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DIGITAL TRANSFORMATION IN INDIAN PHARMA INDUSTRY

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ABSTRACT

Background: The era of globalization has helped many Indian Pharma companies to expand operations beyond home country. Changes in regulatory, patent and market trends will drive opportunities for generic drugs and hence very big opportunities for Indian pharmaceutical companies in global markets. India is the largest manufacturer and exporter of generic drugs in the world and considered as the pharmacy of the world. However many Indian pharma companies find it difficult to survive in global markets due to the competition, lack of market knowledge, complex regulatory pathway and not embracing the latest digital technologies adopted by global companies. **Objective:** The objective of this research is to study the need of various digital tools available for different domains of pharma industry to become successful in global markets. **Methods:** Researcher has adopted an empirical study to conduct this research using primary and secondary data. Primary research was done by identifying target participants from pharma industry and adopted purposive sampling technique to collect the data online through a structured and validated questionnaire. Data was extracted, analyzed and interpreted using graphical analysis. **Results:** The results of this study found that in all the questions in questionnaire, majority of the participants were in favor of adopting digital tools in pharma industry irrespective size and type organization. **Conclusion:** Based on the outcome of this empirical study, it was established that there is a clear need of domain based digital tools for Indian pharma companies to compete and sustain in global markets.

INTRODUCTION:

Global pharmaceutical industry: It is one of the best sectors of the industry because of its contribution to keep the global population healthy by bringing down disease burden to the world. Pharma industry is intense capital and technology driven industry because of The intrinsic complexities like developmental challenges for new drugs, regulatory challenges for commercialization, huge capital requirement, longer gestation period, delay in return on investments and frequent changes in disease trends. This industry has been

contributing to both human and financial health of the world. Globalization is the tendency of investing funds and moves the business beyond domestic and national markets to other markets around the globe, thereby increasing the interconnection of the world, Albrow, Martin, King E. (eds.), 1990[1] . It is the process of international integration arising from the interchange of world views, products, ideas and other aspects of culture. Globalization is used to explain the recent integration of domestic economies, industries, cultures and government policies around the world. This integration has occurred through increase in the technological capabilities and efficiency of world trade, communication and transportation, Wolf, Martin, 2014[2] · Global health is the health of populations in a global context that transcends the perspectives and concerns of individual nations. Health problems that transcend national borders or have a global political and economic impact are emphasized. It has been defined as 'the area of study, research and practice that places a priority on improving health and achieving equity in health for all people worldwide'. Thus, global health is about world-wide improvement of health, reduction of disparities, and protection against global threats that disregard national borders. The application of these principles to the domain of mental health is called Global Mental Health, JAMA, 303:1976-7[3]**.** In the recent decades, pharma companies across the world expanded across the world there by bringing affordable medicines to billions of patients, bridging technological gaps, increasing access of unmet needs of patients and helping healthcare professionals to contribute to healthier world. However, healthcare professionals always criticized the monopoly of multinational pharma companies from developed world. In spite of huge profits made from block buster drugs in treating HIV, hepatitis, cancer, other chronic and acute diseases, these companies continue to market lifesaving drugs at very high prices. Majority of the population in developing countries either cannot afford to get expensive drugs or the healthcare providers ignore to offer these expensive drugs in public health schemes due to containment in healthcare budgets. Because of the affordability factor, health sectors of developing countries are not able to contain the epidemics there by impacting overall public health and this in turn affects society, economy and country as a whole.

Indian Pharmaceutical Industry: It is very fragmented sector with the domination of more than 10,000 firms control about 70% of the market. The local players mainly rely on generic drugs which are specialized in anti-infective and basic drugs to treat common diseases, Sharma U, 2009[4]. During 1972 the then government passed a law which allowed local producers to manufacture drugs that were still under patent, as long as they used different processes. Due to lack of patent system in the country, the process of reverse engineering novel drugs and launching copy cats have been excelled**,** Chaudhuri S, 2008[5]**.** Post implementation of patent regime in India, Indian companies are not in a position to launch any new drug under patent protection. However, few Indian companies opted compulsory licensing route challenging the innovator company in court citing the reason that these drugs were not affordable to the Indian patients. In couple of cases, Indian courts ruled in favor of Indian companies thereby setting a pathway for other Indian pharma firms. However this is very expensive and time consuming process and it requires a technical and legal expertise. Many Indian pharma companies opted to expand the operations beyond India to leverage infrastructure, skilled workforce, cost effective processes and government policies. In last two decades most of the companies meeting global standards have spread their wings in overseas markets. Indian companies today account for more than 35% of the Abbreviated New Drug Application (ANDA) approvals granted by the US Food and Drug Administration (FDA), Joe C Mathew, 2009[6.] Pharmaceutical Industry is a

swiftly growing industry in the country and India stands among the top 5 pharmaceutical markets in the world. For the past few years, the awareness regarding health and hygiene has increased, which has led to increase in the sale of pharmaceutical products in India. The total revenue generated through exports by pharmaceutical companies in India in the last financial year was more than $20 Billion and Table 1 captures the region wise exports done in 2015 and 2016, **(Table 1).** When the size of the companies is compared with the exports, it looks very less because of the less value. Indian pharmaceutical industry comprises of 250 to 300 large companies which account for 70% of products in the market with representation of top 10 firm's contribution of 30%. KPMG International, 2016.[7] According to IBEF, January 2016[8], the domestic Indian pharmaceutical industry is estimated to be $ 26 billion in 2014 growing at nearly 20% and is expected to reach nearly $ 50 billion in 2020. It is evident that a lot of internal factors are responsible for the growing Indian pharmaceutical industry. There are more than 200 companies' medicines for the largest population in the world which adds to the prevailing competition on the domestic front. To explore further opportunities of growth, the Indian pharma players, particularly the large ones have set up their subsidiary companies, regional offices or taken over local companies in other geographies and many have even set up their manufacturing plants in developed nations too. Indian government has rolled out many industries friendly policies to encourage the innovation and manufacturing to make pharma one of the most sustainable industries which can help in building country's economy. In last decade Indian pharma industry has been active in building huge infrastructure, product development, expanding operations, knowledge base, and intellectual property asset creation. Having known for knowledge driven sector, it has also contributed to Indian economy by generating hugs employment in all levels and contributing to Indian economy. Due to the global presence, pharma sector has helped to strengthen brand India along with Information technology sector. Industry has also made billionaires and built global organizations spread across the world. These companies inspire youngsters to become pharma entrepreneurs. There are many influential factors that could impact the pharma industry in future. Some of them are intrinsic in nature and some are extrinsic. Indian pharma industry is a success story in India and developing countries because in a span of 3 decades India could become world's largest manufacturer of medicines. Some of the key factors are captured in a SWOT analysis **(Table 2)**

Need of digitalization for Indian pharma: During the past decade has seen a change in the mindset of most pharmaceutical companies and a digital wave has swept the $17 billion Indian pharmaceutical Indus-try. The pharmaceuticals are now keen in adopting technology in every aspect of their operations, Barker M, Barker DI, Bormann NF, et al, 2012[9] · Considering the amount of time and resources that are invested in drug research, discovery and marketing, the pharmaceutical market is definitely big complex eco-system. With years of painstaking efforts in research, development, and marketing, the entire business model of pharmaceutical companies hinges on their ability to monetize on the drugs they bring to market. It is essential to optimize resources to ensure that return on investment is ensured for whatever the companies invest for ,Wetzel J, 2016 [10] .

Areas of digital opportunity: There are four main areas where digital developments will drive value for pharma companies, building on what we see as the key components of digital success—an ability to deliver more personalized patient care, engage more fully with physicians and patients, use data to drive

superior insight and decision making, and transform business processes to provide real-time responsiveness, David Champagne, Amy Hung, and Olivier Leclerc, August 2015[11] . Companies do not have to become leaders in all four areas across the enterprise—some will deliver more value than others in relation to any given disease, depending on market dynamics and their portfolio. But to decide where to concentrate their efforts, they do need to develop a point of view on each area's potential to transform their commercial and innovation models. Below mentioned model in Figure 1 mentions the type of digital tool that can be used for a specific domain or function in pharma industry. These are followed by successful pharma companies globally. After detailed literature review and first hand interactions with managers of Indian pharma companies, author identified the gap as implementation of digital tools by Indian pharma companies is the grey area while comparing with the successful competitor companies in global markets. After identifying the problem statement the objectives and hypothesis was set.

Objectives of the research: Some of the key objectives for this study are outlined below

1. To study the opportunities for Indian pharma companies in global markets
2. To understand the SWOT analysis of Indian pharma industry
3. To understand the need of various digital tools, platforms, technologies available and study how companies have successfully implemented these tools.
4. To study whether digital tools can be exploited by Indian pharma companies that may have resource constraints to go global using the new medium as a competitive tool

RESEARCH METHODOLOGY: The survey research method has been chosen to study and understand whether the technological transformation is required for Medium sized Indian pharma companies to enter and sustain in Global markets. The sampling technique has been described followed by the measurement procedures. The survey instrument has been designed based on previous research findings. The data collection and data analysis are also included in this chapter.

Sampling: This research is based on purposive sampling technique, consisted of people who were presumed to have first-hand knowledge, or were in a position to know about the topic. This type of sampling allowed the researcher to appropriately select a sample determined by the population's expertise[12]. An e-mail with a letter explaining the purpose of this research was sent out to 140 respondents who were employees of pharma companies and requested to complete the survey in stipulated timeline. Due to the time constraints and conflict of interest only 77 respondents completed the survey. The samples were selected on the basis of the knowledge, connection and judgment in the pharma companies. The personal contact and professional association with participating employees ensured that all participants completed this questionnaire-based survey. Heterogeneous sampling in terms of age, qualification, designation, years of experience, different companies, different regions, company activities, and company type was maintained to have an unbiased approach to this study

Measurement Procedures: The method of e-mail survey is used in this research. This particular instrument was chosen due to the unique characteristics of the study population and the efficiency of data collection. The survey consisted close-ended

questions formulated aiming to ensure more in-depth information is provided. The questions were formulated based on the objectives, research question and hypothesis of this research. The questions follow a logical progression starting with simple themes and progressing to complex issues to sustain the interest of respondents and gradually stimulate question answering. The study design was cross-sectional in nature, was designed to find out from a cross-section of employees in pharma companies if technological transformation was required for Indian pharma companies to enter and sustain in Global markets. The basic approach of this survey was to facilitate in a hassle free way to complete in office or home. Before preparing the questionnaire, detailed literature review on the topic of the research was completed. After extensive study of various articles, preliminary question model, structure first set of questions was prepared. These questions were shared with some of the academicians and industry specialists in the related area to understand whether the questions could help to get the desired information for the research topic

Reliability and Validity: To assist with validity and reliability, the researcher pilot tested the questionnaire with employees of pharma companies outside the study population. The pilot test is one of the most critical steps in questionnaire design and serves two functions. First it serves as the initial "live" test. Second, it is the last step in finalizing the survey questions and format. The pilot pre-test had three basic goals: to evaluate the competency of the questionnaire, estimate the length of time to take the survey and determine the quality of the surveyor. The pilot sample offered feedback to the researcher on whether the wording was clear and if the questions had the same meaning to all respondents. This pre-test could detect flaws in the questioning and allowed the researcher to correct those prior to the main survey. The survey pre-test was administered to a small group of employees of pharma companies, not to dilute the study population. Based on the feedback from pilot test, final questionnaire was prepared and structured to make it more interactive and interesting to the participants.

Data Collection and Analysis: Each participant received an E-mail with an Internet link embedded in the body of the text. The subject line of the email had a specific message and the main body of the E-mail included an introduction with specific instructions for the questionnaire. The participant clicked the link and was directed to the questionnaire created and posted on the web survey site – Google Forms. The participants were able to complete the confidential survey at their convenience and submit the data back to the researcher electronically. The data was recorded and updated simultaneously as soon as the responses were received. The analysis of the survey data was processed using Microsoft Excel and add-on software. The descriptive statistics was used to compute frequency counts (n) and percentages. Tabulation and charts were provided for the ease of comparison between different options.

RESULTS AND DISCUSSION:

The outcome aim of data from questionnaire was based on the associations between perceptions and the level of influence. This data along with literature review was helpful to build a clear picture on need of digital tools for Indian pharma companies and help to develop conclusions and recommendations

Demographic profile of the participants

Interpretation: The respondents covered are

blend of management levels which helped researcher to accumulate the matured data. Out of 77 respondents, 41% were managers, 26% were General Managers 10.4% were Vice Presidents and around 22% respondents were from top management **(Table 3).** This mix indicates that it's an excellent combination of the positions to understand the need of new digital tools in various domains. With regard to the educational qualification, 83% of the participants are post graduates and 17% are graduates. It is also worth to mention that some were having doctorates and additional certifications. This helped them to understand the research topic very well and the out-come benefitted the study. The Average age group of respondents was 42 from which suggests that the data recorded was mature data as it was from different levels and designations. Among 77 respondents, more than 90% of respondents were aged between 30 to 50 years indicating the maturity of knowledge of respondents. Around 42% of companies were Private Limited, 38% were Public Limited, 11.7% were Partnership and remaining 9.1% were Proprietorship companies **(Table 3).** This mix of company profile was advantageous to have diverse activities and culture that helped the study in a better way. The average experience of respondents was 16 years. More than 60% respondents had an experience level of 10 to 20 years and almost 26% respondents had experience level of 20 to 25 years **(Table 3).** Experience is very critical to understand the research topic and fill the questionnaire with a genuine data. Hence the data collected was logical and satisfying for the topic selected. More than half of the respondents were from large scale pharmaceutical companies. These companies would have grown over the period of last 5-10 years and respondents would have been associated with the growth from small and medium to large scale companies. There may be so many reasons behind their success but their growth strategy would have been very important and their views and response on digital tools helped the researcher in this study. The respondents from small and medium scale were 27.3% and 16.9%, respectively .In case of the domain functions, respondents from sales and marketing was 71.4% a good number for this study. Sales and marketing team have an adequate knowledge on marketing strategies, market analysis, business analytics, digital strategies and others. There was also a mix of respondents from other functions like 11.7% from techno commercial and R & D, and 5.2% from supply chain management participated in the study. This is the key criteria as the need of digital tools is equally important in most of these departments

Reasons for the growth of global pharma industry: This question mainly focuses on the perception and the view of pharmaceutical growth in future. Almost 66% respondents accepted all the options that indicated various driving factors listed above will continue to drive the growth of global pharma industry **(Table 4).** It is good for Indian companies investing in building infra-structure, product development and market expansion to grab the opportunities.

Benefits of Globalization to Indian pharma companies: More than 70% of the respondents opted for all the above options giving equal importance for all the options; however 23% of the respondents felt that building global brand was key for success and 20% agreed that globalization helped Indian economy and generate employment **(Table 5).** Hence, globalization will surely benefit Indian companies.

Opportunities for Indian pharma companies in Global markets: More than 40% respondents agreed that Pharma

companies leverage strengths of low cost manufacturing followed by 35% supporting strategic partnerships and 31% agreeing that Indian companies could exploit the opportunities in countries with low regulatory and other entry barriers **(Table 6).** It was observed that Indian companies will have a huge potential in overseas markets

How does digital strategy help companies to go global?

This is the core question and it has been placed in the questionnaire to know how familiar the respondents with latest technologies adopted in pharma industry. The respondents shared their views that if the organizations adopt the digital strategy it helps organizations to have flexibility in operations at domestic and inter-national levels **(Table 7).** The digitalization helps organization to do border less marketing with strong brand image that in turn helps them to increase their revenue and the bottom line.

Need of market research software tools: Around 65% respondents accepted that the latest market research software tools are required for portfolio analysis, market research, business analytics and proper pricing and marketing strategy. Also, found that the tailor made reports for everything like markets, compliances, demand for type of products, external and internal environments etc. can be generated from soft-ware, which will help management in decision-making **(Table 8).**

Is digital marketing a must for pharmaceutical companies?

Almost all respondents agreed that digital marketing is essential for pharmaceutical companies. A very high percentage of respondents (73%) strongly felt the need of digitalization of pharmaceutical companies. A mere10% of respondents believed that digital marketing was not needed. This proportion of respondents generally belonged to a section of traditional marketing professionals who do not want to update themselves with the latest trends and technologies. 17% of respondents showed mixed response probably because the questionnaires were shared with almost all departments and they might be from different team with less or no experience in marketing **(Table 9).** It was found that the digital marketing is a must for pharma companies.

How can companies ensure that they are reaching target audience through digital strategies?

Around 40% respondents agreed that by getting statistical and analytical data of past responses, clicks, feed-backs, and more than 50% respondents accepted that by all of above options ensured that companies are reaching their target audience through their digital strategies **(Table 10).** Furthermore, every aspect of digital marketing and modern day marketing tools and customized software solutions is trackable and measurable

Significance of latest technology in the manufacturing of pharma products in current business perspective?

Around 59% respondents accepted the significance of using latest technology in the manufacturing of pharmaceutical products in current business perspective **(Table 11).** The latest software, tools etc. played key role in development of organizations directly and helping the nation's economic growth indirectly which is fact and statistical data is the evidence to support the statement. Japan has become leader and competing with America and it was successful by working on waste reduction with concepts like JIT, TQM, 6 Sigma etc. It's evident with this

question that the digital technologies in current perspective are keys to success.

Benefits of latest tools like SAP/ ERP in Supply Chain Management

78% respondents agreed positively stating that ERP (Enterprise Resource Planning) software's and packages play very important role in Supply Chain Management **(Table 12).** By installing and working the real time, procurement and deliveries can happen on real time basis without any deviations. Many pharma companies successfully implemented these digital platforms helped them to sustain and grow in global markets.

Why some Indian pharma companies could not become successful in Global markets in spite of good market growth & potential?

Around 50% of the respondents agreed that non-adoption of technical changes in manufacturing, regulatory affairs & marketing and around 40% respondents agreed to several reasons suggested to be associated with failure of some medium sized pharma companies in global markets **(Table 13).** These reasons were responsible for failure despite good market growth and potential.

What is the role of e-commerce in the era of globalization?

More than 55% respondents agreed that e-commerce played important role in globalization and more than 35% respondents agreed that e-commerce helped in reaching the clients/ customers globally with fewer resources **(Table 14).** E-commerce is the latest technology, which is reducing the time and documentation in business. It has become a major entity for customers for comparing the products, helping companies to make their product competent

What changes you would expect if an organization goes digital?

Around 50% respondents felt that digitalization process would bring rewarding changes in business model, market competitiveness and technology transformation **(Table 15).** It was also evident from the observations that the new wave of digital transformation will transform the organizational culture by attracting best in class human resource. Researcher's findings from secondary research confirms the observations and the companies enjoy the benefits of digitalization in the long term in the form of improved brand equity and customer loyalty

CONCLUSION

The overall outcome of the research establishes that digital technology could bring optimization of processes, reduce waste and improve yield in production. The automation of production process will give less defective products with high quality and fewer resources. Reduce inventory, improve production capacities by proper scheduling in SCM. To develop differentiated products, first to launch products with the help of analytical tools by research and development team, the adoption of newer technologies is critical.

Table: 1				
Region	**Fy 15 (in mn$)**	**Fy 16 (in mn$)**	**Growth%**	**Share**
North America	4517.94	5704.07	26.25	33.77
Africa	3089.03	3348.55	8.40	19.83
Asean	1055.62	1031.09	-2.32	6.11
Middle East	956.12	978.51	2.34	5.79
South Asia	616.27	624.49	1.33	3.70
CIS	701.22	614.94	-12.30	3.64
Asia (Excluding Middle East)	511.68	506.37	-1.04	3.00
Oceania	263.36	294.33	11.76	1.74
Other European Countries	139.57	140.08	0.36	0.83
Other America	59.49	63.60	6.91	0.38
Others	0.27	1.16	338.30	0.01
Grand Total	**15433.06**	**16889.18**	**9.44**	**100.00**

Table 2: SWOT analysis of Indian Pharma Industry			
Strengths	**Weakness**	**Opportunities**	**Threats**
Growing treatment naive patient population	Low investments in innovative R & D	Global demand for generics rising	Wage inflation
Low Cost of innovation, manufacturing and operations	Poor all-round infrastructure is a major challenge	Rapid OTC and generic market growth	Government expanding the umbrella of the Drugs Price Control Order (DPCO).
Higher GDP growth leading to increased disposable income in public and their positive attitude towards spending on healthcare	Poor health insurance coverage	Public-Private Partnerships strengthening Infrastructure.	Entry of foreign players (well-equipped technology-based products) into the Indian market
Date management functions for clinical trials	Stringent pricing regulations affecting the profitability of pharma companies	Opening of the health insurance sector and increase in per capita income – the growth drivers for the pharma industry	Improper systems and issues complicates conducting clinical trials scope in India
Fair Protections of intellectual property rights	Majority of companies lack the ability to compete with MNCs for New Drug Discovery	Significant export opportunities. US$40 billion worth of drugs in USA are going off patent.	Drug Price Control Order puts unrealistic on product prices and profitability

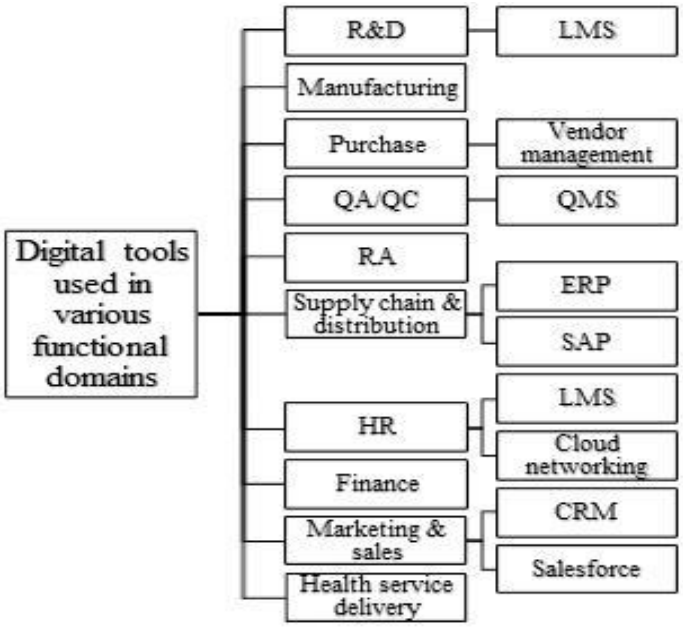

Figure 1: Various digital tools and platforms used in different functions of pharmaceutical

Table -3		
Participants Demographic details	**No. of Respondents**	**Percentage**
Designation in the company		
Manager	32	41.6%
General Manager	20	26.0%
Vice President	8	10.4%
Top Management	17	22.1%
Qualification		
Degree	13	16.9%
Master's Degree & Above	64	83.1%
Age group		
30 – 40	36	46.8%
40 – 50	35	45.5%
50 – 60	6	7.8%
Type of Company		
Public listed company	29	37.7%
Privately held company	32	41.6%
Proprietorship company	7	9.1%
Partnership company	9	11.7%
Experience Level in Pharma Industry (in years)		
5-10	8	10.4%
10-15	29	37.7%
15 – 20	20	26.0%
20 – 25	20	26.0%
Company Size		
Small (Below Rs. 100 crores/ annum)	21	27.3%
Medium (Rs. 100 to 500 crores/ annum)	13	16.9%

Large (Rs. 500 crores & above/ annum)	43	55.8%
Functional domain in Company		
R&D	9	11.7%
Sales, Marketing & BD	55	71.4%
Techno commercial	9	11.7%
Supply Chain Management	4	5.2%
Total	**77**	**100.0%**

Table 4: Reasons for the growth of global pharmaceutical industry		
Options	**No. of Respondents**	**%**
Increase in prevalence of chronic diseases because of change in lifestyle	19	24.7%
Increase in global spending on medicines & health care	15	19.5%
Expanding access through health coverage and cost containment	9	11.7%
Increase in average life expectancy through advanced diagnosis and medication	13	16.9%
All of the above	**51**	**66.2%**

Table 5: Benefits of Globalization to Indian pharma companies		
Options	**No. of Respondents**	**%**
Helps in building a global brand which adds value to organization in long run	18	23.4%
Enjoy export benefits offered by Indian government	9	11.7%
It helps organizations to adopt Global structure	10	13.0%
Contributes to Indian economy & sector growth helps to generate employment	15	19.5%
Leveraging technically skilled low cost manpower to compete with global company	11	14.3%
All of the above	**56**	**72.7%**

Table 6: Opportunities for Indian companies in global markets		
Options	**No. of Respondents**	**%**
Leveraging on India's low cost manufacturing to compete in the global markets	32	41.6%
Strategic partnerships with regional companies for R&D of generics	27	35.1%
Semi-regulated markets to give quick entry to leverage the existing portfolio	24	31.2%
Collaborate and capitalize on new science	9	11.7%
All the above	**35**	**45.5%**

Table 7: How digital strategy helps companies to go global?		
Options	**No. of Respondents**	**%**
To compete with the global and regional companies	8	10.4%
Helps the Organization to be highly efficient, productive responsive & competitive	32	41.6%
It helps organizations become intuitive enterprise	4	5.2%
Through border-less marketing companies can project strong brand culture clearly across the touch points	13	16.9%
Flexibility to operate at global and local and also making product more popular at global markets	18	23.4%
All of the above	**37**	**48.1%**

Table 8: Need of market research software tools		
Options	**No. of Respondents**	**%**
Helps in creating a potential product portfolio by analyzing the market trends	23	29.9%
Accurate qualitative and quantitative date to determine the target market	18	23.4%
Helps in aligning research effort and capabilities with market growth potential	17	22.1%
Helps to keep focus on customers, Business and revenue growth	14	18.2%
All the above	**50**	**64.9%**

Table 9: Is digital marketing required in international marketing?		
Options	**No. of Respondents**	**%**
Yes	56	72.7%
No	8	10.4%
Can't Say	13	16.9%

Table 10: How can companies ensure that they are reaching target audience through digital strategies		
Options	**No. of Respondents**	**%**
Getting statistical and analytical data of past responses, clicks and feed backs	32	41.6%
Taking the help of Search Engine Optimization techniques, Google as words etc.		
	13	16.9%
By checking the date using ad safe, double verify tools etc. software's	14	18.2%
Diagnosing by Using software's like Coms core's compaign etc. Software's	5	6.5%
All of the above	**40**	**51.9%**

Table 11: Significance of latest technology in current perspective		
Options	**No. of Respondents**	**%**
To meet the compliance and regulations without any deviations	19	24.7%
It reduces time to market and increases first to launch opportunities to gain the maximum market share	13	16.9%
Proper controls, well defined processes assures the high quality products	19	24.7%
Implementation, monitoring and feedback mechanisms can be achieved	11	14.3%
All of the above	**46**	**59.7%**

Table 12: Benefits of SAP & ERI in Supply chain management		
Options	**No. of Respondents**	**%**
Real time Purchase order processing and on time deliveries	13	16.9%
Proper management of inventory and sourcing	15	19.5%
To meet the good warehouse practices as per the regulatory requirements	15	19.5%
Real time status on the movement of the consignments globally	9	11.7%
All of the above	**60**	**77.9%**

Table 13: Reason for failure of some medium sized pharma companies in global markets		
Options	**No. of Respondents**	**%**
Failure to obtain export counselling and to develop a master international marketing plan before starting and export business	14	18.2%
Not committed to adopt the technological changes in various functional domains	36	46.8%
Lack of resources and right portfolio to compete in the market	23	29.9%
Not partnering with strong local partner or distributor	15	19.5%
All of the above	**31**	**40.3%**

Table 14: Role of e-commerce in the era of globalization		
Options	**No. of Respondents**	**%**
It helps in evolution of Company and the readiness for exports	3	3.9%
Helps in reaching the clients/customers globally with less resources	27	35.1%
Increases the visibility there by enhancing the brand image and sales	14	18.2%
Right medium for showcasing the capabilities/strengths and	11	14.3%

communicating the vision of the company		
All of the above	43	55.8%

Table 15: Expected positive changes with digitalization

Options	No. of Respondents	%
International standards in terms of operations, Human resources and other areas	17	22.1%
Changes the phase and pace of the business and the mode of operations.	17	22.1%
It helps in up gradation of technology and exchange of technology	12	15.6%
It helps to have a competitive edge in marketing and increasing bottom line.	17	22.1%
All of the above	**38**	**49.4%**

Help the management to take informed decisions on pricing, brand positioning, brand building by reaching out customers across globe in marketing. The firms can increase the revenue and the profitability if the strategy is planned and implemented with dedication. The feedback of top and middle level management teams of large size companies suggests that they were very keen on adopting newer technologies. There was also mixed and difference of opinion in few cases but at large the majority opinion is in support of implementation of technology. Management should consider the need to implement domain based digital tools that can fit it in to the company's area of expertise, objectives and financial capability should be evaluated before going digital. Research findings also suggest that the management needs to hire technically competent team to manage the transformation.

No business can be run without technology and many companies are sustaining only by adopting latest technologies in this highly competitive markets. Going digital is the need of an hour Indian pharma companies to sustain in domes-tic market and to successfully capture international markets with all the complexity that it offers.

LIMITATION AND FURTHER SCOPE FOR RESEARCH

This could be the first time the researcher has explored and identified some of the unique problem areas facing by many Indian companies after a thorough secondary research and researcher's own experience. There were many limitations like complexity of the pharma industry, getting the right participants for the study, conflict of interests of the participants and the knowledge required to fill the questionnaire limited the researcher to study and evaluate broadly the need of digital tools in different verticals from manufacturing, supply chain, quality assurance, marketing etc., Due to lack of resources like time, materials, funds and guidance in this area researcher could not study in depth about the application and outcomes of digital tools in most of the verticals.

Future is driven by digital and hence

there is a tremendous scope for further research and in-depth analysis on how digital tools impact each and every domain in pharma industry and need of an integrated digital strategy.

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