Proceedings of GLOGIFT 09
November 12 – 14, 2009
National Institute of Industrial Engineering
Mumbai, India

CASE STUDY OF INTERNET ADOPTION FOR DISTRIBUTION OF LOW VOLTAGE SWITCHGEAR IN INDIA

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Abstract

Low Voltage Switchgear products are standard products used for distribution and control of electric power in industries, farms, commercial buildings & residential homes. The products are supplied by the manufacturers through distribution channels consisting of resellers such as stockists, dealers and other intermediaries such as OEM & Control panel manufacturers.

Manufacturers have used IT solutions including ERP for compressing the manufacture to market cycle times. Internet further enhances the effectiveness of distribution channel by enabling seamless flow of information and online transactions. Other benefits of adoption of internet are reduction in inventory levels, improvement in customer service and thus finally leading to increase in the customer satisfaction.

This paper attempts to study the adoption of internet for distribution of their products by the leading LV Switchgear manufacturers in India. The survey of literature indicated lack of any relevant study of the subject. SAP LAP analysis of the leading manufacturers has been carried out with the idea of studying the key issues related to adoption of Internet in distribution.

Introduction:

Indian LV Switchgear industry is a mature industry comprising of standard products such as circuit breakers, motor starters, contactors, switches, relays, etc, which are used for controlling and protecting low voltage devices used at factories, shops, homes and farms.

There are around 10 manufacturers in India, the major players being : Larsen &Toubro, Schneider Electric, Siemens and ABB, who have established manufacturing facilities, warehouses and stockist-dealer network for distribution of their products.

These manufacturers also sell the products directly to major resellers such as OEMs and Panel Builders.

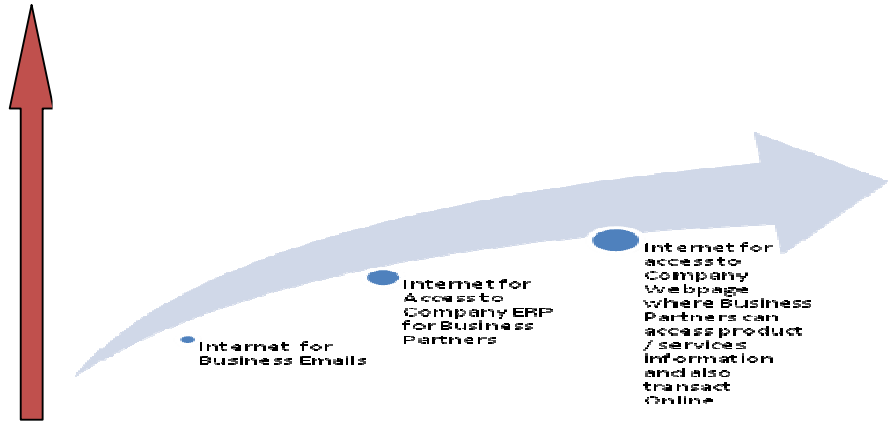
The two critical success factors in LV switchgear products distribution are –

- Availability of the right products at the right time to the end users and intermediaries
- Cost of distribution

Evolution of Internet enabled Technology in Indian Industry

The role of IT in an organization itself has changed dramatically over the years after introduction of Internet : from being peripheral - mere data processing role to one which is tightly integrated with the companys' business strategy.

Increased interface of Internet in Firms extended Supply Chain



Evolution of Internet Enabled Technologies

1st Stage (1980 – 2000) - Internet was used for Business Communication – evolution of systems like Lotus Notes for faster interoffice communication and E Mail for communication with Suppliers & Customers

2nd Stage (2000 – 2005) - Companies started linking their ERP systems with pre-identified Business Partners So customer could have access to the company ERP system for online update of his order status, while the supplier could access the inventory data to support automatic replenishment process.

3rd Stage (2006 onwards) - Now Companies have evolved their Internet strategy, so that their Websites gives information (and experience) of the products/services offered and also E Commerce facilities where the company can accept orders and payment from customers and payment, on line.

Research Methodology for the Paper

Step A

- Idea Engineering to discuss the Concepts generated from Literature survey

- Questionnaire method used on LV Switchgear manufacturers in Elecrama Trade Fair 2008

Step B

- Case Study of 4 Leading LV Switchgear manufacturers

Step C

- Analysis & Synthesis using SAP LAP model of inquiry

Pilot study for Idea Engineering

The pilot study was conducted to study the adoption of internet in distribution by 10 manufacturers of LV switchgear in the country. The study tried to find if adoption of Internet in distribution has affected the Critical success factors of switch gear industry

- Improved Order to Dispatch Time
- Reduced cost of Distribution
- Improved availability of Products
- Increased profitability of Manufacturer & Channel members

Summary of Idea Engineering

Question Description	Ideas	Tally
What are the motives of adoption of Internet enabled Distribution in your Company	Decreased inventory level	7
	Reduction in order to delivery time	6
	Increased Stockist satisfaction	4
	Improvement in Stockist's profitability	4
How has internet enabled Technologies affected your distribution	Faster Information to customers	7
	Reduced order to delivery time	6
	Improved customer satisfaction	6
	Reduced distribution cost	5
	Increased Market Share	4
What is the impact of adoption of Internet enabled Technology in Sales force automation	Increase in Customer coverage	6
	Increase in no of sales calls / salesman	5
	Reduction in cost per call	4
	Better Monitoring of Customer Relationships	6

	Reduction in sales force	2
What are the effects of having a website	Availability of Product information to customers	9
	Improved market reach & coverage	8
What is the impact of having internet enabled technologies in Supply Chain Management	Scheduling of manufacturing with demand	4
	Reduced Inventory Levels	4
	Better Promise fulfillment to customer	6

CASE Study I – L&T – Internet enabled Distribution to consolidate its position as the Business Leader

Electrical Business (EBG) is one of Larsen & Toubro Limited's (L&T) major activities and is the largest manufacturer of low voltage switchgear in India. L&T's LV switchgear manufacturing facilities are in Powai, Ahmednagar and Mysore. It has about 570 stockists. Its Ware houses are in Mumbai, Nagpur, Delhi, Kolkata & Ahmedabad.

The Internet enabled business environment

- SAP enabled Supply Chain Management – Sales & Distribution, Materials Management, Financial Accounting & Planning
- For Sales person – Sales Force Automation module
- For Manufacturing– HEAT where product complaints are captured and viewed online
- Web portal - The portal enables the company's stockists across the country to view product Catalog online , online feeding of orders , Order processing and status including delivery and billing details purchase order downloads , accounts payable / Credit Check .

CASE Study II - SIEMENS India – Internet enabled Distribution Strategy to become world class

Siemens is a leading manufacturer of LV switchgear in India with factories at Kalwa and Aurangabad. It has about 400 Stockists. It has only one warehouse at its factory in Kalwa.

The Critical Factors on which Siemens benchmarked its endeavor to be world class is Delivery Time , Delivery by date requested (Availability to promise) , Delivery reliability (Order Fill Rate) , Delivery capability (Availability) , Inventory Turnover (Order to cash cycle) .

Internet driven initiatives undertaken were :

A&D Mall : Online Mall where stockists could see Inventory & Place orders

Logistics & Invoice Information automatically sent to stockist over Email

Sales force Maximizer – Front Line sales force feeds all Business Prospects online

Case Study III - Schneider Electric – Internet strategy to integrate Indian Operations with the worldwide operations - Transforming into a truly global enterprise

Schneider Electric India Pvt. Ltd (SEI) in India is a 100% subsidiary of Schneider Electric Industries. Schneider Electric entered the LV Switchgear market in India in 1997. Its manufacturing locations are Hyderabad, Bangalore, Nashik & Chennai. It has about 425 stockists. It has warehouses at Hyderabad, Delhi, and Kolkata.

The Group is harmonizing and optimizing operation costs through a group-wide implementation of internet driven distribution.

Case Study IV - ABB – Internet in Distribution to transform a manufacturing concern into an Internet & solutions based power house

ABB entered the LV Switchgear business in India in 1996. Its manufacturing units are in Bangalore & Haridwar. It has about 100 stockists. It has warehouses in Bangalore, Haridwar, Pune, and Faridabad.

In 2007-08 ABB was confronted with a problem, its key customers like MSEB, GEB, and Reliance had adopted e-Procurement for its switchgear requirements. They also wanted to view delivery status of every line item ordered by them to match their plant scheduled downtimes with availability and also bring down their own inventory. Though ABB had adopted ERP, they had not used internet to give access to their stockists / customers for online information. They have taken it on warfooting to transform the company into an Internet- and solutions-based powerhouse and enabling the distribution chain through Internet based technologies.

Case study through SAP LAP Model of Inquiry (Sushil 2001)

a) LARSEN & TOUBRO

	L&T
Situation	L&T is a market leader in LV Switchgear industry and has a well established dealer network. L&T values Channel Partner loyalty as its core competence. Nearly 80 % of its LV switchgear sales are thro dealer network.
Actors	Top Management, SBU Head, IT Head , Stockists , Major users / Panel builders / OEM, Retails Users, Consultants, Marketing Personnel, Frontline Sales Personnel ,Logistics Head
Process	The company has implemented internet enabled SAP and B2B website, which enable on line order management by stockists/resellers, supply chain management, sales force automation and service management.

Learnings for L&T :

	L&T
Issues related to Situation	
Critical success factors for distribution of LV switchgear	Improve the availability of products in the market by increasing the Order Fill Rate and Order -to-Despatch time. Reduce the cost of distribution by reduction in inventory and receivables.
Role of internet in improving the effectiveness of distribution	• Higher Order Fill Rate is enabled by on line viewing of inventory at various stocking points • Order-to-Despatch time is reduced from 14 days to 1 day due to on line order entry/tracking by the dealers. • On line availability of information on order status, stock levels and recievables result in lower inventory and receivables. • Online service system – Service engineer is able to see service and Complaints history , Design & Factory personnel can also see the history • Empowering frontline sales person to make better " availability to promise " • Reducing Order to Cash cycle time , Working Capital Cost • Reducing Transaction Cost and freeing Order processing person to do value added activities
Issues related to Process	
Impediments faced in usage of Internet in distribution	• Increased volume of non standard orders (for non standard products and with special commercial terms), which cannot be entered on line, limit the use of Internet. • Older generation Stockists – Resistance in feeding Order online. • No incentive for Stockist to feed orders online as even otherwise the company offers excellent service. • Internet connectivity and speed is a problem • In a B2B kind of environment use of Internet is limited as opposed to B2C
Future applications of internet in distribution	• Web based front end applications need to be developed for SAP to achieve • Free flow of information within the manufacturer,

	stockist. Sales people need not come to office leading to more face time with stockist / customer. • Bar Coding for tracking Movement of Distribution • Lean Manufacturing → Feedback from Sales → Production planning at factory • Application of eCommerce shall improve volumes
Use of internet for distribution of LV Switchgear vis-a-vis other industries	We would like to emulate FMCG industry in optimizing transportation by making it online In other industries internet is used for Advertisement & promotion , pre sales effort , but in Switchgear industry more for After Sales processing

Suggested Action & Expected Performance for L&T

Suggested Action	**Expected Performance**
Use of Internet for Lean Manufacturing	Leading to Zero stock / Made to order situation
Increase Order feeding over Internet	Empowering stockist Freeing Sales person from Order management giving him more face time with customer
Increase use of Internet for matching Stocks with Demand	Leading to Higher availability Higher Order fill Rate increasing Stockist Satisfaction as well as improving Order to Cash conversion cycle of Manufacturer

b) SIEMENS

	Siemens
Situation	Siemens has an extensive dealer network and does about 50 % of its LV switch gear sales through the dealer network.
Actors	Top Management in Germany, Management in India, SBU Head, IT Head, Stockists, Major users / Panel builders / OEM, Retails Users, Consultants, Marketing Personnel, Frontline Sales Personnel ,Logistics Head
Process	Siemens has adopted internet enabled technologies in : *Website for Product information *Website where dealer can feed Order Online (A&D Mall)

	*Supply chain management through ERP *Logistics tracked through Internet

Learnings for Siemens :

	Siemens
Issues related to Situation	
Critical success factors for distribution of LV switchgear	Turnaround time (Order intake date to delivery) Order fill Rate
Role of internet on effective of distribution	• Order booking online through A&D Mall reduced Order processing time by 5 days. This has also improved the Order Fill rate as better matching of Order with availability is possible. • Online tracking of Order Status leading to better Promise fulfillment and monitoring of Logistics performance • Stockist is aware of Order status, Invoice, Material movement through auto generated emails sent over internet. Sales person has more Customer face time • Sales Force Automation package called **Sales Force** Maximizer – 80 % of Customer data is available online
Issues related to Process	
Impediment faced in usage of Internet in distribution	• Stockist is not satisfied with Reliability of Stock information available in A&D Mall. This has forced stockist to keep more inventory. • For non Standard Orders, the order feeding is not Online as Stockist has to send an email which needs to be fed in by the Siemens back office team. The follow up and interventions have not decreased. So these non Values adding activities have not been eliminated by adoption of Internet enabled A&D Mall. • Internet Connectivity • Lack of Internet competence with stockist
Future applications of internet in distribution	*Logistics Centre to Internet enable the whole logistics activities for updated information as in Siemens Germany *E Commerce enabling the whole process from Order placement to payment to delivery of goods as is done in

	Siemens Germany
Use of internet for distribution of LV Switchgear vis-a-vis other industries	FMCG being B2C uses more E Commerce FMCG uses Specialized Distribution company leading to more internet enabled distribution

Suggested Action & Expected Performance for Siemens

Suggested Action	**Expected Performance**
Use of Internet for Logistics tracking	To make Logistics performance monitoring as par with world class practices of Siemens Germany Higher Stockist loyalty
Use of E Commerce	Leading to reduction in No of Stockists, No of Sales person but achieve higher business volumes. To come up to the world Class practices of Siemens Germany

c) SCHNEIDER

	Schneider
Situation	Schneider is a well established worldwide player. In India its LV switchgear distribution network consists of dealers it has added over the last few years and dealers of Crompton Greaves that they got when they bought CGL
Actors	Top Management in France, Top Management in India,SBU Head, IT Head, Design, Stockists, Users intermediaries – panel builders, equipment mfrs, Retail Users, Influencers –Consultants, Marketing Personnel, Sales Personnel, Logistics Head
Process	Schneider has adopted internet enabled technology in : • Website for Product information • Website where dealer can feed Order Online • Supply chain management through ERP • Customer care Centre which can be accessed over phone

Learnings for Schneider :

	Schneider
Issues related to Situation	
Critical success factors for distribution of LV switchgear	*Delivery time to customer *Ability to predict the delivery time and maintain it *Ability to give materials in one lot *Customer Satisfaction *Channel Satisfaction (includes profitability, ROI etc) *Lesser working capital for the same business volume
Issues related to Process	
Impediment faced in usage of Internet in distribution	*Every channel partner does not have manpower to use internet *Hesitation to use the net *Schneider feels Existing method is good enough and keep customer and dealer satisfied and there is no perceived benefit for more Internet enablement
Future applications of internet in distribution	Web Enabling ERP for access to selected channel partners
Use of internet for distribution of LV Switchgear vis-a-vis other industries	Use of internet is more for monitoring and less for business transactions

Suggested Action & Expected Performance for Schneider

Suggested Action	**Expected Performance**
Web Enabling ERP for access to selected Channel partners	Empowering Channel partners with updated information , adding to Channel partner satisfaction
Web Enabling Customer Care Centre	Leading to higher Customer Satisfaction, improved profitability for the channel and increased top and bottom line for manufacturer

d) ASEA BROWN BOVERI

	ABB
Situation	Its market share in LV switchgear industry is lesser than that of the other 3. It has a well established dealer network. About 40 % sales is through Dealer network, with the remainder sold through the division's own direct sales channels.
Actors	Top Management in Zurich, Country Management , SBU Head, IT Head, Stockists, Major users / Panel builders / OEM, Retail Users, Consultants, Marketing Personnel, Frontline Sales Personnel ,Logistics Head
Process	ABB has adopted internet enabled technologies in : Website for Product information Supply chain management through ERP with access to Vendor

Learnings for ABB :

	ABB
Issues related to Situation	
Critical success factors for distribution of LV switchgear	Promise fulfillment Availability Better Order Fill Rate
Role of internet on effective of distribution	*Empower Customer and stockist by enabling them to see stock availability on Real time *Better Order fill rate for Customer satisfaction *Complying with Key Customer Requirement of Internet enabled procurement
Issues related to Process	
Impediment faced in usage of Internet	B2B Distribution not fully amenable to Internet as physical distribution is not fully automated
Future applications of internet in distribution	*100 % Order feeding in over Internet for Standard Products as done in ABB (Europe & US) *ABB is planning an Internal World Class Internet enabled Logistics centre , to enable stockist / customer to track and forecast delivery of material

Use of internet for distribution of LV Switchgear vis-a-vis other industries	B2C industries have more fully adopted Internet enabled distribution

Suggested Action & Expected Performance for ABB

Suggested Action	**Expected Performance**
Use of Internet for Order Feeding (100 % for Standard Products)	*Matching Order with Stock *Better Order Fill Rate *Transparency in operation resulting in Channel loyalty *Coming up to standards of ABB (Europe & US)
Internet enabled Logistics	*Better promise fulfillment by tracking and forecasting delivery to customer *Freeing frontline sales person from Tracking Delivery information resulting in more facetime

Synthesis

- In the late 1990s & early 2000 adoption of Internet based distribution model was a critical need for building up the global competitiveness of the Industry majors in LV switchgear industry.
- The first order benefits which have been realized by the LV switchgear industry are :
  - ✓ Shorter Order to dispatch time
  - ✓ Reduced Inventory levels
  - ✓ Better Availability of products
  - ✓ Improved Order Fill rate
- The second order benefits which the internet enabled distribution channels is yet to capture are :

  * Sales force reduction

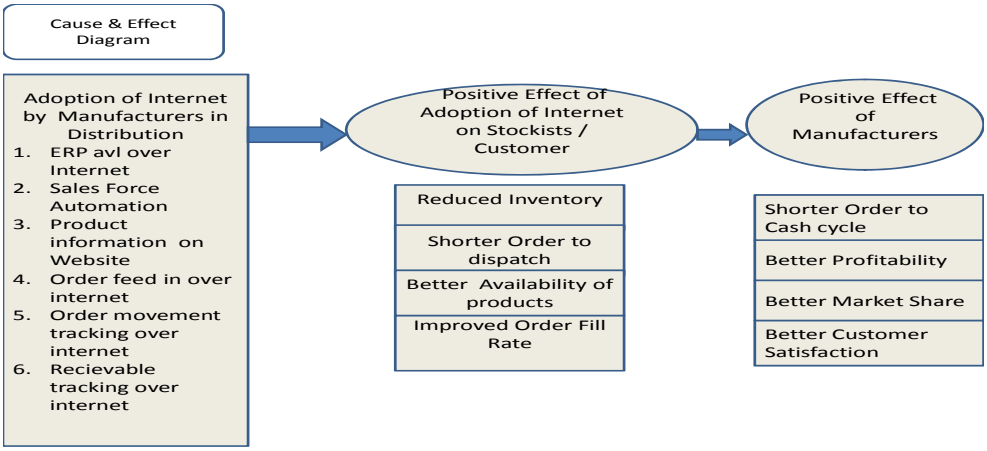
  * E Commerce applications

  * Lean distribution system based on order forecasting

  * Improved profitability of Channel Partners

Conclusion

The conceptual conclusion, derived from the synthesis of the case studies will be the basis to produce the hypothesis and the contribution to the theory.



These Four Cases were selected on non Random basis based on judgment. These particular cases have introduced and sustained the process of adoption of Internet enabled technology over a long period of time. The dynamic environment in which the adoption of Internet for Distribution is related with the Critical success factors of Distribution was also captured.

The framework used for the analysis of the cases is based on an assessment of first- and second-order effects. All the cases showed positive first-order benefits. None of the cases have shown any significant second-order effects.

Contributions and Theoretical Implications

- Although there is a growing body of IS literature on benefits of Internet for distribution , the majority of the materials is within the organizational context of purely B2C companies like Airlines , Banks & Retail and originates from foreign countries. This study focuses on adoption of Internet in a B2B environment in the Indian context.

- This study provides a new perspective and a refined theoretical framework in applying SAP LAP in the context of Low Voltage switch gear Industry. This research also focuses on the phenomenon and situation in India which is uniquely different from other countries like US & EU.

- The instruments developed and validated in this study can be used in future research. The validated research framework proposed in this study can then serve as a basis for hypothesis formulation for future research in this area.

- A Micro study using a robust Statistical package such as ANOVA using SPSS / SEM using AMOS would provide more conclusive evidence of benefits of adoption of Internet based technology in Distribution.

Limitations :

Concerning the research, limitations cannot be totally avoided. :

- Firstly, although study of benefits Internet enabled Technologies is not new in India it is still in its infancy. During the collection of literature, the author found that there was a lack of information of how benefits of adoption of Internet are related to the critical success factors of any industry. The origins of information inevitably come from other countries, like the United States and EU. This may not accurately describe the phenomenon and situation in India

- Second, the use of an online survey could have been a good tool for gathering responses to this study and made the sample random. However, after taking into consideration the sensitivity of these kind of information and the very senior management of the companies to be researched, the researcher did an assisted survey with a structured questionnaire.

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