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Full Research Article

The impact of core product and core application on Product launch and its success in an Industrial Market

Shri. Suresh Tulshiram Salunke and R K Srivastava

Affiliation with University of Mumbai India, Room No 129, Thesis Section, University of Mumbai, M.G. Road, Fort, MUMBAI--400 032, INDIA. TEL: +91(22)22703248, +91 (22) 2265 2819, 2265 2825,
Email: sure1406@hathway.com.

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This paper investigates the problem of a firm that is uncertain about the selection of product at enquiry stage. The proposed research will throw light on impact product selection based on core product and core application for success in Industrial market. This will in organization decision maker for selection of product at enquiry stage for Industrial market. Multivariate methods are used to probe these success or failure probabilities.

Keywords: Core product, core application, Industrial product strategy, success factors of new products.

INTRODUCTION

In the cut-throat competition that businesses face all over the world today, developing a new product or upgrading an existing one, and diversification have become existential necessities of business houses for achieving uninterrupted success. Among these, the development of a new product often is the top priority. Therefore, in business and in engineering, new product development (NPD) covers the entire process of introducing a new product or service in the market.

Both the core product and core application are recognized as the most important business development activities of companies. Our primary objective is to systematically examine the impact of the key product and its competitive environment and consumer drivers across markets.

Role of new product

Gray L Lilien and Eunsang Yoon (February 1999), studied the role of 112 new products in the industrial market and identified the role of a new product in three dimensions: 1). General management, 2). Business-project, and 3). R&D & marketing interaction.Lilien and Yoon (1999) and Mattias Bokinge; Johan Malmqvist (2012) confirm that dynamic interaction exists between these determinants and the launch time of the product. However, Mattias Bokinge; Johan Malmqvist (2012) suggested that further research is required on the launching time and the success factor for the industrial market.

Product launching for Industrial market

In the new process of launch in Industrial Market, Clayton M Christensen and Michael E Raynor,(2003), suggested a 'Two process' strategy for strategy formulation.

The authors Michael E Raynor, (2003), explained that in every company there are two simultaneous processes -- deliberate and emergent -- through which strategy comes to be defined.

The Stage Gate Process of Product Launch

Roger G Cooper (2001, pp. 128) suggested stage gate process for product launch, together with the critical success factors, have been fashioned into a Stage-Gate new product process -- a conceptual and operational model -- for moving a new product project from idea to launch for industrial products. The Stage–Gate process is a blueprint for managing the product innovation process to improve effectiveness and efficiency.

Importance of success factors in New Product

Gerard H. Gaynor (1991) defines the 'first success factor' as the shortest time span 'From Concept to Commercialization' of a new product. The development cycle includes research, development and manufacturing. The 'second success factor', according to Gaynor, will be the 'Formation of Product Strategy' that shows what the product will be. It goes hand in hand with the selection of the target market as described by Robert G. Cooper, (2001) and Quoc Hoang Dinh, (2012). It is important to define the product in such a way that it describes the target market and the product strategy.

Bearing Industry

There are about 103 large and medium units in India which together churn out over 100 million bearings every year. Almost all the units have foreign collaborations. The Indian Bearing industry manufactures around 500 types of bearings out of the over 30,000 types of bearings that are being used by the various Indian industries. A bulk of these are only of standard types and are used mostly in low-technology areas like fans, electric motors and water pumps, and in the automotive sector [Reference Kamtech Associates, November 2012 report].

Product development process in bearing industry

Bearing Industries product development process is driven by Automotive companies as per G.Lechner, H.Naunheimer (1999), and Bearing Company Advance Product Quality Manual (2012) and VDA (2012).

Product Life Cycle in Bearing Industries

As per G. Lechner and H. Naunheimer (1999)) & QS 044 (2012), NRB internal specification, all bearing products have a limited life.

The life span of various products can differ greatly and depends very much on how well attuned the product is to consumer needs. This is supported as per John Ashcroft (2012); the industrial high technology product life cycle is from three to five years.

Need for the Study

In India, there are more than 25 organized and unorganized rolling bearing manufacturers who mainly focus on, and invest money in, developing products for the automotive segment while the industrial segment is neglected. It is also important to note that so far, there is no mutually accepted criteria for selection of product based on core customer and core application.

Benefits of the Study

This research provides methodology for the product selection process for development of the product for the industrial market in the Bearing Industry of India. Therefore, risk takers in the bearing business such as the employers or investors or the employees will be able to design and introduce a customized process of product selection at the enquiry stage.

LITERATURE REVIEW

Product Life concept

Product life definition as per Saaksvuori, Immonn, (2002), is a systematic, controlled method for managing and developing industrially manufactured products and related information. In other words, work that had once been done should remain exploitable, regardless of place, time or-within prescribed limits, naturally-data ownership.

Role of New product for organization

Joan Magretta (2012) did research on product development and defined the role of product for organization based on his research.

The first role of new product is to enhance 'Bargaining power' with customer or supplier. Always customer will use clout to force prices down and they may demand in to put more value to product or service. Therefore innovative NPD management strategy will influence the barging power of an organization.

The second role of new product is 'to control powerful supplier's higher prices' because powerful suppliers leverage to charge higher prices or to insist on more favorable terms in terms industrial marketing.

TABLE -1				
Chi-Square Goodness-of-Fit Test for Categorical Variable: Core product				
Test				Contribution
Category	Observed	Proportion	Expected	to Chi-Sq
1	9	0.2	84.8	67.7552
2	47	0.2	84.8	16.8495
3	117	0.2	84.8	12.2269
4	147	0.2	84.8	45.6231
5	104	0.2	84.8	4.3472
N=424. N* =6.DF=4.Chi-Sq=146.802.P-Value=0.000				

Role of new product for Industrial market

As defined by Karl T Ulrich, Steven D Eppinger,(2009,p4,5&6) & the role of new product for Industrial market is to control the cost and duration of product in market and those are directly controlled by development of new product. Very few products can be developed in less than 1 year, many require 3 to 5 years, and some take as long as 10 years. Further author states that, the cost of product development is roughly proportional to the number of people on the project team and to the duration of the project. This is again supported by Young-Choon Kim, Jane W Lu and Mooweon Rhee (2012).

Importance of NPD in Industrial market

As per Gaynor (1991) discussed NPD plays major role for changing from international economy to a world economy. Arnim Langer and Frances Stewart (2012), states global economical inequalities are bridged by NPD process across the countries.

Further Gaynor (1991) and John Ashcroft (2012) defined because of new products, in industrial customers creates technological advantage that will create new business for industries.

Importance of NPD for Bearing Industry

Role new product for Bearing Industry is to overcome strong competition

As suggested by H.James Harrington and James S. Harrington (2012), Micheael (2007) and VDA (2012) for fast acceleration of turnover, on time compression NPD, cost reduction, improvement of quality is essential to overcome strong competition.

Elimination -commoditization

Importance of new product used for de-commoditization arrived with reference to Clayton M. Christensen and Michale E Raynor (2003) and *Dr* Anthony (2012). Authors have suggested commoditization is possible by killing our own product and offering a better design. Further Clayton M. Christensen and Michale E Raynor (2003), illustrated to make the customer feel guilty for not owning our product.

New product launches success factors

As suggested by Dr. Robert G. Cooper (2001) winning factors for product launches are defined under various aspects. The first aspect is creation of unique superior product that delivers unique benefit and superior value to the customer. The second success factor is strong market orientation for specific customer focuses new product process which will result in market driven approach. An international orientation in product design, development and target marketing provides the edge in product innovation. Third success factor is Product aimed at attractive market what was planned.

New process for product launch for Bearing Industry

By and large bearings industries are awarded with TS-16949, ISO 9001, ISO 14001, and OHSAS 18001 quality awards. The current approach for NPD for existing customer, new customer, developed products and new product is simplified in below matrix.

Product life cycles assessment

ISO: 281(E), (2007-02-15) explained **Basic rating life**: basically life of bearing that gives 90% realibility of bearing manufactured with commenly used material of good manufacturing quality, and operating under conventional operating conditions.

Five years is the life span considered for ball bearings in industrial applications, as stated in the internal organization specifications, created over experience of 35 years in bearing life cycle in the industrial application – QS 044(2012).However S T Salunke & Dr R Rk Srivastava GBMR, (June 2012), proved life cycle of

TABLE 15

Chi-Square Goodness-of-Fit Test for Categorical Variable: Core Application

Test				Contribution to Chi-Sq
Category	**Observed**	**Test Proportion**	**Expected**	
3	121	0.333333	143	3.3846
4	227	0.333333	143	49.3427
5	81	0.333333	143	26.8811
N	**N***	**DF**	**Ch-Sq**	**P-Value**
429	1	2	79.6084	0.000

Bearing product is 3-5 years.

Gap analysis

In India, there are more than 25 organized and unorganized rolling bearing manufacturers who are mainly focusing and investing money to develop products for the automotive segment, while the industrial segment is neglected. Moreover, so far, successful NPD process is invented only in the automotive segment.

Adequate research is required for a new product to be successful in the industrial market. Apart from this, the research will reduce dependability of the bearing companies on the automotive segment.

THEORETICAL FRAME WORK AND VARIABLES

The Theoretical frame work attempt to capture the relationship between three constructions of core application ,core product **and success of NPD** in Industrial market by illustrating different theories Saaksvuori, Immonn, (2002), Michael Grieves (©2006), Robert G Cooper,(2001) and Panagiotis Ganotakis and James H Love (2012).

OBJECTIVE OF THE STUDY

The objective of this study is to establish the use and practical value of the product life cycle concept and locating winning factor of NPD's in Industrial market-

(1) To create a deeper understanding in process of selecting the right new product keeping in mind concept of core product for its success after launch.

(2) To create a deeper understanding in process of selecting the right new product keeping in mind concept of core application for its success after launch.

HYPOTHESIS

Hypothesis of the Study

Based on literature review, theoretical construct and objectives following the following proposition were formulated:

Hypothesis H1A $_{(A)}$:

Core Product will not have significant impact on success of new product in industrial market.

Hypothesis H1A $_{(A)}$:

Core Product will have significant impact on success of new product in industrial market.

Hypothesis H2B $_{(0)}$:

Core application will not have significant impact on success of new product in industrial market.

Hypothesis H2B $_{(A)}$:

Core application will have significant impact on success of new product in industrial market.

RESEARCH METHODOLOGY

The research uses both primary as well as secondary data. Primary data was collected through interviews with employees of bearing manufacturing companies.

A sample size is determined through the use of statistical procedures & through adhoc methods.

The aim of sample size to conduct an in-depth qualitative study to capture detail information about organization as per Esther Tippmann,Pamela Sharkey Scott and Vincent Mangematin (2012).In this research sample size is considered 1200 for building confidence and accuracy of results from 103 bearing companies located in India.

Data collection method

The qualitative research will be executed by means of personal interviews with selected peoples from bearing Industry working in Marketing, R&D, and sourcing. Various methods of collecting primary research data exist namely: mail based self-administered questionnaires, telephone interviews, personal interviews (face-to-face) and focus groups.

Statistical Analysis Techniques

Suitable statistical analysis tools were used to analyze the data. Appropriate univariate, bivariate, and multivariate analysis were used depending on the nature of variable and objective of study. The Minitab computer statistical software package, version 16 (http://www.minitab.com/) was used for data processing and the results and research findings will be discussed in chapter seven.

Ethical considerations

Ethical considerations involve five aspects and those are issue of harms, privacy, deception, consent and the confidentiality of data. Voluntary participation principle was followed while collecting data from respondent. While collecting data from the respondents, they were briefed on the academic objective of the study.

DATA ANALYSIS

Responses from these employees were solicited to test the theoretical model based on Impact of Product life cycle on development of new product and its success in industrial market.
The Minitab computer statistical software package, version 16 (http://www.minitab.com/) was used for data processing and for aiming toward the results.

Testing Hypothesis H1A $_{(A)}$ for the impact of core product

Core Product will not have significant impact on success of new product in industrial market.

To test this impact Chi-Square Goodness –of –fit test used and analysis is done based on rating criteria 1-5 scale and results are as under.

Interpretation

As the p value is less than α therefore reject the Null Hypothesis and accept the Alternate Hypothesis. New products selection based on criteria as core product has significant impact on success of product in Industrial market.

Testing of Hypothesis H2B $_{(0)}$ for the impact of core application

Core application will not have significant impact on success of new product in industrial market
To test this Hypothesis identified new product selected by Industry considering key criteria as core application with rating scale 1-5 and used Chi-square test.

Interpretation

As the p value is less than α, hence reject the Null Hypothesis and accept the Alternate Hypothesis. New products selection based on criteria as core application has significant impact on success of product in Industrial market.

FINDING OF THE RESERACH

The impact of product selection based on core product and core application has impact on success of product in Industrial market and this has proved with testing hypothesis.

Relationship between core Product and success in Industrial market

Core Product creates impact on success of product in industrial market such as Return on investment, Field performance, Sustainability in market, Product positioning, Price of product & Brand equity. This is proved by testing H1A Hypothesis.

Relationship between core application and success in Industrial market

Core application creates impact on success of product in industrial market such as Return on investment, Field

performance, Sustainability in market, Product positioning, Price of product & Brand equity. This is proved by testing H1B Hypothesis.

CONCLUSION AND RECOMMENDATIONS

This study has explored the use of the product life cycle concept as a marketing decision-making instrument. The major findings of the investigation are listed below:

a) The proposed theoretical framework confirms the relationship between core product land and success factors of new products in an industrial market.

b) Core application of product have a significant impact on success factors of new products in an industrial market.

Managerial Implications and Recommendations

The Indian bearing industry can benefit from findings related to new product launch and the product life-cycle.

Limitations

The study does not consider foreign bearing industries as their process of product selection have been found to differ from those of Indian bearing companies. Future studies can include data from bearing companies of foreign origin.

Future Research Potential

Future research are as follows:

- The sample can be bigger and broader based to increase the representativeness of the study.
- The study can also be conducted in different countries and continents. Data from organizational components such as head

REFERENCES

Anthony M (2006). 'Finance analysis and control system, WMG module,' paper presented at CII, Mumbai India 25-29 September.

Christian W (2006). PhD Series Thesis St Gallen University

Christiansen JA (1997). 'Innovation performance need of new system', PhD thesis.

Clayton MC (2012). *How will you measure your life?* Harper Business, London.

Clayton MC, Raynor ME (2003). *The innovator's solution*, Harvard Business School Press, Massachusetts.

Cooper RG (2001). *Winning at new product*, 3rd edn, Perseus Book Group, Cambridge, MA, pp. 128

Cristina Z (2005). 'Target promotions: how to measure and improve promotional effectiveness through individual customer information', *Journal of Targeting, Measurement and Analysis for Marketing,* 14(3): 249–259.

Esther T, Pamela SS, Vincent M (2012). Problem solving in MNCs: How local and global solutions are (and are not) created, *Journal of International Business Studies* (Auguts 2012) **43,** 746–771. doi:10.1057/jibs.2012.25

Gaynor GH (1991). *Competitive edge through integrated technology*, McGraw-Hill Inc.New York, pp. 161-163, 176-178.

Grantham LS (1997). 'The validity of the product life cycle in the high-tech industry', *Marketing Intelligence and Planning*, vol. 15, no. 1, pp. 4-10.

Gray LL, Yoon E (1989). *IEEE Transactions on Engineering Management, Vol. 36, no.pp1-16.*

Harrington JH, Harrington JS (1995). *High performance benchmarking: 20 steps to success*, Mc Graw-Hill, New York.

International Organization for Standardization 2007, *Roller bearing dynamic load rating & life*, ISO: 281(E), (2007-02-15), International Organization for Standardization, Geneva.

Joan M (2012, Understanding *Michael Proter*, Harvard Business Review Press, Boston, Massachusetts.

John A (2012). *Journal of International Business Studies, The iPod Product Life Cycle, The Apple Case Study continues …* Palgrave Published on October 29,2012

Lechner G, Naunheimer H (1999). *Automotive transmissions, fundamentals, selection, design and application*, Springer, GmBH Berlin, pp. 365-371.

Lee, Hyun –Sook, Srivastava RK (2010). *International Business*, Excel Books, New Delhi.

Mattias B, Johan M (2012). *PLM implementation guidelines – relevance and application in practice: a discussion of findings from a retrospective case study*, International,2012 Vol.6(1): 79 - 98

Michael GC (1971). 'Product prettification: a new stage in the life cycle theory', *California Management Review,* vol. 14, pp. 88-91.

Michael M, Denger, Denis H (2012). *Social Computing: A Future Approach of Product Lifecycle Management, Proceedings of 10th International Conference on Knowledge Management and Knowledge Technologies I-KNOW 2010, Graz, Austria, pp. 451 – 457.*

Minitab software information, (2012). [Online], Available at: http://www.minitab.com/(accessed between 2Jan 2012.)

Mukerjee HS (2009). *Industrial marketing,* Excel Books, New Delhi, pp. 231-232.

Panagiotis G, James HL (2012). Export propensity, export intensity and firm performance: The role of the entrepreneurial founding team, *Journal of International Business Studies (2012)* ***43,*** *693–718. doi:10.1057/jibs.2012.16*

QS -044 (Jan 2012) NRB Firm internal specification, *Product life cycle and Business selection*

Quoc HD (2012), Do Connections Matter? Individual Social Capital and Credit Constraints in Vietnam, Halle (Saale), Germany, 12 April 2012

Saaksvuori A, Immonen A (2006). *Product lifecycle management,* McGraw-Hill, New York.

Salunke ST, Srivastava RRK (2012). 'An empirical model for product launches in industrial market and exit under market improbability', *Global Business and Management* Research, vol. 4(2): 132-148.

Ulrich KT, Eppinger SD (2009). *Product design & development,* Mc Graw-Hill, Delhi, pp.4-6.

VDA (2012). Quality Management in Automotive Industry, Germany

Young-Choon K, Lu JW, Rhee M (2012). 'Learning from age difference: Interorganizational learning and survival in Japanese foreign subsidiaries', *Journal of International Business Studies*, vol. 43, pp. 719-745; doi:10.1057/jibs.2012.19