

IMPACT OF TECHNOLOGICAL UPGRADATION ON PRINTING UNITS IN VIRUDHUNAGAR DISTRICT

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Introduction

Virudhunagar district emerged as an Industrial Centre, after independence. The establishment of match units, paved way for the entrepreneurial development of fireworks, printing press and other allied industries in a big way. The growth of the printing business is due to the industry being low- cost, labour intensive, low investment, high turnover, high profit, protected and sale supported. Satisfying the domestic market, the printing units are competing in the international market, grasping the new opportunities. Due to liberalization and globalization, the printing industry is progressing at a very fast speed by adopting modern printing technology. Printing industry in Virudhunagar district has successfully distilled developing technologies to grow rapidly in the last decade. However, not all printers in Virudhunagar district have been able to exploit the technological evolution to their advantage. This is largely because of their inability to forecast market demands at the right time and align their business to the altered business climate. International trade is important, in particular for developing countries, as it create employment and provide the foreign exchange for imports. The present study has made an attempt to analyse the impact of Technological Upgradation on Printing Units in Virudhunagar District.

TECHNOLOGICAL DEVELOPMENT IN PRINTING

The printing technique includes letterpress, offset, flexography, screen printing, gravure printing and digital printing. Offset is also referred to as photo - offset lithography, and gravure is sometimes called intaglio printing, each one of these has certain advantages related to pressrun and the type of paper involved.

1. Letter Press

Letterpress is also known as typographic printing, since 13th century, it is one of the oldest and mostly widely used process until the offset machine was established. Letterpress in which the image is transferred from a printing surface raised slightly above the body of the type or printing plate. Letterpress, used by the first European printers in the 15th century remained the commonest method until mid 20th Century.

Before independence, the printing industry in Virudhunagar district in Tamil Nadu was dominated by letter press printing. Progressive industrialisation and massive educational programmes have created more and more demand for printed material which was not envisaged by the majority of the traditional letter press printers. As demand increased, rapid increase in the production capacity has not been naturally in the direction of letter press printing. As letter press printers started lagging behind in speed, "Offset printing machines being superior in that respect appeared on the scene in the late 1950s gradually swept away quality work from traditional letter press printing.

2. Offset

Lithographic plates developed in the 20th Century, is known as offset, as the ink from a lithographic plate, formed on a roller, is transferred to a rubber surface (offset blanket) on a second roller and from this to the printed sheets. Lithography was invented in 1798 by Alois Senefelder. The first lithography to be published in United States was by Bass otis and appeared in the Analectic Magazine of August 1819. The word lithography is derived from the Greek word lithos, a stone and graph to write. Hence, the word lithography means Stone writing. The invention of modern offset printing is also a happy ancient, which occurred about 1906 in the offset printing machine in the plate carrying the inked image around the plate cylinder, and transfer the image not on the paper directly. But on a rubber blanket would around the intermediary cylinder from which the image is transferred on the passing through the impression cylinder. The system is still in use today through later the investors have speeded up the way in which the type is cast and set.

3. Flexography

Flexo machines that run on UV inks are more in demand now. Narrow format web machines are used in the label industry and the large format sheet fed presses are used for corrugated printing. The growth of packaging and labels segment and a shift from the offset technology in packaging and labels have increased the demand for flexo machines. There have been many changes in the flexo technology. For example, water based technology is replacing solvent based technology, introduction of Sleeve technology, use of hybrid presses in the label market, common impression cylinder arrangement with 8-12 printing units, use of flexo with rotary screen for hybrid printing and inline finishing, flexo with hot foil embossing, mechanical and laser die cutting. Imports could decline in the future with many Indian manufacturers increasing the production of flexo machines due to low wastage and faster.

4. Screen Printing

This process has many advantages such as it can offer many formats, can print intense colors and most substrates. It can print novel ink formulation and coatings. The print quality will improve further with time. Since it has high unit cost and problem with half tone printing, it can be used with other printing processes. This combination technology is however in demand in India. It is used for point-of-sale displays, packaging, containers, nameplates, signage, plastic cards, folders, CDs and DVDs, promotional items and other textile and industrial

manufacturing markets. High end screen printing machines are imported. There is an increasing demand for rotary screen machines in an integrated system. Imports are predicted to increase.

5. Gravure Printing

Gravure is used for long run printing with sharper, fine and clear images. It is used for printing magazines, greeting cards, gift-wraps, labels, flexible packaging and cartons. Rotogravure printing machines operate at very high speed and are used by a number of industries for printing magazines, advertising print materials and cards for printing job that are long running in nature and require sharper and finer prints and images on different materials including PET, PVC, PE and paper. These machines employ turret type unwinder and rewinder, automatic splicing and web discharging can also be done. To enhance the drying performance and minimize printing defects, these machines are equipped with drying systems. In roto, the original copper plate or cylinder tends to be expensive. Rotogravure is used for long runs - 75000 to millions of copies at low cost per unit.

6. Digital Printing

The digital printing gave the path for variable printing on demand, printing with all facilities as per the requirements of the customer. Now, the printing can be done in minutes and thousands of copies can be printed per hour. Indian print providers offer a wide range of services and flexibility in processing a large variety of substrates, inks, and print finishing. There is also a trend toward printing multicolor and special color jobs. The greater chance for growth is with short run jobs that require fast turnaround. State-of-the-art computer to film, computer to plate, and computer to press techniques are already widespread. More emphasis is being placed on bringing a digital workflow from prepress to postpress. Digital printing is on the rise. Customers' print demands are recently being met with digital printing.

Short run projects and fast turnaround times are more economical with digital printing. The print-on-demand market is predicted to grow by 14% annually. Xerox has sold 10 digital presses in India during the last three years 2005 to 2007 and HP Indigo has sold 14 digital printing machines during the same period. Digital technology, global competition, market changes, and emerging new media are bound to change the operating environment of the Indian print industry.

The Thai Printing Association Says, "The Continuous Investment in technology is paramount in enabling local printers to escalate their efficiency and capability to compete in the international field.

PRINTING TECHNIQUES IN INDIA

The Indian printing industry used the various printing techniques like letter press, offset, flexography, screen, gravure, and digital printing. The following Table shows the printing techniques used by the Indian Printing industry and their end use.

Printing Techniques

Printing Techniques	Share (%)	End Use
Letter Press	8.4	Commercial Printing, Books, Packaging, Magazines, Newspapers
Offset	64.5	Packaging, Label
Flexography	10.6	Packaging, Label
Screen	5.2	Label, Commercial
Gravure	6.5	Commercial, Packaging, Label
Digital	4.8	Commercial

Source: Pira International

The above table 3.7 clearly shows that, the offset technology is mostly used by Indian printing entrepreneurs. 64.5% are using offset technology for printing books, newspaper, magazine and commercial printing. Offset technology like sheet fed offset, cold set web offset and heat set web offset are used, of which the sheet fed offset and cold set web offset are mainly used.

For export products, the foreign consumers preferred quality product at reduced rate at an earliest date. So, High quality raw materials are used to enhance the quality of printing products. The high tech printing machines like four color and six color offset machines and CTP plate making are also used to deliver the printing products within the span of time.

Technological Upgradation on Printing Units

Printing occupies a very important place in the modern form of mass communication. Every walk of life is affected by printing in some form. It has been associated with human race for its valuable contribution of recording immortally his deeds, his thoughts, his discoveries and his ambitions and hopes. Printing industry encompasses numerous fields of every economy. Printing industry generates a wide range of products which require in every step of our everyday life. Starting from Newspapers, Magazines, Books, Post Cards to Memo Pads and Business Order Forms are the products of printing industry. Printing industry has mass production and provides employment opportunities to the society. It plays a vital role in building up the economic structure of the society. Printing industry is also helpful for the economic development of the country. Other than the direct contributions, there are many indirect influences of printing industry upon the economy. This is because, all the activities like binding, embossing which generate considerable amount of income and employment are related closely with the printing industry. Packaging industry and Advertising industry in many ways depend on printing industry. The printing industry all over the world is experiencing high level of technical advancement and there is no doubt that all these research and development works are contributing immensely to the growth of printing industry across the world. Printing industries are of utmost necessity in the everyday life of human beings.

Virudhunagar district is an important centre where printing units are so much concentrated. The printers in Virudhunagar district have gained such an expertise in this field that it is difficult for anyone to compete with Virudhunagar printers except Virudhunagar printers. The

performance of this industry made its humble beginning with a small unit, in 1922. In Virudhunagar district, printing as an industry is mostly in small scale but spread all over the city. There is no business like the printing business because it fills a definite need in the everyday lives of vast number of labourers. It offers wide opportunity for the exercise of one's individual ideas and creative thinking. Skilled Entrepreneurs are solely responsible for establishing and developing the printing industry in the Virudhunagar district. In the printing units, high tech printing machines like four color and six color offset machines and CTP plate making are also used to deliver the printing products within the span of time.

The origin of the printing industry dates back to new stone-age. Today printing has taken new dimensions, Rapid strides have been made in its technology. There are multi-colour machines which can within a few minutes be converted from multi-colour standard printing to simultaneous perfecting. The printing industry has a few fascinating facets which distinguish it from other industries. Printers in our country have a long tradition and especially during the last two decades significant technological revolution has taken place in the field of printing. The increasing use of internet in the publishing world has brought a revolution in printing industry. Remote distribution of data and variable data printing has been possible by the use of internet. The special ability of internet of distributing large quantities of data to diverse locations bridged the gaps of printing industry.¹

Earlier, almost all printing work was used to be done through press. But, in today's world of technological advancement, many printing work is done from customer's home printer. Internet publications have opened a new horizon for printing industry. The publishing companies are realizing that it is better to distribute data through internet in the first step and to print them in the second step. This is because if they carry out the traditional process of firstly printing and then distributing then it may generate much more costs. So, in this context, the biggest challenge faced by the printing units is the impact of technological revolution. The pressure of lowering costs has raised more because of the recent technological advancements which have invented the concept of e-commerce.

E-commerce has lowered administration costs and the proofing time. To keep pace with these emerging technologies, the printing industry has now concentrated on digital printing. Innovation is the keys to performing strongly in a new global era of competition. With its unique profile as a show that fully serves the needs of both the printing with the critical capabilities to succeed in today's challenging economic climate.

Impact of Technological Upgradation on Printing Units in Virudhunagar District.

Virudhunagar district emerged as an industrial Centre, after independence. The establishment of match units, paved way for the entrepreneurial development of fireworks, printing press and other allied industries in a big way. The growth of the printing business is due to the industry being low- cost, labour intensive, low investment, high turnover, high profit, protected and sale supported. Satisfying the domestic market, the printing units are competing in the international market, grasping the new opportunities. Due to liberalization and globalization, the printing industry is progressing at a very fast speed by adopting modern printing technology. India is therefore attracting customers from all over the world for its printing products. Progress made in automation has made the printing industry more interactive by changing every aspect in our day to day life. All products and services that cater to banking, telecom, education, pharmaceuticals and consumer goods segments in the Indian market have grown. Today, India is increasingly viewed as a print outsource destination which means that the exports in the publishing business have also grown. The Indian printing industry is said to be growing at 12% per annum, equipped with state-of-the-art printing technology. With the increased acceptance of digital printing, most publishers and publications are striving to touch global standards.

The printers in Virudhunagar district respond to the challenges especially in the areas of market penetration, quality, technology upgradation, cost control and cost reduction, addressing environment problems, managing time pressures and fine tuning delivery system. As the Virudhunagar printers production is reserved for small scale industry, it is facing some problems, which are inherent to small-scale operations not available to the exporting units. The exporters are producing goods on the basis of orders from buyers/importers. Their role in marketing is limited to securing export orders for production. The industry has made giant strides in 21st Century in improving its machinery in terms of the scope, technology and speed. Computers and speed of the jobs executed with the consequent enhancement of costs enormously. In fact, the arrival of computers has complemented the printing business and has played a vital role in increasing its status as a clean profession.

Cost reduction and quality improvement are the twin factors for the success of printing units in Virudhunagar district. It is achieved by way of implementing the technological upgradation in printing units. While implementation of technological upgradation, the printers in Virudhunagar district are facing the problems like lack of finance, lack of information, lack of research and lack of adaptation of technology. A systematic enquiry into these problems is imperative to trace out the reasons and to contribute to the ways and means to solve the problems. Under such circumstances, "Impact of Technological Upgradation on Printing Units in Virudhunagar District" is essential to find and analyse the obstacles in technological upgradation faced by the printing units and its impact on product, price, promotion and physical distribution of printing products produced by the printing units in Virudhunagar district.

Mainly, cheap labour, latest technology and quality is the secret of success of Virudhunagar district. The printers in Virudhunagar district respond to the challenges especially in the areas of market penetration, quality, technology upgradation, cost control and cost reduction, addressing environment problems, managing time pressures and fine tuning delivery system. As the Sivakasi printers production is reserved for small scale industry, it is facing some problems, which are inherent to small-scale operations. Among various industries, printing industry has grown significantly for the past three decades. This might have been due to increase in demand for printing products, particularly due to increasing demand for Indian printing products abroad. Due to larger demands of foreign buyers, the printing industry was able to flourish. However, this industry is also not an exception to problems. The industry has problems relating to labour, production, marketing and finance as a result, the performance of the printing industry gets affected. In addition to technological and competitive problems, these problems pose a threat to the printing industry and hence it became necessary for this industry to concentrate on these vital issues and ensure better performance. In this scenario there arise a need to make a study on the factors that affect the growth of the printing industry due to technological upgradation and find out solutions on the problems encountered in adopting of technology.

GOVERNMENT INCENTIVES FOR TECHNOLOGICAL DEVELOPMENT TECHNOLOGY INCUBATION CENTRES

Realizing that technology is a key element contributing to productivity, quality, competitiveness and market acceptability of products and that technology and business incubators have emerged as useful instruments for innovation, the Government will encourage development of

“Centres of Excellence and Innovation”, in collaboration with academic institute of excellence, industry and Government of India to develop a pool of Technocrats.

The centres will also network with Angel Investors and Venture Capitalists to provide mentoring and financial support to the start-ups.

PROMOTION OF R&D

In order to encourage Research and Development in manufacturing sector, companies investing in R&D facilities will be incentivized as:

For capital goods to be used in setting up hi-technology R&D centres VAT will be zero-rated. Such capital goods shall not be used for commercial production and be used exclusively for R&D.

Conclusion

Printing industry in Virudhunagar district has successfully distilled developing technologies to grow rapidly in the last decade. However, not all printers in Virudhunagar district have been able to exploit the technological evolution to their advantage. This is largely because of their inability to forecast market demands at the right time and align their business to the altered business climate. International trade is important, in particular for developing countries, as it create employment and provide the foreign exchange for imports. Mainly, cheap labour, latest technology and quality is the secret of success of Virudhunagar district.

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