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BUSINESS PROCESS SERVICES

Big Data and its Role in Effective Governance

What is the definition of Big Data?

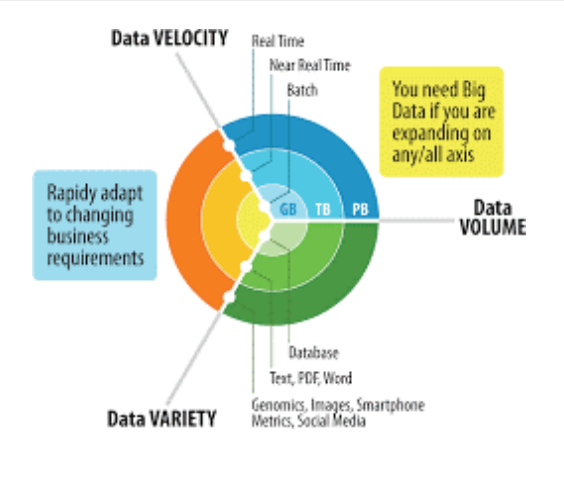
Big data is essentially driven by the three V's of data - Volume, Velocity, and Variety. And in this paper we will explore what these three mean and how governments across the globe can leverage them to implement welfare programs effectively.

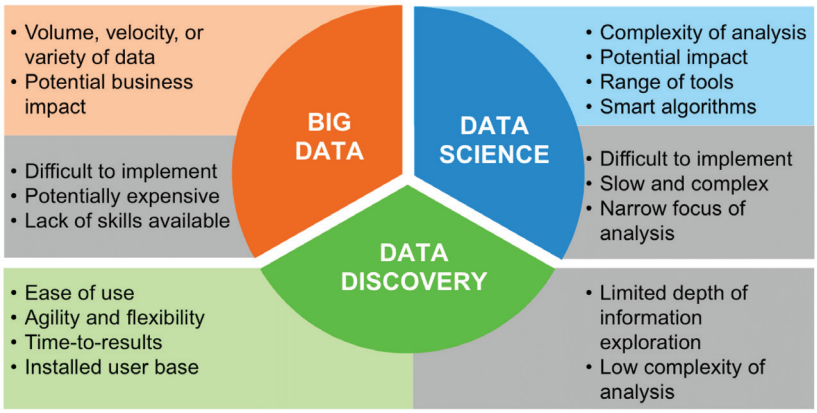
Volume : There has been an increase in the volume of data being generated globally. Just to give you a perspective Global IP traffic was 1.1 Zettabytes in 2016, which in 2015 was 0.2 Zeta Data, by the year 2020 the world would have produced 50 Zettabytes of Data. Similarly, the total content of Internet has increased five times in just 24 months and is still growing; or to put it in perspective more than 80% of everything that is there on the internet has been created in the last 2 years. As per March 2018 Facebook has 250 billion pictures and 2.5 trillion posts.

Velocity : Data is not like wine, this means faster data processing leads to faster results and timely actions. Healthcare or public emergency needs fast action on data and to make sure this is possible, data processing capabilities have increased exponentially in the last couple of years and will continue on the same trajectory for the next few decades.

Variety : Data is becoming more varied and you find it in multiple forms. Photos, videos, audio recordings, email messages, documents, books, presentations, tweets, and ECG strips are all data.

One needs to realize that big data alone cannot do much for any government, rather its relation to data science and data discovery, is what will make a difference, because all the three have a certain set of advantages and disadvantages.





The relation between these three entities is affected by a few factors, which are:

a.) **Four human forces of technology adoptions –** The four forces that affect technology adoption are as follows:

- Coordination – Which is how we use technology to get things done, like sending or receiving through an online banking app
- Conversation – That means how we use technology to interact with the forces around us, from sending a message or picture of an event in the family to sending a google map location to the taxi driver
- Tools – All the things that make our world more useful
- Emotion – For example, taking part in a campaign or aligning ourselves to a greater cause or how we know, what we care about

b.) Cloud computing : Data storage until early 2000's was physical and expensive but with the advancement of technology, cloud computing has made data storage and accessibility on cloud cheap, fast, and reliable.

c.) Gordon Moore's law : Moore's law refers to an observation made by the Intel co-founder Gordon Moore in 1965. He noticed that the number of transistors per square inch on integrated circuits had doubled every year since their invention. Hence the computing power normally doubles every 18 months. This development has led to a significant increase in the processing power of the modern computing technology.

d.) Artificial intelligence and machine learning algorithms : Artificial intelligence and machine learning make sure the computers of tomorrow are far more capable than what they are right now. They would not only be able to copy and replicate human behavior, but they would be able to learn at a far faster pace than what we have seen until now. This is assured to release the next wave of digital disruption.

Therefore the result is evident, there has been a movement of people who occasionally used technology to people who now use technology tools on a regular basis, this means that we are applying tech to every aspect of who we are, how we interact, what we do, and what is important to us. That is the human technology stack - a set of personally chosen technologies that increase our ability to do all the things we want to do.

What is the impact of Big Data?

Now that we know what all is affecting the upcoming technology environment, it is important to understand the relationship between big data, the industries it affects, and how does it interacts with various policies. The top 10 industries which are most affected by big data are Banking and Securities, Communication and Media, Healthcare, Education, Manufacturing, Insurance, Energy, Consumer Trade, Transportation, and Environment and Weather.

Automating the low complexity, high-volume tasks to provide insights from data or to extricate information is what will see an exponential rise in the coming decade. What will be in demand is the innovation that can be done using big data or building instruments that work on big data.

What should be the policy question, which one should ask before thinking about implementing Big Data?

1.) What are the public policy concerns of the collection, storage, analysis, and use of big data?

2.) What uses of big data could significantly improve outcomes with further government action?

3.) What technological trends or key technologies will affect the various data cycles and use of big data, how can we finance and observe them?

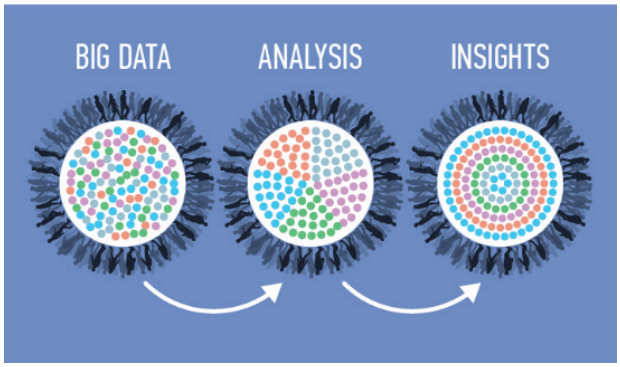
4.) How should the policy frameworks or regulations for handling big data differ between the sectors?

5.) What issues are raised regarding the use of big data across states, such as GDPR rules, etc.?

Once we find out answers to the 5 critical questions of policy, it's important for policy makers to concentrate on the data use paradox. This is the situation where the government has to decide what data it wants to capture and for what purpose it wants to capture that data. The underlying reason is very simple.

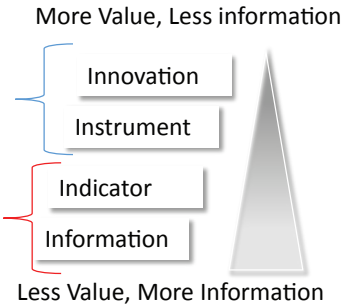
With a limited set of resources, the government can only capture a limited amount of data and even when data is limited, it has to be actionable and has to be relevant to the government. Most of the examples of data paradox are quite varied, for example, some countries are trying to track data to find out break out of violent activities whereas some countries are trying to gather data on economic activities which can help them at a citizen level or at an industry level. One of the key challenge that affects the governments, is that many of the countries where poverty is high there is need for good programs; but these are the same countries where data is scarce and very hard to collect. Not surprisingly therefore, we get excited by the potential of big data. Simply because through access to mobile phones, internet, and social media we have generated an endless source of precious information and a mechanism which can help us in collecting this data.

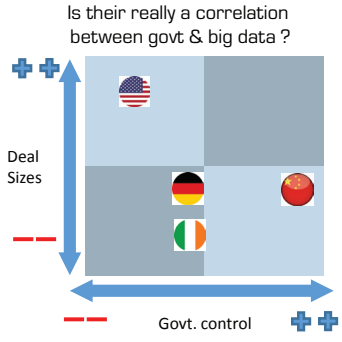
On the other hand one also needs to understand on what one defines as a success criteria of the various programs. For example, the US is a country with much less control in relation to big data and its application, however China on the other hand has far higher government control and intervention on big data, however even as we write the industry is having the maximum commercial value aligned to Silicon Valley. In fact almost all the major private tech players such as the Big 3 or Top 8 (Amazon, Apple, IBM, Microsoft, Alphabet, Intel, Cisco, and Dell) are all based in the US in California alone. What is also interesting is the fact most of the government investments are in the form of civil/admin services, health services, transportation/SCM, energy, and others. The primary reason for this is the massive investment of EU and US (healthcare.gov) apart from various other BD investments. As far as the funding is concerned, it's still primarily concentrated towards internal corporate investments, followed by VC, PE money, and Mergers & Acquisitions.



Tech-Landscape would change, Investments +3X since 2015, will ramp to 8X by 2022

Indicator & pure information processing industries will diminish in next decade

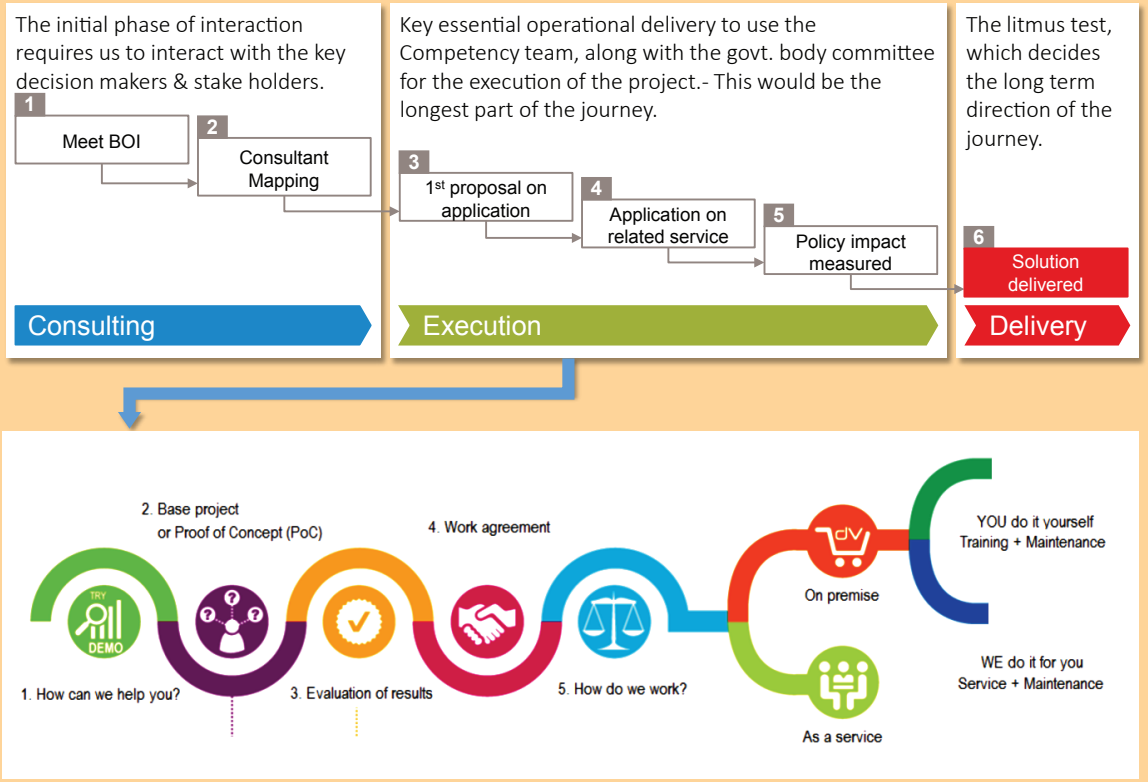




How does TechM approach this problem?

The timeline for the application of the project varies a lot, but like the example given below the stages are pretty much known. Once the initial meeting is completed with the prospective client. TechM sends over consultants who build the initial strategy for the exercise. As a next step we send a detailed proposal. Once this is mapped the teams start work on data and logic of the control group. We deploy an application of related service and ensure that it is able to consume the data in the form it is to make sure that the project can have a direct policy impact. Once this is complete the solution is delivered to the client in the form of a working POC.

Simply put it is important that we develop a POC first. Once that is done, the client has a choice to either run the operations on their own or to actually go ahead and ask Tech Mahindra to run it as a service along with the maintenance.



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Eshank has 13 years of experience in the Retail Domain, he was working as a manager with Amazon and before that in Media – Saturn GMBH where he held positions of growing responsibilities in the International Expansion & New Business Development. He is a graduate from FH Ingolstadt - Germany, with majors in Project Management and Consulting.