CHRIST
(DEEMED TO BE UNIVERSITY)
DELHI-NCR, INDIA

VOL 1 | ISSUE 3
SEPTEMBER 2022

Analyticus
Newsletter

Impact of Analytics in Technological Innovation

What's Inside?

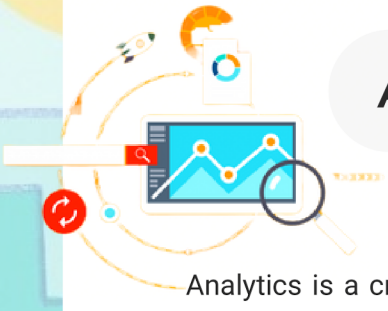
Preface

In the last decade, analytics has gained a lot of popularity and is growing rapidly. Without data-driven decisions, technology would not have reached this level. As the environment demands, businesses today are adopting data analytics. To sustain and grow in the industry, analytics has become necessary for every business.

By using analytics, companies can better understand their customers. This understanding allows the business to build its product considering the customer's needs. Companies can use data visualization to forecast future outcomes which helps them to have clarity about the future and to deal with uncertainties that might occur in the future. These insights also aid in decision-making and long-term planning which could act as a tool to achieve the goals and objectives of the company.

Apart from that companies can use data and analytics to understand market behaviour, respond accordingly, and fine-tune services as they progress as analytics directly improves environmental scanning, which in turn helps companies innovate more effectively.

Due to rapid and effective innovation, many companies can stay ahead of change and stand out. Moreover, it assists in predicting the profitability of innovations and the feasibility of implementing the suggested features. Managers use analytics to evaluate the success and outcome of a new product.



Analytics - The Start of An Era

- PALAK VERMA, 3BBA B

Analytics is a crucial component of the new and emerging digital economy. To survive and succeed in this era, one must acknowledge the growing trends in the fields of analytics and data science. Innovators, entrepreneurs, pioneers and intellectuals around the globe are moving towards identifying the rapidly blooming analytics sector.

As the world explores the analytical sphere, data is becoming a new treasure for enterprises and institutions. Until a few years ago, data allowed large corporations to invest in technology to analyze and extract information. This information has changed the way most enterprises operate, relying on more data to gather information for deeper business insights, which in turn leads to skyrocketing profits, a growing customer base, and the extraction of critical insights from data, transforming the entire branding, hiring and decision-making process.

At large, technology-enabled organizations where IoT (Internet of Things) devices are deployed in their operations, we observe that executives seek to synergistically leverage assertive technologies to perform smarter data analytics. It is said that more open-source tools would be available as they strive to compete with branded off-the-shelf tools. As the data itself becomes more complex, more and more SAS-based (Statistical Analytical System-based) analytics providers will combine these tools. According to Gartner, 40% of data science tasks will be fully automated by 2025. Automation helps executives efficiently plan and use the right analytics to make profitable business decisions. By 2023, 90% of Data-as-a-Service (DaaS) is expected to generate more revenue, thereby giving all its subscribers access to digital files, paving the way for better data-driven decision-making.

Another upcoming trend augmented analytics, which combines AI and ML protocols to change how analytical data is shared, generated, and processed; would be used extensively in industries such as transportation, shipping, and aerospace by providing key insights from customer data that are currently not achievable without a significant investment of time and money.

GDPR (General Data Protection Regulations) compliance is a must for all businesses and organizations to put their data in place, it compels organizations and businesses to make data governance a priority.

An even wider trend in 2022 suggests that 50% of analytical queries will be automatically generated using linguistics or via NLP (Natural Language Processing) technologies. Turning data into insights requires people with the right tools and skills to understand the big picture of the customer journey and transform that data into valuable insights.

To sum it all up, the power of data analytics is helping enterprises grow more than ever.

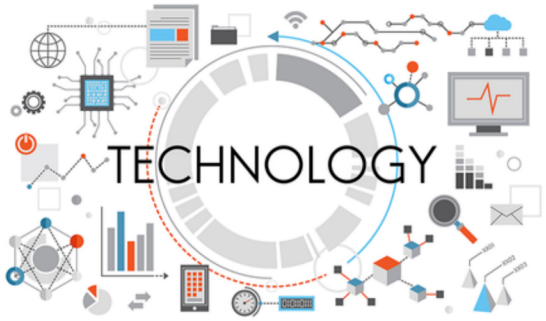
The Technological Breakthrough

- MARINA SHAJI, 1BBA C

"Technological process is like an axe in the hands of the pathological criminal."
-Albert Einstein.

Technical Innovation means developing new ideas, products, services, and processes which exploit technology. Over the period since the 1970s, developed countries have improved their relative productivity performance, but there remains a significant gap in market sector productivity between Developed and developing countries. Technological innovation brings benefits. It increases productivity and brings citizens new and better goods and services that improve their overall standard of living.

The benefits of innovation are sometimes slow to materialize. They often fall broadly across the entire population. Much of the gap between them is due to lower levels of capital intensity and skills. However, even taking these into account, there remains a significant gap. This reflects not just a weakness in high-tech areas but an inability to absorb best-practice techniques and methods in wide swathes of the market sector. It also touches on the impact of technological innovation in developing countries and how it is transforming their business.



However, the changes include technological trends and breakthroughs which will support innovation, availability of capital for new product development and introduction, displacement of existing products, management of entrepreneurial ventures, management of innovation in medium-sized and large organizations, and organizational structures intended to facilitate innovation, investment strategies related to new science – or technology-based enterprises, the innovator as an individual and as a personality type, and technology transfer to developing nations. . The benefits of innovation are sometimes slow to materialize. Thus, they often fall broadly across the entire population.

Analytics: Impact on the Masses

- LEO SHAJI, 3BBAH B

The impact of analytics is very huge in the market as there is a growing need and dependence of analytics which has resulted in the creation of many software such as Excel, MySQL, Tableau.

Analytics has grown a lot and has become an important part for many businesses
For example, if a small business owner wants to open a shop, he/she needs to understand their own demographic, to do so they need to use analytical tools to understand what the customer preferences are in their particular area.

Similarly, many big businesses also use analytics to understand the market trends and decide which product will target which demographic, this helps big businesses to take a decisive decision for the benefit of the company.

Analytics can help in other ways too nowadays analytics is used heavily in the creation of different events. For example, live translation, QR Codes, and digital event invitations. There are more but these are the new emerging use of analytics that will grow even more. As these technologies have great potential moving forward. Especially QR codes as they have already become a very big and important part of today's society, helping us in various forms of payments too.

These all are some of the uses of analytics that have become the norm in today's world. The growing need and dependence on the analytics job proves that this field has a lot of potential and dependence moving forward.

Business Analytics: The Next Frontier for Decision Sciences

- KRITI GUPTA, 1BBAH B

Advances in Business Analytics in the era of Big Data have provided unprecedented opportunities for organizations to innovate. With insights gained from Business Analytics, companies are able to develop new or improved products/services. However, few studies have investigated the mechanism through which Business Analytics contributes to a firm's innovation success. This research aims to address this gap by theoretically and empirically investigating the relationship between Business Analytics and innovation.

To achieve this aim, absorptive capacity theory is used as a theoretical lens to inform the development of a research model. Absorptive capacity theory refers to a firm's ability to recognize the value of new, external information, assimilate it and apply it to commercial ends. The research model covers the use of Business Analytics, environmental scanning, data-driven culture, innovation (new product newness and meaningfulness), and competitive advantage. The research model is tested through a questionnaire survey of 218 UK businesses.

The results suggest that Business Analytics directly improves environmental scanning which in turn helps to enhance a company's innovation. Business Analytics also directly enhances data-driven culture that in turn impacts on environmental scanning. Data-driven culture plays another important role by moderating the effect of environmental scanning on new product meaningfulness. The findings demonstrate the positive impact of business analytics on innovation and the pivotal roles of environmental scanning and data-driven culture. Organizations wishing to realize the potential of Business Analytics thus need changes in both their external and internal focus.

Analytics Meets Innovation

- LAKSHYA CHOUDHARY, 1BBA A

As the role of technology becomes diverse in every industry, it generates a vast amount of information that can provide valuable insights into the field. This has led to a boom in the data industry over the past ten years.

However, data collection must be supplemented with its analysis to gain insights for decision making. Data analytics helps businesses and industries to understand massive amounts of information for further growth and development. Investing in a data analytics solution is the difference between successful and unsuccessful businesses now and in the years to come.

To understand the impact of analytics on technology we must know what is analytics It basically refers to all the processes and tools needed to process a set of data and interpret important information from it.

NoSQL or Not only SQL is a database technology with a schema-less and non-relational data model. This is especially useful when working with large amounts of data that do not necessarily correspond to a structure. These databases are used to reliably and efficiently manage data across a scalable number of storage nodes. NoSQL databases store data as relational database tables, JSON documents, or key-value pairs.

Sometimes the data that an organization needs to process can be stored across multiple platforms and in multiple formats. Stream analysis software is very useful for filtering, aggregating and analysing this big data. Stream Analytics also allows connecting to external data sources and integrating them into the application flow.

Predictive analytics, one of the main tools for businesses to avoid risk in the decision-making process, can help businesses. Predictive analytics hardware and software solutions can be used to discover, evaluate, and deploy predictive scenarios using big data processing. This data can help companies prepare for the future and solve problems by analysing and understanding them.

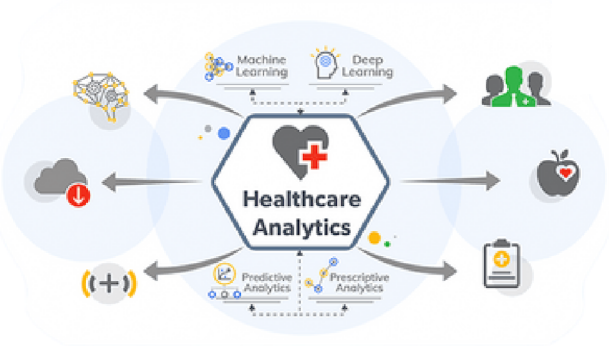
Analytics in the Healthcare Industry

- ESHITA SETH, 5BBA A

Compared to other businesses, the healthcare sector has been particularly sluggish to adopt new technologies. The sector has moved cautiously because of stringent rules and the delicate nature of medical information.

Nonetheless, the industry has produced important advancements that have reshaped how doctors practise medicine and how patients receive care.

The number of hospitals that have electronic health record (EHR) systems in place has grown recently. Only 9% of these facilities employed EHRs ten years ago, compared to almost 90% currently, according to the PwC Health Research Institute. Improvements in the healthcare industry have been made thanks to a wide range of different digital technologies.



The social realm has been transformed by digital platforms, and new technology has made it simpler than ever for doctors to connect with one another and share knowledge. Recent advancements outside laser technology include nano-devices and surgical robots. Physicians have improved their accuracy and gained access to previously unreachable places by using these instruments.

Today, computers can provide feedback on X-rays and other tests to assist doctors in making quicker and more informed decisions and also comes to developing new drugs and finding the best method for treating patients. Real-time data collection and analysis by machines gives medical experts a second opinion.

Hence, the healthcare industry has had drastic changes in terms of analytics, data science, and technology and still carries a huge opportunity to develop more.

Bonus Section:
Report with Pandas Profiling

- GARVIT JAIN, 5BBA A

As an analysts or analytics students, we explore data every day. There is a solution for this in Python, which is pandas, which uses the pandas module. Although compelling, sometimes we find that the report is just too simplistic. Now let's get to the code.

But wait, let's check if we have the required packages before writing any code. In your terminal, type the following:

```
pip install pandas  or  pip3 install pandas

pip install pandas_profiling   or pip3 install pandas_profiling
```

Your terminal will look like this if you already have it installed, or if not, it will download the package for you.

```
Requirement already satisfied: pandas in
/Library/Frameworks/Python.framework/Versions/3.10/lib/python3.10/site-packages (1.4.4)
Requirement already satisfied: numpy>=1.21.0 in
/Library/Frameworks/Python.framework/Versions/3.10/lib/python3.10/site-packages (from pandas) (1.23.2)
Requirement already satisfied: pytz>=2020.1 in
/Library/Frameworks/Python.framework/Versions/3.10/lib/python3.10/site-packages (from pandas) (2022.2.1)
Requirement already satisfied: python-dateutil>=2.8.1 in
/Library/Frameworks/Python.framework/Versions/3.10/lib/python3.10/site-packages (from pandas) (2.8.2)
Requirement already satisfied: six>=1.5 in
/Library/Frameworks/Python.framework/Versions/3.10/lib/python3.10/site-packages (from
python-dateutil>=2.8.1->pandas) (1.16.0)
```

Now you have all the required packages let’s write some lines of code and see the magic of python :

The dataSet we are going to use for this can be found here :
https://www.kaggle.com/datasets/altavish/boston-housing-dataset

```
import pandas as pd
from pandas_profiling import ProfileReport
```

In the above lines of code we are importing the packages:

```
df = pd.read_csv('HousingData.csv')
```

Here we are importing/reading the data which is stored as a csv file through the function read_csv provided by pandas named as “HousingData”.

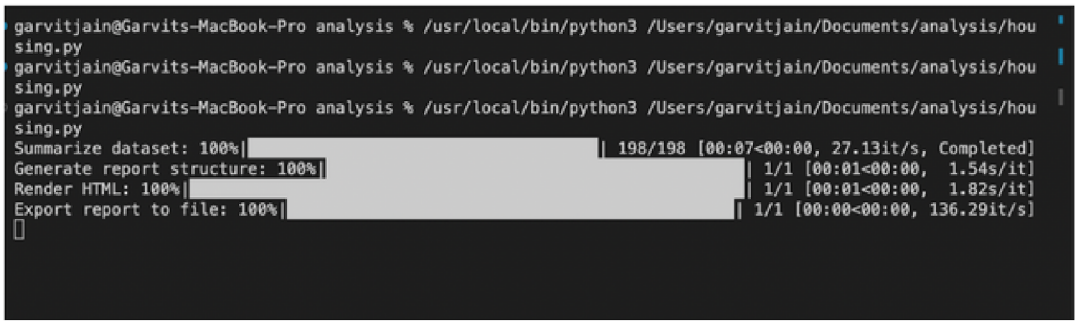
pandas supports many different file formats or data sources out of the box (csv, excel, sql, json, parquet, …), each of them with the prefix read_*.

```
profile = ProfileReport(df)
profile.to_file(output_file="housingData.html")
```

In the first line we have passed the Data Frame object to the profiling function and then call the function object created to start the generation of the profile.

And in the second line, we are converting the profile report into an HTML file named “housingData.html”

When you run the code you something like this in your terminal:



And it’s done, your report is ready, you can find the report in the same folder where your python file is located.

The report comprises of overview information of our Data Frame, the Numerical and Categorical columns with more detail like mean, Standard deviation, Quartiles, histogram for each variable , correlations heat map, scatter plot of each variable and many more things.

The whole code can be found here :
https://github.com/garv352/pandasReportProfiling

For more about pandas check the below link:

https://pandas.pydata.org/docs/getting_started/index.html
https://www.w3schools.com/python/pandas/default.asp

-

The Team

THE COLUMNISTS

PALAK VERMA	3BBA B
MARINA SHAJI	1BBA C
LEO SHAJI	3BBAH B
KRITI GUPTA	1BBAH B
LAKSHYA CHOUDHARY	1BBA A
ESHITA SETH	5BBA A
GARVIT JAIN	5BBA A

THE EDITORS

GARVIT JAIN	5BBA A
ESHITA SETH	5BBA A
JOEL SUNNY	1MBA

FACULTY ADVISORS

DR. TARUN KUMAR SINGHAL | DR. DURGANSH SHARMA