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IDENTIFYING AND RANKING OF CHALLENGES TO MAKE IN INDIA CAMPAIGN USING ANALYTICAL HIERARCHY PROCESS

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ABSTRACT

The purpose of this paper is to identify, categorize and rank the various Challenges to Make in India campaign and identify the need of Industry 4.0 for Make in India campaign. Political, Economic, Social, Technological, Legal and Environmental (PESTLE) analysis for categorization and Analytical Hierarchy process (AHP) for ranking of the challenges is used in this paper. Twenty two challenges are identified for Make in India campaign and there ranking is done to prioritize these challenges. To help in removing the challenges ahead of Make in India campaign and how the advancement can be done in the manufacturing sector with the help of Industry 4.0.Objectives of the Make in India campaign can be achieved like to have Best in Class manufacturing infrastructure, GDP growth of manufacturing sector up to 25% by 2022 and making India again World fastest growing economy.

KEYWORDS: Political, Economic, Social, Technological, Legal and Environmental (PESTLE), Analytical Hierarchy Process (AHP), Gross Domestic Production (GDP), Brazil, Russia, India, China and South Africa (BRICS).

1. INTRODUCTION

To know, what Make in India is we can simply take into consideration the meaning of individual word, given as :Make means Give certain properties to something's, in means to (or) toward the inside of, and India is a republic in southern Asia, the second most populous country in the world. So, it is a programme of the Government of India, to embolden multi-national, as well as domestic, companies to fabricate their products in India (Narayanaswamy et al., 2016). And, planned to change India into an international design and manufacturing hub, Make in India was a well-timed retort to a serious situation as by 2013 growth rate of India had fallen to its lowest level in a decade when, the overvalued emerging markets bubble had burst (makeinindia.com) and the pledge of the BRICS Nations (Brazil, Russia, India, China and South Africa) had pastel, and Republic of India was labelled collectively of the supposed 'Fragile Five'. World investors deliberated whether the world's largest democracy was a peril or a chance. India's 1200 million voters examined whether India was too massive to triumph or too massive to flop. India was on the periphery of severe economic failure(makeinindia.com). So, the campaign was commenced on 25th September2014 by Prime Minister Narendra Modi just after Mangalyaan and its installation in Mars orbit, it proved the India's success in manufacturing (Shettar, 2017) and the idea of this project was taken from the Make in China campaign which was started and implemented successfully in China and make China successful economy (Chaudhari, 2015). And the objectives of the Make in India campaign are as follow (Narayanaswamy et al., 2016) to build best-in-class manufacturing infrastructure, to promote innovation and increased productivity, skill development, to protect intellectual property rights, designed to ease Investment, employment generation and economic growth, to make healthy affairs with other nations, and to make India digital.

Industry 4.0 is every so often stated to as the 4th industrial revolution and it is a concept of industries with artificial intelligence or smart factories erected with intelligent cyber-physical systems. It will empower manufacturing environments propelled by systems which are smart and have autonomic self-properties like self-configuration, self- supervising, and self-restoration (Rüßmann et al., 2015). Industry 4.0 will grant us to pull off unique stages of functioning efficiencies and augmented advances in productivity (thehindu.com, 2018).It will be possible by Industry 4.0 to congregate and evaluate data thru machines, facilitating swifter, highly flexible, and highly competent processes to generate superior -quality products at diminished costs, which help in nurturing industrial growth, increasing manufacturing productivity, increasing economic growth, and transform the outline of the workforce— eventually altering the competitiveness of industries and territories (Rüßmann et al., 2015). It is more important to know about the objectives of the Industry 4.0, the main objectives of the Industry 4.0 are to increase the Productivity, Revenue Growth, Employment Generation and Increase investment etc.

And as the Government of India has identified 21 key sectors of the economy and aim behind the initiative is to focus on 21 key sectors of the economy (worldfoodindia.in). Automobile industries, textiles industries, aviation industries, tourism industries, railways, pharmaceuticals industries etc. are some of these sectors (Chaudhari, 2015).As it is also very known that doing business in India is much more difficult than elsewhere (Vijayragvan, 2015)and GOI is also focussing to overcome this issue (Vijayragvan, 2015) and there is young skilled labor is in plenty and easily available in India and given the high rates of unemployment among educated class of the country (Chaudhari,2015). But the objective to boost the manufacturing in these 21 sectors is seeming to be achieved because there are six superstar sector which are boosting Make in India

(makeinindia.com and these are, Automotive (wardsauto.com and economictimes.indiatimes.com), Electronic System Design & Manufacturing (businessworld.in andpib.nic.in), Renewable energy(moneycontrol.com), Roads and Highways (ibef.org), Pharmaceuticals(ibef.org), Food Processing(makeinindia.com and worldfood.india.in).

The two key objectives of this paper are given as below:

(i). Identifying various Challenges to Make in India campaign

(ii). Ranking of various Challenges to Make in India campaign

As there is need for ranking of the Challenges to Make in India campaign, Analytical Hierarchy Process is found suitable for this purpose. AHP, as a judgement support instrument, manages a multiple level hierarchical arrangement of intents, criteria, sub criteria and alternatives (Luthra, Garg and Haleem,2013).

2. LITERATURE REVIEW

From the various literatures, we have found connectivity between the Make in India and Industry 4.0. In the given section it is focussed that how and why both the Make in India and Industry 4.0 are related to each other.

2.1. How Make in India and Industry 4.0 are related to each other

The objectives of the Make in India campaign and Industry 4.0 are alike to an extent i.e. to boost the manufacturing sector, employment generation, revenue growth/ GDP growth, advance manufacturing system. So, we it can be concluded that to prosper the Make in India campaign it is necessary to adopt the Industry 4.0 or to boost the manufacturing system in the smartest way(thehindu.com, 2018).And it can also be said that without adopting Industry 4.0 it will be difficult to achieve the progress of the Make in India campaign because the main motive of this campaign is to boost the manufacturing system and it is not that much easier without adopting the latest techniques in a smarter manner.

2.2 Why Make in India and Industry 4.0 are necessary for Indian manufacturing sector

We can take examples of smart processes are 3-D Simulations, of the production system and in future these simulations will also be the part of plant operations(Manogaran et al., 2017) and there will be impact on concurrent information to imitate the tangible world in a cybernetic model, which will involve humans ,machines, and products and this will finally lead to the boost of manufacturing industry to a very large extent(Rüßmann et al., 2015) that's why Industry 4.0 is necessary for Make in India campaign.

And developed countries like USA commenced to stick on to innovative technologies on production level to contend with other developing nations (like India) and offer supplementary value to the consumers and such projects are called as fourth industrial revolution, Internet of Things (IOT), or next generation systems.

Although in Germany, it is propelled by government of Germany (Khan and Turowski, 2016) and described as Industry 4.0. There is need to understand that if the developed nations are in the race to enhance their manufacturing system (Manogaran et al., 2017). So, in developing nations like our country, India it necessary to take care advancement of the manufacturing otherwise we will be out of race of competitiveness in case of manufacturing technology (Srivastava, 2016).

And this advancement will be done by taking the following most important parameters like Cybersecurity, Additive Manufacturing, Augmented reality, Virtual training, Automated logistics etc. Hence we will able to prosper our manufacturing system and this will automatically uplift the existing manufacturing system and also make new system with higher capabilities and smooth functioning(Hecklau, 2016)

3. IDENTIFICATION OF CHALLENGES TO MAKE IN INDIA CAMPAIGN

As we discussed about the role of Industry 4.0 in flourishing of the Make in India campaign but to adopt this revolution of Industry it is necessary to identify the various challenges associated with the implementation of Make in India campaign. These identified challenges are categorised according to Political, Economic, Social, Technological, Legal and Environmental i.e. PESTLE analysis, which will provide a scaffold for the application of AHP, which further helps in determining the rank of these challenges.

3.1 Political challenges

These challenges are related to the stresses and chances fetched by political bodies and to what intensity the government policies influence the business or programme(processpolicy.com) whether it is Make in India or Industry 4.0.

3.1.1 Role of Indian central and state governments

The governments of states in India are more receptive to decrease in food production and crop flood destruction via people food supply and catastrophe help expenses where newspaper distribution is privileged, and electoral liability is superior(Besley and Burgess, 2002). Correspondingly political fights between central and state government, inefficient bureaucracy, Red tapism is a big hurdle(Singh, 2016). An example of this can be seen in India where only state govts. are allowed to set up SEZ (Special Economic Zone) but the control for foreign investment approvals are conferred with central govt. representatives i.e. Development Commissioners and due to this delay in paper work continues (Singh, 2016).Without a balanced coordination between the state and central governments it will be impossible to adopt the Industry 4.0 and prosper the Make in India campaign.

3.1.2 Political stalemate

In India we have a more notified and politically effective electorate which lures for governments to be more reactive (Besley and Burgess, 2002). Sessions by sessions the

proceedings of the parliament are intervallic and deferring in the endorsement of important bills owing to political gridlock (Saxena and Tomar, 2017). Example of GST and Land Acquisition bill is in front of us. There is need on focussing the economic condition of the country, better economic condition will flourish the campaign and a flourished campaign will provide good economic condition.

3.1.3 Less efficient administrative machinery and crony bureaucracy

Government must try to resolve the problems of bureaucratic delays in various infrastructural development projects (Prajapati and Telang, 2017), which are the basic requirement of the Industry 4.0. Industry 4.0 is compulsory for an advance manufacturing system. So, this can be done by having efficient and prompt administrative machinery and due to which a sound business environment will be created (Prajapati and Telang, 2017). As in China achievement of Special Economic Zone (SEZ) wasdone by decentralization of authority where regional and local authorities were made shareholders and partners, by assigning to them powers to permit foreign investment (Nathani and Parikh, 2015).

3.2 Economic challenges

These challenges involve policies and structure related to economy and what extent the economy impacts the business or a programme (processpolicy.com) and to soothe the economic condition is one of the main objectives of Make in India campaign and Industry 4.0.

3.2.1 MSME

Generally, there is always a confusion in defining MSME to understand this, there are main criteria that lead to identify the MSMEs sector given are (Jahanshahi, 2011), Turnover, Number of employees, and Balance sheet total.

"There is a credit space of 56% in the MSME finance sector in India", stated by US based Entrepreneurial Finance Lab (EFL). MSMEs are the highest credit defaulters which accounts for 5% of advances for the last three years (Bhattacharya, Bruce & Mukherjee, 2014). And produce opportunities -Job making, careers, and new products/services, growth of economy, productivity expansion, and invention are the areas where boosted levels of entrepreneurial action can pay appreciably to specific policy resultsand to alleviate poverty, to create social prospects, create new customers and uncover new markets (Jahanshahi, 2011).

3.2.2 Ease of doing business

Proper platform can be provided for ease of doing business in India by improving parameters like, obtaining credit, registration of property, getting electricity, payment of taxes, shielding minority investors, transaction of goods and services across borders, enforcing contracts and resolving insolvency, etc.(Prajapati and Telang, 2017).There are also many challenges for new and young entrepreneurs like abandoning another career, financing, teambuilding, dealing with the unknown, being the visionary, loneliness, rule-making, decision-making, etc.(Prajapati and Telang, 2017).

Easier processes for incorporation, Insolvency and Bankruptcy Code, Time for registering companies reduced, Integration of processes through eBiz portal, Easier processes for incorporation etc. are the major plans taken by government to enhance the ease of doing business in India (Luthra, Garg and Haleem,2013). In India number of days required to perform various activities like register a property, starting of a business and enforcing contracts are approximately double than in China (Singh, 2016).

3.2.3 Privatization and FDI

The meaning of FDI is, direct investment by individual resident outside India in the capital of an Indian company (Aggarwal and Aggarwal, 2012)and after 1991, FDI in India has been on the upswing. And it was another body shock for the local industries; following as it does the impact of other measures taken by government to reduce protection and increase the play of market forces. The fear is being expressed that the wave of foreign investment will sound the death-knell for indigenous industry (Ganesh, 1997). There are many factors like investment, Intellectual Property Rights (IPR), value addition extent etc. which play a significant role to determine the type of foreign contribution (Ganesh, 1997). And also, there are challenges like manufacturing unit identification, opposition by labour union and percentage shares of partners present in current scenario (Prajapati and Telang, 2017).

3.3 Social challenges

These challenges include all occurrences that influence the market or economy socially. Thus, the gains and loss to the people of the place in which the scheme is taken into consideration (brighthubpm.com).

3.3.1 Education

The current education structure in India mainly includes elementary, secondary, senior secondary and higher education respectively out of which primary education takes eight years of education(Goel and Vijay, 2017)which is a very important period for preparing a children's future. The role of technical and vocational education is very vital to create skilled manpower, to enhance productivity of industry and to have a better standard of life but according to report of NAAC report "the quality of education in 90% of the universities and 70% of the colleges is below par" (Joumard, Sila and Morgavi 2015). So, to improve Indian education system is an urgent need.

3.3.2 Skill

India has steadily developed as a knowledge-based economy due to the abundance of proficient, flexible and qualified human capita (Kapur, 2014). Ministries of Government of India, we like Ministry of Labour and Employment, Food Processing Industries and Human Resource Development(HRD) are presently occupied in undertaking different training initiatives with the combined target of skilling millions of people by 2022 (Chenoy, 2012). But in Industry segment, due to non-uniform defined standards for various jobs it is difficult to new applicants

that on what employability scale they stand. And they are depending on the favour from the Human Resource (HR) department of that industry (Chenoy, 2012). There are many unemployed graduates in India in various sectors like 75% in Information and Technology, 55% in Health care, 55% etc. Manufacturing stated in a report published by FICCI and Ernst & Young named "Higher Education in India: Vision 2030"(Bhagowaty, 2015)

3.3.3 Government facility not reaching to the people

In nineties, there were many disparities in the level of basic urban amenities found in state and class wise analysis. In favour of small and medium towns and backward states no sensitivity has exhibited by para- satal and governmental institutions (Kundu, Bagchi and Kundu 1999). During the past few decades there is no balanced provision for basic services and investments for the development of infra- structure (Kundu, Bagchi and Kundu 1999). Due to which proper facilities are not reaching to all the peoples.

3.3.4 Brain drain

Brain drain is a problem where the people from poorer drift legally from to richer nations. Since the huge number of these emigrants shift for permanent residency, and this abnormal brain drain not only symbolizes a shortfall of precious workforce but could create a critical constriction on the forthcoming economic evolution of Third World nations (Todaro, 1985) and according to a report presented by the premier scientific body of United states, there is an increase by 85% in expatriation of Indian scientists and engineers to the United States, in ten years (hindustantimes.com, 2015). To make this campaign successful it is necessary to retain the brain drain.

3.4 Technological challenges

These challenges associate to the technological features, innovations, hurdles and enticements, and to what extent these effects the business (processpolicy.com) and the technological challenges are most important for the advance manufacturing system.

3.4.1 Lack of Research and Development (R&D)

To support both national competitive advantage and to generate new information for supporting organizational R&D is a significant process (Jyoti, Banwet, and Deshmukh, 2010).

If Indian Research and Development organisations do not restructure themselves to tackle global competition, nor take into contemplation the character of the factor donation of the country in common with many prevailing home-grown skills and technologies so far ignored, then they threat becoming unrelated to the conventional doings of industrial development (Jyoti, Banwet and Deshmukh, 2010). By taking into considerations various factors like Teamwork (TW), Knowledge networks (KN), Resources Availability (RA) etc. the problem related with the lack of R&D can be overcome (Jyoti, Banwet and Deshmukh, 2010).

3.4.2 Infrastructure

The acute characteristic in Indian infrastructure is the development of policies, with particular actions being laid out for particular policies such as bidding and purchasing process, policy planning methodology and the connections between economic growth and policy development (Kumar, 2005) and Indian infrastructure is in a position of unrest. Also, reprovision of infrastructure services in India is gradually shifting away from the domain of government to that of private sector(Patel and Bhattacharya, 2010) and it can be shown in The WEF's global competitiveness Report (2015-2016) where India has given 81st rank out of one hundred and forty countries for deficiency in Infrastructure (Aggarwal Singla and Aggarwal, 2012). Thus, a better infrastructure is the need of the Industry 4.0 and Make in India campaign which means without a better it will be difficult to merge in the steam of Industry 4.0 and thus not to prosper the Make in India campaign.

3.4.3 Enterprise Specific Performance Requirements (ESPR)

Several performance standards are required by the Enterprises. To achieve standards, special efforts are needed without interfering the enterprise' internal commercial decisions(Gupta, Kapoor and Asudani, 2015). Without these specific standards it is impossible to beat the global manufacturing market. Hence the requirement of these standards is compulsory for a better manufacturing system to compete worldwide and without these standards no globally accepted product will be manufactured.

3.4.4 Lack of high tech specialized equipment

To give edge to edge competition, High tech specialized equipment are required, it must be ensured by government to provide financial aid for this (Singh, 2016). Also, the focus of manufacturing industries should be on internal changes which must be targeted at increasing efficiency and decreasing costs(unido.org). It is the most important thing to be the race of revolution of 888manufacturing industry hence more emphasise should be given to this specialized equipment for an advance manufacturing industry and for Additive manufacturing which is a tool for Industry 4.0.

3.4.5 World class standards

All foreign companies demand world class standards, the issue here in front of Indian government is to prepare the labour with competencies of making high quality products by means of skill development programs started in India (Prajapati and Telang, 2017).

3.5 Legal challenges

These challenges are related to the laws, regulation and legislation that will influence the method the business works like imports, exports etc. (processpolicy.com).

3.5.1 Labour reforms

According to a survey done byCII-KPMG-2014 in India, approximately 47% of the respondents stated moderate to major difficulty in conforming with labour laws and more than 200

laws are available for employment, social security, trade unions, industrial and labour disputes, welfare and safety etc.(Gupta, Kapoor and Asudani, 2015).

3.5.2 Land acquisition and litigation on farm lands

The following types of land have been categorised as wasteland as per National Remote Sensing Centre (NSRC), ISRO in association with Wasteland Atlas of India(Bhagowaty, 2015):

Barren, Salt encrustation, Degraded Forest, Ravenous Land, Salt affected land, Shifting Cultivation, Gullied Land, Waterlogged area, Upland without scrub, Snow covered area steep sloping area and Land with scrub(Bhagowaty, 2015).Despite this categorisation, in India it is also difficult to establish the land title due to incomplete land records which becomes a cause of litigation later (Pallavi, 2016). An example of this can be seen in states like Haryana and UP where huge project delays are caused by land acquisition for industries, roads and housing projects resulted into conflicts between farmers and state authorities (Joumard, Sila and Morgavi 2015).

3.5.3 Exports

Tailoring the Export Import strategy to foster exports and allying the duties on imports to come across World Trade Organisation pledges more subsidised to this development. This fashion is likely to stay for next five years, propelled by a beneficial business plan environment in relation with of tax cuts, expanding tax base, and decreased rate of interest(unido.org). There is 94%, 88%, 77%, 70%,74%, and 62% manufacturing exports in China, Japan, Philippines, Singapore, Thailand and India respectively in 2013 (Make in India- Pressing the Pedal, 2015).

3.5.4 Ownership and control

When it comes to FDI there many questions arise like percentage of shares in the company of the foreign investors, board of director formation etc. (Prajapati and Telang, 2017). So, ownership and control are also must be taken into consideration while offering FDI.

Besides, in the context of Industry 4.0 there is need to form legal factors for the handling of the large scale data. The fortification of secrecy is the most significant concern since data will be accumulated on everything when interrelating with smart objects. Therefore, to safeguard the employees and for work times regulations are needed (Hecklau, 2016).

3.6 Environmental challenges

This challenge takes into consideration ecological and environmental aspects that could be either economic or social in nature. These include safer transport, environmental clearance (brighthubpm.com)

3.6.1 Lack of safer transport

The other main reasons behind Indian manufacturing being not competitive enough in comprise (unido.org).Transport infrastructure having poor quality throughout all sectors including port facilities, Airports, Railways, Surface roads and Waterways. To avoid various environmental problems and accidents related to less safer transport there should be taken care of rules to provide better and safe transport, bill like Road and Transport Safety Bill should be passed (Report from ey.com, 2016).

3.6.2 Environment clearances

India is one of the developing countries having reliable legal framework for Environmental impact assessment (EIA). And the responsibility for executing the EIA Notification stays with the Ministry of Environment and Forest and Government of India. Ministry of Environment and Forest is the sole organisation for Environmental Clearance to any evolving projects in the country (Panigrahi, and Amirapu, 2012). 'Being green' should be the main focus of the business and should be taken as a duty by the manufacturing sector to preserve the environment (Kaur, 2016).

3.6.3 Lack of cleaner transport

Due to old norms of pollution standards there is more environment pollution in our country, to avoid this there should be advancement of BS VI norms to have a cleaner transport (Panigrahi and Amirapu, 2012). Need of cleaner transport is as important as other factors for manufacturing industries and to have a sustainable growth of economy.

The above mentioned environmental challenges are needed to be removed to have a sustainable attitude, inspiration to guard the environment, creativity to develop new sustainable resolutions which are also important for the Industry 4.0(Hecklau, 2016).

4. METHODOLOGY

We have distinguished different difficulties for Make in India campaign in the context of Indian manufacturing sector and the role of these difficulties in Industry 4.0 revolution, across broad writing audit and discourses among specialists from the scholarly world and industry. Make in India campaign challenges ranking issue in Indian assembling industry has been managed by questionnaire-based examination. An organized questionnaire was readied, and every one of the criteria was evaluated by the specialists.

And for ranking of different Challenges to Make in India campaign in Indian manufacturing industry this method is used.AHP method of ranking the Challenges to Make in India campaign is organized as a chain of importance and has been appeared in Figure 1.

4.1 Summary of Analytical Hierarchy Process

T.L. Saaty created this methodology in 1977, as a complex characteristic choice help instrument, in which utilization of a hierarchical structure which is multilevel and consists of various options, criteria and sub criteria. In this technique there is calculation and ranking of the various options for different criteria (Luthra, Garg and Haleem, 2013).

In this methodology, there is a comparison among criteria, or alternatives with regard to a criterion, in a natural, pair-wise mode. And in this a basic scale of absolute numbers is used that has been recognised in practice and confirmed by physical and judgement problem experiments.

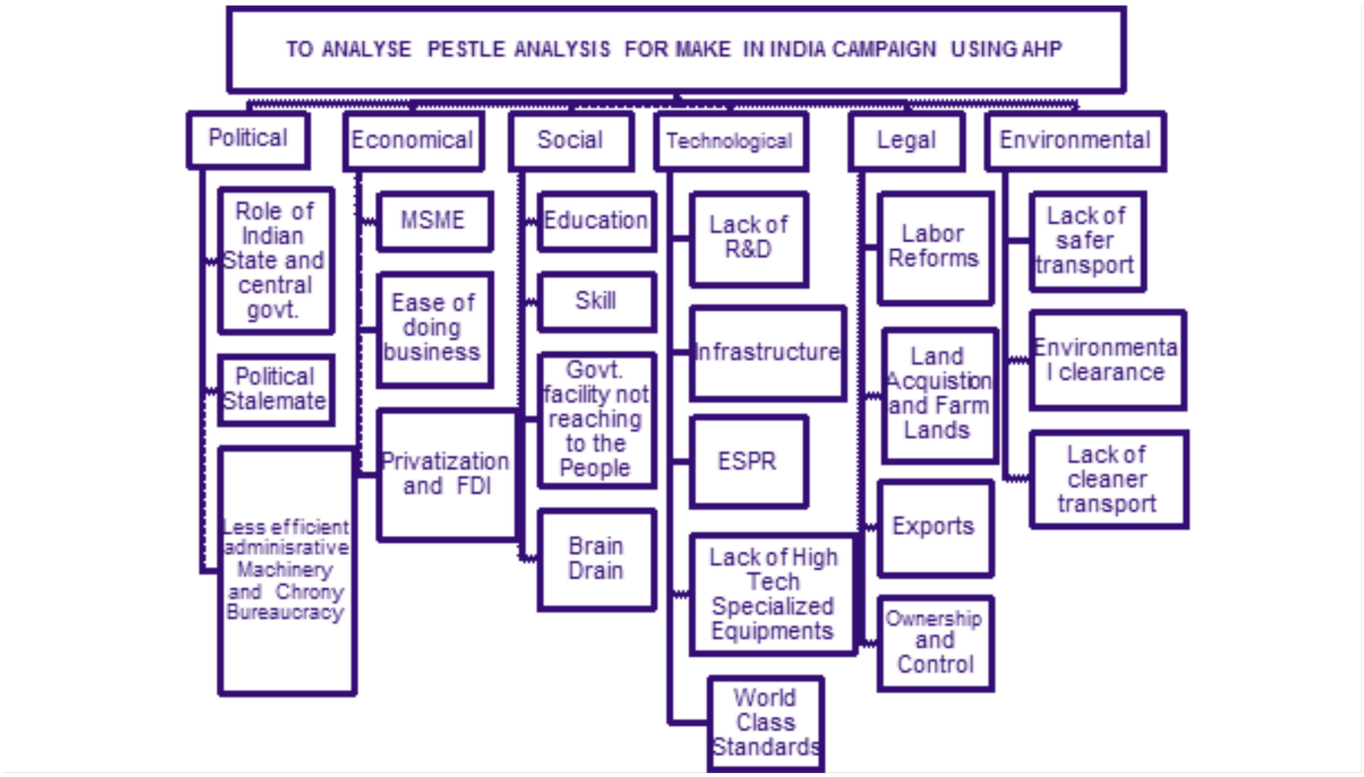

Figure 1: Research frame work of Challenges to Make in India campaign

The basic scale takes different preferences regarding quantitative and qualitative characteristics and there is conversion of ratio scale weights from each preference further these weights are united a weight which is linear in nature. And the resultants are used for ranking of the various options(Luthra, Garg and Haleem, 2013).Various steps are involved in the implementation of AHP and these are as given below.

First Step: To establish a hierarchical structure

A structure which is hierarchical in nature is also formed and a comparison, which is pairwise is to be created. And the scaling of the various substitutes of the decision is done on a scale of nine points.

To validate these challenges, we approached six experts from academia and six experts from industry and finally we were able to take valuable consultation from four experts from academia and four experts from industry. We accomplished a devising session to consult the significant role played by challenges in implementation of the Make in India campaign. So, the challenges are identified in six major category i.e. Political, Economic, Social, Technological, Legal and Environmental and these are sub categorised into twenty two challenges, all the challenges are confirmed by expert's opinion in the context of Make in India campaign, manufacturing sector and industry 4.0.

Second Step: To construct a pair wise matrix of comparison. Prepare pair wise comparison matrix and in this matrix each challenge in the superior point is exercised to assess the challenges in the level directly under it.

Third Step: To calculate the consistency

In this step reliability or consistency of the challenges is confirmed. And to do this calculation of these given terms is done in the following sequence,(a) maximum eigen vector, (b) relative weights, (c) CI i.e. consistency index, (d) Random Consistency index.

Given formulae are used to find the above said terms:

Consistency Index = (λmax-n)/ (n–1) ----(1)

Consistency Ratio =CI/RI -----(2)

And value of RI fluctuates according to the order of matrix for which CR is to be calculated. The satisfactory CR span differs corresponding to the matrix size and these are given in the following Table 1 (Saaty, 2000).

Table 1: Matrix size and CR values

MATRIX SIZE	3 × 3	4 × 4	For all larger matrices, n>= 5
CR	0.05	0.08	0.1

If calculated consistency ratio is equal or lesser than the standard given in the above Table 1. If consistency ratio is higher than standard given in the above table. And in this case, there is need to review the decision-making process(Kumar, Prashar and Haleem, 2009).

5. CONSTRUCTING THE HIERARCHY OF CHALLENGES TO MAKE IN INDIA CAMPAIGN

The maximum Eigen values, Consistency Index and pair wise comparison matrix of various challenges for the Make in India campaign are given and calculated below in Table 2.

Table 2: The pair wise comparison of PESTLE Analysis

Challenges	P	E	S	T	L	E	Global Priority Weighting
Political(P)	1	3	3	0.2	0.3333	2	0.147901
Economical(E)	0.3333	1	2	0.3333	0.2	1	0.0842742
Social(S)	0.3333	0.5	1	0.3333	1	2	0.0877797
Technological (T)	5	3	3	1	2	3	0.354809
Legal (L)	3	5	2	0.5	1	2	0.245998
Environmental(E)	0.5	1	0.5	0.3333	0.5	1	0.0792376

Maximum Eigen Value =6.59562, C.I. =0.119124, C.R.=0.0960677

Analytical consequences shown in Table 2, 'Technological Challenges to Make in India campaign (0.354809)'; are the principal challenges trailed by 'Legal challenges (0.245998)'; 'Political challenges (0.147901)'; 'Social challenges (0.0877797)'; 'Economical challenges (0.0842742)'; and 'Environmental challenges (0.0792376).

5.1 Complete Priority weighting and ranking of Challenges to Make in India campaign

Similarly, all calculations for sub challenges of each main challenge have been made and shown in Annexure-1. From all above we have compiled a Table 3 given below. Table 3 comprises of various dimensions, their Global Priority weighting and their rank, Challenges to Make in India campaign, their priority weighting, their initial ranking and their final ranking.

Table 3: Overall ranking of Challenges to Make in India campaign

S. N	Dimension	Global Priority Weighting (G)	Rank	S.N.	Challenges to Make in India campaign	Priority Weighting (PW)	Initial Ranking	G x PW	Final Ranking
1	Political Challenges (P)	0.147901	3rd	1.1	Role of Indian State and Central Govt.(RI)	0.387371	2nd	0.0572925	7th
				1.2	Political Stalemate(PS)	0.443429	1st	0.0655835	6th
				1.3	Less efficient administrative Machinery and Chrony Bureaucracy (LA)	0.1692	3rd	0.0250248	17th

2	Economical Challenges (E)	0.0842742	5th	2.1	MSME(MS)	0.428571	2nd	0.0361174	12th
				2.2	Ease of doing business(ED)	0.428571	1st	0.0361747	11th
				2.3	Privatization and FDI(PF)	0.142857	3rd	0.0120 3915	20th
3	Social Challenges (S)	0.0877797	4th	3.1	Education(Ed)	0.495905	1st	0.0435303	10th
				3.2	Skill(S)	0.249994	2nd	0.0219443	18th
				3.3	Govt. facilities not reaching to people(GF)	0.118836	3rd	0.0104313	22nd
				3.4	Brain Drain(BD)	0.135265	4th	0.0118735	21st
4	Technological Challenges (T)	0.354809	1st	4.1	Lack of R&D(LR)	0.380295	1st	0.1349320	1st
				4.2	Infrastructure(I)	0.207269	3rd	0.0735409	5th
				4.3	Enterprise Specific Performance Report/ESPR(ES)	0.127956	4th	0.0453999	9th
				4.4	Lack of High tech specialized equipment(LH)	0.208592	2nd	0.0740103	4th
				4.5	World Class standards(WC)	0.075888	5th	0.0269257	16th

5	Legal Challenges (L)	0.245998	2nd	5.1	Labor reforms(LR)	0.312121	2nd	0.0767 811	3rd
				5.2	Land acquisition and litigation on farm lands(LA)	0.384729	1st	0.0946 425	2nd
				5.3	Exports(Ex)	0.193316	3rd	0.0475 553	8th
				5.4	Ownership and control(OC)	0.109835	4th	0.0270 191	15th
6	Environmen tal Challenges (E)	0.0792376	6th	6.1	Lack of safer transport(L S)	0.387371	2nd	0.0306 943	14th
				6.2	Environme ntal clearance(E C)	0.443429	1st	0.0351 362	13th
				6.3	Lack of cleaner transport(L C)	0.1692	3rd	0.0134 070	19th

6.1 DISCUSSION OD FINDINGS AND CONCLUDING REMARKS

In this paper, an extensive literature review was carried out to identify various Challenges to Make in India campaign in the framework of Indian manufacturing industry and various aspects in which the Make in India campaign and Industry 4.0 are essential to each other. Twenty-two such challenges are identified and categorized into six sub categories like Political, Economic, Social, Technological, Legal and Environmental are identified here and sub categorised into Role of Indian State and Central Government, Less efficient administrative Machinery and Chrony Bureaucracy, Ease of doing business, Privatization and FDI, Education, Skill, Brain Drain, Lack of R&D, Infrastructure, Enterprise Specific Performance Report, Labour reforms, Exports, etc. All these Challenges to Make in India campaign are also a part of challenges for Industry 4.0 and apart from these challenges there are many challenges for Industry 4.0 like handling of larger data, cyber security, increased virtual work etc.

AHP has been used for ranking and it is found here that Lack of R&D is ranked at number one followed by Land acquisition and litigation on farm lands at number two, Labour reforms at number three, Lack of High tech specialized equipment at fourth number etc. So, all these twenty-two challenges are ranked according to their impact on the implementation of the campaign.

6.2 Implications of results

By having these ranking practitioners can easily prioritise these challenges to tackle and can remove all these challenges by taking necessary action and make, Make in India campaign successful. By removing these challenges objectives of the campaign can easily be achieved by the time like to increase the country's GDP up to 20- 25% by 2022, Build Best-In-Class Manufacturing Infrastructure, Promoting Innovation, etc and to on the way of World Bank report that, the GDP growth is expected to rise to 7.3% in 2018-19, building India again the world's fastest growing economy. As it is obvious that the success of the Make in India campaign is along with the success of And by Industry 4.0 there will be the following benefits for making Make in India campaign successful:

a. Increase in productivity, because advances like additive manufacturing will enable us to produce more

product, example of industries currently adopting additive manufacturing are 3D printing etc. and in aerospace industry there is already use of additive manufacturing for lessen the aircraft weight, for decreasing the cost of costly material like titanium.

b. Revenue growth, there will be more employment generation because if there is installation of latest technology there will be requirement of engineers from various trade like mechanical engineering, computer engineering etc. Augmented reality dependent system will also help in increasing the productivity.

c. Increase in FDI, by adopting Industry 4.0 we will have a manufacturing system incorporated latest technologies and there will be generation of products at a very low cost which will attract the foreign investors to invest in India.

6.2 Uniqueness of results from other research

In this research, the focus is on categorization of the various challenges for the Make in India campaign and their correlation with the Industrial revolution i.e. Industry 4.0 which is a need for a better and enhanced manufacturing sector. As in earlier research it is found that only the findings are done either on Make in India campaign or Industry 4.0 but in this research we find the connectivity of the these two, which will be helpful in implementation of the Make in India campaign and will increase its pace. Furthermore, there is ranking of these challenges is done which is very useful in achieving the objectives of this campaign. As it is found that only six key sectors i.e. Automotive, Electronic System Design & Manufacturing, Renewable energy, Roads & Highways, Pharmaceuticals and Food Processing are helping in boosting this campaign but by having this research it is very significant that all the key sectors which are considered to help the campaign, should equally help the campaign to boost and achieving its objectives.

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Annexure-1

Calculations for sub challenges of each main challenge

The pair wise comparison matrix of political challenges

	RI	PS	LE	Global Priority Weighting
Role of Indian State and central Govt.(RI)	1	1	2	0.387371
Political Stalement (PS)	1	1	3	0.443429
Less efficient administrative Machinery and Chrony Bureaucracy (LE)	0.5	0.3333	1	0.1692
Maximum Eigen Value =3.01829, C.I.=0.00914735, C.R.= 0.0157712				

The pair wise comparison matrix of economic challenges

	ME	ED	PF	Global Priority Weighting
MSME (ME)	1	1	3	0.428571
Ease of doing business(ED)	1	1	3	0.428571
Privatization and FDI(PF)	0.3333	0.3333	1	0.142857
Maximum Eigen Value =3.0, C.I.=0, C.R.= 0				

The pair wise comparison matrix of social challenges

	Ed	S	GF	BD	Global Priority Weighting
Education(Ed)	1	2	5	3	0.495905
Skill(S)	05	1	2	2	0.249994
Govt. facilities not reaching to people(GF)	0.2	0.5	1	1	0.118836
Brain Drain(BD)	0.3333	0.5	1	1	0.135265
Maximum Eigen Value =4.02469, C.I.=0.00823139, C.R.= 0.00914598					

The Pair wise comparison matrix of technological challenges

	LR	I	ES	LH	WC	Global Priority Weighting
Lack of R&D(LR)	1	3	3	2	3	0.380295
Infrastructure(I)	0.3333	1	1	2	3	0.207269
Enterprise Specific Performance Report/ESPR(ES)	0.3333	1	1	0.3333	2	0.127956
Lack of High tech specialized equipment (LH)	0.5	0.5	3	1	3	0.208592
World Class standards(WC)	0.3333	0.3333	0.5	0.3333	1	0.0758882
Maximum Eigen Value = 5.34011, C.I.= 0.0850274, C.R.= 0.07591732						

The pair wise comparison matrix of Legal challenges

	LR	LA	Ex	OC	Global Priority Weighting
Labour reforms(LR)	1	1	2	2	0.312121
Land acquisition and litigation on farm lands(LA)	1	1	3	3	0.384729
Exports(Ex)	0.5	0.3333	1	3	0.193316
Ownership and control(OC)	0.5	0.3333	0.3333	1	0.109835
Maximum Eigen Value = 4.17515, C.I.= 0.0583839, C.R.= 0.064871					

The pair wise comparison matrix of environmental challenges

	LS	EC	LC	Global Priority Weighting
Lack of safer transport(LS)	1	1	2	0.387371
Environmental clearance(EC)	1	1	3	0.443429
Lack of cleaner transport(LC)	0.5	0.3333	1	0.1692
Maximum Eigen Value = 3.01829, C.I.= 0.00914735, C.R.= 0.0157712				

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