



“A STUDY ON INNOVATIVE PRACTICES IMPLEMENTING IN PHARMACEUTICAL INDUSTRY”

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ABSTRACT

The Indian pharmaceutical industry playing at scale in the innovation space will not just help country but will create source of sustainable revenues, bringing new solutions to unmet healthcare needs and will not only need stable policies and regulatory transformations for the industry to thrive, but also strong collaborations between the government, industry and existing academic and research institutes to foster innovation. The strategic advantage of India in terms of manufacturing scale, scientific talent base, demographic profile and strong IT skill set positions of India as a innovation hub for the pharma sector.

Keywords: *Pharmaceutical and Medicine Manufacturing, Pharmaceutical preparations.*

1. INTRODUCTION

The pharmaceutical industry has always played a key role in the progress of human lives. Continuous innovation is one of the pharmaceutical industry's most defining characteristics. Pharmaceutical innovations require novelty of effectiveness and create value to society by making it possible to generate improvements in patient health that were previously unattainable. It is the uniqueness of such health improvements that defines pharmaceutical innovations. The pressure to succeed is tremendous. Yet, pharmaceutical innovation is hardly an orderly, predictable process. It follows a technology- push model dependent on wandering path of scientific breakthroughs with uneven timing and hard to foresee outcomes. More importantly, how do one foster a culture of research and development and innovation. While some improvements have been made over the years, there is still room for improvements. For pharma industry to sustain its position as the world's pharmacy, it is vital to move up in terms of value chain and promote innovation and research and developments. Innovation, research and development calls for huge investment that will be critical in incentivizing companies to get into innovation. Innovation increases chances to react to changes and discover new opportunities. Its time to invest in innovation and reward incremental innovation for pharma industry to become the sunrise sector.

2. LITERATURE REVIEW

- (Chander Velu and Mahima Khanna, 2015), “**Business Model Innovation in India**”: Objectives:- The study aims to provide insights into the changing nature and dynamics of business model innovation in India over the last decade. Research Methodology:- This study uses a methodology of unique hand-collected data set of 95 observations that mentioned business model innovation in India in the financial press between 2001 and 2008. Sample:- Over the period of the authors' study, there was a clear sample information of shift in business model innovation away from IT-related industries towards consumer goods, media and financial services. Data Collection:- The data regarding this study collected to a new entrants, introduced new-to-industry, whereas incumbents introduced new-to-firm innovations. Over time, novelty-centered business model designs adopted by firms changed from being new-to-industry to new-to-firm type, whilst efficiency-centered business model designs remained relatively unchanged. Findings:- First, with time the percentage share of business model innovations by new entrants has been increasing. Second, new entrants increasingly attempt efficiency improvements while targeting novel ways of meeting customer needs. whilst incumbents predominantly adopt efficiency-based business models. Third, novelty-centered business models of new entrants and incumbents were predominantly new-to-firm; but efficiency-centered business models of new entrants and incumbents were new-to-firm and new-to-industry, respectively. Conclusions:- To concluded, Business model innovation is increasingly becoming a priority for firms globally in order to create competitive advantage, but little is known about the nature and dynamics of such type of innovation in India. The study analyze how business model innovation in India has evolved between 2001 and 2008. The study draws policy implications to stimulate and sustain business model innovation in India.
- (Dawei Liu and Sajjad Zeinaly, 2020), “**A new model for investigating the role of IT- based innovation in the pharmaceutical knowledge- sharing attitude: A study of marketing biotechnology firms**”: Objectives:- This paper aims to investigate the influence of attitude to knowledge sharing (KS) factors, learning organization and creativity on the innovation in marketing biotechnology firms. Research Methodology:- The structural equation modelling technique is used to examine the reliability and validity of the measurement of

the provided model. Data were collected by questionnaires. A study was carried out in 100 marketing biotechnology firms in the Tehran of Iran. In this paper, smart partial least squares 2.0 was used to evaluate the measurement. Sample:- The main limitation of this paper is that the sample was retrieved from 384 employees in 100 marketing biotechnology institutions. The larger number of samples can yield better results. Data Collection:- This paper provides an excellent study about the future of pharmaceutical KS and shows that innovation paths are linked with local and temporary occasions. Also, the results of this study provide valuable information in formulating marketing biotechnology programs. Findings:- The result showed that all hypotheses of this research are proved. Also, the results have shown that the attitude to KS, learning organization and creativity affect the innovation in marketing biotechnology firms. Conclusions:- The guidelines are provided for the top directors to promote KS and innovation according to the research result.

3. (Jayashree Dubey and Rajesh Dubey, 2010), “**Pharmaceutical innovation and generic challenge : recent trends and causal factors**”: Objectives:- This paper aims to analyze the present trends in pharmaceutical innovation and the impact of generic competition. Research Methodology:- A secondary research was conducted to collect data related to new drug approvals of various classes over previous years; trends of investment in research and development; and the pipeline of new drug products of pharmaceutical companies. Sample:- The sample regarded to Pharmaceutical companies' investment in research has gone up resulting in higher number of application for new drug approvals. Data Collection:- In India, pharmaceutical companies have significantly increased their research investment. However, the data collection of the NME pipeline is still slim though there has been a significant surge in generic filings. Findings:- Findings in while the new molecular entity (NME) approval rate has not improved over previous years, innovators have been aggressively pursuing the radical innovation process. Further, there has been a significant increase in incremental innovation. Conclusions:- It provides a concise understanding of trends in pharmaceutical innovation and analyzes how various factors are shaping up the innovation process. Thus, It also throws light on the evolution story of Indian pharmaceutical companies to become drug innovators.
4. (Vinita Krishna and Sudhir K. Jain, 2020), “**Modes of collaboration in open innovation practice of pharmaceutical firms in India: The analysis of survey and patent data**”: Objectives:- The purpose of this paper is Patents, Patents as one of the important components of intellectual capital are emerging as a new source for mining insights on open innovation (OI) practice of the organizations. Research Methodology:- To achieve the aim, survey data is analyzed to rank OI practices (collaboration) of the firms, while patent data are analyzed to carry out descriptive and bivariate analysis to study the inter-firm differences in collaboration. Sample:- The sample of pharmaceutical firms drawn from this list of patents, patent data– based OI insights and the use of multiple imputation technique to missing data for meaningful insights are some of the unique aspects of this paper. Data Collection:- It provides an alternative source, in this case patent data to study open innovation capabilities of firms in India. There is contribution to the patent value theory from profit motive to deriving strategic decisions on collaboration. Findings:- The survey findings highlight mergers and acquisitions (M&A) and patent pooling as the top two preferred modes of OI, while from patent data M&A has emerged as a predominant OI practice for mainly non-resident firms. Conclusions:- This study lie in realizing granted patents as important business tools for seeking collaboration, tracing competitive intelligence and the geography of innovation of the firms' competitors.
5. (Usha Lenka and Minisha Gupta, 2019), “**An empirical investigation of innovation process in Indian pharmaceutical companies**”: Objectives:- The purpose of this paper is to develop a conceptual framework exploring innovation process in research and development units of organizations. Research Methodology:- The research study highlights that creativity is promulgated when information is disseminated among members in a supportive climate for innovation. Sample:- Out of 450 distributed questionnaires, 352 completely filled responses were finally obtained in sample, with a response rate of 78 percent. Data were analyzed through structural equation modelling using AMOS 21.0 software package. Data Collection:- Data were collected from 352 leaders and equal number of team members working in R&D teams. Responses were collected through questionnaire survey method. Questions to measure variables of members' proactive personality, emotional intelligence, trust, task reflexivity, team creativity and innovation adoption were answered by team leaders. Findings:- Findings of the study reveal that members' proactive personality, emotional intelligence and trust enhance members' learning ability called task reflexivity. Conclusions:- So, R&D team enhances creativity and innovation in organizations by leveraging their talent and skills. This work is an attempt to develop an innovation process model in Indian pharmaceutical organizations to promulgate creativity and innovation through R&D teams.

OBJECTIVES OF THE STUDY:

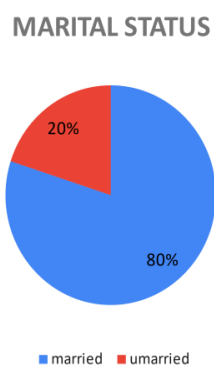
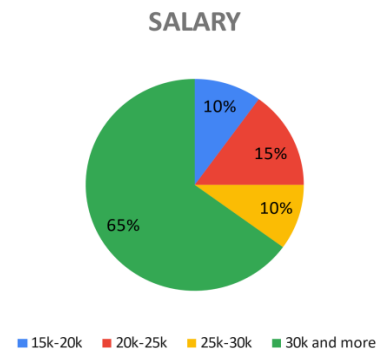
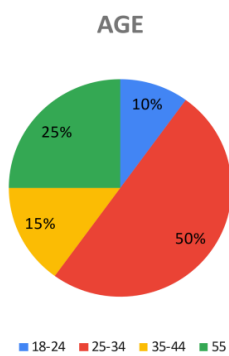
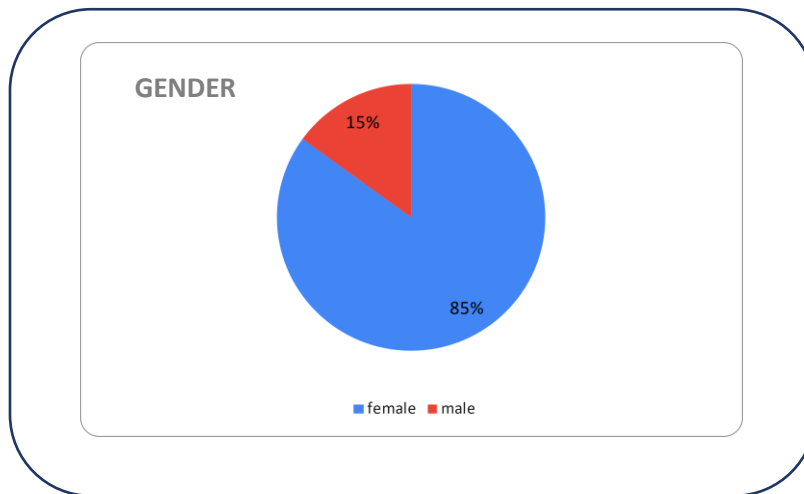
1. To identify innovative practices that are implementing on the pharma horizon.
2. To know the perception of members working in a company towards innovation & new technology.

RESEARCH METHODOLOGY: This study is conducted through primary data. A structured questionnaire was created on the basis of that data was collected from 20 staff and employees, various tools like cross-tabulations, chi-square and Nonparametric test were used. All of the analysis is done through SPSS software.

HYPOTHESIS:

H0: There is no association between age and innovation practices in the company.

H1: There is an association between age and innovation practices in the company.



INTERPRETATION: From the above chart , it can be interpret that 3% are male and 17% are female out of 20 respondents. And frequency of age between 18-24 years is 2%, 25-34 is 10%, 35-44 is 3% and above 55 years is 5%. 19% of the Employee/worker and rest 1% has other qualification professionals. Looking toward married martial status acquired 16% and rest 4% unmarried. Salary from 15k-20k is 2% respondents, 25k -30k is seen as 2% and 30k above as 13% respondents.

TEST APPLIED:

1. Gender * Reward employee for innovative idea Crosstabulation

Count

		Reward employee for innovative idea					
		1st	2 nd	3 rd	4 th	5 th	Total
Gender	Female	4	7	3	2	1	17
	Male	2	0	1	0	0	3
Total		6	7	4	2	1	20

Chi-Square Tests

	Value	Df	Asymptotic Significance (2- sided)
Pearson Chi-Square	3.660 ^a	4	.454
Likelihood Ratio	4.772	4	.312
Linear-by-Linear Association	.886	1	.347
N of Valid Cases	20		

- a. 8 cells (80.0%) have expected count less than 5. The minimum expected count is .15.

1. Gender * Do you ever feel tired or stressful while serving? Crosstabulation

Count

		Do you ever feel tired or stressful while serving?		
		Yes	No	Total
Gender	Female	1	16	17
	male	1	2	3
Total		2	18	20

Chi-Square Tests

	Value	Df	Asymptotic Significance (2- sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.135 ^a	1	.144		
Continuity Correction ^b	.174	1	.676		
Likelihood Ratio	1.578	1	.209		
Fisher's Exact Test				.284	.284
Linear-by-Linear Association	2.028	1	.154		
N of Valid Cases	20				

2. Age * What you feel toward innovation practices in your company? Crosstabulation

3. Count

		What you feel toward innovation practices in your company ?			Total
		excited	Generous	Dedicated	
Age	18-24	1	0	1	2
	25-34	6	0	4	10
	35-44	0	2	1	3
	55	1	1	3	5
Total		8	3	9	20

Chi-Square Tests

	Value	Df	Asymptotic Significance (2- sided)
Pearson Chi-Square	10.380 ^a	6	.110
Likelihood Ratio	10.862	6	.093
Linear-by-Linear Association	1.603	1	.206
N of Valid Cases	20		

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of Hiring people with innovative perspective equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
2	The median of Build a strong innovative network equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
3	The median of Have a great innovative team equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
4	The median of Emphasize more to seniority than creativity equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
5	The median of Allow you to implement innovative ideas and views equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
6	The median of If yes, then on what basis do you think it is easy? Taking safety consideration equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
7	The median of Personal protective equipment used equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
8	The median of Labelling containers correctly equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
9	The median of Maintain a tidy work area equals 2.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

INTERPRETATION: From the above table p value is 0.454, 0.144, 0.110 which is greater than 0.05 standard value. So, there is no statistically significant association between gender and reward distribution for innovative idea gender and stressfulness while serving & age and innovation practices in the company. Here the "Null Hypothesis is Accepted". Hypothesis summary table mentioned that most of the hiring people is not selected with innovative perspective were not able to build a strong connection and therefore, data cannot be assumed to be normally distributed where constant value is equal to the null hypothesized value. Data cannot be assumed to be normally distributed where constant value is equal to the null hypothesized value. Respondents were fail to maintain a great innovative team and were not suppose to emphasizes more to seniority than creativity, they were not allowed to implement their ideas & views therefore, data cannot be assumed to be normally distributed where constant value is equal to the null hypothesized value. Shows that it is easy but they where not taking safety consideration, personal protective equipment is not been used, container is not labelled properly and most probably their tidy work area is not maintained therefore, the median of these sample is not equal to its standard value.

3. FINDINGS

The researcher found that,

- Respondent are highly satisfy with innovation necessary for growth.
- Several respondent were disagree with company using modern technology and innovative ideas.
- Mass number of respondent not able to understand these practices and face difficulties.
- Majority of respondent deny to recommend to society.
- Eventually most of them respond that they feel tired while serving.
- More number of respondents disagrees with hiring people with innovative perspective.

- Their working environment is not quite protective plus innovative.
- Most of them strongly agree with emphasize more to seniority than creativity.
- Not more investment in R&D team.
- Highly satisfied with safety in manufacturing products.
- Employees were given reward for best innovative ideas.
- Allowed to implement ideas and views.
- Mostly understand these practices through regular training and their management time is so effective.
- Creating value and improvements to patient health is the priority.
- Every respondent give their best toward pharmaceutical industry.

4. CONCLUSIONS

From this research it is concluded that in pharmaceutical industry innovation practices required improvement with best innovation technology from conformity with member working in industry. Based on the analysis it is clearly stated that it was unfortunate with innovative practices in an industry due to not having in accordance with propriety. The latter companies can use innovative practices and entrepreneurship that create shared value for society and their companies and also, overtime, contribute to changes in practices in the industry.

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