DYPIMR
The Journal of Business Studies and Research

Contents

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The Journal of Business Studies & Research (JBSR) is an annual blind fold peer reviewed, Online and Print journal published by DYPIMR Publication. The Journal has Print ISSN: 2455-6610 and Online ISSN: 2455-233X It is a double-blind refereed journal. It emphasizes on innovation, advancement, development, research and dissemination of knowledge in the fields of management and Computer Technology. We do not charge authors to publish with us.

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AIM AND SCOPE

The Journal of Business Studies & Research (JBSR) is an annual blind fold peer reviewed, Online and Print journal published by DYPIMR Publication. The Journal has Print ISSN: 2455-6610 and Online ISSN: 2455-233X It is a double-blind refereed journal. JBSR aims at providing an intellectual platform for high quality research encompassing all the sub-domains of Management to all the academicians, research scholars and students.

The journal allows the research scholars to interchange and share their study and research ideas in the recent trends in business management and computer technology .This Journal mainly provides a premier interdisciplinary platform for the researchers, educators and practitioners to present and discuss their authentic and innovative ideas, trends and concerns as well as challenges encountered and solutions adopted in the advanced fields of Business Management and Computer Technology.

INDEX

"Study of Machine Learning on COVID-19 Dataset."

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Abstract

The current destructive pandemic of corona virus disease 2019 (COVID-19), caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) [1], was first reported in Wuhan, China, in December 2019 [2]. The outbreak has affected millions of people around the world and the number of infections and mortalities has been growing at an alarming rate. In such a situation, forecasting and proper study of the pattern of disease spread can inspire design better strategies to make more efficient decisions. Moreover, such studies play an important role in achieving accurate predictions. Machine learning has numerous tools that can be used for visualization and prediction, and nowadays it is used worldwide for study of the pattern of COVID-19 spread. One of the main focus of the study in this project is to use machine learning techniques to analyze and visualize the spreading of the virus country-wise as well as globally during a specific period of time by considering confirmed cases, recovered cases and fatalities.

The global impact of the outbreak on various aspects of life has been the focus of many studies. On the other hand, a pandemic can be forecast by considering a variety of parameters such as the impact of environmental factors, quarantine, age, gender and a lot more. The forecasting accuracy depends on the availability of proper data to base its predictions and provide an estimate of uncertainty. A challenge to use machine learning techniques for the current outbreak is that the datasets are not yet standardized by any standardization.

Organization and the statistical anomalies are not considered. Also, the appropriate selection of parameters and the selection of the best machine learning model for prediction are other challenges involved in training a model. In this project, I am going to perform linear regression, Support vector machine, Multilayer perception, Ensemble methods, etc., on the Johns Hopkins University's COVID-19 data to anticipate the future effects of COVID-19 pandemic in India and some other countries. Moreover, we are going to study the impact of some parameters such as geographic conditions, economic statistics, population statistics, life expectancy, etc., in prediction of COVID-19 spread.

Keywords: Machine Learning, Dataset, COVID-19.

1. Introduction

Machine Learning:

Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. **Machine learning focuses on the development of computer programs** that can access data and use it learn for themselves.

The process of learning begins with observations or data, such as examples, direct experience, or instruction, in order to look for patterns in data and make better decisions in the future based on the examples that we provide. **The primary aim is to allow the computers learn automatically** without

human intervention or assistance and adjust actions accordingly.

Types of Machine Learning:

Machine learning algorithms are divided into four main categories: supervised learning, pervised learning, semisupervised learning, and reinforcement learning. Supervised learning includes having a dataset with the correct output that is used to ``train'' the system. On the other hand, unsupervised learning includes trying to _end relations among the points in the dataset without having the correct results during training. This means that the algorithm tries to ``cluster 'points that it believes to be highly correlated under one label based on their statistical properties only. Semi-supervised learning combines the previous two types by training the system using a dataset containing labeled and unlabeled data points. The goal is to improve the performance of the model by making use of both types of data points [58]. Last but not least, reinforcement learning in contrast uses trial-and-error to discover the set of actions that maximize some cumulative reward metric.

Supervised Learning: Supervised learning is a branch of machine learning algorithms in which a function is inferred based on labeled training data . The training data is formed of a group of training examples, each of which is a pair $(x; y)$ where x is an input vector and y is the output value. The algorithm produces function that can be used for mapping future unknown inputs.

Regression: Regression algorithms try to find the best fit function for the training data available. Two main algorithms are discussed below: linear regression and polynomial regression.

Linear Regression: One of the most common regression algorithms used in machine learning is the linear regression algorithm. This algorithm tries to find the best fit line/hyper plane for the available training data. The goal of the algorithm is to find the value of the optimal coefficient vector $\_opt$ D $[\_0; \_1: \_N]$ *such* that the predictive function has a linear form. This is done by using the minimum mean squared error function.

Polynomial Regression: Another common regression algorithm used is the polynomial regression algorithm. This algorithm tries to find the best fit polynomial for the available training data. Similar to its linear counterpart, the goal of the algorithmic to find the value of the coefficient vector $\_opt$ D$[\_0; \_1; ::::; \_kN]$
such that the predictive function is polynomial of order k.

Classification: In contrast to regression algorithms that try to find the best fit function for the training data, classification algorithms try to find the best fit class for the data by putting each input in its correct class. In such cases, the output of the predictive function is discrete with the possible values being one of the different classes available as part of the training data. Four important classification algorithms are discussed below, namely logistic regression, artificial neural networks, support vector machines, and decision trees.

Logistic Regression: Logistic regression is an extremely popular classification algorithm used in the literature. Despite its name, this algorithmic used for classification (i.e. its output is discrete) rather than being a regression algorithm. It is

typically used a binary classifier where the output belongs to one of two categories only.

Support Vector Machines: Support vector machines (SVM) is another supervised classification algorithm. It tries to find the optimal hyper plane that separates the labeled data with the maximum margin from the closest point. It is a more powerful and restrictive classifier than the logistic regression algorithm. This algorithm replaces the sigmoid function used in logistic regression with a new function called the hinge loss function.

Artificial Neural Networks: An artificial neural network (ANN) is a popular supervised classification algorithm. It is often used whenever we have abundant labeled training data with many features and a non linear hypothesis function is desired. ANN tries to mimic the way our brain works as it has been proven that the brain uses one ``learning algorithm "for all its different functions.

Decision Trees: Decision trees are another popular choice of supervised learning classification algorithms. These algorithms are often referred to as statistical classifiers since they use statistical metrics to determine the branching of the nodes.

Deep Learning: One special class of supervised machine learning algorithms is deep learning. In essence, deep learning can be thought of as a large scale neural network.

Convolution Neura networks: Convolution Neural Networks (CNN) is a version of artificial neural networks that was inspired by the connectivity patterns found in the visual cortex of animals.

Recursive Neural Networks: Recursive Neural Networks(RNN) is another version of deep neural networks. RNNs are created by using the same set of weights in a recursive manner over a tree like structure

Unsupervised Learning: In contrast to supervised learning, unsupervised learning is the branch of machine learning in which a function/pattern is inferred based on unlabeled training data.

Clustering: One of the easiest way to make sense of a set of data points is to group/cluster them. This makes the data more understandable as it gives more structure to it by forming a finite set of groups rather than having a multitude of random data points. This is especially important in applications such as market segmentation and social network analysis.

K-Means Algorithm: K-means is one of the most popular unsupervised clustering algorithms for automatic data grouping into coherent clusters.

Dimensionality Reduction: Dimensionality reduction is another essential topic in the field of machine learning.

Principal Component Analysis: Principal Component analysis is one of the most popular dimensional it reduction algorithms in unsupervised learning. Its aim is to find the subset of features that best represents the data.

Anomaly Detection: Another important unsupervised learning algorithm is the anomaly detection algorithm. From its name, this algorithm tries to determine whether the given new example $x(new)$ is anomalous or not.

2. Objectives:

1) To perform some data manipulation and data visualization operations on top of the dataset.

2) To prediction of the Corona virus Disease COVID-19 using Machine learning.

3. Research Methodology

Type of Study: Descriptive research is a type of research that describes a population, situation, or phenomenon that is being studied. It focuses on answering the how, what, when, and where questions If a research problem, rather than the why. This is mainly because it is important to have a proper understanding of what a research problem is about before investigating why it exists in the first place.

For example, an investor considering an investment in the ever-changing Amsterdam housing market needs to understand what the current state of the market is, how it changes (increasing or decreasing), and when it changes (time of the year) before asking for the why. This is where descriptive research comes in.

Data collection method: Secondary data refers to **data** that is collected by someone other than the user. Common sources of **secondary data** for social science include censuses, information collected by government departments, organizational records and **data** that was originally collected for other research purposes. In this project, we are going to perform Linear regression, Support vector machine, Multilayer perception, Ensemble methods, etc., on the Johns Hopkins University's COVID-19 data to anticipate the future effects of COVID-19 pandemic in Iran and some other countries. Moreover, we are going to study

the impact of some parameters such as geographic conditions, economic statistics, population statistics, life expectancy, etc., in prediction of COVID-19 spread.

Statistical tool and technique: Python (google colab), Machine learning (Regression Analysis).

Google Colab: Colaboratory, or "Colab" for short, is a product from Google Research. Colab allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning, data analysis and education.

Regression Analysis: linear regression is a linear approach to modeling the relationship between a scalar response (or dependent variables) and one or more explanatory variables (or independent variables). The case of one explanatory variable is called simple linear regression. For more than one explanatory variable, the process is called multiple linear regressions.

4. Data Analysis

The following points are included in data analysis:
Data requirements.
Data collection. Data processing. Data cleaning.
Exploratory data analysis.
Modeling and algorithms

Data requirement: Data requirements definition establishes the process used to identify, prioritize, precisely formulate, and validate the data needed to achieve objectives.

Data collection: Data collection is defined as the procedure of collecting; measuring and analyzing accurate insights for research using standard validated techniques .Data are collected from a variety of sources. The requirements may be communicated by analysts to custodians of the data;

such as, Information Technology personnel within an organization. The data may also be collected from sensors in the environment, including traffic cameras, satellites, recording devices, etc. It may also be obtained through interviews, downloads from online sources, or reading documentation.

Secondary Data: Secondary data refers to data that is collected by someone other than the user. Common sources of secondary data for social science include censuses, information collected by government departments, organizational records and data that was originally collected for other research purposes.

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np
import datetime as dt
from datetime import timedelta
from sklearn.linear_model import LinearRegression
from sklearn.svm import SVR
from statsmodels.tsa.api import Holt
```
```
/usr/local/lib/python3.6/dist-packages/statsmodels/tools/_testing.py:19: FutureWarning: pandas.util.testing is deprecated. Use the functions in the public API at pandas.testing instead
  import pandas.util.testing as tm
```

```
covid = pd.read_csv("covid_19_data.csv")
covid.head()
```

	SNo	ObservationDate	Province/State	Country/Region	Last Update	Confirmed	Deaths	Recovered
0	1	01/22/2020	Anhui	Mainland China	1/22/2020 17:00	1.0	0.0	0.0
1	2	01/22/2020	Beijing	Mainland China	1/22/2020 17:00	14.0	0.0	0.0
2	3	01/22/2020	Chongqing	Mainland China	1/22/2020 17:00	6.0	0.0	0.0
3	4	01/22/2020	Fujian	Mainland China	1/22/2020 17:00	1.0	0.0	0.0
4	5	01/22/2020	Gansu	Mainland China	1/22/2020 17:00	0.0	0.0	0.0

Data processing: Data, when initially obtained, must be processed or organized for analysis. For instance, these may involve placing data into rows and columns in a table format for further analysis, often through the use of spreadsheet or statistical software finding any null values and finding size of the dataset

```
print("Size/shape of the dataset",covid.shape)
print("Checking for null values",covid.isnull().sum())
print("Checking Data-type",covid.dtypes)
```
```
Size/shape of the dataset (156292, 8)
Checking for null values SNo                0
ObservationDate        0
Province/State     44313
Country/Region         0
Last Update            0
Confirmed              0
Deaths                 0
Recovered              0
dtype: int64
Checking Data-type SNo                int64
ObservationDate       object
Province/State        object
Country/Region        object
Last Update           object
Confirmed            float64
Deaths               float64
Recovered            float64
dtype: object
```

Data Cleaning: Data cleaning refers to preparing data for analysis by removing or modifying data that is incomplete, irrelevant, duplicated, or improperly formatted.

```
#dropping the column
covid.drop(["SNo"],1,inplace=True)
```
```
covid.isnull().sum()
```
```
ObservationDate        0
Province/State     44313
Country/Region         0
Last Update            0
Confirmed              0
Deaths                 0
Recovered              0
dtype: int64
```

Exploratory data analysis: Exploratory data analysis is an approach to analyzing data sets to summarize their main characteristics, often with visual methods. Convert the observation date into date time format.

```
covid["ObservationDate"] = pd.to_datetime(covid["ObservationDate"])
```
```
covid["ObservationDate"]
```
```
0         2020-01-22
1         2020-01-22
2         2020-01-22
3         2020-01-22
4         2020-01-22
             ...
156287    2020-11-15
156288    2020-11-15
156289    2020-11-15
156290    2020-11-15
156291    2020-11-15
Name: ObservationDate, Length: 156292, dtype: datetime64[ns]
```

## Grouping different types of cases according to the date

```python
#Grouping different types of casesas per the date
datewise = covid.groupby(["ObservationDate"]).agg({"Confirmed":"sum","Recovered":"sum","Deaths":"sum"})
```

```python
print("Basic Information")
print("Total number of Confirmed cases around the world",datewise["Confirmed"].iloc[-1])
print("Total number of Recovered cases around the world",datewise["Recovered"].iloc[-1])
print("Total number of Deaths cases around the world",datewise["Deaths"].iloc[-1])
print("Total number of Active cases around the world",(datewise["Confirmed"].iloc[-1]-datewise["Recovered"].iloc[-1]-datewise["Deaths"].iloc[-1]))
print("Total number of Closed cases around the world",(datewise["Recovered"].iloc[-1]+datewise["Deaths"].iloc[-1]))
```

```
Basic Information
Total number of Confirmed cases around the world 54370186.0
Total number of Recovered cases around the world 34955148.0
Total number of Deaths cases around the world 1317139.0
Total number of Active cases around the world 18097899.0
Total number of Closed cases around the world 36272287.0
```

```python
plt.figure(figsize=(15,5))
sns.barplot(x=datewise.index.date,y=datewise["Confirmed"]-datewise["Recovered"]-datewise["Deaths"])
plt.title("Distributions plot for active cases")
plt.xticks(rotation=90)
```

```
(array([  0,   1,   2,   3,   4,   5,   6,   7,   8,   9,  10,  11,  12,
         13,  14,  15,  16,  17,  18,  19,  20,  21,  22,  23,  24,  25,
         26,  27,  28,  29,  30,  31,  32,  33,  34,  35,  36,  37,  38,
         39,  40,  41,  42,  43,  44,  45,  46,  47,  48,  49,  50,  51,
         52,  53,  54,  55,  56,  57,  58,  59,  60,  61,  62,  63,  64,
         65,  66,  67,  68,  69,  70,  71,  72,  73,  74,  75,  76,  77,
         78,  79,  80,  81,  82,  83,  84,  85,  86,  87,  88,  89,  90,
         91,  92,  93,  94,  95,  96,  97,  98,  99, 100, 101, 102, 103,
        104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116,
        117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129,
        130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142,
        143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155,
        156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168,
        169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181,
        182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194,
        195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207,
        208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220,
        221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233,
        234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246,
        247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259,
        260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272,
        273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285,
        286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298]),
 <a list of 299 Text major ticklabel objects>)
```
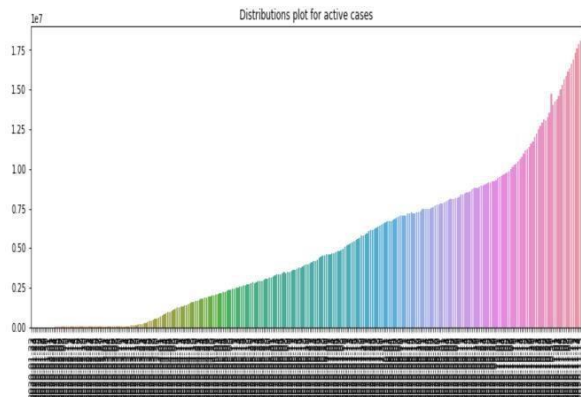


```python
datewise["WeekofYear"] = datewise.index.weekofyear
week_num = []
weekwise_confirmed = []
weekwise_recovered = []
weekwise_deaths = []
w = 1
for i in list(datewise["WeekofYear"].unique()):
    weekwise_confirmed.append(datewise[datewise["WeekofYear"]==i]["Confirmed"].iloc[-1])
    weekwise_recovered.append(datewise[datewise["WeekofYear"]==i]["Recovered"].iloc[-1])
    weekwise_deaths.append(datewise[datewise["WeekofYear"]==i]["Deaths"].iloc[-1])
    week_num.append(w)
    w=w+1
plt.figure(figsize=(8,5))
plt.plot(week_num,weekwise_confirmed,linewidth=3)
plt.plot(week_num,weekwise_recovered,linewidth=3)
plt.plot(week_num,weekwise_deaths,linewidth=3)
plt.xlabel("WeekNumber")
plt.ylabel("Number of Cases")
plt.title("Weekly progress of different types of cases")
```
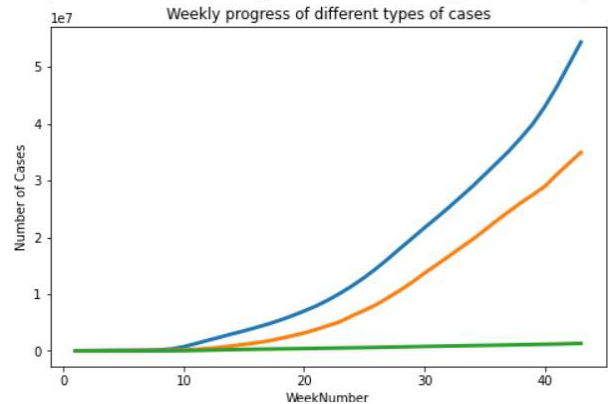


```python
fig,(ax1,ax2) = plt.subplots(1,2,figsize=(12,4))
sns.barplot(x=week_num,y=pd.Series(weekwise_confirmed).diff().fillna(0),ax=ax1)
sns.barplot(x=week_num,y=pd.Series(weekwise_deaths).diff().fillna(0),ax=ax2)
ax1.set_xlabel("Week Number")
ax2.set_xlabel("Week Number")
ax1.set_ylabel("Number of Confirmed cases")
ax2.set_ylabel("Number of Confirmed cases")
ax1.set_title("Weekly increase in number of Confirmed cases")
ax2.set_title("Weekly increase in number of Deaths cases")
plt.show()
```
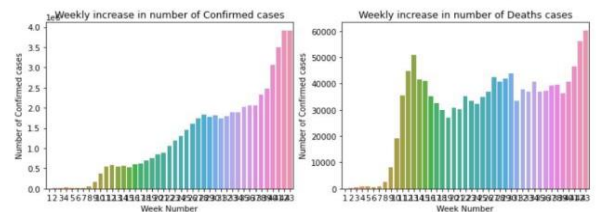


```python
print("Average increase  in number of Confirmed cases everyday:",np.round(datewise["Confirmed"].diff().fillna(0).mean()))
print("Average increase  in number of Recovered cases everyday:",np.round(datewise["Recovered"].diff().fillna(0).mean()))
print("Average increase  in number of Deaths cases everyday:",np.round(datewise["Deaths"].diff().fillna(0).mean()))
plt.figure(figsize=(15,6))
plt.plot(datewise["Confirmed"].diff().fillna(0),label="Daily increase in Confirmed cases",linewidth=3)
plt.plot(datewise["Recovered"].diff().fillna(0),label="Daily increase in Recovered cases",linewidth=3)
plt.plot(datewise["Deaths"].diff().fillna(0),label="Daily increase in Deaths cases",linewidth=3)
plt.xlabel("Timestamp")
plt.ylabel("Daily increase")
plt.title("Daily increase")
plt.legend()
plt.xticks(rotation=90)
plt.show()
```

```
Average increase  in number of Confirmed cases everyday: 181838.0
Average increase  in number of Recovered cases everyday: 116907.0
Average increase  in number of Deaths cases everyday: 4405.0
```



```
#country wise analysis
#calculating country wise mortality rate
countrywise= covid[covid["ObservationDate"]==covid["ObservationDate"].max()].groupby(["Country/Region"]).agg({"Confirmed":"sum","Recovered":"sum","Deaths":"sum"}).sort_values(["Confir
countrywise["Mortality"]=(countrywise["Deaths"]/countrywise["Recovered"])*100
countrywise["Recovered"]=(countrywise["Recovered"]/countrywise["Confirmed"])*100
```

```
fig,(ax1,ax2)=plt.subplots(1,2,figsize=(25,10))
top_15confirmed = countrywise.sort_values(["Confirmed"],ascending=False).head(15)
top_15deaths = countrywise.sort_values(["Deaths"],ascending=False).head(15)
sns.barplot(x=top_15confirmed["Confirmed"],y=top_15confirmed.index,ax=ax1)
ax1.set_title("Top 15 countries as per number of confirmed cases")
sns.barplot(x=top_15deaths["Deaths"],y=top_15deaths.index,ax=ax2)
ax1.set_title("Top 15 countries as per number of deaths cases")
```


Data Analysis for India

```
#Data Analysis for India
india_data = covid[covid["Country/Region"]=="India"]
datewise_india = india_data.groupby(["ObservationDate"]).agg({"Confirmed":"sum","Recovered":"sum","Deaths":"sum"})
print(datewise_india.iloc[-1])
print("Total active cases",datewise_india["Confirmed"].iloc[-1]-datewise_india["Recovered"].iloc[-1]-datewise_india["Deaths"].iloc[-1])
print("Total Closed cases",datewise_india["Recovered"].iloc[-1]+datewise_india["Deaths"].iloc[-1])
```

```
Confirmed    8845127.0
Recovered    8249579.0
Deaths        130070.0
Name: 2020-11-15 00:00:00, dtype: float64
Total active cases 465478.0
Total Closed cases 8379649.0
```

```
#Data Analysis for US
us_data = covid[covid["Country/Region"]=="US"]
datewise_us = us_data.groupby(["ObservationDate"]).agg({"Confirmed":"sum","Recovered":"sum","Deaths":"sum"})
print(datewise_us.iloc[-1])
print("Total active cases",datewise_us["Confirmed"].iloc[-1]-datewise_us["Recovered"].iloc[-1]-datewise_us["Deaths"].iloc[-1])
print("Total Closed cases",datewise_us["Recovered"].iloc[-1]+datewise_us["Deaths"].iloc[-1])
```

```
Confirmed    11036935.0
Recovered     4174884.0
Deaths         246214.0
Name: 2020-11-15 00:00:00, dtype: float64
Total active cases 6615837.0
Total Closed cases 4421098.0
```

Analysis of weekly progress of different types of case in India.

```
datewise_india["WeekofYear"] = datewise_india.index.weekofyear
week_num_india = []
india_weekwise_confirmed = []
india_weekwise_recovered = []
india_weekwise_deaths = []
w = 1
for i in list(datewise_india["WeekofYear"].unique()):
    india_weekwise_confirmed.append(datewise_india[datewise_india["WeekofYear"]==i]["Confirmed"].iloc[-1])
    india_weekwise_recovered.append(datewise_india[datewise_india["WeekofYear"]==i]["Recovered"].iloc[-1])
    india_weekwise_deaths.append(datewise_india[datewise_india["WeekofYear"]==i]["Deaths"].iloc[-1])
    week_num_india.append(w)
    w=w+1
plt.figure(figsize=(8,5))
plt.plot(week_num_india,india_weekwise_confirmed,linewidth=3)
plt.plot(week_num_india,india_weekwise_recovered,linewidth=3)
plt.plot(week_num_india,india_weekwise_deaths,linewidth=3)
plt.xlabel("WeekNumber")
plt.ylabel("Number of Cases")
plt.title("Weekly progress of different types of cases")
```
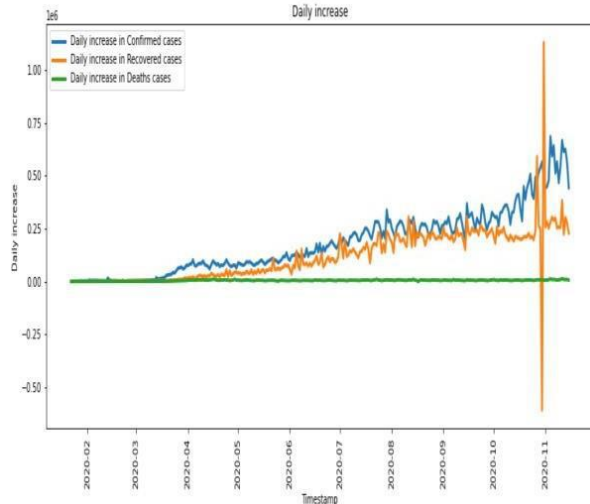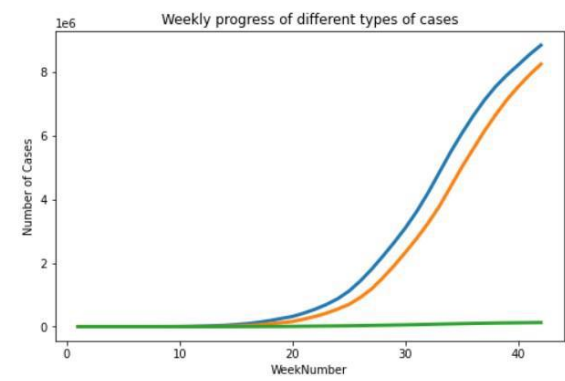

Modeling and algorithms: Mathematical formulas or models may be applied to the data in order to identify relationships among the variables; for

example, using correlation or causation. In general terms, models may be developed to evaluate a specific variable based on other variable(s) contained within the dataset, with some residual error depending on the implemented model's accuracy initializing the model by using Linear Regression algorithm.

```
datewise["Days Since"]=datewise.index-datewise.index[0]
datewise["Days Since"]=datewise["Days Since"].dt.days
train_ml = datewise.iloc[:int(datewise.shape[0]*0.95)]
valid_ml = datewise.iloc[int(datewise.shape[0]*0.95):]
model_scores=[]
```

```
lin_reg = LinearRegression(normalize=True)
svm = SVM(C=1,degree=5,kernel='poly',epsilon=0.001)
lin_reg.fit(np.array(train_ml["Days Since"]).reshape(-1,1),np.array(train_ml["Confirmed"]).reshape(-1,1))
svm.fit(np.array(train_ml["Days Since"]).reshape(-1,1),np.array(train_ml["Confirmed"]).reshape(-1,1))
```

```
/usr/local/lib/python3.6/dist-packages/sklearn/utils/validation.py:760: DataConversionWarning: A column-vector y was passed when a 1d array was expected. Please change the shape of y
  y = column_or_1d(y, warn=True)
SVR(C=1, cache_size=200, coef0=0.0, degree=5, epsilon=0.001, gamma='scale',
    kernel='poly', max_iter=-1, shrinking=True, tol=0.001, verbose=False)
```

```
prediction_valid_lin_reg = lin_reg.predict(np.array(valid_ml["Days Since"]).reshape(-1,1))
prediction_valid_svm = svm.predict(np.array(valid_ml["Days Since"]).reshape(-1,1))
```

```
new_date = []
new_prediction_lr = []
new_prediction_svm = []
for i in range(1,18):
    new_date.append(datewise.index[-1]+timedelta(days=i))
    new_prediction_lr.append(lin_reg.predict(np.array(datewise["Days Since"].max()+i).reshape(-1,1))[0][0])
    new_prediction_svm.append(svm.predict(np.array(datewise["Days Since"].max()+i).reshape(-1,1))[0])
pd.set_option("display.float_format",lambda x: '%.f'%x)
model_prediction=pd.DataFrame(zip(new_date,new_prediction_lr,new_prediction_svm),columns = ["Dates","LR","SVR"])
model_prediction.head(10)
```

	Dates	LR	SVR
0	2020-11-16	37417974	21836020
1	2020-11-17	37573075	22081961
2	2020-11-18	37728177	22331202
3	2020-11-19	37883278	22583778
4	2020-11-20	38038380	22839721
5	2020-11-21	38193481	23099066
6	2020-11-22	38348582	23361845
7	2020-11-23	38503684	23628094
8	2020-11-24	38658785	23897846
9	2020-11-25	38813887	24171135

```
model_train=datewise.iloc[:int(datewise.shape[0]*0.85)]
valid=datewise.iloc[int(datewise.shape[0]*0.85):]
```

```
holt=Holt(np.asarray(model_train["Confirmed"])).fit(smoothing_level=1.4,smoothing_slope=0.2)
y_pred = valid.copy()
y_pred["Holt"]=holt.forecast(len(valid))
```

Predict the values

```
holt_new_date=[]
holt_new_prediction=[]
for i in range(1,18):
    holt_new_date.append(datewise.index[-1]+timedelta(days=i))
    holt_new_prediction.append(holt.forecast((len(valid)+i))[-1])

model_prediction["Holts Linear Model Prediction"]=holt_new_prediction
model_prediction.head()
```

	Dates	LR	SVR	Holts Linear Model Prediction
0	2020-11-16	37417974	21836020	47927563
1	2020-11-17	37573075	22081961	48224138
2	2020-11-18	37728177	22331202	48520714
3	2020-11-19	37883278	22583778	48817290
4	2020-11-20	38038380	22839721	49113865

5. Conclusion

The current destructive pandemic of corona virus disease 2019 (COVID-19), caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) [1], was first reported in Wuhan, China, in December 2019 [2]. The outbreak has affected millions of people around the world and the number of infections and mortalities has been growing at an alarming rate.

In this project, I performed the Linear regression, Support vector machine, Ensemble methods, etc., on the Johns Hopkins University's COVID-19 data to anticipate the future effects of COVID-19 pandemic in India and some other countries. Moreover, analyzed the impact of some parameters such as geographic conditions, economic statistics, population statistics, life expectancy, etc., in prediction of COVID-19 spread.

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"A Study of Digital Marketing Practices of Real Estate Company during COVID-19."

* Soniya Das

ABSTRACT:

The corona virus (COVID-19) pandemic has had a significant effect on various areas of the global economy, including the real estate industry.

Prior to COVID-19, real estate analysts often asserted that virtual and augmented reality will never find a home in this industry due to the large sums of money involved. Corona virus's effect on real estate marketing has turned the industry on its head. Virtual site tours, digitisation, and video walk-through are new marketing terms that most real estate firms are using to attract potential buyers' interest. Simultaneously, investors, many of whom are still afraid to venture out, are actively engaging in the process, ensuring that these emerging ways of real estate marketing are a huge success.

KEYWORDS: Digital Marketing during COVID, Real Estate Marketing Suring COVID, Digital Marketing Strategies.

INTRODUCTION

Nowadays buyers & sellers both have come online. If they're looking for listings or answers about real estate, they turn to the internet first, then to real estate agents. The internet has become the first priority to find out the most important information. That is why it was critical to combine this real estate business with digital marketing so that those who are interested can easily find what they want.

Traditional marketing methods such as newspaper advertising, banners, and television are still used, but architects, developers, and real estate agents are using the internet to extend their networks and reach out to potential buyers. Since the number of internet users is growing by the day, and the expected revenues for e-commerce businesses are growing in lockstep, it is imperative that we assert our presence in the digital world. When opposed to traditional marketing methods such as television, radio, and print, it provides a higher return on investment.

Also, the young generation as well as the NRIs is tech-savvy so it is easy for them to engage with this marketing type.

By using this new portal, The real estate industry has become extremely successful and commoditized as a result of digital marketing. The number of leads generated by the real estate industry has increased by nearly 300 percent thanks to digital marketing. The sellers now have the opportunity to turn them into prospective project buyers as well. This company is having a bigger effect on branding thanks to digital marketing. This company is having a bigger effect on branding and lead generation thanks to digital marketing. When it comes to meeting customers, digital marketing startups follow a common procedure. There are certain moves that can't be changed or missed. These are followed in order and carried out after the procedure has been evaluated several times. Your digital marketing team should be capable of delivering. Since everyone's job is intertwined in digital marketing, the team should be capable of delivering what your client expects.

TOOLS

1. Organic Social Media Tools

As of September 2020, Facebook has over 2.79 billion monthly active users, and Instagram has well over 700 million. Since so many people spend so much time on social media, it's quickly becoming one of the most popular outlets for businesses to tap into. As a result, social media management strategies have become essential for both large and small businesses. Even these platforms came up with n-number of strategies that will help businesses to grow. Day-by-day users keep increasing. To ease the works social media automation tools are also getting hype. This is done by writing captions using proper keyword research and trending hash tags as well. This helps clients to find businesses much easier.

2. Paid Social Media Tools

Social media networks have much more influence than organic scope. Paid networks will help you access large numbers of active users that you wouldn't otherwise be able to reach. Since the major social networks have so much data on their users, targeting can become incredibly granular and accurate, making social media an excellent place to pay for impressions. Face book's Power Editor is a platform for designing and managing hyper-targeted advertising campaigns. Facebook is continually developing its ad platform, with new targeting and budgeting features being released on a regular basis. This is easily one of the best digital marketing strategies for marketers just getting started with paid social, with no third-party fees to build and manage your ads. This is easily one of the best digital marketing strategies for marketers just getting started with paid social, with no third-party fees to build and manage your ads. The platform's

comprehensive criteria ensure that you target exactly who you want, while also allowing you to set budget limits to avoid going overboard.

Targeting their audience providing proper demographics and location within the budget was a forever need of real estate businesses. Through Paid Ads, this has become real.

In this case, an attractive Ad copy and proper audience selection has the major role for any real estate businesses. So, a professional agency can help Real Estate companies to run the campaign achieving all the parameters of Facebook and Instagram.

3. Email Marketing Tools

With over 250 billion emails sent by its users last year, Mail Chimp is a true behemoth in the email marketing room. The platform's accessibility and sliding price tag depending on the size of your email list are two of Mail Chimp's best features. Their "forever free" package, in particular, is ideal for small businesses looking to get started with email marketing.

With customized template and using proper USP of real estate businesses many of them are targeting their audience using Email Marketing. For this, they are using their existing database and getting databases from Facebook or Instagram Campaigns as well.

Another point is that Mail chimp's Report for every Email's that have sent by the company helps to improve their next newsletter according to audience clicks on it.

Here, strategies such as number of call-to-action, attractive design, informative attachments, testimonials, videos, mobile responsiveness &

obviously the main text & preview text does matter especially for a real estate business.

4. Local Listing Pages

It can be difficult to find the best website for a customer real estate needs. There are hundreds of real estate websites to choose from whether customers are looking for a new home or selling an existing one. This is where local listing pages helps businesses.

Realtor.com, Trulia & Zillow are some examples of search engine listings wherein you can search for builders available based on your location preference.

Google My Business, Just Dial & Surekha are some examples of the local listing pages wherein you need to do SEO of your business page to make your business searchable for consumers. Here, you can add all your contact details & website addresses. Also, people can give review and this will help consumers to understand the service of a real estate business. These testimonials have a great impact especially during COVID pandemic.

5. Google Analytics

You can track the performance of your real estate website as well as the effectiveness of your marketing efforts using Google Analytics. If we want to know how many visitors your partner sites, such as Trulia, Zillow, and Realtor.com, send our way? Businesses can find out using Google Analytics. That is just one example. You'll be able to do the following once you've installed Google Analytics on your real estate website:

- Find out how people find your site (Google search? Referral traffic? Direct?) and how they get there.

- Find out which of your pages generates the most traffic and receives the most social shares (blog post? homepage? listing search page?)
- Find out which sections of your website generate the most leads through conversion events (contact form? Newsletter signup? social networking button?)

Based on the Analytics report, real estate businesses can develop various marketing strategies on their website.

6. Google Ads

There are a lot of realtors in your market who want to be found as potential clients search for a home in their area on Google. You can use hundreds of different forms of content marketing to generate leads, and Google Advertising is one of the most effective ways to catch the attention of potential home buyers. There are numerous ways for real estate agents to establish an online presence and a lead generation machine, with Google Advertising being one of the most effective methods for capturing a large number of real estate leads. Since you must pay Google each time someone clicks on your advertising, Google Ads is an investment for your real estate company, and businesses should follow detailed tips to maximize your Google AdWords campaigns.

Google AdWords is a powerful tool that allows you to craft a persuasive message and refine how and when your ads appear so that you can attract customers in a particular market for specific keywords.

Google Advertising works in a similar way to an auction, with real estate agents bidding to have their

ads appear on Google SERPs for unique search words.

The price you pay at the Google auction will be determined by a variety of factors. Quality Score and user experience are the two most important variables in determining the Pay Per Click (CPC) for each AD

7. SMS Marketing

SMS has the highest open rate, interaction rate, and conversion rate of all communication platforms, making it a simple and efficient way to communicate with potential homeowners. A short code is a five- or six-digit phone number that replaces a traditional ten-digit number. In SMS opt-in campaigns, a keyword is used. Details such as Property Address, Property size, Property Price, Contact information, Link to your website and link to your Google Address can be included.

8. Whatsapp Marketing

Whatsapp marketing is a common but relatively new trend. There are lists of mobile phone numbers online, and you can use a business phone number to advertise any real estate offer. Your real estate company can be a late entrant in a race where e-marketing is seen as a long-term contender.

The target audience is: The most important benefit of Whatsapp marketing is that it allows you to extend your scope. You will reach a wider audience and inspire and motivate them to purchase a home. You may also let more people in on the specifics of your designs. When text forwards are exchanged, this helps to spread the message in the market, bringing you more potential customers.

Consider the scenario that you have a dedicated phone number for your company and send out bulk messages from your local database. People will come down to ask based on your posts. You can also collect new numbers when on the go if they bring their mates.

Real estate software saves money because it produces more consistent outcomes than traditional marketing materials. Unlike emails and snail mail, where data is more likely to be lost in multi-level transactions, Whats App is a blessing in disguise. Unlike emails and snail mail, which have a higher risk of data loss in multi-level transactions, Whatsapp is a godsend because messages are never lost or skipped.

When you use Whatsapp for marketing, you can be assured that your information will hit your target audience – no matter what. You're in direct contact with your clients, and technology is a dependable marketing tool.

TECHNIQUES

1. Focus on video content

For many marketers, videos are quickly becoming an indispensable marketing tool. It is not only a straightforward way to convey a message, but it is also more attention-grabbing, entertaining, and easy, and it leaves a lasting impression on the audience.

These are only a few of the reasons why advertisers are increasingly turning to video content.

According to a wyzoul 2020 report, 92 percent of marketers believe videos are an effective marketing tool, 83 percent say video has assisted them in generating leads, 80 percent say video has directly assisted in increasing sales, and 89 percent say video provides a strong return on investment.

All of these main statistics point to one conclusion: video content can be used in your real estate business. All of these main figures point to one

conclusion: using video content in your real estate business should be one of your top priorities right now.

Visual viewings are a good substitute for in-person house viewings. You're offering prospective buyers the ability to view available properties online from the comfort of their own homes by producing a high-quality and insightful video of the properties for sale.

Furthermore, the abundance of computers, apps, and applications available makes development easier.

Additionally, the abundance of cameras, apps, and applications available makes video production much simpler.

It's also worth noting that the type of videos you make to deliver your message is crucial.

There are two common video content marketing techniques you should think about right now:

Personalized or Branded Videos

To produce an appealing video of your highlighting available properties on the market, branded videos typically require the consistent use of elements such as thumbnails, video titles, and signature aesthetics.

Narration is used in branded videos to remind the audience, which makes it more entertaining and helps you to convey more content than text. As a realtor, you can use this form of video to show viewers an informative "How to" or "Behind the Scenes" of what you do, which they can remember.

Streaming or Live Videos

Businesses, influencers, and companies are constantly using live streaming to communicate. This is due in part to how simple it is to set up, as well as the wide range of sites that support the

functionality, including Facebook, Youtube, Instagram, and LinkedIn.

Businesses will find live streaming to be incredibly useful because it allows you to show off your listings in their natural state.

As a realtor, live streaming is extremely useful because it allows you to bring potential buyers raw, genuine, and unedited footage of properties for sale.

Another great advantage of using video content in marketing campaign is that it can be used for a variety of purposes and platforms.

For example, repurpose your narrative video material as audio for a podcast.

2. Facebook Messenger Marketing

With over 1.3 billion active users, Facebook Messenger marketing is an excellent way to target and reach people who may be interested in purchasing a home or property. This marketing software, which is the world's most popular mobile chat application, gives you direct access to your potential customers wherever they are. Not to mention the marketing approach that is scalable.

Not to mention the modular marketing solution, which allows you to segment your audience, customize and distribute your messaging, build marketing campaigns, and much more. What makes it even more appealing is its average open rate, which is between 70 and 80 percent open rate and 20 percent click-through rate, according to statistics. You can use Facebook Messenger marketing to take advantage of all of the platform's amazing features, such as automating your business operation and lead generation process, building confidence, and so on.

Since Facebook Messenger marketing is still relatively new, only 1% of companies use automated

Chabot messaging to communicate with their customers. It's a good idea to take advantage of it now, because it's less saturated by those in the industry – real estate.

3. Digital Audio Advertising

Visual advertisements are one of the most commonly used and common forms of advertisements in the marketing room, but they are insufficient in the current situation, particularly in an industry like real estate.

This is why, as part of your marketing campaign to spread the word and generate exposure, you should consider embracing and using audio ads. The act of serving ads to people listening to audio files on digital audio channels such as digital radio, podcasts, or music streaming services is known as audio advertising, also known as programmatic audio.

This basically means that the advertising is embedded in digital audio files and played to a listener, such as pre-roll or mid-roll in a podcast, or during commercial breaks. As a pre-roll or midroll in a podcast, during promotional breaks on digital audio, and inside songs in a playlist, this essentially means that the advertisement is inserted into digital audio files and played to a listener.

Audio advertisement is useful for marketing because it reaches people at times when visual advertising cannot, such as when they are running, walking their dog, washing, and so on.

Different digital audio platforms have different features and functionalities that make them stand out when it comes to communicating with a particular audience group.

Spotify can exemplify this scenario. Spotify Ad Studio, for example, is a self-serve audio ad network

that medium-sized businesses may use to advertise their brand, product, or service in non-music categories.

The targeting options in Spotify Ad Studio let you choose an audience based on age, gender, venue, behavior, and even listening habits.

4. Interactive Content

Every successful marketing strategy has one thing in common: the use of original content that educates, solves a problem, or entertains the audience.

There's no doubt that content reigns supreme, and with the rise in popularity of interactive content, its importance is only growing.

Traditional content is primarily intended to inform, educate, and entertain an audience, and it may or may not be repurposed. Spotify Ad Studio, for example, is a self-serve audio ad network that medium-sized businesses may use to advertise their brand, product, or service in non-music categories.

The targeting options in Spotify Ad Studio let you choose an audience based on age, gender, venue, behavior, and even listening habits.

This is where interactive content comes in, which is essentially a type of content that both informs and prompts audience interaction. Answering a quiz, taking a vote, or engaging in a multi-day competition of some sort may be the means of interaction.

Even when they share their thoughts or express their feelings about a specific topic, interactive content has the potential to personalize the experience of your audience. Email messages, social media feeds, blog posts, and other forms of interactive content can all be used to provide interactive content.

Interactive content, when used correctly, will increase interaction, attract more views, and raise brand awareness, all of which are positive outcomes. Interactive content, when used correctly, will increase interaction, attract more views, and raise brand awareness, both of which lead to more customers.

5. Adapt to virtual platforms

Real estate brands that have recognized the potential of technology in real estate have benefited, from drone shoots to virtual tours. Although client meetings were held through Google Meet and Zoom, virtual tours, video walk-through, or a drone shoot were the only alternatives to physical site visits. Many businesses who had not shot such videos prior to the outbreak rushed the shoots to meet the deadlines. Many businesses who had not shot such videos prior to the outbreak rushed to complete them in order to meet market demand. Similarly, a number of companies developed online booking platforms to allow online home selection and purchase for a nominal fee, which could be charged through NEFT, RTGS, or even UPI. The need for face-to-face meetings to hand over checks was finally removed.

6.Referral marketing A variety of real estate firms and businesses in related fields have also started referral programs. Getting referred by existing clients or renewing existing agreements became simpler as new customer acquisitions dried up entirely.

DI Interiors and Architectures, a firm based in Kolkata, initiated referral marketing during COVID pandemic. They floated a mailer to their existing clients to refer their friends and family and get an assured cash-back on the deal closure. Similarly, many companies are initiating referral discounts and offers as well during this time.

7. Understand audiences to personalize marketing strategies

Real estate developers need to know who they're talking to in order to build content that home owners can find useful. Women will account for nearly 40% of all Internet users in India by 2020. This emphasizes the increasing importance of producing content that is appealing to women. In order to do so, long-held gender and interest stereotypes would have to be challenged.

In order to do so, long-held gender and interest-area stereotypes would have to be challenged. Women, for example, made up 60% of those who shopped for sporting goods and watched related videos on YouTube. Furthermore, women made up 60% of those who looked for car-related information on the internet. Developers can Generate Content by having a deep understanding of their target markets. Developers will generate content that their users would actually find valuable if they have a deep understanding of their audiences. This is a critical step in establishing a connection with your audience.

8. Create Campaigns specifically for mobile

One of the most intriguing aspects of Indian Internet use is that the majority of Indians have not adopted the general Internet adoption trend. While most people in the world started with a computer and then moved on to cell phones, Indians seem to have

skipped straight to mobile phones. Indians use their phones to access the Internet nearly 80% of the time, according to a Stat counter report. According to a Stat counter report, Indians access the Internet on their phones nearly 80% of the time. If property developers want to communicate with the next billion Internet users, they should create content specifically for mobile phones.

9. Use regional languages to reach a wider audience

While the number of English-speaking Internet users in India has remained relatively constant, the number of users who speak regional languages is rapidly increasing. Internet penetration in tier II and III towns, as well as villages, is one of the main reasons for this development.

According to Google, approximately 30% of users in India are from rural areas. A good regional language real estate digital marketing strategy is essential if property developers want to establish a personal relationship with potential home owners. Tamil is the most common regional language among Internet users in India, accounting for 42 percent of all users, while Hindi is spoken by 39 percent.

10. Optimize brands for voice search :

While voice search in India is still in its infancy, it is rising at a steady pace. According to Google, voice searches account for 28% of all searches. Much more encouraging is the fact that Hindi voice quest has increased by 400 percent. Since conventional keywords aren't used when speaking naturally, voice search has huge consequences for SEO. This means that real estate developers must find new ways to become discoverable through voice search results in order to remain available on digital platforms.

11. Utilize the AdWords missed call extension

Using call extensions in your ads will boost click-through and conversion rates significantly. However, with a large number of mobile users in India using prepaid connections, especially in smaller cities and towns, the cost of making a call may deter them from contacting your company. This is why AdWords recently launched a 'Missed Call' feature to help with this problem. This is why AdWords recently launched a 'Missed Call' feature to help fix this problem. A call is put and then instantly cut when a user chooses the Missed Call option on an ad. The consumer will then receive an automated call instructing them to remain on the line while their call is linked to the company. The company will also receive a call from Go at the same time.

The company would also receive a call from Google at the same time. Both the customer and the company will be linked until they are both on the call. This functionality will assist real estate developers in better engaging with potential home buyers and tracking conversions.

12. Work on ORM

If negative word of mouth spreads about your business, you know you're in big trouble. Image and credibility are extremely important in the real estate industry. Maintaining a good online image will help you gain more clients.

People's spending habits are directly influenced by online feedback. In most industries, converting feedback into sales is crucial, but it's especially important in real estate. People's spending habits are directly influenced by online feedback. In most industries, converting feedback into sales is crucial,

but it's especially important in real estate for two reasons:

1. Purchasing or selling a home is a major financial and legal transaction.
2. It's a numbers game when it comes to getting feedback. You can't afford to let any of your happy customers fall through the cracks.

People are taking advantage of the Internet. People are using the Internet to locate real estate agents and houses. It is important to use ORM strategies to improve your real estate agency's exposure.

13. Impressive Website Design If you're a real estate agent or builder who relies on referrals and other outdated methods, now is the time to invest in a website design for your business. A user-friendly and artistically designed real estate website design will in still confidence in consumers, encouraging them to choose your brand for their real estate needs.If your real estate company doesn't have an online presence, you're losing out on a lot of money. In reality, there is no reason why your real estate company does not have an online presence. Here are some of the reasons why any real estate company should create a website.

 1.Promote product or service.
 2.Makes your company available 24*7
 3.Clients are more likely to believe you.
 4.Creates an mobile interface that is user-friendly

CONCLUSION & FUTURE SCOPE

It is clear that the impact of Digital Marketing has created a revolutionized wave in the real estate businesses especially during COVID pandemic. There are n-number strategies are implemented in various tools. These techniques are helping real estate business to generate more leads from the targeted audience. Rather than that, techniques to create an impact on audiences also help them for more conversions.

In the future, we can hope that Augmented Reality to visualise the asset in reality and Block Chain technology to enable marketers in tracking their ads placement and ensuring their consumers that audience click their ads so that businesses can get more accurate and reliable data.

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Design and Development of tool for R550 series diesel engine

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ABSTRACT

In our project we are working to eliminate human errors in installation of main bearing in crank case andpiston rings in piston by designing a tool for the same. Using Poka Yoke concept, we designed these tools for "mistake proofing". The designed tool for insertion of main bearing is used to insert all the main bearings simultaneously into the crank case. Extended portions are provided on both the sides of the shaft for proper placement and alignment of the tool in the crank case. By such arrangement, time requirement reduced and productivity is increased. The tool is used to place four main bearings in three cylinder engine if number of cylinder is increased by number then by doing certain changes in tool, we can also use same tool for more number of cylinder engine.

The designed tool for piston ring insertion is used to insert piston rings nonchalantly into the piston. Highly smooth surface is provided to the tool. By using this type of tool, the damage done to the piston ring inner surface while insertion is avoided, hence the life of the rings is increased.

KEYWORDS- *Crank case, main bearing cap, piston, and piston rings.*

INTRODUCTION The diesel engine is an internal combustion engine in which burning of air- fuel mixture in the combustion chamber produces high amount of heat energy which is converted into mechanical energy.

A bearing is a device supporting a crank shaft and providing its movement relatively to crank case with a minimum power loss. The bearings hold the Crankshaft in place and prevent the forces created by the piston and transmitted to the crankshaft by the connecting rods from dislodging the crankshaft, instead forcing the crank to convert the reciprocating movement into rotation.

The piston rings are the rings which fits into the groove provided on the outer surface of the piston. Piston rings are used for identifying if an engine is two stroke or four stroke. The two types of piston rings are used, compression rings and oil rings.

Sometimes, failure occurs due to simple installation human errors. For example, if a main bearing is improperly installed this may lead to major damage to the crank shaft assembly; also the improper placing of piston rings on the piston may lead to leakage in the combustion chamber. Other types of assembly errors may also be seen. If a bearing or piston rings isn't set into place securely, it may cause failure. So, for that, careful installation procedure should be followed. The objective is to design a tool to avoid the above mentioned errors or problems.

II. PROBLEM STATEMENT

Manual labor takes time and is not much effective. Even if the manual insertion is easy, there might be some unavoidable errors like

Positioning , accuracy, material wear, etc. To avoid these errors, a proper tool designing is done. Even to increase the life of component and its productivity.

OBJECTIVES

- To secure locate (position in a specific location or orientation) and support the work.
- To improve the economy of production and reduce the requirement of skilled labour.
- To reduce time for assembly.
- Easy installation of piston rings and bearings.
- To improve the productivity and life of both main bearing and piston rings.
- To avoid material wear of both.
- To avoid any type of mechanical damage to the both while placing.

III. CONSTRUCTION AND WORKING

A. MAIN BEARING INSERTION TOOL
CONSTRUCTION

The main bearing insertion tool consists of following components,
☐ Tool shaft
☐ Extended parts
☐ Notch
☐ Dummy parts

The test rig consist of cross-sectional tool shaft with 1mm extended part on both side of curved surface of the shaft and dummy supported at both end of the shaft which is used in the mechanism of placement of upper bearing into the crank case. The experimental setup consists crank case, upper bearing and oil for positioning of upper bearing on the tool shaft. A handle joined at one end of the dummy supporter is used to rotate tool shaft in order to insert upper bearing into the crank case.

WORKING

The experimental procedure is divided into two steps:
➢ The first step aims to adjust the level of oil on the tool shaft which is important for proper positioning of upper bearing on the outer face of the tool shaft. It also avoids the slipping of upper bearing. The thin layer of oil maintains contact between upper bearing and outer face of the tool shaft. Oiling is done on the crank case for proper lubrication.
➢ The upper bearing should be placed in such a way that there is 5mm distance between extended part and upper bearing i.e. it should be placed before 5mm extended part which is important for proper alignment.
➢ Then pick up the tool shaft parallel to crank case and make proper alignment of dummy end and the face of crank case. In this way entry of upper bearing into the crank case is carried out.
➢ In second step rotate the tool shaft with help of handle which inserts the upper bearing into the crank case. But in this process one thing should be considered that the notch of the upper bearing should get matched with the inner face of the crank case, after that remove the tool shaft.
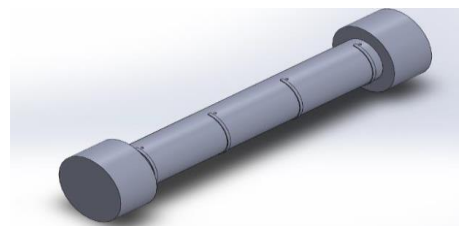
Fig: CAD model of main bearing insertion tool.

B. PISTON RING INSERTION TOOL

CONSTRUCTION

The test rig consist of hollow cylindrical cross-sectional tool with outer diameter 173mm and inner stepped diameter of 170mm, 140mm and 70mm. The height of the tool is 125mm, with a straight part of 32mm and an angular part of 93mm with angle of 7.4°. The thickness of the operational part of the tool is sufficiently provided for the extension of the piston rings to fit into the grooves present on the piston. The inner diameter of the operational part of the tool is equal to the outer diameter of the piston. The operating surface of the tool is highly finished to avoid any friction between the tool and the piston rings. The whole tool is designed hollow just to reduce the weight.

WORKING

The experimental procedure is as follows:

- The tool is located properly on the piston such that the outer diameter of piston exactly fits into the inner diameter of the operational part of the tool.

- The entire outer surface of the tool is highly finished and smooth with no resisting or functional force during the insertion.

- The piston is inserted from the top of the tool. Initially there is no extension in the ring. Before insertion the tool is oiled properly for lubrication and smooth operation.

- The angle of 7.4° is provided for the extension of the ring.

- These extended rings are easily inserted into the piston grooves. By following similar procedure, all the rings are inserted into the piston grooves by using the same tool.
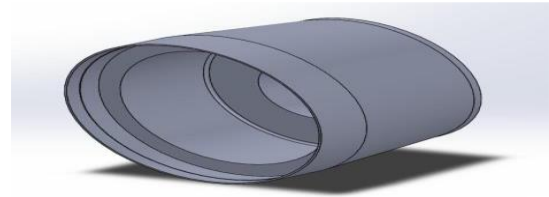
Fig: CAD model of piston ring insertion tool

IV. CONCLUSION

 Engine bearings are sliding bearings operating mostly in hydrodynamic regime of lubrication in which the bearing and journal surfaces are separated by an oil film. And for the proper installation of multiple bearings simultaneously in the crank case a tool is designed for the reduction of human errors and proper positioning, also the time required for the insertion is reduced.

 Piston rings of reciprocating engines have several functions apart from sealing the gas pressure which affect the performance of engine. In order to easy and safe installation of piston rings into the piston grooves, a tool is designed with highly finished outer surface of entire tool and inner surface of the operational portion of the tool.

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Challenges faced by Consultancy Sector in Recruitment & Selection during COVID

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Abstract

Today's job market looks increasingly pessimistic day by day, as the COVID-19 pandemic takes its toll on the economy. Consumer demand has plunged, hitting business revenues and margins. Supply chains have been disrupted, leaving retail shelves empty and production lines out of material. Stock markets are tumbling, and companies fear they will not be able to get investor funding. Business expansion plans have been replaced by business continuity plans, or simply by panic. The worst affected industries, travel and tourism and their related sectors, are freezing pay and hiring, or carrying out massive layoffs.

This paper aims at studying the challenges faced by different consultancy firms in recruitment and selecting the candidates during COVID-19 pandemic period. For this purpose, survey of different consultancy firms across Pune region was performed.

The questionnaire was circulated to these firms to collect the information regarding the topic in the form Google Forms. Based on the responses received, findings are identified and suggestions are formed.

Keywords— Recruitment & amp; Selection, Consultancy, Challenges in recruitment, COVID-19.

Introduction

Recruitment and Selection is an important operation in HRM, designed to maximize employee strength in order to meet the employer's strategic goals and objectives. It is a process of sourcing, screening, short listing and selecting the right candidates for the required vacant positions.

The scope of Recruitment and Selection is very wide and it consists of a variety of operations. Resources are considered as most important asset to any organization. Hence, hiring right resources is the most important aspect of Recruitment. Every company has its own pattern of recruitment as per their recruitment policies and procedures. Any organization wants it future to be in good and safe hands. Hence, hiring the right resource is a very important task for any organization.

Recruitment

Recruitment is a process of identifying, screening, short listing and hiring potential resource for filling up the vacant positions in an organization. It is a core function of Human Resource Management. Recruitment is the process of choosing the right person for the right position and at the right time. Recruitment also refers to the process of attracting, selecting, and appointing potential candidates to meet the organization's resource requirements.

Recruitment means to estimate the available vacancies and to make suitable arrangements for their selection and appointment. Recruitment is understood as the process of searching for and obtaining applicants for the jobs, from among whom the right people can be selected.

A formal definition states, "It is the process of finding and attracting capable applicants for the employment. The process begins when new recruits

are sought and ends when their applicants are submitted. The result is a pool of applicants from which new employees are selected". Factors Affecting Recruitment - Recruitment is an important function of the Human Resource Management in an organization, and it is governed by a mixture of various factors. Proactive HR Professionals should understand these factors influencing the recruitment and take necessary actions for the betterment of the organization. The organizations needs to anticipate and understand the changes in the market and determine how it affects the resources.

The factors affecting recruitment process can either be internal factors or external factors. Organizations have control over the internal factors that affect their recruitment functions. The internal factor includes organization size, recruitment policy, organization image, job image.

External factors are those that cannot be controlled by an organization. The external factors that affect the recruitment process include demographic factors, unemployment rate, labor laws, legal considerations, competitors.

Selection

Selection process is a decision making process. This step consists of a number of activities. A candidate who fails to qualify for a particular step is not eligible for appearing for the subsequent step. Employee selection is the process of putting right men on the right job. It is a procedure of matching organizational requirements with the skills and qualifications of people. Effective selection can be done only where there is effective matching. By selecting best candidate for the required job, the organization will get quality performance of employees. Moreover, organization will face less

absenteeism and employee turnover problems. By selecting right candidate for the required job, organization will also save time and money. Proper screening of candidates takes place during selection procedure. All the potential candidates who apply for the given job are tested.

COVID-19 Effect on job opportunities

The COVID-19 pandemic has affected every sector of the business and every facet of an organization. It has affected all the operations of the business starting from getting the required raw material and other resources to perform business activities to delivering their end product to the consumer. Thus, affecting the cash & liquidity positions of the organizations.

To help the business to survive, many organizations has taken help of online / internet technologies to conduct their business activities remotely. An important dimension that organizations will have to consider is the psychological impact of the crisis on their employees. As the current crisis has changed the way of working, there will be a cascading impact on the different HR processes as well.

The unemployment rate in India was highest since last October. The rate has been increased in rural areas, but in the urban area it has shown a decline in the rate. For the manufacturing sector, the year began with expansion and it was continued till the month of February. But after the COVID-19 outbreak entire Supply-Chain was badly affected which in turn affected all sectors of the Industry. This has also resulted in restricting hiring activities.

This pandemic has affected the financial positions and job in many developed and developing countries. Many organizations are implementing

salary cut as well as employee layoffs to survive in such critical situation. The recruitment activities are also put on hold or delayed by most of the industries to cut down the expenses.

Objectives of the Study

1. To study the impact of COVID on Recruitment.
2. To study the recruitment & selection process adopted in Consultancy Sector
3. To study the challenges faced in Recruitment during COVID

Consulting Industry in India

Over the Years, the Indian consulting industry has seen a substantial growth, not only in terms of size, but also in terms of the service offerings. In recent years, the demand of specialist consulting services is being immensely sought by customers in India, which has eventually opened the opportunity for a large number of consultants to help businesses with expert knowledge base and resources. Today, TCS, Infosys, Wipro have offices all over the world, and they give US and European consultancies a run for their money. Among other major IT consulting and outsourcing companies in India are Tech Mahindra, HCL Technologies, Genpact, Mphasis, and Mindtree.

As of now, there are about 6000 consultancy firms in metropolitan cities including Delhi (25.7 percent) followed by, Mumbai (25.5 percent), Chennai (12.1 percent) and Kolkata (9.1 percent). Moreover, service sector contributes more than 50 percent to nation's GDP. Besides, there are around 2000 R&D institutions and laboratories supporting several domestic consultancy organizations directly or indirectly at a reasonable cost.

According to the Associated Chambers of Commerce and Industry, the Indian consulting industry is expected to record revenues of Rs. 27,000 crore by 2020. One estimate says that between 500 and 600 high-value consulting contracts, worth $250 million to $300 million, are awarded every year by Indian companies, including 30 or 40 projects worth over $2 million each.

Review of Literature

In order to have a complete understanding of recruitment & selection process performed by consultancy firms, A literature scan was undertaken. This literature review helped in understanding the working of consultancy firms as well as how the recruitment process is carried out by them.

1.   Naveen Donthu and Anders Gustafsson, 2020, "Effects of COVID-19 on business and research"

The current COVID-19 outbreak has had severe economic consequences across the globe, and it does not look like any country will be unaffected. This not only has consequences for the economy; all of society is affected, which has led to dramatic changes in how businesses act and consumers behave. This special issue is a global effort to address some of the pandemic-related issues affecting society. While some businesses are struggling, some businesses are thriving. This is true for a number of Internet-based businesses, such as those related to online entertainment, food delivery, online shopping, online education, and solutions for remote work. In response to this, organizations need to use virtual forms of recruitment, training, and socialization in lieu of face-to-face interactions.

2.   Joel B Carnevale & Isabella Hatak, 2020, " Employee Adjustment and Well-Being in the Era of COVID-19: Implications for Human Resource Management"

In this paper, the author has discussed some of the challenges arising due to COVID situation, focusing on the implications COVID-19 has for human resource management (HRM) as organizations help their workforce cope with and adjust to their newly altered work environment. The author also suggested that the organizations have to transition to virtual forms of recruitment, selection, and training in lieu of face-to-face interactions, it will become increasingly important to understand how these practices will impact the future fabric of an organization's values and culture, as these new practices could certainly attract and retain individuals differently than traditional face-to-face approaches. The author also stated that there is a need to understand the impact that COVID-19 has on employees' ability to navigate the job search process, how the transition to virtual recruitment affects their ability to develop and assess perceptions of fit regarding potential employment situations, and the efficacy of virtual assessment centers and training programs.

3.   Shruti Agrawal , Anbesh Jamwal , Sumit Gupta, 2020, "Effect of COVID-19 on the Indian Economy and Supply Chain"

In this paper, authors have discussed the effect of Covid-19 on Indian economy and on supply chains in India. There are total of 18 critical barriers are found out which affected the supply chains in the India. This paper also concluded that the peak of COVID-19 virus have already affected the supply chain and forced thousands of industries to throttle down or shut down their assembly lines temporarily

in the U.S and Europe and now in the developing nations like India.

Impact of COVID on Recruitment

The COVID-19 pandemic is affecting all industries but some more than others. The economy has fallen into a recession, which will inevitably have a huge impact on how companies recruit new talent. At the same time, many familiar methods, such as face-to-face job interviews, need to be replaced with more innovative methods. As global markets panicked and economic activity stopped in many sectors, the hiring slowed down in many companies. The recruitment sector, in general, seems to be in trouble.

According to Candor, the industries hit the hardest by COVID-19 are hospitality, tourism and travel, and transportation.

According to these statistics by Candor, the corona virus outbreak has derailed the hiring plans of most employers. Many enterprises across industries are pausing their hiring plans and others have no choice but to furlough or even let go employees. On the other hand, a few industries, such as healthcare and ecommerce, are facing a sudden boom in the need to hire new employees. These industries, however, need to take appropriate measures to continue their recruitment process in a safe and effective manner.

The following aspects of recruiting have been affected due to COVID.

A.   No Face-to-Face Interviews
In the wake of COVID-19, companies are operating remotely and allowing their employees to work from home. The whole idea is to avoid physical contact and practice social distancing in order to prevent the virus from spreading further. Even in

the case of recruitment, you cannot meet candidates in person as the office is shut. Job interviews are now being scheduled through video calls, resulting in a rapid change in the recruitment funnel.

B. Fewer Open Positions

Companies are experiencing a crisis due to this uncertain situation and trying to cut down costs which will help them sail through these tough times. Major IT giants in the market have already started layoffs across the world, which may further result in recession. Ultimately, they will be less open to hiring a new workforce, eventually limiting the number of job openings in the organization.

C. Remote On boarding of New Employees.

On boarding as usual is not an option for employees who have already been hired in the pre-lockdown period. Organizations are now arranging for virtual on boarding programs for the new hires as a result of this lockdown. Right from induction to team introductions, everything is now happening remotely with the help of various HRMS software or on boarding software that enables to carry out the process smoothly.

D. Mass Layoffs

Companies are running short of business, finances, and resources. With a global pandemic at hand, many companies, especially small and medium sized companies, have no choice but to let go as many as they can without disrupting their business. Many in the hospitality, tourism and travel, and transportation industries are facing the brunt of the pandemic and are forced to lay off employees. Small and medium sized companies which can sustain for a few months on the resources they have, are not firing their current employees, but have frozen their hiring cycles until there is any more clarity on the situation.

E. Bulk Hiring

There are also many industries that are experiencing a rise in labour demand, such as retail, ecommerce, supermarkets, sanitation workers, business software's, remote meeting, and online learning. Healthcare services, for instance, have seen a 35% hike in demand for employees, according to a report by LinkedIn. Giants like Amazon and Walmart are hiring in bulk to keep up with the sudden rise in their demand worldwide.

F. People Less Open to Changing Jobs

Sourcing candidates for open positions is going to be more difficult than ever before, as employees will not be willing to switch between companies. They are likely to value security more in this time of uncertainty. All this depends on their current employer's potential for holding back layoffs within the company. If they feel that their job is secured, then there are very few possibilities for those employees to be open to switching.

G. Low Application Rate

Many are out of jobs, and many are scared to apply for new ones. People are scared of the current situation and of how it might unfold in the future. Hence, they're apprehensive of making any big decisions, like a job shift, before they know anything for certain. With a huge rise in unemployment in the past month, people are taking less chances of actively looking for new roles

H.   Cost – Cutting

This has been the first, instinctive step taken by companies, wherever possible. Hiring freeze isn't enough. Unfortunately, manual recruitment ends up exhausting most of the budget allocated for recruitment, so cutting costs here doesn't seem unlikely or odd. But this becomes a point of trouble for the recruiter.

I.   Need for a Remote Hiring Process.

As COVID-19 cases keep rising still, there is no clarity on when it'll be over and when we would be able to resume our routine ways of work. Because of that, in recruitment, there's a heavy dependency on technology for hiring — remote video interviews, online campus drives, online classes and assessments for universities, etc.

Conducting assessments and interviews is going to be a big obstacle. What recruiters have been doing face to face all these years, they will have to do it online. HRs who were apprehensive about remote hiring are now forced to use remote hiring tools to conduct online interviews and onboarding. It not only takes time to get used to, but also might give way to anxiety.

RESEARCH METHODOLOGY

To analyze and describe the characteristics of the consultancy firm's recruitment and selection process, Descriptive Research Methodology was followed.

1.   Primary Data

The primary data for the study is collected through survey conducted with the help of questionnaire. The data is collected from those people who worked in consultancy on recruitment & selection process during COVID pandemic.

2.   Secondary Data

The secondary data is collected from the different reports that are prepared by consultancy firms while conducting recruitment & selection activities as well as from research papers.

3.   Method of Data Collection

For collecting primary data, the survey is conducted with the help of questionnaire and for the secondary data articles and research papers are used.

4.   Sampling

The data is collected from 52 respondents belonging to different consultancy firms. The specific type of non-probability sampling method was used for the data collection. The sampling technique which was used in here was none other than convenience sampling. Since it was difficult to interact with each and every employee in different consultancy firms due to lockdown, therefore the questionnaire was distributed to those employees who were readily available. These subjects were selected just because they were easiest to recruit for the study.

5.   Data Analysis

The employees were asked whether the candidates they selected were ready to join on immediate basis. The following response was received:
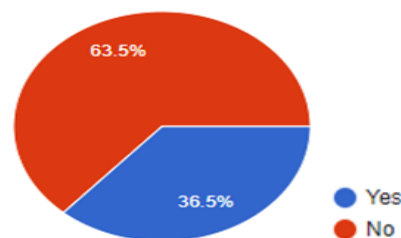
FIGURE 1: CANDIDATES READINESS TO JOIN

It is observed that the maximum candidates interviewed during COVID period were not ready to join on immediate basis. 63.5% respondents said that the candidates were not ready to join on immediate basis. 36.5% respondents said that their candidates were ready to join on immediate basis.

The data was also collected for the kind of job opportunities for which the candidates are interested. The response received is given in following table:

Options	Work from home	Work from office	Total
Responses	48	4	52
Percentage	92.3	7.7	100

Table 1 : Candidates job preference

The data was also collected to determine the reasons for refusal of job opportunities by candidates. The following information is obtained from the responses:

- Transportation problem due to COVID
- Fear of COVID infection
- Less Salary
- Job profile not suitable
- Want Work From Home due to COVID
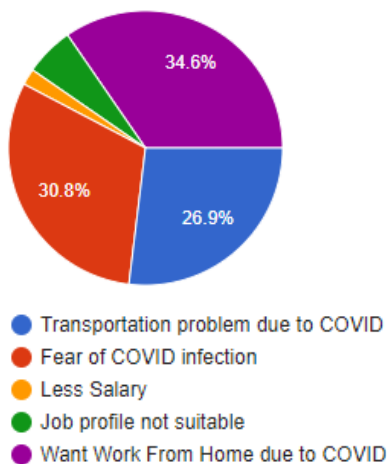
Figure 2: Job refusal reasons

It was found that maximum candidates who refused the job offer were due to the fear of COVID infection or transportation problem due to lockdown or they wanted to go for a job opportunity which is providing 'Work from Home' option. There were very few candidates who refused the job opportunities due to less salary (1.9%) or job profile not suitable for them (5.8%).

Findings

The collected data are analyzed and a general observation has proven that the consultancy firms have performed the recruitment & selection process during the COVID-19 pandemic despite of many organizations has put their recruitment activities on halt. While performing the recruitment & selection process during pandemic period, the consultancy firms has faced many challenges.

The main findings are as follows:

1.   The consultancy firms had to shift to online / social media platform for sourcing the candidates rather than using traditional modes of inviting candidate's applications.

2.   Due to lockdown during pandemic, the consultancy firms were not able to connect with the institute TPOs or placement cell to source the fresher's to the companies.

3.   Majority candidates selected by consultancy firms were not ready to join on immediate basis due to pandemic situation.

4.   The candidates were preferring work from home job opportunities over the job opportunities that required work from office.

5.   Majority of recruiters who have performed recruitment during pandemic feels that the digitization of the recruitment process will

positively impact the recruitment & selection process.

6. The main reasons behind candidates rejecting a job offer during COVID pandemic were:

- Transportation problem due to lockdown
- Fear of COVID infection
- Candidates wanted work from home

7. There were also candidates who refused the job opportunity because the consultancy firms were closed due to lockdown and the face to face interaction was not possible.

Conclusion

The COVID-19 pandemic has affected all the industries across the world, the consultancy firms are no exception to this. From all the primary data and secondary data collected during project, it is observed that the consultancy firms has faced many challenges during executing recruitment & selection process for different organizations from different industries.

It is also observed that the majority of recruitment process conducted by consultancies during the pandemic was for manufacturing sector followed by Banking & Finance and IT/BPM Sector.

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The Impact of Covid -19 on Education

* Atharva Pande

Abstract

The COVID-19 pandemic is a huge challenge to education systems. This Viewpoint offers guidance to teachers, institutional heads, and officials on addressing the crisis. What preparations should institutions make in the short time available and how do they address students' needs by level and field of study? Reassuring students and parents is a vital element of institutional response. In ramping up capacity to teach remotely, schools and colleges should take advantage of asynchronous learning, which works best in digital formats. As well as the normal classroom subjects, teaching should include varied assignments and work that puts COVID-19 in a global and historical context. When constructing curricula, designing student assessment first helps teachers to focus. Finally, this Viewpoint suggests flexible ways to repair the damage to students' learning trajectories once the pandemic is over and gives a list of resources.

Keywords **:** C*urriculum · learning · teaching · assessment · COVID-19 · pandemic · crisis*

The last 50 years have seen huge growth worldwide in the provision of education at all levels. COVID-19 is the greatest challenge that these expanded national education systems have ever faced. Many governments have ordered institutions to cease face-to-

face instruction for most of their students, requiring them to switch, almost overnight, to online teaching and virtual education. This brief note offers pragmatic guidance to teachers, institutional heads and state officials who must manage the educational consequences of this crisis. It addresses:

- Preparations that systems could make
- Needs of students at different levels and stages
- Reassurance to students and parents
- Simple approaches to remote learning

- Curriculum

- Assessment After COVID-19 Useful resources

INTRODUCTION

More than 1 billion and 575 million students in approximately 188 countries around the world are reported to have been affected by the closure of schools and universities due to preventive measures taken by countries against the spread of COVID-19 (UNESCO, 2020). Due to isolation, the use of technology has been considered the most appropriate (if not the only) alternative to keep educational systems functional in many parts of the world during this period. Despite the challenges in implementation, several advantages have been acknowledged in the need to shift to remote or online learning, among which stands out the opportunity for rapid progress in the field of digital education, which, in other circumstances, would take years. The shift to the remote learning format has also been assessed as a good opportunity for teachers and students to become stronger, more creative, and innovative.

The spread of COVID-19 has also caused fear, anxiety, and various concerns among citizens around the world (NCIRD 2020). For certain groups of people involved in education, however, it has been assumed that the level of concern observed during this period has also been influenced by factors other than COVID-19. In addition to the circumstances caused by social isolation and other personal factors, parents' concerns are assumed to have been influenced by their unpreparedness to assist their children in remote/online learning, lack of access to the necessary technology and the Internet, or the inadequacy of the technological formats used for children with special educational needs and economic difficulties (UNESCO 2020). On the other hand, the concerns of teachers engaged in teaching processes have been observed to be related to their capacities of conducting remote/online learning due to the level of their knowledge and skills in the use of technology, their access to technology, and at-home isolation. Such concerns have been reported in particular by countries that declared an extremely low-level use of classroom technology prior to the current circumstances (UNESCO, March,2020). In addition, requests for shifting teaching to online format have also been reported to increase the level of stress and anxiety among teachers in different parts of the world (ibid. 2020).

In fact, the quality of pre-university education in Kosovo and the insufficient level of technology integration into teaching processes are obstacles in the implementation and advancement of the online learning process in the country. However, there have been no further detailed evaluations of the factors related to the implementation of online or remote learning from the perspective of teachers or beneficiary parents since the beginning of the

implementation of this approach to learning in Kosovo.

However, factors related to the quality of education, technology use, and classroom integration until now have included studies from numerous worldwide researchers.

II. BACKGROUND :
Factors influencing the quality of online learning Despite the fact that shifting learning to an online format has now become part of many educational systems in the world, the levels and methods of using technology that aims to achieve quality remote or online learning are varied and dependent on many factors related to the various parties that were already involved in implementing this learning format and integrating technology into educational systems before the closure of schools as a preventive measure against the COVID-19 pandemic. For years, numerous studies around the world have focused on identifying factors that make technology integration successful in classroom teaching and learning. These factors are also assumed to affect the level of use of technology in the process of shifting learning from schools to a remote or online format, as well as the quality of learning in both formats. Previous studies that aimed to identify the factors influencing the opportunities of educational systems in the integration of technology into teaching suggested that, in order to achieve positive results in the incorporation of teaching technology, it is necessary to understand the types of interactions that exist between teachers, students, and technology. In the group of factors influencing opportunities to successfully integrate technology into the classroom and make it a part of learning, it has been suggested that teachers' perspectives on teaching and their teaching methodology have an

impact. This means that, whether they see teaching as a process of information transfer or use a teacher-centered approach, within which the teacher communicates the information to the students and uses different assessment techniques to evaluate the memorization of data; or if whether are teachers who see learning as a process through which conceptual change is achieved and/or see teaching as a process that facilitates conceptual change, and therefore use the student-centered approach, where independence in learning is encouraged through discussion, debates, and questions among students, and forms of assessment through which conceptual change is assessed Positive effects of technology on learning processes. The effects of the use of technology in educational institutions have been investigated for many years by studies in the field of education, which have proven and disclosed that technology can assist in various educational processes, have a positive impact on student learning support and help teachers toward professional advancement and development . Therefore, the integration of technology into the classroom has been widely promoted and supported around the world. The development of information and communications technology (ICT) and its utilization in learning processes has enabled learning to become more open and teaching methodologies to become more flexible, thus making students more independent and self-determined, becoming responsible for learn, gaining self-regulating abilities in relation to goal setting, and becoming self-monitoring and adaptable. Such opportunities also allow teachers to promote active learning so that learning is engaging and effective , which makes them facilitators of the learning process and exempts them from the responsibilities of teaching alone by giving students responsibility as well . Moreover, with the development of technology, the student-centered approach is considered the main component of flexible learning, as it empowers students and teachers to share information with each other.

Relevance and implications of this study : The findings from this study, which present the perspectives of teachers and parents, together with findings from studies from other countries that analyze the factors influencing the quality of educational systems and the use of technology, are foreseen to assist in the advancement of educational systems, the adaptation of education strategies, and the further organization of online learning so that the methods implemented have positive and long-term effects on all parties and beneficiaries of the educational institutions involved. Therefore, these findings can be of great value to policymakers.

III. METHODS : Research approach Qualitative research design was the approach adopted in this study. Since the purpose of the study included the exploration of the participants' perspectives in relation to the topic addressed in detail, the multiple case study strategy was also adopted. Case studies are considered a very popular form of applying qualitative research, which enables the investigation of a particular situation or event in detail through a case or comparison of cases . It is noteworthy that the purpose of using case studies was not to construct a theory for a specific phenomenon, but rather to examine a phenomenon or event in detail . Purpose of the study and topics explored The aim of this study is to explore and describe the concerns of students, parents, and teachers regarding the circumstances caused by

social isolation and the perspectives of teachers and parents in relation to remote or online learning. In accordance with the purpose of the study, semi-structured interviews were conducted to explore 15 topics related to participants' concerns and perspectives, as follows: Semi-structured interviews with teachers These interviews comprised seven main topics: level of technology use by teachers before the COVID-19 pandemic; methods of lesson implementation in the classroom before the COVID-19 pandemic; level of teacher concerns; methods of online learning implementation and student assessment; assessment of remote learning, challenges, and opportunities in Kosovo; attitudes toward remote or online learning; and level of motivation of teachers to implement online learning. In addition to the areas explored, the general characteristics of the participants were collected during the initial part of the interviews.

IV.RESULTS The results reflect the findings from the
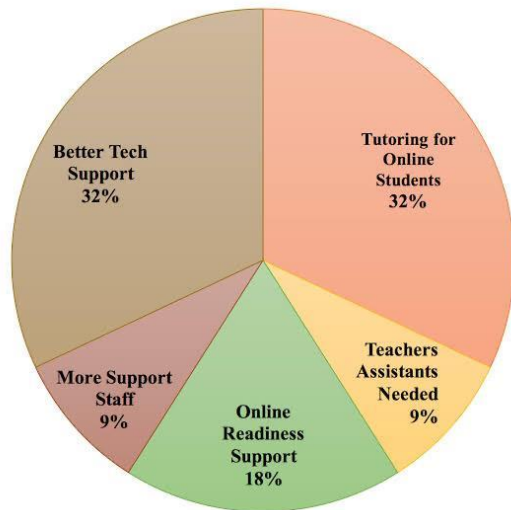
perspectives of teachers and parents according to the 15 areas explored in the semi-structured interviews. In addition to the narrative description,

excerpts accompany the findings from the case studies and the processed data, presented in tabular form. The findings listed within the codes and sub codes are derived from the classical content analysis of the case studies and ranked according to the frequency of information identified among the analyzed case study

V. LEVEL OF TECHNOLOGY USE BY TEACHERS BEFORE THE COVID-19 PANDEMIC

The teachers participating in this study stated that they had no previous experience in conducting remote or online learning. Most of the participants also pointed out that the transmission of information from the school and communication with colleagues on school issues were already conducted through verbal communication or by telephone even before the preventive measures against the spread of COVID-19. A relatively small number of participants claimed to have an official e-mail to be used for school affairs. They also stated that they have communicated with parents through appointments, joint parent meetings, individual meetings, or telephone communication.

Only a small number of teachers (n = 4) claimed to have participated in technology training. Among the most frequently highlighted is the ECDL training, which is regarded as an important aid in the implementation of online learning. The use of technology is considered a problem for teachers, parents, and students.

Prior to the COVID-19 pandemic, a relatively small number of teachers emphasized the use of technology in teaching. However, technology has

been reported to be used only to inform or research materials for lessons.
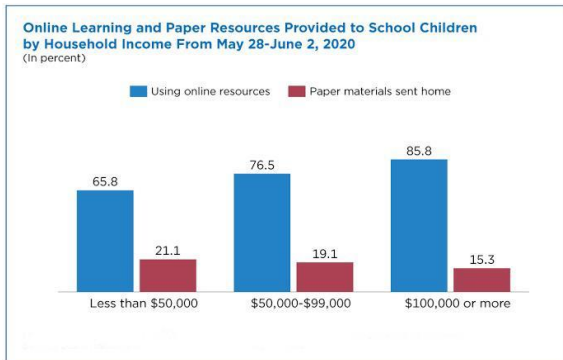
Teachers' evaluation of remote or online learning, challenges, and opportunities

According to the teachers, the factors that may have affected the quality of the implementation of online education, namely planning for the learning process, relate to organizational factors, including inadequate level of cooperation from the school management and precarious organization in the distribution of information to teachers. However, they also stressed that, during this period, there has been proper cooperation between teachers. Regarding the lessons broadcast by public television, they express skepticism, consider the format short and vague, and state that the lessons presented are not in accordance with the curriculum offered by them at schools.

Furthermore, in the context of potential concerns about remote or online learning, the teachers express doubts about technical issues that can hinder the process, show concern about whether this form will be accepted by students, and point out that student participation is low. Other concerns refer to their confusion about how students will be assessed. Methods of participation in remote or online classes and reactions of students and parents Most children have participated in remote learning through lessons broadcast on public television.

Some of them have also followed online lessons with teachers, on online platforms, and/or on Viber, in addition to watching classes on television. Meanwhile, parents' communication with teachers has been done mainly through Viber, email, or Skype.

From the parents' perspective, carrying out remote and online learning and staying at home has had a positive effect, as they have become able to engage in household activities, distract themselves from the situation, and spend quality time with their children. However, parents have perceived that their children (students) do not see online learning as an obligation and are dissatisfied. In addition, the change in learning has led to additional commitments for parents, both in monitoring children during online learning and in communicating with teachers.

Parents' assessment and recommendations for the implementation of remote or online learning

Parents claimed that several challenges and advantages accompany the process of conducting remote or online learning. According to them, the short duration of the lesson unit, the ambiguity of the homework, the asynchrony of the teaching units presented on television with the lessons realized by students at school, the lack of other subjects besides the basic ones, the home environment, the level of parental education, and the lack of physical conditions (separate rooms) are factors that have hindered the quality of teaching realized thus far. However, they also considered the organization of remote learning and the speed of its implementation an advantage, and recommend that, during the development of online learning, it would be important to improve the interaction between teachers and parents, improve online learning,

provide better explanations for assignments, and clarify student assessment methods.

VI. LIMITATIONS

As we have seen various ways how online learning can help us in various scenarios. But we know that nothing is completely perfect and everything has its own flaw and strengths. Some of the limitations of Augmented Reality technology in Online shopping are: [3]

•As creates virtual environment of the customer surrounding with the product on his device so, devices must be advance (i.e. Best quality camera, processor etc) which is very expensive for customers.

•The continuous use of augmented reality applications can affect human health and may cause low eyesight.

•   With the use of augmented reality, individual's perception is narrowed down to the virtual environment.

VII.CONCLUSION

With the exponential growth in Internet and Online infrastructure in India, it was no surprise that the E-learning market experience a similar boost. Increasing rates of internet population, along with the increasing hare of the organized sector like the

earning.

How Faculty Utilize Educational & Distance Technology 2019
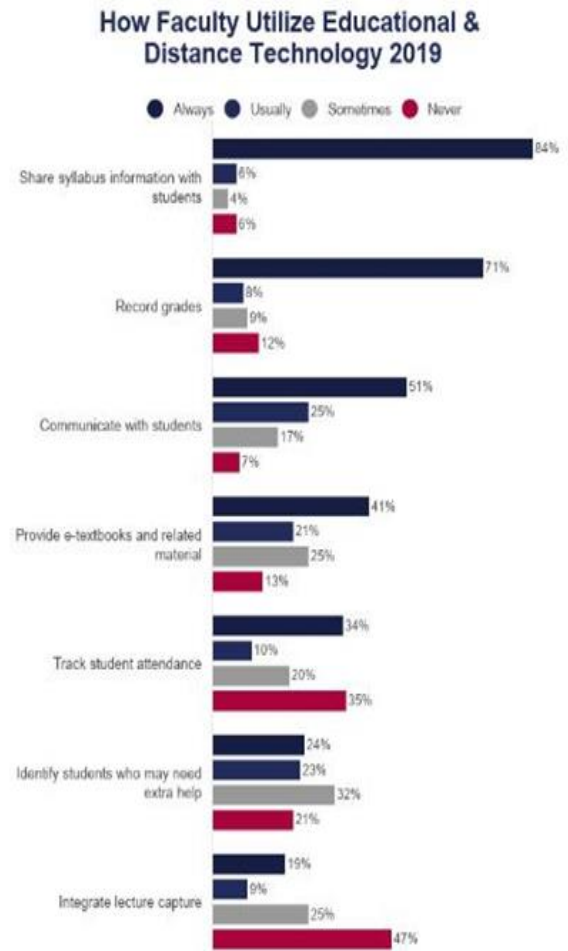
VIII.REFERENCES

This is a small selection of the huge array of resources on which educators wishing to adopt remote learning can draw. To put them in context:

•   The Commonwealth of Learning is an intergovernmental agency of the Commonwealth tasked with helping developing countries use technology effectively in education and training at all levels. It focuses particularly on technology that is appropriate for resource-poor situations.

Commonwealth of Learning. (Skills training [TVET] for men and women): https ://

www.col.org/progr ammes /technical-and-vocational -skill s-developmen t

Commonwealth of Learning. (Open Schooling): https ://www.col.org/progr ammes /openschoo ling

- These references from David Gaertner and the Sacred Heart Schools bracket a range of responses to COVID-19, from "work with what you know" to carefully organised and gradual processes.

David Gaertner, #COVIDCAMPUS: https ://novel allia nces.com/2020/03/16/covidcampu s/

Sacred Heart Schools: Flexible Plan for Instructional Continuity: https ://tinyu rl.com/ rrqfa e7

- UNESCO has much experience in advising Member States how to adapt their educational systems to crises of various kinds.

UNESCO—Distance learning solutions: https ://en.unesc o.org/covid 19/educationresponse/solut ions

- The YTL Foundation is an example of national provision of online resources to teachers, parents, and students.

YTL Foundation, Malaysia: https ://ytlfoundat ion.org/learn fromhome/

- FutureLearn and OpenLearn are important collections of online courses and course resources under the aegis of the UK Open University.

FutureLearn (free mass enrolment courses on many topics): https ://www.futur elearn.com/

OpenLearn: Free learning from the Open University: https ://www.open.edu/openl earn/

- Open Schools: There are open schools offering flexible schooling to large numbers of pupils in various countries. Three examples are India (https ://www.nios.ac.in/), Namibia (https ://www.namco l.edu.na/), and New Zealand (https ://www.tekur a.schoo l.nz/)

- Open Universities: Some 50 jurisdictions around the world have established open universities, which enroll millions of students between them. Three examples are Canada (https ://www.athab ascau .ca/, Tanzania (https ://www.out.ac.tz/), and the United Kingdom (http://www.open.ac.uk/).

- Surrey County Council: Resources for families—examples of links recommended by an English regional government.

Talking to your child about coronavirus: https ://young minds .org.uk/blog/talki ng-toyour-child -about -coronaviru s/

How to look after your family's mental health when you're stuck indoors: https ://parentinfo .org/artic le/how-to-look-after -your-famil y-s-menta l-healt h-when-you-re-stuck -indoor s .

Keeping children happy and safe online during COVID-19: https ://www.safer inter net.

Opportunities and Challenges of Women Entrepreneurs in India.

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ABSTRACT:

Women Entrepreneurship is a significant marvel, since there is a consistent need to use the expertise of entrepreneurship among women for the financial turn of events and women empowerment. This paper addressed the zones of importance and meaning of business, the idea of women entrepreneurs in India, issues of women entrepreneurs, types of women entrepreneurs, and opportunity acknowledgment being developed. Additionally, it features on the powerful need and profession alternative through entrepreneurship, youth enterprise, and entrepreneurship advancement in India. Entrepreneurship preparation through various establishments in India, the advancement of entrepreneurship in India, innovative freedoms in the future are examined in this paper. This paper proposes measures to improve the entrepreneurship and specifically on women entrepreneurship.

KEYWORDS: Enterprise, Entrepreneurship, women entrepreneur.

INTRODUCTION:

Almost 50% of the Indian population contains women. However, their interest in the financial improvement of the country is lower when contrasted with men; this is a direct result of the way that women in this nation are restraint by the deep-rooted social and strict doctrines, to take a functioning part in the monetary advancement of the nation, this is a direct result of the increasing level of women education, the monetary need of the women, joblessness issue and their very own desire.

Women Entrepreneurship is a significant marvel. Since there is a steady need to use the expertise of entrepreneurship among women for the economic development and women empowerment. The women Entrepreneurs should move their consideration from relying upon others. They should prepare themselves to be an independent woman. Thus, the adjustment in the monetary, social, religious, social, and mental components of the general public must be contemplated. The risk-taking capacity of women entrepreneurs is a significant factor for the women Entrepreneur for effectively running an undertaking. She ought to have the certainty to face the monetary challenge and so forth, the women entrepreneur herself should set the hierarchical objective and targets in line with the changing entrepreneurship sector interest and market demand. Women Entrepreneurs ought to and can adjust to new technologies. The distinctive sort of enterprises where women Entrepreneurs are working together incorporates handloom, handicraft, readymade garment, eatables, incense stick making, doll making, tailoring, weaving in conventional area, salon, café, retail advertising, DTP and Xeroxing, and so on

MEANING AND DEFINITION:

An entrepreneur is an individual having explicit expertise, capacity, information, mindfulness, and fearlessness who bears the danger of working in business despite vulnerability to future conditions. The term "entrepreneurship" comes from the French verb "entreprendre" and the German word "Undemehmen", the two ways to "undertake". "Entrepreneur" was applied to the business at first

by the French economist Richard Cantillon, who depicts an entrepreneur as an individual who buys the means of production for joining them into attractive items at profit in the future. An entrepreneur is an individual who begins an enterprise.

WOMEN ENTREPRENEURSHIP CONCEPT:

Women entrepreneurs might be characterized as a woman or gathering of women who start, put together and maintain a business enterprise. As far as Schumpeterian idea of creative entrepreneurs, women who develop, imitate, or adopt a entrepreneurship activity are called Women Entrepreneurs. The Government of India has characterized Women Entrepreneurs as dependent on women participation in the value and work of an enterprise.

Likewise, entrepreneurships defined as an enterprise owned and controlled by a women having a minimum financial women interest of 51% of the capital and giving at least 51% of the employment generated in the enterprise to women. In the authority decree, women are at standard with men. Be that as it may, all things considered, reality wins in any case. The Indian women appreciate a disadvantageous status in the general public. The much low literacy rate (40%), low work participation rate (28%), and low urban population share (10%) of women when contrasted with 60%, 52%, and 18% respectively of their male partners well affirm their disadvantageous situation in the general public. Our well-established socio-culture, traditional customs and restrictions capturing the women inside four walls of their homes likewise make their conditions more disadvantageous. These factors consolidate fill in as non-helpful conditions for the rise and improvement of women

entrepreneurship the country. Given these negative conditions, the advancement of women's entrepreneurships is expectedly low in the country. This is all around showed by a expectedly low degree of women (5.2%) in total self-employed person in the country. Further, women entrepreneurs in India represented 9.01 % of the complete 1.70 million entrepreneurs during 1988-89.

In India, women's entry into entrepreneurship is a new phenomenon. An entrepreneurship is followed out as an augmentation of their kitchen exercises essentially. Women in India dove into entrepreneurship for both pull and push factors. Pull factors suggest the elements which urge women to begin an occupation or an enterprise with an inclination to accomplish something freely. Push factors allude to those elements which force women to take up their own entrepreneurship to hold over their financial troubles and duties.

ISSUES OF WOMEN ENTREPRENEURS

Women Entrepreneurs experience two arrangements of issues, viz, general issues of entrepreneur and specific to women entrepreneur like; issue of money, shortage of raw material, restricted mobility, family ties, absence of education, male ruled society, low risk bearing capacity etc.

Entrepreneurs who left for the highest rated "pull" reason, looking for a challenge, estimated achievement fundamentally as far as self-satisfaction and secondary regarding benefit and goal accomplishment. In a study result additionally recommends that even though benefits are critical to the cutting edge women entrepreneur, self-satisfaction is the main proportion and measure of

success. This finding sheds extra understanding into the concern and goals of current women entrepreneurs. Achievement is by all accounts estimated internally regarding self-improvement, professional development, and improving one's abilities, instead of estimated externally in profits, gain or human growth.

The attitude towards women today isn't however unbendingly discriminative as it was earlier. This is the result of the endeavors made by the national and international agencies. The competent organs of the United Nations (UN) have given adequate time and energy to improve the declaration of International Women's Year (1975), Decade (1975-85), and International Status of women in different fields and eliminate discrimination against women as the day progressed (8 March) and a few different measures. From that point forward, a few government and voluntary organizations completed symposia, seminar, workshops, and conferences to feature the significance of women activities including women entrepreneurships.

The emphasis was on the measures to advance self–employment, support of women in rural and urban industries, improvement of innovation, and plan of preparing for women. An ever-increasing number of women are taking up the entrepreneurship and independent work. Recent publication and reports feature that there are a few elements that are liable for expanding various women in-work support. These components can extensively be ordered under two classes, to be specific, push factors and pull factors. Push factors incorporate the following conditions:

 Death of the Bread winner;

• Sudden fall in family's pay because of incidental or exceptional conditions like long and continued sickness of the father, sibling or spouse; and permanent and developing insufficiency in overall income of the family.

• Push factors are prevailing just in those situations where there is the absence of joint family framework and absence of adequate steady property. The presence of both of the components referenced above, push women to work outside the home.

Under the subsequent class, i.e., pull factors, there is interest for occupations, an entrepreneurship by the accompanying reasons:

• Women's longing to assess their ability and to get financial freedom.

• To use their leisure time or education or to work for their fulfillment.

• Need and perception of women's freedom, equity, and so forth, pushed by women in western nations.

• To acquire acknowledgment, significance, and societal position.

In India, up to the 1980s push factors ruled however since the introduction of New Economic Reforms, in July 1991, and time of monetary progression, privatization and globalization has begun and it emphatically affects women's work as well as on business. Presently, market influences are working, public area is not growing because of closer and disinvestment, there is rivalry; hence, women are pulled to private areas and independent work.

Expansion in organized sector has energized women for their advanced education and, along

these lines, an ever-increasing number of women are joining this field. They are additionally approaching those zones which were not moved by them. The women's work support rate in the organized sector was 14.2 percent in 1970-71; it expanded to 19.7 percent in 1981 and further to 21.3 percent in 1991. In any case, it is still a lot of lower to men's work investment which was 51.6 percent in 1991. According to World Bank Report, 1997 women's work participation in India is very low when compared with the USA (45%), UK (43%), Indonesia (40%), Srilanka (35%), and Brazil (35%).

WOMEN ENTREPRENEURS OF THE 21ST CENTURY

This is the era of information and technology. Women's taking all things together these enterprises is starting to arise and women are arising as a power to shake on with a considerable lot of these new enterprises are going and guided by women who are viewed as pioneers and free thinkers. The progress to the following thousand years is the place where the women will make new ideal models of being a girl who assumes the liability of her folks, is a spouse who wishes to make a home and a family, a mother who assumes responsibility for the kids to make them the offspring of the new thousand years. She is likewise a person who works like a big entrepreneur and finds her pertinence and significance of her life in herself. She acknowledges the uniqueness of her character and will share the space. At the same time with all the fantasies of harmony, she looks for commonality, pride, and regard. In the following thousand years, Indian women would need to pass a significant boundary and enter an obscure land. They should experience and live with fervor and energy just as a danger, fears, nerves and dread.

To grow better 50% of the general public, the United Nations pronounced the decade 1975-85 as the Decade for Women: The UNIDO Preparatory Meeting on the job of Women in industrialization in Developing nations held at Vienna during 6-10 February 1978 recognized a few imperatives like social, attitudinal and institutional obstructions, lacking training, unseemly and deficient opportunities, inadequate data, etc. which kept women away from taking part in mechanical exercises. The World Conference of the United Nations Decade for Women held at Copenhagen in Denmark on 30th June 1980 additionally received a program pointed toward advancing full and equivalent freedoms and treatment of women in entrepreneurshipand their admittance to non-conventional skill exchanges.

The main National Conference of Women Entrepreneurs held in New Delhi in November 1981 pushed the requirements for creating women entrepreneurs for the general improvement of the country. It called for the need to women in the designation of grounds, sheds, the assent of force, authorizing, and so forth the second International Conference of Women Entrepreneurs coordinated by the National Alliance of Young Entrepreneurs (NAYE) held in 1989 at New Delhi likewise received certain presentations including women' investment in the industry.

The Government of India has been providing expanding significance to the advancement of women entrepreneurs in the country lately. The Sixth Five Year Plan, for instance, proposed for advancing female work in women claimed enterprises. The government pushed a stride ahead in the Seventh Five Year Plan by remembering an uncommon part for Integration of Women in Development. The section recommended:

• To treat women as explicit objective gatherings altogether improvement programs.

• To devise and differentiate professional preparing facilities for women to suit their fluctuated needs and abilities.

• To elevate proper advances to improve their effectiveness and profitability.

• To give help to showcase their items.

• To include women in a dynamic cycle.

Issues of Women Entrepreneurs:

Throughout the entire existence of a monetary idea, Marshall was a significant neo-traditional essayist to talk about the issue of Entrepreneurship. As per him, Entrepreneurs couldn't be made and they couldn't be created. This view anyway was not acknowledged since it relied on sociological circumstances and was not worthy to current masterminds, who accepted that Entrepreneurial gifts and capacities could be created by a cycle of instruction and preparing.

Entrepreneurships frequently related to the production of new undertakings or with independently employed people. These exercises are for sure articulations of Entrepreneurial conduct. Business, notwithstanding, is a lot more extensive wonder. Regardless of whether beginning another business, taking care of an issue, or choosing what course to take driving home, people are consistently on the caution to the chance of changes that may improve their life, regardless of whether in little ways. All people are potential trendsetters looking for new and better approaches to get things done. Consequently, Entrepreneurship

is an attribute of human conduct comprising in the ID of new end-implies systems.

Martinelli contends that "future examination on entrepreneurship" ought to receive "a multidisciplinary similar methodology, equipped for coordinating the investigation of the specific circumstance (market social construction, culture) with a hypothesis of the entertainer (both individual or group) with their intentions esteems, mentalities, psychological cycles, and saw interests.

TYPES OF WOMEN ENTREPRENEURS:

Entrepreneurship Development Institute of India, Ahmadabad believes that a significant separation of women entrepreneurs is made as:

• Chance Entrepreneurs: These entrepreneurs start a entrepreneurship without any planning, clear objectives, or plans. They end up snatching the chances which they go over.

• Forced Entrepreneurs: These entrepreneurs start a entrepreneurship because of certain disasters in their families like the demise of father or spouse, separate and so forth

• Created Entrepreneurs: These entrepreneurs are appropriately recognized, spurred, supported, and created through EDPs as a piece of a methodology to create women as capable entrepreneur

Women Entrepreneurship:

We are most interestingly human whenever we transform snags into promising circumstances. It could be said, the field of Entrepreneurship emphatically agrees with these words: it is generally accepted that chance acknowledgment, recognizing thoughts for new items,

administrations, markets, or methods for creation that are not presently being abused is a focal advance in the whole cycle. Without a doubt, it is regularly seen as an essential activity, one from which all else frequently follows. It is proposed that significant bits of knowledge into the idea of chance acknowledgment, and maybe a binding together hypothetical system for understanding this cycle, can be gotten from hypotheses in the field of intellectual science identifying with the interaction of example acknowledgment.

There is expanding center, both in the approach and scholastic domains, on the businessperson as the driver of monetary change and development. For policymakers, the attention on a entrepreneurship has been a new marvel. In 1998, for instance, the Organization for Economic Co-activity and Development dispatched a program, encouraging entrepreneurships, to more readily comprehend the job of businesspeople in the economy. Along comparative lines, governments all through the world have dispatched different activities intended to advance entrepreneurship and monetary development. The significance of the entrepreneurs in financial advancement has likewise been acknowledged by key worldwide guide associations. The World Bank, the United States Agency for International Development (USAID), and the International Monetary Fund (IMF) have attempted activities to comprehend and advance entrepreneurships in agricultural nations.

To encourage an evaluation on a worldwide premise, it is imperative to comprehend the idea of the entrepreneurship in expansive and comprehensive terms. As a monetary marvel, enterprising action consolidates development and educated danger taking to make new an incentive for the firm, which likewise makes new an

incentive in the commercial center and society. Joseph Schumpeter characterized entrepreneurship as the inventive demonstration of consolidating existing supplies of beneficial methods recently and offered a scientific categorization of innovative results that incorporates new items, new creation techniques, new business sectors, new causes of supply of transitional products, and new associations. Commonly, the entrepreneurs has the objective of augmenting benefits throughout a specific time skyline. Be that as it may, different objectives may likewise be thought of. While little firms are regularly viewed as the encapsulation of entrepreneurships, advancement and danger taking are additionally conceivable in bigger and more established firms.

The accomplishment of any country relies on the capacity of her kin to endure and capably convert the regular asset into financial abundance with prudent utilization of science and innovation without jeopardizing the eco-accommodating climate. The immovable guidelines of the local area only here and there permit women to take up pay creating exercises outside the home.

The assignment of Entrepreneurs under the current financial framework isn't a straightforward one. In the most serious, market situated worldwide economy; the entrepreneurs are constrained to confront the solid difficulties on the off chance that they need to be effective in their monetary endeavor. Truth be told, there are sure inward just as outside issues being looked at by the different enterprises in the country. They identified with practically all the urgent territories of creation money, advertising, staff, innovation, foundation, tax collection, government strategies, changing worldwide serious and unstable climate. These early-stage problems are presently being looked at

by all classes of entrepreneurs whether they are little or monster. Disorder in limited scope businesses is the developing marvel in the country which has made a genuine difficulty to the cycle of industrialization. The entrepreneur should exceptionally ready and should be set up to confront these difficulties. They should be prepared for the appropriation of better answers for the current issues especially there is a direness of receiving updated innovation present-day creation procedures and all-around arranged to promote systems and practices.

An effective entrepreneur creates and teaches the capacity of deciding specialized dangers and keeps capacity to peruse the nerves of the market these attributes are self-created and characteristic characteristics, which become the reasons of senses of confidence to people. Creating business possibilities can give better outcomes to the individuals who teach those possibilities into the right course and creative expertise to get data's and the executive's abilities in an

Education and Awareness Promotes Entrepreneurship:

Having understood that Entrepreneurship is firmly identified with the HR advancement, it is essential to see how education in big entrepreneurship advances the all-encompassing development of the people, their capacity to address difficulties throughout everyday life, the indication of their innovative desire their employability, their capacity to show time and assets to beneficial reason. Shockingly in the Indian setting, sufficient accentuation has not been laid on producing the Entrepreneurial Skills in the young through a cycle of interdisciplinary learning. There gives off an impression of being a coordinated exertion to give

an example of education that is uniform, that is top-down in approach and that is buyer-driven. Offices don't exist in the present instructive structure for the opportunity to learn and rehearse. There is likewise insufficient accentuation on ability improvement.

A solid connection between the youth, family climate, and the guardians; who were entrepreneurs themselves and were independently employed. This could be because of the effect of the family climate on learning. The student is an observer to the climate and consequently assembles an uplifting demeanor which would advance the duration and enhancement of him adequacy of such climate and the interaction of entrepreneur turns out to be more tenable and substantial in their brains. The significance of instruction as follows: -

- Education advances information
- Education conceives Confidence
- Education helps in Developing Technical Skills
- Education and Awareness offices improved relational relationship
- Education creates a work culture
- Education and mindfulness helps in self-realization
- Education and mindfulness helps in building a vision
- Education and Awareness create HR and advance Entrepreneurship.

Through instruction, development is invigorated to create HR by giving the capacity to change just as 'methods for living' the capacity change with nature, climate, individuals too and an assortment of socio-political frameworks made by individuals. Assets procured or created by an individual as information, ability, and capability should be utilized to produce thoughts, items, cycles, and administrations that society can use to address its

issues to achieve progress. In return, society repays to the individual as cash and material, or acknowledgment and status or mental fulfillment which it offers to an individual for their methods of living.

To accomplish both the targets, education includes the accompanying three degrees of human asset advancement.

• Development/Acquisition of information, Skills, and Competencies

• Building Capacity to Generate Innovate Ideas, Products, and Process and Services dependent on assets created at level one.

• Learning capacity to coordinate social application/utilization of thought items and administrations consequently created at level two.

Numerous colleges and universities show entrepreneurship as a subject today. The fundamental trouble with such courses is that they are educated as scholastic subjects with an accentuation of conferring a collection of information. While forthcoming entrepreneurs do gain much from these courses, business, similar to medication and law, has solid learning by doing the component. Anyway, such courses at schools and universities unquestionably advance mindfulness among youngsters and fuel in them a solid need to create innovative abilities, mentalities, and qualities. Another sort, of course, is offered by various establishments for the entrepreneur. They encourage a scope of the subject in entrepreneurship however the principle center is the readiness of a practical field-tested strategy. Other important subjects like advertising, money, the board, entrepreneurship correspondence, and so on, are additionally offered to entrepreneurs. These courses are a decent method of enabling the entrepreneurs by refreshing their insight and updating their abilities. The innovative work in the field of entrepreneurship encourages and advances age and improvement of thoughts. Their commercial exploitation is accomplished through innovation moves. So Research and development labs are a significant asset for an area and can be a significant part of an entrepreneur strategy.

INSTITUTION PROVIDING ENTREPRENEURSHIP TRAINING IN INDIA

Different foundations at various levels engaged with leading specific entrepreneurship preparing programs joining innovative inspiration as particular sources of info. These organizations are as per the following:

• **National Level Training Institutions**

o National Institute for Small Industry Extension Training (NISIET, Hyderabad)

o National Institute for Entrepreneurship and Small Business Development (NIESBUD, New Delhi)

o Indian Institute of Entrepreneurship (IIE, Guwahati)

o Entrepreneurship Development Institution of India (EDII, Ahmedabad)

• **Apex National Level Government Organization**

o Small Industry Development Organization (SIDO) under the Development Commissioner, SSI, Ministry of Industry, Govt. of India

• **Central Finance Institutions**

o Industrial Development Bank of India (IDBI)

o Industrial Finance Corporation of India (IFCI)

o Industrial Credit and Investment Corporation of India (ICICI)

• Central Level Infrastructure Development Organizations

o National Small Industry Corporation (NSIC)

o Khadi and Village Industry Commission (KVIC)

• State Level Entrepreneurship Training Institutions

o Institute of Entrepreneurship Development

o Centre of Entrepreneurship Development

o Centre of Entrepreneurship and Management Development

• Commercial Bank and State Financial Corporations

• Entrepreneurship Development Cells made by the Department of Science and Technology, Govt. of India in various IITs, Engineering Colleges, Polytechnics, and ITIs.

• Science and Technology Entrepreneurship Development Park (STEP) in various pieces of the country.

• Small Industry Service Institute (SISIs) situated in every one of the states.

• District Industry Centers (DIC) at the area level.

• NGOs at the area, square, and town level.

These foundations are spreading mindfulness about Entrepreneurship, giving fitting data and abilities to hopeful entrepreneurs, and holding their hands till they are sure to continue all alone. It is presently grounded that such help instruments are essential especially at the Embryo and Nurture stages.

Entrepreneurship – Key to Women empowerment

Women are regularly portrayed as the better 50% of men. In any case, ground reality doesn't allow this at different levels. In India, women establish around 48% of the populace however their investment in monetary movement is just 34%. There is a proceeding with the centralization of women in low-paid and low-status occupations, which shows that women are underestimated in the workforce. Women Entrepreneurship in India must be considered as 'need entrepreneurship' rather than 'opportunity business'.

Improvement of Entrepreneurship in India

The entrepreneurship has been created since old times in India. Town industry, locally situated industry, and handiwork of India were world-known. These items were sent out the world over and accepting abundance and flourishing in return. In India, human speculation is vital for improvement instead of the materialistic enterprise. If speculation is made to plan entrepreneurs, it will assist with creating entrepreneurs and entrepreneurships. The entrepreneurship is favored for tackling monetary issues as well as for joblessness, lopsided modern turn of events, centralization of financial force, and to take care of the issues of interest in ordinary and non-regular fields. Encounters of agricultural nations say that arranged endeavors are important to thrive entrepreneurships. It requires distinguishing savvy individuals for entrepreneurship out of all standings, rustic and metropolitan, people and so forth, and ought to be supported with legitimate preparing and projects. the

Women's commitment to public advancement is urgent. The cycle of improvement would pay-producing and disproportionate except if women are completely engaged with it. The liberation of women is a fundamental pre-essential for monetary turn of events and social advancement of a country. Investment of women in pay producing exercises is likewise fundamental because of the financial pressing factor the families are looking to improve the personal satisfaction. Strengthening of women can be arrived at just base up by methods for women' associations which can prepare and coordinate women at the grass-root level. Strengthening is a multidimensional cycle, which is to understand their full personality and powers altogether circles of life. It is the crying need of great importance that the human resources amassed in the country in the field of science and innovation are put to creative use. It is through information-based enterprises that our nation can accomplish monetary confidence. The development of information in entrepreneurship improvement is the best wellspring of monetary development over the long haul. A country can't seek to turn into a created one without having a sound economy and supportable financial development. It is conceivable to accomplish this through a consistent inventory of imaginative, innovative, and enterprise some individuals. Entrepreneurship advancement and enterprising climate have a huge task to carry out in this cycle. Accordingly, there is a critical need to see and break down the pattern of the interaction of improvement throughout the long term, accessibility, age and usage of assets, the base and sort of economy, and constant wellspring of income. The job of a entrepreneurship in any country is noticeable and conceivable through individuals' and the government's endeavors to include them simultaneously. India is one of the

biggest forthcoming economies on the planet and has the third biggest Gross Domestic Product (GDP) altogether of Asia.

The advancement of the economy, which began in the 1990s, has prepared for an enormous number of individuals to become an entrepreneur. India has a developing working class who could take their place in different fields like assembling, agri entrepreneurship and agro–preparing, data innovation (IT) and IT-empowered administrations, monetary administrations, the travel industry and diversion, wellbeing, lodging, and metropolitan turn of events. Today India has perhaps the biggest pool of specialized and logical ability on the planet. It likewise has the benefit of having a prospering youth populace in the working-age gathering. There has been an adjustment on the planet economy over the most recent 50 years and the change over the course of the following 50 years could be more emotional. Brazil, Russia, India, and China (BRIC) are arising economies with the possibility to turn out to be considerably bigger powers on the planet economy. Both the individual and authoritative elements add to the accomplishment of entrepreneurs. In this unique situation, a few characteristics like worth, culture, imagination, tolerance, steadiness dynamism, difficult work, and enthusiasm, administration, benefit direction, capacity to pull in and hold ability, keeping up best modern connection strategies, trustworthiness, and capacity to build up a global presence can likewise be viewed as being basic to all entrepreneurs.

Authentic proof shows that the outlook of an Indian resident towards beginning another endeavor is that of dread of disappointment because of outside factors. Characteristic disasters like floods, dry spells, and tremors are an ordinary wonder and the public authority's disappointment in managing these

sufficiently has likewise impacted their psychological state, bringing about an absence of self-assurance and independence in countless working-class youth. Writing of mental sciences shows that ingenuity creates

from youth, where guardians, senior individuals from the joint family, instructors, good examples and beliefs, friends of the comparable worth structure, and general climate assume a significant part in the trim of an enterprising outlook. Past the individual degree of examination, we likewise have seen that in the examples of overcoming adversity of entrepreneur, simple admittance to monetary info and support from relatives encourage the advancement of a new entrepreneur. On account of women entrepreneurs, early openness to innovative exercises inside the family and backing from the mate just as family members and companions assume a positive part. India entrepreneur (individuals with abilities) however needs more degree for entrepreneurship improvement. This requires the production of an uplifting outlook among individuals through visionary long-haul endeavors and projects by the public authority. India has the essential skill, innovation, and entrepreneurship climate. The administrations in this manner, have no alternative except to reexamine their techniques for giving simple admittance to capital, guaranteeing a proper administrative and assessment climate, and making positive social and social disposition among individuals, on the off chance that they try to India assuming its legitimate position on the planet.

Entrepreneurship is characterized exclusively as far as a bunch of properties, utilized in a specific assignment setting, it follows that there is entrepreneur altogether sorts of associations, for these credits are shown and created by a wide assortment of individuals working in a wide range of conditions – these are ambitious individuals. There is an enemy model, many degrees for innovative conduct inside administrations, even though when this conduct is baffled or can't be contained inside the association and is viewed as degenerate, the work change, or undoubtedly independent work, might be sought after z methods for practicing these credits. This is by the possibility of the businessperson as a 'minimal man'. The individual spurred to high accomplishment has confidence, needs duty, appreciates difficulties and curiosity, and is a moderate daring person. Others have taken a gander at the requirement for self-sufficiency and the longing for impact. What anyway is for the most part being depicted is a bunch of properties that can be utilized in various circumstances, albeit frequently

Average of the ascribes distinguished by an assortment of essayists regarding the matter of entrepreneurship or undertaking are as follows:

• Autonomy/freedom

• Belief in charge of one's predetermination

• Creativity

• Determination

• Flexibility

• Goal direction

• Hard work

• Imagination

• Initiative

• Leadership

• Moderate instead of high danger taking

• Need for accomplishment

• Optimism

• Perseverance

• Persuasive forces

• Problem-settling capacity

Gender would have practically no impact on whether an individual was enterprise some the particular illustration of sex in the entrepreneurship setting shows that this may seem not to be the situation. Truly most entrepreneurs have been men and those organizations which have been made by women have commonly been in a restricted scope of entrepreneurship areas.

Social, political, and monetary conditions are interlinked and there is little uncertainty that the triggers for big entrepreneurship are found along a continuum from intrinsic ascribes of people to complex interrelationships among regularly evolving Cultural, political, and financial conditions at public, local, and neighborhood levels. Find out about the contemporary patterns and examples in business, remembering its job for the worldwide economy and the increment in a friendly entrepreneurship. Businesses are framed by 1 out of 11 grown-ups around the globe today. Women who start organizations are expanding fundamentally. Social entrepreneurs are headed to engage individuals by giving the way to better their lives; the mission of these self-supporting firms is social change.

Opportunities

Entrepreneurial opportunities are described by the introduction of new products, services, raw materials, markets, and strategies for getting sorted out through the development of the new relation. Entrepreneurial opportunities can be separated from different kinds of changes in that they include the creation or distinguishing proof of new finishes and means unnoticed by other market members. Successful entrepreneurs can distinguish the correct chances to seek after because they have built up the capacity to see them.

Innovative Alertness

An innovative chance is an expression that is utilized to depict this capacity. It implies that entrepreneurs have an uncommon arrangement of observational and intellectual abilities that assist them with recognizing openings. It can appear to be a glimmer of understanding. Alertness is important for what makes up the pioneering attitude, and such an outlook is required if people and supervisory crews plan to become a strategic entrepreneur. Successful entrepreneurs share is the capacity to accept danger and adapt to vagueness even with vulnerability and change.

Fate of Entrepreneurship

Both the Central Government and different State Governments are checking out advancing the development of business. People are being urged to shape new organizations and are being given such government underpins as duty motivations, building, streets, and communication facilities to create entrepreneurships. The support by the central and state governments should proceed in the future as more legislators are understanding that new undertakings make occupations and increment the

monetary yield of the district. Society's help for entrepreneurship ought to likewise proceed.

Conclusion:

The idea of entrepreneurship has been around for a long time. The idea of an entrepreneurship is a deep-rooted wonder that identifies with the vision of an entrepreneur just as its execution by him. The entrepreneurship is an imaginative and inventive reaction to the environment. It is likewise a process of setting up new pursuits. Entrepreneurship is composite skill that is a combination of numerous characteristics and attributes, for example, creativity, risk taking, the capacity to outfit variables of creation. The exact significance of an entrepreneur is maintaining a business, makes his business, coordinates, works, and bears the risk of an undertaking. An entrepreneur sees a need and afterward unites labor, material, and capital needed to address that issue.

All entrepreneurship begins with a thought. Thoughts outgrow inventive motivation combined with sound and thorough analysis. Advancements are the result of inventiveness; the answer for an issue or the best approach to accept a chance. Innovation is the product, services, innovation, or cycle that rises out of imaginative intuition alongside an application that outcomes in new pursuit arrangement or reexamination in a current firm. Thoughts for new pursuits, or product, services, innovations or entrepreneurship process around which an enterprising endeavor is constructed, rise out of a careful assessment of the external environment. This appraisal incorporates a few components, alongside some valuable tools to assist you with posing the correct inquiries and test for the unexpected solution, requirements, issues, and openings in the climate. The employment opportunities for individuals are less both out in the open and private areas, however, the entrepreneurship independent work is the solitary choice to determine the joblessness in the country. The entrepreneurship is composite expertise that is a combination of numerous characteristics and qualities like creative mind, risk taking capacity to tackle variables of creation. The exact meaning of an entrepreneur is one who maintains a business, coordinates, operates, and bears the risk of an undertaking

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Impact of COVID-19 on Online Shopping Behaviour

*Prajkta Shewate

Abstract:

The covid-19 outbreak created a time of uncertainty and fear. People were forced to stay indoors. Businesses and companies experienced losses in revenue and sales. Many people lose their job & companies were shut down permanently. This also changed online shopping behavior of customers. The current paper attempts to review and discuss the changes in online shopping behavior of customer before and after Covid-19 pandemic.

Keywords: Covid-19, Online Shopping behavior, Internet.

Introduction

In the last month of March 2020, a nationwide 21 day lockdown was ordered by the Indian government as a preventive measure to limit movement of people thereby controlling the ongoing spread of COVID-19 virus. At time the move seemed appropriate as surge in cases observed in Europe and China. As a consequence of sudden rise in cases, the governments were unable to control the initial fatalities. Most of them were senior citizens. The lockdown not only posed threat to the health of 138 crore people but also it affected the work schedules, priorities & lifestyles of Indian citizens. The sudden and complete lockdown caused major disruption to social lives of millions of working and especially labor class of Indians who were forced to walk on their foot to their native places.

The main impact of the COVID-19 was that on the social lives of all the people. People were advised to stay at home, work from home and were allowed only in case of extreme emergency or to buy daily or medical essentials. All the businesses closed (Excluding essentials) for unknown duration, there was sense of insecurity among the people about their livelihood and survival. People refused their old lifestyle and switched to the survival mode.

In the age of digitization where use of internet and Smartphone has become part of professional and social life of people, the COVID-19 has impacted it deeply. It also changed the way people used to buy things online.

Objective of study

To understand the impact of Covid-19 situation of behavior of consumers to online shopping. The present work tries to provide a background for the changed online shopping behavior through the available statistical data, articles, surveys and published works during the Covid-19 pandemic.

Review and Discussions

From the year 2015 to 2019 the number of internet users in India have more than doubled from 30 crores to approximately 70 crores [1]. The increased use of internet and smart phones has brought the shopping to the phone screens of users.

The presence of online shopping in India can be traced back to 1999 when an online book store was started with the name of baazee.com which later

became Amazon.com. Then came Flipkart with its heavy discount strategy on product prices which quickly acquired popularity. In later years almost all the e-shopping giants opted to this strategy in one way or other (through end of season sales, clearance sales etc.). It is very interesting to note that IRCTC is selling their tickets online since 2002.Today it has 2.5 crore users and earns 35% of total Indian Railways revenue [2].Today there are many online shopping platforms and many more are being added to the list every day.
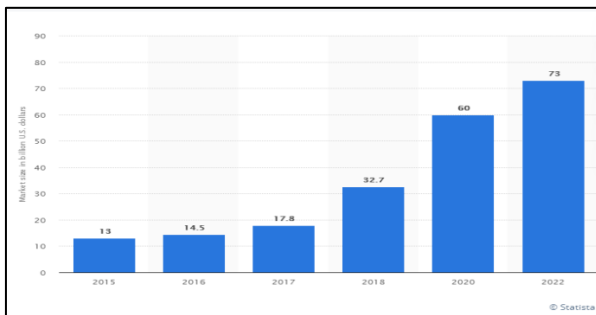

Fig. 1 Market size of Indian E-commerce in billion USD

Parameters that affects the purchase behavior of consumers:

i) Convenience: One of the benefits of purchasing through online medium is in online shopping, consumers don't need to visit or travel all the way to the particular shop, jostle with other consumers during festive seasons rush and face difficulty in finding parking space for their cars and bikes. Online shops are accessible to the customer round the clock and products reach to them on doorstep to the residences or offices of the customers according to their choice. So a consumer can place an order for a smart phone or some apparels even in the middle of the night. This is one of the major reasons for consumer's priority for online shopping.

ii) Variety: Since online shops do not have to

Growth of Online Retail Industry in India

The approximate market size of online retail industry in India was $60 billion in 2020 and it has shown increase since 2015[3].100% FDI and jump in number of digital buyers in India has together contributed to growth of online retail industry in India. After launch of cost friendly internet plans by Reliance Jio in 2016, the company gained huge market share. This has worked as a catalyst for growth in online retail e-commerce.

worry about space crunch, they can make available large varieties of product at the same place. This large variety gives costumers vast choice which was not available before. An online shop is a customer's one stop destination for multiple brands. Brands from local to international level are available on these sites. No offline shop offers the maximum amount variety in several product categories as a web shop can.

iii) Consumer review: This is one of the benefits of the online shopping that helps customers to learn about the performance of products from reviews before buying the products. Once a product is purchased by a customer through an online store, the customer is requested by the shopping company to upload their buying as well as delivery experiences with the product on the portal so that other customers can read that and decide for themselves if they need to get it or not. That helps customers to choose the best products for themselves also helps the company to analyze their customers, products and services.

iv) Comparison before shopping: As customers, we like to visit few shops before purchasing a product to check the prices, discounts and offers in case of offline shopping. Which is time consuming. But in case of online shopping, we can

visit number of online shopping sites on our devices and compare the products on them.

v) Discounts: This is one of the major reasons for consumers, especially young generation purchasing online. Since online sellers don't need to have infrastructure for their shops, hire large number of employees for sales and due to disintermediation, they can afford to offer products and services at a large amount of discounts compared to their offline counterparts.

After Covid-19 lockdown was initiated, the situation changed drastically as severe restrictions were imposed on both online and offline retail businesses. Only "Essentials" were allowed to be bought and sold online/offline. People were opting for online option for the items like sanitizers, masks, gloves and groceries. The reason was not only lockdown restrictions but also limitations on availability of items during the period of panic and bulk buying. In these uncertain times, people were chose to priorities their necessities. To avoid queues in the supermarkets and other shops and to socially distance most of the consumers opted online shopping.
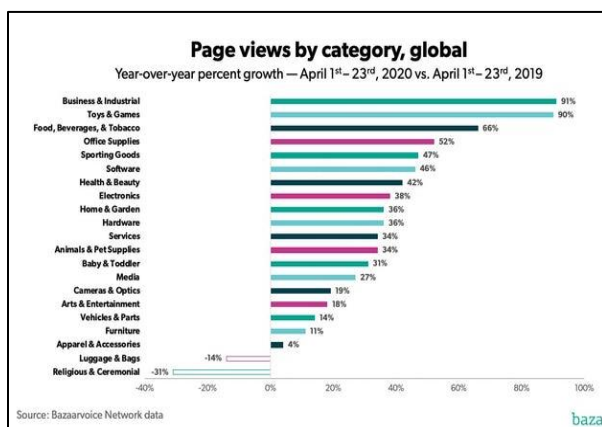
According to survey by Marketing Week [4], before pandemic peoples' priorities were Quality, Price & Brand which shifted to Availability, price & quality. It clearly shows the focus of customer changed from quality to availability.

The above image shows reduction in demand for luggage and bags which is obvious due to social distancing norms put forward during period of Covid-19. It is no coincidence that during this period the OTT subscriptions were also increased. The work-from-home situation led to emergence of many online meeting platforms. Along with this online gaming and entertainment sector experienced push during lockdown. Increased demand of office supplies can be attributed to Work-from-home routine taken up by many companies.

Selectivity towards origin of product manufacturing

Covid-19 was originated in Wuhan, China, and the country allegedly tried to hide the facts regarding spread of virus [Ref]. There was online movement regarding boycott of Chinese origin products in India. Products that are being manufactured in India are preferred over the products made abroad due to panic situation.

Initiatives by Prominent Online Shopping Companies

After lockdown in last week of March 2020, every online shopping site had stopped delivering regular items to customers. However different online shopping players conveyed their support to fight Covid-19 in different ways. This included capacity improvement for grocery delivery, control on overpricing & inflation, priority to orders of medical essentials.

Conclusion

"The new normal" situation may or may not stay forever given the covid-19 outbreak. The businesses all over the world had experienced loss

of sales and revenue, many of the companies had shut down. The effect of Covid-19 may remain on economy for a while. Online shopping are also no exception to this. The online shopping behavior of customers has shifted towards survival and is continuously changing. This does not mean the online shopping is not a preference of customers. Rather it has provided an option to customers during the time of uncertainty and panic.

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Impact of Covid-19 on Human Life and Environment.

*Amit Ohol, ** Dr. Shraddha Dudhani

Abstract

Covid illness (COVID-19) flare-up (already 2019-nCoV) is the new issue of the mankind brought about by the SARS-CoV-2 infection. This influenced and profound effect on everyday life universally and hindering the economy. This pandemic has influenced lakhs of people groups, some of them are wiped out and some are slaughtered because of this infection. This flare-up recognized in Wuhan, china and revealed by world wellbeing association (WHO) on December 2019. This infection is spread to the in excess of 213 nations and still proceeds across the world and that offering time to discover the difficulties and course for work.

This pandemic affected all regions of public and worldwide market like securities exchange, ventures, and instruction and so on, this additionally affected different level of the populace, and Even now this infection is changing the practices as per the environments with various side effects. This is the danger to our populace, danger to human existence, however this emergencies essentially influencing on the human wellbeing and climate.

To manage current circumstance and comprehension of the impact on human existence and climate. There is prominent need to identify the impact of this pandemic on the human lives and environment. This paper shows the potential areas and the impact of COVID-19 on our day to day life, business and industries in different areas like healthcare, employment, Education, transport ,human Behavior, social and personally or professionally and on environmental things with its positive and negative impact.

Introduction

The cross country lockdown to contain the spread of the novel (COVID-19) in India was declared on March 25 till April 14, 2020 (Lockdown 1.0). It was additionally stretched out by 19 days till May 3, 2020 (Lockdown 2.0). The lockdown was again stretched out until May 17, 2020 (Lockdown 3.0). and in that period of time what various kind of environmental as well as related to the human life positive and negative impacts we are trying to examine in this research paper.

The Corona virus infection (COVID-19) has affected each section of human existence and climate. Especially we have seen so many positive impact related to the environment. Like air pollution, water pollution, noise pollution etc. has been decreased due to this lockdown these are the major factors which are related to the environmental things. But there are some of the negative impact on human life like people is facing the problems about their mental health, education, employment, transport, healthcare, food security, money, entertainment, sports, etc.

Pandemics leave tremendous weights on our lives, economies, and social orders on the loose. The COVID-19 pandemic has prompted a sensational loss of human existence worldwide and presents a

phenomenal test to general wellbeing, this pandemic has influenced a great many people groups, who are either wiped out or are being slaughtered because of the spread of this infection. The most common symptoms of this viral infection are fever, cold, cough, bone pain and breathing problems, and ultimately leading to pneumonia. This, being a new viral disease affecting humans for the first time,[1]

Corona virus is being influenced our everyday life, organizations, disturbed the world exchange and developments. Distinguishing proof of the illness at a beginning phase is fundamental to control the spread of the infection.
Because, it very rapidly spreads from person to person.

1. Covid-19 Impact on Human Life.

1.1. Human Health : Humans are being afraid of this disease. Especially those who are already afflicted by any type of disease. As well as According to World Health Organization (WHO) information from April 2020, over 95% of COVID-19 passing's were among individuals more than 60 years old, and the greater part of all passing's happened in individuals of 80 years-in addition to And various kinds' rumors are being spread via social media and other platforms and as a result of this people are being more afraid and some of them are feeling illness because of the fear. The new realities of working from home, temporary unemployment, home-schooling of children, and lack of physical contact with other family members, friends and colleagues take time to get used to. Adapting to lifestyle changes such as these, and managing the fear of contracting the virus and worry about people close to us who are particularly vulnerable, are challenging for all of us. They can

be particularly difficult for people with mental health conditions.

When the total lockdown was imposed. Some of children and young people was feeling more isolated, anxious, bored and uncertain. They were feeling fear. They were becoming angry because of their parents were not letting them go outside for roaming, playing etc.
The COVID-19 pandemic and the subsequent monetary downturn have contrarily influenced numerous individuals' psychological wellness and created new barriers for people already suffering from mental illness and substance use disorders.

Youthful grown-ups have encountered various pandemic-related results, like terminations of colleges and loss of pay that may add to poor emotional wellness. During the pandemic, a bigger than normal portion of youthful grown-ups (ages 18-24) report side effects of uneasiness and additionally burdensome turmoil (56%). Contrasted with all grown-ups, youthful grown-ups are bound to report substance use (25% versus 13%) and self-destructive musings (26% versus 11%). Before the pandemic, youthful grown-ups were at that point at high danger of poor emotional well-being and substance use problem, however many didn't get treatment.

Examination from earlier financial plunges shows that work misfortune is related with expanded wretchedness, nervousness, misery, and low confidence and may prompt higher paces of substance use issue and self-destruction. During the pandemic, grown-ups in families with work misfortune or lower livelihoods report higher paces of side effects of psychological instability than those without work or pay misfortune (53% versus 32%).[2]

Figure 2

Share of Adults Reporting Symptoms of Anxiety or Depressive Disorder During the COVID-19 Pandemic
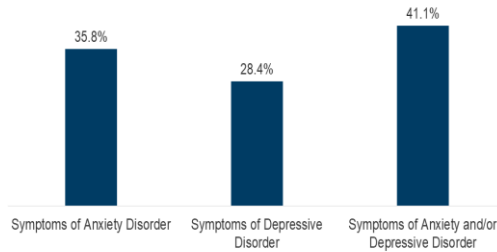
NOTES: These adults, ages 18+, have symptoms of anxiety or depressive disorder that generally occur more than half the days or nearly every day. Data shown is for January 6 – 18, 2021.
SOURCE: U.S. Census Bureau, Household Pulse Survey, 2020 - 2021.

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1.2. Impact on jobs

New information from the Center for Monitoring Indian Economy (CMIE), an autonomous body that measures and tracks monetary markers, has said that salaried positions endured a big cheese during the COVID-19 lockdown, with the complete misfortune assessed to be at 18.9 million during April 2020-July 2020. The situation of salaried representatives has deteriorated since the lockdown, with a deficiency of 17.7 million salaried positions in April, extra 0.1 million positions in May, trailed by an addition of 3.9 million positions in June and afterward again a deficiency of 5 million positions in July.

"On a net premise, the situation of salaried representatives has deteriorated since the lockdown started. In April, they lost 17.7 million positions. Yet, by July, their misfortunes had expand to 18.9 million," CMIE manager Mahesh

Vyas noted in a new post.

Salaried jobs suffer biggest hit during lockdown

Centre for Monitoring Indian Economy Pvt. Ltd., 18 Aug 2020
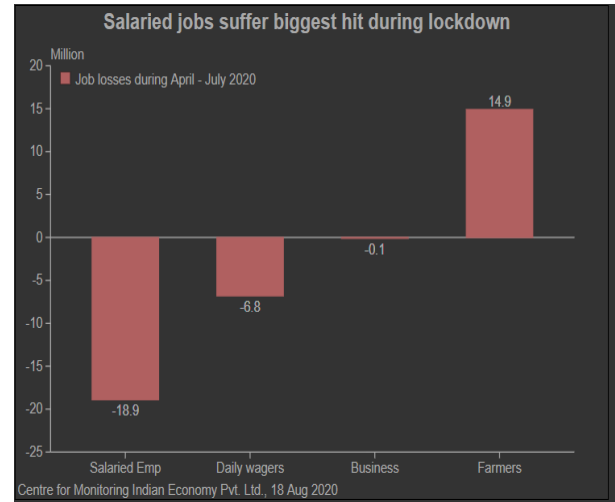
"While salaried positions are not lost effectively, when lost they are additionally undeniably more hard to recover. In this way, their swelling numbers are a cause of stress. Salaried positions were almost 19 million shy of their normal in 2019-20. They were 22% lower than their level in the last monetary year," the post said.

This is in sharp difference to casual and non-salaried positions, which have shown improvement during a similar period, expanding to 325.6 million in July from 317.6 million a year ago, an expansion of 2.5%, the post noted.

Toward the start of the lockdown, casual positions – especially day by day wage workers, sellers and little brokers – were most noticeably awful hit in April. [3]

1.3. Impact on students studies.

The impact of pandemic COVID-19 is observed in every sector around the world. The education sectors of India as well as world are badly affected by this. It has enforced the world wide lock down creating very bad effect on the students' life.

Around 32 crore learners stopped to move schools/colleges and all educational activities halted in India. The outbreak of COVID-19 has taught us that change is inevitable. It has worked as a catalyst for the educational institutions to grow and opt for platforms with technologies, which have not been used before. The education sector has been fighting to survive the crises with a different approach and digitising the challenges to wash away the threat of the pandemic. This paper highlights some measures taken by Govt. of India to provide seamless education in the country. Both the positive and negative impacts of COVID-19 on education are discussed and some fruitful suggestions are also pointed to carry out educational activities during the pandemic situation

[4]. The effect of pandemic COVID-19 is seen in each area around the globe. The schooling areas of India just as world are gravely influenced by this. It has implemented the overall lock down making awful impact on the understudies' life. Around 32 crore students halted to move schools/universities and all instructive exercises stopped in India. The flare-up of COVID-19 has instructed us that change is inescapable. It has filled in as an impetus for the instructive organizations to develop and settle on stages with advances, which have not been utilized previously. The schooling area has been battling to endure the emergencies with an alternate methodology and digitizing the difficulties to wash away the danger of the pandemic. This paper features a few estimates taken by Govt. of India to give consistent training in the country. Both the positive and negative effects of COVID-19 on schooling are examined and some productive ideas are likewise highlighted do instructive exercises during the pandemic circumstance.

1.4. Impact on Human Behavior.

The effect brought about by the Covid-19 lockdown, not just changed the man way of life as a person. Yet in addition it gave a chance for humankind to mean human existence, to reconsider about our parts in a typical society and to reshape qualities and good standards. Researchers previously perceived that the world have changed when the pandemic, and it will continue to alter on the track to assemble a superior and more libertarian culture.

Public opinion says that the human behavior before the pandemic was defined as selfish and individualistic. However, what expertise have argue is that the pandemic really came on humanity to change some of our beliefs and behavior's and might turn the old world in a new one. Those actions already can be seen throughout nations [5].

2. Environmental effects of COVID-19

2.1. Positive environmental effects.

2.1.1. Reduction of air pollution.

The lockdown forced by the public authority to limit the spread of novel Covid has additionally begun to show a beneficial outcome on air quality the nation over. During the COVID-19 lockdown that began on 25 March, there has been a noteworthy decrease in contamination levels across significant Indian urban areas. As indicated by a report by the European Space Agency (ESA), Mumbai and Delhi have seen a huge decrease of around 40 to 50 percent of nitrogen dioxide (NO2) contrasted with a similar period a year ago.
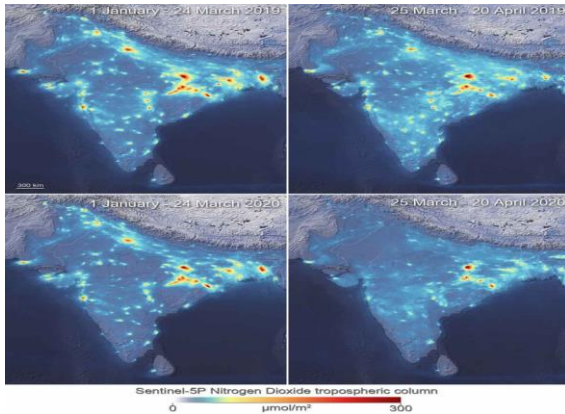
These pictures, utilizing information from the Copernicus Sentinel-5P satellite, show the normal nitrogen dioxide focuses from 1 January to 24 March 2020 and 25 March (the primary day of the lockdown) to 20 April 2020 – contrasted with a similar time period as a year ago. Mumbai and Delhi saw drops of around 40-half contrasted with a similar time a year ago. Picture credit: ESA.US space organization NASA too in its report said that its satellite sensors have noticed vaporized levels at a 20-year low in northern India since the public authority forced the COVID-19 lockdown.
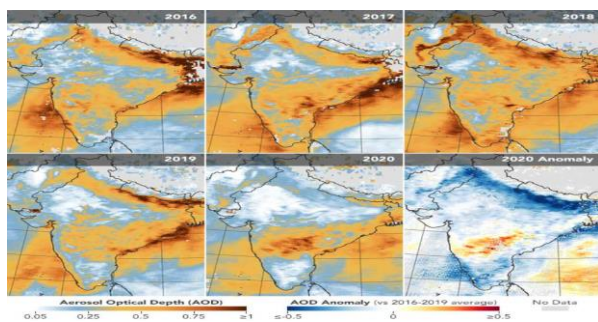
The initial five guides above show airborne optical profundity estimations over India during a similar March 31 to April 5 period for every year from 2016 through 2020. The 6th guide (peculiarity) shows how AOD in 2020 contrasted with the normal for 2016-2019. Picture credit: NASA [6].

2.1.2. Reduction of Water pollution.

The outstanding degree of progress in water quality was because of the shortfall of modern poisons and decrease in the measure of strong waste. While the release of homegrown sewerage has not diminished in this period, mechanical gushing has almost finished, which gave transitory upgrades to the water quality. In the midst of the cross country lockdown to contain the spread of the Covid-19 flare-up, the water nature of stream Ganga at Haridwar was delegated 'fit for drinking' according to the report of Uttarakhand Pollution Control Board. The sections of media described it as an unprecedented success that the ambitious schemes of the government could not do for years, even after spending a significant amount of money. Due to the lockdown, water in Har-ki-Pauri, Haridwar ranked as Class A for the first time in the last two decades. The water had always been placed in Class B since the state of Uttarakhand was formed in the year 2000. Earlier, the river water was not found to be suitable for bathing at most of the monitoring centers along the river, except the upper stretch till Haridwar (Kamboj and Kamboj, 2019). The nature of water between Rishikesh to Haridwar in Uttarakhand was good for drinking with customary treatment (Class A) as DO, BOD and TC level were inside the recommended water quality rules. Improvement in the water quality was additionally seen among Haridwar and Kanpur which was fit outside washing (Class B). A perceptible improvement was seen during the lockdown stage along the whole stretch of the waterway, particularly upstream of Kanpur. (Fig. 1).

The DO fixations stayed over 5 mg/L at all the areas which met the washing standards (Fig. 2). The effect is credited to the consolidated impact of decreased arrival of mechanical wastewater and expanded freshwater inflows because of exorbitant precipitation saw during the lockdown. Water-serious farming was not polished in the northern fields of the Ganga bowl during the lockdown, as the time frame was collecting season. Consequently, gigantic extraction of water for water system was evaded both from the waterway organization and the groundwater springs. The extra water could likewise be the wellspring of weakening. This expanding estimation of DO may likewise be credited to a decrease in squanders from different non-point sources. The suspended solids and turbidity in the waterway expanded following the lockdown because of weighty downpours [7].

Fig. 2

Trend in the observed DO (mg/L) values in the main stem of the Ganga River during 2019 (pre-lockdown) and 2020 (lockdown), showing increase in DO during the lockdown period.

2.1.3.Reduction of noise pollution

Noise pollution is considered to be the third most hazardous pollution after air and water pollution by the World Health Organization (WHO).But due to this covid-19 noise pollution was drastically fallen. Short as well as long-term exposure to noise pollution has several adverse effects on humans, ranging from psychiatric disorders such as anxiety and depression, hypertension, hormonal dysfunction, and blood pressure rise leading to cardiovascular disease. One of the major sources of noise pollution is road traffic. According to the researchers, earlier, the largest drop in environmental sound exposure was witnessed during the weekends, where nearly 100 per cent of participants reduced their time spent above the 75 dBA threshold (a sound level roughly as loud as an alarm clock) between Friday and Sunday [8].

However, after the lockdowns due to Covid-19, people stopped physically going to work, and then the pattern became more opaque. People's daily routines were disrupted and there was no longer any difference between the traditional five working days versus the weekend, Neitzel explained. And in this lockdown period there was no traffic noise, no loud speakers, no train sound, no people voice and all. And this was the very big advantage for the humans because people were not facing the headache kind of things people were living peacefully they were enjoying the lockdown.[8]

2.2. Negative environmental effects

2.2.1. Increased Medical wastage.

62

The number of persons infected with the corona virus disease (**COVID-19**) is continuously rising throughout the world. In these circumstances, waste management, including of hazardous, medical, and household waste is of extreme importance. During the viral outbreak, many types of additional medical and hazardous waste are generated including infected masks, gloves, syringes, samples, and other protective equipment, drain bags, urine bags, body fluid or blood-soaked tissues/cotton, empty ampoules etc. **Medical waste and household waste**, when mixed, can create secondary impact upon the health of the community at large and the environment. Unsound management of this waste could cause unforeseen "knock-on" effects on **human health** and the environment and therefore, safe-handling and disposal of such waste is essential.

Though it is early to have exact figures, by some estimates, medical waste generation has increased six-fold compared to pre-COVID-19 times.

As per the reports of The South China Morning Post, during the height of the outbreak in Wuhan, the city was dealing with 240 tons of medical waste per day (about the weight of an adult blue whale), versus 40 tons prior to that. In the Indian scenario, there is lack of exact data on the subject, but conservative estimates draw a grim picture. As per a joint report by Associated Chambers of Commerce and Industry of India (Assocham) and Velocity in 2018, the total quantity of medical waste generated in India (in 2018) was 550 TPD, and these figures are likely to increase close to 775.5 TPD by 2022. Looking at these numbers and adding to them, the waste generated during the COVID-19 crisis, the situation is nothing short of challenging and may worsen in the coming months [9].

Methodology

This examination was performed by auditing the accessible distributed literary works, contextual analyses, and diverse government and non-government associations' data from reports and official sites. Logical writings were gathered through electronic methods from the data set of Science Direct, Springer, PubMed, Tailor and Francis, ISI Web of Knowledge, Research Gate, and Google Scholar yet not in an efficient way. From countless investigations, this examination orders and presents the information and data which are applicable to human existence and the natural impacts of COVID-19 and meet the investigation objectives.

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The Future of Video Streaming Services: Widely Uses of OTT Platform

* Navin Kumar , ****** Amit Srivastava

ABSTRACT

"There is lots of platform offering live streaming content, downloaded content as an alternative way of cable TV. It has both benefits and drawback for the viewer when it compared to the traditional TV."

OTT refer to *television and film content that is broadcasted using a high-speed internet connection instead of cable connection or satellite service*. It is not free content, one has to pay a certain amount for watching the content for a specific duration. For example, *Amazon Prime Video, Netflix, Hotstar and Now*.

A web-enabled TV or any internet-enabled device like laptop, mobile, tablet, etc., with a high-speed internet connection, is required to view the OTT content. The popularity of OTT viewing has increased with the sharp growth of Netflix when Netflix started showing original content instead of showing old movies and TV shows as it was doing in the beginning. If one doesn't have a smart TV, he or she will need an *OTT device*, which is a device that is used to consume or view OTT content, e.g., *Amazon Fire TV sticks, Airte Xstream Smart Stick Media and so on* Media ransforming the competition relationship among media firms in the broadcasting market and the structure of the broadcasting industry. New entrants like OTT media firms kept using various competition strategies including mergers and acquisitions in order to gain a foothold in the firmly entrenched broadcasting industry.

INTRODUCTION

OTT stands for over-the-top, initially named in reference to devices that go —over‖ a cable box to give the user access to TV content. In OTT channels, content is delivered via an internet connection rather than through a traditional cable and broadcast provider.

OTT and video are intertwined, but they are not the same thing. OTT is just a different channel through which video content and related display or video advertisements is delivered to end users OTT may be defined differently by the various partners involved in the delivery, advertising, and measurement streams. OTT, as defined by OTT content providers may include any users accessing OTT content via any device desktop, mobile phone ,tablet, OTT devices, etc.

However, OTT may also be defined strictly on the basis of the device used to access the content. Examples of OTT devices include Apple TV, Chrome cast , Amazon Fire in addition to Smart TVs and gaming platforms How advertising inventory is measured/categorized depends on the partners involved in the respective OTT supply chain. OTT video apps, riding on the glaring popularity that Netflix has created, has a lot to offer to a video business. With its inclusion, you can not just avail the perks of mass reach but also see an expedited rise in revenues at the back of the well-strategized business models OTT video viewers Individuals who watch video via any app or website that provides streaming video content and bypasses

traditional distribution. Examples include MX player, Netflix ,Amazon Video, YouTube/YouTube Red and Voot.

Connected TV /Internet Protocol TV users: Individuals who use TV sets connected to the internet through built-in internet connectivity (Smart TV) or through other devices with the functionality such as a set-top box devices e.g, Amazon Fire , Blu-ray players or gaming consoles. OTT is possibly one of the most important abbreviations that you might have never heard of. Right now it is in more than 51% of homes in the USA alone and is used at least 100 minutes every day. It doesn't end here. OTT is out to kick TV Cables off their preferred video streaming choice position. Know what else? There is a VERY HIGH chance that you are already using it. Well, here's the big reveal

A few OTT media firms already successfully made inroads into the media industry and are expanding their turf in many countries, triggering drastic changes in the structure of the broadcasting industry. The entry of OTT firms has also been increasing tension with fixed and mobile broadband network operators worldwide and induced NOs to become OTT media firms themselves. In this paper, we propose an empirical study on the major countries with large broadcasting market size.

- Video
- Audio
- VOIP
- Messaging

Among these four types of OTT services, the one that has surfaced on the forefront the most is the Video OTT segment. And it is also the center of our research today and a point of interest for your business for the time to come.

Our reasoning behind placing a special focus on OTT streaming platform is a little partial – we are very intrigued by its market size.

In our defiance, when you have look into the share it is contributing in the entertainment industry, pushing people to be hooked to it day in, day

II. OBJECTIVE

☐ **Linear OTT video service users**: Users who subscribe to a service that delivers live TV channel bundles over the internet for a monthly subscription. Examples include Sling TV, DirecTV Now, with Live TV, YouTube TV

☐ **Advertising-based video-on-demand** Users access free-to-watch content which is then monetized through video advertising.

☐ **Subscription video-on-demand** - or Subscription OTT: Users who have a paid subscription access to streaming video content.

☐ **Transactional based video-on-demand** Users who have paid to access certain content through a pay-per-view (PPV) purchase model.

III. METHODOLOGY

We have used qualitative methods to gather data about the organization who have done streaming through online as well as offline mode. These methods include primary as well as secondary surveys with various questions that assessed that Is OTT Platform Better than Cable and why are you using OTT Platform.

For the Primary surveys, we have created a Google form with related questionnaire and distributed it to more than 30 persons who are currently streaming on uses so several platform in the type upload the video or watching the video during the pandemic or as normal day. We have also collected data form

the Internet as my secondary survey. The search is based on the statistical analysis of the various research agencies which have done some of the researches on the Video Streaming Services

I.   LITERATURE REVIEW

OTT, Open up a new range of possibilities for the way businesses can streaming and structure themselves. With the outbreak of the corona virus (COVID – 19) pandemic. OTT has given some Content of the flexibility they need to continue their enjoy with family while staff and customer health and wellbeing as part of their public health responsibility with enjoyment.

AD (Advantage-Disadvantage) Analysis

Advantages of OTT Platform: There are multiple benefits of using OTT platforms and why they have become so famous within no time in India.

 Cost-Effective – Anyone willing to watch online digital content, can register themselves and pay a monthly or yearly subscription amount which makes it cost-effective

 Easy Access – One can log in to these OTT platforms through mobile applications, smart TV, laptops, tablets, etc. The only requirement is an internet connection

 Creative and Unusual Content – Through these over the top platforms, various creative ideas have come to the forefront which could not be brought across due to censorship or regulatory laws

 An open platform for Entertainment Industry – The biggest advantage of this platform is that it has provided a medium for new talent to get more opportunities as the number of projects are much higher in comparison to television or films

 Platform for International content – Any Indian content uploaded on these platforms can be viewed internationally. This gives a broader outreach of content and talent

Disadvantages of OTT Platform: Along with advantages the OTT platforms have various issues and challenges which they need to overcome:

 May affect social-political harmony – Since there is no censor board to review the content, there are chances that the content may affect social or political harmony and hurt people's sentiments on certain issues

 No regulatory board – No organization, department, or body is held responsible for the content that goes online. This has always been one of the biggest concerns for the Government of the country

 Threat to Culture and Tradition – The modern and fresh content releasing on OTT platforms has been accepted and appreciated by the people in India. However, there still are a few who have not been able to accept this unique content. Thus, the government needs to be accountable to them as well

II.   DATA   ANALYSIS   AND INTERPRETATION

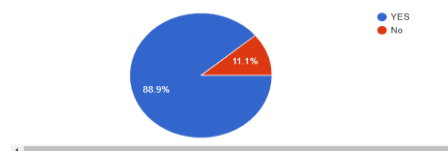Below is the descriptive analysis of the final sample data in the form of charts and graphs.

Figure 1.1: OTT Better Than Cable
Almost 90 % of people say OTT is far better than traditional TV. Cable in questionnaires' survey.

But, still there are approx. 10% people are say not affective change of technology.
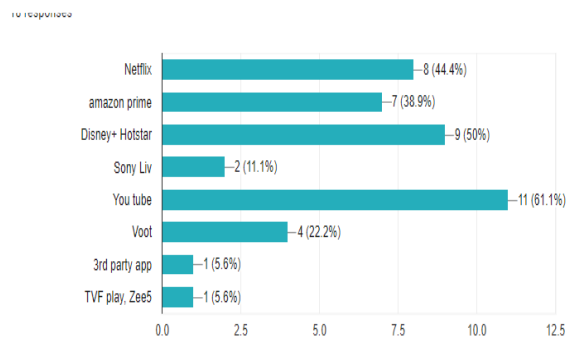

Figure 1.2:Currently uses of OTT

In current time you tube have more users other than any OTT platform As a research statics we are observed but Disney + hot star are also has 2nd position in statics and also 3rd position are there in Netflix and so on .
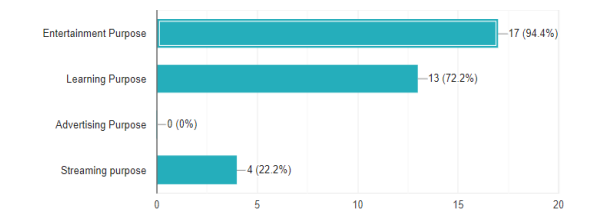

Figure 1.3 Purpose of using OTT

It has been observed by a survey that out of 20 people, 17 people using OTT for their entertaining purpose, 13 out of 20 as for their Learning purpose and 4 people out of 20 people for their video Streaming purpose.
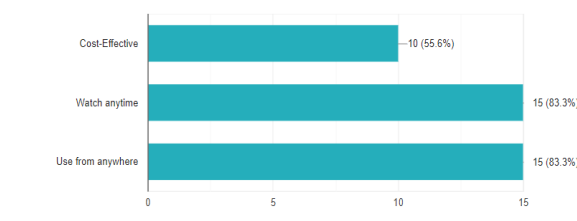
Figure 1.4 Importance of OTT

According to data, about 55% people found OTT cost effective(Out of 20 people),83.35% prefer OTT because they can enjoy OTT anytime and anywhere.
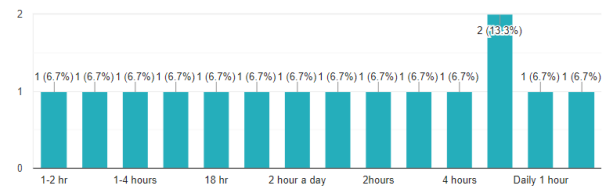
Figure 1.5 Average Time spend on OTT

As per my survey on Google forms, it has been found that, a single user spent 2.5 hours from his/her daily time schedule.
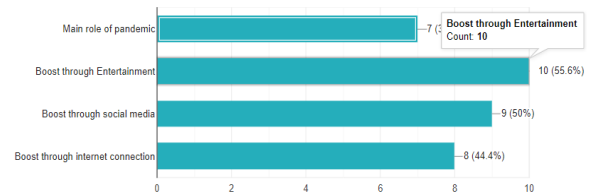
Figure 1.6 Boost Organizations

In today scenario OTT is boost to Play main role of entertainment, social-media, fast internet connection and also during this pandemic.
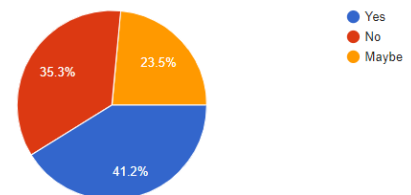
Figure 1.7 Want to take subscription

In early days OTT platform are more focused on their content because they want to take more subscriptions and more interaction with their

viewers.

Figure 1.8 More number of advertisement

As per survey, you tube contain most number of advertisements as compare to other OTT platforms. This is because you tube provides paid partnerships.

VI. CONCLUSION

As per results of analyzing the cases of major broadcasting countries, this paper found that OTT operators' common strategies are localization strategy, partnership strategy, content differentiation strategy, revenue enhancement strategy, and service optimization strategy. Existing broadcasters against OTT services are also using the same strategies. Some of the existi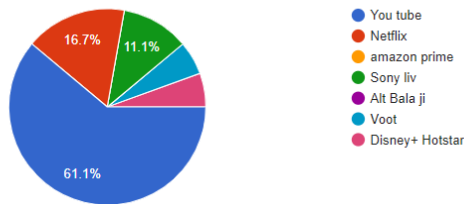ng broadcasters have used **envelopment strategy** launching similar services to OTTs, and diversification strategy by acquiring data analysis companies or launching content producing affiliation.

This paper produces results that the sum of OTT revenue amounts does not have meaningful influence on the structural change of the smart-TV market nor the cord-cutting phenomenon. Meanwhile, the result shows the OTT service revenues would increase smart-TV take-up when the squared independent variable fixed broadband

subscriptions is considered. This paper also drives results the network effects of fixed broadband have a significant catfish effect on the structural change of the smart -TV market and cord-cutting. When the squared independent variable —**fixed broadband subscriptions**‖ is included to the regression test, however, the relationship between fixed broadband subscriptions and market concentration shows an inverted U-shape in two dimensions, while the relationship between fixed broadband subscriptions and smart-TV take-up shows a U-shape. These results indicate there are opposite effects after a certain point

it would be more fruitful when examining detail broadband factors, which have network effects on OTT services, such as 4G and 5G. Mobile broadband subscriptions were not analyzed as another independent factor in this paper because it had showed a high correlation with fixed broadband subscriptions.

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IMPACT OF COVID-19 on the field Information Technology (IT)

*Amit Pratape

ASTRACT

Recently we have experience of the covid-19 situation which was very worst of all over the global. It has impacted all the sectors and it is not limited too. In this paper researcher is going to provide inside on way impact covid-19 in the IT Industry. at in this researcher is going to provide information highlights on what is covid-19? And what are its drawback?. In the second section of the paper researcher will provide inside on how the IT affected due to covid-19.

KEYWORD

Covid-19, Challenges, Impact, Information Technology.

INTRODUCTION

Corona virus disease (COVID-19) is an infectious disease caused by a newly discovered corona virus.

Most people who fall sick with COVID-19 will experience mild to moderate symptoms and recover without special treatment. The covid-19 was transmitted droplets generated when the infected person coughs sneezes or exhales. This droplet is very heavy to hang in the air and quickly fall down on the floor and surface. You can be infected by the breathing in the virus when you are within close proximity of someone has covid-19 or contaminated someone or something by touch and then your eyes nose and mouth.

The information technology is comprised of three company the produce the software and hardware and semiconductor equipment or companies provide internet related services.

As per the given information **11,192,088**people affected bycovid-19, that is why all sectors has been stagnant even IT industry too.

IMPACT OF COVID-19

1. **Effect of lockdown on IT sector** -: The significant weaknesses is it sector is facing now due to the fall in the economy ,and lots of company they are force to their employer to work employees to work from home(remotely) that is keep the public health concerns. There are facing the loss that company who has directed connect to the international dealer

2. **Benefit of in this pandemic-:** It industries is compare to any other industry its has been getting the enormous market it continuously bloom , and industry will be get too much growth in the upcoming year until 2025 because one of main reason to increase our economy for this industry get demand of social media and messaging hangout , Google, Zoom, and such kind of application has demanded by the people with huge amount for the education purpose all the academic teaches on the cloud by using cloud technology and to met and make business conference meeting, connect to friend and relatives the people had been us that technology while pandemic circumstance.

3. **Smart solution around the world-:** Many country has locked while covid-19 they are

working with smart solution such example .china govt. Has launched chat-bot.drone moving in the air and also connected to citizen for the give the answer of their question so that will avoid increase the miss leading will happen in the society

4. **Increase opportunities and threat in IT business-:**Because of the Covid, a ton of chances opened up in the IT business, like the developing requirement for the fifth era (5G) innovation. This will help increment associations that help the prepared distant connections. This has become the main concern for some associations because of the pandemic. Telehealth is one of the creating enterprises in the emergencies. This could assist individuals with getting analyzed, treated and worked with the need of a doctor to be genuinely present. A great deal of applications has been inherent the previous few months to help accomplish this. There are numerous patients who are in self-isolate who need clinical oversight and clinical help each day, and these applications could assist them with accomplishing that.

There are a couple of dangers as well, for example, after the pandemic is over what might befall the IT area? May exporters in this industry feel that it won't balance out after the ruin, in contrast to the 2008 worldwide monetary and monetary emergency. In those days, the national banks assisted with improving the strength of the market, yet now even the national banks are defenseless.

CHALLENGES OF COVID-19 FOR IT SECTOR

1) **Job is at risk-:** The aftereffect of the business' log jam is that a huge number of occupations are in danger. The IT benefits and re-appropriating industry utilizes around 4.4 million specialists and made an expected 200,000 new openings in the last monetary year, as indicated by the National Association of Software and Services Companies (NASSCOM), an exchange gathering.

Up until this point, numerous organizations have said they will hold their workers and honor extraordinary bids for employment. Nonetheless, if incomes stay discouraged, cutbacks could get unavoidable. This would be particularly valid for little to moderate size organizations that depend on a small bunch of customers.

"This is a human serious area," NASSCOM president Debjani Ghosh composed as of late in an assessment piece, "and if business shrivels for organizations … there will be repercussions for the worker labor force too."

2) **Decreasing in spending** -: Torment for IT and re-appropriating organizations comes from a decrease in spending on IT projects by organizations in the U.S. also, somewhere else, particularly in such areas as movement and the travel industry, friendliness, and avionics, which have lost 80% to 90 percent of their incomes. Less-grieved areas, for example, banks and monetary administrations firms, are in real money protection mode. We are likewise getting customer demands for value decreases, limits and expanded installment terms," detailed WNS, a reevaluating organization situated in Mumbai, in its new income discharge. The organization said its incomes are feeling the squeeze because of deferrals in new business and government lockdowns, which have affected assistance convey and hoping to defer new IT projects. WNS declined to give yearly direction to this year however said its incomes for the quarter, April to June, could decrease by 15% contrasted with a similar period a year ago.

3) **Work from home issue -:** IT benefits and re-appropriating organizations in India battled to move their labor force to a distant work setting following the cross country lockdown. Organizations mixed to give PCs to countless representatives; defeat low Internet transfer speed; and get authorization from customers to permit telecommuting, which was prior banished because of security concerns. After introductory hiccups, examiners say these organizations have had the option to change in excess of 70% of their staffs to telecommuting.

4) **Digital transformation-:** On a positive note, the pandemic is expected to push more organizations worldwide to undergo digital transformations, which include shifting to digital technologies to manage many business functions, including business processes and customer engagement. Many Indian IT companies already offer these services. "We see long-term opportunity as the focus on digital and core transformation gets accelerated," said Pravin Rao, chief operating officer at Infosys, in a recent earnings call. Companies may fund these transformations by

cutting back on IT expenditures elsewhere, so it may not add to overall revenues for IT companies. But over the long run, transformation could be the big driver of the industry's growth.

Conclusion-:

In this paper researcher has studied about the impact of covid-19 and IT sector along with the introduction and covid-19 and IT industry researcher has given the information about the challenges faced by the it sector. The information provided in this paper will definitely helpful to the people who belong to the sector. According the problem mention in this paper they can take necessary action and implement it in their organization so that the can avoid such critical problem.

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To analyze the importance of Computer Aided learning

*Pranjul Audichya

Abstract

While all type of written information were widely used in learning, studies showed that visual perception is very important in learning. For this purpose new teaching strategies were developed using computer. The aim of this paper was to emphasize roles of computer in education and to make a comparison of computer aided learning vs. traditional education. In this research an efforts has to be made to analyze the importance or advantages of CAL, how successful the Computer Aided Learning and what are the effect of this on students' performance. Computer aided learning (CAL) system is a key to improve the effectiveness and the quality of education system. Computer learning forms a part of the school and college curricular, as it is important for every individual today. This is Technology Aided Learning - in that the software application and hardware device is an aid to an overall learning strategy – which in itself is a collection of other methods of instruction, (e.g. the lecture, tutorial sheets, text books etc.). With the personalization features of the computer program now it is possible to define the learning path, pace and milestone for each student as per their need and current readiness.

Keywords – *Computer Aided Learning, Education, Technology*

INTRODUCTION

Computer assisted learning (CAL), as the name implies, is the use of electronic devices/computers to provide educational instruction and to learn. Computer assisted learning can be used in virtually all fields of education, ranging from TV/DVD play-learn program for kindergarten kids to teaching quadruple bypass surgery techniques in medicine. CAL is developed by combining knowledge from all fields of education/learning, human computer interaction (HCI) and cognition.

Historically, computer-aided learning, which is also called computer-assisted instruction (CAI), has roots in Pressey's 1925 multiple-choice machine and the punchboard device, which suggested the network-supported tutorials of today. Pressey's multiple-choice machine presented instruction, tested the user, waited for an answer, provided immediate feedback, and recorded each attempt as data. In 1950, Crowder developed a process for the U.S. Air Force in which a CAI program presented some content as text, tested the user, provided some feedback, and then branched to corrective instruction or new information based on supplied responses. Branching was thought to be an advance on Pressey's multiple-choice machine. In 1954 at the University of Pittsburgh, Psychologist B. F. Skinner demonstrated a teaching machine for ''reinforcing,'' not just teaching, spelling and, arithmetic with a machine.

Today, classical education methods are rapidly being replaced with virtual education, online school, and distance learning systems. Boosted by improved visualization and data transmission technologies, it is now quite easy to create computer software programs that display and analyze graphic multidimensional data for human interpretation. This has become an integral part of

education and is frequently used to develop and make attractive presentations in subjects that are difficult for students to understand without proper illustration.

In this paper, types of CAL software, implementation of CAL, advantages off CAL and a brief discussion on Traditional learning vs Computer Aided Learning are discussed in this paper.

Concept of CAL

Types of CAL

Different types of computer-assisted learning typically involve various subjects and the ways in which computers can be used to best assist in learning those subjects. This includes English, mathematics, science, and history that can all be enhanced beyond traditional classroom lessons by learning through the use of computer systems. Within these subject areas, however, there are also different approaches that can be utilized for computer-assisted instruction, such as sample problems for math and science, interactive maps and timelines for history, and numerous writing activities for English and other languages. These instruction methods can also demonstrate a wide range of interactive features as well.

I. Game Based Learning- Generally, games satisfy the basic requirements of learning environments identified by Norman (1993) and can provide an engaging environment for learning. Games should provide possibilities for reflectively exploring phenomena, testing hypotheses and constructing objects.

II. Computer Simulations- Grimes et al.(1988) studied the effects of a textbook-based software package in two classes of the Introductory

Macroeconomics course. Their results indicate no statistically significant difference in learning between the experimental (software users) and control (non-users) groups. Finally, Grimes and Wiley (1990) conducted an experiment using a textbook-based simulation package in the Introductory Macroeconomics course. Their results indicate a statistically significant difference in overall attitude and performance between students who did and did not use the simulation software.

III. Animations- One particularly promising capability of computer based learning is the ability to integrate animation as part of instruction. Authoring application programs have made animation readily accessible to any educator who has the patience to learn how to use the application (Sturman, 1998).

Some other forms of Computer based instruction include Virtual Seminars/ Video conferencing, Drill and Practice and Problem Solving.

Implementation of CAL

Ever since the CAL programs were introduced as a modern teaching method, as opposed to the traditional teacher-centered classroom system, a growing number of concerns have been raised about the efficiencies of the CAL teaching method. Sometimes, teachers do show anxiety about CAL because they fear the computers could take over their jobs. Secondly, most of the technologies used in CAL are new and therefore teachers need training to become familiar with the new technology. Teachers are required to test run the system before the class begins and to anticipate and fix technical glitches that might occur during the class. If the generation gap is taken into consideration, the teachers who volunteer to use the CAL program have to adjust their orientation and

competence to what could seem a completely new teaching system.

CAL systems usually deliver feedback to the user by producing a summary assessment of what areas the user needs to develop however, CAL generally addresses one specific area and is not tailored to individual needs. A CAL system is created to address an organization's needs, which may be different than what the employees need. CAL acts as an educational portal capable of storing volumes of information. Computers are extremely useful as teaching tools which can present information, questions, examples a simulations for learners to explore. CAL programs can generate simulations and guide a user through a subject within a specific environment. A simulation helps the user make decisions and react to certain events. The CAL system can assess the user's performance and give feedback for improvements and alternatives.

Advantages of CAL

One of the main advantages of Computer aided learning concerns the time, the place and the pace with which one can learn. A few more advantages of CAL identified by other researchers and authors are listed below:

i.   Provision of alternative teaching techniques - The computer can utilize a number of teaching methods and materials that may not be viable to use in a traditional setting. For example, a graphics display terminal using animated characters on a screen is a stimulating tool [Deaton, 1991].

ii.   Improved Computer Skill - By interacting often with computers, students who are not computer-literate will be compelled to develop/improve their computer skills and it also gives them a sense of collaboration when two or more students have to share a computer. As their

computer competence gets better, the students will be encouraged to use computers more in doing their work.

iii.   Visualization - Naturally, a student becomes more alert when a computer-based learning/test is going on. There is a sense of anticipation that makes the student more attentive when learning the lesson. Students are better motivated visually by multimedia materials and listening is supported by seeing. This boosts students' natural way of learning.

iv.   Learning Exigency - With CAL, students are better able to pick up concepts or skills faster and with less exhort and also retain what they have learned longer. Consequently they would require less teacher time.

v.   Communication Development - Chats and videoconference help in the development of writing, speaking, and communication skills. They provide speaking practice through debates and opinion chats. Sometimes, this does not involve the teacher's formal assessment.

Traditional Learning vs CAL

In this point we are going to talk about traditional learning process or classroom learning vs Computer Aided Learning. In fact we are going to discuss some key points on about Why CAL is a successful way of learning. As study says that learning will be more effective if it is done by various technological methodologies like through animations, simulation, Smart classes, videos, etc. As it is said - "It is easy to remember things what we saw instead of what we read" means that by visualizing we can learn anything easily.

While in traditional learning system, we need to memories things what we read but it is not easy for

each and every student to memories everything what he read because that depends on learning power.

According to Manali Oak's paper, writes "teachers are irreplaceable", but on the other hand life conditions necessitated teaching with computers which may be accepted as virtual teachers. Another extension of this situation is distant education. Distance education may be accepted as third revolution in education. It is obvious that it is the last stage of computer aided education (Oak, 2008). Ath. Kehagias and Pan. Vlachos has a research related with this subject, which is fulfilled in The American College of Thessaloniki. They choose American College students for their diverse educational backgrounds.

They want to design courses, which will teach to the student's basic mathematical knowledge. They want to relevance them to mathematics. And they think to keep a fine balance between showing more technical (in which case students will be alienated) and too simple (in which case students will lose interests in the course). The problem is worsen because in some of our classes we teach concurrently two groups of students: the first group

Will major in the Liberal Arts and the second in Business Administration.

To fix the above problems, they have found it necessary to continuously engage in curriculum change. They have been especially interested in computer aided education (CAE) to increase both the learning material and teaching process. They have experienced with software packages such as Microsoft Excel and Scientific Notebook as well as with HTML-based hypertexts for three years. They have also noticed that students are eager to participate in classroom activities in computer-

intensive classes. On the other hand, they have found that when teaching a computer-intensive class the students may become quite proficient in the use of computers and mathematical software, without grasping the mathematical concepts in which are ultimately interested.

There are some tools which makes the CAL successful and enforced universities to adopt it are:

• Greater information access – The World Wide Web has made it possible for people to access primary sources of information on demand. Mastery of this tool has become essential in order to gain access to an ever-growing body of recent and up-to-date knowledge available electronically.

• Greater Communication facilities – Interaction between academic staff, colleagues and students can be structured and managed through electronic communications to provide greater access and flexibility.

• The quality of teaching – New technologies have gained much attention from academic staff as they perceive their use will lessen their problems of high workloads, increased student to teacher ratio and use of inexperienced staff to teach. There is ample evidence that well designed multimedia software can be more effective than traditional classroom methods, where students are able to interact with the software and learn at their own pace. Integrated effectively into the classroom environment, ICTs can facilitate higher order thinking skills and develop new ways of learning.

• Asynchronous learning – This initiative has enabled institutions to cater for a variety of students by removing the barriers of time and distance. Students who are normally geographically disadvantaged have access to a variety of resources not usually at their disposal.

Conclusion

The detailed analysis of CAL and its various feature, usage suggest that Computer assisted learning has the potential to totally transform the education process and unusually improve the efficiency of learning by providing great motivation to kids. Not its practically impossible to ask kids not to use smart phone or laptops but CAL presents a way where we can use this technological access which today's students have to their own good .CAL gives them freedom to experiment with different options , instant feedback and answer to queries. Self-stepping is yet another great feature where adaptive software's can change the graphics and study material as per student need of beginner and advanced levels. This assistance from technology can help provide more bandwidth to teachers to work with students who need more of their time. Privacy feature helps the shy students to try out new things with no fear of rest of the class knowing how many times they have attempted a problem or even their answer is wrong or right, they and teacher will only get the feedback and then design the learning strategy accordingly. It is a proven concept now that multimedia and animation helps to learn the difficult concepts easily. With all the great features CAL has to offer, I would like to add a word of caution here, overuse of multimedia may divert the attention from the content and learning becomes too mechanical. So the balance used of technology under the guidance and supervision of teacher has a great potential to transform the learning process. I have decide to use applications that make it easier for students to achieve their potential skills by using CAL software; Although CAL systems have disadvantages, particularly if the systems are used excessively, their advantages are more important, and in these technological times, it is difficult to imagine a school without CAL systems.

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Impact of Podcasts In individual's learning in covid-19 Pandemic

*PratikshaWalunj

Abstract:

Researchers investigated the impact of podcasting on student in the online environment during COVID-19 Pandemic. Data were collected from students who preferring online learning. Results indicate students were moderately motivated by the use of podcasts in their online learning. Statistically significant differences in student motivation based on gender, class standing, and prior online learning experience were found. Benefits of using podcasts and recommendations for improvement of the multimedia files were offered by users.

Introduction:

If music is inspiration and radio is theatre for the mind, then podcasts are the exploration of the human intellect. In today's world, anyone with the necessary technology can create and consume voice media.Podcasts have had a rapid rise in popularity in recent years. We can listen to podcasts when commuting, exercising, or working. By the same token, podcast creation has never been easier, and everyone is allowed to participate. It is only natural that such a widely available and trending form of voice media would spread outside of entertainment. Many articles have not adequately addressed of how voice media can resolve social issues. For this research paper, the focus will

be on the impact of voice media, specifically podcasts in education.

The objective of this paper to present evidence from various researchers and first-hand experiences that precisely demonstrate the positive impact podcasts have in education. When properly implemented, podcasts can improve several aspects of education. First, podcasts can act as an innovative teaching resource for teachers to design new classroom activities. Second, there are various learning benefits podcasts have upon students both inside and outside the classroom to aid in the learning process. Lastly, podcasts can improve teacher candidate readiness and preparation. Ultimately, by examining voice media in education, we can further understand how podcasts are a digital learning tool with practical value in classroom environments.

Research Methods:

Purpose and research questions:

The primary purpose of the research study was to investigate students' levels of motivation with the use of podcasts in the online environment. Other inquiries included student perceptions about the use and improvements of podcasts. Additionally, researchers investigated relationships between the attention, relevance, confidence, and satisfaction subscales.

The research questions were:

1: Do you think using podcasts is an active way of learning?

2: Do you think using podcasts will help to enhance academic achievement?

3: Will you use podcasts in future teaching?

4: On average, how many times did you watch each podcast?

5: Ineffective educational podcast should be. Minutes long.

6: What would you suggest to improve/assist/support podcast learning?

7: How much ratings will you give to podcast learning?

Analysis:

Podcasts as a Teaching Resource Podcasts provide teachers with the ability to grow podcast usage, and new classroom activities to improve a student's learning experience. A common belief is that because teachers have not been using podcasts in their classrooms, trying to implement them would create difficulties within the classroom environment. However, evidence shows that teachers have been 6 using podcasts as a learning resource at an increasing rate.

Podcasts as a Learning Resource Students who can use podcasts as a learning resource experience the benefits of audio learning, experience aspects of podcasting technology and encourages learning outside of the classroom. One area where podcasts usage is increasing is in school classrooms. Audio learning plays an incremental role in learning for young people.

Podcasts and Teacher Preparation Implementing podcasts as part of teacher candidate training courses leads to more prepared teachers. Teacher preparation is an essential part of producing the best possible educators. Teacher education instruction is often conducted through text heavy or text only material. However, even teacher preparation courses have started to experiment with podcasts as an additional learning resource. 11 In an experimental trial, a teacher candidate preparation course created two groups of learners. One group of teacher candidates were given specific podcasts in addition to the course text, while the other group received text-only instruction. At the end of the teacher instruction course, both groups were tested on knowledge and application,

and were also asked about motivation.
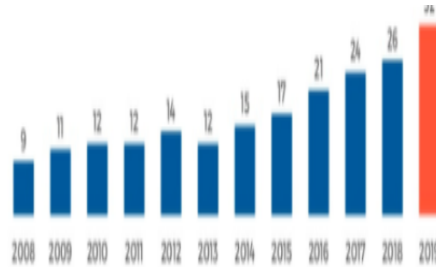
Fig (a)-Monthly Podcast Listening

From above figure (a),

According to above figure 32% of Indian people listens to the podcasts.
So, its rate increasing in monthly basis.
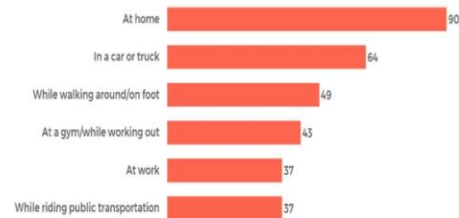
Fig b-Podcasts Listening Locations
From above figure (b),

Podcasting has been more of an at-home than at-work medium, and there's little doubt with the corona virus outbreak listeners around the globe are spending more time at their house than before. What impact that sudden but perhaps lengthy change could have on media consumption habits is far from known.

Students are listening podcasts according to their convenience.

Challenges to Podcast Use:

In contrast to the limited range of motivations of those who used the podcasts, there were many

reasons why students did not use the podcasts. The number one reason was that many students (25%) were regular lecture attendees. A couple of comments from the students were: "No, I didn't need them as I didn't miss any lectures, the content was well laid out so for me it was not necessary"; "I didn't use them because I attended all the lectures and understood most to all of the content". The second reason given was that a number of students (16%) have preference for reading rather than listening to audio tapes: "Aural learning I did not find useful as a medium. Especially as they lacked the … clarification that text has. A transcript of the summary would be ideal." This is the exact opposite of those students who liked to use the podcasts. This shows that students have different learning styles which affect their decision whether to use podcasts or not. Other reasons given included that it was useful if you missed a lecture, the recordings were boring or they just were not interested. They also mentioned that they were time poor: "I actually downloaded once then I forgot about it because of all the other homework and assignments. Do not have time to listen to them". There were a few students who tried to access the podcasts but failed for a variety of technical reasons. These included the fact that the file was too big to download, problems with dial-up connections with low bandwidth, taking too long to download, the student's download limit, and the fact that downloading did not work on the students' PC or iPod. One student did not have an internet connection and another did not have an iPod or other device to listen to the podcasts. One student had an unidentified PC issue. Another student had a combined technical and multitasking issue: "No, I am unable to download them.
They come up as embedded players on my browser. It was hard to listen to them since I was doing other work at the time I was on my PC."

Technical Issues in using Podcasts:
We found that unfamiliarity with podcasts and technical problems in accessing and downloading were common problems in podcast learning. During the survey conducted for the current study, a number of students expressed difficulties in subscribing to the podcast files, especially at the beginning stage of the study. This is the major disadvantage associated with podcast learning explicitly mentioned by students. The students also mentioned that they preferred to go to one website to access the podcasts instead of navigating through many different sites. Students nowadays have a better understanding and experience of using multimedia tools, but the use of podcasts or the RSS feed is still relatively new to them. The findings also reflected the importance of choosing a platform for uploading and downloading and of technical support being provided throughout the learning process. The suggestions from the students supported past findings. To ensure the same learning opportunity for all students in using podcasts and to lessen the influence exerted by differences in levels of computer literacy, introductory sessions on what podcasting is, how to download podcasts from the selected platform, and how to fix common technical problems should be provided.

From below chart ,
  There are some questions which was asked to students in direct mode.
It shows the way of thinking for podcasts used in learning.

Impact of podcasts in learning.

S.NO	Submit Date	Full Name	Email ID	Do you think using podcasts is an effective way of learning?	Do you think using podcasts will help to enhance academic achievement?	Will you use podcasts in your future teaching?	On average, how many times did you watch each podcast?	An effective educational podcast should be __ minutes long. Mention your answer.	Do you think using podcasts will help to enhance academic achievement?	What would you suggest to improve/assist/support podcast learning?	How much ratings will u give to podcast learning?
1	26-02-2021	Chaitrali Kumbhar	chaitukk828@gmail.com	Sometimes	Sometimes	Sometimes	As per convenience	20	Yes	Effective knowledge	Neutral
2	26-02-2021	Vinit Kumar Ranjan	vinitkumarranjan@gmail.com	Sometimes	Sometimes	No	As per convenience	Around 30 min	Sometimes	Good	Neutral
3	26-02-2021	Amit ohol	amitohol9@gmail.com	Yes	Sometimes	Yes	As per convenience	45	Sometimes	Nothing	Good
4	26-02-2021	Himanshu dhepe	himanshudhepe@gmail.com	Yes	Yes	Yes	As per convenience	Not any	Yes	Support podcast	Good
5	26-02-2021	Aniket Firke	aniketfirke99@gmail.com	Yes	Yes	Yes	As per convenience	3	Yes	Nothing	Good
6	26-02-2021	Pratiksha walunj	pratikshawalunj1999@gmail.com	Sometimes	No	Sometimes	As per convenience	30 min	Sometimes	Assist	Good
7	27-02-2021	Monika nighot	monikanighot555@gmail.com	Sometimes	Yes	Yes	more than 2 times a week	Among the general public and in particular among young people, web-based applications of sharing in	Sometimes	Conduct a self-audit Gather external feedback through customer research	Good
8	27-02-2021	Satyam Kumar	satyamkumar12@gmail.com	Yes	Sometimes	Sometimes	As per convenience	10	Sometimes	Quality improvement	Good
9	27-02-2021	Harsh Kumar	kumarharsh8549@gmail.com	Yes	Sometimes	Sometimes	more than 2 times a week	10	Sometimes	Most people are not aware about the podcast	Neutral
10	28-02-2021	Sandesh Ravindra Chaudhari	sandeshchaudhari619@gmail.com	Sometimes	Sometimes	Sometimes	more than 2 times a day	5	Sometimes	NA	Neutral

Powered by SurveyHeart

Conclusion:

To summarize, this paper has examined the various benefits podcasts can bring to education and classroom environments. A goal of this research is to shed more light on the subject and begin to create a conversation among students, teachers and faculty. Implementing a change in any standardized system is difficult, however change can be beneficial, and the rewards would be well worth any struggle. The success of implementing podcasts will depend on how well teachers and students are able to incorporate it as part of the class curriculum. However, support from school boards, superintendents and faculty is instrumental in assuring its use and growth throughout schools. With the ongoing growth of podcast creation and consumption, podcasts can no longer be ignored by anyone in this digital age. Schools need to begin acknowledging and taking advantage of this digital learning tool. Despite the risk of podcasts becoming pure entertainment, a distraction, and providing no learning benefits. There is now significant data that suggests otherwise. Podcasts not only allow teachers to create new classroom assignments and activities, they equip students with a digital learning tool, and create more prepared teachers. This is not to include certain positive immeasurable effects podcasts can have upon students. Both students and teachers benefit from this digital tool. If teachers are teaching with the most up to date textbooks, and students are learning the most up to date information, why should they not be using the most up to date technology? Students in this modern era deserve the best of a 21st century education; implementing podcasts in classroom environments is a first step toward that direction.

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IoT: Opportunities and Challenges

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Abstract

With the arrival of smart homes, smart cities, and smart everything, the Internet of Things (IoT) has emerged as an area of incredible impact, potential, and growth, with Cisco Inc. predicting to have 29.3 Billion connected devices by 2023[1]. Internet of Things (IoT), Artificial intelligence, machine learning, is transforming human life very rapidly. But there is a lack of understanding of what IoT is and what are challenges and opportunities it can offer for end users, existing companies, entrepreneurs, Startup companies, Internet of Things (IoT) gradually evolving as the subsequent phase of the evolution of the Internet, it becomes crucial to recognize the various potential domains for application of IoT, and the research challenges that are associated with these applications. Ranging from smart cities, to health care, smart agriculture, logistics and retail, to even smart living and smart environments IoT is expected to merging into virtually all aspects of daily life. This paper presents the recent development of IoT technologies and discusses future applications and research challenges.

Keywords: Internet of Things, IoT applications, IoT challenges, future technologies

Introduction

The Internet can be described as the communication network that connects individuals to information while the Internet of Things (IoT) refers to a system of interrelated, internet-connected objects that are able to collect and transfer data over a wireless network without human intervention. The main objective of the Internet of Things is to make it possible for objects to be connected with other objects, individuals, at any time or anywhere using any network, path or service. IoT use smart devices and internet to provide innovative solutions to various challenges and issues related to various businesses, governmental and public/private industries across the world [2]. IoT is progressively becoming an important aspect of our life that can be sensed everywhere around us. In whole, IoT is an innovation that puts together extensive variety of smart systems, frameworks and intelligent devices and sensors (Fig. 1). Moreover, it takes advantage of quantum and nanotechnology in terms of storage, sensing and processing speed which was not conceivable beforehand [3]. Extensive research studies have been done and available in terms of scientific articles, press reports both on internet and in the form of printed materials to illustrate the potential effectiveness and applicability of IoT transformations. It could be utilized as a preparatory work before making novel innovative business plans while considering the security, assurance and interoperability.
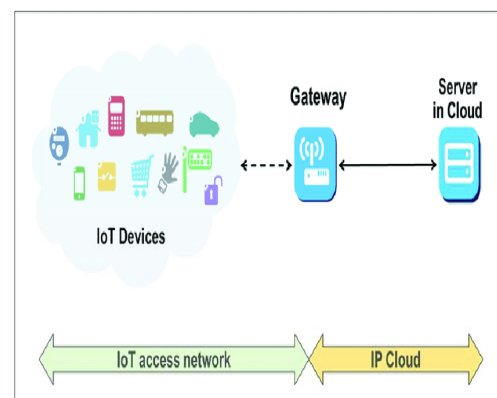
A great transformation can be observed in our daily routine life along with the increasing involvement of IoT devices and technology. One such development of IoT is the concept of Smart Home Systems and appliances that consist of internet based devices, automation system for homes and reliable energy management system [4]. Besides, another important achievement of IoT is Smart Health Sensing system. Smart Health Sensing system incorporates small intelligent equipment and devices to support the health of the human being. These devices can be used both indoors and outdoors to check and monitor the different health issues and fitness level or the amount of calories burned in the fitness centre etc. Also, it is being used to monitor the critical health conditions in the hospitals and trauma centres as well. Hence, it has changed the entire scenario of the medical domain by facilitating it with high technology and smart devices

With all this in mind, the Internet of Things (IoT) is expected to continue expanding its reach as increasing the number of devices and functions, which it can run. This is evident from the ambiguity in the expression of "Things" which makes it difficult to outline the ever-growing limits of the IoT. While commercial success continues to materialize, the IoT constantly offers a virtually limitless supply of opportunities, not just in businesses but also in research. Accordingly, the understudy addresses the various potential areas for application of IoT domains and the research

challenges that are associated with these applications.

Review of Literature

For all the above potential applications of IoT, there has to be proper feasibility into the different domains to ascertain the success of some applications and their functionality. As with any other form of technology or innovation, IoT has its challenges and implications that must be sorted out to enable mass adoption. Even though the current IoT enabling technologies have greatly improved in the recent years, there are still numerous problems that require attention, hence the way for new dimensions of research to be carried out.

Khajenasiri et al. [5] performed a survey on the IoT solutions for smart energy control to benefit the smart city applications. They stated that at present IoT has been deployed in very few application areas to serve the technology and people. The scope of IoT is very wide and in near future IoT is able to capture almost all application areas. They mentioned that energy saving is one of the important part of the society and IoT can assist in developing a smart energy control system that will save both energy and money. They described IoT architecture with respect to smart city concept. The authors also discussed that one of the challenging task in achieving this is the immaturity of IoT hardware and software. They suggested that these issues must be resolved to ensure a reliable, efficient and user friendly IoT system.

Weber [6] focused on these issues and suggested that a private organization availing IoT must incorporate data authentication, access control, and client privacy into their business activities that would be an additional advantage. Weber suggested that in order to define global security and privacy issues, IoT developers must take into account the

geographical limitations of the different countries. A generic framework needs to be designed to fit the global needs in terms of privacy and security. It is highly recommended to investigate and recognize the issues and challenges in privacy and security before developing the full fledge working IoT framework. Later, Heer et al. [7] came up with a security issue in IP based IoT system. They mentioned that internet is backbone for the communication among devices that takes place in an IoT system. Therefore, security issues in IP based IoT systems are an important concern. In addition, security architecture should be designed considering the life cycle and capabilities of any object in the IoT system. It also includes the involvement of the trusted third party and the security protocols. The security architecture with scalability potential to serve the small-scale to large-scale things in IoT is highly desirable. The study pointed out that IoT gave rise to a new way of communication among several things across the network therefore traditional end to end internet protocol are not able to provide required support to this communication. Therefore, new protocols must be designed considering the translations at the gateways to ensure end-to-end security. Moreover, all the layers responsible for communication has their own security issues and requirements. Therefore, satisfying the requirements for one particular layer will leave the system into a vulnerable state and security should be ensured for all the layers.

Qiu et al. [8] proposed an intelligent monitoring platform framework for facility agriculture ecosystem based on IoT that consists of four layer mechanism to manage the agriculture ecosystem. Each layer is responsible for specific task and together the framework is able to achieve a better ecosystem with reduced human intervention.

Another important concern around the world is climate change due to global warming. Fang et al. [9] introduced an integrated information system (IIS) that integrates IoT, geo-informatics, cloud computing, global positioning system (GPS), geographical information system (GIS) and e-science in order to provide an effective environmental monitoring and control system. They mentioned that the proposed IIS provides improved data collection, analysis and decision making for climate control. Air pollution is another important concern worldwide.

Major issues and challenges of IoT

There are few IoT issue areas are examined to explore some of the most pressing challenges and questions related to the technology. These include security; privacy; Processing, Analysis and Management of Data; Monitoring and Sensing, Ethics, law and regulatory rights; Scalability, availability and reliability; Development Issues.

1.   Security-

While security considerations are not new in the context of information technology, the attributes of many IoT implementations present new and unique security challenges. Addressing these challenges and ensuring security in IoT products and services must be a fundamental priority. Users need to trust that IoT devices and related data services are secure from vulnerabilities, especially as this technology become more pervasive and integrated into our daily lives. Poorly secured IoT devices and services can serve as potential entry points for cyber-attack and expose user data to theft by leaving data streams inadequately protected. The interconnected nature of IoT devices means that every poorly secured device that is connected online potentially affects the security and resilience of the Internet globally. This challenge is amplified by other

considerations like the mass-scale deployment of homogenous IoT devices, the ability of some devices to automatically connect to other devices, and the likelihood of fielding these devices in unsecure environments.

2. Privacy-

The full potential of the Internet of Things depends on strategies that respect individual privacy choices across a broad spectrum of expectations. The data streams and user specificity afforded by IoT devices can unlock incredible and unique value to IoT users, but concerns about privacy and potential harms might hold back full adoption of the Internet of Things. This means that privacy rights and respect for user privacy expectations are integral to ensuring user trust and confidence in the Internet, connected devices, and related services.

3. Processing, Analysis and Management of Data

The procedure for processing, analysis and data management is tremendously challenging because of the heterogeneous nature of IoT, and the large scale of data collected, particularly in this era of Big Data [10]. Currently, most systems utilize centralized systems in offloading data and carrying out computationally intensive tasks on an international cloud platform. Nevertheless, there is a constant concern about conventional cloud architectures not being effective in terms of transferring the massive volumes of data that are produced and consumed by IoT enabled devices and to be able further support the accompanying computational load and simultaneously meet timing constraints. Most systems are therefore relying on current solutions such as mobile cloud computing and fog computing which are both based on edge processing, to mitigate this challenge.

4. Monitoring and Sensing

Even if technologies concerned with monitoring and sensing have made tremendous progress, they are constantly evolving particularly focusing on the energy efficiency and form aspect. Sensors and tags are normally expected to be active constantly in order to obtain instantaneous data, this aspect makes it essential for energy efficiency especially in lifetime extension. Simultaneously, new advances in nanotechnology/biotechnology and miniaturization have allowed the development of actuators and sensors at the Nano-scale.

5. Ethics, law and regulatory rights

Another issue for IoT developers is the ethics, law and regulatory rights. There are certain rules and regulations to maintain the standard, moral values and to prevent the people from violating them. Ethics and law are very similar term with the only difference is that ethics are standards that people believes and laws are certain restrictions decided by the government. However, both ethics and laws are designed to maintain the standard, quality and prevent people from illegal use. With the development of IoT, several real life problems are solved but it has also given rise to critical ethical and legal challenges [11]. Data security, privacy protection, trust and safety, data usability are some of those challenges. It has also been observed that majority of IoT users are supporting government norms and regulations with respect to data protection, privacy and safety due to the lack of trust in IoT devices. Therefore, this issue must be taken into consideration to maintain and improve the trust among people for the use of IoT devices and systems.

6. Scalability, availability and reliability

A system is scalable if it is possible to add new services, equipment's and devices without degrading its performance. The main issue with IoT

is to support a large number of devices with different memory, processing, storage power and bandwidth [12]. Another important issue that must be taken into consideration is the availability. Scalability and availability both should be deployed together in the layered framework of IoT. A great example of scalability is cloud based IoT systems which provide sufficient support to scale the IoT network by adding up new devices, storage and processing power as required.

7. Development Issues

The broad scope of IoT challenges will not biunique to industrialized countries. Developing regions also will need to respond to realize the potential benefits of IoT. In addition, the unique needs and challenges of implementation in less-developed regions will need to be addressed, including infrastructure readiness, market and investment incentives, technical skill requirements, and policy resources

Opportunities of IoT:

1. Smart Homes:

Whenever we think of IoT systems, the most important and efficient application that stands out every time is Smart Home ranking as highest IOT application on all channels. The number of people searching for smart homes increases every month with about 60,000 people and increasing. Another interesting thing is that the database of smart homes for IoT Analytics includes 256 companies and startups. More companies arenow actively being involved in smart homes than similar other applications in the field of IoT. The estimated amount of funding for Smart Home startups exceeds $2.5bn and is ever growing. The list of startups includes prominent startup company names such as AlertMe or Nest as

well as a number of multinational corporations like Philips, Haier, or Belkin etc.

2. Environment monitoring:

The environment conditions and anticipation of natural calamities can be improved. Also monitoring wildlife parks can be done easily by deploying drones and monitoring the data in real time. This is already being done by theWorld Wide Fund for Nature (WWF).

3. Medical and healthcare:

IoT devices can be used to enable remote health monitoring and emergency notification system. These health monitoring devices can range from blood pressure and heart rate monitors to advanced devices capable of monitoring specialized devices.

4. Smart Cities:

The IoT has the potential to transform entire cities by solving real problems citizens face each day. With the proper connections and data, the Internet of Things can solve traffic congestion issues and reduce noise, crime, and pollution.

5. Energy Management:-

Power grids of the future will not only be smart enough but also highly reliable. Smart grid concept is becoming very popular all over world. The basic idea behind the smart grids is to collect data in an automated fashion and analyze the behaviour or electricity consumers and suppliers for improving efficiency as well as economics of electricity use.

6. Retail and Logistics

Executing the IoT in Supply Chain or retail Management has many benefits. Some include; observing storage conditions throughout the supply chain, product tracking to enable trace ability purposes, payment processing depending on

the location or activity period in public transport, theme parks, gyms, and others. Inside the retail premises, IoT can be applied to various applications such as direction in the shop based on a preselected list, fast payment processes like automatically checking out with the aid of biometrics, detecting potential allergen products and controlling the rotation of products on shelves and warehouses in order to automate restocking procedures [13].

Wearable

Just like smart homes, wearable's remain a hot topic too among potential IOT applications. Every year, consumers all across the globe await the release of Apple' smart watch. Apart from this, there are plenty of other wearable devices that make our life easy such as the Sony Smart B Trainer, or Look see bracelet, the Myo gesture control.

7.   Connected Car

Connected car technology is a vast and an extensive network of multiple sensors, antennas, embedded software, and technologies that assist in communication to navigate in our complex world. It has the responsibility of making decisions with consistency, accuracy, and speed. It also has to be reliable. These requirements will become even more critical when humans give up entirely the control of the steering wheel and brakes to the autonomous or automated vehicles that are being successfully tested on our highways right now.

8.   Smart Farming

Smart farming is an often overlooked IoT application. However, because the number of farming operations is usually remote and the large number of livestock that farmers work on, all of this can be monitored by the Internet of Things and can also revolutionize the way farmers work. But this idea is yet to reach a large-scale attention. Nevertheless, it still remains to be one of the IoT applications that should not be underestimated. Smart farming has the potential to become an important application field specifically in the agricultural-product exporting countries.

Conclusion

Recent advancements in IoT have drawn attention of researchers and developers worldwide. IoT developers and researchers are working together to extend the technology on large scale and to benefit the society to the highest possible level. However, improvements are possible only if we consider the various issues and shortcomings in the present technical approaches. In this paper, here presented several issues, opportunities and challenges that IoT developer must take into account to develop an improved model. Also, important application areas of IoT are also discussed where IoT developers and researchers are engaged. As IoT is not only providing services but also generates a huge amount of data. Hence, the importance of Processing, Analysis and Management of Data is also discussed which can provide accurate decisions that could be utilized to develop an improved IoT system.

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Artificial Intelligence and Machine Learning Applications in Smart Production: Progress, Trends, and Directions

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Abstract:

Adaptation and innovation are extremely important to the manufacturing industry. This development should lead to sustainable manufacturing using new technologies. To promote sustainability, smart production requires global perspectives of smart production application technology. In this regard, thanks to intensive research efforts in the field of artificial intelligence (AI), a number of AI-based techniques, such as machine learning, have already been established in the industry to achieve sustainable manufacturing. Thus, the aim of the present research was to analyse, systematically, the scientific literature relating to the application of artificial intelligence and machine learning (ML) in industry. In fact, with the introduction of the Industry 4.0, artificial intelligence and machine learning are considered the driving force of smart factory revolution. The purpose of this review was to classify the literature, including publication year, authors, scientific sector, country, institution, and keywords. The analysis was done using the Web of Science and SCOPUS database. Furthermore, UCINET and NVivo 12 software were used to complete them. A literature review on ML and AI empirical studies published in the last century was carried out to highlight the evolution of the topic before and after Industry 4.0 introduction, from 1999 to now. Eighty-two articles were reviewed and classified. A first interesting result is the greater number of works published by the USA and the increasing interest after the birth of Industry 4.0.

Introduction

Smart production systems require innovative solutions to increase the quality and sustainability of manufacturing activities while reducing costs. In this context, artificial intelligence (AI)-driven technologies, leveraged by I4.0 Key Enabling Technologies (e.g., Internet of Thing, advanced embedded systems, cloud computing, big data, cognitive systems, virtual and augmented reality), are ready to generate new industrial paradigms [1].In this regard, it is interesting to remember that the father of artificial intelligence, John McCarthy [2],in the 1990s, defined artificial intelligence as "artificial intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs". Generally, the term "AI" is used when a machine simulates functions that humans associate with other human minds, such as learning and problem solving [3].On a very broad account, the areas of artificial intelligence are classified into 16 categories [4–8].These are reasoning, programming, artificial life, belief revision, data mining, distributed AI, expert systems, genetic

algorithms, systems, knowledge representation, machine learning, natural language understanding, neural networks, theorem proving, constraint satisfaction, and theory of computation [9–11]. In the 21st century, AI has become an important area of research in all fields: Engineering. science, education, medicine, business, accounting, finance, marketing, economics, stock market, and law, among others [12–18]. The range of AI has grown enormously since the intelligence of machines with machine learning capabilities has created profound impacts on business, governments, and society [19]. They also influence the larger trends in global sustainability. Artificial intelligence can be useful to solve critical issue for sustainable manufacturing (e.g., optimization of energy resources, logistics, supply chain management, waste management, etc.). In this context, in smart production, there is a trend to incorporate AI into green manufacturing processes for stricter environmental policies [20]. In fact, as said in March 2019 by Hendrix Fink, head of Sustainability Services at PricewaterhouseCoopers, "If we properly incorporate artificial intelligence, we can achieve a revolution with regard to sustainability. AI will be the driving force of the fourth industrial revolution" [21]. Thus, subfields of AI, such as machine learning, natural language processing, image processing, and data mining, have also become an important topic for today's tech giants. The subject of AI generates considerable interest in the scientific community, by virtue of the continuous evolution of the technologies available today. The development of ML as a branch of AI is now very fast. Its usage has spread to various fields, such as learning machines, which are currently used in smart manufacturing, medical science, pharmacology, agriculture, archaeology, games, business, and so forth. According to the above

considerations, in this work, a systematic literature review of research from 1999 to 2019 was performed on AI and the ML technique. Therefore, it is considered necessary to create a classification system that refers to the articles that jointly treat the two topics, in order to have greater variance and reflection. Furthermore, to gain a deeper understanding, the influence of other variables was explored, such as the thematic areas and the sectors in which the technologies are most influential. The main contribution of this work is that it provides an overview of the research carried out to date. A number of impressive documentations of established research methods and philosophy have been discussed for several years. Unfortunately, little comparison and integration across studies exists. In this article, a common understanding of AI and ML research and its variations was created. This paper is not attempting to provide an all-encompassing framework on the literature on AI and ML research. Rather, it attempts to provide a starting point for integrating knowledge across research in this domain and suggests paths for future research. It explores studies in certain novel disciplines: Environmental pollution, medicine, maintenance, manufacturing, etc. Further research is needed to extend the present boundary of knowledge in AI by integrating principles and philosophies of some traditional disciplines into the existing AI frameworks [22–24]. The target that this document would like to assume is not the trigger of a sudden proliferation of an already consolidated sector, but it is hoped that this research could be an important intellectual tool for both the refocusing of the work and creating new intellectual opportunities. This paper presents valuable ideas and perspectives for undergoing research on AI and M.Th. final ai

m was to anticipate the transformation of the discipline in the future age. This would be a journey that may experience change in its course as new generations of scholars contribute to the dialogue and to the action. As noted earlier, this work presents a review, hence it lays a foundation for future inquiry. It not only offers a basis for future comparisons but prompts a number of new questions for investigations as well. While topics that might be considered as results of this work are numerous, some are of particularly broad interest or impact. The paper is organized as follows. Section 2 presents the proposed methodology and details the research methodology adopted for the literature survey. Section 3 analyses the main results of the bibliometric analysis. Finally, in Section 4, the main contribution of the research is summarized.

Methodology

The methodological approach used mixes bibliometric, content analysis, and social network techniques. In this study, a state-of-the-art research was conducted through the SCOPUS and Web of Science databases. For the publication time span, the time from 1999 to 2019 was considered with the intent to understand how the level of attention towards the topic has changed before and after the introduction of Industry 4.0. The research methodology chosen for this study was a systematic literature review [25]. The main phases of the study were as follows:

1. Phase 1: Research and Classification. The present phase was divided into three steps:
_ Step 1: Identification;
_ Step 2: Screening; and
_ Step 3: Inclusion.
In phase 1, bibliometric data was collected (step 1). Then, a screening of the overall result was

carried out to identify which documents can be taken into consideration, in line with the research areas deemed interesting and relevant (step 2). At the end of this step, the last step (step 3) aimed to select the documents to be analyzed in detail.

2. Phase 2: Analysis. Once phase 1 was completed, the next phase was phase 2, which was the analysis of the results. The approach used for the bibliometric analysis included: _ The use of indicators for the parameters studied; and_ SNA (social network analysis) for the keywords.

The indicators chosen to perform the analysis were total papers (TPs), which are the total number of publications, and total citations (TCs), which is the total number of citations.

SNA finds application in various social sciences, and has lately been employed in the study of various phenomena, such as international trade, information dissemination, the study of institutions, and the functioning of organizations. The analysis of the use of the term SNA in the scientific literature has undergone exponential growth in the use of this mode of computable representation of complex

and interdependent phenomena. For the purpose of the study, UCINET, Net Draw software was used, which was expressly designed for the creation and graphic processing of networks, and was used to represent the keywords in the network, and Excel for data input. The software UCINET, Net Draw returned a sociometric network that describes the relationships between the classes, that is, data entered as input. Furthermore, NVivo 12 software, the leading program for computer-assisted qualitative analysis (CAQDAS), was used to analyse keywords of all documents. In this specific case, it was used to identify the possible links between the keywords of the various documents examined, developing Conceptual schemes from which to make interpretative hypotheses.

3. Phase 3: Discussion. At the end of the second phase, a third and final one followed, were the results were discussed, and conclusions were drawn.

In Figure 1, the main phases and steps followed for the analysis are shown.
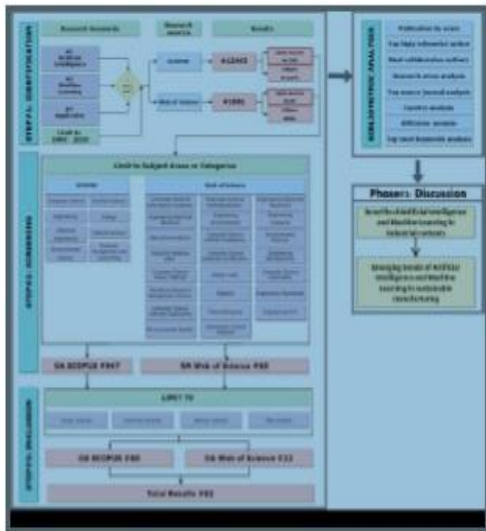
Results
Results of the Bibliometric Analysis

3.1. Phase 1: Research and Classification
The first phase consisted of the search for documents, which included the activities of collecting the material belonging to the academic universe. This first phase was divided into three steps as follows.

3.1.1. Identification (Step 1)
For a comprehensive survey of the phenomenon, an investigation on the Scopus (SCP) and Web of Science (Wos) databases was carried out using Boolean operators. We began by making a search query on the Scopus and WoS databases with the general keywords "artificial intelligence" AND "machine learning" AND "application", as shown in Table 1.

In order to maintain the consistency of the results, the same keywords were used in both databases and a time horizon of 20 years was chosen, from 1999 to 2019.

The choice of keywords for performing the survey was based on the awareness that AI and ML can be an important tool in the effort to adopt responsible business practices in the context of smart production. In this regard, it is worthy to note that with the increasingly urgent discussions of climate change, it seemed appropriate to focus our research on the topic of sustainability. Thus, the selection of papers also considered applications on sustainability

Table 1. Keywords and time period.

Keywords	Time Period
Artificial Intelligence	
Machine Learning	1999–2019
Application	

Table 2. Total results of research on Scopus and WoS.

Research Carried out on 2019		
Source of research	Scopus	Web of Science
Results	12,445	1081

The result is not entirely unexpected, and the reason is to be found in the fact that Scopus, being an Elsevier product, collects data from all the other databases, in particular Science Direct and those queried by the Sciurus search engine, while Web of Science (WoS) collects fewer documents. From the documents extracted in Scopus, it was found that most of them are conference papers (57.28%) and, subsequently, articles (33.85%). On the contrary, the research on Web of Science (WoS) underlines

that most of the documents are articles (46.12%) and, subsequently, proceedings papers (42.86%). All the document types are filled in Table 3.

Table 3. Distribution of document types in Scopus and Web of Science.

Web of Science			Scopus		
Document Types	Records	Contribute %	Document Types	Records	Contribute %
Article	481	46.12	Conference Paper	7128	57.28
Proceedings paper	447	42.86	Article	4212	33.85
Review	133	12.76	Review	412	3.31
Editorial material	16	1.53	Article in Press	194	1.56
Meeting abstract	2	0.19	Book Chapter	177	1.42
Book chapter	1	0.1	Conference Review	177	1.42
Retracted publication	1	0.1	Book	90	0.72
.	.	.	Editorial	27	0.22
.	.	.	Note	10	0.08
.	.	.	Letter	9	0.07
.	.	.	Short Survey	9	0.07

AI began working in the 1940s and researchers showed strong expectations until the 1970s when they began to encounter serious difficulties and investments were greatly reduced. Since then, a long period began, known as the "AI winter" [26]: Despite some great successes, such as IBM's Deep Blue system, which in the late 1990s defeated the then chess world champion Garry Kasparov, the study of solutions for AI has only come back for a few years. The push for a new technological development has been given by the I4.0, which considered AI as one of the primary keys enabling technologies (KETs). From this period onwards, the literature has been enriched with documents, as shown in Figure 2. Growth is apparent after 2011 when new technologies began to be implemented more frequently. In fact, the Industry 4.0 term first appeared at Hannover Messe in 2011 when Professor Wolfgang Walser, Director and CEO of the German Research Centre for Artificial Intelligence, addressed the opening ceremony audience In fact, this research indicates that over the time period considered (1999–2019), the number of published articles remains almost constant until 2013, from which it undergoes an increase.
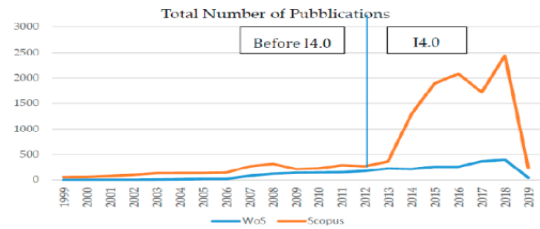

Figure 2. Research growth on Scopus and Web of Science.

In fact, this research indicates that over the time period considered (1999–2019), the number of published articles remains almost constant until 2013, from which it undergoes an increase. Subsequently, the increase in the adoption of these ones has led researchers to keep pace with the growth of I4.0 [27].

3.1.2. Screening (Step 2)

Trying to give an overview of the topics and areas interface, in the screening phase, an analysis of documents characterized by free access was chosen, excluding those that have restrictions, and to restrict the field to the thematic areas of scientific interest. With this in mind, the number of open access items has been drastically reduced (1288 results for Scopus and 149 for WoS) and, also applying the filter related to the thematic areas (Table 4), it determined a further reduction: 947 for Scopus and 60 for WoS.

Table 4. Subject area filter on Scopus and WoS.

Table 4. Subject area filter on Scopus and WoS.

Subject Area				
Scopus		Web of Science (WoS)		
Computer Science	Chemical Engineering	Computer Science Information Systems	Computer Science Artificial Intelligence	Automation Control Systems
Engineering	Energy	Materials Science Multidisciplinary	Environmental Sciences	Environmental Studies
Materials Science	Decision Science	Engineering Electrical Electronic	Computer Science Hardware Architecture	Operations Research Management Science
Environmental Science	Business Management and accounting	Telecommunications	Industrial Relations Labor	Robotics
		Engineering Environmental	Engineering Manufacturing	Thermodynamics
		Engineering Industrial	Computer Science Theory Methods	Energy Fuels
		Engineering Civil	Engineering Mechanical	Computer Science Cybernetics
		Computer Science Software Engineering	Multidisciplinary Sciences	

93

Note how the number of filters applied is different. The databases, in fact, offer the same search options, but, in the specific case of the thematic areas, the latter are more numerous and structured on Web of Science (WoS) compared to Scopus.

3.1.3. Inclusion (Step 3)

At the end of the screening process, the inclusion step was started, which consisted in the selection of documents, which was extracted from the last passage, destined to be included in the sample on which bibliometric analysis was performed. In this review step, for the purposes of eligibility, we examined the complete text of each document independently. For each article, we examined whether there was interest from the academic world, and if it contained case studies or real applications, proposals for new AI and ML algorithms, or possible future scenarios. Therefore, the final sample to be analysed consisted of 60 documents for Scopus and 22 for WoS.

3.2. Phase 2: Analysis

This section presents and discusses the findings of this review. First, an overview of the selected studies is presented. Second, the review findings according to the research criteria, one by one in the separate subsections, are reported.

3.2.1. Top Highly Influential Analysis

This section lists the most highly cited documents in WoS and Scopus. The list is structured by research source, date, title, authors, source title, and top citation (TP) in WoS or Scopus, according to the research sources. The whole list is available in the Appendix A. Looking into the Appendix A, it is possible underline that the document by Larrinaga, Calvo, Santana et al. in 2006 [28] has the highest citation count of 298. This article reviews machine learning methods for bioinformatics and it presents modeling methods. Moreover, the document year is

2006, so before I4.0 was introduced. Therefore, having more years than today has an advantage in terms of diffusion. This means that it is one of the most influential documents in the academic world, as it proposes some of the most useful techniques for modeling, giving the document the opportunity to become a pioneer in the computer science research area. Obviously, all documents before I4.0, in general, have more citations than the most recent documents. However, it is significant to note that even recent documents have a very high number of citations compared to the year of publication. This denotes the interest in the topic from the scientific community.

The citation analysis revealed that the first article that we can identify among the most cited in the I4.0 period dates to 2016. The work, published by Krawczyk [29], proposes application models to further develop the field of unbalanced learning, to focus on computationally effective, adaptive, and real-time methods, and provides a discussion and suggestions on the lines of future research in the application subject of the study. It received 119 citations. Moreover, an article published by Wuest, Weimer, Irgens et al. [30] received much attention among the scientific community. It contributes by presenting an overview of the available machine learning techniques. Finally, the citation analysis pointed out that the average number of citations of all documents is 16.58. This value is expected to increase rapidly considering the interest in the issues of ML and AI.

3.2.2. Publications by Years

Consistent with what is defined in Section 3.1.1., the study shows that the number of items included in the analysis is definitely low for the entire period before I4.0 and then suddenly increases, starting in 2012. The data shown in Figure 3 also show two

holes in the 2001–2008 and 2008–2011 intervals. This means that the technological applications were limited before it became an enabling technology of I4.0 in all respects, only to have a peak of technological implementation, as was foreseeable.
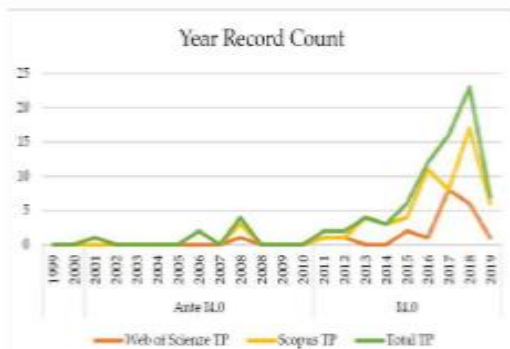

Figure 3. Years of publications. With reference to 2019, the figure refers to the first months of the year, so it is plausible that during the year, there will be a further increase in the documents in the literature. Furthermore, an increase is expected in the coming years, in parallel with the growth of I4.0

3.2.3. Most Collaborative Authors

The analysis highlighted that most of publications have more than one author. From this point of view, it is possible to identify the number of authors for each document. As shown in Figure 4, most of the manuscripts were produced by groups ranging from two to five authors. The indicators chosen to perform the analysis were total papers (TPs), which is the total number of publications.

3.2.4. Research Areas Analysis

The total research area analysis collected from the 82 papers was 164 because each paper can be considered as more than one research area analysis. Given the small number of documents identified in the period before I4.0, the ranking refers mostly to the current industrial revolution. Also, in this case, the result is consistent with the introduction of

paradigm 4.0, which has intensified research and the adoption of technology. The first thematic areas and disciplines that are at the top of the ranking are computer science,

engineering and biochemistry, genetics, and molecular Biology, respectively, with 29%, 23%, and 6% of publications. Furthermore, the other disciplines identified for which applicative findings are found are considered transversal to the first three disciplines and this is a consequence of I4.0. In terms of the percentage contribution, the first three areas cover about 60% of the papers considered.

Considering the top 20 research areas, given the frequency of the research areas' distribution, Figure 5 shows a higher level of concentration in the disciplines indicated above. In fact, in terms of the percentage contribution, the first five areas cover about 70% of the papers considered. Regardless, by only counting research areas found once, there is a total of 27. This means two things:

• The large number of fields in which this kind of research is involved; and • Most papers have a transversal approach, that is, the object of each research crosses more than one field of application, thus involving more research areas. This confirms the wide interest in these subjects from several fields.
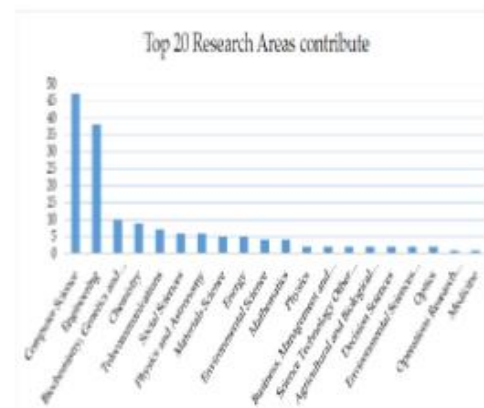

Figure 5. Top 20 research areas contributions.

3.2.5. Top Source Journals Analysis

In this section, the top 20 sources or journals that were published most frequently were extracted. A journal is a time-bound publication with the objective of promoting and monitoring the progress of the discipline it represents.

In this specific case, the total source journals detected from the documents is 74, but, considering the top 20, given the frequency of the source journals' distribution, only the first 13 sources have more than one paper published, with a total percentage contribution of 43% of the total. After analysing the sources separately, the results obtained in the two databases were found to not be the same. In WoS, the top source journal was IEEE Access with two publications while in Scopus, the top source journals are Procedia Computer Science, Matec Web of Conferences, and Machine Learning with four publications, which contribute 5% of the total. Aggregating the data collected from the two databases, the ranking moves to that obtained by Scopus, making sure that IEEE Access is no longer first in the standings, but only eighth, and that the former are precisely those of Scopus: Procedia Computer Science, Matec Web of Conferences, and Machine Learning, with the same number of publications. Next, the 10 source journals have a 3% publication contribution while the rest have a one-to-one relationship (1%) with the corresponding source journal. The low level of concentration of the sources suggests that there is a great deal of interest in these topics from several scientific journals. As a matter of fact, it is foreseeable that specialized sector sources (AI Magazine and Machine Learning) are among the first 13; however, it is interesting to note that other sources are involved, such as Sustainability Switzerland or BMC Bioinformatics and Nuclear Engineering and Design.

3.2.6. Country Analysis

The results that emerged through research on the two databases are consistent with each other. In both cases, in fact

Figure 6. Top 20 source journals contributions.

3.2.6. Country Analysis

The results that emerged through research on the two databases are consistent with each other. In both cases, in fact, the countries that give the greatest contribution to the research are China and the United States (Figure 8). The result is obvious since in China and the United States, more than 1.3 billion and 0.3 million of people live, respectively, and so there are more researchers than in the single European nations. Focusing on Europe, Germany published more papers than any other European country. This is not a random result: I4.0 was born in Germany, so this outcome was expected. However, the following observation cannot be ignored from this data: The USA and China carry the first two places in the ist while it is not the same for European countries. Europe, despite its talents and resources, has lost ground. Presenting its report on artificial intelligence, the French deputy and mathematician Cédric Villani declared that,

"Europe must be able to compete with China and the United States while protecting its citizens and pointing the way to go on ethical issues". If we are not careful, the 21st century rules will not be defined in Brussels, but in Shanghai. Artificial intelligence is also a land marked by intense geopolitical rivalry that could redefine global power relations. Even so, regarding Europe, it is worthy to also note that since 2017, France, Germany, and Italy have intensified their trilateral cooperation to promote digitizing the manufacturing industry. In this regard, in the near future, we expect a significant evolution of smart production initiatives and therefore, an increase in scientific research. Figure 7 shows the country contribution distribution.

3.2.7. Affiliation Analysis

The total number of affiliations detected from the 82 papers is 153. Also, in this case, considering the top 20, the frequency of the affiliation distribution shows that most papers have a one-to-one relationship with the corresponding affiliation. Only the first four affiliations have three papers (2% of the contribution) and the second four have two papers (1.3% of the contribution). This result gives us information about the wide interest on this subject from several universities and research centres all over the world. Then, the affiliation analysis confirms the result of the country analysis (Figure 8). In fact, if we try to sum the first eight affiliations by their own country, the outcome is: • Nine papers from China; • Six papers from

Germany; and • Five papers from the USA. In September 2018, the most important event on artificial intelligence was held in Shanghai. China is very determined to focus on future technologies. For some months, China has become the world's leading power in terms of scientific

publications. Late in the 20th century technologies, China chose to do what the English-speaking people call a "frog jump" and focus on 21st century technologies. China, with its 800 million Internet users and without any privacy protection policy, has access

to more personal data than the United States and Europe.

3.2.8. Top Keywords Analysis

Through NVivo 12, the top 20 keywords were extracted directly, which are those that always appear in association with each document.
Starting from this classification, the graphic representation, a word cloud shape, of the keywords. (Figure 9) was extracted. It can be noted that the most used term is precisely "machine", "learning", and "intelligence", which the software represents with greater characters than all the other terms

Discussion:

From the analysis of the research carried out, the first information emerged is that the interest in the subject is extended to all scientific sectors, with a particularly wide impact. The direct consequence could be that of having new generations of researchers who will contribute to future comparisons, accompanied by new questions for investigations. Other information emerged is about the authors and the affiliation. Many of these are in a 1:1 ratio compared to the selected documents and

this supports the fact that there is no interest in technological applications in one direction, but that, once again, the interest is very wide in the scientific community. Furthermore, it can be said that the countries most interested in scientific research are USA, China and European countries. It is important to underline that this document was produced using only two databases, i.e., WoS and Scopus, in which only documents with open access were included.

Conclusions

This research focused on the study of the state of the art of AI and ML applications, selecting literature on what has now become a particularly hot topic in scientific research. The literature available on any subject is now wide and a complete coverage of all the documents published with respect to a particular topic can be challenging or even impossible. Therefore, a systematic selection of the most relevant literature was implemented. This document provides a systematic review of applications in various scientific fields using ML techniques. For the selection of documents, objective and clear methods of investigation were used, independent of the experience of the researchers. Among the objectives of the document, it aimed to not only provide a comprehensive framework on the literature on the research of AI and ML but also a starting point for integrating knowledge through research in this area and to suggest future research paths. It is important to underline that this document was produced using only two databases, i.e., WoS and Scopus, in which only documents with open access were included. There are, therefore, many other documents with restricted access and other indexing databases, such as Google Scholar, that could be integrated for future research.

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Change in Career Trends Due to Emerging Technologies

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ABSTRACT:

This paper is intended to address an important issue in the domain of technology. This research paper addresses how technological advancements are changing the career trends. Artificial intelligence, machine learning, Internet of things are transforming human life. It is a matter of fact that technology is changing the world around us and also career opportunities, there is a strong need to determine how emerging technologies are going to affect future employment opportunities and their benefits. This particular study explored the impact of these emerging technologies on career options. There is a subtle need to understand these career trend patterns and determine what jobs will be effected and how to jobs demographics is going to change with time.

KEYWORD: Artificial intelligence, Career trends, Internet of things, Job, Machine learning, Robotics, Technology.

INTRODUCTION:

Career choice plays a vital role in an individual's life. Not only it affects a person physical attributes but also guides his behaviour, nature of work and consequently leaves a mark on the personality and outlook of an individual.

The problem addressed by this research is to understand the current career trends and how the changing technologies affect the outlook of individuals on the various career options.Technology plays a major role when it comes to career options as jobs that were relevant some years back are obsolete now and large number of shift is seen in major job roles as automation took over most of job roles.

The research is done keeping in mind these objectives:

- To understand how the taste of individual is changing due to advancement in technology.
- To see how the current career trend patterns is going to change the job demographics

This Research is based on comparison of the data regarding the current career patterns and comparing them to the career options that people used to choose a decade ago to understand how the job preferences are changing and to get an idea of what the feature career options would be.

Researcher further elucidate on the fact that how the advent of new technologies are further changing ones opinion for various career options which is a the vital cause for opting for that particular field.

REVIEW OF LITERATURE:

The research paper is based on secondary data, Researcher has reviewed previous work of some other researcher and refer online journal about career trend and change in career selection due to advancement in technology while doing this research researcher has considered mainly two parameters 1) Changes in career trend, 2) Emerging

technologies. Following items are reviewed for this research:-

- Factors affecting student's career options, In this research paper author Asma shahid kazi demystifies factors which largely affects students choices regarding which career to choose. Research paper includes a survey which state reasons which are mostly affecting career choices.
- What will jobs look like a decade from now, economic times. In the article author Priyanka Sangani, describes what job roles will look like a decade from now. It shows the various job rules that would be available in future due to technological advancements.
- Career Counselling: Current Trends in Research and Theory, author Anna bilon. The main aim of the paper was to analyse the current trends and tendencies within career counselling research and theories.

METHODOLOGY:

The researcher's main objective was to understand the current career trend patterns and does emerging technologies have changed the demographics of career patterns and to what extends.

A small online survey was conducted in which the participants were asked to fill a questionnaire, the questionnaire included questions regarding the current choice for people as the best career options and what people were likely to choose a decade ago.

The research needed Participants to fill a questionnaire regarding their job status and about what do they think about which career option is best to choose now. The researcher received 54 responses which were analyzed by the researcher

and will help finding the result below in the research paper.

All the questions in the questionnaire were objective based and the final result was drawn in respect to the responses by the participants. Though the survey was restricted to a limited number of participants the participant were chosen from various different work industries thus limiting the degree of bias.

Results:

Following are the pie charts which depicts percentages of the various answers filled up by the participations:-

- **Which of the following due you think is a the most appropriate career option to choose now a days?**

The pie chart depicts what the participants think is the most appropriate career option to choose now a day, as we can clearly see highest 55.6% of the participants have chosen IT, followed by Education 13%. This clearly shows that IT is most favoured career option.
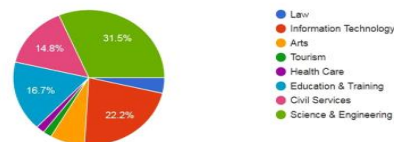
- **What do you think people use to choose as there career 10 to 20 Year Before?**

We can clearly see how the preference of people were drastically different as majority of participants 31.5% would have chosen Science and engineering which is more than 22.2% Information technology.

- **Do you think that very large number of people has opted for IT job roles in recent Years?**
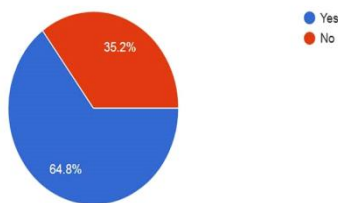
As you can clearly see the maximum no of participants thinks that IT job role is best fit as career option to choose now a days.

- **Will this Change of people taste towards IT jobs will processed in coming years?**

-

Yes, we can clearly see that taste of people is changing more towards IT Job Roles.

- **Do you think IT as a career option is better than other Job roles?**

54 responses

This shows working IT sector is the most favorable as 64.8% of the participants think IT job role is better than any other job.

- From the responses of participants which we can see above it can be observed that advancement of technology is shifting individual's taste for career option and is shifting their perspective towards IT job roles.

CONCLUSION:

From the above results researcher can make conclusion to the problem statement that how the advancement in technology is changing the career trend patterns, It can be easily seen that technology is a major factor for an individual choice for a career. It has been observed that due to various technological advancement how the taste of people is changing more to the favour of IT based jobs.

From the result Researcher can easily conclude that the advent of new technologies has largely shifted preference of many individuals from other fields of study to choose it as their career option. Large portion of people think IT sector is best when it comes to job satisfaction and is better than any other job in today's fast growing world. The work

54 responses
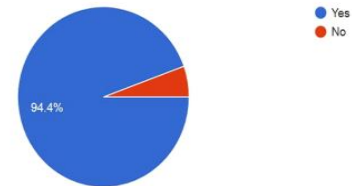
environment is also a factor that attracts students towards a career and surely IT jobs provide best working environment to work within.

It can be observed that many individuals who though are from different fields also think that the requirement for IT jobs is going to increase in the coming future and more and more of individuals will be opting for IT job roles in the coming decades.

LIMITATIONS:

The survey conducted in the research did have a very small sample test so there are always some limitations to consider:

- Selection of participants of the survey was from random small groups but still there can be a possibility that majority of them come from a particular background or do have a particular mindset.
- It can be case that the decisions of many of them were guided by a certain level of bias towards a particular interest or subject matter.
- The size of survey can also be largely affect the overall outcome of the research.

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PANDEMIC ACCELERATED ONLINE SHIFT

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ABSTRACT:

COVID-19 has affected everyone's daily lives. Almost all people have been asked to stay at home to slow down the pandemic. In this aspect, businesses have been susceptible to make substantial transformations. Workplace operations of many businesses, education sector and marketing sector went virtual.

This paper is intended to address how covid-19 pandemic have enforced the businesses, education and other sectors to shift online what are the impact of shifting the world digitally and what are the problems faced by people in online shift.

 Keywords: *Accelerated, Covid-19, Online   shift.*

INTRODUCTION:

The Novel Corona Virus Disease (COVID-19) outbreak was declared as a pandemic by World Health Organization on March 11, 2020 and there was a sense of fear and panic all around the globe. Due to which nationwide lockdown has been imposed in the month of March 2020 to control the spread of corona virus disease, so that precautions can be taken to control the disease precautions like maintaining social distance and following other safety norms. Because of these many companies, Marketing sectors, Businesses, Small Scale Businesses and Education Sector have been shut for few months and later on they started shifting towards online by following safety norms to control the spread of virus.

The main objective of the research is to analyze about how pandemic accelerated online shift and what are impact of online shift.

** Mrs. Rupali Kalekar, Asst. Prof. DYPIMR, Pune

LITERATURE REVIEW:

The research paper is based on secondary data, Researchers has reviewed previous work of some other researcher about how convid-19 pandemic enforced to shift most of the sectors digitally and because of this what are the impact on people.

Following items are reviewed for this research

- "Accelerated Digital Transformation: The Case of The Online University Caused By Covid-19" , In this research paper Author Jeppe Agger Nielsen have highlighted how a faculty from Danish university changed from analog to full digital teaching overnight.
- "The Impact of COVID-19 on Consumers", In this article Author Rae Yule Kim explained about what is the impact of covid-19 on consumers.
- "Pandemic Accelerates Online Shift For Small Businesses", In this Article author has stated how small business have opted for digital technology.

METHODOLOGY:

The researcher's main objective was to understand how pandemic enforce businesses and other sectors to shift online what are things have been shifted online and what are the impact of shifting the world digitally and what are the problems faced by people in online shift.

A small online survey was conducted in which the participants were asked to fill a questionnaire, the questionnaire included questions regarding digital transformation which have been took place because of covid-19.

The research needed Participants to fill a questionnaire like According to them what are things which have been shifted online and what are the problems faced by them due to digital transformation of world during pandemic.

The researcher received 50 responses which were analyzed by the researcher and will help finding the result below in the research paper. All the responses of the participants were considered and the final result was drawn.

FINDINGS:

Below is the data analysis and findings of the data received by respondents:

Digitalization due to COVID-19:
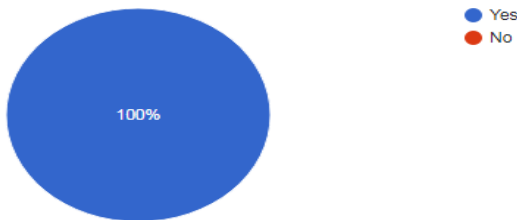
It has been observed that 100% respondents are agreeing that, COVID-19 pandemic has accelerated the shift towards a more digital world.

Things that have been shifted online in covid-19 pandemic:

According to the research following things have been shifted online in pandemic: Shopping, Education, Banking, Entertainment, Office's, Small businesses, Events.

Problems faced by peoples in a pandemic due to online shift:

According to the present study the people tend to feel disconnected because of less physical interactions during pandemic. People face power

issues, poor internet connectivity due to lack of proper infrastructure that we have in our country as compare to other developing/developed nations.

Advantage of shifting the world towards digitalization:
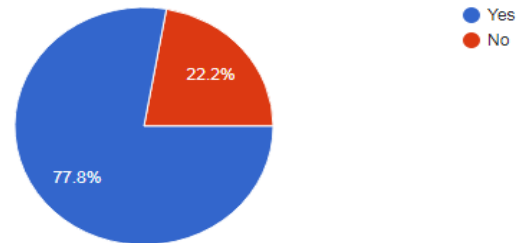
The above figure shows that according to the participant's response 77.8% thinks that shifting the world digitally has advantage and 22.2% thinks that shifting the world digitally doesn't have advantage.

Online education system has advantage over offline   system:
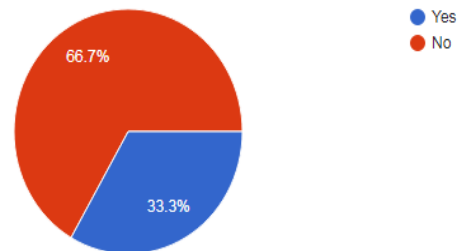
It has been observed that only 33.3% participants thinks that online education system has advantage over offline and 66.7% participants thinks that online education doesn't have any advantage over offline.

Rating towards online work

It has been noted that majority of the respondents are not fully satisfied with online work.

CONCLUSION:

According to research results it has been observed that most of the things have been shifted towards digital world such as Shopping, Education, Banking, Entertainment, Office's, Small businesses, Events etc, Majority of the people thinks that shift towards digital world has an advantage but on the other hand people are not satisfied with online education system due some issues and there are a lot of problems faced by people due to online shift problems like power issues, poor internet connectivity due to lack of proper infrastructure and people feel disconnected because less physical interaction.

LIMITATIONS: Only method of survey is being used different would have been used to collect and analyzed data.

The size of a survey was small limited to very few people .

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Consequences Due To Rapid Changes in Technology & It's Impact over Middle Class

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 ABSTRACT:

Today we live in the era of information technology, technology is playing a vital role today as there are rapidly changes happening in the technology day by day, and what are the impacts of those changes happening over the society or on people especially on the middle class?

As the middle class families are not that much aware about the technologies, about its use, about its advantages and disadvantages. What kind of problems do they have to face every day ? What are the good and bad things they are experiencing every day? In this paper we will emphasize the impact of technology changes on the middle class family. In this paper we will have the survey methods.

We do a small survey by which we would like to know about what are the rapid changes happening over the over the society, how they are experiencing these things, what are the advantages and disadvantages of these things. And the most major factor is how these things are helping our nation towards becoming a digital nation. society, how they are experiencing these things, what are the advantages and disadvantages of these things. And the most major factor is how these things are helping our nation towards becoming a digital nation. By considering all these things how we can try to make our society aware about technology, how we can make our people smarts.We think this will be a good step towards helping our nation to become a digital nation.

INTRODUCTION:

Development is the part of any Country specifically in terms of Technologies , technologies always help in the growth of country however its impact always be on the middle class family .Recent decades have seen a dramatically accelerating pace in the development and adoption of new technologies, even though various gaps persist in terms of adoption in different parts of the world, especially in the least developed countries. This rapid technological change is affecting almost every area of the economy, society and culture.

Rapid technological change involves, among others, technologies like big data, the Internet of things, machine learning, artificial intelligence, robotics, 3D printing, biotechnology, nanotechnology, renewable energy technologies, and satellite and drone technologies.

At the same time, rapid technological change poses new challenges for policy making. It can outpace the capacity of Governments and society to adapt to the changes that new technologies bring about, as they can affect labor markets, perpetuate inequalities and raise ethical questions.

Rapid technological change involves, among others, technologies like big data, the Internet of things, machine learning, artificial intelligence, robotics, 3D printing, biotechnology,

nanotechnology, renewable energy technologies, and satellite and drone technologies.

With the help of which we can make our life digitally, technology always helps us to overcome problems being faced by society. We can solve many problems from one place only.

As we are from middle class families, there is always a lack of technology especially in our middle class as we are not that much connected with technology.

By this survey we can improve or can make more changes in our society to make our people smart and can make them aware about all these.

How Fast Is Technology Growing –

In the past decade, we've seen technology develop with overwhelming speed. But how fast is technology advancing exactly? Moore's law was the first to shine a light on the technology growth rate. It says that the transistor count on integrated circuits doubles roughly every two years. But technology is finally reaching its limits and the growth rate has slowed down, making Moore's law less plausible.

How Fast the Technology Is

Growing – - By 2025, 38.6 billion smart devices will be collecting, analyzing, and sharing data.

-The web hosting services market is to reach $77.8 billion in 2025.

-70% of all tech spending is expected to go for cloud solutions.

-There are 1.35 million tech startups.

-Global AI market is expected to reach $89.8 billion.

-There are 4,383 million internet users. Solar energy adoption has grown by around 50%.

OBJECTIVES:

To understand social life in this technological world, how people get changed or improve themselves. To study the problem area in this rapidly changing technology, what are the losses and benefits of it, does it really help us and our country to be digitized? To make uneducated people or the community aware about these day by day changing technologies.

METHODOLOGY:

We have used qualitative methods to gather data about the changing technology as well as new gadgets. These methods include primary as well as secondary surveys with various questions that assess how middle class communities living in this technological

world, what problems they are facing, are they balancing their life in this changing world. For the Primary surveys, we have created a Google form with related questionnaires and distributed it to more than 100 persons (who are basically from the middle class). We have also collected data from the Internet as my secondary survey.

The search is based on the statistical analysis of the various research agencies which have done some of the research on the changing technology and its impact.

LITERATURE REVIEW:

As changes happen in technology, it changes our life rapidly as well. As we know there are many benefits of this changing technology but some drawbacks as well related to data security. As per [2] there are approximately 28% of the middle class

in our India and lots of people are not educated yet unfortunately. They have to face a lot of problems while interacting with this changing technology, many more even aren't aware of its usage and their benefits and losses. We can do a lot to help our country become more digitized by making our people digital. As the survey shows there is a lack of understanding of simple technologies, many people still using old ways to accomplish something or to be done something. We can contribute to making our country more connected with technology, can do many more surveys, seminars, can visit small towns/villages and many more things.[3]

Advantages of Growing Technology:

Ease of Access to Information:

The World Wide Web, abbreviated as www has made the world a social village. This is because information from all around the globe is widely available on the internet. While most of the news you get to see on social media is purely factual, one may also see image results for particular news. Not only more news is available, but all such information is also straightforward to access.

Saves Time:

Have you ever faced navigation problems in an unfamiliar town?

Yes, we all have faced such issues when we move to a new place. Be it a business trip or a vacation; modern technology allows you to enjoy your outings by helping you navigate anywhere. One can search for a particular place and then even pinpoint their specific destination. The application itself does rest. It won't even let you miss a single turn, and nowadays it even shows you the traffic situation on your route. **Easy of Mobility:** Ever imagined your life without a car or a bike? Surely

not because technology has placed these things under our foot. The importance of a vehicle can easily be judged from the fact that the distance between the United States of America and Australia is nearly 15,187 kilometers but you can travel just in 16-17 hours. Even less than in a day and believe me, you won't be ever regretting these 16-17 hours of your life. Airplanes, electric trains and cars which are being improvised every single day have made all this possible.

Best Communication Means:

It is a fact that modern technology has replaced old technology. And we cannot imagine our lives without this replacement. Letters were the most common means of communication less than a century ago, but now no one would even think of writing a letter because why prefer a parchment on a video call? Instant messaging and sharing of photos and videos was never so easy before. We have to accept that it's only the use of technology, which makes it harmful otherwise nothing can beat the level of comfort in our lives because of technology.

Cost Efficiency:

One of the main goals of technology includes making things cheaper and more affordable for people. Therefore, people see cost efficiency these days due to technology. The machinery of great benefit is available for so less price that we cannot imagine. More often competition takes place between two or more industries which results in even lesser prices.

Innovation In Many Fields: Technology has truly resulted in digitization and modernization in many fields. Either it is the field of medicine or farming or electronics, technology has resulted in a global revolution. Better techniques in farming have

resulted in more and healthier food. The technique of "layer farming" takes even less space and produces more food. The better health of animals guarantees more yield of dairy and poultry products. The health sector has also benefited a lot from the technology boom. Even the incurable diseases like cancer have a proper cure now. There are so many other fields also which cannot survive without the backbone of technology.

Improved Banking:

Less than a decade ago no one ever thought that they would be paying in bitcoins rather than dollars. Crypto currency has recently got viral because of its usefulness. No one would now have to wait in the long line of banks just for paying their utility bills.

Better Learning Techniques:

Bring some fun to your classroom. You can improve your teaching skills and integrate scientific methods to bring motivation to your students. Many software and electronic gadgets are introduced to help students with their education. The simplest example of a calculator can amaze a person. Multiple calculations and various binary operations, the answer comes with just a click.

Artificial Intelligence:

The new concept of artificial intelligence is growing up fast, and it is gaining much popularity. The reason behind is that this might bring a whole new era of revolution. No humans would have to think anymore because the possibilities are that an AI System would be able to think about how to improve it. This would give a break to the human generation and probably one of the greatest favors of modern technology to us.[6]

Disadvantages Of Growing Technology:

Data Security:

Digital technology means that vast amounts of data can be collected and stored. This can be private information concerning individuals or organizations. It can be very difficult to keep this data safe. Just a single breach can mean vast amounts of private information going into the hands of criminals, terrorists, business rivals, foreign adversaries, or other malign entities.

Crime & Terrorism :

The internet is fertile territory for malevolent forces to operate, thanks to its international nature, vast scale, and the relative anonymity that users can enjoy. Examples of this include: terrorists using social media to promote themselves and encourage others; drug dealers using the dark web to trade; pedophiles using chat rooms and other places to groom potential victims, exchange photos, videos and other information; and authoritarian regimes attempting to sway or distort elections in democratic countries.

Privacy Concerns :

It's become much harder to have personal privacy in the digital world and that's on top of the dangers of your personal data being stolen or sold. For instance, everybody has the ability to take photos and video footage on their mobile phone, then post it online. Employers can search for people online and maybe find unflattering photographs, or see them expressing controversial opinions in social media or blogs. Digital cameras watch and record our movements in public places. Minor indiscretions can now haunt an individual for life when they're posted on the internet. Controlling your personal information is very difficult and sometimes impossible.

Social Disconnect :

There is an increasing tendency for people to socialize and communicate via digital devices rather than through real-life contact. This can easily lead to a sense of disconnect and isolation. Human beings have evolved over thousands of years to have real contact, so taking that away affects them in all sorts of negative ways that we're only just beginning to understand. Studies have suggested that the lack of real-life contact is causing depression and other forms of mental illness in many people.

Job Insecurity :

It used to be that you had to be physically present at a workplace to do a job, but now many work tasks are performed remotely via the internet. That means a Third World worker in a low wage economy can undercut you and take your job. Increasingly, humans aren't needed at all for many tasks, as computers gradually replace them. Driving and delivery jobs, for instance, will disappear soon as vehicles become automated.

Over Reliance on gadgets :

Reliance upon mobile phones, computers, and other digital gadgets has become common. Many people have all their contact information, photographs, texts, and other personal information on their phones. If they lose them, or the gadget breaks or runs out of power, then they are in trouble. Basic living skills, like finding one's way around the streets of a town, have been replaced by taking directions from a GPS system.[7]

DATA ANALYSIS & INTERPRETATION:

Below is the descriptive analysis of the final sample data in the form of charts and graphs. We have used google form to get responses. data has been collected from 25 people from various society's who belongs to middle class family:

1. Which Technology do you use mostly?
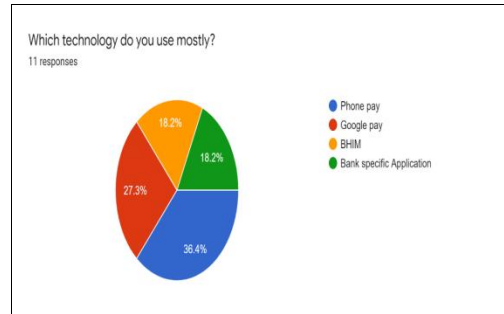
Interpretation: In this survey mostly 36% people use third party apps to complete their online task.

2. Do you think these technologies are helpful?
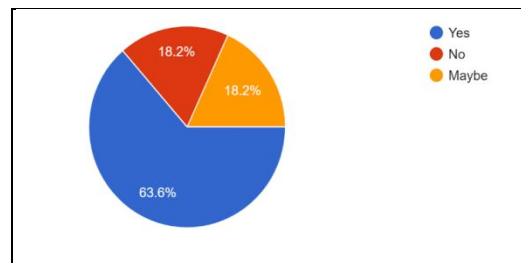
Interpretation: This survey shows around 63.6% people enjoying recently formed technologies in their day to day life to make their life easy.

3. Are there any security issues while using these applications?
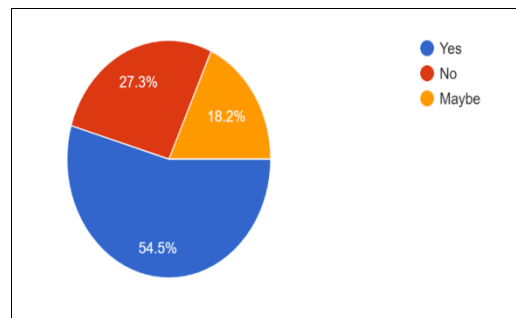
Interpretation: As per this survey almost 50% plus people are afraid about their security with the data, as we do anything on the internet sometimes we provide our info, there is no guarantee of data security.

4. Are these changing technologies dangerous?
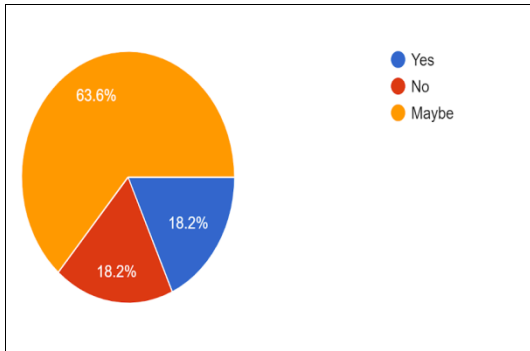
Interpretation: This survey is about security, around 65% people are afraid about their data security, privacy, and personal things.

5. Are these technologies helping our nation to be digitized?
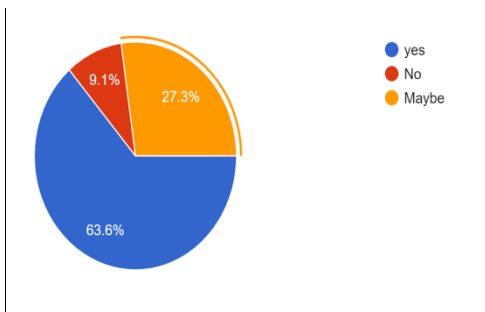
Interpretation: As technology makes an individual digital, around 65% people agree that these kinds of technologies are making our country digitalize.

6. How come these technologies are helpful?
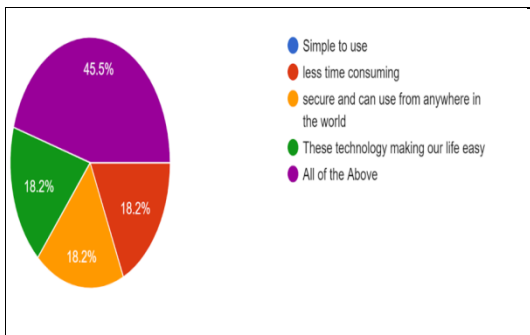
Interpretation: This survey was about how these technologies helping us to be digitalize, means how we can make our life easier with these technologies
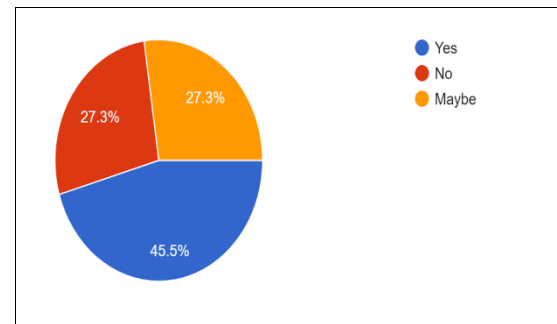
7. What kind of benefits are you experiencing with these technologies?
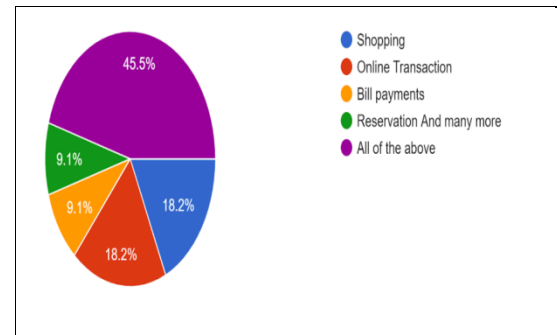
Interpretation: By this survey people

showing the benefits they experience using these technologies, like we can do shopping from any place, can do online transactions, bill payments and many more.

8. Are these kinds of technologies making us lazy ?

Interpretation: As we know we don't have to go anywhere, so this survey is about laziness, almost 50% people agreed that these technologies make us a bit lazy.

CONCLUSION:

- It is begun decades ago as a theory that could save time, money and the environment.

-It takes lots of vehicles off the road every day, helping to slow the degradation of the environment. It also saves peoples the cost of fuel, vehicles wear-and-tear, and personal time. The reduced stress and increased individual freedom result in productive that feel fulfilled in their personal and professional life. **-**As per survey enefits and loses both are there, but are benefits are more than losses and

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MEANS OF TRANSPORTATION: HYPERLOOP

* Kalyani Mukund Kulkarni**,**

Abstract –

Today's conventional mode of transportation of people consists of four unique types: rail, road, water and air. These modes of transport tends to be either relatively slow (e.g. road and water), expensive (e.g., air), or a combination of relatively slow and expensive (i.e., rail). Hyperloop is the new mode of transport that seeks to change this pattern by being both fast and inexpensive for people and goods. The idea of hyperloop is to travel at high speed in low pressure tube along with levitation. Due to presence of low pressure, the aerodynamic drag is very low thereby reducing the energy consumption.

Keyword :- Hyperloop, Pod, Conventional Mode, Magnetic Levitation, Linear Induction Motor.

1.Introduction -

A **Hyperloop** is a proposed mode of passenger and freight transportation, first used to describe an open-source vactrain design released by a joint team rom Tesla and SpaceX. Hyperloop is a sealed tube or system of tubes through which a pod may travel free of air resistance or friction conveying people or objects at high speed while being very efficient, thereby drastically reducing travel times over medium-range distances. The name Hyperloop was chosen because it would go in a loop. Musk envisions the more advanced versions will be able to go

at hypersonic   speed.   (1)

Fig.(1) Source-

Whose idea?

Hyperloop concept was invented and designed in 1812 by the British Mechanical Engineer **"George** Wenger". The concept of hyperloop is now developed and redesigned by the billionaire Elon Musk in 2012. A high-level alpha design for the system was published on August 12, 2013. To reduce friction, most -- but not all of the air is removed from the tubes by pumps. Overcoming air resistance is one of the biggest uses of energy in high speed travel. It wouldn't just be fast, the boosters say: Hyperloop could be cheaper and better for the environment than the planes, trains, and cars in which humanity putzes about today. Musk originally suggested doing this with air bearings, little jets of air on the bottom of the pod.(1)

What is Hyperloop?

- Existing conventional modes of transportation of people consists of four types: rail, road, water, and air.It is the fifth mode generation of transportation.

- Hyperloop is a new mode of transport that seeks to change this paradigm by being both fast and inexpensive for people and goods.
- Hyperloop consists of a low pressure tube with capsules that are transported at both low and high speeds throughout the length of the tube.(1)

2.Review of Literature –

In 2014 N. Kayela discussed about the railway track for the hyperloop, stations for the hyperloop. Also, discussed about the two version of capsule that is one is passenger only version and another is passenger plus vehicle version.

In MAY 2016 Ahmed Hodaib, Samar F. Abdel Fattah discussed the design of a hyperloop capsule with linear induction propulsion system which is used to accelerate and decelerate the capsule.

In 2016 Mark Sakowski Discussed the current maglev technology along with the theoretical evacuated tube technology and they concluded that the hyperloop is feasible and if properly designed, has the potential to be much more efficient in terms of energy usage of pods traversing down the tube. (1)

3.Methodology –

Components of Hyperloop

CAPSULE

- Sealed capsules carrying 28 passengers each that travel along the interior of the tube.
- The maximum width is 4.43 ft (1.35 m) and maximum height is 6.11 ft (1.10 m).
- The capsules are accelerated via a magnetic linear accelerator affixed at various

stations on the low pressure tube with rotors contained in each capsule.

- Just as aircraft climb to high altitudes to travel through less dense air, Hyperloop encloses the capsules in a reduce pressure tube.
- The pressure of air in Hyperloop is about 1/6 the pressure of the atmosphere on Mars.(3)
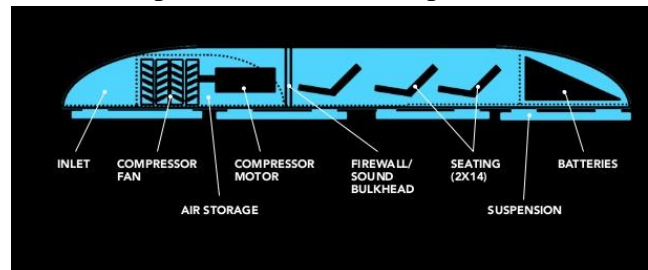
TUBE

- The tube is made of steel. Two tubes will be welded together in a side by side configuration to allow the capsules to travel both directions.
- Pylons are placed every 100 ft (30 m) to support the tube.
- Solar arrays will cover the top of the tubes in order to provide power to the system
- Hyperloop capsule in tube cutaway with attached solar arrays.
- The expected pressure inside the tube will be maintained around 100pa (less pressure).
- This low pressure minimizes the drag force on the capsule while maintaining the relative ease of pumping out the air from the tube.(3)

Fig.(3)

PROPULSION

- Linear accelerators are constructed along the length of the tube at various locations to accelerate the capsules
- Stators are located on the capsules to transfer momentum to the capsules via the linear accelerators.

The propulsion system has these basic requirements

- Accelerate the capsule from 0 to 300 mph (480 kph) for relatively low speed travel in urban areas.
- Maintain the capsule at 300 mph (480 kph) as necessary, including during ascents over the mountains surroundings.(3)
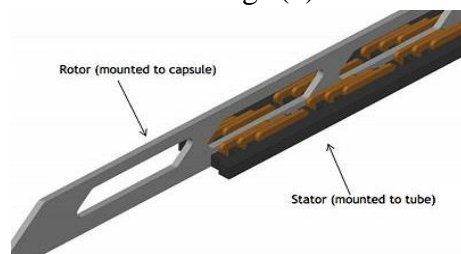

Fig.(4)

Working Principle

Working

- Working of hyperloop system is based on magnetic levitation principle.
- The passenger pad travel through low pressure tube which is pylon-supported tube.
- In hyperloop system an air compressor fan is fitted on front side of pod which sucks the air. It transfer high pressure air front side to the rear side of capsule (pod) and it propel the pod. It creates the air cushion around the pod, so that the pod is suspended in air within the tube within the tube.

- On the basis of magnetic levitation principle the pod will be propelled by the linear induction motor. By the linear induction motor the capsule send from one place to another place to a subsonic velocity that is slower than the speed of sound.

- The pod will be self-powered. There is solar panel fitted on top of the tube. By this solar panel there is enough energy is stored in battery packs to operate at night and in cloudy weather for some periods.
- The energy is also stored in the form of compressed air. The air between the capsule acts as a cushions to prevent two capsules from colliding within the tube(4)
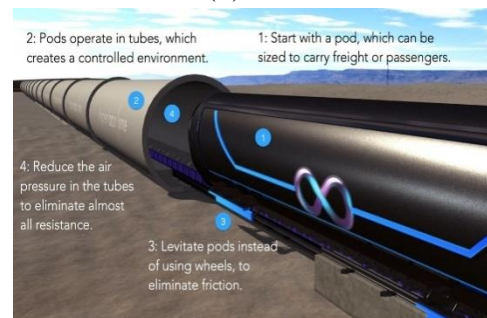

Fig.(5)

Advantages

- It saves the travelling time.
- There is no problem of traffic.
- Sustainable self powering. It is powered by the solar panel.
- It can travel in any kind of weather.
- Cost of hyper loop is low.
- Not disruptive to those along the route.
- More convenient.
- Resistance to earthquake(4)

Disadvantages

- Turning will be critical.
- Less movable space for passenger.

- High speed might cause dizziness in some passenger.
- Punctured tunnel could cause shockwaves.(4)

5.Conclusion -

- Hyperloop transportation system can be used over the conventional modes of transportation that are rail, road, water and air. At very high speed it provides better comfort and cost is also low.
- By reducing the pressure of the air in the tube which reduces simple air drag and enables the capsule to move faster than through a tube at atmospheric pressure. As it has number of advantages it will very helpful for transport public as well as goods in a very short time and also in low cost. It is new concept so there is some future work will be required for development of this project.(4)

6.Limitations -

1) Turning will be critical.

2) Less movable space for passenger.

3) High speed might cause dizziness in some passenger.

4) Punctured tunnel could cause shock waves.

5) Stopping of pod is difficult.(4)

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Analysis of different tools to employ while widening a Social Network for business.

*Ujjval Shirish More.

Abstract :

Social media are fundamentally changing the way we communicate, collaborate, consume, and create. They represent one of the most transformative impacts of information technology on business, both within and outside firm boundaries. The popularity and economic relevance of social media has increased over recent years, enabling millions of users to share instantaneous data, information and media products. User-generated content and the participatory web are currently the lifeblood of the Internet. Social Media is starting to affect all organizations across different dimensions: organizations' internal communication, the working relationships, the relationship with their stakeholder audiences, conversations with consumers, business model innovation, and organizational reputation and legitimacy. Social media offers huge potential for what has been defined "mass-self communication" indicating the production of knowledge that utilizes the capabilities of large numbers of users for the solution and prediction of challenges or problems. Social networks are monitored to discover trends, get competitive information, listen, and engage in conversations with users and stakeholders. Thus, the ability of firms to engage and shape the relationships and conversations with consumers and customers is a key factor for the successful management of value within digital semantic communication networks.

Keywords: Social media, customers, economic, communication, stakeholders, innovation, potential.

I. Introduction: Social Media

Social media is a series of websites and applications designed to allow people to share content quickly, efficiently and in real-time. Social networking on social media websites involves the use of the internet to connect users with their friends, family and acquaintances. Social media websites are not necessarily about meeting new people online, although this does happen. Instead, they are primarily about connecting with friends, family and acquaintances you already have. The most well-known social media platforms are Facebook, Twitter, Instagram and LinkedIn.

Social media is not just about dealing with what people say about you online though, it's about communicating with your customers and future customers, it's about building a community, being part of other communities; it's about educating people, listening to them, and letting them know all about you, your company, the people that work for you, your products, your services, your business philosophy, your integrity and your organizational culture.

II. Purpose of Study:-

1. To study the concept of Social Media.
2. To study the different strategies or tools to employ to build and widen a social network to promote business.
3. To study the Impact of social media on business and how to keep that impact positive and follow it.

III. Methodology

The present research study is based on the secondary data. Such secondary data is collected from various reference books on Social Media Transformation tool, Strategic management and social media, Role of Social media, Better Business Content.

For the said research study the data pertaining to the above objective was collected by the review of the

literature on the subject concerned. The literature was thus collected by visiting e-libraries and various concerned website.

IV. Related Works:-

It isn't simply social media. It is media that is social! Social media is also not just one big monolithic channel. It is made up of many different types of channels, each with its own nuances. Just as newspaper advertising is different from trade publication advertising, which is different from TV advertising, which is also different from out-of-home subway advertising, so too is twitter different from Facebook and Instagram. Also, traditional media doesn't need to be just a silo of messages being broadcast out to the nameless masses. It can be shaped by the give and take of social media. It can be used to support social media marketing campaigns and social media can be used to support traditional marketing campaigns. Traditional media is no longer just traditional. Social media is no longer just social. It is media overall that is social.

Social media networking is more important than ever for small business owners. Consumers these days respond less to traditional marketing, such as television or print ads, and more on the opinions and recommendations of those on media-sharing and social-networking sites like Facebook, YouTube, and Twitter. As a small business owner, you must now evolve with social media trends to remain competitive in the marketplace. Here are nine strategies or you can say tools to employ to build and widen a social network to promote business.

1. Blog and Micro-blog

Widen your network through creating a blog, and micro-blogging, on Twitter. Both of these strategies can promote web visibility with real-time updates about you and your business to

followers. Blogger.com provides free web-hosting with user-friendly page design and application interfaces. Creating a blog page can be accomplished quickly, with little to no html-code knowledge required, and can serve as the hub of your social network in a way that a business or e-Commerce sites cannot.

2. Find Friends

Community and social-networking sites, including Facebook and LinkedIn, build communities of friends, business contacts and like-minded individuals. Apart from your personal account - as the use of a personal page for business purposes is not allowed by Facebook policy - create a business page. There are also several applications and resources within Facebook, such as Branch Out, that you can utilize to promote your brand and make contacts. Also, look for and join community's specific to your industry, both online and in your local area.

3. Link Together and Link Out

Once you have created a blog and added accounts on social-networking sites, it's time to make those outlets work for you by linking together all the accounts in your network and creating external links to other blogs, online directories and communities. Links are crucial to network building because they not only ease navigation through various parts of your network, but also help crawler, or spider-driven, search engines find and index your site. Share your blog posts, YouTube videos and pictures on your Facebook wall, while posting updated announcements, such as upcoming promotional events, on Twitter. You can then post and archive YouTube videos on your blog and add links to a business or e-Commerce site.

4. Be Social

Remember that one of the words in 'social networking' is social; and no one will shake your hand if you never extend it. Create a link list on your blog of other sites or blogs that you like to read,

making sure to click the Like and Share buttons on their sites to recommend their content to others in your network. Not only does this foster fellowship among your peers, but also creates links back to your network. Your blog will then be visible to every site or blog on your link list, giving them the opportunity to read your blog and hopefully recommend your content to others in their network in return.

5.   Keyword Usage

When building and expanding your network, it is important that the written content on your blog and business site makes use of keyword phrasing. Spiders and web crawlers scan text on your site, determine what it's about and rank its relevance in comparison to commonly searched keyword phrases. Using keywords within your text boosts the ranking and pushes your site closer to the top of search engine results. That being said, avoids cramming or forcing keywords into text just to gain a higher ranking. Your text is a conversation between you and your customers and keywordstuffing can read like ad copy and turn off readers.

6.   Quality Content

No amount of linking or keyword phrasing will boost poor content. Misspelled and grammatically incorrect text will miss the mark with readers and halt your progress up the search engine ladder. Not to mention the fact that spelling and grammar errors are very easy to avoid with spell checking, and posting these errors will look like laziness. Provide readers with well-written text that is informative and friendly, breaking up blocks of text into short, easy-to-read paragraphs.

7.   Customer Service

Whether face-to-face, over the phone, or on the internet, quality customer service helps to promote your brand and build a positive reputation. Enable comment boxes on your blog, allowing your followers to ask questions or make suggestions. Unless it's vulgar, or uses bad language, don't delete or ignore comments and try to answer questions as soon as possible. Even negative comments, if addressed promptly and in a consolatory manner, can improve your reputation. Dissatisfied customers do not click like and Share, making them dead ends on your network.

8.   Visual Content

Whether you are a retailer, craftsman, or own a pest control business posting visual content, such as pictures, videos and slideshows on YouTube, your blog and other social-networking sites can showcase the products and services you provide, while proving to your customer you can fulfill their needs. If you are a craft, or tradesman such as a painter or landscaper, you can use videos or slideshows to show the progression of a job from start to finish, rather than simple before and after photos. If you are a retailer, these tools are great for introducing new merchandise or new features to your store.

9.   Keep Content and Links Current

It is crucial when building your network that you keep it running smoothly with up-to-date content. Web viewers and consumers have low-attention spans and short memories, and maintaining a flow of new information will keep them interested. Also, it is just as important to maintain links, even to old content. Sending consumers to dead links, such as sites that have been shut down, or moved to another location, is frustrating to readers and can turn them away from your site. Take a few minutes once or twice a month to test your own links.

By consistently employing these strategies, we can attract new customers to our small business, build our brand and keep our company on the cutting edge in today's social-driven marketplace.

The impact of social media on business and how to keep that impact positive and follow it, here are seven tips to get started.

1.   Develop a social media reputation plan. Traditionally, anyone starting a business is advised to spend plenty of time and resources on an overall business plan to cover things such as finances, human resources, legal issues, traditional marketing/advertising strategies and the like. Now, that traditional business plan should include both a social media plan (how the company will use social media) and a social media reputation plan. The latter should cover who is in charge of managing the company's reputation on social media, who will represent the company by posting and engaging with the community, how the company will promote a good reputation, how it will monitor its reputation and what it will do to respond to crises that could threaten its reputation.

2.   **Designate a social media manager**.
 Whoever is chosen needs training and a policy manual for this specialized form of media? Alternatively, consider contracting with an outside firm to handle your social media needs. There are many small companies that solely offer social media management and reputation protection services, making their expertise valuable. With time, an outside firm could train your staff to take over this responsibility.

3.   Designate a crisis team.
Just like any public relations gone bad, if your company's name is suddenly sullied in the social media world you need to respond quickly and thoughtfully. You can only do that if you have a plan for how to respond, and you designate trained people, who can drop what they are doing, to handle the crisis. These team members will need training on how social media works, what the company's plans and policies are, what

specific steps should be followed in a crisis, and how to turn the crisis around. Because social media operates in real time, it's crucial that this team responds immediately, within the hour, to prevent a small problem from becoming a huge one tweeted to thousands of people.

4.   Constantly monitor your company's reputation.
This is one of the most important jobs of your social media manager and it can seem an unwieldy one. Not only should he be monitoring comments posted on your company's website, Facebook and other pages, but he needs to be alerted when your company's reputation is in the crosshairs anywhere. Fortunately, there are tools to help. For example, Google Alerts can let you know when your company's name or brand is mentioned by bloggers or traditional media websites. Set up an alert by entering keywords and have an email sent to you whenever Google finds those words. Monitor. This lets you know when keywords show up on any of 22 search engines. Hoot-suite does the same for content on Twitter, Facebook and elsewhere. There are many other tools available on the Internet. 5. Build the positive.

5.   Build the positive.
Think of an individual who's well-liked in his local community. He's an upstanding citizen, pays his taxes, volunteers and follows the rules. If a rumor is started about him, people may, at least at first, give him the benefit of the doubt. This also holds true with businesses. Build your company's positive brand in social media outlets and this will help in a crisis. A positive image is built over time by delivering consistently responsible customer service. It is built by apologizing and making things right when necessary. Then, if your brand is ever under attack in the social media, customers who've had a positive experience with you might give you the benefit of the doubt and even say so publicly. If you

have an overall positive image, you also have a little more leeway when dealing with a crisis.

6.   Respond immediately.

Communication is lighting fast with social media. If a customer posts a complaint on your Facebook page, or your social media manager lets you know a complaint is making the rounds of blogs, or other channels, respond immediately through these various media outlets. If the complaint balloons into a crisis, activate your crisis management team. Post a response on your company website. Consider making a video explaining the situation, apologizing if necessary and describing how you've taken care of it. Admitting you've made a mistake goes a long way; fighting back or hiding a mistake does the opposite. Transparency is crucial because it doesn't take much for someone to dig out the facts and blast them all over the Internet.

7.   Take legal action if needed

In extreme cases, such as someone maliciously continuing to badmouth or lie about your company, it's important to seek the advice of a lawyer. Sometimes a simple legal letter telling the offending party to cease and desist will be enough. But, be prepared to take further action if necessary.

Conclusion:-

As a global medium, the internet is a multicultural phenomenon: anyone can access websites just about anywhere in the world. The rapidly changing life style has made possible it to business online through e-commerce, online retailing and many business activity. Today through the use of social media platforms, consumers are actively engaging in creating online communities based on affiliations and common interests and producing and disseminating virtual products. Social media help to strengthen relationships among individuals, shape opinions, facilitate collective social and political actions. However, currently there is no comprehensive management and organization theory on the impact of social media on organizations.

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Spread of GIG-Economy in India in Post Covid-19- Advantages and Disadvantages.

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Abstract-

The origin of gig economy is an important addition to Indian economy in the recent past marked a total transformation in the Indian labour market. The gigs are freelancers or independent contractors working on their own. The number of gigs increased in India due to the development of IT and IT enabled services. Being an employment provider, this sector accommodates thousands of people. The corporate sector depends upon gigs to fill the skill gap as skilled gigs are available easily without any obligation. But the gigs are facing many issues. It is not a permanent solution to unemployed mass in India. The post pandemic periodattracted many college students also towards this sector as an opportunity to gain easy money to support their family at the cost of education.

Keywords- Gig economy, IT enabled services, Employment, Covid-19, Advantages

Introduction-

A gig economy means an existence of temporary or part-time workforce instead of a conventional organized workforce. With the increase in population of the country, the supply of labour force increased tremendously in India. The fall in the demand for labour from the conventional or organized sectors and lack of skill development contributed to the emergence of different type of workforce in our country known as "gig". The development of service sector and information technology is another factor led to the emergence of the concept of Gig economy. Post Covid situation in India witnessed problems in the employment sector such as many people lost their opportunities, new jobs were not creating, reverse migration, uncertainty, fear among the mindset of the people etc. For many people Gig was the short-term solution to these problems. In this research paper, the researchertries to review the advantages and disadvantages of Gig economy on the wake of the on-going pandemic situation.

Research Methodology-

This research paper is based on secondary data published in various sources like articles, journals, websites etc.

Objectives

1. To understand the status of Gig economy in India.

2. To analyze the impact of Gig practice in various sectors.

3. To review the advantages of Gig as a technological opportunity in post Covid revival.

Review of Literature-

A study by the American Staffing Association found that the majority of Americans (78%) see the gig economy as a new way to describe the participation of this longstanding independent workforce.

A study conducted by GianpieroPetriglieri, Susan J.Ashford and Amy Wrzesniewski- 'Thriving in the gig economy' among 65 gig workers concluded that they felt a host of personal, social, and economic anxieties without the cover and support of a traditional employer. But this also improved their

standard of living. The gig workers try to cultivate connection with all sources to navigate their tension and overcome their inconsistency in job opportunity.

The Economic survey report -2020-21 states that during the period of COVID-19 induced lockdown, the increasing role of the gig economy was evident with significant growth of online retail business. The lockdown period also seen the employers preferring work from home of their employees in order to cut down the staff strength and engaging the freelancers or outsourcing tasks to reduce overhead costs as well as to hire skilled services.

Meaning-

The word 'Gig'gained a lot of importance in today's world. It involves a temporary contractual job or short-term contract or freelance work that assigned to a person on a project-to-project basis. The payment to this is made once the work assigned is completed. The word gig derived from each piece of work assigned to individual worker. It is an economic activity that involves the use of temporary or freelance workers to perform jobs in the service sector. It includes all platforms that assign the small work such as information technology content creation, social media design, food supply etc. A gig worker can work as a conventional worker for 8 hours and then work as a gig for the remaining time. The companies depend on gig workers to co-ordinate their functioning is - Uber, Task Rabit, Sweegy, Zumato etc

The status of Gig India-

The concept of Gig is of recent origin in India after the full-fledged entry of IT enabled services. Counting exactly the number of people working in Gig economy is difficult since it covers freelancer, temporary worker, and contract worker. Men and women equally participate in gig economy. Men mostly do labour gigs but women are working as marketing gigs. In India, more men are involved in gig economy to earn a living. For someone this is a source of extra additional income.

Due to the Covid 19 lockdown situation, the gig economy is expected to grow at least double the rate as estimated earlier. The IT based corporate companies found it very convenient and effective method to reduce cost by depending on the gig workers. They try to utilise the more talented workforce. The companies try to incorporate lot of changes during the pandemic to take the advantage of remote work culture. Hiring the freelance workforce doesn't involve any extra burden upon the companies.

This model is supporting the unemployed workforce in gaining an opportunity during the pandemic, there are a lot of skill gap need to be covered. The government interference is necessary. This also changed the prospects of labour market in India. Flexibility of work and retention according to quality are the new features of gig labour market. The pandemic led to lose of almost 135 million jobs in India. These are diverting towards the gig workers now as the companies are able to select from among the freelancers.

The gig worker also avails the freedom to work for several employers at the same time with freedom and flexible timing. The gig worker can maintain a balance between both family and work. Gig economy statistics indicate that India has emerged as the 5th largest economy in 2021. More conventional workers are pushing in to gig economy in India due to the pandemic.

The companies who hire maximum gig workers include IT, Hotel business, rental vehicles, supermarkets, online trading, accounting, education and training. The gig economy was existing for a

long time silently. Many people depending on it for a living as a regular source of income. It remained unnoticed and the workforce has not counted even in unorganized sector. The sudden lockdown in the month of March due to Covid pandemic and the cost cutting policy followed by the many companies affected the gig economy in India. The trend of reverse migration also started. Many people became jobless with zero savings. This was the first time the authorities noticed the existence of gig workers in India. Maximum 72% of all gig projects were operated by large corporate firms and professional service providers as per the data of 2018-19.

Problems of gig economy and government measures-

There are some challenges in this sector that need to be addressed. The gigs are denied the social benefits like insurance, medical benefits, employees' provident fund, sick leaves, retirement benefits, bonus or gratuity. Also, the payment is Employees' State Insurance Corporation (ESIC) to gig economy workers, including delivery partners working with delivery start-ups such as Zomato, Swiggy, BigBasket, Dunzo, Grofers, UberEATS and driver partners for
Ola, Uber, Rapido and other mobility start-ups. The proposed draft also ensures gratuity perks for fixed-term contract workers before completing five years of service and a gratuity bonus proportional to the time of their service at the company.

Impact of Gig economy in different areas-

However, the People who are part of the gig economy may have several benefits, including the independence to choose their hours of work, workdays, holidays and preferred organizations. This attracts more and more educated youth in this sector. The graduates' may be based on the expertise skill they possess in versatile areas of

assured only on the completion of the project giving a sense of financial insecurity. The lack of any kind of protection is one of the issues several talented workers facing in the economy. The market is kept on changing so the gigs have to prepare themselves to take up many skill-based jobs. Keep on updating themselves to face the competition is another challenge. The companies are not mandated to provide social security to these gigs unlike the regular employees.

The central government recently announced some social security fund to cover the gig workers. The fund is meant for the welfare of the gig workers with one percent contribution from the Corporates. But this is not enough to meet the basic requirements of the growing sector. There should be a grievance Redressal mechanism in place. The companies employing gigs need to be registered and contribute to their insurance.
The Indian government is also planning to extend worker benefits under the state-run

work. The new education policy in India proposed the same thing. The penetration of IT and online trading makes the people more competitive led them to learn multiple skills in the area of their interest. A wide range of online courses are available to update themselves. Many teachers working as part of gig economy facilitates the students to tap talent pool with the help of online platform.

The gig jobs are basically low skilled work like driving Uber or food delivery, the post Covid period demands more specialized jobs on contract basis. From the growing workforce, educated and techno savvy graduates also prefer to be as gigs to earn an extra income. The IT sector jobs are project-based jobs can be easily coordinated with the help of gig workers instead of appointing permanent high salaries professionals. The gig

economy is supportive to the corporate companies as well as the job seekers.

It has changed the nature of Indian labour market. The labour market is facing fast changes. The careers become more customized and flexible. The students must get training to adapt the changing careers. There is competition among the low skilled gig workers also. It becomes difficult for the companies to get the suitable person to perform the profile. For the unemployed mass in India this is a golden opportunity. The employers can reduce their financial burden in the pandemic situation by depending on gigs.

Even though the government started the unlock process, due to the rising count of Covid cases the schools and colleges remain closed till now. The online education is not so effective in many parts of the country. The yearlong stay at home and difficulty of their parents forcing the young students to work as gigs. It is an east source of income for them. The educationists are worried that they may fail to bring them back to schools and colleges once the college reopens.

Gig as a technological opportunity-

Gig is basically the product of technological development in India. The traditional workforce is slowly replaced by the presence of gigs in the skilled jobs also. The nature of workforce has been redefined by the gigs into an understanding, attracting, hiring, engaging, and retaining workforce. They are ready to undertake risk, negotiate, earning flexible compensation and exploring unnoticed career opportunities.

The advancements in technology, such as artificial intelligence, robotics, and data analytics, have reduced the distance between people and the goods

and services they need. The same applies to the job market as well. Technology enabled the people to opt for work from home concept either for a company or on contractual basis. The IT companies practice work from home to reduce the spread of Covid pandemic, in turn helping them to reduce operational expenses and to curtail the burden of non-performing staff. The gigs are available to perform the same job profile. There are human cloud platforms available which connect the organizations seeks professional skilled gigs. The organizations are ready to adopt the new strategy to save time and cost.

The origin of gig workers recognized with the development of technology in India. According to Peter Miscovich, the Managing Director of JLL Consulting, New York, almost half of the workforce by the year 2020 will be made up of 'gig workers,' and this proportion will increase to 80 percent by the year 2030.

There are many start-ups offering mobile service to the customers operates completely by employing trained gigs. For example, urban claps provide evaluable quality service to the customers having thousands of workers under single umbrella. They provide skill-based training to the gigs makes them capable to search another platform to work easily. They are into the areas of beauty, wellness, home repair, and maintenance; allowing greater work flexibility. Insurance companies are employing the retired persons on gig basis to get better output. The companies also trying to retain the gig workers.

The growth of gig economy in India led to a technological and demographical shift in tune with digitization changed the HR initiatives of companies. Workers or independent contractors get paid for each gig or job they do. There is no need of physical interaction between the employee and

employer. The gig work is a necessity for some, it is a luxury for others.

Findings-

1.It is easy to move gig workers from one business firm to another for short term work. 2. Corporate workplaces need to change the HR policy to support the Gig economy.

3. Government initiatives introduced to Provide health care and other benefits.

4. Multiple companies and different work profile help the gigs to improve skillsets.

5.Gig economy is the best option to reduce Post Covid unemployment with government support

6. Helps to the growth of start-ups with the young talented workforce of 18–35-year-olds.
7. In post Covid scenario the gig economy is slowly diverting the focus of students by offering better opportunities as per their convenient time.

8. Ability to maintain the work life balance is the main reason for selecting gig economy.

Suggestions-

Since a large mass of workforce involved in gig economy, they should get some social security benefits like insurance coverage for accident on job, pension schemes etc.

To cover the skill gap, more skill development programs to be introduced.
The government may need to legislate labour platforms where there is an urgent need to redefine labour.
In India, freelancing as an employment option has need to be penetrated the rural landscape.

Legal protections to be provided to gigs against discrimination and harassment.

Conclusion

The gig economy depends on the performance and availability of gig workers.
Gig workers operative on their own, control their employment with respect to the type of job they want to undertake and the time they wish to put in towards such a job. The gig economy in India developed during the pandemic period brought under its purview several other occupations. The employee-employer relationship and other obligation are not existing in gig economy. The workers are not getting any social security benefits as they are unorganized. Government of India enacted the labour legislations but the proper implementation is necessary to ensure protection to gig workers. The continuous of the growth of gig workers may solve the unemployment problem in India.

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Impact of Digital Marketing in Pharmaceutical Company during the Pandemic

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Abstract:

In the fast-rising digital economy, the practice of marketing digitally has become demanding and promising for business requirements. Marketers are faced with new challenges and opportunities in this digital era. Digital marketing is the communication used by marketers to endorse goods and services towards the marketplace digitally. The main objective of digital marketing is attracting customers and allowing them to interact with the brand through social media. This study describes the marketing challenges faced by the pharmaceutical company during the pandemic and to know how this company is dealing with the challenges by adopting digital transformation and how the company is maintaining the relationship with its customers with this transformation.

Keywords: *Digital Media/Marketing, Pandemic – COVID-19, E-Pharmacy, Netmeds* .

Introduction:

The influence of digital media tools like Facebook, Twitter, and blogs has prompted businesses to utilize these platforms to create awareness and promoting their brands and ideas. Digital marketing ensures direct interaction between companies and consumers and receives immediate feedback about the products or services offered to improve their performance. Digital Media interacts with a broader audience through various social media platforms to advertise products and services, which increases the demand for the products and services offered by the companies. Digital marketing helps in Analyzing and providing real-time data on how many people visited their sites and the number of people who have subscribed to their services. Today, users have the access to many sources of information on health issues due to the internet. On social networks, health professionals and pharmaceutical influencers share contents based on their knowledge and experience with their followers and guides viewers on health and nutritional issues. This generates greater engagement and conversion among their followers by actively connecting and interacting with them.

Findings or Results:

The covid-19 has caused a huge impact on the economies of most countries and also broken their health-care systems. Preventive measures are made to avoid the spread of COVID-19 during the lockdown where people maintained social distancing. E-pharmacy has made it convenient for customers to purchase medicines online and get them delivered to customer doorstep without the risk of customers getting out of their homes. India is the third-largest drug producer in the world according to Business World India, and which contributes to 60% of vaccines globally and maintain high regulatory standards of the market like US and European countries according to Hannah Ellis, P. (2020). Coronavirus has shown an effect on the Indian pharmaceutical market. Due to this, the NITI Aayog an Indian government health policy is trying for the promotion and development of pharma hubs in India for the benefit of society.

COVID-19 Lockdown Leads to A Surge In E-Pharmacy Sales

Online medical stores such as Netmeds, 1mg and PharmEasy have seen an unusual surge in sales

across cities amid the Covid-19 crisis. Many consumers have switched to buying medicines online for fear of getting infected by the novel coronavirus. The surge in the sale of medicines for flu, cold and cough was particularly high on online platforms. The e-pharmacies have been working hard to ensure that people get an ample supply of medicines.

How Netmeds company use technology to acquire and retain customers

Netmeds.com appointed Publicis India to manage its creative duties to reach audiences with the right communication.

Netmeds is trying to build a complete health platform that differentiates itself from other competitors, is to provide a health platform and not just delivery the medicines. Netmeds creates a complete end-to-end healthcare product in the need of the hour by identifying their needs through doctor consultation, health insurance, diagnostics to the patient community and health advice online.

Netmeds Recommend non-pharma products to the customers while browsing the site as a marketer cannot recommend pharma products to a user. Therefore, marketers recommend FMCG products or products that do not require a prescription that complements the pharma products the customer buys. This kind of promotions motivates customers to add products into their basket and also introducing new products and services to the customer.

Subscription and refills are the best way to improve customer retention and build trust in the service through SMS and email marketing. Netmeds uses messaging bots and IVR solutions to remind customers about their upcoming refills and payment of subscriptions.

Sharing Healthcare-related contents keep customers engaged. TheNetmeds website provides a Health Library section that offers engaging and relevant content through video and text. This improves engagement and increases sales.

Discussions:

"The demand for overall medicines category has gone up by almost 100%," said Dharmil Sheth, founder of PharmEasy. "The sales of these medicines went up considerably since people wanted to keep stock of these medicines irrespective of it being needed by the patient or not," Sheth said. "Additionally, the HCQ demand shot up exponentially as soon as the government released a circular mentioning doctor to have it regularly and Trump talking about it."

"The ongoing lockdown has presented us with both opportunities and challenges," said **Pradeep Dadha, Founder & CEO of Netmeds. com**. "When we first realised the severity of the coronavirus crisis, we worked closely with our suppliers for stocks because we were conscious of our responsibility as a frontline player in the battle. We scaled up our technology and used AI to prevent hoarding by customers. We also ensured that all our delivery centres followed the most stringent measures in cleaning and sanitisation."

The rise of digital healthcare has also created a bridge between doctors and patients while overcoming geographical barriers. **Satish Kannan, Co-founder & CEO of, MediBuddy-DocsApp** says, "During the past 6-7 months, doctors and hospitals have adopted technology and solutions to connect with patients online. And that has helped in increasing availability because earlier hardly any doctor was available online or accessible through a video call. Now, location or geography is not a problem anymore, people from small towns

who earlier used to travel to big cities can consult a doctor of their choice online. Earlier, people would travel across Maharashtra to consult a doctor in Mumbai or even travelled from North East to Chennai."

Speaking about how the new telemedicine guidelines changed the landscape for digital healthcare, **Rajat Garg, Co-Founder & CEO, myUpchar** explains, "Earlier, the biggest challenge was that online services were in a grey area and there was mistrust around online services. However, telemedicine guidelines have changed the scenario and a lot of doctors themselves have come on such platforms now. We saw a huge jump during the lockdown and even after the lockdown the consultation volume has increased by 25% in the last two months."

Conclusion:

Online pharmacies are in a unique position it is the right time to create and deliver unique online experiences and build lasting relationships with the customer during the COVID-19 pandemic. Online pharmacy needs to be honest and transparent with their customers and make the health of the customers the top priority by working towards

ensuring that every Indian has access to affordable and good quality medicines. Online pharmacies have strengthened relationships and created new ones during this pandemic. E-pharmacies has created real, actionable and reliable content while creating an easy web experience during these challenging times.

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How AI is changing the Healthcare Industry

*Harsh Nath Pandey

ABSTRACT

Artificial intelligence (AI) aims to mimic human cognitive functions. It is bringing a paradigm shift to healthcare, powered by increasing availability of healthcare data and rapid progress of analytics techniques. We survey the current status of AI applications in healthcare and discuss its future. AI can be applied to various types of healthcare data

INTRODUCTION

Recently AI techniques have sent vast waves across healthcare, even fuelling an active discussion of whether AI doctors will eventually replace human physicians in the future. We believe that human physicians will not be replaced by machines in the foreseeable future, but AI can definitely assist physicians to make better clinical decisions or even replace human judgments in certain functional areas of healthcare eg: radiology.

The increasing availability of healthcare data and rapid development of big data analytic methods has made possible the recent successful applications of AI in healthcare. Guided by relevant clinical questions, powerful AI techniques can unlock clinically relevant information hidden in the massive amount of data, which in turn can assist clinical decision making.

OBJECTIVE

This article, we survey the current status of AI in healthcare, as well as discuss its future. We first briefly review four relevant aspects from medical investigators' perspectives:-

1. To Motivations of applying AI in healthcare.

2. Data types that have be analyzed by AI systems.

(structured and unstructured). Popular AI techniques include machine learning methods for structured data, such as the classical support vector machine and neural network, and the modern deep learning, as well as natural language processing for unstructured data.

3. To Mechanisms that enable AI systems to generate clinical meaningful results.

4. Disease types that the AI communities are currently tackling Motivation.

The advantages of AI have been extensively discussed in the medical literature. AI can use sophisticated algorithms to 'learn' features from a large volume of healthcare data, and then use the obtained insights to assist clinical practice. It can also be equipped with learning and self-correcting abilities to improve its accuracy based on feedback. An AI system can assist physicians by providing up-to-date medical information from journals, textbooks and clinical practices to inform proper patient care.

DISEASES

Despite the increasingly rich AI literature in healthcare, the research mainly concentrates around a few disease types: cancer, nervous system disease and cardiovascular disease (figure). We discuss several examples below.

1. Cancer:

Somashekhar etal demonstrated that the IBM Watson for oncology would be a reliable AI system for assisting the diagnosis of cancer through a double blinded validation study. Estevan et al

analysed clinical images to identify skin cancer subtypes.

2. Neurology:

AI system to restore the control of movement in patients with quadriplegia. Farina etal tested the power of an offline man machine interface that uses the discharge timings of spinal motor neurons to control upper-limb prostheses.

3. Cardiology:

Dilsizian and Siegel discussed the potential application of the AI system to diagnose the heart disease through cardiac image. Artery's recently received clearance from the US Food and Drug Administration (FDA) to market its Artery's Cardio DL application, which uses AI to provide automated, editable ventricle segmentations based on conventional cardiac MRI images .

AI Applications That Change Health Care

CONCLUSION

In Conclusion, AI has reviewed the motivation of using AI in healthcare, presented the various healthcare data that AI has analysed and surveyed the major disease types that AI has been deployed. We then discussed in details the two major categories of AI devices: ML and NLP. For ML, we

focused on the two most popular classical techniques: SVM and neural network, as well as the modern deep learning technique. We then surveyed the three major categories of AI applications in stroke care.

A successful AI system must possess the ML component for handling structured data (images, EP data, and genetic data) and the NLP component for mining unstructured texts. The sophisticated algorithms then need to be trained through healthcare data before the system can assist physicians with disease diagnosis and treatment suggestions.

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Study of Emotional Artificial Intelligence

- Nidhi Poojari

ABSTRACT

More simply, we define Emotional Artificial Intelligence (EAI) as Man-Made Things that can make decisions by using their emotions. This paper aims to emphasize how Man-made things will play a vital role in the real-world scenario. Machines will act and react like human beings. The machine will detect other's emotions and act accordingly. This will make communication easy between humans and machines. Man-made reasoning (AI), now and again called machine insight is a reenactment of human knowledge in machines. It is the insight displayed by machines, as opposed to the normal information exhibited by people. From Siri to self-driving vehicles, AI is advancing at a quick speed. Man-made brainpower commonly consists of two key thoughts. First, it includes examining human minds like how their point of view functions, and also it makes a difference addressing those cycles through AI. The humanoid notices, learns, also, recalls anything one inquiries about. Feeling AI can let loose specialists work more with their patients by investigating patient records and producing reports dependent on the information, taking care of managerial undertakings, and in any event, helping with finding or intercession. In various fields like Health Care, Defence, IT,

Banking, etc. we can use Emotional AI. They might take control over humans.

KEYWORDS: *Artificial Intelligence, Artificial Intelligence Applications, Artificial Intelligence Issues, Humanoid Robot.*

INTRODUCTION

In the year 1943 main work which is currently perceived as AI was finished by Warren McCulloch and Walter pits in 1943. They proposed a model of counterfeit neurons.

In the year 1949, Donald Hebb exhibited a refreshing guideline for adjusting the association strength between neurons. His standard is currently called Hebbian learning.

In the year 1950, Alan Turing was an English mathematician and spearheaded Machine learning. Alan Turing distributed "Registering Machinery and Intelligence" in which he proposed a test. The test can check the machine's capacity to show keen conduct comparable to human knowledge, called a Turing test.

In the year 1955 An Allen Newell and Herbert A. Simon made the "main man-made brain power program "Which was named "Rationale Theorist". This program had demonstrated 38 of 52 Mathematics hypotheses, and discovered new and more rich verifications for certain hypotheses.

In 1956 "Computerized reasoning" was first embraced by American Computer researcher John McCarthy at the Dartmouth Conference. Interestingly, AI began as a scholastic field.

In the year 1966, the specialists accentuated creating calculations that can tackle numerical issues. Joseph Weizenbaum made the first chatbot in 1966, which was named ELIZA.
In 1972, the primary canny humanoid robot was implicated in Japan which was named as WABOT-1.

In 1980, the primary public meeting of the American Association of Artificial Intelligence was held at Stanford University.

The term between the years 1987 to 1993 was the subsequent AI Winter span.

In 1997, IBM Deep Blue beat world chess champion, Gary Kasparov, and turned into the primary PC to beat a world chess champion.

In the year 2002 interestingly, AI entered the home as Roomba, a vacuum cleaner.
In the year 2006, AI came into the Business world till the year 2006. Organizations like Facebook, Twitter, and Netflix likewise began utilizing AI.

In the year 2012, Google dispatched an Android application including "Google now", which had the option to give data to the client as an expectation.

Presently AI has been created to a wonderful level. The idea of Deep learning, huge information, and information science are currently moving like a blast. These days organizations like Google, Facebook, IBM, and Amazon are working with AI and making stunning gadgets. The eventual fate of Artificial Intelligence is motivating and will accompany high insight.

Emotional Artificial Intelligence is also known as Affective Computing. There is a shortfall of emotions in the previous and current development of Artificial Intelligence. Artificial Intelligence(AI) is one of the biggest technology trends right now, and it's only going to get bigger as Artificial Intelligence (AI) is ready for smart phones and other devices to become more accessible around the world.

Now we are in the Narrow Artificial Intelligence (AI) phase where only a limited part is performed.

It can be used only for personal works. For example, we have Chat bot, Google Assistant, Siri, etc. where these systems work on particular algorithms and give output. We have Self-driving Car. It also works on predefined data.

In the arena of technology, Artificial Intelligence is stepping forward to facilitate a vital experiential link to boost communication between humans and machines.

The applications for emotion man-made brainpower are essentially perpetual, remembering for the brain science and medical services fields. Emotional AI can let loose specialists to work more with their patients by investigating patient records and creating reports dependent on the information, taking care of regulatory errands, and in any event, helping with conclusion or intercession. A humanoid robot can likewise assist patients with making consciousness of their passionate states and direct their feelings better under unpleasant or testing conditions. Robots can help specialists and advisors increment passionate mindfulness for their patients, for example, in communicating compassion, and convey determination all the more rapidly and to have more exactness. It can likewise be a significant device to anticipate how patients will move toward treatment and find a way to guarantee they are effective and stay in treatment. By supporting medical care suppliers, humanoid robots can assist them with giving consideration, invest more energy with patients, and diminish the expenses of emotional wellness therapy.

In an industry like Banking and Financial Service Industry (BFSI), the presence of man-made reasoning is quickly changing the face of the business. It is bringing a change in perspective in the manner measures are handled. Worldwide and furthermore in India, the push has been on digitalization and open banking, making it basic for

all players and partners to adjust AI in the business measures recently dealt with by human assets. In the instructive area, the need of the understudy to stay aware of the new patterns in the subjects that are most certainly not educational program based drive the virtual learning entryways. The client of virtual entries could be spurred by information obtaining and not a confirmation and which could be viewed as a helper for encouraging the foundation of learning. A well informed age or a tech-subordinate populace understands the significance of the requirement for passionate insight in accomplishing supportable fulfillment in the since a long time ago. Consequently, examinations towards expanding AI with EI is important to keep the millennial connected with and address the inquiries of higher fulfillment levels.

RESEARCH METHODOLOGY

The study is descriptive. Secondary sources of data have been used to study "Emotional Artificial Intelligence". The sources include mainly studies conducted by government and non-government organizations, reports and articles in newspapers and magazines.

OBJECTIVE OF THE STUDY

These are the objectives of research and its applications

- To understand Emotional Artificial Intelligence.
- Using Emotional Artificial Intelligence (EAI) to showcase realistic, interactive versions of the humanoid robot.

LITERATURE REVIEW

Alex Potamianos and Shri Narayanan studied "Why Emotion AI Is the Key to Mental Health Treatment" . In that they had said Emotional AI is setting down deep roots in the medical services and emotional well-being field. There are as yet critical difficulties to handle if AI is to be successfully used to comprehend and help treat emotional wellness conditions. Security of patient information concerns additionally should be tended to in light of the fact that AI models frequently depend on delicate patient information to settle on choices and expectations. Emotional AI is anticipating a splendid future cooperating with care suppliers to address the necessities of patients. Later on, AI models will actually want to help with giving treatment and care to numerous patients who might some way or another not approach care, regardless of whether because of time limitations or cost. This innovation remains on the edge of a progressive change in the manner we comprehend and treat dysfunctional behavior. Designers actually face numerous intricacies, yet with proceeding with propels in Emotional AI capacities, the fate of innovation upheld for mental medical services looks brilliant.

Y Kalyani* and Madhura Ayachit studied "Significance of Emotional Intelligence in the Era of Artificial Intelligence: A Study on the Application of Artificial Intelligence in the Financial and Educational Services Sector". They had mentioned that the Financial Services industry is quickly changing its face. The worries communicated and felt are mainly regarding the security part of dealing with such enormous measures of information. The assurance of the client is of most extreme significance. The utilization of AI has been essentially focused on the applications close by building the human interface. Subsequently, the full effect of AI on client insight is as yet not known. The instructive foundations will advantage in the event that they go into the virtual stages alongside confirmations for greater supportability and endurance. Likewise, the educational program should be more in accordance

with industry prerequisites for better consumer loyalty.

Michael W. Hoche studied "A Note on AI Applications using Emotional Intelligence". In that he had said there is an incentive in the joining of emotions in an artificial awareness in the lifting of its cognitive capabilities. The intellectual abilities of current AI implementations and the enthusiastic intelligence is exceptionally restricted, utilizing just a simplified version of what insight is truly able to do. The primary models intend to freely mimic the knowledge activities of the psyche such as thinking and rationale. The practical model refers to connecting information to its computed counterpart. Objective of his research paper is to make versatile technology that permits PCs to work in an intelligent way utilizing enthusiastic intelligence in different situations and setting areas.

Conclusions

So at last by analyzing the data I can conclude that emotional intelligence is a research area that is growing within the field of artificial intelligence. It has been known decades back that AI and robotics will change markets and workforces. Humanoid robots intentionally or unintentionally cause great harm. It will simplify human work or it will understand human emotions but adversely will affect human lives too. There are chances where some people can misuse robots for their seek.

The aim of this research paper is to create awareness in humans of the consequences of Humanoid Robot in real life.

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WORK FROM HOME (WFH): IMPACT ON EMPLOYEES

*Manish Kumar , ** Dr. Rupal Choudhary

Abstract —"There are lots of private organizations offering working from home as an alternative way of working for their employees. Working from home (WFH) has both benefits and drawback for the employees when it compared to the office working."We must face the fact that working from home is nothing new and has been around for a while. It was not thought up at the moment when the pandemic happened, but it was already a reality. Many companies and organization have already been practicing WFH even before the outbreak of Covid-19 which offered flexibility to their employees. productivity of the employees who work from home, whether the influence of these factors have on the productive (i.e., positive or negative) and whether the factors have changed from year 2019 to recent year. The study results indicate that working from home has an influence on productivity of the

It is a widely accepted fact that businesses face a lot of problems when the topic boils down to awareness and engagement of the consumers. Virtual Reality and Augmented Reality helps to, solve these issues in a holistic manner. It is a widely accepted fact that businesses face a lot of problems when the topic boils down to awareness and engagement of the consumers. Virtual Reality and Augmented Reality helps to solve these issues in a holistic manner. It is a widely accepted fact that businesses face a lot of problems when the topic boils down to awareness and engagement of the consumers. Virtual Reality and Augmented Reality helps tosolve these issues in a holistic manner.

INTRODUCTION

There is nothing abnormal about WFH. This research is focused of the comparative study whether working from home has beneficial to the employees or not. While some of the researchers, such as Shafizadeh et al. (2018) claim that working from home increases the productivity of employees, other researchers, such as Monteiro et al. (2019) claim the opposite i.e., it has some adverse effects on the productivity as well as mental and work/life balance of employees. This study analyzed various research article published in the year from 2019 to 2020 and news articles to compare it with the current scenario to discover the factors having an influence on the

employees. While influences of some of the factors are either positive or negative, the influence of some of the factors depends on the characteristics and attitude of the employees and the circumstances.

Working from home is defined as people working from their home or from other location of their choice other than the working are by payment which is provided by the employer. Working from home is having lots of use in recent years. Since the growth of the networking from home indicates the employee can finish their work with in their own premises. Work will be done remotely. In today's growing world there is an urgent need for working at home. To improve the employee retention during the busy and stress filled life we required some leisure time. Through working from home, we can have free access towards a specific job through fewer interruptions from fellow employees in the office and communication time is also wider.

The novel Coronavirus change everything overnight, the lockdown was enforced, and social distancing become the new norm. People are staying connected with friends and family thorough video calls and

schools have started giving online classes on video conferencing apps. With the lockdown in place, more than 3 billion people worldwide, excluding the essential workers like defence and healthcare officials, have been pushed to work from home.

The coronavirus pandemic has dramatically altered the workplace. To slow the virus's spread and protect employees, many companies have shifted to remote work, with video calls and instant messaging replacing meetings and break room conversations. Some, including several Silicon Valley giants, have announced that theyallow employees to work from home permanently. Yet huge population of labour force are unable to work remotely, and experts say these developments could have profound implications for the economy, inequality, and the future of big cities.

The number of Americans working remotely has increased dramatically since March, according to Gallup Poll data. By late April, more than half of all employees, accounting for more than two-thirds of all U.S. economic activity, said they were working from home full-time.

According to *Nicholas Bloom,* an economist at *Stanford University* who has studied remote work, **only 26%** of the U.S. labour force continue to work from their job's premises. [2]

With increasing number of employees working at home using home as a working destination it is clear that improved employee retention, e.g., home working can help retain working parents with childcare responsibilities. It leads to increased staff motivation with less stress also. It saves a huge expenditure towards installing a separate work office area and other facilities. A person involves in working from home can do his office work as well as home required assignments simultaneously. Allowing employees to work from home in order to encourage a better

work/life balance can lead to improvements in health and well-being.

I. STUDY OBJECTIVES

- To understand the work/life balance of the employees, working from home.
- To find out the challenges faced by the employees, working from home during COVID-19 pandemic.

II. RESEARCH METHODOLOGY

Researchershas used qualitative methods to gather data about the persons who have usedwork from home platformthrough online as well as offline mode. These methods include primary as well as secondary surveys with various questions that assessed that how an employee feel working from home and does, they have a balanced work/life balance.

For the Primary surveys, researcher has created a Google form with related questionnaire and distributed it to more than 100 persons (who are currently working or had done any type of work during the pandemic).

For this study, secondary data is collected form internet, research journal, newspaper article etc. The search is based on the statistical analysis of the various research agencies which have done some of the researches on the employees WFH during recent time (i.e., Covid-19 pandemic).

III. LITERATURE REVIEW

Lee Stadtlander, Amy Sicke and Martha Giles studied on *"Home as Workplace: A Qualitative Case Study of Online Faculty"* and they have suggested that telecommuting provides individuals with the opportunity to cope with the competing demands of work and family domains, thereby reducing conflict. [3]

According to the Centre for Work & Family, many employees see flexible work arrangements such as telecommuting as a privilege rather than as a way of

working. Working from home allows employees the "luxury" of occasionally dealing with household responsibilities such as arranging home repairs, childcare emergencies, etc. For many employees, the belief that telecommuting is a privilege or benefit can cause feelings of uncertainty about the likelihood that the arrangement will continue should managers, jobs, or performance change. These employees may also feel that they "owe" something additional to the organization for permitting them to use a flexible work arrangement. Many telecommuters admit to feeling guilty when working at home for taking even a short break that would not receive any notice if taken in the office environment. For this reason, telecommuters frequently work longer hours than their office-based counterparts in an attempt to secure their telecommuting work arrangement. Some studies have shown that as many as 42% of American telecommuters work 50 to 75 hours per week and that one-half of European telecommuters work more than ten extra hours per week (Doherty et al). [4]

Prithwiraj Choudhury, Wesley W. Koo and Xina Li researched on "*Working (From Home) During a Crisis: Online Social Contributions by Workers During the Coronavirus Shock*" and they have performed a test on WFH's effects on worker sentiment by conducting a sentiment analysis of all answer texts using natural language processing techniques. Researchers use JiebaR, the latest Chinese word segmentation program in R, to intelligently segment the text into words (Qin and Wu 2019). Using sentiment dictionaries compiled by Tsinghua University (Li 2011), researcher calculate the 11 sentiment scores by counting the number of words indicating positive and negative sentiment in each answer.

Then, researcher regress the sentiment scores over the interaction term. Results show that, in the post-period, WFH workers' answers displayed 6.6% less positive sentiment than WFO workers' answers relative to the pre-period. [5]

AgotaGiedre and Violeta Rapuano studied on "*Working from Home—Who Is Happy?*" and they have suggested that telework requires strong leadership, as it is managers who are responsible for the formation of feedback culture, introducing communication rules, efficient information exchange, motivating employees for active and continuous communication, and for the attitudes, feelings, thinking, behaviours, and activities of groups and/or organizations. Researchers agree that being a leader when work is organized virtually is generally more difficult than leading traditional teams, especially due to the fact that in the virtual world, teleworkers tend to act as leaders themselves, because the digital platform, by fostering mutual collaboration, removes some of the organizational powers and privileges of the leaders and thus enables and encourages employees to take the lead. Thus, the power dynamics between leaders and employees change due to remote interaction, and the practice of shared leadership spreads. Shared leadership can be a key mechanism to reduce loss of motivation and coordination and maintain team effectiveness when working remotely. [6]

Home working opens up a new range of possibilities for the way businesses can work and structure themselves. With the outbreak of the coronavirus (COVID – 19) pandemic, home working has given some employers the flexibility they need to continue their business operations while prioritising staff and customer health and wellbeing as part of their public health responsibility.

Challenges & Opportunities Analysis
Benefits of working from home to the employees
With increasing numbers of employees working at home – or using as a working base for at least part of the week, it's clear there are a number of benefits for business, such as:

- **Flexible and agility:** With employees no longer tied to an office, they may be better placed and

- **Attract new talent:** Home working can be offered as an incentive to come and work for you helping you to attract talent to your business.

- **Increased staff motivation:** By working from home staff will feel more trusted by their employer as the working relationship isn't as closely monitored and employees are allowed a degree of autonomy to get on with this work.

- **Better work / life balance:** Working from home can help employees improve their work-life balance for e.g., staff that would have had to commute will now be able to use that time for themselves giving the basis for a better work-life balance.

Challenges faced by employees working from home

- **Working from home doesn't suit everyone:** Some staff may prefer personal interaction with colleagues and also find face-to-face guidance with their manager extremely beneficial in helping them complete task and achieve their goals.

- **Staff feeling isolated:** Individuals working from home may feel a disconnect from their colleagues and organisation as a whole that an office environment naturally allows.

Fig 2: - Communication with Colleagues

- **Ho me**

Distraction: Although home working removes the distractions that may occur in the office if a worker doesn't have a suitably quiet dedicated working space at home, they may get easily distracted by household noises or other members of their household.

more willing to work flexible hours such as earlier or later in the day or even at weekends.

- **Decrease staff morale:** It can be harder to maintain tam spirit when employees are working at home on their own. [6]

IV. **DATA ANALYSIS AND INTERPRETATION**

Below is the descriptive analysis of the final sample data in the form of charts and graphs.
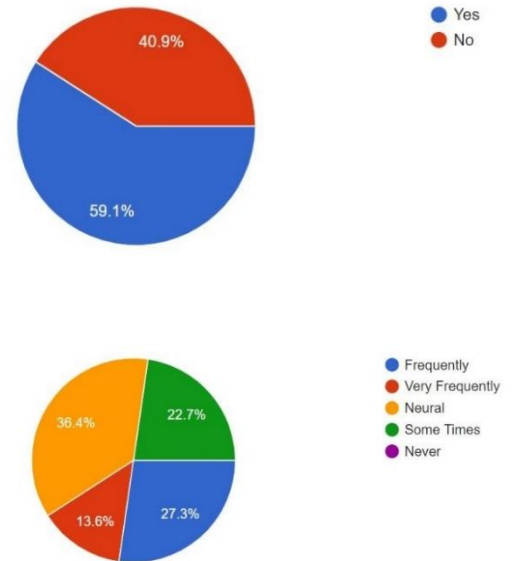
More than 59% of all the employee feel that they have better work-life balance. But, still there are approx. 40% people are not able to maintain a good work-life balance.

Approx. 41% of employee have almost frequently communicated with their colleagues and office staff during WFH and 36.4% of employees have communicated on the average basis. But, approx. 22% of the employees feel problem of communication during WFH.
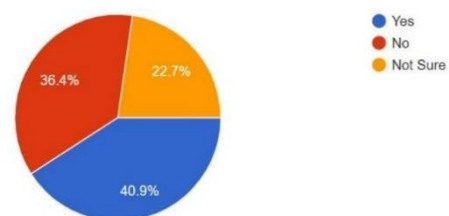

Fig 3: - Productivity of Employees

Approx.41% of the employees feel they are as efficient during WFH as they were during working from office and working from home doesn't affect their productivity at all.

Whereas approx. 36% of the employees feel they were more productive when they were working from their offices.
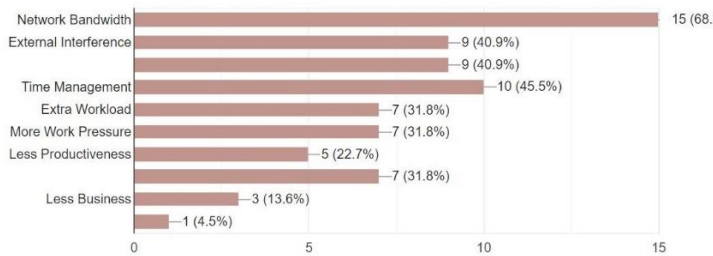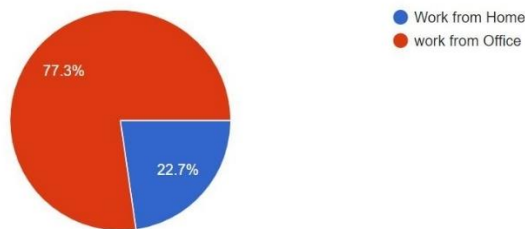

Fig 3: - Problems faced during WFH

The above graph shows the problems faced by the employee while working from home. A lot people's faces more than one problem such as Network Bandwidth, Time Management, Extra Workload, and LessBusiness.

Of this group the clear majority is approx. 77% who are not happy with work from home model and only 22% of the respondent want to continue to WFH.

V. CONCLUSION

The finding of our study suggests that WFH has not proved to be one of the best options for the majority of workforce at the current time because of the various problems faced by the employees.

Better guidelines and policy form the government should be in place to properly regulate and make work from feasible. One area of policy where planning and implementation is an absolute necessity is guidance into adapting to remote online work.

Workers are unaware about what WFH entails and lack resources required for this change, like software, access to official documents and proper working space. Proper training is required if this practice is to be a feasible option or the new normal. Possibly the working balance will be visible post-pandemic when WFH is not a forced mandate, rather a flexible option.

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Critical Analysis of Punjab National Bank Scam and its Implications

Mr. Sanket R. Patke*

Abstract:

At a time when the government is aiming for bank recapitalization, the PNB scam comes as a huge blow to the entire banking sector. The Rs 12,700 crore scam involves at least six banks, raising doubts over the internal safety of operations in financial firms. It may be noted that the PSBs lost at least Rs 227 billion to bank frauds in the last five years.   This poses serious questions into the internal operations and auditing processes. The apex bank of the country RBI is facing public wrath for not being able to detect the largest banking scam. It is high time that all PSBs should review their internal process and take appropriate actions. With the objective of to find out the implication on Punjab National Bank by the means of Financial Aspects as well as Credit Ratings of the bank this has been affected by the Scam. The data collected is Secondary data form literature review, reports and articles related to scam and financial data of PNB for last three years. Changes in Credit Ratings given by various Credit Rating Agencies for various Instruments of Bank have been studied. The findings of the research depicted that Punjab National Bank has very high Credit Risk. The scam was the unmonitored usage of the SWIFT financial massaging system and the role of regulator of the bank is under question now.

Keywords:

- NPA, Credit Ratings, Audit, 5W2H.

1. Introduction:

In the field of banking and finance, Ethical banking is a business model that responds to emerging approaches to sustainable economy based on the principles of corporate social responsibility.

'Transparency in reporting' is a major value integrated in the fundamentals of ethical banking. World credit market faced a huge turmoil during the financial crisis of 2007 and many big banks as in and financial institutions filed for bankruptcy. The impact of crisis was profound and many banks and financial institutions in US faced massive credit crunch. Economists have noted that recessions accompanied by banking crises tend to be deeper and more difficult to recover from than other recessions.

The Second largest PSU Bank in India on Feb 14th, 2018 reported fraudulent transactions worth Rs 11,400 crore to stock exchanges and law enforcement agencies. The scam which initially was estimated to 11,400 crores, now added up to 12,700 crores is nearly one-third of the Net worth of Punjab National Bank (PNB) is now termed as a country's biggest banking fraud.

The banks are already facing turmoil due to weak capital management. Eleven of India's twenty-one listed government-owned banks are now under the Reserve Bank of India's watch due to large bad loans, weak capital levels and low return on assets. Together these banks account for over Rs. 3 lakh crores in bad loans of the total of Rs 8.4 lakh crore across India's listed banks. When the government is planning to recapitalize the banks the PNB scam comes as a huge blow.
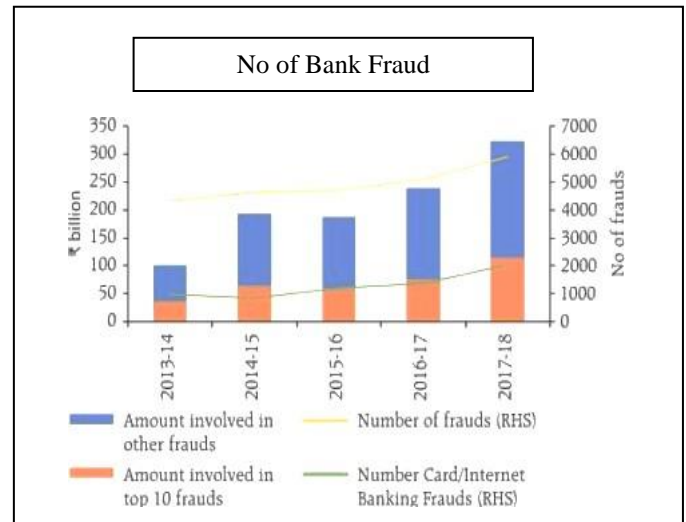
1

Source: Quartz India
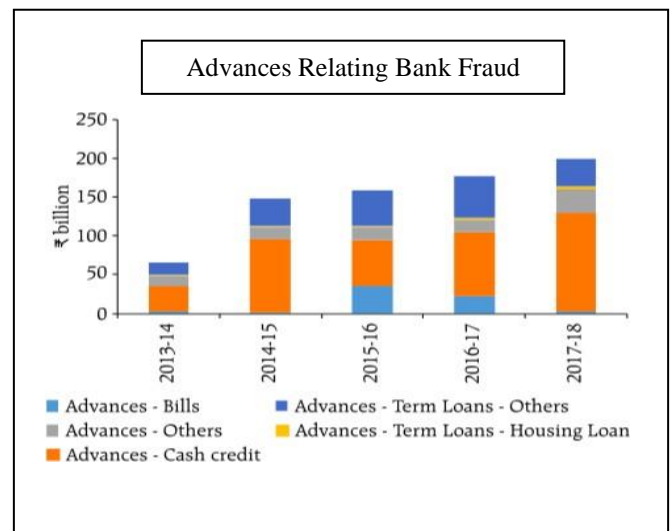
2

Source: Quartz India

2. Review of Literature:

Indian banking system has already been plagued with growth in NPAs during recent years, which resulted in a vicious cycle affecting its sustainability. Chakrabarty Deputy Governor of Reserve Bank of India, noted in his speech that, while most numbers of frauds have been attributed to private and foreign banks, public sector banks have made the highest contribution towards the amount involved.

Mergers of giants in the banking industry gave birth to the concept of "too big to fail", which eventually led to highly risky financial objectives and financial crisis of (2008). In response to the (2008) crisis, Dodd Frank Act gave birth to various new agencies to help monitor and prevent fraudulent practices. Volcker rule, a part of DFA, banned banks from engaging in proprietary trading operations for profit.

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The bankruptcy of Lehman Brothers in (2008) Sent shockwaves through the entire global banking and financial system across numerous and unexpected transmission channels when the

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Key findings in RBI included the stress of asset quality and marginal capitalization faced by public sector banks, and various recommendations to address these issues. Good governance and more autonomy to be conferred to public sector banks to increase their competitiveness and to be able to raise money from markets easily.

Great recession (2007) Resulted in bankruptcy of many banks and financial institutions. The Great Recession which had its impact globally was associated with a severe financial crisis, but depositors were not rushing to the banks to withdraw their deposits. Banks suffered losses on a scale not witnessed since the Great Depression. It is precisely this special "risk evaluator" role that makes the banking industry particularly opaque. The opacity of the sector has probably increased in recent years due to the structural changes brought about by deregulation and financial innovation; changes that have made the industry significantly more complex, larger, more global and dependent on financial markets.

3. Research Methodology:

Present study is based on Quantitative Research and Nature of Research is Descriptive Research. Present research work is set to study following objectives.

To Analyze the effect on Punjab National Bank and Other Banks.

To Analyze the Punjab National Bank Scam using 5w2h analysis.

To Analyze the Credit Rating of Punjab National bank by various Credit Rating Agencies.

The Research Paper is based on secondary Data Collection Method. The data is collected from previous literature, reports and articles on PNB Scam. The financial data for PNB collected from the annual reports.

The analysis of the available data is incorporated using 5w2h analysis, trend analysis of financial data.

4. Analysis and Discussion

4.1 5W2H Analysis:

- Who does this? This can lead to, could we do it with less people?

- What is done at this step? This can lead to, can we eliminate some of the steps?

- When does this start and finish? This can lead to, can we shorten the time it takes?

- Where is this work done? This can lead to, can we do this elsewhere or in various locations?

- Why are we doing this? This can lead to, do we need to do this?

- How do we do this? This can lead to, is there another way to do this?

- How much does this cost? This can lead to, how much would this cost if we made these changes?

What?	What happened?	On 14 February, state-owned Punjab National Bank (PNB) disclosed that it has discovered $ 1.77-billion (around Rs 12,700 crore) worth of fraudulent transactions at one of its Mumbai branches. In a complaint to the Central Bureau of Investigation, the bank had named the firms and people associated with billionaire jeweller Nirav Modi to have caused this massive fraud using the bank officials.
	What is the problem?	PNB employees issued fake LOUs (In international banking system, Letter of Undertaking (LOU) is a provision of bank guarantee, under which a bank allows its customer to raise money from another Indian bank's foreign branch in the form of a short term credit. The LOU serves the purpose of a bank guarantee), on the back of which foreign branches of a few Indian banks — including Axis and Allahabad Bank gave dollar loans to PNB. These foreign currency loans were used to fund PNB's Nostro accounts and from these accounts funds moved to certain overseas parties. A Nostro account is the account an Indian bank (here, PNB) has with an overseas bank.
	What is the scope of the problem?	1. PNB is left holding bank guarantees worth Rs 11,400 crore which it has to pay to, among others, State Bank of India, Allahabad Bank and Union Bank. These payments are due over the next few months. 2. This has affected the banking sector, Jewellery sector and the insurance sector. 3. This also questions the credibility of the Public Sector Banks, the role of regulators namely RBI and SEBI

When?	When did it Happened ?	PNB filed a fraud complaint against Modi group firms with RBI on 29/01/18. O4/02/18 :CBI issues lookout notice against Nirav Modi 05/02/18 : PNB informs stock exchanges about the Rs 281 crore fraud involving the Modi group 14/02/18: PNB informs the stock exchanges of the magnitude of the fraud
	When did it start? When did it stop?	According to the FIR, two junior employees of PNB had been sending these un-authorized guarantees for seven years. Then one of them retired. In January, when representatives of Modi firms asked for a fresh guarantee, the new PNB employee in that position asked for collateral security. On being told that this was never asked for in the past, the bank started investigating and found hundreds of guarantees relating to these firms.
	Is it continuous problem? Intermittent?	This problem had been happening for the past seven years with respect to Nirav Modi case. PNB had also been affected by the Winsome Diamond group scam in 2013. When it comes to scams, it is not new to the banking sector as it has witnessed different levels of frauds at different times. Hence this is a continuous problem
	Is it linked to a specific customer usage?	The PNB scam as such is linked to Nirav Modi, the billionaire in the middle of this controversy, is a luxury diamond jewelry designer who was ranked #57 in the Forbes list of India's billionaires in 2017. He is the founder and creative director of the Nirav Modi chain of diamond jewelry retail stores, and is the Chairman of Firestar International, the parent of the Nirav Modi chain, which has stores in key markets across the globe. The firms have Nirav Modi, his brother Nishal Modi, Mr. Nirav's wife Ami Nirav Modi, and Mehul Chinubhai Chokshi as partners.

Who?	Who faced the problem?	PNB has faced the problem amounting to 12,700 crores. According to banking circles, PNB will have to make good the lost money even though technically Allahabad Bank and Axis Bank took the exposure.
	Who reported the problem?	The problem was detected and reported by PNB to RBI and CBI.
	Who are the stakeholders?	Customers of the Bank Employees Board of Directors Auditors Creditors Regulators: RBI, SEBI The Government of India
	Who are the parties involved?	Former employees of the Bank who issued the money Nirav Modi Allahabad and Axis bank who honoured the Payment.

Why?	Why is it a problem?	The internal banking system is not systematic and is prone to fraudulent activities. PNB is now responsible for the fraud amount. The customers are panicked that their money in the bank may be under risk while the bank has assured to honour all its bona fide commitments.
	Is it a must or nice to have?	It is mandatory to have the standard operating system of responsible and responsive banking.

Where?	Where did it happen?	It had happened within the operating environment of PNB.
	Is it in-house or at customer?	It could be termed as in house because the swift transaction on request was cleared by the PNB officials. Hence, we have a question on the authenticity of the system for Letter of Credits at PNB.
	Where is the stakeholder's location?	The two employees of PNB directly used SWIFT - the global financial messaging service used to move millions of dollars across borders every hour and bypassed the core banking system (CBS) which processes daily banking transactions and posts updates.
	Which other location should be considered?	The information exchange between CBS and Swift transactions has to be reviewed.
How?	How did it happen?	Operational risk (OR) indicates a failure in any of the banking systems, processes or people. A major operational risk had occurred at PNB. Two bank officials of PNB had been issuing Letter of Credits for a long period to Nirav Modi without any collateral, which amounted to a fraud of Rs.11,400 crores. The swift messaging system had bypassed the core banking system and operated. There is neither proper internal coordination nor any internal control or monitoring process. This has resulted in the operational risk.

How Many?	How many parts were involved?	Letter of credit Letter of Undertakings (which were faked) Swift Network
	How much is the loss?	Rs.12,700 Crores

4.2 Trend Analysis

Loans and advances of Punjab National Bank from year Fy 2016 – Fy 2020

Table 1

Sr No.	Years	Loans and Advances (In Cr)
1	2016	4,12,325.80
2	2017	4,19,493.15
3	2018	4,33,734.72
4	2019	4,58,249.20
5	2020	4,71,827.72

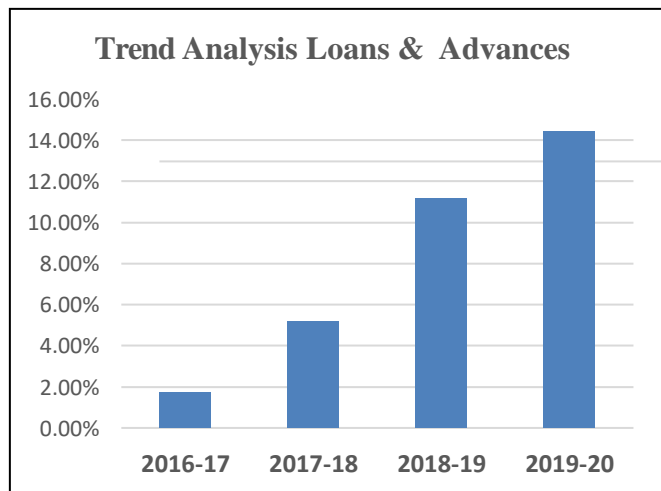## Trend analysis of Loans and Advances:

Figure 1 Trend of Loans

In the above Fig.1, it shows the trend analysis of loans and Advances of PNB. The fig shows that loans and advances given by PNB from the Year 2016-17 to Year 2019-20 are increasing gradually even though bank hit by Scam in the Year 2018.

Changes in profit/ loss of Punjab National Bank

Below Table shows the changes in Profit/Loss of PNB from Year FY 2016 to FY 2020

Table 2

Sr. No	Years	Profit/ Loss (In Cr.)
1	2016	(-3974.4)
2	2017	1324.8
3	2018	(-12282.82)
4	2019	(-9975.49)
5	2020	336.19

From the above Table 2, it can be interpreted that in Year 2016 PNB faced loss and then in Year 2019 PNB recovered from loss and gain some profit. In the Year 2018 PNB has faced huge loss as it has been hit by Fraud. The PNB has been recovering from its loss in the Year 2019 to 2020 and able to gain Profit in the 2020. Overall the Profitability of PNB in the last 5 Years is inconsistent.

Changes in NPA of PNB
Table 3

ASSETS QUALITY	2020	2019	2018	2017	2016
Gross NPA	73,478.76	78,472.70	86,620.05	55,370.45	55,818.33
Gross NPA (%)	14.00	16.00	18.00	13.00	13.00
Net NPA	27,218.90	30,037.66	48,684.29	32,702.10	35,422.56
Net NPA (%)	5.78	6.56	11.00	8.00	9.00
Net NPA To Advances (%)	6.00	7.00	11.00	8.00	9.00

Source: Money control

In the above Table.3, Asset Quality of PNB is given. It can interpreted as the overall Net NPA to Advances of PNB in year 2016 and 2017 are low as compared to the year 2018, 2019 and 2020. As the bank was hit by fraud in the year 2018, Gross and Net NPA of PNB has increased in more numbers.

Effect on other banks:

Impact on banks: The value of PNBs fraudulent transactions are nearly 50 times the bank's Q3FY18 net profit of Rs 230.11 crore. There are five banks that have been directly affected by the fraudulent transactions as they have offered credit based on the LOUs issued by PNB. These banks are UCO bank, Allahabad Bank, Axis Bank, Union Bank of India, and SBI. Following Table shows the bank's exposure to the PNB scam in crores.

Impact on Other Banks

Sr. No	Public Sector Banks	Exposure (in Cr.)
1	UCO Bank	2635
2	Allahabad Bank	2400
3	Axis Bank	200
4	Union Bank of India	1920
5	State Bank of India	1360

Source: BloombergQuint

Impact on LIC:

S.No	Institution	Shareholding of LIC (%)	Fall in Share price (%)	Decline in Investment Value (Cr)
1	Gitanjali Gems	2.88	40.25	11.9

Impact on PNB credit rating

As this Credit Rating is About Punjab National Banks Instruments which was given by CRISIL, CARE, INDIA RATING , MOODY'S and FITCH Agencies so from the Year 2017 to Year 2020 as the scam took place in the Year 2018 the Rating is Very Fluctuating.

In Year 2017 overall Rating was Stable , in Year 2018 the rating got downgraded to Negative , in Year 2019 as the bank is Recovering from the scam so have Watch Developing Rating by agencies as they have managed to pay their debts properly and in Year 2020 the Rating got Stable.

5. Findings:

The Punjab National Bank fraud has exposed many banks to credit risk. Over 1,200 credit guarantees were approved. An audit of the bank's SWIFT system was

2	PNB	13.93	22.27	1216.44
3	Union Bank of India	13.24	7.22	104.24
4	Allahabad Bank	13.17	10.25	65.81

Source: Indian Express

From the Table, it is evident that LIC incurred an estimated loss of Rs 11.9 crore on account of fall in share price of Gitanjali Gems, that on account of its holding in PNB and Union Bank of India loss amounts to Rs 1,216 crore and Rs 104 crore respectively.

The loss in value of holding in Allahabad Bank amounts to Rs 65.8 crore. From the table 2 it is clear that the aggregate loss in investment value for LIC, on account of exposure in these four companies over 3 trading sessions starting February 14 amounts to nearly Rs 1397 crores.

supposed to take place. The fraud involved people at several levels in several branch. The risk management system of the bank is not up to date. The bank had been constantly hit by frauds which indicate the internal risk management is very fragile and non- planned. Loans and Advances also got affected due to Fraud Case. Other Public Sector Banks and LIC also got affected by the PNB Fraud.

The Profitability of Punjab National Bank got too much affected by fraud case and Suffered with very high Loss During FY 2018 and 2019 and then it seen gradually increasing Profit for FY 2020.

The Credit Rating given by Various Agencies got Negative and Under Watch Status after the Bank Fraud and now in the FY 2020 it has been improving a bit.

Overall, it's been very declining state of Punjab National Bank in Various Aspects for Year 2018 and

2019 but For Year 2020 its seen that the Bank is in Improving Position. NPA of Punjab National watched increasing in FY 2018 and then found gradually decreasing.

Implications:

This Research Paper is based on Critical Analysis of Punjab National Bank Scam and its Implications.

The Punjab National Bank shall focus on its Risk Management System and SWIFT Procedures.

As bank's profitability is gradually increasing but for more growth bank should focus on Loans and Advances and Should also work on NPA for better profitability.

For better credit Ratings bank should make improvement in their Banking Instruments.

Also, it was not the first time PNB was exposed to the fraud, so ultimately PNB should also improve the Internal Security of Transaction and Overall Security.

Conclusion:

From the above Research it can be concluded that the Punjab National Bank has very high Credit Risk.

Another compliance failure that facilitated the Rs. 12,700 crore scam was the unmonitored usage of the SWIFT financial massaging system. The collateral free swift transaction which had been taking place with the co-conspirators of the bank and Nirav Modi had eluded the eye of other officials. it is also surprising that it had not been identified even during the external audit process, for a period of seven Years.

The role of regulator of the bank is under question now. Though RBI has come up with various risk management processes for bank, RBI should empower the bank to deal with fraudsters in a swift manner thereby avoiding unwanted frauds. More than a large amount involved, the reputation of the banking industry is at stake, especially at the time when global attention is focus on stabilizing bank reform and greater efficiency of the financial sector is expected. Massive capital Infusion through recapitalization bond is intended to resurrect the public sector bank (PSBs) that are burdened by a huge pile of non-performing assets (NPAs) and low capital adequacy. The government may have to rework its capital infusion plan in the light of these frauds.

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