

Factors influencing the Indian Publishing Industry towards making investments in green ERP practices

R Vetrickarthick, C Swarnalatha and N Asha

Abstract

The green business technocrats are thinking of reenergizing the entire business towards what is coming down to the New Year. The new arena gazed towards the green practices in ERP management through Enterprise Resource Planning. It is not simply cost controlling techniques but it will change the entire work structures of the organization. This green ERP initiative paves the ways to step up research to produce goods that require much less wastage, including water, from consumers. Under this initiative, the entire business process is studied and analyzed thoroughly right from procurement of raw materials and distribution of finished goods. Surely, this idea will promote a paradigm shift in the outlook of the corporate world. This study enhances the application of green business strategies in the field of ERP management of books publishing industry. This is a descriptive research. The research period is from November 2014 to December 2014. The compiled data are analyzed using percentage analysis, cross tabulations, frequency distributions and factor analysis. For years, most ERP programs have included a similar, somewhat narrow range of demands. This green practices pushed that envelope to dive much deeper into supplier practices like waste control, stockings, etc., These new announcements also expand the demands in different ways. In recent years, the book publishing companies are practicing the 'print n demand' concept to enrich more innovativeness in their ERP management.

Key words: Enterprise Resource Planning (ERP), Green business, Investments, Management

1. Introduction

The green ERP has been standardizing its internal systems and ERP technology to improve efficiency and cut wasted processes. It is likely to draw heavily on integration of the enterprise resource planning, business research, competitor intelligence and business process management to achieve its environmental aims. Under this initiative, the entire

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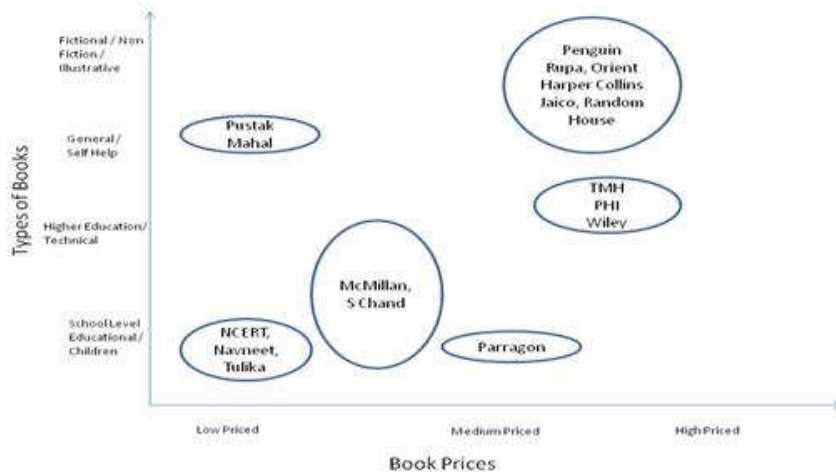
business process is studied and analyzed thoroughly right from procurement of raw materials and distribution of finished goods. Surely, this idea will promote a paradigm shift in the outlook of the corporate world. This study enhances the application of green business strategies in the field of ERP management of books publishing industry. In this era, everything has come under cost reduction. The books are distributed using the chain of flow as wholesalers, dealers, retailers & consumers. Now they are practicing the "Print – On – Demand" concept. So no stockings are kept anywhere. The pace towards e-books, e-learning resources, online subscriptions, etc., made the importance of maintaining a sound ERP management. This article emphasizes on the factors influencing towards making investments in green ERP practices of book publishing companies in Tamilnadu.

2. Literature review

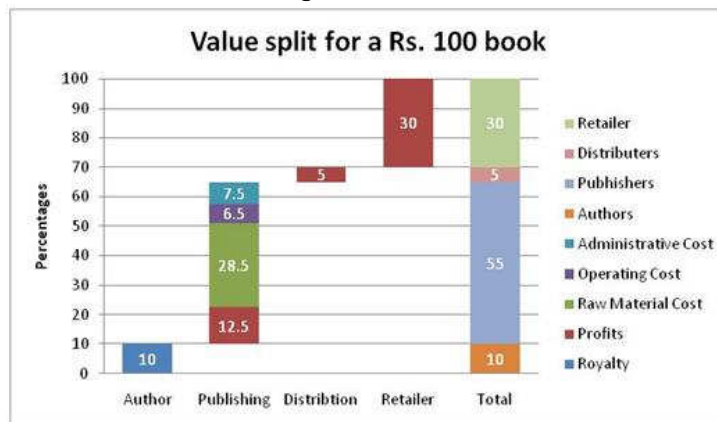
According to industry body FICCI, the Indian publishing industry, which is worth Rs 12,000 crore, is currently growing at a compound annual growth rate of 25 per cent. Writers such as Chetan Bhagat, whose books *Five Point Someone* and *2 States* have been very successful, and Amish Tripathi, with his 'Shiva trilogy', have helped keep the industry ticking by bringing in an entirely new set of readers, who enjoy a quick and light read. The Indian book publishing industry is very attractive and has a high growth potential, but is operating in an extremely competitive market, with over 16000 largely small publishers spread across the country. With the Indian economy and the education sector booming, the industry is at a new juncture of growth and competition. FICCI's Secretary General, Dr. A Didar Singh, states that the Indian publishing industry produces over 100,000 titles every year. "There was a time 10 years back, when one used to be happy if one printed 3,000 copies of a book and it sold out. But, today you're looking at books which are routinely crossing 10,000 to 20,000, and in some cases 100,000 or even a million copies in sales," says Gautam Padmanabhan, CEO of Westland Ltd, a wholly owned subsidiary of Tata Group's retail arm Trent. He claims his company has made inroads in Bengali and Marathi language content.

With an estimated market of INR 10,000 crores, India ranks third after the US and UK in English language publishing. Currently the sector is witnessing a compound annual growth rate (CAGR) of 30% the sector presently produces 90,000 new books a year in 24 languages including English. Currently, the government (NCERT, State Text Book Boards, NBT, and Publishing Division, combined) is the largest publisher in the country. The Government allows 100 percent FDI to publishing houses across the country to make India a publishing hub, by utilizing the vast English-speaking technical manpower. With a view to service the sector, FICCI started with organizing 'PubliCon' from 2011. The programme focused on key policy / regulatory issues confronting the publishing industry. The conference also deliberated on trade related issues, National Book Promotion Policy, IPR, Digital publishing, rejuvenation of libraries, export potential of the industry, children's publications, etc. Several players in the industry have a national presence – the prominent ones being Penguin Books India, Oriental Longman, Rupa Publications,

McMillan, S Chand, Navneet and Parragon. Most of these players have established their positions across only a few types and price points as shown in Exhibit 1 below.



Laskowski says that Walmart is a “great example” of a company using lifecycle analysis to force change down its ERP -- in its case mostly in China. For huge companies like Walmart, the ERP -- consisting of every company, individual and resource involved in a product’s lifecycle -- can be quite long. Walmart has 66,000 suppliers in 70 countries and nearly 100,000 stock-keeping units (SKUs). “Greening” that complex chain may take many forms. For example, suppliers can set up recycling systems, reduce waste production, limit energy and resource use, switch to environmentally preferable materials and cut back on emissions. The EPA used lifecycle analysis in the 1970s to take a closer look at hazardous waste management issues.



The agency's Resource and Environmental Profile Analysis (REPA) also helped when, in 1990, the Council for Solid Waste Solutions evaluated the energy consumption and environmental performance of paper versus plastic grocery bags (and later disposable versus cloth diapers). But according to Mary Ann Curran, a lifecycle expert in the systems analysis branch of the EPA, the agency has no plans to regulate lifecycle work or require companies to conduct product analyses. Xerox's work shows that ERP efforts can sometimes flow uphill. As part of a collaboration begun in 2004, Xerox performed a paper audit for Dow Chemical, one of its largest industrial clients, and found that Dow had 16,000 printers producing 480 million pages per year. Xerox and Dow worked to get the company down to 5,500 printers -- reducing printing costs an estimated \$20 million to \$30 million over five years, and dramatically reducing environmental impact. Xerox also launched a Sustainability Calculator which, when applied to a single sector of Northrop Grumman's operations, saved 27% in energy costs, 26% in climate emissions and 33% in solid waste.

3. Objectives of the study

- To find out the various factors influencing the book publishing companies to make investments in green ERP practices.
- To find out the various factors to be considered while making investments in green ERP

4. Research Framework

This is a descriptive research taken the book publishing companies as simple random samples with sample size 30 in Tamilnadu. The data has been collected through Questionnaire with structured 5 point rating scale questions. The research period is from November 2014 to December 2014. The compiled data are analysed using percentage analysis, cross tabulations, frequency distributions and factor analysis. Factor analysis is applied to identify the factors influencing the book publishing companies towards making investments in green ERP practices. The data are analysed using the SPSS software version 19.0. The reliability of the nine items with the scale returned with a Cronbach Co-efficient Alpha of 0.907 which has been indicated as high level score according to Nunnally (1976), as Cronbach Co-efficient Alpha of 0.6 is sufficient to be acceptable value for the research purpose.

On the basis of size of business, 60% of the companies are micro enterprises, 33.33% are small enterprises and the remaining 6.67% are medium enterprises. Out of the total sample of 30 companies, 56.67% are started working before 6-9 years, 30% are commenced before 3-6 years, 6.67% of the companies are started just below 3 years before and 3.33% of the companies are started before 9-12 years and the same 3.33% of the sample companies are started above 12 years. It is revealed from the percentage analysis that 30% of the sample companies are public limited companies, 26.67% are belonging to the category of partnership with limited liability, 23.37% are fall under

5. Data Analysis and Interpretation

Table 1: Company characteristics

	Characteristics	Frequency	Total %
Size of Business	Micro enterprises	18	60
	Small Enterprises	10	33.33
	Medium Enterprises	2	6.67
	Total	30	100
Age of Company	Below 3 years	2	6.67
	3-6 years	9	30
	6-9 years	17	56.67
	9-12 years	1	3.33
	Above 12 years	1	3.33
	Total		100
Structure of Ownership	Sole proprietorship	4	13.33
	Partnership firm	2	6.67
	Partnership with limited liability	8	26.67
	Public limited	9	30
	Private limited	7	23.33
	Total		100
Trend of earnings	Below 5%	6	20
	5% - 10%	18	60
	10% - 15%	3	10
	15% - 20%	2	6.67
	Above 20%	1	3.33
	Total		100
Total number of employees	Below 25	19	63.33
	25-35	3	10
	35-45	4	13.33
	45-55	3	10
	Above 55	1	3.33
	Total		100

Source: Primary Data

private limited category, 13.33% are having sole proprietorship structure of ownership and the rest 6.67% are fall under the partnership firm category. The sample companies are categorized on the basis of trend of earnings as 60% belongs to 5% -10% earnings, 20% are having below 5% earnings, 10% of sample companies have 10%-15% of earnings, 6.67% are having 15%-20% of earnings and the rest 3.33% of earnings are fall under the category of earnings above 20%. As per the total number of employees working in the sample book publishing companies, 63.33% of the sample companies are having total number of employees below 25, 13.33% are with 35-45 number of employees, 10%

are employed 25-35 employees , again 10% of the sample companies employed 45-55 employees and the rest 3.33% are employed above 55 number of employees.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.714
Bartlett's Test of Sphericity	Approx. Chi-Square	154.726
	Degree of Freedom	36
Significance level		.000

Table 3: Communalities

Statements	Frequency	Percent
The company has got good vendor support in managing Green ERP	20	66.7
The company is maintaining good green supply alignment with the parties involved in the business process of the company	3	10
The top management of the company is exhibiting full commitment in making green ERP practices in the company	1	3.3
The green computing concept is used based on innovative business process by eliminating unwanted data computation practices.	1	3.3
The Competitor advancement and the business solutions to the company are interlinked with green practices	1	3.3
Employees are having good attitude towards the adaption of green ERP practices	1	3.3
The production system of the company is highly flexible that can be able to adapt any kind of innovative methods in it.	1	3.3
The organization is using the Green ERP to ensure eco-sustainability in the society because of eco-consciousness of the consumers.	1	3.3
The most important factor that influence the company for green ERP is government rules and enacted laws	1	3.3
Total	30	100

Table 4: Extraction Method: Principal Component Analysis

	Initial	Extraction
Vendor Support	1.000	.836
Green supply Alignment	1.000	.365
Management commitment	1.000	.732
Green computing	1.000	.378
Competitor advancement	1.000	.742
Employees' attitude	1.000	.754
Flexible manufacturing system	1.000	.709
Consumers eco-consciousness	1.000	.352
Government interventions	1.000	.712

Table 5: Total Variance Explained

Component	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.569	50.669	50.669	4.569	50.669	50.669	3.386	38.065	38.065
2	1.646	17.205	67.874	1.646	17.205	67.874	2.829	29.809	67.874
3	.932	10.244	78.118						
4	.752	8.354	86.472						
5	.476	4.278	90.75						
6	.319	3.643	94.393						
7	.230	2.655	97.048						
8	.177	1.978	99.026						
9	.078	0.974	100						

From this total variance explained. 2 Components Extracted. These results explained that in the midst of various factors listed the following variables show greater importance when compared to other variables

- Internal environment
- External environment

It is also found that the nine variables can be representatives of the two components. The result of the Rotation method using Varimax with Kaiser Normalisation has been exhibited below.

Varimax is performed based upon the Eigen values not less than 1. Only for the first two components the values are 4.569 and 1.646. For any factor, the nine items are listed in assessing the investments of sample book publishing companies in Tamilnadu state. Nomenclature of the factors extracted is given on the basis of highest factor loadings of the variables of a particular factor. Factor – 1 is labeled as Internal environment has been

composed of four items dominating the factor such as Management commitment, Green computing, Employees' attitude and Flexible manufacturing system and are accounted for variance of 38.065. Factor – II is dominated by five items such as Vendor support, Green supply alignment, Competitor advancement, Consumer eco-consciousness and Government interventions accounted for 29.809 percent of the variance. This Factor – II is labeled as External environment

Table 6: Rotated Component Matrix- Varimax with Kaiser Normalisation

	Component	
	1	2
Vendor Support	.153	.874
Green supply Alignment	.231	.912
Management commitment	.901	.203
Green computing	.847	.341
Competitor advancement	.251	.871
Employees' attitude	.654	.002
Flexible manufacturing system	.714	.148
Consumers eco-consciousness	-.063	.618
Government interventions	-.079	.914

Table 7: Result of factor analysis

Factor	Label	Item	Factor loadings	% of variance
I	Internal Environment	Management commitment	.901	38.065
		Green computing	.847	
		Employees' attitude	.654	
		Flexible manufacturing system	.714	
II	External Environment	Vendor Support	.874	29.809
		Green supply Alignment	.912	
		Competitor advancement	.871	
		Consumers eco-consciousness	.618	
		Government interventions	.914	

From the Principal Component Factor Analysis with Rotation Method only two factors are identified.

Factor – I (Internal Environment) the following factors have greater influence on investments made by the book publishing companies towards Green ERP:

- Management commitment
- Green computing
- Employees' attitude
- Flexible manufacturing system

Factor – II (External Environment) the following factors have greater influence on investments made by the book publishing companies towards Green ERP:

- Vendor support
- Green supply alignment
- Competitor advancement
- Consumer eco-consciousness
- Government interventions

6. Conclusion

Despite the regulatory requirements, it is concluded from the findings of the research that many of the companies are tried to reframe their business strategies towards green business and making sustainability processes to get market leading position. From the intelligence of Environment Ministry, many companies are ready to submit their environmental reporting to the public which is showing the following details in it:

- The types of devices installed for pollution control
- Steps taken for energy conservation
- Steps taken for raw material conservation
- Steps taken for waste water and production process waste.
- Steps taken for improvement in production process, quality of product, etc.

International Chamber of Commerce also provides many information to perform Environmental Audit to the companies. These kinds of actions would definitely increase the awareness about Green ERP and it may fix out the responsibilities to the workforce and the top management to rethink their technology mapping towards Green ERP.

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