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Cognitive Computing ,Utilizing Big Data and Big Data Testing to deduce optimized result based decisions

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Abstract— This paper enrol the likelihood of merging three different aspects and trying to get the best out of them. It extract the various advantages that these technologies have as independent entities and the probability that they can grow rapidly better if put together to use. We will evaluate how Big Data, Cognitive Computing and Big Data Testing have their own power in general. We will later conclude how we can possibly exploit their pros. In today's world data plays a very key role in everyday conclusion making. The cons of these technologies can be reduce if they work in harmony. The outcome derived from such a combination would be better in accuracy, efficiency and quality

Keywords— Big Data, big data testing, cognitive computing, internet of things, big data architecture, jeopardy quiz show, watson**.**

Introduction- Background and Inspiration

In today's world capacity of unstructured information is growing at an vast rate.
Big Data as we call it is growing in leaps and bounds.This data if move to proper use could help us tackle the best results. If not utilized to its most favourable capability, it remains just another block of useless data.We really need effective technologies to make sense of it and make better conclusion. The data that is processed needs to be precise for it to be of any use. This is when Big Data Testing feature comes into picture. The data in which we are working in first needs to be the accurate data for us to even begin with. We're seeing a new age of computing starting with tabulating era, then to the programmable computer period and now cognitive computing systems which expand the boundaries of human cognate to become intelligent with use and have more natural interaction between the human and the computer. In the area of artificial intelligence there are a lot of stunning ideas but computational capabilities just weren't ready for them. Watson unexpectedly makes some of these crazy ideas achieved.

At the Central, we're trying to leverage knowledge the way humans record and exchange information it in natural human language, in particular text. It's initial introduction to the world was as a participant on the Jeopardy Quiz Show. In healthcare space we are speaking it as a support tool to expand the medical practitioner cognitive boundaries by giving them deeper access to much larger volumes of information. The history associated with the patient, the journal articles, clinical outcome, best practices, instruction etc. That capacity of content is doubling every 5 years. Physicians have precious small time to keep up with everything. A system like Watson can use the computer's ability to deal with huge volumes of data, understand the command that's contained within this data. Apply it to the problem that the practitioner is trying to solve, give them different choices to consider and in particular the underlying proof that supports those choices. That basic problem solving pattern applies to a extensive variety of industries. Any area where you have complex problems that you are trying to solve, where adapting the computer technology to perform better with the way humans want to work so that its more natural relationship between the human and the computer.

IBM's CEO and CHAIRMAN Ginni Rometty has called the coming times a new age in Computing, a new age in cognitive computing, a new age in cognitive systems. The phrase new age signifies not an incremental or a tactical shift, it signifies a fundamental,calculated and technological shift. In terms of the technology and what we do with it.

Cognitive computing draws innovation from the brain and yet honour the technological engineering constraints of the society. The combination of Big Data, Cognitive Computing and Big Data testing in turn will allow us to observe a new generation of computer and a new generation of services and solutions to make the work better.

Problem Definition

The foremost problem with usage of Big Data lies in the fact that there is no established way that the data would be associated to one another. Big data enclose related, unrelated, structured and unstructured data as well. The job of bringing the hidden diamond from a coal mine with nothing but a sliver of light is huge. Since, the data that we have at hand is in it's underdone form in the beginning, the major part of the hurdle is how to bring it or process it in a form where it could be pleasant to us in making conclusions.

The data that we have could be from various sources. The sources could be reliable or unreliable ones. Regardless of it's source the process that we use to modify the data into information should be strong enough to differentiate between data that needs to be used and the data that doesn't make any standard input. This is something that is reached using some form of validating and verifying. A filter of sorts which helps you separate the required data from the whole collection of data that you have.

One of the ideas is to get the computers to interact with us the way we want to interact with one another instead of us sitting downstairs and programming a computer someplace, then this belief of computers that deal with images the way we do or being able to imagine what we do in a way which is not a spreadsheet, it isn't a bar chart, it's really visual it's really the way humans interact with the world. I think that will modify how we do a lot of what we do in the occupation world as well as in our private lives. This is not something that is achieved using simple processing strategies.

Understanding Big Data[1]

Big data is a wide term for data sets so complex that traditional data processing applications are inadequate.
Challenges include capture, analysis, search, data curation, storage, sharing, transfer, visualization, and information privacy. The word frequently refers simply to the use of predictive analytics or other certain advanced methods to extract value from data, and rarely to a particular size of data set. Accuracy in big data may lead to more confident decision making. And better conclusions can mean greater operational efficiency, cost reductions and reduced risk.

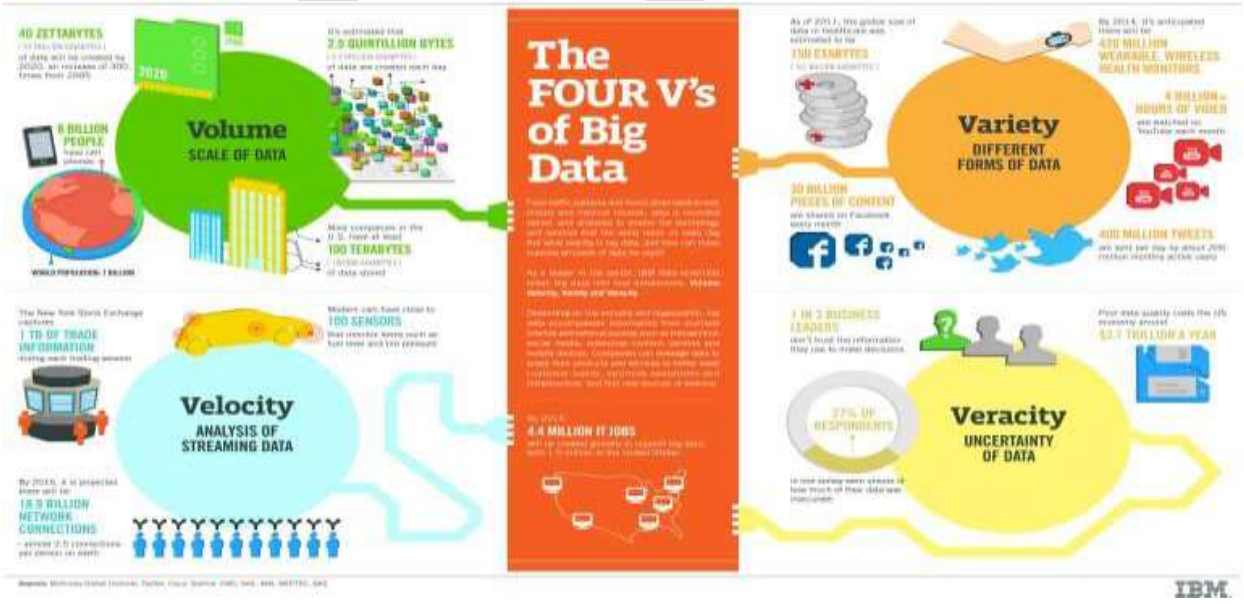

Figure 1. The four V's of Big Data[3]

Understanding Cognitive Computing

Cognitive computing in its simplest form is the way we get computers to behave and think and communicate the way humans do. If a computer can undergo it's environment then by definition it can act upon it to improve it and that is a distinctive capability compared to what we have today.

I)Touch

We will be able to connect through our telephone or computer systems.

How can we use technology to make us more aware. How can we utilize technology to make connect come to life. Within the next five years the phone will be such a ubiquitous part of our everyday experience of perception our world that we will be able to completely understand the feeling of touch through our phone. The phone will be able to assist you feel fabric. You will be able to share the texture of a basket woven by a woman in a remote village halfway beyond the universe. So if you think about buying a shirt online we can use distinct technology like vibration. The goal is to be able to manage vibration through an understood lexicon of texture.To be able to use vibration to express linen versus silk and how heavy or rough is the texture of the vibration as you hit your finger across your device screen. The device becomes just as instinctive as we understand touch in any other form today.

II)Sight

Computers will be free to not only look at images but also understand them.

In cognitive computing, systems are basically taught to interpret photos by being given examples and it basically learns the patterns that matter. So it's basically the computer that is learning to make this differentiation. It is learning what boundaries are. It is Studying what matters most. It could be for a beach site where the color is more important or where for another kind of site like the downtown city scene possibly it's edge information is something that is crucial.Pictures and videos have a lot of use in safety and reliability application. So when an event may occur it may be a severe storm where people can obtain photos today and share those in real time and then this can be useful for raising alerts. It can also help in guiding emergency personnel. It could be very useful for sharing experiences that others can benefit from. In the future the computer will be extremely powerful in the areas like medicine. We can consider one case of dermatology and skin cancer where usually it's too late when a patient may show up and already there might be a melanoma. A computer then can start to look for figure and situations where sometimes there is something that may have a pre-cancerous and a good indicator that something is probably to happen.Computers are great tool and cognitive computing they will understand contents in a way that will go far away human capacity.

III)Hearing

Computers will perceive what matters.

During the period of having a first born child in the house the parents often get distress as they often don't understand what the baby wants or what is the reason behind the baby's cries. In five years we assume such an application which in situation when a baby starts to talk to us, the system will be able to understand and explain to the parents what the baby wants. It would be able to let the parents or the doctors what the baby desire to convey. Cognitive computing when we talk about applications means that it tries to imitate how our brain works. It creates a much effective system that has much better results. As an example the big problem during mud slides and flooding state can have a solution where in sensors are located in nearby regions to hear the sound and alert the emergency squad in case if any vibration of mountains is heard. This is an example of how hearing sensors can prevent catastrophes too.

IV)Taste

Computer system will know what a person likes to consume better than him.

The way humans taste things, the way they perceive flavor is very chemical in nature. When we have something on our tongue and we notice and we understand the flavor by how their chemicals react with our nervous system. In the future the computer will be able to access wide depositories of data that tell us about the chemical constituent and structure of various ingredients. It will be able to tell us about what humans really grasp in terms of flavors and then be creative and be able to put together different recipes. So what 's to be done is figuring out what is good for humans and develop machines that can actually help us attain that. So what we would be looking is having a future where the new designed recipes that taste good to humans so people will be willing to
eat it and is at the same time is healthy for them too. If we go to a school we see that children miss their nutritional needs when they start nit picking from their given lunchboxes. The aim in such a situation is to make recipes that are flavorful and at the same time are meeting the nutritional benefits required for their health and growth. In the future you might have a web application that does not only

consider your personalized medical characteristics but also your personalized tastes. To take an example of a diabetic who isn't allowed to eat much sugar can be in the future be able to eat recipe modeled in a way that satisfies his sweet tooth.

V)Smell

Computers will have a sense of smell.

If you smell a good wine it is a very interesting scientific question to actually understand what it is that you smell with your nose. A cognitive computing system will try to do similar things as your brain. It will try to merge the information of the smell with all the other information. In future it is considered that doctors will be able to identify a whole set of diseases based on your smell.An area which will be emerging will be in house care wherein smelling diseases remotely and then communicating to the doctor will be one of the techniques which will guarantee to reduce cost in the house care sector. For example your phone would know where you are, it could smell things around you, may be your breath and in turn your phone might know you have a cold before you do.

Understanding Big Data Testing[2]

Fetching relevant data from big data is of vital importancefor enterprises seeking to improve deliberate business decision making. Opportunities that were previouslynot available are now a reality, with new and more revealing perception extracted from sources such as facebook , google and devices that constitute the Internet of Things. Accordingly, emerging technologies are enabling organizations to gain valuable business insights from data that is growing increasingly in volume, velocity, variation of data formats and complexity. Leading industry analysts forecast the big data market to reach 25 billion by 2015. As a consequence, organizations will require newer data integration platforms, supply demand for QA processes that service new platforms, leading to the necessity of big data testing.

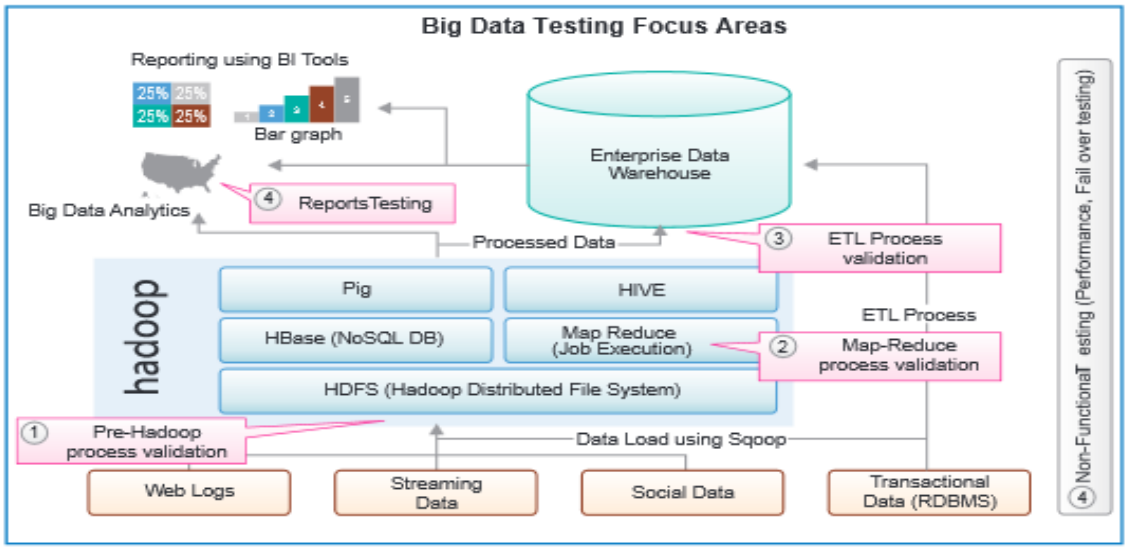

Figure 2. Big Data Architecture with Testing phases[4]

Proposed System

The proposed system basically initiates the usage of Big Data, Cognitive Computing and Big Data Testing so as to get the results in a better manner.

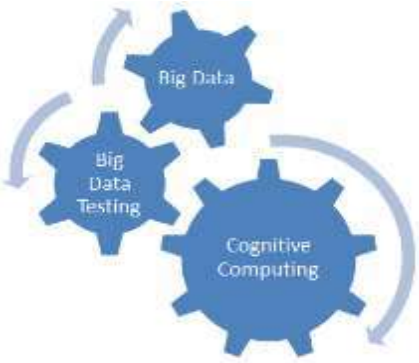

Figure 3. Correlation of Big Data, Big Data testing and Cognitive Computing

The companies that deal with consumers need to come up with improved strategies than they make if they intend on retaining their consumer base. The frequently changing nature of a consumer can't be stopped. Thus, companies need to understand their consumers better.

The role of Cognitive Computing is to help systems think in a similar fashion as humans. Big data allows us to collaborate all such information that are rallied through from the consumers. Similarly, to call that data legit, there needs to be some procedure followed to ensure the integrity of the data. This can be done using Big Data Testing.

When you look at what human brain can do, it's really amazing the way we can reason about things and think very deeply about things. But where we start to run into a wall is when we are faced with leveraging huge volumes of data, so looking through tones of documents, millions of books for instance is almost impossible for the human brain but in order to push the boundaries of human cognition we want to provide access to all that data so I think one of the 1st challenge or task of these cognitive systems along with Big Data and Big Data Testing is to enable human cognition beyond these barriers and it's exactly what this proposed system is all about. In fact it's about providing better access to huge volumes of literature, unstructured information and text, digesting it, evaluating it and providing efficient access for the humans to that information to help that human cognitive process.

With all due respect to current technology the computers today are just large calculators. They calculate very fast lots and lots of data but they really don't think.

In today's world we always provide imperfect answers because we don't have all the data. What this proposed systems allows us to do is to be able to collect that information from what is seen, from what is heard, from what is felt, from what is tasted an so on to provide a more accurate answer to the problem at hand.

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CONCLUSION

The essence of this proposed system is to think of the difference between the way that most computers work now and the way that most sophisticated computers on the planet work and those computers are the things that we all carry around in our heads along with you know mammals and all the other little animals that run around and do these amazing feats. In real time taking in their environment, understanding, making decisions very fluidly and responding and how often have you looked at a computer while its little hourglass is spinning and it does the wrong thing. So we bring about the ability to bring a level of fluidity and appropriation to the way that we interact with computing. We put out effort into making computers actually more like biological systems, whether or not they've brains. Where they actually have that fluidity where they respond and react appropriately. So you feel like you're dealing with another living thing and not a machine.

Thus, they would act as much more that systems that are just another calculator like machine. It would actually help us come up with decisions that make a difference. Implementing all these 3 discussed facets of technology would not just strengthen the kind of information brought at the end of a Big Data Analysis process but would also one day go many steps ahead by coming up with corporate decisions that can be drawn using it.

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