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From the Desk of the Chief Editor……

Dear IJAR&D Readers,

Greetings for a Successful 2021,

I feel very delighted and privileged to be the Chief Editor of International Journal of Academic Research & Development (IJAR&D) which is refereed, peer reviewed, open access journal, publishing high quality papers on all aspects of education that includes Commerce, Management, Economics and Entrepreneurship.

I am much excited to bring before the readers January – June 2021 Issue of the Journal. This issue features ten (10) articles on a varied number of contemporary thoughts and issues on various aspects of education.

The article of Dr. Santosh Kumari and Nitin Lalwani reflect how e-cigarettes help smokers shift to a healthier alternative and acts as a tool for cessation. The presence of e-cigarettes in the market will normalize smoking.

The Article 'Data Envelopment Analysis of Civic Action Programme in North East India' has explained the efficiency of four Central Armed Police Forces (CAPFs) implementing CAP in NE Region from the last five financial year. Total programmed have more than doubled in the last five years, from 411 to 842.

As we are facing the challenges of COVID-19, academic fraternity too has suffered like hospitality or aviation sector. A large number of institutes have wrapped up. Those in existence are battling with shortage of funds and students. In such a scenario it is indeed heartening that the journal is receiving quality papers.

I would like to sum up with a Golden Salute to all academicians who extended full support to their institutions, peer groups and students like Corona gladiators. I sincerely believe by next issue withering will turn into blossom. Let's be positive until then.

May God keep you all safe, secure and blessed!

Sincerely,

Sunita Singh Sengupta

Prof. Sunita Singh Sengupta
Editor-in-Chief
IJAR&D

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Data Envelopment Analysis of Civic Action Programme in North East India

Animesh Pareek

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Abstract

Civic Action Programme (CAP) is a Central Sector Scheme which is meant for welfare of border population including people residing in North East (NE) region. The study uses Data Envelopment Analysis (DEA) in order to measure the efficiency of four Central Armed Police Forces (CAPFs) implementing CAP in NE Region from the financial year 2015-16 to 2019-20. The empirical findings reveal that the CAPFs conducts programme at 71.21% of overall technical efficiency score i.e. output could be increased up to 28.79% without changing the input. Total programmes have more than doubled in the last five years, from 411 during 2015-16 to 842 during 2019-20. The scheme is inclusive in terms of participation of women, SC, ST, OBC and rural coverage. Strength of the programme are: only programme that bridges the gap between civilians and armed forces; promotes humanitarian approach; works in difficult terrain; promotes peace and harmony; receives overwhelming support from civilians; reduces feeling of alienation of inhabitants of border population; and counters false propaganda of anti-peace elements. In addition, the Ministry of Home Affairs may consider to strengthen the scheme further by additional allocation of financial resources coupled with improved outreach, giving more autonomy to ground level CAPFs for selection of programmes, widening the ambit of the programme and including civilians' training for recruitment as part of CAP.

Keywords: *Civic Action Programme, Central Armed Police Force, Insurgency, Data Envelopment Analysis, CCR Output-oriented Model, Technical Efficiency.*

JEL Classification: *C61, C67, D57, D61, J18.*

1. Introduction

The Civic Action Programme (CAP) was introduced in the year 2003-04 under the aegis of the Ministry of Home Affairs, Government of India. It is a Central Sector Scheme which is meant for welfare of border population including people residing in North East region. It also aims at upliftment of the border population and transforms the perception of people towards peace and normalcy situations in borderland areas. This programme is implemented by the Development Block/ Office Stations and Border Out-Posts (BOP) of each force. Forces are empowered to decide the priority village/areas within those districts. This programme caters to meet the special developmental needs of the border population who unwantedly and circumstantially become the victim of insurgency by militant activities and India Insurgent Group. Following is the overview of Northeast region:

Table 1: Overview of Northeast Region

S. No.	States	Population (Census 2011)	Population (%)	Area (km^2)	Area (%)	Density of Population (km^2)	STs in India/ State to total population of India/ State (%)	STs in the State to total ST population in India (%)
1	Arunachal Pradesh	13,83,727	0.11	83,743	2.55	17	68.8	0.9
2	Assam	3,12,05,576	2.58	78,438	2.39	398	12.4	3.7
3	Manipur	28,55,794	0.24	22,327	0.68	115	40.9	1.1
4	Meghalaya	29,66,889	0.25	22,429	0.68	132	86.1	2.4
5	Mizoram	10,97,206	0.09	21,081	0.64	52	94.4	1
6	Nagaland	19,78,502	0.16	16,579	0.50	119	86.5	1.6
7	Sikkim	6,10,577	0.05	7,096	0.22	86	33.8	0.2
8	Tripura	36,73,917	0.30	10,486	0.32	350	31.8	1.1
9	Total NE	4,57,72,188	3.78	2,62,179	7.97	173	56.83	12
10	All India	1,21,08,54,977	-	32,87,263	-	382	8.6	

Source: Census of India

To take the local people of Northeast (NE) region in confidence and boost the image of armed forces, the Home affairs ministry has deployed Army and Central Armed Police Forces (CAPFs) such as Assam Rifles, Border Security Force (BSF), Central Reserve Police Force (CRPF), Indo-Tibetan Border Police (ITBP) and Sahastra Seema Bal (SSB) to conduct CAP. The programmes help in mitigating the hardships by undertaking various welfare/developmental activities such as (i) Repair of community buildings, schools, hospitals, health centers, community halls etc., (ii) Conducting health/medical/ dental/veterinary camps to include the provision of medical equipment and stores, (iii) Human Resource Development for border population which includes vocational training, education excursion tours for the students to places of national interest, organized career counseling, training and coaching etc., (iv) Introduction of small projects for improvement and care of livestock, beekeeping, fisheries, agriculture techniques, orchards, forestry carpet and/or handloom weaving, hosiery etc., (v) Improvement of roads/tracks, (vi) Sanitation and hygiene through awareness programmes, extension services and social education, (vii) Drinking water, basic precautions and system of storage, (viii) Development of sources of non-conventional energy, (ix) Development of handicraft and cottage industries, (xi) Assistance at the time of natural calamities, (xii) Distributing water harvesting structures, (xiii) Providing Sports facilities, (xiv) Distribution of transistor, (xv) Pre-recruitment training. Thus, the Civic Action Programme through all these civic action activities has enhanced the sense of security and does welfare among the border populace including people in North East region.

Out of the CAPFs AR, BSF, ITBP and SSB are the 'Border Guarding Forces' while the CRPF is deployed to assist the Civil Administration under the State Governments/ UT Administrations in matters relating to maintenance of Public Order, Internal Security and Counter Insurgency. The CISF provides security and protection to vital installations of national/strategic importance. In addition, National Security Guard (NSG) is a commando force under the Ministry trained for special operations like counter terrorism and anti-hijacking.

Roles and Responsibilities of the above Forces are as under[1]:—

Force	Roles and Responsibilities
AR	Border Guarding (Myanmar Border), Counter Insurgency in North Eastern States
BSF	Border Guarding (Bangladesh and Pakistan Borders), Counter Insurgency, Law and Order
ITBP	Border Guarding (China Border), Security of Important Installations, Counter Insurgency, Law and Order
SSB	Border Guarding (Nepal and Bhutan Borders), Counter Insurgency, Law & Order
CISF	Public Sector Security, Core Sector Security, Law and Order, Counter Insurgency

CRPF	Law & Order, Counter Insurgency
RAF	RAF mandated for maintaining communal harmony in the country
CoBRA	CoBRA mandated for Anti Naxal Operations in LWE affected States
NSG	Anti-Hijacking, Special Operations, Counter terrorism

CAP is generally carried out in districts situated on the international border and inaccessible areas of the NE region which are affected by militancy or Naxalism. The CAP is implemented by the Army, Assam Rifle, BSF, CRPF, ITBP and SSB in all the eight states of North East Region, namely, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura.

Objectives of the Study

The objectives of the evaluation study are:

1. To examine the structure and efficiency of the Civic Action Programme in North Eastern region,
2. To find out the extent to which the CAP has benefitted different layers of end users,
3. To assess the performance of service of CAP,
4. To identify the key bottlenecks and challenges faced during the implementation of CAP in North Eastern region,

Programmes Implemented by the Armed Forces in NE Region[2]

Under Civic Action Programme, the Armed Forces take up welfare and development projects. The Ministry of Home Affairs spend crores over the years, the forces are trying to improve the standard of living of border population and win their trust, hearts and minds. The focus of Programme is to generate awareness, providing education, women and youth empowerment, infrastructural development and health and veterinary care. Education and national heritage tours outside North East are undertaken to signify the rich heritage and progress of India for the students, youth and opinion makers. In order to fulfil other basic needs like water storage facilities, electrification, providing of toilets in far flung areas the armed forces analyse the areas based upon the suggestions from people in implementing villages. The projects are planned based on a participative model involving the local people, their elected representatives and civil administration. Some of the activities carried as part of Civic Action Programme are namely, Medical Civic Action (MCA), Veterinary Civic Action (VCA), educational and excursion tours, women empowerment, youth empowerment, sports etc. The overall performance of the CAP in the last 5 years is shown in the following table:-

Table 2: Overall Performance of CAP

Year	Implementing Agency	Assam Rifles	CRPF	ITBP	SSB	Total
2015-16	Budgeted Expenditure (Rs. in lakh)	350 (52.24)	150 (22.39)	100 (14.93)	70 (10.45)	670 (100)
	Actual expenditure (Rs. in lakh)	349.14 (52.47)	150 (22.54)	96.29 (14.47)	70 (10.52)	665.43 (100)
	Number of People Benefited	31444 (18.8)	87538 (52.33)	21959 (13.13)	26340 (15.75)	167281 (100)
	Number of Programmes conducted	115 (27.98)	170 (29.26)	96 (23.36)	200 (48.66)	581 (100)
2016-17	Budgeted Expenditure (Rs. in lakh)	350 (52.24)	150 (22.39)	100 (14.93)	70 (10.45)	670 (100)
	Actual expenditure (Rs. in lakh)	348.00 (54.08)	150 (23.31)	75.44 (11.72)	70 (10.88)	643.44 (100)
	Number of People Benefited	32233 (19.67)	66357 (40.49)	17496 (10.67)	47816 (29.17)	163902 (100)
	Number of Programmes conducted	159 (35.33)	173 (27.77)	63 (14)	228 (50.67)	623 (100)

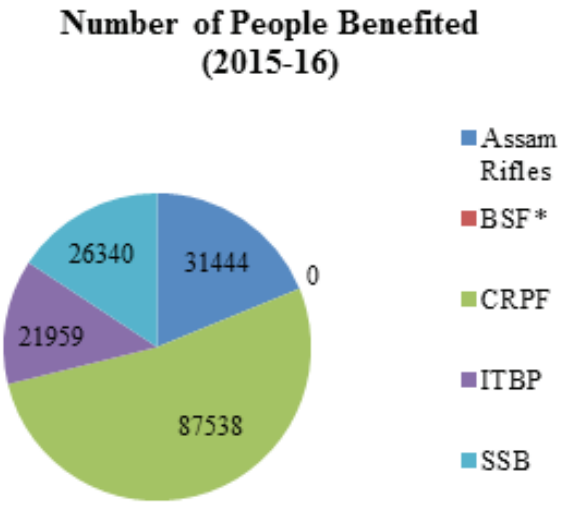
2017-18	Budgeted Expenditure (Rs. in lakh)	550 (63.22)	150 (17.24)	100 (11.49)	70 (8.05)	870 (100)
	Actual expenditure (Rs. in lakh)	550 (63.3)	150 (17.26)	98.91 (11.38)	70 (8.06)	868.91 (100)
	Number of People Benefited	45520 (28.68)	59275 (37.34)	16685 (10.51)	37252 (23.47)	158732 (100)
	Number of Programmes conducted	98 (21.44)	159 (25.81)	180 (39.39)	179 (39.17)	616 (100)
2018-19	Budgeted Expenditure (Rs. in lakh)	330 (41.25)	250 (31.25)	80 (10)	140 (17.5)	800 (100)
	Actual expenditure (Rs. in lakh)	330 (41.3)	250 (31.29)	78.98 (9.89)	140 (17.52)	798.98 (100)
	Number of People Benefited	46720 (28.55)	64215 (39.24)	16250 (9.93)	36460 (22.28)	163645 (100)
	Number of Programmes conducted	158 (32.71)	187 (27.91)	172 (35.61)	153 (31.68)	670 (100)
2019-20	Budgeted Expenditure (Rs. in lakh)	350 (41.18)	270 (31.76)	80 (9.41)	150 (17.65)	850 (100)
	Actual expenditure (Rs. in lakh)	349.24 (41.13)	270 (31.8)	79.81 (9.4)	150 (17.67)	849.05 (100)
	Number of People Benefited	44180 (18.88)	100129 (42.78)	24939 (10.66)	64785 (27.68)	234033 (100)
	Number of Programmes conducted	171 (20.31)	218 (20.57)	211 (25.06)	460 (54.63)	1060 (100)

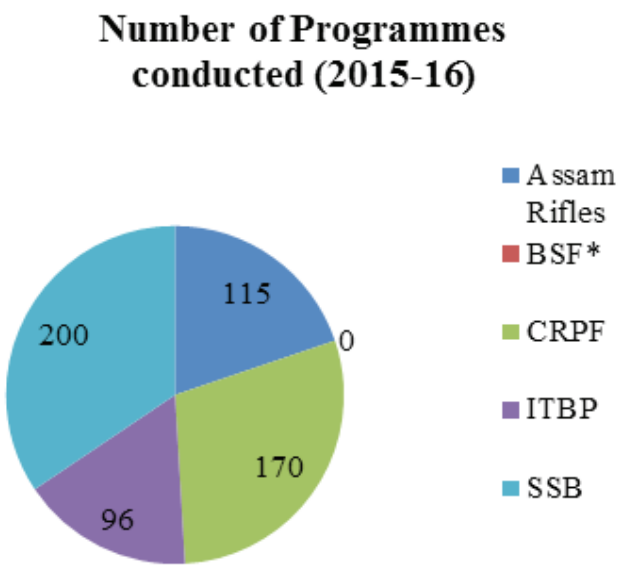
Note: Parenthesis contain values in percentage

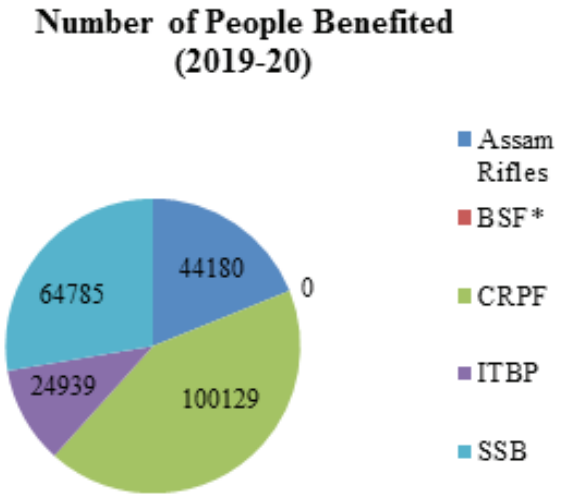
Source: Data from all CAPF forces and percentages from authors' calculation

The combined number of Programmes conducted under the Civic Action Programme, has more than doubled in the last 5 years, from 581 programmes during 2015-16 to 1060 programmes during 2019-20. Total number of programmes conducted during 2015-16 to 2019-20 is 3550. This has significant impact on inhabitants residing in internal border areas.

The above table presents the budget allocation and expenditure distribution over the past five years (from year 2015-16 to year 2019-20). Highest budget allocation was done in year 2017-18 i.e. Rs 870 lakhs wherein 63.33% was allocated to Assam Rifles. In the past five years, Assam Rifles has been the major implementing agencies for the scheme which has received more than 40% of the total budget in each year. However, the maximum number of people benefited (2,34,033 people) was in the year 2019-20 wherein 1060 programmes was conducted. In the recent years (from the year 2018-19) the share of CRPF has increased to 31% out of the total budget estimates as well as the actual, however its outreach and the number of people benefitted do not commensurate with the budget increase of 81% (from the year 2017-18 to 2018-19). SSB has been quite active in conducting the programmes. It has conducted maximum number of programs (1220 programmes) vis-à-vis other implementing agencies, over the last five years.







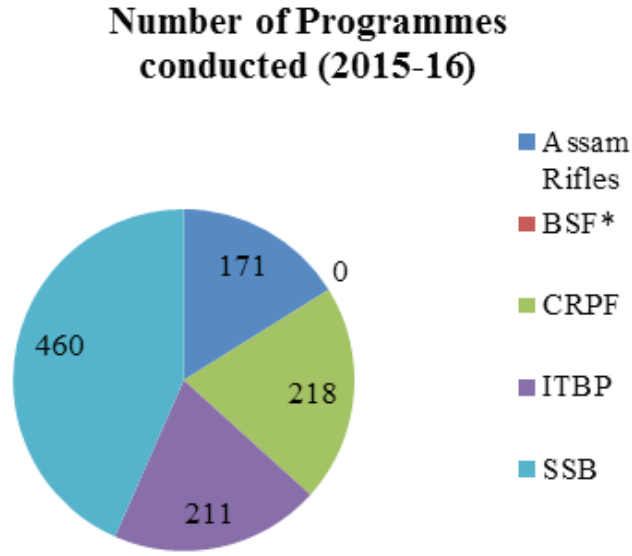


Figure 1: Details of Beneficiaries of CAP

The pie chart above shows the comparison between the people benefitted in year 2015-16 and people benefitted in year 2019-20. In the year 2015-16, maximum number of people benefitted was 52.33% through CRPF initiatives; however it reduced to 42.78 percent in the year 2019-20. Whereas, the outreach of SSB has increased from 26340 beneficiaries in the year 2015-16 to 64785 beneficiaries in the year 2019-20.

Figure 2: Number of Programmes Conducted by CAPF

The pie chart above shows the comparison of number of programmes conducted in 2015-16 and number of programmes conducted in 2019-20. Over the last five years, all the implementing agencies have significantly increased the number of programs conducted. Agencies like ITBP and SSB have doubled their number of programmes in the last five years.

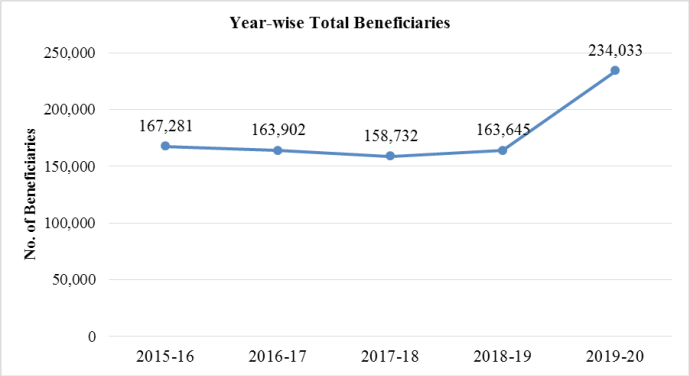


Figure 6: Trend of Number of Beneficiaries

The highest number of beneficiaries were recorded in the year 2019-20 (2.34 lakhs), followed by the year 2015-16 (1.67 lakhs). The fiscal years 2016-17 and 2018-19 recorded almost the same number of beneficiaries (1.64 lakhs) and least number of beneficiaries was observed for the year 2017-18 (1.59 lakhs). The following graph shows the number of beneficiaries for each implementing agency:

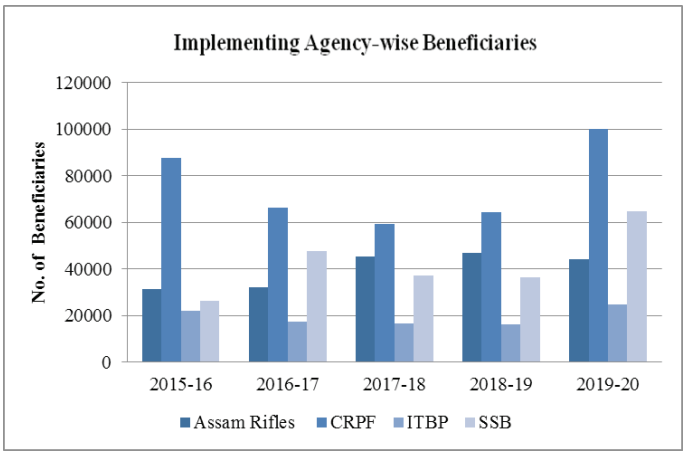


Figure 7: Implementing agency-wise Beneficiaries

CRPF is able to generate highest number of beneficiaries from the programmes and ITBP has the lowest number of beneficiaries each year.

Efficiency of Central Armed Police Forces (CAPFs): A Brief Review of Literature

The United States Army Reserve (USAR) published a literature on a guide to military civic action on October 14th 1969. The idea was developed by the 300th Civil Affairs Group after serving as unit during Berlin crisis in 1961. There exists no literature for efficiency of civic action programme conducted by different armed forces in India but in 'Winning the Peace: The Strategic Implications of Military Civic Action' laid out twelve criteria for successful military civic action, De Pauw and Luz, 1990 show that most criteria were violated in the U.S. application of military civic action in South Vietnam. They then show how the failure led to a repudiation of military civic action in strategic planning. There are two kinds of approaches to measure the efficient frontier:-

i. Parametric Approach assumes fixed number of parameters to build the model. Some of the frontier approaches to measure efficiency are Stochastic Frontier Analysis, Thick Frontier Approach and Distribution Free Approach.

ii. Non-Parametric Approach assumes that the data distribution cannot be defined in terms of such a finite set of parameters. Data Envelopment Analysis (DEA) and Free Disposal Hull (FDH) are some of the non-parametric approaches to measure efficiency of the producer.

The focus in this paper is on frontier efficiency, or how close the armed forces, implementing the civic action programme in North East Region, are to a *best-practice frontier*. Among all the frontier techniques mentioned, DEA is the most widely used approach for measuring relative efficiency due to its in-built advantage over others. Although, there exists an extensive literature on banking efficiency for developed countries but there exists no frontier analysis of armed forces conducting civic action programme.

Methodological Framework

Model and Definition

DEA is referred as a linear programming method that converts over numerous incommensurable data sources and yields of every Decision Making Unit (DMU) into a scalar proportion of operational efficiency, comparative with its contending DMUs. DEA distinguishes 'peer' DMUs for an individual DMU and afterward gauges the effectiveness of the DMU by contrasting its exhibition and that of the best practice DMUs. Note that the thought here of best practice is not abstract and potentially unreachable idea, however the DMU(s) performing best among its (their) peers, which is appointed an efficiency score of one. These units establish the references "standards" and "envelop" different units and, in this manner, structure the *efficient frontier*. DEA includes tackling a linear programming issue for every DMU. The answer for the linear programming issue comprises of data about the peers of the DMU and the efficiency of the DMU comparative with its peer gathering.

Technical efficiency (TE) of DEA is viewed at two levels. First, Input-oriented TE focuses on utilizing optimum number of outputs to deliver best output. The other kind of TE is Output-oriented that considers the possible expansion in outputs for a given set of input quantities. A DMU is technically inefficient if production occurs

within the interior of the production set. In this paper CCR output oriented model is used. The CCR model, named and introduced by Charnes, Cooper, and Rhodes in 1978, measures the relative efficiency of an entity often referred to as a DMU (Leung et al. 2016). The CCR model assumes constants returns to scale (CRS) so that all observed production combinations can be scaled up or down relatively (Cullinane et al. 2004).

Charnes, Cooper, and Rhodes (1978) extended Farrell's (1957) idea linking the estimation of technical efficiency and production frontiers. The CCR model generalized the single-output/input ratio measure of efficiency for a single DMU in terms of a fractional linear-programming formulation transforming the multiple output/input characterization of each DMU to that of a single "virtual" output and "virtual" input. The relative technical efficiency of any DMU is calculated by forming the ratio of a weighted sum of outputs to that of weighted sum of inputs, where the weights (multipliers) for both outputs and inputs are to be selected in a manner that calculates the Pareto efficiency measure of each DMU subject to the constraint that no DMU can have a relative efficiency score greater than unity.

CCR Model

Given the data, efficiency of each variable is measured and hence need n optimizations, one for each DMU_j to be evaluated. Let the DMU_j to be evaluated on any trial be designated as DMUo where o ranges over 1, 2, ..., n. We solve the following fractional programming problem to obtain values for the input "weights" (v_i) (i = 1,...,m) and the output "weights" (u_r) (r = 1,...,s) as variables.

$$\text{Max} = \frac{\sum_{r=1}^{s} u_r . y_{ro}}{\sum_{i=1}^{m} v_i . X_{io}} \quad \text{.....(1)}$$

$$\frac{\sum_{r=1}^{s} u_r . y_{rj}}{\sum_{i=1}^{m} v_i . X_{ij}} \leq 1 \text{ , j=1,2,...,n} \quad \text{.....(2)}$$

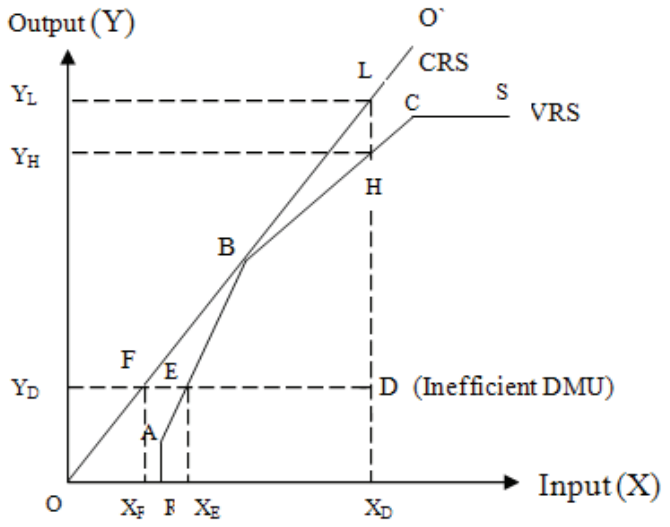
$$\text{And } u\_r, v\_i \geq 0 \quad \text{..... (3)}$$

The constraints mean that the ratio of "virtual output" vs. "virtual input" should not exceed 1 for every DMU. The objective is to obtain weights (v_i) and (u_r) that maximize the ratio of DMUo, the DMU being evaluated. By virtue of the constraints, the optimal objective value is at most 1. The optimal value of max in (1) is independent of the units in which the inputs and outputs are measured provided these units are the same for every DMU.

CCR Efficiency

1. DMUo is CCR-efficient if and there exists at least one optimal {v*,u*), with v* > 0 and u* > 0.

2. Otherwise, DMUo is CCR-inefficient.



Graph 1 represents the two kinds of efficient frontiers:

i. CRS (Constant Returns to Scale), shown by line OO`;

ii. VRS (Variable Returns to Scale), shown by RABCS.

For VRS *efficient frontier*, the inefficient DMU D is defined as OX_E/OX_D for input-orientation (input X is minimised while holding output Y constant). For output maximization, the efficiency for DMU D is defined as OY_D/OY_H. Now, for CRS *efficient frontier*, input-oriented technical efficiency of DMU D is given as OX_F/OX_D and output-oriented technical efficiency is defined as OY_D/OY_L. As the slope for CRS is 1, then $OX_F/OX_D = OY_D/OY_L$, as orientation does not change the efficiency score. The graphical representation can be shown as linear programming model by using actual data on input-output variables. Charnes et al., 1994, proposed different models in their literature. The essential area of each model is to determine the *best practice* or the *efficient frontier* of the DMUs.

Data

To objectively assess the effectiveness of Civic Action Programme (CAP) in NE Region scheme, a proper blending of both quantitative and qualitative data drawn from the study areas. Qualitative data were generated from such as Ministry of Home Affairs, CAPF, Department of North East Region, State Government Department, Project Implementing Agencies, and Beneficiaries.

The questionnaire was designed to seek input from all stakeholders, on positive impacts, deficiencies, missing opportunities, scope for improvements, necessity of the continuation of the scheme etc. The questionnaire and interview schedule based information contributed to the quantitative information whereas, focus group discussion and observation based findings got embedded into qualitative information. The stakeholders from CAPFs were interviewed individually or through group meetings to dive deep into the qualitative analysis. Verifiable quantitative data, such as actual expenditure, number of beneficiaries, number of programmes etc. are gathered for the years 2015 to 2020. This prevails for input and output variables selected for computing various efficiency scores for individual CAPFs. The evidence-based information was collected through visiting the sites.

Input and Output Variables for Computing Efficiency Scores

The most important part of the study is to select the relevant input and output variables to calculate the efficiency of the CAPFs which are implementing the programmes in NE Region. There exists no literature which states that what should constitute the inputs and outputs of the programme implementer. In this paper production approach (also called as service provision) is adopted, which was pioneered by Benston (1965) for treating banks as the provider of services to customers. Similarly, the programme implementers (here CAPFs) are providing services to the people of Northeast by conducting programmes. In order to select input and output variables, the production approach is more useful for computing the efficiency scores for individual armed forces. Therefore, the selected output variables are i) number of programmes conducted (collected from each implementer), and ii) number of people benefitted from the programmes conducted (collected from each implementer). The input used for computing efficiency score is the actual expenditure done by the programme implementer.

Table 3: Input-Output Variables of CAPFs

CAPFs	(O) Number of People Benefited	(O) Number of Programmes conducted	(I) Actual expenditure (Rs. in lakh)
Assam Rifles	200097	701	1926.39
CRPF	377514	907	970.00
ITBP	97329	722	429.43
SSB	212653	1220	500.00
Notes: Data for 2015-2020			
Source: Data from respective CAPF HQ in Delhi through questionnaire			

Results

The output-oriented efficiency scores are obtained by applying CCR model. The output-orientation focuses on maximizing outputs for the given input. Table 3 shows the overall technical efficiency scores of four CAPFs from 2015 to 2020. There is a large gap between the highest efficient, i.e. SSB (100%) and the lowest efficient, i.e. Assam Rifles (24.42%). The average efficiency score comes out to be 0.7121 for four CAPFs (other descriptive statistics is shown in Table 4). It implies that an average CAPF, if uses input on the efficient frontier instead of its current location, would produce 71.21 percent of the outputs currently being produced. The implication of this finding is that the technical inefficiency comes out to be 28.79%. It is suggested that the number of programmes conducted and the beneficiaries from programmes can be improved by 28.79% even at the same level of actual spending by the CAPFs. But the improvement in output varies from force to force. Alternatively, CAPFs have the scope of producing 1.4 times (i.e. 1/0.7121) as much as outputs from the same level of inputs.

Table 4: Overall Technical Efficiency of the Armed Forces

No.	Rank	CAPF	OTE Score	OTIE (%)
1	4	Assam Rifles	0.2442	75.58
2	2	CRPF	0.9151	8.49
3	3	ITBP	0.6891	31.09
4	1	SSB	1	0

Notes: OTE= Overall technical efficiency; OTIE(%)=Overall technical inefficiency = (1-OTE)×100,

Source: Authors' calculations

A CAPF is considered to be most efficient among others if it gets a score of 1 but if the score is less than 1 then it is relatively inefficient. Among the four CAPFs, 1 is technically efficient and other three are considered to be technically inefficient. The efficient CAPF, i.e. SSB, forms the *efficient frontier* for inefficient CAPFs. These inefficient forces can improve the efficiency by increasing their output by conducting more number of programmes through which there are more beneficiaries. Also, they can focus on the nature of programmes conducted like rather than distributing electronic items in areas where electricity is an issue, armed forces can focus on repairing transformers. The range of scores of inefficient forces is 0.2442 for Assam Rifles to 0.9151 for CRPF. This implies

that Assam Rifles and CRPF can improve their efficiency by 75.58% and 8.49% without changing the input, i.e. expenditure but improving the outputs.

Table 5: Descriptive statistics of overall technical efficiency scores for Armed Forces

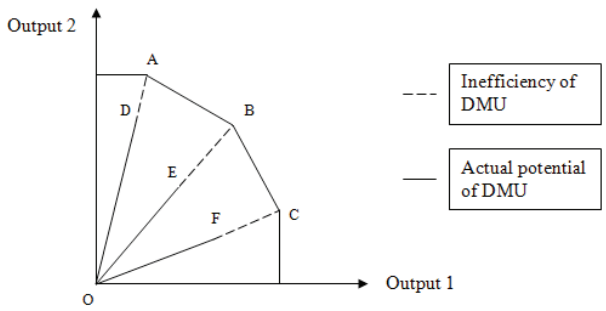
Statistics	All CAPF	Efficient CAPF	Inefficient CAPF
N	4	1	3
ATE	0.7121	1	0.6161
Max	1	1	0.9151
Min	0.2442	1	0.2442
SD	0.3384	0	0.3413
ATIE	0.2879	0	0.3838
Interval	(0.3737;1.0505)	(1;1)	(0.2748;0.9574)

Note: N= Count; ATE= Average Technical Efficiency; ATIE= Average Technical Inefficiency; SD= Standard Deviation; Interval= (AOTE-SD; AOTE+SD)

Source: Authors' calculation

Areas for Efficiency Improvement: Slacks and Projection Analysis

In DEA the slacks are obtained only for those DMUs which are inefficient. The slacks provide vital information regarding the areas which a CAPF needs to improve otherwise the resources will go unutilised. Weights are generated for the input-output variables of each DMU when we run DEA. The basic difference between weights and slacks is that weights are given on actual data and shows the concentration of a DMU on the variable, whereas slacks show the potential of a DMU which still can be exploited. The representation of slacks for an *efficient frontier* is shown as follows:



The graph above shows the *efficient frontier* ABC, where OD gives the output obtained by DMU_1 and DA represents the technical inefficiency of DMU_1. Similarly, for DMU_2 and DMU_3, the utilised capacities is shown by OE and OF, respectively. Further, EB and FC shows the technical inefficiency of DMU_2 and DMU_3 respectively. The inefficient DMUs can reach the *efficient frontier* by increasing the output to the level of slacks.

Table 6: Weights and Slacks for CAPFs

Rank	CAPF	Weights			Slack		
		Actual expenditure (Rs. in lakh)	Number of People Benefited	Number of Programmes conducted	Actual expenditure (Rs. in lakh)	Number of People Benefited	Number of Programmes conducted
4	Assam Rifles	4.0945479	1	0	0	0	1830.122 (61.67)
2	CRPF	1.0927987	1	0	0	0	1375.632 (34.06)
3	ITBP	1.4512593	0	1	0	41389.541 (57.47)	0
1	SSB	1	1	0	0	0	0

Notes: Parenthesis contain values in percentage

Source: Authors' calculation

Table 6 shows the weights and slacks for each CAPF. SSB is ranked at the top among all the CAPFs, so efficiency of other forces are calculated relative to the efficiency of SSB. Assam Rifles, CRPF and SSB have given their 100 percent focus on obtaining number of beneficiaries, whereas, ITBP focused entirely on conducting the programmes. Now, the slacks are obtained only for those DMUs which are inefficient. So, Assam Rifles which is putting its entire capacity in getting the beneficiaries should also focus on conducting the programmes and increase it by 61.67% (1830) and CRPF

should also increase it by 34.06% (1376). In the last five years ITBP has entirely focused on conducting more number of programmes from the budget they received, which is lowest among all the forces. In order to reach the efficiency level, ITBP should also generate beneficiaries by conducting those programmes which attracts more people from the border districts. The table shows that ITBP can increase the beneficiaries by 57.47% from the current level, in order to reach frontier.

Table 7: Projected Improvement for Input-Output Variables

Rank	CAPF	Actual expenditure (Rs. in lakh)			Number of People Benefited			Number of Programmes conducted		
		Actual Data	Projection	Diff. (%)	Actual Data	Projection	Diff. (%)	Actual Data	Projection	Diff. (%)
4	Assam Rifles	1926.39	1926.39	0	200097	819306.75	309.45	701	4700.40	570.52
2	CRPF	970	970	0	377514	412546.82	9.28	907	2366.80	160.94
3	ITBP	429.43	429.43	0	97329	182639.15	87.65	722	1047.80	45.12
1	SSB	500	500	0	212653	212653	0	1220	1220	0

Notes: Diff =Difference between actual and projected data

Source: Authors' calculation

Since the model used is output-oriented, the DEA has not shown any change or projected growth required in the input, i.e. actual expenditure. As SSB has the highest efficiency, DEA has shown no projection for it. But in case of Assam Rifles, ranked at the lowest, should have generated 310% (819307 approx) more number of beneficiaries from what it had in the last five years. For number of programmes conducted the projected level is more than 570% (4700), which means that in the last five years the Assam Rifles could have generated more output without changing the expenditure pattern. In case of ITBP, there could have been 45% (1048) more number of programmes and the beneficiaries should have been at least 87.65% (182639) more than what it was for last five years. Since ITBP has the lowest expenditure among all the CAPF but still it could have more beneficiaries. The second best performing armed force is CRPF and it could have conducted programmes by more than 160% (2366) and the number of beneficiaries generated from the programmes conducted could have been higher by at least 9% (412547). These projected values show the potential of the armed forces with respect to the most efficient CAPF.

Conclusion and Suggestions

The North-East India is a particular geographical territory of the nation-state and is rich in natural resources. As far as the social element is concerned, it comprises diverse ethno-linguistic groups; different traditions, beliefs and practises; and it is divided into eight states politically. Special provisions of the Constitution of India apply to each state. The area has been deemed to be economically less established by the national standards of economic measurement. The Civic Action Programme aims to integrate border population in National mainstream by uplifting socio-economic condition of border population through implementations of various programmes and activities. As the scheme in action, there are many roadblocks encountered during implementation.

Vision for the future

Short term goals

Civic Action Programme is one of its kind programme that acts as an engine of trust building between central armed police forces and civilians. Thus it needs to be strengthened with utmost priority. Its outreach and coverage has to be extended to bring in maximum populace of border areas into its ambit. The frequency of programmes organized, also needs to increase to keep the people engaged and connected. To achieve this, more allocation of funds as well as timely disbursement of funds to the implementing agencies is prerequisite for the effective and efficient implementation of the scheme.

Mid-Term goals

The guidelines of the scheme need to be updated, to accommodate the new demands and aspirations of the target beneficiaries. Guidelines have not been updated since the launch of the scheme in 2003. Furthermore, recruitment training programs of armed forces needs to be reintroduced in the border areas along with other vocational training programmes like computer training, tailoring courses, course on carpentry for employment and economic growth.

Long Term

The full potential of Civic Action Program can be harnessed if state of the art infrastructure is available in all parts of the region. The border areas covered under the scheme lacks basic infrastructure which hampers the effectiveness and efficiency of the programmes. Due to which the targeted beneficiaries remains aloof of availing services under the scheme. The geographical uniqueness and harsh terrain make it imperative to extend internet services to boarder areas. This would enable the populace of the region to access the government's digital services like, E-education, telemedicine, Government e-market place (GeM portal) etc. It would not only improve their socio-economic condition but also contribute in national integration.

Other Suggestions are

Mutual Consent: The signing of the agreements is done after the mutual acceptance of the government and the insurgent groups. Therefore, it becomes incumbent to the insurgent groups to adhere to the ground rules and in turn the appropriate checks by the government monitoring committees are carried out.

Role of the Government: In spite of the fact that there have been a number of surrenders and agreements, there is still insurgency in the region. The government authorities prolong the negotiations with the aim to wear out the insurgents and once the battle fatigue sets in, agreements are signed whose provisions are rarely implemented. This gives respite to the state government but alternatively it gives an opportunity to the insurgent leaders to gain power directly or indirectly. It is, thus, the onus of the government to ensure that the agreements are implemented in letter and spirit. The government can adopt measures to wean away the warring groups by exploiting ethnic differences.

Civil Society: There is a need to incorporate civil society or the citizens to become a part of the agreement framework. This will increase the faith of the population in the system.

More Initiatives to be taken: Government and the armed forces must generate initiatives to bring about the awareness of the insurgency and the actions being taken to the children in the schools and the colleges.

Development in the Region: There is a requirement of good governance and capacity building mechanism to bring an end to insurgency which will ensure development in the region.

Modernization of the CAPFs: The modernization of the CAPFs in all respects is the need of the day as the insurgents have the latest technology in terms of arms, communication equipment and are well trained to carry out his assigned task.

Rehabilitation: The government must ensure that the surrendered insurgents get what they are promised to include rehabilitation otherwise they will return to the insurgency mode. There should be a surrender policy in the insurgency ridden states.

Publicity: The Government must publicize the surrenders which will have a positive effect on the confidence of the public, raise the morale of the security forces and instil doubts in the minds of the insurgents.

Utilisation of the Funds: The Government must ensure that there is fair utilization of the essential funds and the same must be audited by the concerned agencies.

Legal Actions: The legal prosecution of the apprehended must be monitored at all levels.

Endnotes

1 Ministry of Home Affairs, Committee on Estimates 2017-2018, 28th Report

2 https://ssb.nic.in/index1.aspx?lid =10474 & lsid =10505 & pid=10503 & lev = 2 & langid=1 & Cid=0

References

1. Aparicio, Juan, Magdalena Kapelko and Juan F. Monge. (2020) "A Well-Defined Composite Indicator: An Application to Corporate Social Responsibility", Journal of Optimization Theory and Applications: 186:299–323.
2. Avkiran, Necmi K., (1999) "An application reference for data envelopment analysis in branch banking: helping the novice researcher", International Journal of Bank Marketing, DOI: 10.1108/02652329910292675.
3. Berger, Allen N., and David B. Humphrey, (1997) "Efficiency of financial institutions: International survey and Directions for future research", European Journal of Operational Research: 175-212.
4. Charnes, A., W.W. Cooper and E. Rhodes, (1978). "Measuring the efficiency of decision making units", North-Holland Publishing Company European Journal of Operational Research: e429, 429-444.

5. Charnes, Abraham, William W. Cooper, Arie Y. Lewin and Lawrence M. Seiford, (1994) "Data Envelopment Analysis: Theory, Methodology, and Application", Springer Science & Business Media New York:
6. De Pauw, John W., and George A. Luz, (1990) "Winning the Peace: The Strategic Implications of Military Civic Action", Strategic Studies Institute U.S. Army War College Carlisle Barracks, Pennsylvania: 17013-5050.
7. Kumar, Sunil, and Rachita Gulati. (2008) "An Examination of Technical, Pure Technical, and Scale Efficiencies in Indian Public Sector Banks using Data Envelopment Analysis", Eurasian Journal of Business and Economics: 1 (2), 33-69.
8. Marti, Milan M., Marina S. Novakovi, Alenka Baggia**,** (2009). **"**Data Envelopment Analysis - Basic Models and their Utilization", Organizacija, 42(2).
9. Proudlove, N.C., (2000). "Using Excel for Data Envelopment Analysis", Manchester School of Management Working Paper No. 2007.
10. Rajasekar, T., and Malabika Deo, (2014) "Is There Any Efficiency Difference between Input and Output Oriented DEA Models: An Approach to Major Ports in India", Journal of Business & Economic Policy, Vol. 1, No. 2.
11. USAR Center (1969). "A Guide to Military Civic Action", 300th Civil Affairs Group. October 14.

Market Research on E-Cigarettes

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Abstract

Electronic cigarettes are devices that deliver nicotine and mimic traditional smoking but do not contain tobacco which is highly carcinogenic. It is a highly regulated product across all countries because of likelihood of normalising smoking and perceived risks. The medical fraternity as well as research in the area of electronic cigarettes is very much divided on its potential impact on non-smokers as well as smokers (both - current and quitters). The study aims to enquire if e-cigarettes help smokers shift to a healthier alternative and acts as a tool for cessation. The study also enquires if presence of e-cigarettes in the market will normalise smoking. We have done analysis and interpretation on the primary data collected to conduct this empirical research study. The study finds out that e-cigarettes are seen to be a healthier and better option as contrasted with smoking tobacco cigarettes however prevalence of e-cigarettes normalises smoking. Hence it is imperative to position the product on doctor's recommendation and under high regulation.

Keywords: *Electronic Cigarettes, Combustible Cigarettes, Tobacco Smoking, Mimic Traditional Smoking, Vaping, Carcinogenic, Nicotine, E-Cigarettes a Cessation Tool to Tobacco Smoking, Health Alternative, Health Regulation.*

Introduction

Electronic cigarettes are battery-powered hand-held devices that supply nicotine to the user by vaporization of a propylene-glycol solution. The act of smoking an electronic cigarette is called 'vaping' and it impersonates smoking; in any case, there is no burning and the person breathes in fume, not smoke. Albeit the nicotine is gotten from tobacco, electronic cigarettes do not contain tobacco.

Fumes or vapours are discharged from the use of electronic cigarettes (e-cigarettes). The device comprises of a battery, a programmed or manual switch, an atomizer with a heating element, and a cartridge that contains a solution of propylene glycol (or glycerol or both). These solutions are also called 'e-liquids' or 'e-juices' and generally contain nicotine, added substances and flavours. Both the chemicals – 'Propylene Glycol' and 'Glycerol' are colourless and odourless liquid but possess a faintly sweet taste and syrup-like viscousness. These chemicals have wide usage in the food industry as well as the cosmetics industry because of their quality to absorb extra water.

In the market, pre-filled as well as refillable e-cigarette cartridges are sold. Some models contain a cartomizer, i.e. cartridge and the atomizer as a single unit which prevents solution from leaking. When e-cigarettes are used, they emit vapour but no smoke. This is because e-cigarettes do not contain tobacco due to which no combustion takes place even though e-cigarettes share behavioural and physical similarities with tobacco cigarettes like resemblance in look and the way it is handled.

History and Present of E-Cigarettes

Electronic cigarettes were invented in 2003 by Hon Lik, a Chinese pharmacist in Beijing working with Golden Dragon Holdings. It was also called 'Ruyan' meaning "like smoke". Since e-cigarettes are tobacco free products, they were not produced by the tobacco companies and it competed directly against them rather than being helpful to them.

E-cigarettes started selling in America and Europe in 2006. By 2012, the global e-cigarettes market was valued at USD 2 billion. The sales growth is tripling in the US each year. E-commerce helps greatly in sales and marketing of the product. This is pertinent to track usage among the youth. By late 2008, there was an increasing popularity of the product in Canada and other countries, especially as an alternative to nicotine replacement therapy (Czoli, Hammond, & White, 2014).

As per Grand View Research, the estimated market size of NTR (Nicotine Therapy Replacement) in 2020 is USD 44.2 billion with 16.3% CAGR (Compound Annual Growth Rate) from 2021 to 2028. E-cigarettes dominate the NTR market constituting more than half the share.

Problems and Regulations

The use of electronic cigarettes is majorly concerned with respect to safety requirements and as a threat to re-normalise the smoking culture in society. It is debated that it will adversely impact the passive smokers and will even make minors, existing non-smokers and previous quitters of tobacco smoking to take-up vaping. On the supply side of it, no one is ready to take the Big Tobacco companies by the face value given the previous failures in the industry and lack of trust. Also, major problem exists because of lack of clarity on clinical technicalities and psychological in-take of the target group.

It is difficult to determine the potential of any particular product as a cessation tool with certainty because of presence of wide variety of e-cigarettes in the market. There is lack of regulation which makes it difficult to track if e-cigarettes are a reliable cessation method for smoking. However, limited research in this field establish substantial reduction to health risks and toxic chemicals on switching from combustible cigarettes to e-cigarettes.

Due to the problems identified above, majority of the economies are establishing either complete or partial ban to e-cigarettes. These bans are on manufacturing, distribution as well as marketing of such nicotine devices. For instance, in France, there is a ban on distribution to minors along with a ban on 'vaping' in in-house public places where smoking is banned. There also exists a ban on marketing of the e-cigarettes using blanket and surrogate advertising.

India has taken an extreme regulatory step for e-cigarettes. In September 2019, the government imposed a complete ban on e-cigarettes. The ban covers manufacturing, sale & distribution, storage, transport, marketing as well as export & import of e-cigarettes. The government imposed the ban after recommendations from ICMR (Indian Council of Medical Research) which believes that "these products have a net negative impact on public health"

The legal status of the product is at present forthcoming in numerous nations. Countries like Singapore, Brazil, Uruguay and the Seychelles have restricted the product. In Canada, it is in fact unlawful to sell, as Health Canada approves no-nicotine containing e-cigarette. The enforcement in Canada however is very low and the product is easily available in the market. In the US and the UK, it is legitimate if the product is used by and sold to adults. However, the US and the UK adopted two standing out strategies with substantially different outcomes. The US has had an upset history with many revisions to the policy leading to appalling consequences. The UK, on the other hand, has encouraged the use as an alternative to far more dangerous traditional cigarettes.

In 2016, the United States FDA (Food and Drug Administration) included e-cigarettes under its regulatory power. The FDA evaluates issues like components, features and health risks of the product. It also studies their appeal to minors and non-smokers. The sale of e-cigarettes is highly regulated. Sales without a Photo ID or in Vending Machines is not permitted and access to minors is completely banned.

Cost Analysis: Combustible VS E-Cigarettes

Electronic cigarettes have found an exponentially growing market and huge popularity in the USA. Not just societal acceptance but to a great extent even the legal norms support the production as well as sale of e-cigarettes. Although there still exist differences in consumption pattern and prices within the states of America but the same are very low relative to markets like India where there exist incomparable and incomplete information for e-cigarettes. Popularity in the USA is growing not just because of acceptance by the legal system but also for cost considerations.

The conventional cigarettes containing tobacco are expensive than e-cigarettes even though the price of its kit ranges between USD 40 to100. It will take 51 days to coup any financial savings over tobacco cigarettes given the fixed cost of the kit. In the US, Marlboro Reds cost about $6.38. Each cigarette carries about 1.9 milligrams of nicotine. There is wide variety in e-cigarettes but generally, a 30-milliliter cartridge is available for USD 15 to 20, with each millilitre of liquid carries about 6 milligrams of nicotine. This implies 1 milligram of nicotine costs less

than 10 cents for e-cigarettes while it costs approximately 15.7 cents for traditional cigarettes. However, this does not include the initial cost of purchasing the kit (Vinik, D. 2014).

The initial costs of e-cigarettes cartridge are much higher but the repetitive costs as compare to tobacco smoking are much lower (John & Bogdanovica, 2014). The graph given below shows that it would take approximately 51 days before recouping investment done initially in e-cigarettes. For such analysis, it has been assumed that approximately 12 cigarettes are consumed per day by an average smoker.

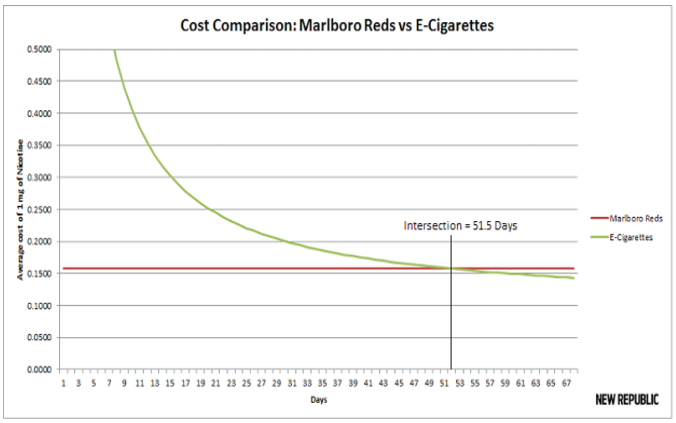

Figure 1:

Source- "You have to smoke e-cigarettes for this many days before saving money over Tobacco" by Danny Vinik, The New Republic (Vinik)

Review of Literature

E-cigarettes are preponderantly much safer as compared to tobacco smoking. Studies suggest that toxicity of e-cigarettes is similar to products used in NRT (Nicotine Replacement Therapy). The evidence highlights the potential of e-cigarettes to reduce desire for cigarettes but their effect is not entirely because of nicotine. The reduction can be because of 'placebo effect' as e-cigarettes can deliver the physical stimuli to suppress cravings independently (Pepper, Emery, Ribisl, Southwell, & Brewer, 2014). Reports suggest that the demand for electronic cigarettes is explosive because these products replicate the act of smoking without using tobacco. Reports also suggest that advertisements that promote differences between e-cigarettees and regular cigarettes or explain the correct use of e-cigarettes gather more interest among smokers for trying e-cigarettes (Pepper, Emery, Ribisl, Southwell, & Brewer, 2014). This is different from the pharmaceutical products which are not successful because of unappealing design. E-cigarettes can be used as tool for cessation as well as reduction of cigarette consumption. There are evidences that it is less harmful as compared to medicinal NRT (Nicotine Replacement Therapy). These benefits accrue naturally even when the consumer is not intending to reduce or quit cigarette consumption.

There are 10,000 plus chemicals in tobacco smoking out of which 40 are known carcinogens. These are either not present or present in miniscule proportions in cartridges of e-cigarettes. Hence these are unquestionably safer than tobacco cigarettes. However, the product cannot be taken as completely safe because even trace quantities of carcinogens can be harmful (Cahn & Siegel, 2011). In 2013, reported cases from liquid nicotine poisoning in the US were 1,351 which was a 300% rise from last year. The liquid nicotine is used in e-cigarettes and is a powerful neurotoxin. Even if a small amount is contracted with the skin, it can cause vomiting and seizures (and in extreme case - death). These concerns can be linked with production lapses like improper packaging and call for strengthening production standards. Scientists have noticed similar gene expression patters in cells exposed to e-cigarette vapour and cells exposed to tobacco smoke (Bean & Smith, 2015).

In England, e-cigarettes are used prominently by current smokers among adults and youth population. The consumption is higher in adult smokers. E-cigarettes have a high success rate as a quitting aid especially when combined with expert support. Vaping is not 100% safe but the chemicals present in small quantities cause limited risk. At present, the best estimate shows that damage caused by e-cigarettes is around 95% less than smoking. This is the right set of circumstances for e-cigarettes to alter the peaked smoking rates in people with mental health problems and can help in creating smoke free mental health units (Public Health England, 2015). Smokers willing to quit can combine the use of e-cigarettes along with medical services offering them behavioural support. The study notices that the pick-up rate for active use among never smokers is extremely low despite experimentation by them (McNeill, Brose, Calder, Hitchman, & McRobbie, 2015). In England and Great Britain, e-cigarettes are used by approximately 5% of the adult population who used to either smoke previously or are current smokers. However, the usage is lower among previous smokers. The usage is also lower among youth (regular usage is 2% monthly and 0.5% weekly). This statistic is lower even when the experimentation rate among youth is much higher, reportedly 12% have tried e-cigarettes (McNeill, Brose, Calder, Hitchman, & McRobbie, 2015).

It is widely accepted that most smokers are addicted to cigarettes for the want of consuming nicotine however the lethal effects of other smoke constituents like tobacco lead to death. Hence, harm reduction is one of the encouraging alternative to reduce health inequalities

(McNeill, Brose, Calder, Hitchman, & McRobbie, 2015). The disadvantaged group is disproportionately at the higher risk of exposure to smoking. E-cigarettes offer a potential solution to reach such groups at a wide scale, at a low cost and as a healthier alternative. (McNeill, Brose, Calder, Hitchman, & McRobbie, 2015)

Target marketing for young people must be disallowed, but the full potential of a less hazardous proxy can only be understood when smokers are acquainted with the alternatives and their damage as compared to those of the conventional cigarettes (Cahn, 2013). The onus is on the regulatory agencies to prove that the ban on e-cigarettes is justified because the benefits due to existence of the product are much lower as compared to the harms for the society even when the current evidence suggest to the contrary (Cahn, 2013). Drug regulators are not used to the rationale of damage decrease, where the advantages of an item from the propensity fill in for a more hurtful item. Pre-market audit to show that the item is protected and powerful, for instance, would frequently be equivalent to a total restriction on deals and promoting. (Bean & Smith, 2015)

There is lack of scientific demonstration that e-cigarettes claim, for instance, perfect nicotine substitute, lack of carcinogens, absence of harm for passive smokers, less teeth or skin damage. Hence, the marketing should not be directed on the said parameters (Czoli, Hammond, & White, 2014). E-cigarettes differ from the traditional NRT (Nicotine Replacement Therapy) and other pharmaceutical products because the focus is more as a recreational alternative than as a cessation strategy. These are neither tobacco related products nor can be classified as cessation devices. (Prochnow, 2017). E-cigarettes can address "both pharmacologic and behavioural components of cigarette addiction" (Cahn & Siegel, 2011). E-cigarettes retain the smoker identity because the format simulates impact of smoking which creates social acceptance and has a non-medical depiction. The initial costs of the products are much higher but the repetitive costs as compare to tobacco smoking are much lower. The potential of e-cigarettes as a potential for mass appeal is massive (John & Bogdanovica, 2014).

"There is no evidence to date that e-cigarettes are re-normalising smoking, instead it's possible that their presence has contributed to further declines in smoking, or de-normalisation of smoking. The gateway theory is ill defined and we suggest its use be abandoned until it is clear how it can be tested in this field" (McNeill, Brose, Calder, Hitchman, & McRobbie, 2015). Medically, the smokers cannot replace smoking with products that deliver negligible nicotine because of their addiction habits. (Russel, 1986). There is ambiguity and lack of evidence in relationship between harm to the wider population and promotion of electronic cigarettes (Bean & Smith, 2015). The consequences of e-liquids on direct consumption as well as faulty mechanics of electronic parts that can cause fire pose a huge risk. However, this risk is comparable to possibly poisonous household goods and electronics (McNeill, Brose, Calder, Hitchman, & McRobbie, 2015).

"Nicotine dependence and abuse liability are, in part, influenced by nicotine bioavailability, rate of absorption and exposure. When delivered through the pulmonary route (as with tobacco smoke inhalation), nicotine is rapidly absorbed into the circulation and reaches the brain within seconds. Buccal and dermal nicotine absorption (as with nicotine replacement therapies) is slower and subject to first-pass metabolism. Four clinical studies have been conducted in current e-cigarette users and suggest that e-cigarette experience may significantly impact smoking behaviour and nicotine exposure. Data suggest that e-cigarettes are able to deliver sufficient nicotine for physiological effects. Nicotine yields were measured from four different e-cigarettes (24-26 mg nicotine/mL) with 50 puffs of 50 mL each. Nicotine concentration varied significantly (538-8770 ng/L), but remained below the concentrations measured in 35 mL puffs from traditional cigarettes. The e-cigarette delivered 54% lower nicotine than a traditional cigarette" (Schroeder & Hoffman, 2014). With 74.1%, the highest quit rates are recorded when smoking cessation process involves use of vaping product consecutively after use of licensed medicine. This is followed with 60% where the two are used concurrently and 59.7% when only vaping product is used (McNeill, Brose, Calder, Simonavicius, & Robson, 2021).

"Higher prices for e-cigarette disposable appear to be associated with reduced e-cigarette use among adolescents in the US. Own price elasticities for disposable e-cigarettes centered around − 1.2, while those for reusable e-cigarettes were approximately − 1.9. Every 10% increase in e-cigarette prices was associated with a drop in the e-cigarettes sales of approximately 8.2%, while based on dynamic models, the drop was 2.7% in the short run and 11.5% in the long run. For every 10 percent increase in e-cigarette price, there may be a 0.8 percent to 9.1 percent decrease in the youth use rate." (World Bank Group Global Tobacco Control Program Team, 2019). There is a huge risk that Big Tobacco may repeat history with e-cigarettes. E-cigarettes have a terrible record of selling highly damaging items with deceptive marketing focused on youth. They conceal

unethical acts as deeds of corporate social responsibility and promote damaging products as safe alternatives (Al-hamdani, 2014). "Although e-cigarette advertising is increasingly prevalent, little research has examined the impact of advertisements in developing interest in trying e-cigarettes." (Pepper, Emery, Ribisl, Southwell, & Brewer, 2014)

E-cigarettes use glycol and glycerol as essential components. However, these are highly dangerous products if not used properly. Coming in contact with glycol mist causes mucous membranes and eyes to dry out. "Glycerine is used therapeutically to increase the efficacy of inhalants; it has hydroscopic properties that draw water into bronchial secretions and reduces their viscosity. Glycerine and Propylene Glycol did not cause cytotoxic effects when human embryonic stem cells, mouse neural stem cells, and human pulmonary fibroblasts were exposed to several e-cigarette refill solutions. There are reports of completed and attempted suicide by intravenous injection and oral ingestion of liquid nicotine intended for e-cigarette cartridges." (Callahan-Lyon, 2014).

There is no absolute conclusion on e-cigarettes as a safe alternative as per currently available research (Cahn, 2013). There is lack of robust evidence on association between e-cigarette vaping and abstinence from smoking (Al-hamdani, 2014). It is difficult to assess "e-cigarettes as a single device because of differences in product engineering, components and potential toxicities" and definitive data on its tool as a cessation device is lacking (Callahan-Lyon, 2014). There is a requirement to move beyond anecdotal declarations and naïve optimism to study the effect of use of e-cigarettes on larger population as a cessation tool and impact on behaviour indicators (Etter & Chapman, 2013).

Objective of the Study

The objective of conducting this empirical research study is to find out the following:

1) Are e-cigarettes a healthier alternative to tobacco smoking and act as a tool for cessation?
2) Do e-cigarettes normalise smoking?

The study aims to enquire if e-cigarettes help smokers shift to a healthier alternative and acts as a tool for cessation. The study also enquires if presence of e-cigarettes in the market will normalise smoking.

Research Hypotheses

The research hypotheses to conduct this empirical research study are as follows:

Hypothesis 1	
Null Hypothesis (H_0)	E-cigarettes are healthier alternative to tobacco smoking and act as a tool for cessation.
Alternate Hypothesis (H_1)	E-cigarettes are not healthier alternative to tobacco smoking and act as a tool for cessation.
Hypothesis 2	
Null Hypothesis (H_0)	E-cigarettes normalise smoking.
Alternate Hypothesis (H_1)	E-cigarettes do not normalise smoking.

Research Methodology

The research methodology adopted to conduct this empirical research study include the following:

Data Collection

The primary data was collected to conduct this empirical research study with the help of a data collection instrument called 'Questionnaire'. Therefore, in order to conduct this empirical research study, a questionnaire was floated among 150 adults to test our research hypotheses.

The questionnaire gathered responses on the following points:

- Smoking history of the respondent

  Active smoker: 3+ Cigarettes in past one week

  Occasional smoker: 3+ Cigarettes in past 3 months

  Have tried smoking but don't smoke occasionally

  Former smoker: Quit smoking 3 months prior or before

  Don't smoke
- Awareness about e-cigarettes
- If they have tried vaping
- Response on cues for casual usage of e-cigarettes (Cue 1: Smoking)
- Response on cues for e-cigarettes as a healthier alternative to smoking (Cue 2: Comparison)
- Response on cues for doctor prescribed usage of e-cigarettes (Cue 3: Control)
- Opinion on retail sale of e-cigarettes
- Opinion if presence of e-cigarettes in the market will promote smoking

Data Analysis and Interpretation

A total of 128 respondants (out of 150) responded to the questionnaire. The findings have been summarised in Table-1 (Summary of Survey Findings).

Key points on the profile of respondents:

- 34% (44) respondents have tried smoking at least once out of which 2% (3) are former smokers, 15% (19) are active smokers, 6% (8) smoke occasionally and 11% (14) have tried smoking but do not smoke regularly (Table 1.A)
- 86% (110) respondents were about e-cigarettes however only 17% (22) had tried vaping (Table 1.B and 1.C)
- 42% (54) are female and 58% (74) are male (Table 1.A)

Hypothesis 1: E-cigarettes are Healthier Alternative to Tobacco Smoking and Act as a Tool for Cessation.

The analysis and interpretation of collected data to test 'Hypothesis-1' is as follows:

- 70% (90) respondents might offer it as a healthier alternative to a known smoker if e-cigarettes are prescribed by the doctor (Table 1.G)
- 73% (93) respondents feel that retail sale of vaping devices shall be allowed while 20% (20) respondents do not feel that retail sales should be allowed. 55% (70) respondents promote heavy regulations on retail sale. (Table 1.F)
- 36% (46) respondents firmly believe that e-cigarettes can be used as a healthier alternative to tobacco smoking while 28% (36) respondents disagree. (Table 1.D)
- 47% (9) active smokers feel that e-cigarettes should not be taken as a healthier alternative however 50% (4) occasional smokers and 50% (7) respondents who have tried smoking but are not smokers opine on the contrary (Table 1.D)
- Based on the above analysis it can be interpreted that e-cigarettes are perceived as a healthier alternative to tobacco smoking and act as a tool for cessation. However doctor's recommendation and government regulation play a huge role in positioning it.

  Hence our Null Hypothesis (H_0: E-cigarettes are perceived as a healthier alternative to tobacco smoking and act as a tool for cessation.) stands accepted.

Hypothesis 2: E-cigarettes Normalise Smoking

The analysis and interpretation of collected data to test 'Hypothesis-2' is as follows:

- 45% (58) respondents firmly believe that prevalence of e-cigarettes will make more people take up smoking however only 14% (18) disagree (Table 1.E)
- 45% (38) non-smokers feel that prevalence of e-cigarettes will make more people take up smoking (Table 1.E)
- 43% (55) respondents felt the urge to smoke on cue for 'casual usage of e-cigarettes', 30% (38) felt the urge on cue 'doctor prescribed usage of e-cigarettes' and 27% (35) felt it on cue 'e-cigarettes as a healthier alternative to smoking' (Table 1.H)
- 42% (35) non-smokers and 100% (3) former smokers felt the urge for vaping on cue for 'casual usage of e-cigarettes'. 50% (4) are driven to take up vaping if it is promoted as 'a healthier alternative' (Table 1.H)
- 26% (33) respondents felt positioning 'casual usage of e-cigarettes' to be the best, 45% (57) felt the 'doctor prescribed usage of e-cigarettes' to be the best positioning in the market and 30% (38) felt that 'e-cigarettes as a healthier alternative to smoking' is the best marketing strategy (Table 1.I)

Based on the above analysis, our null hypothesis (H_0: E-cigarettes normalise smoking) is accepted.

Limitations of the Study

One of the major limitation of the work performed is the narrowness of data collection. A lot of advanced spatial data can be further used to take forward the problem statement. To gain better understanding, more smokers (current as well as quitters) and people under psychological treatment for smoking shall be added to research study.

Scope for Further Study

The paper does not delve into the long term impact on cessation or again taking up the habit of smoking when previously e-cigarettes were used for treatment.

Research Findings and Conclusion

On the basis of analysis and interpretation of primary data collected exclusively for conducting this empirical research study, the findings of our research study are as follows:

1. The results of this study establish that one of the most effective ways of marketing e-cigarettes is to highlight them as a control aid and a safer alternative to tobacco cigarettes.
2. The results also highlight that the perceived impact of wide prevalence of e-cigarettes in the market will lead to normalising of smoking habits among population. There is a high risk that occasional

smokers, quitters and those who do not smoke may take up consumption of e-cigarettes due to such prevalence. This makes it imperative that the sale and distribution is highly regulated.

3. The study finds out that e-cigarettes are seen to be a healthier and better option as contrasted with smoking tobacco cigarettes however prevalence of e-cigarettes normalises smoking.

Major three concerns revolving e-cigarettes relate to normalisation of smoking culture; excessive exploitation by Big Tobacco companies given past massive failures in the industry; and safety concerns, i.e. perceived harmful effects of vaping. To address these concerns, research inputs must come from at the least 2 fields, viz. Medicine and Marketing. It should be clinically established if e-cigarettes are conclusively a safer alternative, or if they are equally addictive like tobacco. Alongside, marketing should not only be commercially strong but also highly regulated and effective.

Table 1: Summary of Survey Findings

Particulars	Former Smoker	Active Smoker	Occasional Smoker	Have tried smoking but don't smoke occasionally	Don't smoke	Grand Total
A. Gender						
Female	0	5	1	5	43	**54**
Male	3	14	7	9	41	**74**
Total	**3**	**19**	**8**	**14**	**84**	**128**
B. Number of people aware about e-cigarettes before the survey	3	18	7	13	69	**110**
C. Number of people who have tried vaping	3	12	4	1	2	**22**
D. Should e-cigarettes be taken as an alternative to tobacco cigarettes?						
Agree	1	6	4	7	28	**46**
Neutral	1	4	3	4	34	**46**
Disagree	1	9	1	3	22	**36**
Total	**3**	**19**	**8**	**14**	**84**	**128**
E. Do you think prevalence of e-cigarettes will make more people take up smoking?						
Agree	1	8	3	8	38	**58**
Indecisive	2	6	1	4	39	**52**
Disagree	0	5	4	2	7	**18**

Total	**3**	**19**	**8**	**14**	**84**	**128**
F. Should retail outlets be allowed to sell devices of vaping?						
Yes (without any restrictions)	0	8	3	2	10	**23**
Yes (with regulations)	2	7	4	12	45	**70**
Neutral	0	1	1	0	7	**9**
Disagree	1	3	0	0	22	**26**
Total	**3**	**19**	**8**	**14**	**84**	**128**
G. Will you recommend e-cigarettes as an alternative to known smoker if it is doctor prescribed?						
Yes	0	3	4	4	12	**23**
Maybe	2	8	3	6	48	**67**
Indifferent	1	8	1	4	24	**38**
Total	**3**	**19**	**8**	**14**	**84**	**128**
H. What creates the most urge for vaping?						
Cue 1: Smoking	3	9	1	7	35	**55**
Cue 2: Comparison	0	5	3	3	27	**38**
Cue 3: Control	0	5	4	4	22	**35**
Total	**3**	**19**	**8**	**14**	**84**	**128**
I. Best Marketing Cue for e-cigs						
Cue 1: Smoking	1	7	2	2	21	**33**
Cue 2: Comparison	1	7	2	8	39	**57**
Cue 3: Control	1	5	4	4	24	**38**
Total	**3**	**19**	**8**	**14**	**84**	**128**

References

1. Al-hamdani, M. (2014). A short note on e-cigarettes issues: Harm reduction, re-normalisation, and Big Tobacco. *Journal of Public Health Policy*, 35 (1), 132-134.
2. Bean, S., & Smith, M. (2015). Victimless vapour? Health care organizations should restrict the use of e-cigarettes. *106* (8), 467-469.
3. Cahn, Z. (2013). France acts on electronic cigarettes. *Journal of Public Health Policy*, 34(4), 560-564.
4. Cahn, Z., & Siegel, M. (2011). Electronic cigarettes as a harm reduction strategy for tobacco control. *Journal of Public Health Policy*, 32(1), 16-31.
5. Callahan-Lyon, P. (2014). Electronic cigarettes: human health effects. *Tobacco Control*, 23, ii36-ii40
6. Czoli, C., Hammond, D., & White, C. (2014). Electronic cigarettes in Canada: Prevalence of use and perceptions among youth and young adults. *Canadian Journal of Public Health,* 105(2), 97-102.
7. Etter, J.-F., & Chapman, S. (2013). Should electronic cigarettes be as freely available as tobacco? *British Medical Journal*, 346(7913), 16-17.
8. Grand View Research. (2021). *E-cigarettes and Vape Market Size, Share & Trend Analysis*
9. Herning, R., Jones, R., Bachmanand, J., & Mines, A. (1981). Puff Volume Increases When Low-Nicotine Cigarettes Are Smoked. *The British Medical Journal*, 283(6285), 187-189.
10. John, B., & Bogdanovica, I. (2014). *Electronic Cigarettes.* Public Health England. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/311887/Ecigarettes_report.pdf
11. McNeill, A., Brose, L., Calder, R., Simonavicius, E., & Robson, D. (2021). *Vaping in England: an evidence update including vaping for smoking cessation.* Public Health England.https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962221/Vaping_in_England_evidence_update_February_2021.pdf
12. McNeill, Brose, Calder, Hitchman, & McRobbie. (2015). *E-cigarettes: an evidence update.* Public Health England. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733022/Ecigarettes_an_evidence_update_A_report_commissioned_by_Public_Health_England_FINAL.pdf
13. Pepper, J., Emery, S., Ribisl, K., Southwell, B., & Brewer, N. (2014). Effect of advertisements on smokers' interest in trying e-cigarettes. *Tobacco Control*, 23(3), iii31-iii36.
14. Prochnow, J. (2017). E-cigarettes: A Practical, Evidence based Guide for Advanced Practice Nurses. *The Journal for Nurse Practitioners – JNP*, 13(7), 449-455.
15. Public Health England. (2015). *E-cigarettes: a new foundation for evidence based policy and practice.* The Health & Wellbeing Directorate. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/454517/Ecigarettes_a_firm_foundation_for_evidence_based_policy_and_practice.pdf
16. Russel, M. A. (1986). Low-Tar Medium-Nicotine Cigarettes: A New Approach To Safer Smoking. *The British Medical Journal*, 1(6023), 1430-1433
17. Schroeder, M., & Hoffman, A. (2014). Electronic cigarettes and nicotine clinical pharmacology. *Tobacco Control,* 23(2), ii30-ii35.
18. Vinik, D. (n.d.) (2014). *You have to smoke e-cigarettes for this many days before saving money over Tobacco.* Retrieved from The New Republic website: https://newrepublic.com/article/117512/e-cigarettes-vs-tobacco-cigarettes-cost-comparison-which-cheaper (Last accessed on June 20, 2021)
19. World Bank Group Global Tobacco Control Program Team. (2019). *E-cigarettes: Use and Taxation.* World Bank Group. https://documents1.worldbank.org/curated/en/356561555100066200/pdf/E-Cigarettes-Use-and-Taxation.pdf

An Evaluation Study of Nai Udaan Scheme in India

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Abstract

"Nai Udaan" extends financial support to the notified minority candidates clearing preliminary examination conducted by Union Public Service Commission, Staff Selection Commission and State Public Service Commissions, CAPF to adequately equip them to compete for appointment to Civil Services in the Union and the State Governments and to increase their representation. The scheme envisages proactive measures for those communities that lag behind and have become increasingly marginalized. Conducted from August 2020 to November 2020, the major aim of the study is to find out the impact and efficacy of the scheme. The study was conducted on purposive random sampling basis covering six states, i.e. one from each of the NSSO classified geographical zones. A total of 315 beneficiaries were covered under the study. The Scheme was found attracting an insufficient number of potential beneficiaries due to its inadequate publicity. Lack of any information about the usage of funds from the beneficiary further makes it difficult to judge the performance of the scheme. The findings of the study are expected to help policymakers and programme implementing bodies to take appropriate corrective measures to make Nai Udaan more effective and thereby increasing the representation of minority communities in government sector jobs.

Keywords: *Nai Udaan, Scheme, Minority, Financial Support, Student, Education, India*

Introduction

Considering the Report of National commission on Religious and Linguistic Minorities, it was conceptualized that all communities and groups should have equal share in economic opportunities and employment. on the same lines, the scheme "Nai Udaan - Support for minority students clearing prelims conducted by Union Public Service Commission, State Public Service Commissions and Staff Selection Commission" was launched in the year 2013-14 by the Ministry of Minority Affairs, Government of India. The scheme also vouches for proactive and responsive measures for the communities that lag behind and are increasingly marginalized.

The scheme caters to minority communities which are notified as per section 2(c) of National Commission for Minority Act, 1992. Aligned with the Act, six minority communities have been identified namely (1) Muslims, (2) Sikhs, (3) Christians, (4) Buddhists, (5) Jains, and (6) Zoroastrians (Parsis). To improve the coverage of the scheme even to the remote areas, the Management Information System (MIS) portal has been introduced w.e.f May, 2016. As such, the scheme intends to provide effective wings to six notified minorities for transforming their hollowed socio-economic conditions into a hopeful future. All in all, the scheme is an intervention in the form of a government program, aiming to help minority communities as notified under Section 2 (C) of National Commission for Minorities Act, 1992, with earmarked targets of Self- employment and Wage employment, Recruitment to State and Central Services.

Under the scheme, the applications are invited from the target group clearing prelims examination conducted by UPSC, SSC, SPSCs in the prescribed format. The eligibility criteria and conditions of the scheme entail that the candidate should belong to one of the minority communities notified under section 2(c) of National Commission for Minority Act, 1992 and should have passed prelims examination conducted by UPSC, SPSCs or SSC, as given below in table 1.

Table 1: Examination-wise fixed slot of seats for providing the financial assistance

Exam	No. of Seats (Allotted)
UPSC (Civil Service, Indian Engineering Service and Indian Forest Service)	300
SPSC (Gazetted),	2000
Staff Selection Commission (Combined Graduate Level), CAPF for Group 'B' (Non Gazetted posts)	2000
SPSC (Graduate Level Non-Gazetted)	800
Total	5100

Source: Revised guidelines 01.04.2019 –Nai Udaan

The scheme also provides a clear quota of seat allocation per community, and per exam, as shown in Table 2.

Table 2: Community-wise fixed slot of seats for providing the financial assistance

Minority Community	Seats Allotted
Muslim	3723
Sikh	408
Christian	613
Jain	154
Buddhist	168
Zoroastrian	30
Total	5096

Source: Revised guidelines 01.04.2019 –Nai Udaan

To avail the benefits under the scheme, the total family income of the candidates from all sources should not exceed Rs.8 lakh per annum. The financial support can be availed by candidate only once. The candidate is not eligible to receive benefit from any other similar scheme of the central or state governments/UT administration. The eligible candidates are required to apply online through the portal of the scheme for availing the benefit within one month from the date of declaration of prelims exam results with all requisite documents. Thus, the scheme intends to comprehensively promote minority candidates clearing prelims examination by providing financial assistance. Under the scheme, 100% financial support through Direct Benefit Transfer is provided to the selected candidates by the Ministry. The financial support provided under the scheme is given below in Table 3.

Table 3: Rate of Financial Assistance

S. No.	Exam	Rate of Financial Assistance (Rs.)
1	UPSC (Civil Services, Indian Engineering Services & Indian Forest Services)	1,00,000
2	State PSC (Gazetted)	50,000
3	SSC (CGL) & (CAPF-Group B)	25,000
4	State PSC (Graduate level) (Non-Gazetted)	25,000

The vision of the 12th Five Year Plan clearly stated that the development of the country should proceed in a manner that it is inclusive and ensures broad improvements in the living standards of all classes and sections of the people. The scheme completely endorses this broad idea of national development, by fostering equity in the availability of resources for preparation for most prestigious examinations, conducted by the government for recruitment. This will trigger a chain reaction, increasing employability among the youth, belonging to minority communities. Historically, the values of nation building through inclusive growth and equitable access to opportunity was also envisaged in the report of Mandal Commission or the SEBC (Socially and Educationally Backward Classes Commission), constituted in 1979.

Objectives of the study

i) To study the impact of financial assistance provided to beneficiaries related to self-employment and wage employment

ii) To evaluate the effectiveness of structure, design and implementation mechanism of the scheme

iii) To recommend measures to improve both effectiveness and outreach of the scheme.

Data and Methodology of the Study

The study design and methodology was prepared after thorough understanding of Nai Uddan. Thereafter, the schedules were pre-tested in and around Delhi. The schedules were also revised to incorporate feedbacks received from filed. The study was conducted from August 2020 to November 2020. The study was conducted on purposive random sampling basis. The following six States/UTs were selected as per sampling framework namely West Bengal (EZ), Jammu and Kashmir (NZ), Tamil Nadu (SZ), Maharashtra (WZ), Assam (NEZ) and Uttar Pradesh (CZ).

Table 4 State-wise sample included in the study

S. No	NSSO Zones	Sampled States	Sample-Size Covered
1.	East Zone (EZ)	West Bengal	226
2.	West Zone (WZ)	Maharashtra	30
3.	North Zone (NZ)	Jammu Kashmir	6
4.	South Zone (SZ)	Tamil Nadu	14
5.	North East Zone (NEZ)	Assam	17
6.	Central Zone (CZ)	Uttar Pradesh	22
	Total		**315**

These six states were selected in consideration with highest number of beneficiaries from a state in each of the six geographically classified by NSSO. However, in the North East Zone Assam was selected over Mizoram due to a wider mix of minority communities among the beneficiaries. The information collected from the selected beneficiaries through the MS-forms. The answers of the respondents especially on expenditure pattern after coverage under the scheme were re-verified and validated to assess the on ground performance of the scheme.

Study Findings

Table 5 shows the impact of the financial assistance on the wage employment and self employment across the states selected for the study.

Table 5 Impact of Financial Assistance on Self Employmet/ Wage Employment

State	Impact on Self/Wage Employment	No Impact on Self/Wage Employment	Total
Assam	-	17	17
J&K	-	6	6
Maharashtra	3	27	30
Tamil Nadu	-	14	14
Uttar Pradesh	-	22	22
West Bengal	1	225	226
Total	4	311	315

In West Bengal, out of 226 respondents, 225 beneficiaries found no impact of the financial assistance on self employment and/or wage employment, 1 beneficiary candidate found positive impact of the scheme on self-employment. In Maharashtra, out of 30 beneficiaries, 27 candidates did not found any impact, only 3 beneficiary candidates found positive impact of the scheme on self-employment.. In Uttar Pradesh, out of 22 beneficiary candidates no candidate found any impact on self-employment and wage employment. In Assam, out of 17 beneficiary candidates, zero beneficiary found any impact of the financial assistance on self-employment and wage employment. In Tamil Nadu, out of 14 beneficiary candidates, zero respondents find any impact on self-employment. Also, in J&K, no beneficiary candidate found any impact on self-employment and wage employment.

Table 6 shows information about time taken by the ministry to provide the financial assistance under the scheme. Majority of the respondents replied that it took more than 150 days to provide with the assistance under the scheme. The exact details are recorded in table.

Table 6 Time taken by the Ministry to provide the Financial Assistance.

States	Less than 100 days		100 to 150 days		More than 150 days	
Assam	2	4.2%	6	18.2%	9	3.8%
J&K	1	2.1%	1	3.0%	4	1.7%
Maharashtra	13	27.1%	5	15.2%	12	5.1%
Tamil Nadu	2	4.2%	2	6.1%	10	4.3%
Uttar Pradesh	4	8.3%	4	12.1%	14	6.0%
West Bengal	26	54.2%	15	45.5%	185	79.1%
Total	48	15.5%	33	10.7%	234	73.8%

For more than 73% (234) respondents it took more than 150 days for receiving the benefits, after applying under the scheme. This included 3.8% from Assam, 1.7% from J&K 5.1% from Maharashtra, 4.3% from Tamil Nadu, 6% from Uttar Pradesh and 79.1% from West Bengal. Out of total respondents 10.7% (33) respondents said that they received the assistance somewhere between 100 to 150 days after applying under the scheme. This included 18.2% from Assam, 3% from J&K 15.2% from Maharashtra, 6.1% from Tamil Nadu, 12.1% from Uttar Pradesh and 45.5% from West Bengal. Out of total respondents only 15.5% (48) respondents admitted to receiving the assistance within 100 days after applying for the scheme. This included 4.2% from Assam, 2.1% from J&K 27.1% from Maharashtra, 4.2% from Tamil Nadu, 8.3% from Uttar Pradesh and 54.2% from West Bengal.

Table 7 indicates information about the medium of information through which the beneficiary was informed about the scheme.

Table 7 Medium of awareness about the scheme.

Medium of awareness about the scheme	Count of Medium	
Coaching Institute	28	8.89%
Friends	203	64.4%
Ministry Website	56	17.78%
Print Media	10	3.17%
Family/Relatives	12	3.81%
Social media	6	1.90%
Total	**315**	100%

The above table represents that out of 315 respondents, maximum number i.e. 203 (64.4%) of the candidates got to know about the scheme from their friends, followed by 56 (17.78%) of the respondents from the website of the Ministry. Those who got information from coaching centres constituted for 28(8.89%) respondents and only 3% came to know from their relatives. Another 3% got to know about the scheme from print media, approximately 2% from social media, 0.32% from state government website and college notice boards. There is no beneficiary response about the awareness created by means of conference and workshops, training program, capacity building program conducted by MoMA. This represents the feeble approach towards the awareness about the scheme and coverage of beneficiaries.

Table 8 shows information about the number of *divyangjan* beneficiaries covered under the scheme.

Table 8 Physical status of the beneficiaries.

Physical Status	Number of beneficiary candidates
Abled	314
Divyangjan	1
Total	**315**

Table 8 represents the physical status of the candidates who have qualified the prelims of any of the specified examinations and received the assistance under the scheme. Out of 315 respondents, there was only 1 *divyangjan* applicant who was provided the financial assistance under the scheme in the year 2019-20. The only *divyangjan* beneficiary covered under the study was from the state of Assam and has qualified Assam PSC prelims. The respondents selected were chosen at random. This depicts the fact that *divyangjan* candidates are far from the reach of the scheme.

Table 9 shows information about input use efficiency of the scheme for 5 years.

Table 9 Expenditure per beneficiary

Year	Actual Expenditure (in Rs. Crores)	No. of beneficiaries	Input Use Efficiency
2015-16	3.97	1071	0.0000428
2016-17	4	858	0.0000214
2017-18	6.18	1427	0.0000230
2018-19	6.72	1187	0.0000176
2019-20	8.02	1539	0.0000191

The actual expenditure on the scheme has increased from Rs. 3.97 crores in the year 2015-16 to Rs. 6.18 crores in 2017-18 and further to Rs. 8.02 crores in the year 2019-20. The number of beneficiaries covered under the scheme has also increased from 1071 in 2015-16, to 1427 in 2017-18 and further to 1539 in 2019-20. As per the information declared publicly by the ministry, the input use efficiency has followed an unstable trend, which is depicted in the figure. The number of beneficiaries however has remained well below the set target of 5100 per financial year.

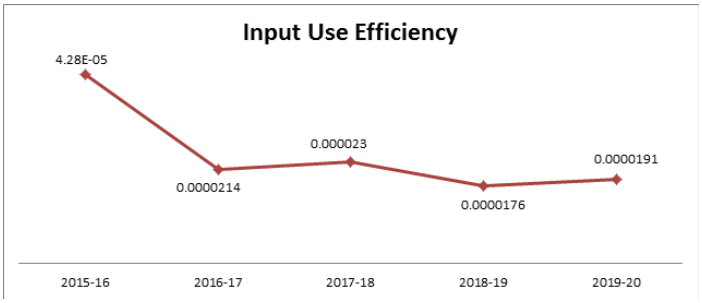

Figure 1 Input Use Efficiency

Conclusion

Nai Udaan is one of the major initiatives of the Government of India towards socio-economic development of the minorities. The government has been spending crores of rupees in order to increase the representation of minority communities in public sector jobs. The major findings of the study include (1) 234 out of 315 of the respondents said that it took over 150 days for the Ministry to provide with the financial assistance, (2) More than 60% respondents were informed about the scheme by their friends, (3) Though the scheme guidelines clearly mention a target of up to 5100 beneficiaries per year; the number of beneficiaries for the year 2019-20 was only 1539. This implies that the scheme is underperforming in the terms of achieving the targets set according to the

scheme guidelines. (4) As per the sample included in the research, the proportion of d*ivyangjan* beneficiaries was less than 0.33% of the total sample. (5) There is no grievance redressal mechanism for the beneficiaries, this leads to gap between the demand and the supply side, (6) Only 1% respondents felt that the onetime benefit had an impact on self employment and/or wage employment. The findings of the study are expected to help policymakers and programme implementing bodies to take appropriate corrective measures to make the programme more effective and thereby increasing the participation of minority communities in public sector jobs. Based on the findings of the study, the policy makers can take into account the following recommendations for better output in the years to come. (1)Timely remittance of financial assistance to enhance the success rate of the beneficiary candidates in the Mains examination. (2) With the increasing advent of technology and the deepening of digital infrastructure across several parts of the country, the awareness aspect of the scheme along with the mode of application should be gradually digitized by means of social media platforms. (3) Restructure the unutilized quota to other communities/exams through a periodic review. This needs a thorough follow up action to analyze the number of applications received community wise for availing the assistance.(4) Providing a fix number of seats to *divyangjan* from minority communities in order to improve their participation. The Ministry can also include *divyangjan* from majority community in order to boost their morale. (5) Setting up an effective grievance redressal mechanism will ensure transparency and accountability. Such a mechanism which builds the trust of the beneficiary seems to be missing. (6) The scheme should aim at capacity building and leadership skills of the beneficiaries, over and above providing financial support. This would lead candidates/awardees under the scheme to build upon their potential for some other examination in future to create a long term positive effect.

References

1. Ministry of Minority Affairs Revised Guidelines, Nayi Udaan
2. http://naiudaan-moma.gov.in/WriteReadData/WhatNew/WhatNew_223.pdf
3. "Final report on Evaluation and Impact Assessment of Nai Udaan" submitted by National Productivity Council to Ministry of Minority Affairs for 2012-13 to 2016-17.
4. Dubey, A, and Dubey. A.K. (2020). "Educational Empowerment of Minorities: Schemes and Achievements." International Journal of Current Research in Education, Culture and Society.
5. Jain, P., and Sudhir Lodha. (2015). "Minorities Benefits by Govt. of Tamilnadu & Govt. of India."
6. Dubey, A., and Dubey, A. K. (2020). Educational Empowerment of Minorities: Schemes and Achievements. International Journal of Current Research in Education, Culture and Society.

Fifteenth Finance Commission and Fiscal Autonomy of States in India

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Abstract

The XVFC, appointed on 27th November 2017 under the chairmanship of N.K. Singh, has recommended maintaining the vertical devolution at 41%. The recommendations of the XVFC will confer more fiscal autonomy to union as well as states on the revenue and the expenditure fronts, as the total transfers (devolution and grants) add up to around 34% of estimated Gross Revenue Receipts to the Union. Besides the several categories under which it happens, what makes fund transfer far more complex is that certain funds lie between being entirely tied and entirely untied. However, the future contours of the vertical devolution of resources between the Union and the States is to share gross revenue receipts similarly in about equal ratio between the Union and States, while assuming no further decline in the divisible pool as a proportion of gross revenue receipts. This balance has been achieved through 41% of the divisible pool being devolved to the twenty-eight States and the balance devolution taking place through various forms of Finance Commission and non-Finance Commission transfer mechanisms. In absolute terms, for the period 2021-26, the states will get a total of Rs.42.2 lakh crore in tax devolution (Including total grants of Rs 10.33 lakh crore). The cumulative transfers to States are estimated to remain at around 50.9% of the divisible pool during same period. The XVFC outlined a very comprehensive assessment of the revenue and expenditure of States and the Union. An increase in the overall share will give more freedom to States and Local Governments. With many taxes subsumed under it, GST accounts for 35% of the gross tax revenue of the Union and 44% of own tax revenue of the States. XVFC recommended non-financial recommendations for promoting cooperative fiscal federalism.

Keywords: *Finance Commission, Fiscal Autonomy, Federalism, Devolution, Growth, Deficit, India*

"There is and there can be no final solution to the allocation of financial resources in a federal system"

- Prof. Maxwell

I. Introduction

The Union Finance Commission is a Constitutional body formulated under Article 280 of the Constitution. It is constituted every 5 years by the President to review the state of finances of the Union and the States and suggest measures for maintaining a stable and sustainable fiscal environment. It also makes recommendations regarding the devolution of taxes between the Center and the States from the divisible pool which includes all central taxes excluding surcharges and cess which the Centre is constitutionally mandated to share with the States. The Fifteenth Finance Commission (XVFC) was appointed on 27th November 2017 under the chairmanship of Shri N.K. Singh. In addition to the primary objectives mentioned above, the terms of reference for the commission sought suggestions regarding the principles which would

govern the quantum and distribution of grants-in-aid (nonplan grants to states), the measures, if needed, to augment State government finances to supplement the resources of local government and to review the state of the finances, deficit and debt conditions at different levels of government. In addition to the primary objectives mentioned above, the terms of reference for the commission sought suggestions regarding the principles which would govern the quantum and distribution of grants-in-aid (non plan grants to states), the measures, if needed, to augment State government finances to supplement the resources of local government and to review the state of the finances, deficit and debt conditions at different levels of government. Shri Shaktikanta Das, former Secretary to the Government of India and Prof. Anoop Singh, Adjunct Professor, Georgetown University were appointed full time Members. Dr. Ashok Lahiri and Dr. Ramesh Chand were appointed as part-time Members. Shri Arvind Mehta was appointed as Secretary to the Commission. Shri Ajay Narayan Jha, former Finance Secretary, Government of India, was later appointed as Member with effect from 1 March 2019 in place of Shri Shaktikanta Das. Over the course of the Commission's tenure, this and other changes in membership were subsequently notified by President's Order. In the late 1990's India's States were facing sharp fiscal deterioration. The problem was particularly serious in the poorer States. A slow deterioration in fiscal performance over the 1980s and 1990s was culminated into a Statelevelfiscal crisis by the late 1990's. Almost all the States had to revise thesalaries of their employees as they were under the tremendous pressure to do soafter the Central government, implementing the recommendations of Fifth Central Pay Commission, hiked the salaries of its employees in 1998. Unlike the Central government, State governments' fiscal performance did not showany improvement in the first half of 1990s, and their deterioration in the secondhalf has been rather sharp.In a fiscal federalism crises at one level of government are bound tospillover. So far as the fiscal imbalances are concerned, which continued tilltoday, had appeared in the Central government's budget in the form of deficitin its revenue account in 1979-80. States' revenue account experienced thesame in the latter half of the 1980's. Warnings about the sustainability of fiscalstance and the impending crises started appearing in academic and professional circles since around mid-1980's (Mundle and Rao, 1992).

But the entire literature on Indian Public Finance remained focused on the fiscal crises faced by Centralgovernment. State government finances, though, started showing deteriorationremained largely neglected. Even when the crises situation forced Governmentof India to undertake economic reforms, which included fiscal discipline, noserious beginning was made for such at the State level. The point largelymissed by the government and academics alike was that reforms would notsucceed unless undertaken simultaneously at both the levels. In a fiscal federalism Centre and States are not the watertight compartments and thereforethe Center cannot remain insulated from the happenings at the State levels. So,the analytical framework and the logic employed to study the Centralgovernment finances are equally applicable for so at the State level. India's fiscal federal system has served the country well, and hasbrought stability over an extended period of time. But with the growing fiscalstress, and divergence in performance, the system itself came under scrutiny ifit was responsible for the imbalances in the State finances. Therefore, theliterature scanned for the purpose of present study can be classified into three categories: 1. The theoretical framework (or in other words, the economics of deficits). 2. The theoretical and the empirical studies on fiscal federalism.3. Analytical studies on the fiscal imbalances in the Central and in the Stategovernment's finances.

Since the publication of the monumental work of Musgrave (1959) where he explained the fiscal functions of allocation, distribution andstabilization to be performed by the government in accordance with theobjectives of the economic efficiency and social optimality, a plenty ofliterature has been produced on the question how these functions are best performed in a federal country. How should the various layers of governmentbe assigned various responsibilities and tax jurisdictions? What principlesshould govern the formation of federalism and how such federalism should be geared to realise social, economic and political objectives, is the subject mattersuch studies.There appears to be a consensus on the preposition that the primary responsibility for macroeconomic stabilisation policies and for the redistribution of income and wealth must be of the Central government, whilethe sub-national governments can be entrusted with the large part of allocation as the decentralised provision of public goods can cater to the local demandsmore efficiently

Oates (1977) provided an overview of economics of fiscalfederalism. He tried to work out the implications of the basic principle for theefficient functioning of a multilevel public sector. Such approach seems togenerate an insight which is useful for the analysis of budgetary policy of thegovernment. But he cautions that it is difficult for such analytical tools tocapture all the aspects of fiscal programs like revenue sharing. Moreover the economic logic often militates against social objectives. But despite all itslimitations it often reveals certain basic tendencies in the system with whichpublic policy must come to terms irrespective of its goals.

Garg (2006) found that the ever increasing financingof State sector's subject which has proliferated over the years, affect theautonomy and the responsibility as it has generally transcended the States'jurisdiction. Such instrument of financing is used by the Centre to influenceStates' policies. Bypassing the States' budget in some of the transfer, meant forlocal bodies has been found to be a significant irritant. He suggested majorprocedural changes in the disbursement of grants under Centrally SponsoredSchemes to minimize the element of discretion.

Heredia and Rider (2005) found that the high transferdependency of the States has weakened accountability and fiscal discipline.The transfer system is also found to be complex and less transparent. Further,the lack of coordination among the institutions responsible for the transfers,produce distorting incentives. To address the problem of perverse incentivesstructural changes in the system of transfers are required.

Chakraborty (1998) analysed the relative importance of the various components of resource transfers from the Center to the States and came out with the conclusion that Center-State financial relations as they have evolved over the years have failed to reduce the vertical imbalance. The continuous decline of own revenue as a percentage of States' revenue expenditure could be another indicator of vertical imbalance.

Singh (2004) argued that reducing the channels ofintergovernmental transfers, would help in achieving objectives of horizontalequity as well as managing political challenges arising from increased regionalinequality within the federation. Effective decentralisation seems critical, in hisopinion, to improve the efficiency of government delivery of local publicgoods and services, particularly those that improve human capabilities. Thus,improvements in India's IGFT must include reforming the system of tax and expenditure assignments.

II. Objective, Data and Methodology of the Study

The objective of the present study is to:

i. Outline major recommendations of XVFC;

ii. Assess fiscal autonomy of states of India in light of recommendations of XVFC;

Data was collected from various Finance Commission reports and publications Ministry of Finance, Government of India. The study gives review of existing literature review.

III. Assessment of XVFC's Recommendation

The XVFChas recommended maintaining the vertical devolution at 41% – the same as in its interim report for 2020-21. It is **at the same level of 42% of the divisible pool** as recommended by the **14th Finance Commission.** It has **made the required adjustment of 1%** due to the changed status of the erstwhile State of Jammu and Kashmir into the new **UT of Ladakh and Jammu and Kashmir.** This has been projected as a big boost to fiscal autonomy of states, marking a historical shift in the financial relations between the Centre and states. The analysis shows that while there has been a sharp jump in the ratio of unconditional transfers to states, it still falls short of what it was a decade ago. The fund transfers from Union to state governments are either tied (conditional) or untied (unconditional). Tied transfers indicate that the Union government exercises tight control over how these funds are used by the states, whereas untied funds can be used by the state government as it deems fit. It is because the XVFC has recommended an increase in the share of untied funds, that its decision has been welcomed.

Table 1: Global Sharing for Vertical Fiscal Balance

Finance Commission	Percentage Share Recommended
X FC	29
XI FC	30.5
XII FC	31.5
XIII FC	32
XIV FC	42
XV FC	41

Besides the several categories under which it happens, what makes fund transfer far more complex is that certain funds lie between being entirely tied and entirely untied. However, for the sake of this analysis, the funds have been considered as either wholly tied or wholly untied. The famous figure of 41%, which has caught everyone's attention, refers to the share of states in the 'divisible pool' of Union taxes. The divisible pool is the part of Union taxes that has to be shared with the states. The XVFC has recommended to provide Rs 2.9 trillion as revenue deficit grants to 17 states during 2021-26. These grants will be unconditional and 70% of the grants will be distributed to states during 2021-22 and 2022-23. These grants will help the recipient states to recover from damage caused to tax revenue due to pandemic. With many taxes subsumed under it, GST accounts for 35 per cent of the gross tax revenue of the Union and 44% of own tax revenue of the States. With gross tax revenue of the Union determining the divisible pool of taxes and, hence, transfers from the Union to the States, and changes in States' own taxes affecting their resource requirements, GST has become a critical factor in Indian federal finance. The recommendations

of the XVFC will confer more fiscal autonomy to union as well as states on the revenue and the expenditure fronts, as the total transfers (devolution and grants) add up to 34% **of estimated Gross Revenue Receipts** to the Union. Besides the several categories under which it happens, what makes fund transfer far more complex is that certain funds lie between being entirely tied and entirely untied. However, the future contours of the vertical devolution of resources between the Union and the States is to share gross revenue receipts similarly in about equal ratio between the Union and States, while assuming no further decline in the divisible pool as a proportion of gross revenue receipts. This balance has been achieved through 41% of the divisible pool being devolved to the twenty-eight States and the balance devolution taking place through various forms of FC and non-FC transfer mechanisms. In absolute terms, for the period 2021-26, the states will get a total of Rs. 42.2 lakh crore in tax devolution (Including total grants of Rs 10.33 lakh crore). The cumulative transfers to States are estimated to remain at 51% of the divisible pool during same period.

The XVFC has recommended that the normal limit for net borrowings of state governments be fixed at 4% of GSDP in 2021-22, in line with the enhanced baseline borrowing limit for the year. This will ease to 3.5% by 2022-23, thereafter reverting to the erstwhile 3% limit till 2025-26. The additional borrowing space of 0.5% of GSDP for states is conditional on the completion of power sector reforms. This is, however, lower than the 1% limit permitted by the Union for 2020-21 that was linked to a set of four reforms.

The devolution by the XVFC will benefit states like Bihar, MP, Maharashtra, Rajasthan and West Bengal the most, according to the survey. Most of the states like Goa, Haryana, Himachal Pradesh, MP, Odisha, Tamil Nadu, UP and West Bengal have no significant change in the total divisible pool, whereas, Bihar, Chhattisgarh, Maharashtra and all the northeastern states except Assam have benefitted from the change in the devolution formula which now gives greater weight to state's forest and ecology, demographic performance and tax effort, the report pointed out. The net result of the change in criteria is that the share of ten states in the divisible pool has declined during its award period, relative to the previous commission's period. Almost all the southern states barring Tamil Nadu have emerged as the biggest losers from distribution of taxes. Karnataka is the biggest loser, while Maharashtra is the biggest gainer.

Table 2: Total Grants to States

Type	Amount (Rs. Crores)
Local Bodies	436361
Disaster Management	122601
Post-Devolution Revenue Deficit	294514
Sector-specific	129987
State-specific	49599
Total	**1033062**

Though use of dated population data is unfair, the XVFC agreed that the Census 2011 population data better represents the present need of States, to be fair to, as well as reward, the States which have done better on the demographic front, XVFC has assigned a 12.5% weight to the demographic performance criterion.XVFC has re-introduced tax effort criterion to reward fiscal performance.The XVFC has maintained a moderate weight of 15% for the area criterion in consonance with the approach of FC-XIV. XVFC believed that large forest cover provides huge ecological benefits, but there is also an opportunity cost in terms of area not available for other economic activities and this also serves as an important indicator of fiscal disability. XVFC have assigned 10% weight to the forest and ecology. The increase in weight is also recognition of forests, a global public good, as a resource that ought to be preserved and expanded through afforestation of degraded and open forests for national benefit as well as to meet our international commitments.XVFC have decided to revert to the method of representing fiscal capacity in terms of income distance and assigned it 45% weight. XIVFC recommended that the local bodies should be required to spend the grants only on the basic services within the functions assigned to them under relevant legislations. XIVFC recommended that the books of accounts prepared by the local bodies should distinctly capture income on account of own taxes and non-taxes, assigned taxes, devolution and grants from the State, grants from the Finance Commission and grants for any agency functions assigned by the Union and State Governments. XIVFC recommended distribution of grants to the States using 2011 population data with weight of 90% and area with weight of 10%. The grant to each state will be divided into two, a grant to duly constituted gram panchayats and a grant to duly constituted municipalities, on the basis of urban and rural population of that state using the data of census 2011.

Table 3: Criteria and Weights Adopted by Finance Commissions

FC/Criteria & weights	X	XI	XII	XIII	XIV	XV
Population	20	10	25	25	17.5	15
Income Distance	60	62.5	50		50	45
Area	5	7.5	10	10	15	15
Tax Effort	10	5.0	7.5			2.5
Fiscal Discipline		7.5	7.5	17.5		
Fiscal Capacity Distance				47.5		
Index of infrastructure	5	7.5				
Demographic Change					10	12.5
Forest Cover					7.5	10
Total	**100**	**100**	**100**	**100**	**100**	**100**

In line with the FC that are set up at the Union level, the Constitution requires state governments to set up State Finance Commissions. The XVFC has asserted that the mandate of any given SFC is intended to be applicable only for five years. It revealed that only 15 states have set up their fifth or sixth SFCs, whereas several states have not moved beyond their second or third SFC. Accordingly, a staggering 84% of the Rs 4.4 trillion grants for local bodies recommended by the XVFC are conditional on the states setting up SFCs for the coming five-year period, and acting on their recommendations by March 2024. A staggering 84% of the Rs 4.4 trillion grants for local bodies recommended by the XVFC are conditional on the states setting up SFCs for the coming five-year period, and acting on their recommendations by March 2024. The total grants to local bodies for 2020-21 has been fixed at Rs 90,000 crore, of which Rs 60,750 crore is recommended for rural local bodies (67.5%) and Rs 29,250 crore for urban local bodies (32.5%). This allocation is 4.31% of the divisible pool. This is an increase over the grants for local bodies in 2019-20, which amounted to 3.54% of the divisible pool (Rs 87,352 crore). The grants will be divided between states based on population and area in the ratio 90:10. The grants will be made available to all three tiers of Panchayat- village, block, and district.

Table 5: Grants for disaster risk management (In Rs. crore)

Funding Windows	National corpus	States' corpus
Mitigation (20%)	2,478	5,797
Response (80%)	9,912	23,186
(i) Response and Relief (40%)	4,956	11,593
(ii) Recovery and Reconstruction (30%)	3,717	8,695
(iii) Capacity Building (10%)	1,239	2,998
Total	**12,390**	**28,983**

Source: Report for the year 2020-21, XV Finance Commission

The Commission recommended setting up National and State Disaster Management Funds for the promotion of local-level mitigation activities. The Commission has recommended retaining the existing cost-sharing patterns between the centre and states to fund the SDMF (new) and the SDRF (existing). The cost-sharing pattern between centre and states is (i) 75:25 for all states, and (ii) 90:10 for north-eastern and Himalayan states. A suggestion was made to permit States to breach the FRBM borrowing limits in the event of a shortfall in tax devolution. It was also suggested that States should be allowed a higher debt ceiling of at least 30% of GSDP, because under the debt target of 20% of GSDP, many of them would have to keep fiscal deficit below 3% of GSDP. There were also proposals for building in escape clauses for States under the FRBM framework. The Government of India urged the Commission to incentivise States to amend their FRBM acts to bring the debt-GDP ratio to 20% of their GSDP by 2024-25, by linking its transfers to fulfilment of this goal.

IV. Conclusion

The XVFC has recommended maintaining the vertical devolution at 41%. The recommendations of the XVFC will confer more fiscal autonomy to union as well as states on the revenue and the expenditure fronts, as the total transfers (devolution and grants) add up to 34% **of estimated Gross Revenue Receipts** to the Union. In absolute terms, in 2021-22, the states will get a total of Rs.**8,55,176** crore in tax devolution. In absolute terms, central tax devolution to states had peaked at Rs 7.6 trillion in 2018-19. It contracted by 15% each over the next two years and it is forecasted to expand by 21% in 2021-22 to Rs 6.7 trillion, which appears to be a credible assessment. The XVFC outlined a very comprehensive assessment of the revenue and expenditure of States and the Union. A staggering 84% of the Rs 4.4 trillion grants for local bodies recommended by the XVFC are conditional on the states setting up SFCs for the coming five-year period, and acting on their recommendations by March 2024.

References

1. Acharya, S. 2005. "Thirty Years of Tax Reforms in India", Economic and Political Weekly, May 14.
2. Ahluwalia, M. S. 2000. "Economic Performance of States in Post-Reforms Period", Economic and Political Weekly, May 6.
3. Anand, M. and Ahuja, R. 2004. "Government Pentions: Liability Estimates and Assumptions" Economic and Political Weekly, June 19.
4. Bagchi, A. 2003. "Fifty years of Fiscal Federalism in India" Working Paper 2, NIPFP, New Delhi.
5. Bird, R. M. 2003. 'Fiscal Flows, Fiscal Balance, and Fiscal Sustainability', Working Paper 03-02, Atlanta: Georgia State University.
6. Boadway, R. and A. Shah (eds). 2007. Intergovernmental Fiscal Transfers. Washington DC: World Bank.
7. Chakraborty. P. 1998. "Growing Imbalances in Federal Finance Relationship", Economic and Political Weekly, Feb.14.
8. Chelliah, R. J. 2001. "The Nature of the Fiscal Crisis in the Indian Federation & Calibrating Fiscal Policy", Published in Money & Finance, ICRA Bulletin.
9. Chelliah, R. J. 2010. Political Economy of Poverty Reduction in India. New Delhi: Sage.
10. Dahlby, B. 2005. Dealing with the Fiscal Imbalances: Vertical, Horizontal and Structural. Toronto: C.D. Howe Institute.
11. Diaz-Cayeros, A. 2006. Federalism, Fiscal Authority, and Centralization in Latin America. New York: Cambridge University Press.
12. Dikshit, A. Viswanathan, R, Raghunandan, T.R. 2007. "Efficient Transfer of Funds for Centrally-Sponsored Schemes", Economic and Political Weekly, June 9-15.
13. Fifteenth Finance Commission Report (2021), Finance Commission, New Delhi.
14. Fourteenth Finance Commission Report (2015), Finance Commission, New Delhi.
15. Garg, S. C. 2006. "Transformation of Central Grants to States Growing Conditionality and Bypassing State Budgets", Economic and Political Weekly, December 2.
16. Hallwood, P. and R. MacDonald. 2005. 'The Economic Case for Fiscal Federalism', in B. Ashcroft, D. Coyle and W. Alexander (eds), New Wealth for Old Nations. Princeton (NJ) USA: Princeton University Press, 96-116.
17. Heredia, E. and Rider, M. 2005. "India's Intergovernmental Transfer System and the Fiscal Condition of the States", Andrew Young School of Policy Studies research paper series no.06.
18. Lahiri, A.K. 2000. "Sub-National Public Finance in India", Published in Economic and Political Weekly, April 29.
19. Lahiri, A.K. and Kannan, R. 2002. "India's Fiscal Deficits and Their Sustainability in Prespective", Discussion paper no.5, NIPFP, New Delhi.
20. Lee, M. 2006. 'Tax Cuts and the Fiscal Imbalance.' Vancouver: Canadian Centre for Policy Alternatives BC Office.
21. Montero, A. 2001. 'Decentralizing democracy: Spain and Brazil in comparative perspective', Comparative Politics, 33, 2, 149-169.
22. Mundle, S. and Rao, M.G. 1992. "Issues in Fiscal Policy", Working Paper No. 12, National Institute of Public Finance and Policy, New Delhi.
23. Musgrave, R. 1959. The Theory of Public Finance. New York: McGraw-Hill.
24. Oates, W. E. 1977. "The Political Economy of Fiscal Federalism", Lexington Books.
25. Panda, P. K. 2016. "Focus on Fiscal Stability". The Hans India, 3rd February.
26. Pinto, B. and Farah, Z. 2004. "India: Why Fiscal Adjustment Now", Policy Research Working Paper 3230, The World Bank.
27. Pisauro, G. 2001. 'Intergovernmental Relations and Fiscal Discipline: Between Commons and Soft budget Constraint', IMF Working Paper No. 1/65. Washington: IMF.
28. Rakshit, M. 2000. "On Correcting Fiscal Imbalance in the Indian Economy: Some Perspectives" Money and Finance, pp 19-58.
29. Rao, B. Gupta, M., Jena, P.R. 2007. "Central Flows to Panchayats A Comparative Study of Madhya Pradesh", Economic and Political Weekly, February 3-9.
30. Rao, M. G. 2000. "Tax Reforms in India- Achievements and Challenges", Asia Pacific Development Journal, 7:2.
31. Rao, M. G. 2002. "State Finances in India: Issues and Challenges", Economic and Political Weekly, August 3.
32. Rao, M. G. 2004. "State Level Fiscal Reform in India", (Edt), Oxford University Press, 2004.
33. Rao, M. G. and N. Singh. 2002. 'The Political Economy of Center-State Fiscal Transfers in India', in John McLaren (ed.), Institutional Elements of Tax Design and Reform. Washington DC: World Bank, pp. 69-123.
34. Rao, M.G. 2003. "Incentivising Fiscal Transfers in the Indian Federation", Publius: Journal of Federalism, 33:4.
35. Rao, M.G. and Singh, N. 2004. "Asymmetric Federalism in India", Working Paper, National Institute of Public Finance and Policy, New Delhi.
36. Rodden, J. and E. Wibbels. 2002. 'Beyond the Fiction of Federalism: Macroeconomic Management in Multi-tiered Systems', World Politics, 54, 4, 494-531.
37. Rodden, J., G. Eskeland, and J. Litvack. 2003. Fiscal Decentralization and the Challenge of Hard Budget Constraints. Cambridge Massachusetts :The MIT Press.
38. Ruggeri, G. C. and R. Howard. 2001. 'On the Concept and Measurement of Vertical Fiscal Imbalances', SIPP Public Policy Paper No. 6. Canada: University of Regina.
39. Shah, A. 2007. 'A Practitioner's Guide to Intergovernmental Fiscal Transfers', in Robin Boadway and Anwar Shah (eds), Intergovernmental Fiscal Transfers. Washington DC: World Bank, pp. 1-51.
40. Sharma, C. K. 2009. 'Emerging Dimensions of Decentralization Debate in the Age of Globalization', Indian Journal of Federal Studies, 19, 1, 47-65.
41. Sharma, C.K. 2011. 'Multilevel Fiscal Governance in a Balanced Policy Environment', The India Economy Review, 8, 1, 90–7.
42. Singh, R. and A. Plekhanov. 2006. 'How Should Subnational Government Borrowing Be Regulated? Some Cross-Country Empirical Evidence', IMF Staff Papers, 53, 3, 426-53.
43. Smart, M. 2005. 'Federal Transfers: Principles, Practice and Prospects', Working paper, Canada: C. D. Howe Institute.
44. Wellich, D. 2000. The Theory of Public Finance in a Federal State. New York: Cambridge University Press.

Atmanirbhar Bharat Abhiyan : Situating New Horizons & Challenges

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Abstract

This paper has explored the recently announced Indian economic stimulus package by the government which is also formally named as Atmanirbhar Bharat or Self-reliant India initiative. Investigation of this government initiative suggests that this initiative is ambitious as well as has the potentiality to address the current Indian economic crisis. However, macro-environmental factors such as society, culture, technology and education will play a crucial role as well as entrepreneurial opportunities deriving from this initiative will determine the success of this government initiative.

Keywords: *Atmanirbhar Bharat, India, Covid-19, Livelihood, Challenges, Employment, Growth*

Introduction

Atmanirbhar Bharat or Self-reliant India is a new mission undertaken by the Indian Prime Minister Narendra Modi in 2020. This mission was first announced during the economic package for COVID-19 pandemic on 12th May 2020. The goal of this mission is to ensure the development of a self-sustained industry with in the country in order to minimise the country's dependency on imported goods or services (Indian Express, 2020). This will help towards high growth of the economy as it is providing major support to the manufacturing industry, which is considered to be the backbone of a nation. This essay will focus on the manufacturing industry of the country.

In order to support the manufacturing industry, the government has also initiated different types of programs for the micro, the small as well as for the medium scale industries. The government is inviting the young and the talented youths with innovative ideas to be a part of this great mission and avail all the facilities like collateral-free loans and many other exemptions so that the manufacturing industries can rebuild their strengths and contribute towards the nation and the people living in the society. Apart from strengthening the manufacturing industry, the mission will also help to produce lots of jobs to the employed, which will create a big positive impact on the economy of the nation.

Vision about the Initiative

The manufacturing industry of a country depends on the infrastructure, technology, economy and market demand. This new mission or initiative by the Indian government is expected to boost the internal industries of every nature such as the manufacturing, agriculture, technology and others. The economic package of ₹20 lakh crore, which is equivalent to US$266 billion is 10% of India's GDP (Indian Express, 2020). Therefore, it is expected that this enormous economic boost will allow the government and the industries to pursue the intended economic and industrial reform. The vision of this initiative is ambitious for a country which is significantly dependent on imported goods. However, the government's intention and the availability of financial resources will stimulate this ambitious cause or initiative.

Objectives

Based on the knowledge gained about this initiative, it can be stated that there are two key objectives of this initiative, and they are:

- To enhance the self-reliance within the country's industries by curbing down the import dependence
- To promote the export of locally manufactured goods in order to gain global supply chain share as well as the market share

This initiative or mission for self-reliant India is also developed based on five pillars, and they are Economy, Infrastructure, System (technology), Demand and Vibrant Demography (TOI, 2020). According to Saraswat and Ghosh (2020), this mission is the extension of already existing government initiative named 'Make in India', which encourages the entrepreneurial initiatives within the country. Saraswat and Ghosh (2020) have also stated that the core idea behind this initiative is to focus on the long- term outcome than infusing the short-term liquidity problem due to the 2 months long lockdown period. The later was followed by the US government as they have announced a US$3 trillion or ₹225 lakh crore relief fund to provide individuals with liquid cash. On the contrary, the Indian government is rather focusing on the transformation of current hardship into an opportunity by providing the required support to the industries (Chauhan, 2020).

Challenges

The announced financial stimulus package is ₹20 lakh crore (US$ 266 billion) which is focusing mainly to drive reform in the domestic manufacturing industry in order to enhance the export out put of the country and minimising the annual import. However, despite being a mission which is showing a systematic approach in terms of financial resource offerings, there are certain associated challenges for this mission or initiative. According to Dutta (2020), this mission has failed to resolve the currently ongoing liquidity issue within the manufacturing industry as the financial support from the government is proposed to be through financial institutions such as banks, RBI recognized credit lending services, rather than direct financial infusion by the government. On the other hand, there is a massive barrier of lack of demand. As lockdown due to the pandemic has impacted the income of the citizens, industries such as retail is experiencing lowered aggregated demand, hence the growth prospects for the manufacturing industry is lower than the expectations.

Criticization by Opposition: After the mission of "Atmanirbhar Bharat Abhiyan"was announced by the Honorable Prime Minister of India, Mr Narendra Modi, there were different criticisms and controversies within the opposition parties. Some of the party leaders have also called the "Atmanirbhar Bharat Abhiyan" to be it as a repackaged version of the earlier 'Make in India' and also claimed that the tagline 'Vocal for Local' to be a new version of the 'Make in India'. The opposition members have criticized the government about the tactics of the utilisation of the government.

Utilization of internal resources: They reacted on how the government enacted the policies and have built the Indian companies and organisations after the creation of "Atmanirbhar Bharat Abhiyan", like, by the utilisation of steel production by SAIL, the utilization of the IITs as domestic engineers, utilizing AIIMS for the purpose of Medical Sciences, defence Research Organisation like the DRDO, HAL for the aviation sector, ISRO photo space Technology and different organisations in the energy sectors like CCL NTPC and GAIL. It has all been seen that some of the opposition members also criticized and suggested the plan to be rephrased as "Fend For Yourself" (Business-standard, 2020).

Budget allotment on Atmanirbhar Bharat Abhiyan Mission: In the mission of Atmanirbhar Bharat Abhiyan the Prime Minister had declared 10% of the GDP of India would be spent on this mission. People say that there is no clear statement about the expenditure that will be done by the end of the current financial year, 2020-21 by the Government of India regarding this project. Apart from this, there had also come many calculations and suggestions against the promise that was made by the Prime Minister. The calculations and suggestions say that rather than 10% after GDP amount, the government will only spend 1% on the Atmanirbhar Bharat Abhiyan mission.

Effect of Lockdown: After the implementation of the lockdown process started across the nation for the betterment of the country, it had severely impacted the Indian economy to a great extent. This situation created uncertainty about the rest of the remaining months for this financial year, 2020-21 and has been estimated that there will be a contraction in the Indian economy which will impact all the sectors and especially the manufacturing industry. In other words, the production will be less in 2020-21 than 2019-20 (Indian Express, 2020).

Considering this scenario, there can be three things that will happen:

- The common people across the nation will cut down their normal expenses because of less income hitting the sale of the manufacturers.
- Looking at the current situation and the economic condition of the nation, it will compel the business houses to either not make any further investments or compel them to postpone their investments in the manufacturing sector.
- The production capacity of the manufacturing industry has decreased because of the government's rule of social distancing.

Effect on GDP: Considering all the factors, there will be an overall major hit in terms of revenue of the government. In other words, to maintain the fiscal deficit (the gap between the earnings of the government and the expenditure), the government has to reduce its overall expenditure in the current financial year. Apart from the above points, there is another factor that shows a clear downfall in the export industry because of the fact that the manufacturing industries are not functioning at its peak level and there are no further new investments in the manufacturing sector.

Student Contribution within the Facilitation of this Initiative

Z India is a country of young as 37% of the country's population belongs to a younger demographic aged between 20 and 44 years (Census India, 2020). Therefore, it is inevitable that younger demographics of people such as the students and people who have completed their higher studies recently will play a crucial part in this mission. As the government is encouraging the domestic manufacturing industry, the development of entrepreneurial ventures in the manufacturing industry will help with the facilitation of this cause. Investments into the innovative entrepreneurial ventures will improve the overall scenario of India's R&D environment and will allow the manufacturing industry to offer products or services which has the potentiality to gain popularity or attractiveness in the global market (Dincer, 2017). In this regard, India has a benefit of affordable labour costs as this will allow the newly formed entrepreneurial ventures by the visionary students or recent pass-outs to produce products or services which are feature-rich as well as has cost-leadership attributes in order to provide India's manufacturing industry competitive advantage in the international market.

Creativity and Talent: The government has given many types of liberties to avail the benefit of this program. The talented youths and young learners can come up with all different types of their creativity, which may contribute towards the development of the manufacturing industry.

Facilities for the Youth: In order to do this and encourage the youth and the learners the government has announced and allotted Rs.50,000 crore for the MSMEs via Fund of Funds (FoFs). To boost up the micro-units, the government has announced more funds from Rs.25 lakhs to Rs.1 crore (Economictimes, 2020).

Opportunity for the Youth: In order to give more facility to the MSMEs, the limit of thetenderhasbeenincreasedtoRs.200 crore and till this amount any tenders will not be considered as a global tender. This facility has made an MSMEs complete more number of tenders. The comment has also changed its definition about the small Enterprises where investment up to Rs.10 crores and turnover up to Rs.50 crores will be considered as small Enterprises. This generates great opportunities for the young generation to enter as a start-up. In order to encourage the youth, the government has also made different policies so that they can use their talents and enter as a micro or small Enterprises as a Startup.

Involvement of the Young Learners: The young generation can take a lot of advantages which has been declared in the plan of Atmanirbhar Bharat Abhiyan scheme. To come up as a Startup the government has liberalized the process of the loan. In this process youth with talent and innovation can enter into the manufacturing industry with easy loans from banks. As the Atmanirbhar Bharat Abhiyan says, for taking loans, there will not be any collateral for the person who is taking the loan (Nenow, 2020). The youth and young learners take the opportunity and start their own Ventures as a small scale industry into the manufacturing sector. Young talents can identify small requirements, and using their creative brains can start their own manufacturing business by taking advantage of this scheme (Rubio, 2018). This will help the nation to be self-dependent, and with the government's help, the prices of the finished products will be under control which in turn will to contribute to more sales and getting more businesses

Government Policies

According to Devi (2020), the currently ongoing economic crisis triggered by the COVID-19 pandemic is similar to the 1991 Indian economic crisis and during which the Indian economy had experienced a paradigm shift as the country embraced globalisation. Therefore, in order to overcome the current economic crisis, the government will again be required to play a critical role in economic reform. The announced Atmanirbhar Bharat or Self-reliant India is, as a result, a positive step forward for the Indian economy. However, Devi (2020) argued that the Indian government has to simplify the industrial regulations in order to promote entrepreneurs and investors to enter the manufacturing industry. Furthermore, Indian R&D environment is also historically criticized by the scholars hence the government has to form new supporting policies in order to increase the R&D expenditure as lack of focus in the in-house or domestic R&D has allowed the Chinese smartphone manufacturers to enter the country's market (Gurnaney and Khan, 2020).

The policy includes the below-specified facilities:

Ease of Doing Business for MSMEs: As the micro-industry, the small scale industry and the medium enterprises contributes to the most dynamic as well as

the vibrant part of the contribution to the GDP, they have been given many facilities so that they can start and do business at ease as these sectors will act as a backbone towards the economy of the nation (SME and sustainability profitability, 2020).

Measures by Reserve Bank of India

- Any kind of reduction will be made on the basis of 'Cash Reserve Ratio' which will help in more cash liquidity playing in the market.
- Under the 'Marginal Standing Facility' limit of Banks 'borrowing overnight will be increased, which will help the entire banking system to gain additional Rs.1,37,000 crores of liquid money.

Facility to the business houses: The manufacturing industry has got a big hit because of the lockdown. In order to cope up and recover the situation, the government had made the following changes to facilitate the MSMEs:

- All kinds of business loans will be provided including the MSMEs app completely collateral-free and automatic processing of loan will be done up to Rs.3 lakh crores so that they can all of their operational liabilities and buy their required raw materials to start their business again which had been affected by the COVID-19 virus, and this money are provided to the manufacturers under the scheme of collateral-free loan
- Emergency credit line to all kinds of business houses including the MSMEs from banks as well as NBFCs

EPF Support for Business Houses & Workers: Apart from the employees, the government has also given the facility of certain kind of relaxation today employers which include:

- The statutory contribution of PF for both employees as well as for the employers will be reduced to 10% which was earlier set to 12% (Lexology, 2020)
- This plan will be under PM Garib Kalyan Package and will be only eligible to the workers or the employees who do not fall under the 24% EPF support (Lexology, 2020).

Supports related to Companies: Apart from all other facilities, the government has also provided different kinds of relaxation to the companies. These relaxations are in respect to the compliances, and are:

- The time that has been allotted for conducting all kinds of board meetings has been increased to 60 days, and the provision has been extended till September 30, 2020
- In case the need for any kind of Extra-ordinary general meetings, it is allowed butneedstobedonetw ovideoconferencesorwiththeprovisionofthee-voting system or any other simple ways of voting processes.

Role of Society, Culture, Education and Technology

According to Peterson (2017), civic society plays a critical role in the economic development as a reduction in poverty or economic hardships within the society and enhancement in the income of the individuals in the society increases the purchasing power. The increased purchasing power of the individuals or consumers as a result increases the circulation of financial resources in the market as consumers engage into more purchase activities. As consumers are the part of the society, it is inevitable that society will play a critical role in the future of Indian economic growth and the success of this Atmanirbhar Bharat initiative.

Cultural factors determine the consumer behaviour or consumer attitude and which as a result determines the success and failure of certain products or services in market. Griffin (2018) argues that cultural environment plays a potential competitive advantage for an economy as culture drives various aspects such as the customer service, innovation, behavior and soon. Therefore, in this case of Atmanirbhar Bharat initiative the cultural environment of India will play a crucial role in the development of domestic manufacturing industry as this industry will be required to identify the consumer requirements or demands which are driven by the cultural values.

Education is another important factor for this Atmanirbhar Bharat initiative because education such as technological know-hows or knowledge, industry knowledge, market knowledge will allow the industry to attain their intended goals. Furthermore, knowledge and skills of the workers who will be working in the manufacturing industry will play a determinant role in the future economic growth (Astakhova *et al.* 2016). As educated workers are tend be more skilled, education will play a crucial role in the efficiency of the manufacturing industry in the attainment of Atmanirbhar Bharat initiative goals.

As the author is focusing into the manufacturing industry, technology is an integral part for this industry to attain the goals or objectives of Atmanirbhar Bharat initiative. According to Erumban and Das (2016), technology allows the manufacturing firms to carry out research and development (R&D) and develop or produce products or services which addresses the customer requirements efficiently. Hence, technology will also play crucial role in the attainment of Atmanirbhar Bharat initiative goals.

Role of Entrepreneurship and Start-up

According to Prasetyo (2019), while presence of established business organisations or multinational companies conveys the success of an economy, development of an economy depends on the opportunities for entrepreneurial ventures or startups to thrive. Therefore, in similar manner the future growth of the Indian economy and the success of Atmanirbhar Bharat initiative are heavily dependent on the future prospects for the entrepreneurship or startups. As previously discussed, Atmanirbhar Bharat initiative is encouraging the development of entrepreneurial ventures and startups within the country in order to become suppliers for larger organisations minimizing the need for imported goods or services. Moreover, entrepreneurial establishments develop itself on the innovation or innovative ideas which disrupts the market and develops new products or services (Prasetyo, 2019). Therefore, entrepreneurial establishments will play a critical role as formation of new products and a service which addresses both domestic and global demands will deem incredibly important for the attainment of Atmanirbhar Bharat initiative goals.

Another big initiative has been displayed by one of the big entrepreneurs of Reliance, led by Mr. Mukesh Ambani. In order to cope up with the situation of covid-19 weather Nation had a scarcity of the availability and production of PPE (Personal Protective Equipment) kits. Reliance had recently acquired a textile company which is called Ashok Industries. The newly acquired textile company was completely transformed into the manufacturing of PPE kits and is contributing to one fifth of India's total production. This is a major contribution of Reliance, as India used to import these PPE kits. This contribution of Reliance is a part of Atmanirbhar Bharat Abhiyan and prevented India from importing (Kuckertz, et al., 2020).

Conclusion

In conclusion, this essay has explored the recently announced Indian economic stimulus package by the government which is also formally named as Atmanirbhar Bharat or Self-reliant India initiative. Investigation of this government initiative suggests that this initiative is ambitious as well as has the potentiality to address the current Indian economic crisis. However, macro-environmental factors such as society, culture, technology and education will play a crucial role as well as entrepreneurial opportunities deriving from this initiative will determine the success of this government initiative.

References

1. Astakhova, K.V., Korobeev, A.I., Prokhorova, V.V., Kolupaev, A.A., Vorotnoy, M.V. and Kucheryavaya, E.R., 2016. The role of education in economic and social development of the country. *International Review of Management and Marketing*, 6(1S).
2. Business-standard, B., 2020. *What Is Atmanirbhar Bharat Mission, Latest News, Photos, Videos*. [online] Business Standard. Available at: https://www.business- standard.com/about/what-is-atmanirbhar-bharat-mission
3. Census India 2020. Census Of India: Age Structure And Marital Status. Censusindia.gov.in. Available at: https://censusindia.gov.in/census_and_you/age_structure_and_marital_status.aspx
4. Chauhan, A., 2020. Who Said India'S Covid Stimulus Package Is Way Less Than Others. The Economic Times. Available at: https://m.economictimes.com/markets/stocks/news/who-said-indias-covid-stimulus- package-is-way-less-than-others/articleshow/75848456.cms
5. Devi, P., 2020. COVID-19: Review in the Context of Indian Economy. Purakala with ISSN 0971-2143 is an UGC CARE Journal, 31(46), pp.133-141.
6. Dincer, I., 2017. Importance of research, innovation and commercialisation for technological success. *International Journal of Research, Innovation and Commercialisation, 1*(1), pp.8-22.
7. Dubey, S. and Verma, N., 2020. Regional Development of MSME In India. *Studies in Indian Place Names*, *40*(3), pp.7434-7443.
8. Dutta,P.,2020. Not Enough: Why Covid-19 Package Is Being Criticised India Today. Available at: https://www.indiatoday.in/news-analysis/story/covid-19-package-economic-slowdown-rs-20-lakh-crore-1680016-2020-05-20
9. Erumban, A.A. and Das, D.K., 2016. Information and communication technology and economic growth in India. *Telecommunications Policy*, *40*(5), pp.412-431.
10. Economictimes, 2020. *Nirmala Sitharaman: Rs 20 Lakh Cr Atmanirbhar Bharat Abhiyan Stimulus To Aid Labourers, Middle-Class, Msmes And Nbfcs - ET Government*. ETGovernment.com. Available at:
11. https://government.economictimes.indiatimes.com/news/economy/nirmala- sitharaman-rs-20-lakh-cr-atmanirbhar-bharat-abhiyan-stimulus-to-aid-labourers- middle-class-msmes-and-nbfcs/75719723
12. Griffin, K., 2018. Culture and Economic Growth: The State and Globalization 1. John Hicks: His Contributions to Economic Theory and Application, 287.
13. Grodach, C., O'Connor, J. and Gibson, C., 2017. Manufacturing and cultural production: Towards a progressive policy agenda for the cultural economy. *City, culture and society*, *10*, pp.17-25.

14. Gurnaney, T. and Khan,D.,2020. What Went Wrong With The Indian Handset Makers And How Can It Be Fixed-ET Telecom. Available at: https://telecom. economictimes.indiatimes.com/ news/what-went-wrong-with-the- indian-handset-makers-and-how-can-it-be-fixed/65381732.
15. Hart, O.E. and Halden, R.U., 2020. Computational analysis of SARS-CoV-2/COVID- 19 surveillance by wastewater-based epidemiology locally and globally: Feasibility, economy, opportunities and challenges. *Science of The Total Environment*, p.138875.
16. Hirscher,A.L.,Niinimäki,K.andArmstrong,C.M.J.,2018. Socialmanufacturinginthe fashion sector: New value creation through alternative design strategies?.*Journal of cleaner production*, *172*,pp.4544-4554.
17. Indian Express, 2020. What Is 'Atma nirbhar Bharat Abhiyan' Announced By PM Modi. The Indian Express. Available at:
18. https://indianexpress.com/article/india/atmanirbhar-bharat-abhiyan-pm-modi- economic-package-6406850
19. Indian express, 2020. *Explainspeaking: Why Atmanirbhar Bharat Abhiyan Economic*
20. *Package Is Being Criticised*. The Indian Express. Availableat:
21. https://indianexpress.com/article/explained/explainspeaking-why-the-atmanirbhar- bharat-abhiyan-economic-package-is-being-criticised-6414905
22. Kuckertz, A., Brändle, L., Gaudig, A., Hinderer, S., Reyes, C.A.M., Prochotta, A., Steinbrink, K. and Berger, E.S., 2020. Startups in times of crisis–A rapid response to the COVID-19 pandemic. *Journal of Business Venturing Insights*, p.e00169.
23. Kusiak, A., 2018. Smart manufacturing.*International Journal of Production Research*, *56*(1-2), pp.508-517.
24. Lexology, 2020. *Benefits And Exemptions Provided By The Government Of India Under Atmanirbhar Bharat Scheme | Lexology*. Available at:
25. https://www.lexology.com/library/detail.aspx?g=90f8bea8-aec6-401b-8373-140df6c90e2a
26. Livemint, 2020. *The Atmanirbhar Abhiyan From A Technologist'S Viewpoint*. Livemint. Available at: https://www.livemint.com/opinion/online-views/the-atmanirbhar-abhiyan-from-a-technologist-s-viewpoint-11591957065652.html
27. Nenow, 2020. *Assam Msmes Most Benefited Under Atmanirbhar Bharat Abhiyan*. NORTHEAST NOW. Available at: https:// nenow.in/north-east- news/assam/assam-msmes-most-benefited-under-atmanirbhar-bharat- abhiyan.html
28. Peterson, E.W.F., 2017. The role of population in economic growth. *SAGE Open*,*7*(4), p.2158244017736094.
29. Prasetyo, P.E., 2019. Role of Entrepreneurial Culture as the Driver of Economic Growth. International *Journal of Economics and Financial Issues, 9*(3), p.237.
30. Rubio,F.,2018.Language education in elementary schools: Meeting the needs of the nation. *Foreign Language Annals*, *51*(1), pp.90-103.
31. Saraswat, V. and Ghosh, A., 2020. Modi'S Atmanirbhar Package Paves Way For
32. Make In India 2.0 In Post-Covid World. The Print. Available at:
33. https://theprint.in/opinion/modis-atmanirbhar-package-paves-way-for-make-in-india- 2-0-in-post-covid-world/434929/
34. Shah, S., 2020. *Role of Start-Ups And Innovators In Atma Nirbhar Bharat Abhiyan*. IndiaIncGroup. Available at: https:// indiaincgroup.com/role-of-start-ups-and- innovators-in-atma-nirbhar-bharat- abhiyan/#:~:text=India's%20path%20to%20self%2Dreliance&text=Indian%20start%2 Dups%20and%20innovators,the%20success%20of%20the%20mission.&text=Start
35. %2Dups%20in%20sectors%20like,the%20charge%20in%20the%20mission.
36. Simpson, T.W., Williams, C.B. and Hripko, M., 2017. Preparing industry for additive manufacturing and its applications: Summary & recommendations from a National Science Foundation workshop. *Additive Manufacturing*, *13*, pp.166-178.
37. SME, C. and sustainability profitability, &., 2020. 'Atma Nirbhar' Msmes: How Govt Measures Will Enable Them For Long-Term Sustainability, Profitability. The Financial Express. Available at:
38. https://www.financialexpress.com/industry/sme/cafe-sme/msme-eodb-how-atma-nirbhar-bharat-abhiyan-will-help-msmes-to-be-sustainable-and-profitable-in-the-long-term/1972764/
39. TOI, 2020. Atmanirbhar Bharat: PM Modi Calls For Self-Reliant India, Lays Down 5 Pillars | IndiaNews-TimesOfIndia. TheTimesofIndia. Available at:
40. https://timesofindia.indiatimes.com/india/pm-modi-lists-5-pillars-of-self-reliant- india/articleshow/75700425.cms
41. Workman, D., 2020. *India'S Top 10 Imports*. World's Top Exports. Available at: <http://www.worldstopexports.com/ indias-top-10-imports/

Evolution of Economic Census in India

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Abstract

Economic Censuses focus on the whole economy and it's all establishments which involved in economic activities and their every type of detailed information which would be needed for policy making and preparing of developmental plans for whole country as well as all the sectors of the economy. The economic census is expected to be executed generally and it should not exceed five years. Economic censuses are playing a very important role in various aspects in the economy. It provides information on operation and other characteristics of the units involved in economic activities that is why in India time to time we are conducting, collecting and analysing the economic census and using it according to the needs. Till the date from first to seventh economic census helped us in one or another way to get overall database, numerical information of the economic activities whatever carried out in the whole country. The Seventh EC is the latest census being conducted since 2019. For the first time whole census is collecting on the digital platform. From Seventh EC onwards, it will be held in every three years.

Keywords: *Economic Census, Establishment, Agricultural, Non-agricultural, Statistics, Unit, Economic Activity, Production, Service, Growth, Employment, Indian Economy*

Introduction

A well-grounded and strong database is very important for the calculation of a nation's growth. A census is an adequate method of survey that helps us to get the numerical information of any system. Therefore, Economic Census (EC) is the collection of statistical data from all the economic units involved in various productive activities in the country.

EC is an instrument to heighten our perception of the economic system and make strategies and policies more significant and beneficial. It also improves our future outcomes and findings better. From time to time collecting the economic census helps us to understand and measure the overall valuable sources of activities, employment, occupation, nature, and their diversities. In most developing countries like India, economic activities providing various development opportunities. and the economic census helps us to know these units and their contribution to the economy.

In India, all states and union territories involve with the great goal to provide statistical information in the conducting of the EC. The collection of the database EC is one of the challenging tasks. Indian economy is classified into two sectors one is the Agriculture sector and another one is the Non-agriculture sector. In these sectors, we can get numerical data of the Agriculture sector easily. But the collection of numerical data of the non-agriculture sector is a little tough job that has its significance in the development of the economy. Therefore, the conducting of the EC to collect the database of this sector plays a very important role in the economy.

History of EC

An Indian EC is the census of the whole Indian economy which estimating and measuring the all-entrepreneurial units of the nation comprised in all economic activities. So, it is very important to study about the performance of the economic census in all dimensions.

In 1925 the Economic Enquiry Committee was established under the Chairmanship of Shri Visweswarayya and further in 1934, the Bowley-Robertson Committee established, stood reliable for the government's determination to set up an Inter-Departmental Committee (IDC) with the Economic Adviser to the Government of India as the chairperson. The IDC proposed the construction of a CSO for coordination, the foundation of a statistical cadre, organization of State Bureaus at State level offices, and sustenance of crucial database for the whole country. Bowley and Robertson Committee assigned research to investigate the probability of executing economic censuses in India. The first corresponded strategy was formulated by the erstwhile CSO, GoI, by inaugurating a planned strategy 'Economic Census and Surveys' in 1976. The scheme organizing overall country and the census of all economic activities (except crop production and plantation) followed by comprehensive specimen surveys of unorganized units of various sectors of non-agricultural establishments in a proper description during the successive economic censuses.

In India, the first EC was conducted in 1977 in collaboration with the States/UTs. After that period the economic census is conducting to collect the database of the non-agriculture sector. But the scope was constrained. The next censuses were executed in the years 1980, 1990, 1998 and 2005. The sixth and recent census was administered in the year 2013.

Importance of the EC

The EC of India is a considerable report EC is the detailed record of all non-farm economic units found within the geographical border of India. The EC gives complete information on several functional and structural variables of all the economic units which involved in economic activities and establishments. The Census also contributes precious insight into geographical locations of any type of economic activities, structures, works engaged in those establishments and the type of ownerships, etc. of all economic units in the country. The information collected during economic census are useful for developmental planning and policy making at Central, State and grassroots levels. EC also donates an upgraded survey structure for enterprise to collect prepare detailed samplings and comprehensive analysis of various economic divisions in the country. In belief of the quick transitions that happen in the unorganized sector of non-agricultural economy.

The significant motive of conducting the EC is to formulate a structure for follow up analyses planned to acquire more detailed information of all the economic units which involved in not only focusing on different economic activities but also in perspective of the speedy changes that result in the unorganised sectors of non-agricultural economy. The huge mobility of minor units and also on account of openings of new units, it is essential to prepare the time to time frame to get accountability by conducting the economic census periodically.

Table 1: Summary of the EC of India

Sl No	Economic Census	Year
1	First EC	1977
2	Second EC	1980
3	Third EC	1990
4	Fourth EC	1998
5	Fifth EC	2005
6	Sixth EC	2013
7	Seventh EC	2019

Source: MOSPI

First EC

In India, the First EC was planned to conduct during 1976. So government launched the scheme called Economic Census and Surveys. In 1977 the Central statistical organization with the collaboration of the Directorate of Economics & Statistics (DES) conducted the first Economic Census. This census was conducted all over India except Lakshadweep. Data were collected for all the establishments, descriptive activities, number of employees, etc.

The Reports established on the data of Economic Census 1977 at covering all India were prepared and published. State-wise all important activities and extent category of workers were also prepared.

Based on the structure given by the First EC, related and well defined sample surveys were conducted during 1978-79 and 1979-80 enclosing the establishments which were involved in manufacturing, hotels & restaurants, transport, trade, storage & warehousing, and services. The small establishments (which have less than six workers) and own account establishments were enclosed by the National Sample Survey Organisation of its 33rd and 34th rounds, the bigger establishments were enclosed through specific surveys by the Central Statistical Organization. The economic census was pursued by accurate surveys in 1978-79 and 1979-80 covering all respective establishments. And detailed information about employment, capital structure, the value of input and output, etc. were obtained and reports providing all significant factors on each of the identical subjects were published.

The coverage of the first EC was limited only to non-agricultural enterprises.

Second EC

The Second EC was operated in 1980 with the house-listing systems of the 1981 Population Census. The second economic census was executed with a perspective on resources, workforce, finance, and duration. The extent and scope of this census were broadened because it concentrated both agriculture and non-agricultural establishments which involved all economic activities excluded those activities which involved crop production. The second economic census covered all States/UTs (excluded Assam- because the population census was not covered in this state).

The data on area of enterprises, nature of economic activity held on, character of operation, category of ownership, use of energy, total the number of employees connected with its hired units, and number of male and female labourers also collected.

The outcomes of the EC, were vastly used in planning. And also surveys were supervised to collect data of the units which involved in the activities like-Transport, Hotels & Restaurants, Services and storage & warehousing, Unorganized Manufacturing, Trade Medical, Educational, Cultural & other services etc.

The data on location of units, nature of economic activities brought out, description of operation, kind of ownership, social association of owner, usage of power/fuel, entire number of workers regularly employed with its hired unit and number of male and female workers were also collected. The elements on which data were collected in second economic Census were as similar as the data collected in the First Economic Census.

The second EC was revealed that 18.14 million enterprises were found in the country. 11.19 million (61%) enterprises were located in the rural areas whereas 7.22 million (39%) were located in the urban areas. Total 53.58 million people were working in these enterprises.

First stage enterprises posed obstacles in the collection of proper data due to changes in urban structure. All this information was utilized to perform sample surveys after 1987-88.

Third EC

The Third EC was collected in the year 1990 and it was combined with the house listing operations of the 1990 Population Census. The size and scope of the EC was confirmed by a Technical Advisory Group illustrated by the Planning Commission, National Sample Survey Organization, Computer Centre of the Department of Statistics, Reserve Bank of India, Office of the Registrar General and Census Commissioner, Ministry of Industry, Ministry of Labour, State Directorates of Economics & Statistics and institutions.

The Third EC coverage was similar to the Second EC. All states and union territories were covered but Jammu and Kashmir state was excepted for this survey because population census 1991 was not covered in this state.

The Third EC was collected under the broad categories namely (i) Agricultural own account enterprises. (ii) Agriculture establishments. (iii) Non-agricultural own account enterprises. (iv) Non-agricultural establishments.

The characteristics of the Census yields at all over India, for agricultural and non-agricultural sectors separately discussed.

The Third EC had revealed that there were 25 million and represents in the country excluding Jammu and Kashmir engaged in different economic activities other than crop production and plantation with 72.08 million persons working in them. The 14.72 million enterprises are where located in the rural areas and the remaining 10.28 million and represents where located in the urban areas.

The Fourth EC

The Fourth EC was conducted in the year 1998. To meet the demand of several user bureaus for the collection of data on unorganized sectors of the economy and assessing the quality of a vast percentage of small departments which are subjected to huge rates of mobility and mortality, this census was followed by the updated framework. In 1996 this economic census was planned.

A technical advisory group constituted by the GoI for finalizing scope and coverage of the fourth economic census The TAG Considered the data of different Ministries / Department of Central and State Governments and recommended the items of information to be collected.

The overall responsibility of the collection of data for organisation and collecting of the economic census laid on the CSO. And the DESs of all the States/ and UTs were responsible for collection of data, the field work and formulating the report.

The Fourth EC was executed in all state union territory. Establishments and workers found within the country. All enterprises which were involved in the economic activities production or distribution of goods or services were counted. And those all units which involved in non-agricultural activities were also covered, (excluding crop production and plantation activities).

Total 30.35 million enterprises were found in the country. 17.71 million (58.3%) enterprises found in rural areas

whereas 12.48 million (41.7%) found in the urban areas.

The growth rate of enterprises during 1990-98 was 2.38% per year. Total number of employment was 83.30 million in this about 39.90 million (47.9%) were in rural area and 43.40 million (52.1%) were workers found in urban enterprises.

Originally it was proposed to be completed by April 1998 but because of general lok sabha elections the field work of the Fourth EC was postponed and again initiated from 23 March 1998.

The Fifth EC

The Fifth EC was executed in 2005 encompassing all activities except agricultural crop production. The comprehensive task for organization and handling of Economic Census laid with the CSO. The DESs of all States and UTs were made to collect a proper database with a suite framework and formulate the report about their respective states.

There was no modification in the scope of the Fifth EC as correlated to the Fourth EC. Economic Census gives good coverage for factual surveys and provides essential enterprises data to frame new development plans for unorganized sectors of the economy.

During Fifth EC, numerous seminal efforts and improvements were attempted to expand the scope of data and stimulated the simple procedures and credibility of the data.

The major purpose of the Fifth EC was to formulate a shape of all "establishments" committed in several economic activities which provide as a main sources for executing comprehensive surveys correlating to particular activity of the economy. To enhance the utilization of the information obtained and to expand the accuracy of data developed fresh enterprises were introduced allowing to formulate schedule of establishments hiring of employees 10 or more etc. ICR technology also used for the first time in fifth economic census data collection. To prevent feasible blunders in transcription of the information.

Total number of establishments were 833898. In this 457950 (54.92%) were in rural area and 375948 (45.08%) were in urban area. Total 2244817 number of people employed in all the establishments, 1111460 (49.51%) were employed in rural areas and 1133357 (50.49%) people were employed in urban areas. The Fifth EC was conducted in all the States and Union Territory of the India.

Sixth EC

The Sixth EC was administered in all the states and UTs of the country in the year 2013-14. The EC Unit of the Economic Statistics Division, CSO, MOSPI, GoI were provided all the framework whatever needed for the collection of data. The Sixth EC was conducted in all the States and Union Territories of the country in collaboration with State/UT Governments.

The Sixth EC directs to give information on quantity of establishments and figure of workers, activity wise, including all the sectors except crop production, plantation, public administration, defence and mandatory social security of the country. Which were including volume of all over India, States, districts, and at village/ward levels for inclusive estimation of the pattern of the economy.

The coverage of sixth EC was same as previous census. The method observed since the Second EC to enclose all agricultural activities eliminating crop production and plantation was proceeded in this EC. The detailed information about crop production plantation is covered in the Agricultural Census since 1970-71. If there is non-agricultural activities units and engaged in public administration, defence and compulsory social security activities were eliminated in Sixth EC, as such data exists with the Government and also because of the problems encountered in collecting data from those establishments in the time.

In sixth EC, the Data for handicraft/handloom establishments were covered for the first time. Total 58.5 million establishments were found to be in operation out of 77.6% were engaged in non-agricultural activities. Approximately 51.71% people were working in rural areas and 48.29% people were working in urban areas.

Table 2: Census-wise Growth rate in Establishments

Sl No	Year	No of Establishments	Growth Rate (%)
1	1980	18414339	-
2	1990	25002200	35.78
3	1998	30348900	21.38
4	2005	41253630	35.93
5	2013	58495359	41.72

Source: MOSPI

Throughout an intermediate period of about 8 years between Fifth EC and Sixth EC, the number of total establishments in the country boosted from 41.25 million in 2005 to 58.5 million in 2013. And also 41.79% of growth registered during the this period. This growth was 38.37% seen in rural areas and 47.13% seen in urban areas.

Table 3: Census-wise Growth rate in Employment

Sl No	Year	Employment	Growth Rate (%)
1	1980	53582900	
2	1990	72075700	34.51
3	1998	83299500	15.57
4	2005	95054007	14.11
5	2013	131293868	38.13

Source: MOSPI

The Sixth EC was executed from January, 2013 to April, 2014 in all the States and UTs of the India.

In sixth EC, many positive growth rates were found in establishments. Identical tendencies were identified in employment except for Delhi where it dropped by 11.20% compared to Fifth EC. Distribution of agricultural and non-agricultural establishments by size class of employment of the establishments and broad activity wise total no and percentage of persons employed in establishments with eiight or more persons employed sector wise in the Sixth EC is presented in Table 4.

Table 4: Distribution of agricultural and non-agricultural establishments by size class of employment of the establishments

Activity	Size class of establishments										
	1-5	6-9	10-14	15-19	20-24	25-29	30-99	100-199	200-499	500 or more	All Classes
	Number of establishments										
Agricultural	12947161	136652	32610	3060	3265	760	7582	315	114	54	13131573
Non-agricultural	42913125	1695049	337923	123168	77176	41071	140885	20685	10527	4177	45363786
Combined	55860286	1831701	370533	126228	80441	41831	148467	21000	10641	4231	58495359
	Percentage distribution of establishments										
Agricultural	98.60	1.04	0.25	0.02	0.02	0.01	0.06	0.00	0.00	0.00	100.00
Non-agricultural	94.60	3.74	0.74	0.27	0.17	0.09	0.31	0.05	0.02	0.01	100.00
Combined	95.50	3.13	0.63	0.22	0.14	0.07	0.25	0.04	0.02	0.01	100.00

Source: MOSPI

Seventh EC

The Seventh EC is the latest census being conducted since 2019. For the first time whole census is collecting on the digital platform. The seventh EC balances, the coverage can be expanded to include similar sectors from the eighth EC onwards. It was decided by Government of India that from Seventh EC onwards, it will be held in every three years. (Business Line, 2019).

All households/ establishments engaged in non-agricultural economic activities including construction, except public administration, defense and compulsory social security are proposed to be covered in the Seventh EC.

All households and establishments are proposed to be covered in the seventh EC. Enumeration blocks of Population Census 2011 will form the primary geographical unit.

One of the main aims of the EC is preparation of a National Business Register which can be linked with existing databases at the central and state government levels. It is also proposed to have in place a threshold turnover in monetary terms for such households/ establishments for inclusion in the coverage of the Census.

Establishments with fixed structures will be covered at the place of their operation. However, economic activities that are carried out without any fixed structures will be covered at the place of the residence of the owner. All types of establishments (perennial, seasonal and casual), existing on the date of census, although may not be in operation on the day due to certain reasons, are also proposed to be covered in the census.

The Government of India has extended its period due to covid-19. (Economic Times, 2020)

Conclusion

Economic Censuses focus on the whole economy and it's all establishments which involved in economic activities and their every type of detailed information which would be needed for policy making and preparing of developmental plans for whole country as well as all the sectors of the economy. The economic census is expected to be executed generally and it should not exceed five years. Economic censuses are playing a very important role in various aspects in the economy. It provides detailed information on operation and other characteristics of the units involved in economic activities that is why in India time to time we are conducting, collecting and analysing the EC and using it according to the needs. Till the date from first to seventh EC helped us in one or another way to get overall database, numerical information of the economic activities whatever carried out in the whole country. The Seventh EC is the latest census being conducted since 2019. For the first time whole census is collecting on the digital platform. From Seventh EC onwards, it will be held every in three years.

References

1. Business Line (2019), Economic census to be held every three years, September 09. Available at: https://www.thehindubusinessline.com/economy/economic-census-to-be-held-every-three-years/article29368573.ece
2. Economic Times (2020), Govt extends 7th Economic Census data collection period by six months, April 08. Available at: https://economictimes.indiatimes.com/news/politics-and-nation/govt-extends-7th-economic-census-data-collection-period-by-six-months/articleshow/75047179.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
3. MOSPI (2016), All India Report of Sixth Economic Census, Ministry of Statistics & Programme Implementation, Government of India, New Delhi.
4. MOSPI (2019), Vision document for conduct of the 7th Economic Census (EC), Ministry of Statistics & Programme Implementation, Government of India, New Delhi.

Indian Higher Education System: Contemporary Challenges

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Abstract

Education is the fundamental right of every child upto the age of fourteen years as it is been laid in our Indian constitution. But if we see our Indian higher education system, various loopholes persist. These loopholes are then become the huge challenges for the students to grasp education according to their interest. This becomes a challenge too for the teachers to impart education to the students in many ways. The challenges which are also the impeding factors in the growth and development of higher education system in India have been discussed in this research article. These contemporary challenges need to be discussed and addressed from the grass-root level to higher educational level.

Keywords: *Contemporary Issues, Higher Education, Indian Educational System.*

Introduction

It is like a big dream for many aspirants who are living especially in remote and rural parts of India to pursue higher education. As it is not a hidden fact that poverty is still very persistent in many parts of our country where people don't even get a time of meal for survival. In such a situation, the problem of imparting even the basic education lacks. Those who somehow complete their elementary education are not able to pursue for secondary and higher secondary education. Although, there is the provision under 'Article-21A' of our Indian constitution for free and compulsory education for the children upto fourteen years. But due to the lack of proper implementation of the policy and unfelt importance of education by the parents, accessibility of education is not grasped by the children. The children of migrant workers also face the same problems when they migrate to the urban cities in search of food for survival.

The students, who anyhow succeed to complete their schooling, face the problems of getting admissions in higher education. Financial crunch, reservation system, technology-based education which cannot be accessed by everyone, recruitment of merely qualified teachers etc. are some of the issues that are faced by the students in our country. Some specific contemporary issues in Indian higher education system are discussed here.

Specific contemporary issues in higher education system in India

Financial Crunch: To impart the education to everyone, the government has to play a pivotal role regarding quality of education, infrastructure, recruitment procedures etc. But due to some factors, government fails to incorporate above mentioned criterion which hampers the education most. One of the most prominent factors which inhibit the progress is lack of financial resources. The recent illustration can be quoted of COVID- 19 situation in which not only a particular country but the whole world is suffering with the financial crunch. The economy has been badly affected which in turn has affected our educational system. In such a situation where it becomes difficult to feed the needy, it becomes pathetic condition for the government to put attention towards the educational sector.

Reservation System: India is struggling with the reservation system much before the independence. When reservation comes to the matter of education, it ruins the career of students at almost all the levels. Reservation system means a set pattern of percentage which is prescribed by our Indian constitution for the socially and educationally backward categories. According to the constitution 15% is reserved for Scheduled Castes categories, 7.5% is for Scheduled Tribes and 27% is

reserved for Other Backward Castes (OBCs). It means in total 49.5% seats are reserved for aforesaid categories. Rest 50.5% is for General categories. It has been seen in many of the colleges / institutions / universities that the seats reserved for the reserved categories' students remain vacant. There may be so many reasons behind it such as the applicant applied might have taken admission any elsewhere, he/she might have admitted to other stream, not inclined towards the particular discipline, received admission in reputed colleges / institution / universities etc. It becomes painful for those who have applied through general categories and they don't get admissions in their respective fields they wanted to get into. Today's era is a cut- throat competition in which everyone wants to supersede. Those who succeed are considered to be the champions and this levies the hardest responsibility on the shoulders of those who fail. These failures, many a times, lead to the suicidal tendencies among youth.

Lack of education based on technology: The government is stressing more on technological use for imparting education among the students during the pandemic arisen. But the fact is that all the students cannot really afford the cost of technological equipment required for their education. In a survey conducted by anonymous shows the fact that the cost of laptops, tablets (mini-laptops), I-pods, mobiles etc. has arisen frequently. As the entire classes, whether schools / colleges / institutions / universities are being taken on such equipments, the reliance on digitalization mode has increased steeply. But it's not at par with each student to grasp education through digital mode. Due to worldwide COVID-19 situation, most of the daily wage workers have migrated to their villages with their respective families. In turn, their children have been dropped out from the school and even colleges. So, their education has been drastically affected. In the village, the children are involved helping their parents in agricultural activities and mobile networks, satellite connection is very poor. Due to which the migrated students are not able to study. These are the issues related to the digitalization mode for imparting education among students at all levels.

Recruitment of merely qualified teachers: Many times, we have seen the sting operation of the schools situated in some districts of Uttar Pradesh, Bihar, and Jharkhand that the teachers do not even possess the basic knowledge of education. Even at various colleges and universities, candidates who have merely qualified the eligibility criteria for selection are recruited. Such kind of recruitment affects our educational system in a very negative manner as they hardly possess the knowledge about the subject matter. When the question comes for clarification, it becomes really hard for such teachers to sort it out. The lacuna remains unanswered and doubts remain doubts. This is a very threatening situation for our Indian higher education system to be dealt up with and the knowledge enhancing factor stagnates.

Privatization of higher education: Privatization is yet another factor for impediment in Indian higher education. Those students who want to seek admission in private universities are like dream for them to be fulfilled. Privatization leads to politicization of education. It might have seen in many cases that the children of big-named politicians are recruited easily on the basis of their political connections. Even if they have not scored well in their previous sessions, they are recruited. Whereas the children belong to middle or lower middle class, they are not selected for getting admissions in private institutions as they are unable to pay the fatty amount of fees. That's why the education has remained as a business entity in private institutions. In order to save taxes, the white-collared people invest in such huge-named private institutions for maintain the quality and infrastructure of the same. That is the reason why the private institutions charge huge amount of money for getting admission in their institutions and the knowledge remains the secondary matter to be dealt with.

Inbreeding in various institutions: Inbreeding means the person who has studied in the same institution is selected to teach in the same institution for teaching. This also hampers the higher education system in the way that the exchange of ideas from those who have qualified from other institutions remains un-imparted. For instance, if a person who has studied and qualified from University of Delhi, would share his / her experiences in that circumstances only. The students who are being taught might be familiar with those circumstances. Whereas if the person is recruited from other university like University of Kashmir, Bihar etc. would be able to share new experiences and circumstances among the students. The process of inbreeding limits the knowledge of students which in turn stops the progress of higher education system.

Meager salaries to highly qualified teachers: Another reason which impedes the higher education system is providing fewer salaries to the highly qualified teachers. For instance, a person who has achieved a PhD degree with specific area of interest and is recruited on the contractual basis with meager salary, it dissuades him / her to take effective and efficient lectures among the students. Achieving such a higher degree with less paid amount deters the candidates to be get recruited and if recruitment takes place, then efficacious learning is daunting.

Ethical issues: It is seen especially in Indian higher education that ethical issues arise whether the ethical

concern is related to behavior or the content of materials required for study. For example, at the time of writing the dissertation the scholar does not acknowledge the contribution of his / her fellow beings. Even he / she does not give credit to the person form whom the content has been taken as quotes for continuously writing his / her dissertation. Sometimes, the scholars copy the content in such a high manner that plagiarism arises. Plagiarism in simple words means piracy. It means the person has taken the content from somewhere else without acknowledging the name and task of that person who has originally written the content. This leads to a very serious concern in higher educational system. If the content is published without growingthrough the plagiarism checker, then the original author has the right under the Intellectual Property Rights (IPR) to file case against that author who has acknowledged his / her work without giving him / her due recognition.

Mushrooming of higher educational institutes: Besides providing the qualitative education to the students, the focus has now shifted to the widespread opening up of various higher education institutions in India. The problem is not opening up of new institutions but the most of these institutions are not affiliated and accredited by the nodal bodies of Indian higher educational system like University Grants Commission (UGC), All India Council for Technical Education (AICTE) etc. As these institutions are not affiliated to these nodal bodies of education, the issue for their existence is questioned. The students don't easily get the jobs in reputed firms due to non-affiliation with above mentioned nodal bodies. The quality of education is hampered severely in such cases. Therefore, the qualitative aspects are compromised with the mushrooming of institutions.

Non-availability of labs: There are institutions where there are no lab facilities available. Students who need labs for conducting projects and practical, is of great concern for them. It has been seen in various institutions that the funds which are proposed for making the skill labs, are not paid attention towards it. In such situation, students have to face a lot of problems. Even if the labs are available, the condition of such labs is so pathetic. The equipments required for conducting and doing practical aren't available, poorly constructed labs, etc. are some of the concerns which are found absent in most of the labs contrived in some of the institutions. It is even seen that the sufficient space is not available for the students in the skill labs for doing experiments which is again a huge concern for the students as well as for the Indian higher education system.

Irregularity in continuous professional development: The concept of continuous professional development is apt defining in terms of higher educational development. It means the overall development of both the students and the teachers in professional manner. This overall continuous professional development includes the academic performance, personality development, extra-curricular activities etc. The academic performance for students involves performing well in studies and scoring well in the examinations whereas for teachers it is the matter of achieving higher Academic Performance Index (API) score. It is identified many of the times that the students do not pay serious attention towards their studies. In turn they remain unsuccessful. In order to achieve higher Academic Performance Index (API) score, the teachers try to finish the syllabus swiftly and without clearing the doubts of the students. As a result, the students do not able to understand and possess failures. The teachers attempt to present and publish their research papers nationally and internationally in order to improve their Academic Performance Index (API) score, but sometimes a lot of questions are raised at their presentation for the authenticity of their research study and it does not get published. Personality development again is not paid much attention in various institutions which hampers the continuous professional development of teachers as well as students. As they are not groomed well, their dissonance seems in their respective performances. Extra- curricular activities are conducted in order to shift their mental status from studies for sometimes. It is researched by some eminent psychologists that extra-curricular activities boost us physically and mentally and therefore is good for any concentrated mind. But due to the absence of such things the continuous professional development is not possible. Such kind of matters is of great concern in Indian higher education system.

Lack of standard and training: It is must for both the teachers and the students to be get professionally trained. Standard may be observed in the curriculum as what is being taught, how it is being taught etc. The study materials referred to the students in the classrooms are sometimes proved to be too substandard through which the quality education is not imparted to the students. Standard may also be observed in terms of infrastructure whether the necessary modifications are being inculcated in the institution or not. Training on the other hand is yet another concern for higher education. Due to the lack of proper training the students remain untrained and cannot flourish, which in turn may rank down the institutional image.

No provision of campus placement cell: In many higher educational institutions, there is hardly any provision for job placements. No campus placement

cell is created at fewer Due to this the students of the same institutions are bound to roam hither and thither in search of jobs. This in turn gives birth to the concept of inbreeding which is again a great concern for Indian higher educational system. Inbreeding can be done with fewer students of the same institutions from where the students have qualified the examination. Not all the students can be covered under the process of inbreeding. This in turn blocks the exchange of ideas from zones to zones, districts to districts and states to states.

Non-availability of fellowship grant: Various government and private institutions do not have the grants available for providing fellowships to the students. Grants help the students to easily pursue their education without any botheration. It is difficult for the students who belong to lower and middle-class families to pay the heavily levied fees imposed by the institution. In such situation, the student seeks the assistance as grant to be provided to him / her by the institution or the government. But when fellowship grant is not allocated to them, it becomes a very serious concern for them to pursue higher education. Many of them drop the dream of pursuing higher education due to this factor only.

Unapproved Academic Institutions: Unapproved academic institution means the institutions which are found fake on the basis of various factors laid by University Grants Commission (UGC). These institutions only make money from the economically well-off students. They do not follow the norms of nodal agencies or apex bodies of educational system. They follow their own rules and regulations or set of patterns. Due to which the students suffer a lot whether it's in academic or professional terms.

Semester System: Semester system has created a burden for the teachers positioned in the higher educational institutions. According to an anonymous survey done on the teachers of the higher institutions says that semester system has been proved to be burdensome for the teachers. Earlier they had to conduct the class tests and examinations of the students on yearly basis but now in every six months all this needs to be done and performed. They added that this semester system is not only ruining their professional and academic life but in turn is spoiling the life of the students. The teachers who are occupied in maintaining the attendance register, checking the class tests and examinations, uploading the progress of students and the work done by them on the regular basis are the tasks which they are supposed to perform and due to this they are unable to take the class or the entertain the students in their studies. That is indeed a serious concern in Indian higher educational system.

Dual attainment of degree at a time: There is provision of dual attainment of degree at a time. University Grants Commission (UGC) has passed this resolution that in an academic year two higher educational degrees can be attained simultaneously. With this the issue of quality has arisen. If the student attains the degree in one discipline and he / she simultaneously attains another in other discipline then quality of the education will hamper the system in the way of employability, academic integrity and performance of the students. The student who achieves the dual degree in different disciplines would be able to be recruited in both the disciplines with the greatest possibility. Then it would raise concern for those who are specialized in a single field at a time. This in turn would dilute the academic integrity in terms of imparting education to the students. Suppose a student has qualified the management examination and simultaneously he / she qualifies the engineering examination and is recruited to be taught under one discipline then qualifying another examination is not proved to be worth qualifying. The performance of the students would also impede as the dual attainment of different degrees scatter their concentration in their respective studies.

Classroom lectures are not attended: It is even more serious concern that the classroom sessions are not attended by the students. As the norms has been set by the University Grants Commission (UGC) that 80% attendance is compulsory for the students enrolled in higher educational institutions, but still the non-abidance of the regulation is ignored by many students. Due to this, the lectures delivered in the classrooms are attended and in turn lead to unsuccessful outcomes. The project work is also not completed by many students due to which it is difficult for them to understand the practical aspects without attending the theoretical classes. Then such students take the assistance of master keys, guide book, reference books, etc. to anyhow clear the examinations. The agenda of such students is to only qualify the examination with passing marks. Such substandard materials can only make the students to pass but these materials can't provide the qualitative education as it is imparted by the teachers in the classroom setup.

COVID-19 pandemic: This is most contemporary issue being faced worldwide. The learning has been affected drastically during this worldwide pandemic. The students are facing a lot of problems related to their studies. As they are not getting the regular guidance from their respective teachers, lecturers and professors, which they were able to seek during their face-to-face learning process in their classrooms; it is proving to be difficult for each student to impart education through

digital mediums. Although there are various digital mediums such as Zoom, Google Meet, Face-book Live, You-tube sessions etc. available but authenticity of such mediums are still questionable.

Conclusion

The factors mentioned above are contemporary in nature and leading to obstruct the growth of higher education in India. These inhibiting factors could only be curbed through the integration of decision-making from grass-root level to higher education system. These issues if not managed dexterously, would lead to the deterioration of our Indian higher education system.

References

1. Basavarajappa, U. K. (2018). Indian higher education: The contemporary issues. *International Journal of Academic Research and Development*, 658–660.
2. Gasman, M. & Samayoa, A. (2018). *Contemporary Issues in Higher Education*. Routledge.
3. Jahan, K., & Selvarani, D. (2015). Higher Education in India: Issues and Challenges.
4. Mukherjee, R. (2009). Higher Education in India: Contemporary Issues and Opportunities for Foreign Participation. *Social Science Open Access Research Journal*. Published. https://ssrn.com/abstractorhttp://dx.doi.org/10.2139/ssrn.1326011.

An Inquiry Into the Concept of 'Late Bloomers' with Reference to the Theory of Human Motivation of Abraham H. Maslow

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Abstract

The current study is an insight into the concept of 'Late Bloomers' with reference to Maslow's hierarchy of needs. It examines the role of gratification of safety needs in an individual's mental health and how starvation for security can lead to a psychological delay and eventually neurosis if the delay becomes permanent. Deprivation of security can result in a slow movement through the other higher emerging needs as well. The paper presents obsessive compulsive disorder as a form of expression of safety seeking mechanism of an individual.

Keywords: *Late Bloomers, Neurosis, Psychological Delay, Safety Seeking Mechanism, Maslow's Hierarchy of Needs.*

Introduction

Abraham H. Maslow first presented his theory of human motivation in 1943. He called the theory a holistic-dynamic one since it integrated the functionalism introduced by psychologists like James & Dewey with the dynamism of Freud & Jung along with the holism of Goldstein & Gestalt psychology. According to him, human needs begin with physiological drives. Maslow has stressed that not only these physiological needs are a response to biological lacks in the body but they also sometimes serve as channels to satisfy other needs. In that, they do not serve as biological needs but simply as means to an end for other desires. For example, the concept of 'comfort food' is a demonstration of the aforementioned assertion that is, consuming chocolate when stressed is generally not an indication of lack of cocoa in one's body but is a comfort-seeking behaviour. Needs act as one of the determinants of human behaviour. It is under the influence of needs, in the absence of other active determinants, that an individual behaves the way he does.

The Theory of Human Motivation

According to Maslow, all needs unsatisfied, the organism would be dominated by biological needs and for that period, all other needs become irrelevant & pushed into the background. If he is hungry, lacks safety, love & esteem then all his capacities would be put in service of hunger satisfaction. Nothing would matter to him but food till the time he satiates himself. For him, utopia would be a place where food exists and for that period of time he would believe that if he has food for the rest of his life, he'd need nothing else to remain happy. When Maslow talks about hunger, he talks about chronic or extreme hunger; not appetite where a preference of a certain type of food dominates the organism. Hunger is the lack of food in totality; not the presence of one, unwanted kind and urge for an unavailable one. In Maslow's words, true physiological needs are 'localizable somatically' that is, they are isolable, relatively independent of each other & of the organism as a whole, and have an underlying somatic base for a drive, in other words, true biological needs serve only the function they are meant to serve. Hunger, sex, sleep and thirst make up these biological urgent drives which are prepotent needs of all needs. But when an organism is not hungry, that is, he is not dominated by his hunger (biological need), Maslow says other needs emerge.

According to the theorist, gratification of hunger releases the organism (here, human) from its domination after which emerge other social needs. It is then that hunger or any other physiological need ceases to exist as an

active determinant of human behaviour and gives way to other organizers. Such physiological needs then get pushed into the background and remain only as potential determinants as they emerge again if they are thwarted. A satisfied want is not a want and a human / organism is only dominated by unsatisfied needs. Maslow states that it is only in individuals whose particular needs are satisfied that they are best equipped to tolerate the deprivation of that need in future. Conversely, he states that it is also true that those that have been deprived in the past would react differently to current satisfactions than those who have never been deprived.

Abraham H. Maslow further continues to explain that with physiological needs gratified, needs for security, stability, dependency, protection from fear, need for structure, trust in protector etc. emerge. They can be categorized as safety needs of an individual. Where, when hungry an organism is completely dominated by his urge for food, here too, his safety needs may act as exclusive organizers of behaviour. It is now that the individual / organism becomes a safety seeking being much like he was a food seeking being when hungry. The receptors, the effectors of the intellect and of individual's other capacities become safety-seeking tools, much like they became food-seeking tools when the organism desired food. The satisfied physiological needs would now be underestimated in the light of safety & protection.

Once his physiological and safety needs are satisfied, an individual would strive for affectionate relations with people and to find his place in his group or family. He would now be driven by loneliness, lack of love & friendship, presence of rootlessness and fear of social rejection. Such needs were categorized by Maslow as needs for belongingness and love. With his hunger (one of the examples of physiological needs) and personal protection (safety needs) taken care of, they would now be pushed into the background only to come forwarded if they are completely thwarted in turn making the organism focus back on his hunger first and his safety second. In the light of both these quality of needs gratified, the organism's attention would turn to his lack of love & belongingness. Love needs mean both receiving and giving love. Most of psychopathologies, according to Maslow, arise due to thwarting of love needs. Individuals extremely deprived of love, belongingness, intimacy and constantly living in fear of rejection from their family/group members can feel immense alienation thereby turning them into severe cases of maladjustment and pathology.

With love needs gratified, organism moves on to yet higher needs of esteem. Maslow has classified them into two subsidiary sets. One is that of those needs of a human that makes him want strength, achievement, mastery, competence, freedom and confidence in the face of the world. The other is that of needs of prestige, dominance, glory, recognition, fame, dignity & appreciation. It is the thwarting of esteem needs that produces a feeling of inferiority in a human being which in turn results either in chronic discouragement or compensatory or neurotic trends.

Even when all the needs are satisfied, an individual may still become restless and discontent. Maslow maintained that what a man can be, must be; he should do what he is individually fitted for. The need to reach one's potential has been termed as the need for self-actualization. It has been described as one's tendency to actualize his potential which is synonymous to his desire for self-fulfilment. In other words, the need for self-actualization is the need to become everything that one is capable of becoming. These self-actualization needs differ from person to person. A person may have an innate desire to become an excellent parent while another may want to study medicine to help mankind. It is at this level that the individual differences are the greatest. However, the emergence of these needs depend on the gratification of the physiological, safety, love and esteem needs.

Cases of Reversal of Hierarchy of Needs

- Maslow found a common kind of apparent reversal in people in whom self-esteem seems to be more important than love. It is usually due to development of the idea that only those held in high-esteem are the ones that are loved. Therefore, self-esteem becomes a means to an end; they seek it for love and not for its own sake.
- According to the theorist, there are some innately creative people whose creativeness appears to be more important than any other counter-determinant. In this case, creativeness is not self-actualization in the light of satisfaction of basic needs but in spite of deprivation of basic needs satisfaction.
- Maslow contends that in some people, the level of aspiration may be lost forever. In other words, their prepotent goals are permanently deadened or lowered such that a person facing chronic unemployment may just be satisfied for the rest of his life if only he is able to get enough food to get through his days. This is especially true in the case of lakhs of migrant labourers in India who leave their minimal yielding farmlands in their villages in search of daily wage work in cities. They seem to have no high aspirations but to earn enough to fetch two meals a day and afford a bare minimum shelter to save themselves from weather.

- The psychopathic personality, as suggested by Maslow, suffers from a permanent loss of love needs. According to the studies & the best data available, these people lost their ability to give & receive love after they have been starved for love in their earliest months of their lives much like animals lose sucking reflexes if not exercised soon enough after birth. The explanation offered by the theorist is that since love was unavailable to them in their childhood, they lost any identification with it; giving or receiving love, therefore, stopped being a need altogether. They simply lost their ability to love and with that, their ability to empathize like a normal human being who, in opposition to them, still retained his need for love.
- A reversal of the hierarchy is also possible in cases where a need has been satisfied for such a long time that it may get under-evaluated and undervalued. Those people who have never experienced chronic hunger, they may not count food as something basic & important. They would underestimate it and consider it rather unimportant in the face of other needs. It is only when they would be deprived of food for a long time that they would re-evaluate their needs and only then the prepotent need, that is need for food, would become consciously prepotent. Thus, a man who gives up his job for his self-respect may beg for the same job after starving for six months.
- As stressed by Maslow, there are many determinants to behaviour besides motivation, needs & desires and what the theory of human behaviour has claimed is that the individual would *want* the more basic of two needs when he is starved in both. Thus, it is not necessary for him to act on his want or desire. He may consciously want safety out of safety and love, but may deliberately behave under the influence of love instead of safety need.
- There are people who value a particular ideal such that they are willing to give up everything for them. An example would be that of martyrs and patriots who place such significance on certain ideals for their country that they are ready to sacrifice their lives for it.

Increased Frustration Tolerance Level & Psychological Health

People whose basic needs have been satisfied throughout their lives, especially in the early years of their childhood, develop a tolerance level to withstand deprivation of their basic needs when thwarted in later years. This is because they develop a strong, healthy character structure as a result of basic need satisfaction – this tendency to tolerate increased frustration of basic needs like food, love etc. through early gratification makes mentally healthy & strong people who can weather public or personal opposition, withstand loss of love and who can hold out against public rejection of themselves.

However, sheer habituation can also cause increase in frustration tolerance. A person who has been accustomed to relative starvation for a long time, can face food deprivation better than a person who has never withstood food deprivation. Both tendencies could lead to increased frustration tolerance level in a human being and sometimes, in some cases, they can both operate side by side as well. A love gratified human can withstand loss of love. Gradually he may become habituated to facing love deprivation and increase his tolerance level of withstanding his frustrated love need. Nevertheless, the most important gratifications come early in childhood, that is, people who felt secure in childhood tend to feel secure for the rest of their lives.

Thus, it is the increased frustration tolerance level that leads to a healthy mental being wherein an individual is able to withstand deprivation without any adverse effects. This is because it is one's ability to withstand frustration of his needs that usually ensures his psychological health. A high tolerance level to frustrated needs determines a good mental life of a person.

Psychological Delay & Late Bloomers

The inquiry at hand is into the concept of 'Late Bloomers' with reference to the theory of human motivation as introduced by Abraham H. Maslow. Late bloomers are those people whose capabilities not apparent to others until later than others. They develop slowly as compared to their peers. A late bloomer could be a child, adolescent, a young adult, an adult or even an older person whose inclination in a particular field only appears later than those in the same age group. A late blooming adult is considered to be an adult who discovers his talent for a particular vocation later than most; sometimes, a person who reaches his biological milestones later than their peers is also called a late bloomer. There is no scientific definition of a late bloomer but it is a colloquial term used to explain a person who reaches any aspect much later in life as compared to others, whether it be biological or psychological. A child with delayed puberty is a late bloomer biologically and a naturally talented painter beginning to paint in his old age is also a late bloomer but psychologically.

According to Maslow's theory, higher needs emerge only when the present needs are satisfied to an extent that a person can move past them. They need not be completely gratified for the person to feel the existence of other higher needs but the present needs must be satisfied to a considerable extent that they are not frustrated and

their dominance over the human ends giving way to the emergence of other needs. In other words, deprivation must end in order for other needs to come forward.

It is this delay in gratification of needs of one stage that leads to the existence of psychological late bloomers. The deprivation of needs of a given stage (be it physiological, safety, love or self-esteem) retards the psychological development of an individual. Such an interruption not only causes severe issues to mental health but to emotional health as well. More often than not, a late bloomer faces deprivation of safety and love needs. It is in these two stages that most of the late bloomers get psychologically delayed; they spend most of their life in either one or both of the stages, unable to move past them. Their safety and love needs remain deprived of gratification and they lose out on time attempting to satisfy them. Emergence of any higher need like the desire to attain self-esteem and the desire to self-actualize do not take place as the organism is either predominantly operating out of safety needs or love needs or both.

There could be many causes for psychological late blooming but the present paper examines only one of the causes with respect to Maslow's hierarchy of needs. It focuses on how starvation of safety needs causes the *psychological delay* and therefore the late blooming of an individual. This paper attempts to bring forth the impact of deprivation of safety on an individual's mental health and how it is responsible for the psychological delay that eventually leads to late blooming of the person.

It is hypothesized in the current conceptual research that one of the causes of psychological late-blooming of a human is a delay faced by him in safety seeking stage of Maslow's hierarchy of needs. In other words, the longer a person remains suspended in the safety needs, the longer it takes for the other higher needs to emerge thereby causing him to reach his potential late & bloom late in life.

Impact of Psychological Delay in Safety Seeking Stage

When an individual is psychologically trapped in the safety needs, his intellectual capacities serve only as safety seeking tools. No other thing takes precedence. He may forget about life goals, about his immediate requisites like studies, jobs, promotions, relationships etc. These aspects may seem insignificant to him; these are the same aspects which may be quite important to people his age. No matter his age, he continues to function as a safety seeking organism. His behaviour is determined by his need for security in totality. Most of the psychological delay of an individual takes place in the safety needs stage. His environment could have taught him how to behave and conduct himself in various conditions but he continues to look for safety directly or indirectly. Every action is security seeking. Apart from his physiological needs, his actions are directed towards gaining safety and security. Usually this security is not as tangible as it is mental. It is not wild animals that today's man seeks protection from but he fears unsafety and insecurity in mental aspects.

This need for security first shows early on in an infant who after craving his mother's breast seeks comfort in her arms. A mother is not just a means to gain nourishment from but also someone in whose image he sees himself. If the mother is loving, he feels loved. If the mother is caring, he feels cared. If the mother protects him, he feels protected. The time duration for the need for protection in a child varies from one to another. A temperamentally stronger child would need less of his caregiver's attention whereas a temperamentally sensitive child would need more of it. A child or an infant is inhibited in his reactions and therefore easily lets adults around him know that he needs attention and that he may be in distress. Adults, on the other hand, are educated by society to inhibit their reactions at all costs. They are supposed to be cultured and dignified. An adult in our society is not supposed to have unfiltered and transparent responses. It is because of this reason that such children accustom themselves to live with insecurity, without vocalizing their distress, look for security by way of their behaviour and actions. Thus, when such adults feel threatened they may not be able to show it on surface but their behaviour would betray the true cause. They may have aged liked their peers and learnt to behave in a socially acceptable manner but they remain trapped in the security- seeking stage of Maslow's hierarchy of needs.

In the face of such internal lack of safety, it becomes a challenge to pursue regular life goals that people their age may strive to achieve. A high-school student battling constant insecurity may not be able to focus on studies; his grades are not his priority. He would first need to feel safe and only then other things would follow. An adult feeling unsafe every day at work, living under constant threat of being terminated for having made simplest of mistake would not be able to give his attention to a potential matrimony.

Such adults display signs of anxiety, depression, fear of social & inter-personal rejection, need for constant reassurance and almost chronic insecurity. Children and adults stuck at this stage of hierarchy of needs would usually exhibit meekness, lack of confidence, indecision, apprehension, self-consciousness, unassertiveness, subservient attitude, sensitiveness, defensiveness, instability, volatility and extreme vulnerability.

Causes of Deprivation of Security

In most of the cases with adults who are late bloomers, their fight for safety begins in infancy or in their early years of childhood. Infants and children react in totality

without holding back. The threat for them, when their mother is unavailable, is real. Even a loud noise can startle them leading them to feel threatened. It is an either-or case with children. If they are not safe, there is a threat. If there is even a suspicion of threat, they are not safe. Both affects do not exist for them simultaneously. There fails to be a possibility wherein a child feels safe with a lingering doubt of danger (external or internal). Cognition of children is not as developed to discriminate between external and internal dangers. Thus, according to them, they are either safe or under threat.

It is this threat that they live with which translates into their behaviour. As long as they are unable to feel safe for as long as they need to feel it in order to gratify this need completely, they cannot move past it. A higher need for love and self-esteem may arise temporarily but they would always be pushed into the background in the face of their safety needs. Unless a human feels completely secure; secure enough to comprehend that safety is a given, he would always come back to fulfil this need. He may temporarily feel safe and unthreatened on account of which he may even venture out to seek love and perhaps self-respect too, but unless his foundation in safety is solid, he would, more often than not, be compelled to come back to gratify it. An organism cannot function to his fullest if he lives under a constant threat.

Infants and children who have encountered severe illnesses and fatal accidents feel physically threatened for their life. These illnesses and accidents are tangible threats to life and they may also make a child feel unsafe. Organic pain changes a child's perspective. Things that looked stable to him may suddenly become unstable. For him, anything can happen and this world literally becomes a difficult place for them to survive. They adopt a survivor's mode where they feel they have to constantly look over their shoulder to make it to the next day. Such children need constant reassurances from those around them and may struggle with insecurity about life in general for a long time which turns them into late bloomers. They may get over their illness or accident and begin to function according to the social expectations of them but at some level, they would still fight to gratify their safety needs before anything. Nothing would qualify for them if it does not provide them safety first.

Even when the child has not encountered a physical threat to his life, quarrelling parents, separation from them, parents separating from one another, divorce or death in the family often lead a child to feel unsafe. In addition to these, parental outbursts of rage or threats of punishment, calling him names, speaking harshly, insulting the child or actual physical punishment also results in the child living in the state of panic. The fear of punishment in children is not only of the physical pain but also of the loss of parental love that comes with it. Children feel rejected by their parents when they are subjected to physical punishment and sometimes clinging to the hating parents is more out of sheer safety & protection than for the hope of love. Any of the unwarranted family dynamics can cause psychological trauma to the child resulting in him living in a state of perpetual fear. It could be due to this psychological trauma that an individual starves for safety and eventually remains trapped in the stage of requiring security more than anything else in life.

Strange, unfamiliar situations or unmanageable stimulations also elicit danger reaction in children that may gravely damage them psychologically. Getting lost or separated from one's family may settle a feeling of insecurity in children thereby resulting them to struggle for safety for a long time.

Preference for undisrupted routine is also an indication of the child's need for safety and predictable environment. When a child has been exposed to terrifying conditions that are psychologically heavy for him to process, it helps him to look for ways to keep his environment as predictable as possible. He needs his world to be orderly in order to compensate for his internal sense of danger. He is deprived of safety inside which he then looks for outside. Injustice or inconsistency on the part of parents can often lead the child to feel unsafe and anxious. He begins to perceive world as an unreliable place where unfairness is rampant and his confidence starts to suffer. This is why young children thrive better when they have a routine to follow because it makes their view of the world more organized, structured and predictable.

Children living in an unfamiliar, disrupted, chaotic or physically threatening environment tend to become late bloomers since they get trapped in the safety seeking stage for a long time before they can gain a sense of security in order to need more. The psychological delay faced by them in the security seeking stage tends to retard their growth pace thereby making them reach their potential later than their peers.

Foundation of Neurosis

Fortunate children in our society are largely satisfied in their safety needs because of which they are able to focus on the other higher needs like love, self-esteem and later self-actualization, if they reach that level. However, there are some who not only get trapped in the safety seeking stage, like late bloomers, but they also develop pathologies on account of the lack of security & stability. It can be said that pathology is only a step ahead of psychological delay. Those individuals who are only delayed but eventually move on after gratifying their security needs are not at critical risk (although they are at considerable risk) of developing neurosis.

However, those who are unable to move on and are starved for safety, they develop pathologies borne out of the deprivation of safety. Such individuals lack sense of security and nothing would satiate their safety needs. Every action of others is put through a *'safety-litmus test'* and everyone fails. In fact, sometimes it is a self-fulfilling prophecy. They are so starved for safety that feeling unsafe becomes familiar; they do not recognize what safety looks like which is why even when a person passes their 'safety-litmus test', they would not know or believe it and continue to doubt him & to feel unsafe. Such people can be called neurotic or near neurotic individuals.

The current conceptual inquiry also postulates that the psychological delay in the safety stage of Maslow's hierarchy of needs is the foundation of neurosis that later develops if the individual in permanently stuck in one of these stages. In other words, *neurosis is the advanced stage in which the psychological delay ceases to be just a delay but the individual remains trapped in that stage permanently unless help is given and received.* He is unable to grow out of the stage where he got stuck. He is unable to fulfil either his safety or love needs and gets trapped in a vicious cycle of familiarity with his deprivation. In a way, he gets '*psychologically institutionalised*' to this stage which, even though it causes him immense distress, he continues to depend on it for the sake of familiarity & reliability. The proverb- A known devil is better than an unknown angel, strikes true in such a condition.

The present paper focuses on the stage of safety needs of Maslow's hierarchy. As mentioned earlier, thwarting of safety needs can lead to a psychological delay thereby causing a person to turn into a *'Late-Bloomer'* but there also runs a risk of the individual getting stuck in the security-seeking stage permanently if no help is provided and accepted. This is the basis for neurosis. Such individuals are in many ways like an unsafe child in their desire for safety. A neurotic reacts the way he does because he perceives the world around him to be hostile and threatening. He usually responds as if a catastrophe is impending. A neurotic individual can be described as an individual who retains his childhood attitude towards the world. It is almost as if his childish reactions towards threat from an overwhelming world, that had gone underground & are untouched by growing up, are now ready to respond to any stimulus that may make a child feel endangered. This usually leads to severe anxiety neurosis as well. The difference between neurotics and individuals only delayed in the safety-seeking stage is that the former's longing for security finds a specific expression. There is a special appearance to his safety-seeking mechanism that differentiates him from those individuals who are only psychologically delayed in that stage (costing the latter weeks, months or even years).

The neurosis that brings out one's need for safety in its clearest form is the *Compulsive Obsessive Neurosis*. Neurotics suffering from the said ailment frantically attempt to stabilize their world by way of their repetitive actions so that the unfamiliar & unmanageable dangers of the world disappear. They protect themselves against the unfamiliar with the help of their reliable rituals and rules. They avoid strangeness by restricting their world and try to bring order in it. It is only in the neatness, discipline or some kind of order that they are able to find security. It is the familiarity of their routine that brings them safety. Arranging the world so that nothing unexpected takes place is their way of avoiding threats of the world and if, through no fault of their own, something unexpected does happen, they enter into a panic state. A moderate preference for the familiar in a healthy person becomes a matter of life & death in a neurotic. It should be noted at this point that not all neurosis takes birth in the safety seeking stage of Maslow's need hierarchy and not all neurotics feel unsafe. Some, who generally feel safe, are also borne out of lack of affection & love which is the next stage.

Deprivation of Love Needs

Once their struggle with safety needs are over, they take more time than others to assess their love needs. They also take longer to gratify their love needs. Not everything would be acceptable; not every form of love would do. They would be extra cautious when it would come to love and other higher needs because they had to struggle and fight for something as basic as security before. Their view of the world completely changes. They think that they need to reassess every need gratification and check if the satisfaction is even a true satisfaction at all. Because they have been deprived in the past, they perceive that every need takes immense effort and strain before it gets satisfied. Because their past needs have not been met easily, they do not easily trust if their other needs would also be met easily without any stress. Their other needs generally increase so as to compensate for the fact that they did not get as fundamental as security to begin with. Every act from their relatives, friends, partners, spouses is scrutinized. Trust takes longer to build for them. Where a fortunate individual who did not have to battle for security in the past would react mildly to a split in a relationship, a person with past security issues may react to it differently. In other words, *their frustration tolerance level is lesser than the others on account of safety deprivation in the past.* The latter are better equipped to tolerate need-frustration because of early need-gratification unlike the former. Late bloomers therefore often tend to move slowly through their later emerging needs as well.

Conclusion

The present paper is an attempt to bring to light the consequences of deprivation of safety needs with respect to Maslow's hierarchy of needs. It can result in a psychological stagnation and undue delay in the security seeking stage in turn causing struggle and delay in other stages as well. Need gratification is important in order to let the other higher needs emerge. When a person is starved for safety, the higher needs do not tend to emerge. If temporarily, he feels safe, he may look for love, belongingness and even esteem from others, but as soon as his sense of security is frustrated, he attends to this current frustration foregoing his love & esteem needs. When an individual stays & struggles in the security seeking stage, he gets psychologically delayed in that stage and may take weeks, months even years to overcome the safety starvation in order to move on. By this time his peers would have moved on to satisfy their love and esteem needs while he tended to his safety needs. It is in this way that he blooms late and reaches his other milestones- personal & professional later than others. If he tends to permanently stay in either of the safety seeking or love seeking stage of Maslow's hierarchy of needs, it may lead to neurosis and his expression for his needs would take a distinct appearance. This paper brings forth the significance of gratification of needs and its role in mental health.

References

1. Atkinson, J. W. (1964) An introduction to motivation. Oxford, England: Van Nostrand
2. Freud, S. (2012). A general introduction to psychoanalysis. Wordsworth Editions.
3. Freud, S., & Strachey, J. (1962). The ego and the id. New York: Norton.
4. Joy, Kevin & Jayaprakash, Varsha & T, Sreelakshmi. (2020). The Influence of Grit and Self-Efficacy on Teacher's Teaching Motivation on School Teachers. *International Journal of Innovative Research in Science, Engineering and Technology*, 9 (3), 1040- 1045.
5. Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370–396. https://doi.org/10.1037/h0054346
6. Maslow, A. H. (1954). *Motivation and personality.* Harpers.
7. Mawere, M., Mubaya, R., van Reisen, M., & Stam, van, G. (2016). Maslow's Theory of Human Motivation and its Deep Roots in Individualism: Interrogating Maslow's Applicability in Africa. In M. Mawere, & A. Nhemachena (Eds.), *Theory, Knowledge, Development and Politics: What Role for the Academy in the Sustainability of Africa?* Langaa RPCIG.
8. Saunders S., Munro D. & Bore M. (1998). Maslow's hierarchy of needs and its relationship with psychological health and materialism. *South Pacific Journal of Psychology, Volume 10, Issue 2,* 15-25. https://doi.org/10.1017/S0257543400000833

Applications of Artificial Intelligence and Machine Earning in Various Domains

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Abstract

Artificial Intelligence(AI) and Machine Learning(ML) are implicitly being employed in all walks of life and will conquer the forthcoming future of all domains. AI/ML algorithms are rapidly being implemented futuristically by many diverse sectors and different types of industries to enhance their productivity and hence profits. This report encompasses a detailed literature survey and review of the current trending applications and existing implementations of AI/ML/Data Science in the spheres of Healthcare, Law, E-Commerce and IT industries. It is imperative to know what AI and its parasols are about, how they are being implemented in diverse genres with a quest to find and invent solutions to their hindering complex problems. This survey aims to educate its reader on an explorement of the existing technologies developed, invented and utilized by industry giants to revolutionize technology. The extensive survey herein also stipulates the cognizance of the lesser-known entire process entwined in data analytics, from data collection to data analysis and representation. The various algorithms used in diverse industry sectors for the relative AI technologies are also expounded. Moreover, the survey holds a unique quotient since it is an amalgamation of AI/ML algorithms, technologies, implementations, process flow, and existing examples, a configuration of all dimensions explored.

Keywords: Artificial Intelligence and Machine learning real time applications in- e-commerce, healthcare, judiciary, tech companies.

1. Introduction

AI, ML are the future of the elite world of technology. ML and Deep Learning (DL) harbor under the umbrella of AI. ML has been the utmost trend setter in technology industry in the last few years as a better accessible side of AI, with computers learning to complete tasks without being directly programmed to do so. Today, almost every domain uses ML to optimize their work, lesser man power, make smarter decisions, easier work done, eliminating human errors basically making life easier, efficient and convenient. ML applications are made effectively available to common man through the platforms of Google, Facebook, Amazon, IBM Watson, Uber, SIRI and more. It has the ability to mechanize a large segment of expert manual labor, hence it has taken over most aspects of technical industry and will conquer furthermore, but the degree to which this effects a personnel depends on the level of complexity concerned in the job. Machine learning enables the automation of singular tasks, whereas many jobs involve multiple

tasks and even multitasking at higher level for which machine learning requires some human touch. For any individual looking to pursue a career in ML, the first step will be to scavenge through the lengths and breadths of what ML is all about, what it actually encases, what is its background, what is its future and where do its real time implementations and applications lie. For an amateur to lurk into the areas of ML/AI/DL/Data Mining (DM), one needs to know the basics, required to understand the complex algorithms, implementing tools, technologies being invented and implemented worldwide and the scope for each in various sectors/ domains. Although this technology is not new, it is now gaining more momentum, due to the emergence of advanced computing technologies. The factors responsible for resurgent interests in ML are affordable and powerful computation processing, increasingly growing volumes of huge data sets, and affordable data storage options. Today, companies can make informed decisions by using ML algorithms to develop analytical models, which uncover connections, trends and patterns with minimal or no human intervention. The focus here is on iterative learning. Analyzing the hidden trends and patterns makes it easy to predict future problems and prevent them from occurring. A machine learning algorithm usually follows a certain type of data and then uses the patterns hidden in that data to provide solutions. This aspect of machines' ability to learn from experience and make crucial decisions for us, is the revolutionary part of technology. Some of the key machine learning algorithms that are used most commonly are : Random forests, Artificial Neural Networks, Naïve Bayes, Decision trees, Regression, Clustering and classification, K-nearest neighbor, Support vector machines, Boosting and bagging gradient, Multivariate adaptive regression, Classification and regression trees (CART), Principal component analysis et al;

The secret to successfully harnessing the applications of ML lies in not just knowing the algorithms, but in pairing them accurately with the right tools (such as: R, Python, SQL, TensorFlow, Anaconda, Hadoop, Matlab.) and processes such as: data collection, data exploration, data visualization, data quality and management, data model, model validation, statistical analysis of results and accuracy measures, developing graphical user interface, comparing various machine learning models and identifying the best, identify best performers through automated ensemble model evaluation, automated data-to-decision process.

This survey paper gives a brief overview of all the latest as well as futuristic emerging and upgraded techniques, tools, algorithms of ML that are being exuberantly utilized in most domains wherever ML can be applied. The report will also take the reader through the most intriguing and emerging implications of ML algorithms, pros and cons, scope and what they are capable of in the mega technical sectors/domains, the collaboration of all of these together collectively are not available all at once in the same paper hence it is novel and gives an upper edge to the reader to gain valuable insights to the implicit spectrum of the most in demand technology, thereby assisting the reader to benefit from and to make interpretations in order to gain a directive path for choosing ML as a career.

The objective of the work encapsulated is to showcase the exploration done through a detailed extensive literature survey on the machine learning- applications, existing implementations, algorithms used, tools used and technologies developed in numerous sectors/domain of the world such as Healthcare, Finance, Retail/E-commerce, and Judiciary. The report also encompasses an understanding of AI/ML/DL/DM interpretable by any personnel new to data science.

2. Difference between AI, DL, DM and ML

While AI is the mother of all, an umbrella encompassing all these domains, ML is the larger chunk of it that encompasses DL algorithms which are inspired by the information processing patterns found in human brain. DL is basically the next evolution of ML based on artificial neural networks. Ultimately all these methodologies have the same goal of deriving insights, patterns and trends to make more informed decisions, their approaches differ. DM is performed on certain data sets with the aim to find out interesting patterns betwixt the items in a data set by using techniques developed by ML for predicting the outcome. Whereas, ML is the ability of a computer to learn from mined datasets. ML algorithms use the information representing the relationship between items in data sets and build models so that it can predict future outcomes. A brief analogy of these domains are summed up below.

2.1 Deep Learning

DL has the unique ability to combine computing power and neural networks to learn complex patterns in huge volumes of data. These techniques are used to identify words within sounds, and objects within images. It has the capability of modeling and processing non-linear relationships. It allows parallel and sequential computation, similar to the human brain. It can address more complicated tasks like medical diagnosis, business problems, language translation, and other social problems.

2.2 Data Mining

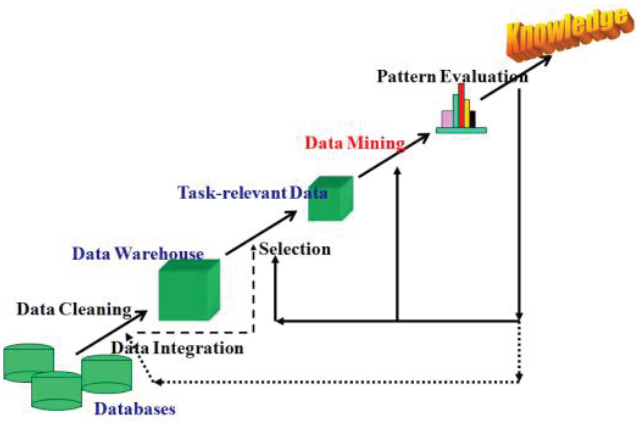

Figure 1: Process flow of KDP in data mining [1]

Data mining is also known as Knowledge Discovery Process (KDP) (see Figure 1), is a field of computer science that is used to explore the properties of datasets. It requires human intervention. Large datasets collected from DB, RDMS, data warehouses or complex datasets like time series, spatial, etc. are mined to deduce informative correlations and patterns among the data which were not known previously. The results are insightful to improve business processes, and decision making. DM is a superset of methods involving ML and traditional statistical algorithms, time series, text and other domains of analytics. Moreover it also involves the study and practice of data manipulation and data storage.

2.3 Machine Learning

ML is a powerful AI technique for crunching petabytes of complex data to infer from it by automating analytical model building. It helps cognitive systems to learn and engage with the world in a customized way. ML has the ability to unleash an underlying structure, even in the absence of a theory on what the data structure could look like. The basic concept behind ML algorithms is to give the computer an end goal, let the algorithm fail over it repeatedly till it learns from those mistakes to ultimately achieve the goal i.e. the machine learns from experience. Such an iterative concept produces reliable, accurate, effective, easier decisions and results. To be derive and employ a ML model accurate these guidelines are a must:

- Superior data preparation capabilities
- Knowledge of basic and advanced statistical and ML algorithms
- Scalability and optimization techniques
- Automation and iterative processes
- Knowledge of ensemble modeling.

Figure 2. depicts the generic guidelines on deploying a ML model. These steps are mandatory to any algorithm.

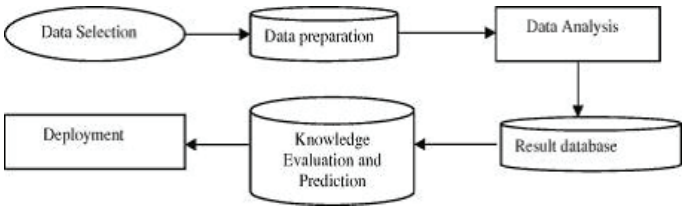

Figure 2: General process flow of data modelling in ML

Machine Learning can be broadly classified briefly into 3 categories:

- Supervised Learning- These algorithms are trained using labels, as an input where the desired outcome is already known. It receives a set of input instructions along with corresponding accurate outcomes hence the name. The learning algorithm then compares the actual outcome with the accurate outcome and flag an error, if any discrepancy. Methods include regression, classification, gradient boosting, and prediction, also uses different patterns to proactively predict the values of a label on extra unlabeled data. This method is used in areas where historical data is used to predict events that are likely to occur in the future.
- Unsupervised Learning- finds its application in areas were data has no historical labels. The main aim is to analyze data, identify a pattern and structure within the available data set. It can also identify outliers in the available data sets. Widely used techniques are- k-means clustering, self-organizing maps, value decomposition, mapping of nearest neighbor etc.
- Semi-supervised Learning-this technique uses both unlabeled and labeled data for training. Algorithms include- regression, classification and prediction.
- Reinforcement Learning- mainly used in navigation, robotics and gaming. The actions that yield best rewards are identified by algorithms that use trial and error methods. There are three major components in reinforcement learning, namely, the agent, the actions and the environment. The agent is the decision maker, the actions are what an agent does, and the environment is what an agent interacts with. The main aim of this kind of learning is to select the actions that maximize the reward, within a specified time. The primary idea is to identify the best policy or the method that helps businesses in achieving the goals faster [2].

Figure 3 summarizes the major successful ML/AI algorithms being used and under what category they perform.

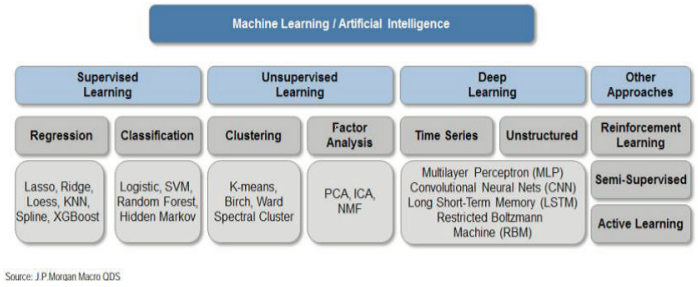

Figure 3: Classification techniques of ML and AI

3. Applications of ML/AI in domains

ML is taking the world over in all fields of industries from Healthcare, Agriculture, Sports, HR, Finance, Supply Chain, Retail/E-commerce, Education, Media, Judiciary, Marketing and Automation. The core technologies used in collaboration with ML, in these industries are as follows:

Core Tech:

- AI
- Deep Learning
- NLP Platforms
- Predictive APIs
- Image Recognition
- Speech Recognition

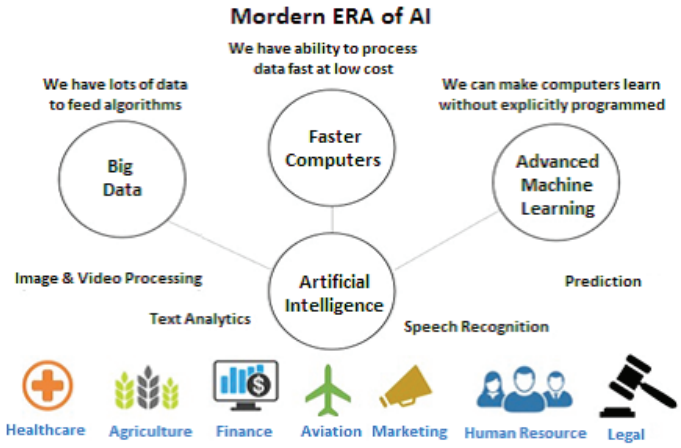

Figure 4: Depiction of modern era AI [2]

Rethinking Enterprises and Industries:	Rethinking Humans/HCI:	Supporting Technologies:
Sales Security/Authentication Fraud Detection HR/Recruiting Marketing Personal Assistant Intelligence Tools Healthcare E-commerce Law and order Media Automation Education AdTech Agriculture Education Finance Legal Manufacturing Medical Oil/Gas Media/Content Consumer Finance Philanthropies Automotive Diagnostics Retail	Augmented Reality Gestural Computing Robotics Emotion Recognition	Hardware Data Prep Data Collection

Figure 5: Various sectors/domains ML is being Implemented

Figure 4 is a brief depiction of industries where AI is booming drastically. Figure 5 is an overview of the industries deploying ML techniques for processing.

Below is a brief overview of the numerous ML applications being used in multiple domains with the technologies, tools and algorithms.

3.1 Healthcare

ML is now reinventing healthcare industry by its advanced patient diagnosis, prevention of illness, prediction of rare and dangerous diseases [3]. Using AI/ML to analyze and cross check symptoms against databases containing millions of other cases and illnesses has led to faster diagnoses, saving lives through quicker treatment and decreasing the time a patient spends in the hospital (see Figure 6). Hospitals are currently using these algorithms to more accurately detect tumors in radiology scans and analyze different moles.

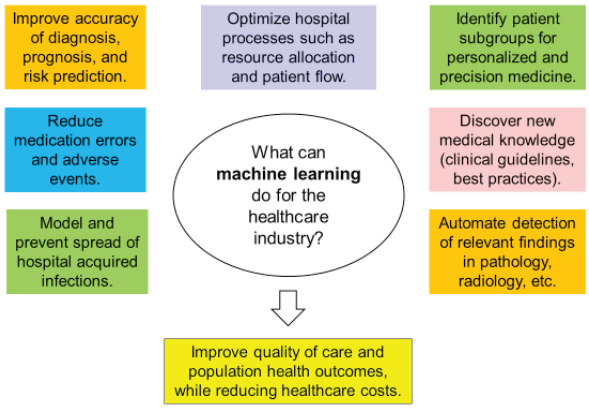

Figure 6: Advantages of using ML in healthcare industries

Some real world implementations of ML in healthcare sector:

3.1.1 Alerting tool

DeepMind and the Royal Free hospital (London) have employed an AI-based instant alerting tool to identify patients at risk of Acute Kidney Injury(AKI). The Royal Free NHS Foundation Trust and Google's DeepMind AI venture have created a real-time alerting system since AKI affects 1 in 6 hospital patients and can lead to longer length of stay, increased critical care utilization, higher risk of mortality (est. ~40,000) deaths/year in England and higher costs (est. £1bn/year across the NHS in England)[3]. The app- Streams, monitors patients' blood test results, combined with information from patient's EHR, and sends an instant AKI alert to the most appropriate clinician when it identifies signs of deterioration allowing clinicians to intervene sooner. The impact: Full service evaluation currently in progress, reports of positive feedback from early staff users with anecdotal evidence that the app saves up to 2 hours/day of nursing time and AKI identified in up to 11 patients/ day through the alerting system. Figure 7 is a real time process flow defining an healthcare automated system deployed in few countries, sourced from Gadfly.

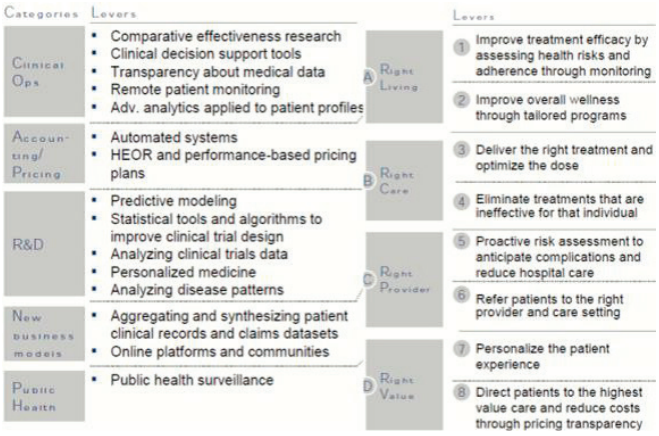

Figure 7: General Process Flowchart of a Healthcare Automation System

3.1.2 Prediction of diagnosis

Researchers are currently working to analyze massive quantities of patient care data (Electronic Health Records and health insurance claims) to discover anomalous patterns of care which significantly impact outcomes. The pattern detection approaches have been successfully applied to detect regions of interest in digital pathology slides, and work surprisingly well to detect prostate cancer, and other forms of cancer. Key features: efficient, accurate search over subareas of an image. Better prediction of patients' future diagnoses, risks, and care needs can enable more effective and efficient treatment and preventive care. Early and accurate prediction of each patient's.

3.1.3 Diagnosis Related Group (DRG)

It can better predict demand and allocate scarce hospital resources such as beds and operating rooms, optimize hospital processes of resource allocation and patient flow.

3.1.4 Predicting Adverse Drug Effects (ADE)

Random forest can accurately predict ADEs using data from EHRs. Clinical coded data (recordings of diagnoses and prescribed drugs) has higher prediction performance than clinical measurements, though both used together have better predictive performance for certain ADEs. Feature selection reduces dimensionality and sparsity, further improves predictive performance. ADEs are responsible for ~5% of hospital admissions Internationally and systems based on voluntary spontaneous reporting fail to capture ~94% of ADEs [4].

3.1.5 MRI based detection of breast cancer

Medical imaging is now crucial in the early detection and diagnosis of breast cancer. Researchers at Tianjin University in China have proposed an automated computer-aided diagnosis (CADx) framework for MRI in breast cancer. The approach outperforms most other state-of-the-art ADx MRI diagnostic systems, significantly reducing the rate of false positive classification. This method combines many ML techniques, including: Ensemble Under Sampling (EUS) to use for imbalanced data processing, Relief algorithm for feature selection, the Subspace method for giving data diversity, and Adaboost for improving base classifier performance.

3.1.6 Predicting the risk of hepatitis C progressions in kids:

Prediction models that incorporate clinical data can capture non-linear disease regression in chronic hepatitis C. The approach uses two outcomes measures fibrosis progression, and liver-related clinical outcomes and a range of predictive

variables based on longitudinal clinical, laboratory and histological data. The model, constructed using logistic regression, random forest and boosting, to predict an outcome in the next 12 months, and can help target expensive therapies for patients with most urgent need, guide the magnitude of clinical monitoring required, and provide prognostic information. The results were that 94% negative predictive value, the proportion of patients identified as not at risk of progression, that do not progress. $p < 0.0001$ probability that longitudinal predictive model is superior to pre-existing prediction model.

3.1.7 Tracking hospital operations:

Real-time tracking improves data availability and accuracy, allowing for better capacity utilization and automation of routine administration activities. The algorithms used are DBMS, NLP, CART and regression. Tracking hospital operations allows automation, reducing the headcount upto 50% and cutting patient waiting times in half, resulting in upto 50% fewer fatalities and 40-50% shorter patient waiting time [5].

Real world applications include: Company products such as

- IBM Watson Health - is a cognitive computing robot. Technical Approach- Uses hundreds of computational techniques, conducts NLP queries on structured and unstructured data, generates hypotheses, scores evidence, and returns answers, uses IBM DeepQA software, Apache UIMA Architecture, clusters of Linux servers, and Hadoop. Focusing on breadth and depth scale, combination of approaches, and parallel processing.
- Artificial Pancreas and Smart Infusion Pumps by Medtronic MiniMed Connect- SMARTGUARD mimics some functions of healthy pancreas, predicts low glucose levels and stops pump. Insulin pump and continuous glucose monitoring can report directly to a smartphone partnered with Samsung.
- Healogram: Mobile platform that helps providers remotely monitor patients postsurgical procedure. similarly iDAvatars: Virtual avatar, Sophie, uses AI and NLP to remotely monitor patients.
- Hospital Based Robots- University of California, at Mission Bay uses 25 TUG Robots by Aethon that travel 481 m/day in 1300 trips, equating time saving of 315 hours. Similarly, Yujin Robots can deliver drugs, linens, and meals, and also throw away medical waste, soiled sheets, trash. Robotic Assistants developed in Japan, the Robobear medical assistant lifts patients into and out of beds, help position humans into sitting and standing positions, also lift patients from wheelchairs.
- Challenges faced while implementing ML in healthcare:
- Complexity: coordination of care is difficult.
- Business Challenges: Legal and Ethical Challenges
- Threat to human jobs: Strong fear associated with technology displacing human workers.
- Cost: The high costs for developing, testing, certifying, and implementing can be a barrier.
- Regulation: Health IT regulations are debated at national level. Finding the right balance of public health protection and fostering innovation.
- Liability: to deal with computer failings, raises the issue of data de-identification, privacy, security, and espionage.
- Human Touch: How to interact with AI. How strongly will it require the human touch and human compassion in health care [6].

3.2 Judiciary and Legal Industry

Law firms are turning to ML to process massive amounts of legal precedents data. J.P.Morgan, for instance, uses a program dubbed Control Intelligence to review documents of previous cases in seconds that would otherwise take thousands of hours [7]. It's unlikely for ML/AI to replace lawyers in future, given the necessity of rebuttal and human logic/appeal, but its incorporation will surely reduce the time taken to construct a case, expedite trials, speed up processes of the court. The legal industry faces multiples challenges as such :

- Volumes of legal documents equating to at least half the population of a country hence a massive DBMS needs to be developed which works efficiently and swiftly and does not faulter.
- Junior lawyer/paralegals doing grunt work, retention rate, the work done by machines will have no human touch.
- Stringent regulatory compliance: there needs to be a body dedicated to governing and monitoring for any corruptions or malfunctions.
- Shortfall of skilled workforce.
- Quick Turnaround time expectations to help deal with crores of people's problems on daily basis.
- How ML is helping in solving legal problems: Helping lawyers perform due diligence and research
- Contract lifecycle management automation
- Using past cases, win/loss rates and a judge's history to derive trends and patterns.
- Document Automation
- Analyzing large IP portfolios and drawing insights from the content.
- Legal compliance automation [8].

Table 1 is the depiction of tasks and actions performed by ML algorithm developed for legal assistance, sourced from J.P. Morgan macro QDS. Figure 8 both shows currently deployed legal search automated system by Gadfly.

Table 1. Current Applications of ML/AI implemented in Law Firms

S. No.	Application	Description of Application	Related software/ firm
1	Due Diligence	To uncover background information litigators use AI tools to perform diligence. It helps in advising clients on the options available in a legal situation and the required action to overcome the problem.	Kira Systems, Leverton, eBrevia, Ross Intelligence, JP Morgan, Thought River, Law Geex, Judicata, Legal Robot, Casetext's CARA.
2	Prediction Technology	Using artificial intelligence software, results are generated that predict the outcome of litigation.	Everlaw, DISCO, Catalyst, Exterrro, Brainspace discovery, Intraspexion, Premonition.
3	Legal Analytics	On the basis of previous case win/ loss history, previous case law and judge's history, lawyers can use data points which can be utilized for patterns and trends.	Lex Machina, Ravel Law
4	Document Automation	To create filled out documents on the basis of data inputs, software templates are used by law firms.	The report, perfect NDA
5	Intellectual Property	Lawyers use AI tools which guide them to analyze large IP portfolios and to draw insights from the context.	Trademark Now, ANAQUA Studio, Smart Shell
6	Electronic Billing	Legal AI helps lawyers in computing lawyers' billable hours automatically.	Bright flag, Smokeball

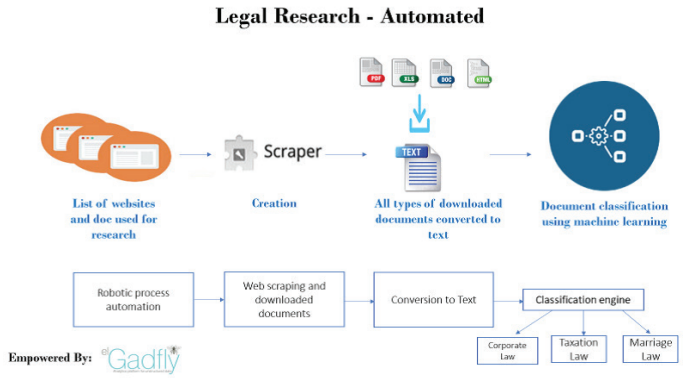

Figure 8: ML/NLP enabled Automated Searching process implemented by Gadfly company

Law firms and government bodies in India are having limited resources and maximum corruption. Hence there is an urgency in the requirement of automated regulatory systems that monitor and provide solutions to our pending cases. In India there are over are 2 million cases pending! Hence the scope is high and would revolutionize Indian judiciary.

3.3 E-Commerce

All online companies analyze the purchase history of their customers to make personalized product recommendations. The ability to capture, analyze, and use customer data to provide a personalized shopping experience is the near future of sales and marketing. The science of online recommendations has become increasingly complex, and will become even more nuanced as more data streams such as social media are incorporated to provide better recommendations. While online retail is already experiencing the early onset of ML deployment, one of the most exciting things is the application of this technology in the physical store environment. Retailers would develop the ability to analyze customers as they walk in with the incorporation of video analytics, retailers will be able to configure what products customers are viewing, and even where they are looking on the product – whether the price, the features or pictures on the box, this analysis will help customers find right products with appropriate offers and flourish the retail business. Electronic cheques and bank transfers involving higher value transactions are significant features of business-to-business (B2B) segment and whereas cash /card based low value transactions are significant features of business to consumer (B2C) segment.

Futuristic E-Commerce technology is Cloud Computing, which can be seen as a collection of concepts in several research fields like Service Oriented Architectures, development of Parallel, Distributed and Grid Computing. Its the three complementary services are: Hardware-as-a- Service, Software-as-a-Service (SaaS) and Data-as-a Service (DaaS) [9]; together form Platform-as-a-Service. There arises complexity in selling Cloud service in the market place, as the traditional business value chain which is more like product based approach does not suit cloud computing.

Big Data Market and Vendors: Massively Parallel Processing and No SQL Databases are the major categories of vendors for handling structured data. But in today's growing complexity of Big Data (texts, comments, sensor data, emojis, videos, pictures, audio, etc.). Hadoop offers the best possible choice. Hadoop is the backend technology which needs to be accessed and supported by front end tools. Revolutionary new platforms of large scale, massive parallel data access is the fundamental pillar of Big Data. Ad hoc and one-time extraction, parsing, processing, indexing, and analytics are the unique features of Hadoop like Data Bases. Oracle, IBM, and Microsoft have all adopted Hadoop including the open source Apache Spark. Some of the E-Commerce giants like Amazon and Google supply the customers with inbuilt Big Data Capabilities like product catalog, historical pricing, analytics, integration of data with other sources at ease. Community detection in social networks is possible by utilizing graph partitioning algorithms to identify dense sub graphs representing user communities.

Some current real world applications being used in the Indian Market are as follows:

a. Amazon's ML algorithm has been an excellent weapon to fight fake product reviews on their website. The algorithms learn which reviews would be most useful to customers to identify ones that are real or fake. Amazon has also litigated

charges against several websites that have created fake product reviews. Amazon Echo, Alexa is a virtual assistant that uses ASR, IoT and NLP to aide in assistance [10]. The algorithms required are Naïve Bayes theorem for probability to calculate the probability of occurrence of the next sequence of data, decision trees to maintain

a hierarchy of language grammar, and a powerful classification algorithm such as Neural Networks or deep learning.

b. Myntra uses virtual mirrors for its customers to experience surreal shopping experience like shopping at malls but actually from their homes. The customers can visualize the products by uploading a picture of themselves and the algorithms puts the clothes/products on them to show how it would look on them.

c. Lenskart used a similar kind of algorithm to virtualize the experience of people trying on different styles of eyewear frames straight from homes.

3.3 Finance

Vast amounts of data in finance industry from transaction to customer data are increasingly looking for interpreting most from the data that they hold to devise new business opportunities, deliver customer services and detect frequent banking frauds. Portfolio management companies are using traditional methods like analyzing margin profiles, growth profile, free cash flow, the return ratios, pricing power available through reports. A reliable and efficient ML product is in demand for valuable assistance [10]. From Figure 9 the basic understanding workflow of a financial automated assistance system is seen. Source: J.P Morgan macro QDS.

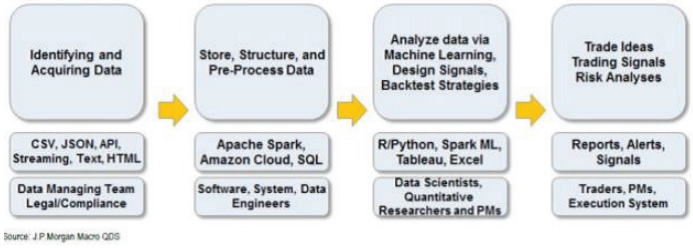

Figure 9: Basic workflow of ML powered finance assistant

4. Conclusion

In this survey, a thorough research in various applications of ML are defined in depth as per technical and non-technical understanding. In short, the main objective of this report was to provide assistance to anyone new or sceptical about pursuing this excellent field of science. It gives its reader a glimpse of what ML is about and where are the various sectors one can make career out of depending on individual's interest and passion. There are several more areas of application that are not mentioned in the report since that would make this report endless hence we conclude with our understanding of most emerging, developing and important application of ML. The various sources from where the data is collected is cited and mentioned wherever possible. The flowcharts and block diagrams have been curated on an online platform called draw.io and few other figures have been sourced from direct company sources online in order to prove their authenticity.

References

1. Zhang, C. and Ma, Y. eds., 2012. Ensemble machine learning: methods and applications. Springer Science & Business Media.
2. Ongsulee, P., 2017, November. Artificial intelligence, machine learning and deep learning. In 2017 15th International Conference on ICT and Knowledge Engineering (ICT&KE) (pp. 1-6). IEEE.
3. Dua, S., Acharya, U.R. and Dua, P. eds., 2014. Machine learning in healthcare informatics (Vol. 56). Berlin: Springer.
4. Wiens, J. and Shenoy, E.S., 2018. Machine learning for healthcare: on the verge of a major shift in healthcare epidemiology. Clinical Infectious Diseases, 66(1), pp.149-153.
5. Ahmad, M.A., Eckert, C. and Teredesai, A., 2018, August. Interpretable machine learning in healthcare. In Proceedings of the 2018 ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (pp. 559-560).
6. Callahan, A. and Shah, N.H., 2017. Machine learning in healthcare. In Key Advances in Clinical Informatics (pp. 279-291). Academic Press.
7. Surden, H., 2014. Machine learning and law. Wash. L. Rev., 89, p.87.
8. Tata, C., 1998. The application of judicial intelligence and 'rules' to systems supporting discretionary judicial decision-making. In Judicial Applications of Artificial Intelligence (pp. 99-126). Springer, Dordrecht.
9. Schafer, J.B., Konstan, J.A. and Riedl, J., 2001. E-commerce recommendation applications. Data mining and knowledge discovery, 5(1-2), pp.115-153.
10. Maglogiannis, I.G. ed., 2007. Emerging artificial intelligence applications in computer engineering: real word ai systems with applications in ehealth, hci, information retrieval and pervasive technologies (Vol. 160). Ios Press.

Study of Factors Impacting the Successful Establishment of Enterprise Architecture Implementation Capability in Indian Public Sector

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Abstract

In recent years, digitalization has impacted the private and public sectors alike. While the private sector remained focused and organized to deliver more value with less, public organizations across the globe struggled to cope up with expectations of consumers. Over the years, globally, many small to large public and private enterprises have adopted Enterprise Architecture to derive maximum value from the technology investments. On the other hand, the Indian public sector is still coping with inorganic growth in technology platforms and thus resulting in several strategic and operational issues.

The systematic literature review reveals that there are the various inhibitors to the effective implementation of e-Governance programs in India and how the adoption of Enterprise Architecture can help in bringing up the overall effective implementation of such programs and realizes the vision of connected government. Further based on an analysis of recent doctoral dissertations and of key academic publications, it was assessed that Enterprise Architecture itself doesn't create value rather a good Enterprise Architecture implementation enables the value creation and hence these researches point towards having a right team in place.

After a critical review of the previous work examining EA research communities in isolation, most of the key success factors behind the value-driven Enterprise Architecture implementations by several government organizations across the globe, are highlighted. The study further lays down an outcome-based approach to establish Enterprise Architecture implementation capability within Indian public sector organizations. Based on the findings, a successful Enterprise Architecture implementation plan could be created keeping the minimal team structure in place with the right skills.

General Terms: *Enterprise Architecture Implementation Capability, Standardization of the Use of Information Technology in Indian Public Sector*

Keywords: *Enterprise Architecture, EA Implementation Capability, Connected Governments, e-Governance, Information Technology, Business Value, Digitalization, Innovation, Indian Public Sector, IndEA*

1. Introduction

1.1 Enterprise Architecture

The CISR defines Enterprise Architecture (EA) as the management and organizing of business processes to enable IT infrastructure to integrate and standardize the running of the enterprise as operational model. The operational model is a business process integration activities and standard business process creation in order to deliver goods or services from the company to the customer. [1]

Governments around the world are using Information & Communications Technology (ICT) to increase their system of service delivery to boost citizen satisfaction with government and to achieve competitive advantage in attracting investment over other nations. In order to achieve maximum value from the investment in e-Governance programs and associated infrastructure, developing and developed nations both were forced to invest in advanced technologies. As the technology adoption between public and private sectors was not similar, the collaboration between different functions, process restructuring, information sharing, and organization streamlining to embrace the technology were among the major challenges faced by public sector. [2] [3] [4]

As the need for standard frameworks and guidelines to follow the enterprise wide standards utilizing the existing business, technology and data structures, grew, few such frameworks were introduced, adopted and further enhanced. Zachman and Togaf EA frameworks were widely adopted by different enterprises across the globe. [1] [3] [5] [6] Though since the past few years, EA has been used for standardization and for better business to information technology (IT) mapping in both the private and public sectors. However, most organizations still face challenges in implementing the EA, and EA Development is not an easy task. [7] [4]

1.2 E-Governance Challenges

Globally, public sector organizations were lagging behind with having a mandate to deliver digital governance to citizens, businesses and other government peers but also dealing with some of the key challenges with inorganic advancement of technology. Following is a list of some of the key challenges faced by public sector bodies in past two decades, which lead them to adopt the standards and establish the enterprise-wide frameworks for ease of business:

Table 1.

Key Challenges Challenge	Description
Discrete Systems [8] [9]	Each local/regional office started their own procurement and hence ended up creating a farm of discrete systems
Information Sharing	Between the applications from different suppliers, there was no mean to share the data. Their interface didn't follow any standard protocols or formats to exchange information
Data Security [10] [8]	Data authenticity, integrity and security remained in question because local suppliers had the super admin privileges and none of the department user was well ready to transfer the knowledge or systems ownership
Inorganic Growth [11]	Generally local suppliers didn't plan for data/transaction growth and hence local bodies were forced to buy new application systems with new hardware. But again, due to the vendor lock-in issue, data from older systems could not be migrated to new systems and hence both instances of applications kept running
No Reporting [8]	Reporting from the discrete set of applications was another challenge and hence there were multiple reports available and each in different format, raising questions on overall efficiency of any given application or of overall information system landscape
Policy Compliance [12]	Overall technology landscape was disconnected and hence was not in compliance with major national and regional policies and guidelines
Skilled Personnel [12]	Technical trainers were not available and collaboration and learning sources were scarce. In addition to that there was a push-back from the public sector staff to learn technology

Process Compliance [10] [8]	The discreteness of systems resulted into another major challenge that almost no proposed system could completely adhere to the established departmental processes. Every system proposed the process re-definition and amendments and hence diluting the impact of overall service delivery
Cost Optimization [9]	With the growth of IT ecosystem there was a need to optimize the costs and deriving maximum value from the investment, but the overall un-organized local procurements resulted into shadow IT, multiple procurements for the same system and higher cost of systems support from suppliers

2. EA Adoption in Public Sector

2.1 EA Adoption Process

EA framework adoption process consists of three phases [11] [13]. Each of the phase involves different people, roles and skills, as explained below:

2.1.1 Initiation Phase

In this phase key people including the program sponsor establish the objectives, guidelines and policies to introduce the EA framework [11] [13]. They also establish the core team with their roles defined, who will develop and govern the implementation of EA. At this stage all the key government officials from IT, Policy and Standards departments participate in workshops and contribute to the establishment of common goal of establishing EA framework. The initiation document then is shared with principle consulting groups to refine and finalize it, which further is released to other government departments as an anchor to gear up to the EA development and adequate trainings.

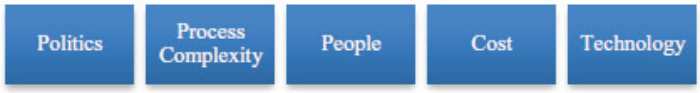
2.1.2 Development Phase

EA development requires key expertise and generally key consulting groups are invited to develop the initial framework with all necessary information and processes. During the EA development phase, series of workshops are held with directors of each departments and business logic about EA is finalized. [11]In early stages of EA introduction, senior stakeholders are provided adequate training and tools to understand and adopt the EA methodology. During this phase a basic standards repository is created, which will evolve with each department/solution.

2.1.3 Implementation Phase

This phase requires EA specific trainings to further down the hierarchy and hence resulting into more learnt audience. People must stay motivated and clearly see the value driven by the particular EA implementation so that more innovation and ideas could be received and hence EA could be further enhanced. [11]

As the governments do not work like private sector [14], there are different factors which impact the EA development and few of them are:



2.2 Global EA Absorption in Public Sector

The following table illustrates the literature review with respect to studying the critical success factors of implementation of EA in respective governments:

Table 2. EA Frameworks Studied

Table 2. EA Frameworks Studied Country	EA Framework	Literature Studied	Ref
USA	US FEAF	4	[15] [16]
Thailand	TIF	1	[15]
UK	xGEA	1	[16]
Germany	SAGA	1	[16]
UAE	Togaf	5	[16] [17] [18] [19] [20]
Korea	GEAF	1	[21]
China	National EA	1	[22]
Netherland	DYA	1	[23]
Sweden	BITA	2	[24] [19]
Malaysia	IGovEA	2	[18] [25]

A detailed systematic literature review highlighted that there were different objectives in mind when different EA frameworks were adopted by these public organizations (as mentioned in the Table 2. These objectives resulted into evolution of government enterprise architectures (GEA) which were specific to the country or department.

In nutshell public sectors in developed countries like USA, Denmark, Finland implemented EA framework as:

- Established national policies for EA adoption
- Secured budget for training, establishment of standards and core committee on board including consultants
- Tightly governed policies so that EA framework development and implementation remains politically unbiased
- Selected key programs to be enrolled in EA framework in initial stages
- Remodeling of established processes using modern process engineering techniques to use LEAN methods
- Business service delivery using digitalization was enforced and value on investments were realized
- Stakeholder collaboration and critical stakeholder's active involvement was ensured

On the other hand, developing countries like India, Philippines, Malaysia etc. were striving hard to become visible on the global e-Governance digitization index.

In India too, during last one-decade state of Andhra Pradesh, Panchayati Raj Program and other entities tried to create a footprint of EA but due to several challenges these programs could not derive the maximum value out of the EA. Government of India (GOI) has been looking forward to improving the e-Governance and other mission mode programs to follow a common set of standards and policies and hence kept working with The Open Group to setup the initial draft of enterprise architecture of India (IndEA).

The overall impact of these initiatives was that GOI introduced similar projects at national level and the overall result was shown the Digital Evolution Index report (2017) by Digital Planet, which shows India as a steady mover towards digitalization. The international e-Government development index based on the survey of United Nations, India stands at 107th position as compared to 125th position in 2012. Similarly index report states the improvement in e-Participation with 27th position in 2016, as compared to 75th position in 2012.

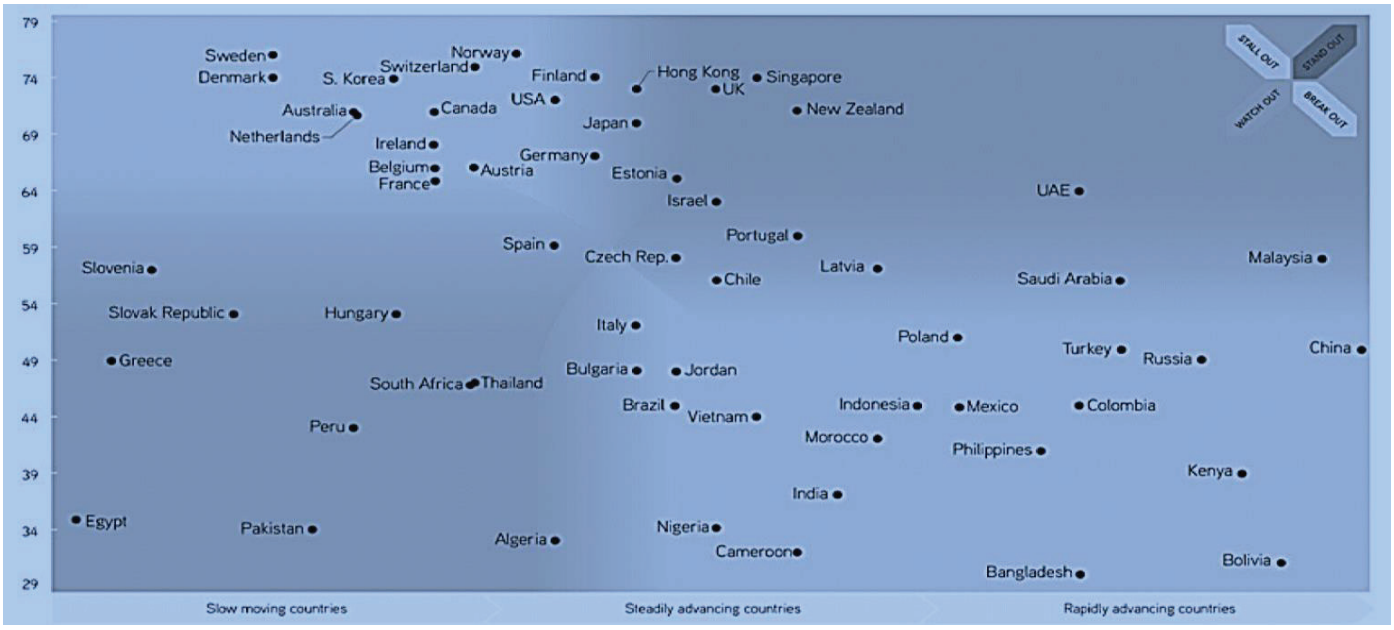


Fig 1: DIE Score Showing India in Steadily Advancing Countries

3. Critical Success Factors

3.1 Indian Public Sector and EA

After detailed analysis of three government departments, following are the findings related to different impact factors about the local processes and service delivery. From the global research papers on EA adoption it is evident that there are certain key factors which play a critical role in understanding the EA in completeness and its value to the whole enterprise. As mentioned by key research reports that EA framework must be developed effectively for its best use.

While authority support provided a solid foundation of EA implementation, adequate budgeting fueled the further absorption of EA within the respective enterprises. Strong governance includes open collaboration and exchange of information without boundaries, and such borderless information flow brings more ideas

to innovate, re-engineer and deliver the services to the customer's satisfaction. Talent management and training for EA were other differentiators which have direct relation with the successful implementation of EA. And as the overall objective of EA implementation revolves around establishing standards for IT reuse, deriving value and increase digital footprint for the services being delivered via G2G, G2C and G2B channels, setting up standards for IT procurement and inter-system data exchange formats and protocols, the overall e-governance is improving during past 3 years, which is pretty evident from the DIE score card for India.

Highcharts.com

EGDI Rank	2016	2014	2012	2010	2008	2005
India	107	118	125	119	113	87

Figure 2 E-Government Development Index

Highcharts.com

EPART Rank	2016	2014	2012	2010	2008	2005
India	27	40	75	58	49	57

Figure 3 E-Participation Index

Following spider chart depicts the emerging trend of readiness among the selected departments. It is pretty much evident that each function is trying to achieve the best with the help of factors stated above. For EA implementation it is important to have the well documented process and a powerful authority who can set EA as a mandate.

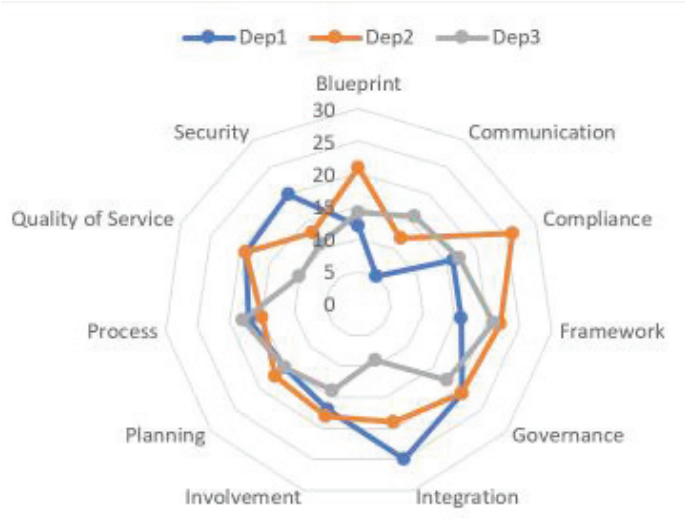


Fig 4: EA Implementation Readiness Factors

3.2 Research Summary

Upon detailed analysis of EA adoption by the public sectors in the countries under study, it can be stated that there are several key success factors for a successful implementation of EA and the associated initiatives, and these factors are different for different objectives and goals.

From the studies it was also revealed that EA is just a framework which points towards the right standards and guidelines, stored in a common repository. EA itself doesn't deliver any value, but a careful planning, strong governance and effective implementation does. Following are the key success factors, which are common for all the public sector units and thus can be observed and enforced to create a framework that actually works for all agencies. [26] [20] [10] [12] [24] [19] [27] [21] [28] [9] [2] [25] [15]

3.2.1.1 Willing Authority

For effective EA implementation top authority should exist with a strong will and adequate funds to invest into the program.

3.2.1.2 Legal & Compliance

Legal and compliance teams along with national standards body are to be involved to provide better guidance and direction for compliance, policy or standards establishment as part of the EA implementation program.

3.2.1.3 Stakeholders Identification and Role

Core committee must pick the key stakeholders very carefully so that business viewpoints could be accessed effectively, and EA agreements could be signed between the different functions. Each stakeholder has to be assigned a pre-defined role and the asks from the role just to bring the utmost clarity in EA planning, development and implementation phases.

3.2.1.4 Collaboration

There must be a well-established medium of information exchange between the stakeholders. Technology should enable this free-flow of information generating more ideas and creating more avenues of innovation.

3.2.1.5 Change Management

Increased awareness of e-government change management, deeper change in emerging IT technologies, and extension of public sector EA applications, all of these need a strong change management and governance.

3.2.1.6 Learning Culture

Culture of learning, comprehensive documentation, adequate training and certification of associated team members will lay down a strong foundation towards better EA implementation.

3.2.1.7 Framework & Tools

To enable the effective collaboration among stakeholders, executive members, sponsors, program-level participants

and activists, it is mandatory to have right framework and tools being made available, customized and standardized. These tools can be forked from the existing standards like EA frameworks from The Open Group (TOGAF) or Zachman, similarly program management frameworks PMP, Prince2 in addition with SABSA and COBIT. Together a neatly knitted fabric of tools, enabling borderless information exchange in same open format will surely follow the guidelines set by the key EA-led initiatives.

4. Conclusion and Way Forward

4.1 Way Forward

The research acts as a foundation stone to further research on the subject and opens the channels of debates and development of better strategies for effective implementation of EA-led e-Governance programs in India. Indian public sector, though is actively engaging citizens, businesses and peer government organizations to come to a single platform and start discussing about expectations and how the gaps could be covered by implementing the new digital technology initiatives which further promotes technology re-use, effective program governance and reporting, stakeholder sentiments feedback, analysis and intelligence on future resource requirements and setting up a standardized digital landscape across public sector, starting with mission mode programs.

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6. References

1. F. o. E. P. Organizations, "Common Perspectives of EA," Architecture and Governance Magazine, no. 9-4, 2013.
2. R. P, "Issues and challenges in e-governance planning," Electronic Government an International Journal, pp. 4-9, 2004.
3. E. Niemi, "Enterprise Architecture Benefit Realization," Tempere University of Technology, Tempere, 2016.
4. R. B. Heeks, "Why do most government IT projects fail?," ICA Newsletter, vol. 70, no. 1, pp. 26-31, 2000.
5. P. B. S. G. S. P. R. T Tamm, "How Does Enterprise Architecture Add Value to Organisations?," Communications of the Association for Information Systems, vol. 28, no. 1, pp. 141-168, 2011.
6. A. Tolk, "Beyond technical interoperability - Introducing a reference model for measures of merit for coalition interoperability," 8th International Command and Control Research and Technology Symposium, Washington, 2003.
7. A. I. A. Bilal charif, "Business and Government Organizations' Adoption of Cloud Computing," in Lecture Notes in Computer Science, Egypt, Springer International Publishing Swtizerland, 2014, pp. 492-501.
8. S. &. G. J. Sharma, "Building Blocks of an E-government-A Framework," Journal of Electronic Commerce in Organizations, vol. 1, no. 4, 2003.
9. V. Ndou, "E-government for developing countries: opportunities and challenges," The Electronic Journal on Information Systems in Developing Countries, vol. 18, no. 1, 2004.
10. S. Basu, "E-government and Developing Countries: an Overview," International Review of Law Computers and Technology, vol. 18, no. 1, 2004.
11. V. P. K. &. P. M. Seppänen, "Key issues in enterprise architecture adoption in the public sector," The Electronic Journal of e- Government, vol. 16, no. 1.
12. Z. Feng, "E-Government in Digital Era:Concept, Practice, and Development," Thailand, 2003.
13. V. H. J. &. L. K. Seppänen, "Key issues in EAimplementation: Case study of two Finnish government agencies," in B. Hofreiter & H. Werthner (Eds.) IEEE Conference on Commerce and Enterprise Computing, 2009.
14. H. &. L. K. Isomäki, "Challenges of Government Enterprise Architecture Work – Stakeholders' Views," M. A. Wimmer, H. J. Scholl & E. Ferro (Eds.), Turin, Italy, EGOV,2008.
15. K. S. Suchaiya S, "Analyzing national e-Government interoperability frameworks: A case of Thailand,"