BIG DATA ANALYTICS IN HIGHER EDUCATION

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Abstract: This study has been undertaken to investigate the determinants of stock returns in Karachi Stock Exchange (KSE) using two assets pricing models the classical Capital Asset Pricing Model and Arbitrage Pricing Theory model. To test the CAPM market return is used and macroeconomic variables are used to test the APT. The macroeconomic variables include inflation, oil prices, interest rate and exchange rate. For the very purpose monthly time series data has been arranged from Jan 2010 to Dec 2014. The analytical framework contains**.**

IndexTerms **– Big data, Higher Education, Analytics.**

I. INTRODUCTION

Higher education is one of the major necessities for the development and growth of the society and the nation. A college student is considered more skilled, both professionally and personally. A highly-educated person gets to enjoy higher incomes and improved social conditions. Today the education sector has become technology oriented to a considerable extent [1]. In many institutes, the students upload their assignments online through their moodle accounts instead of directly submitting to their faculty. Students also write their exams online. Teachers upload their prepared notes on some online portal and students download them from the sources. In several institutes, whiteboards have been replaced by smart boards. They also have digital libraries where issuing and returning of books is without any need of human interference. There are several metric systems at different places in the campus for student monitoring and attendance. This interaction with technology generates a huge amount of data and has transformed the modern world into an era of big data. Many students graduate every year. Each of them is responsible for bringing another tsunami of data in this sector. Hence, this sector needs to become data-driven in to use data as an asset to it.

Higher and professional education is a domain which constantly needs to be evaluated and transformed to follow the fast pace of changing trends in different sectors in the market which in turn creates a variety of needs in workforce. A major factor that has radically altered the way education is conducted is technology. Examples of different types of technologies used in education are mobile devices and apparatuses, teleconference and remote access systems, educational platforms and services and other that students, teachers, academic faculty, evaluation specialists, researchers and decision-makers in education interact with and use in an effort to impact and improve teaching and learning but also to realistically reflect in the learning stage the usage of modern technologies used in real settings [2].

Big Data is used not only for management of vast data but also to leverage it for teaching, learning process which will help students for their improvement. This is the key IT trend that should drive institutional strategy and policy making in future years [2.EDUCAUSE, 5].

This process will help the higher education universities to empower their consumer or stake holders. Analytics performed on the basis of data collected from student information like-financial, enrollment, academic, extracurricular and instructional plays a critical role in performing a thorough analysis of students and learning data to make informed decision on future course offerings [1, 2, 5].

II. WHAT IS BIG DATA?

Big Data is data sets that are so complex and voluminous that traditional data processing application software are inadequate to deal with them. Big data challenges include data storage, data analysis search, capturing data transfer, sharing, visualization, querying, and updating and information privacy.

There are four dimensions of big data which is known as volume, variety, veracity and velocity. Big data is one of the biggest forces transforming our world. With more, and better, data available faster than ever, it's affecting every aspect of our lives.

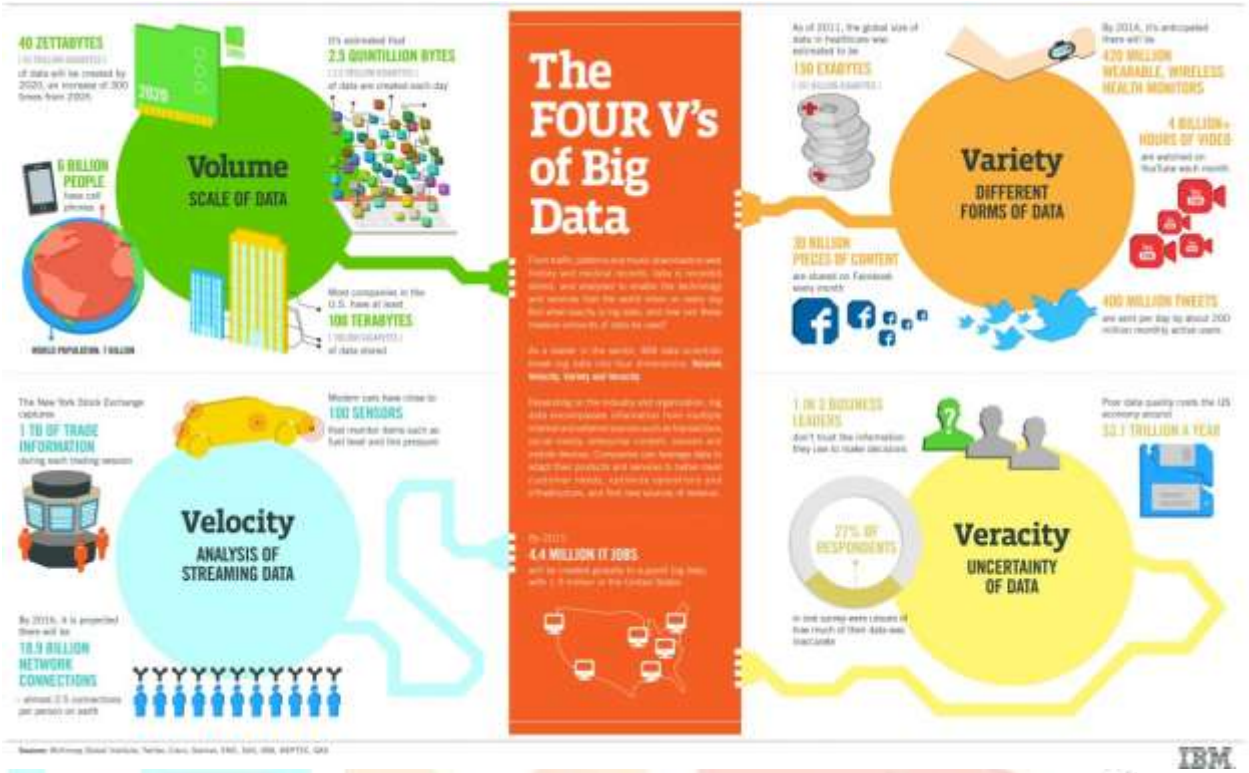

Figure 1: The Four V's of Big Data

III. FOUR WAYS BIG DATA IS TRANSFORMING THE EDUCATION SECTOR

Big data in education sector is likely to offer numerous benefits to students and educational institutions. It will revolutionize the way we manage education, in significant ways.

Big data in the education sector offers unprecedented opportunities for educators to reach out and instruct student in new ways .It will give them a deeper understanding of student's education experience and thereby help them evaluate the state of education system. In this post, we have tried to summarize some of the key ways in which big data can impact the education system of any country [6].

Figure 2: Four Ways

3.1 BIG DATA IN THE EDUCATION SECTOR: IMPROVE STUDENT RESULT

The overall idea of leveraging big data within the educational system is to improve the student results. Currently, the only measurement of the performance of students is the answers to assignments and exams. However, during his or her life, each student generates a unique data trail. Analyzing this data trail in real-time will help gain a better understanding of the individual behavior of students, and in creating an optimal learning environment for the students [6].
With big data in the education sector, it is possible to monitor student actions, such as how long they take to answer a question, which sources they use for exam preparation, which questions they skip, etc. These and similar to these questions can be answered automatically and instantly, giving each student instant feedback.

3.2 BIG DATA IN THE EDUCATION SECTOR : CUSTOMIZE PROGRAMS

With the help of big data, customized programs for each individual student can be created. Even if colleges and universities have lakhs of students, customized programs can be created for each of these students. This is possible with the help of what is called as 'blended learning' – a combination of online and offline learning. This gives students the opportunity to follow classes that they are interested in and also work at their own pace, while still having the possibility for offline guidance by professors. We already see this happening in the case of MOOCs that are developed and delivered around the world now. For example, when the Machine Learning class at Stanford University was taught by Andrew Ng, only 400 students participated. However, when the same course was delivered as a MOOC, it attracted 100,000 students [6].

3.3 BIG DATA IN THE EDUCATION SECTOR : REDUCE DROPOUTS

As big data in the education sector would help improve student results, dropout rates at schools and colleges would also reduce. Educational institutions can use predictive analytics on all the data that is collected to give them insights on future student outcomes. Such predictions can also help run scenario analysis on a course program before it is introduced into the curriculum; minimizing the need for trial-and-error. In fact, big data can also be used to monitor how students are performing in the job market after graduating from college. This would also help the future students in choosing the right college and course [6].

3.4 BIG DATA IN THE EDUCATION SECTOR: TARGETED INTERNATIONAL RECRUITING

With big data in the education sector, institutions can more accurately predict applicants and also analyze the possible factors that affect the application process. Such knowledge will allow institutions to adjust their recruitment strategies and allocate funds accordingly. Such an influx of data will also help students analyze information about schools around the world, speeding up the search and application process for international students to [6].
Big data has the potential to revolutionize the learning industry in the coming years. Smarter students will have a positive impact on organizations and society. Therefore, it's time we embrace big data in the education sector.

IV. ANALYTICS IN HIGHER EDUCATION

Analytics is basically defined as the process of evaluating and analyzing organizational data received from university systems for reporting and decision making reasons accrediting agencies, governments, parents and students are all calling for the adoption of new modern and efficient ways of improving and monitoring student success. This has ushered the higher education system into an era characterized by increased scrutiny from the various stakeholders. For instance, the Bradley review acknowledges that benchmarking activities such as student engagement serve as indicators for gauging the institution's quality.

Increased competition, accreditation, assessment and regulation are the major factors encouraging the adoption of analytics in higher education. Although institutions of higher learning gather a lot of vital data that can significantly aid in solving problems like attrition and retention, the collected data is not being analyzed adequately and hence translated into useful data.

According to Educause, Analytics is an overarching concept that is defined as data driven decision-making.

V. NEEDS, OPPORTUNITIES AND CHALLENGES

Figure 3: Needs, Challenges, Opportunities

VI. CONCLUSION

The higher education sector can be enriched with new teaching and learning methods. Big data can improve not only the quality of learning process, teaching process, services but also help in effective and sustainable management. It will also improving the student experience and reducing dropout rates will ultimately improve a universities reputation and ranking.

REFERENCES

[1] Saptarshi Ray. Big Data in Education. Research Gate, 2013.
[2] https://www.intechopen.com/books/big-data-on-real-world-applications/introduction-to-big-data-in-education-and-its-contribution-to-the-quality-improvement-processes
[3] B. Tulasi, International Journal of Computer Application (0975-8887) Volume 68 – No. 14, April 2013.
[4] EDUCASE Webinar "The Rise of Big Data in Higher Education" held on March 22, 2012. The speaker was Louis Soares.
[5] https://www.ijircce.com/upload/2017/february/145_12_Research%20Paper.pdf
[6] https://www.allerin.com/blog/4-ways-big-data-is-transforming-the-education-sector.
[7] Angela van Barneveld, Kimberly E. Arnold, and John P. Campbell. Analytics in Higher Education: Establishing a Common Language. Educause.
[8] Hazelkorn, E. (2007). The impact of league tables and ranking systems on higher education decision making. *Higher education management and policy*, 19(2), 1–2
[9] Baer, L. & Campbell, J. (2011). From metrics to analytics, reporting to action: Analytics' role in changing the learning environment. In *Game changers*: *Education and information technologies*. Ed. Oblinger. EDUCAUSE. Retrieved from http://net.educause.edu/ir/library/pdf/pub72034.pdf
[10] Yang, L. (2013). *Big Data Analytics: What Is the Big Deal?* Retrieved from http://knowledge.ckgsb.edu.cn/2013/12/30/technology/big-data-analytics-whats-big-deal/
[11] Baer & Campbell, 2011
[12] Daniel, B. (2015). Big data and analytics in higher education: Opportunities and challenges. *British journal of educational technology*, *46*(5), 904-920.
[13] Slade, S., Prinsloo, P. (2013). Learning analytics: ethical issues and dilemmas. *American behavioral scientist*, 57(10), 1509–1528.