or service offering).

Finally, and impacting all SMEs, there is a real lack of reliable and up-to-date information about SMEs on a country by country basis, despite the significant contribution made by SMEs to employment (typically 35- 45% of total employment) and value added to an economy (typically 30-40% of total

value added). This lack of information is itself a restraint upon SMEs since it restricts SMEs' ability to organize them while present their case around credible data and information; basically to have a "voice." Linking back to the internationalization thread of this report, as one respondent explained, banks, investors, institutions do not think of SMEs as operating at an international level. This is certainly in part due to the lack of reliable information on this subject which hinders the construction of a clear vision for such a heterogeneous group. Evidently to this report, there is a clear opportunity for policy makers to support this sector as a means to create more jobs, add value, and increase export earnings.

From the SPSS analysis, we could see that there is immense potential in SME sector, especially in Czech Republic. If we can provide portfolio of products designed for SME, we can activate this potential and increase the revenue of growth for the next couple years through predictions based on analysis of the past few years' performances.

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