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Utilizing Information Technology for Research

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Abstract: *Information technology — the set of computer and telecommunications technologies that makes possible calculation, communication, and the storehouse and reclamation of information — has changed the conduct of scientific, engineering, operation, and clinical exploration. This report examines present trends, unborn eventuality, and impediments to the use of information technology in support of exploration. Written from the standpoint of the experimenter using information technology and including numerous exemplifications, the report offers a number of recommendations directed to two top cult policymakers and leaders of institutions responsible for the support and operation of exploration, and experimenters themselves. Lately, computer technology has been joined with telecommunications technology to produce a new reality information technology, which has done much to remove the constraints of speed, cost, and distance from the experimenter. On the whole, information technology has led to advancements in exploration. Experimenters can unite further extensively and efficiently. Much more data are available for analysis. Analytic capabilities have bettered significantly, along with the capability to present results as visual images. New information technologies offer farther openings to ameliorate exploration. But wide use of computers in exploration has not come about without problems. Some of these difficulties are technological, some fiscal. Underpinning numerous of them are complex institutional and behavioural constraints*

Keywords: Information Technology, IT Tools for Research

I. INTRODUCTION

This composition is about how information technology has changed the conduct of scientific, engineering, operation, and clinical exploration. Information technology is that set of computer and telecommunications technologies that makes possible calculation, communication, and the storehouse and reclamation of information. The term, thus, includes

A wide range of computer hardware, including the biggest supercomputers and microprocessors specialized for certain research applications.

Communication networks connecting researchers to resources of all kinds as well as to one another and

The computer programs that scientists use to design, carry out, and organize the data produced by their research.

Even while the widespread use of computers in research has not been without issues, new technologies present new opportunities. There are financial and technological aspects to these issues. Mathematical computations previously performed using paper and pencil, slide rules, abacuses, or a room full of people using mechanical calculators were replaced by computers in research. The early computers provided more quantitative than qualitative benefits; larger computations could be completed more quickly, more reliably, and possibly more affordably.At the moment, every researcher can have access to substantial processing power on their desk for a few thousand dollars thanks to personal computers. In the meantime, improvements in the software used to communicate with and teach computers have opened the possibility of computer accessibility to those without specialized knowledge in calculation. More recently, computer and telecommunications technologies came together to establish the new field known as "information technology." The limitations of speed, cost, and distance have been greatly reduced for researchers because to information technology. Research has generally improved as a result of information technology. There are now more opportunities for research. Both the volume of data that may be examined and the intricacy of such analyses have increased. Additionally, scholars can work together more effectively and broadly. Information technology is used differently in different research disciplines. The uses of a discipline vary depending on the phenomena it studies and how quickly it acquires new data.

Computers capable of processing vast volumes of data rapidly are vital to these fields and have enabled previously unfeasible study. Some fields, like public health, psychology, or economics, collect information on occurrences that

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happen gradually over extended periods of time. These fields require powerful computers as well, but they do not require "real-time" reaction times. The majority of disciplines employ IT in ways that lie halfway between these two extremes.

II. RESEARCH METHODOLOGY

An explanatory research study focuses on distinct concepts of IT use in research and is based on secondary data gathered from a variety of e-journals, articles, newspapers, and reports.

Vital IT Tools for Research

1. REF-N-WRITE Academic Writing Tool

This Microsoft Word add-in called REF-N-WRITE is an excellent resource for beginning writers and non-native English speakers. Research articles can be imported into Microsoft Word using this program. The program, which is comparable to the Google search engine, then enables us to search the research papers while we are composing our academic essay or research paper.

2. Free Online Statistical Testing Tools

Employing suitable statistical methods and analysis to support our findings is a crucial need for our research. A crucial component of our verb flow will include statistical analysis, regardless of whether we are conducting qualitative or quantitative research. We can do the necessary statistical analysis and cut and copy data straight from our spreadsheet with this tool.

3. Microsoft Excel

Microsoft Excel is a frequently utilized research tool. There are several tools in MS Excel that will be helpful while conducting research for a project. If there will be a lot of quantitative data in our study, Excel is a necessary research tool. With just a few clicks, we can apply Excel's wide range of statistical functions to the cells. We have access to a wide range of chart kinds that help us visualize our data. Pivot tables make it simple to organize and produce summaries of our data.

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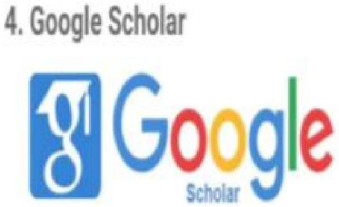
4. Google Scholar

Google provides a free online research tool called Google Scholar. This is a great research tool that lets users search the web for academic books, scientific articles, journals, whitepapers, and patents. Important details about the publication, like the number of citations, the version, and other articles that cite the current piece, are displayed by Google Scholar. It also notifies us when someone else has cited our work.



5. Research Gate

A social networking platform for researchers is called Research Gate. More than 11 million people use the website, including researchers, scientists, academicians, and PhD candidates. Users with a working institutional email address can register for an account. After becoming successful, users can submit full text articles, list publications, take photographs, and develop a profile. For scholars and researchers seeking partnerships, research gate is an ideal resource.

6. Plagiarism Checker

It is considered academic dishonesty to plagiarize. Academic and research institutes take plagiarism very seriously and punish offenders harshly. Plagiarism is when we copy and paste a significant portion of text from a document that was returned by someone else without giving credit to the original author. We can check the amount of overlap between our text and previously published materials using a variety of online tools and plagiarism detection software.

7. Project Management Tools

This tool allows us to plan out what needs to be done, by whom, and when. It also helps if we can use simple diagrams like Gantt charts to visualize our tasks and the timeline for completion. This can help us spend less time managing the project and more time conducting research.

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7. Project management tools

8. Microsoft Word

Microsoft Word is a widely used word processing application that is mostlyused for generating documents including letters, learning activities, tests, quizzes, and homework assignments for students. Microsoft Word offers a plethora of basic yet practical functions to facilitate work and study. Microsoft Word

9. Microsoft Power Point

Presentations are made with the help of Microsoft Power Point application. The presentation is made up of several separate slides with information on various subjects. PowerPoint presentations are frequently used for training and instructional reasons, as well as in business meetings.

10. PDF

The acronym PDF denotes "portable document format."When you need to save files that cannot be changed but yet need to be shared and printed, it was designed to make document sharing easier between computers and across operating systems.

11. LATEX

LaTex is a program for preparing documents.LaTex is a sophisticated typesetting system with tools intended for creating scientific and technical documentation. The accepted format for scientific document communication and publication is LaTex. LaTex is a free software.

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III. REVIEW OF LITERATURE

The field of information technology (IT) has completely changed how research is done. Many IT tools and resources are now available to researchers, enabling them to gather, process, and share their findings in a more effective and efficient manner.

The use of IT to streamline data collecting and processing is one of the most significant applications in research. IT tools can be used by researchers to gather information from a range of sources, such as social media, government databases, and online surveys. After the data is gathered, researchers can utilize IT software to examine it and spot patterns and trends.

IT is also utilized to help researchers collaborate and communicate with one another. Researchers can share their findings and connect with one another via social media, video conferencing, and email. Research papers, presentations, and other materials can be made and shared using IT resources.

Apart from the aforementioned broad applications of IT in research, other research disciplines additionally employ a variety of specialized IT tools and resources. For instance, scientists utilize IT to model and simulate complicated systems as well as to plan and carry out experiments. IT is used by social scientists to gather and examine survey data as well as to perform text analysis on social media data.

In general, the method that research is conducted has been greatly impacted by the usage of IT. Researchers can now get more data, evaluate it more quickly, and present their findings more clearly thanks to IT.

With the development of new technology and resources, the application of IT in research is always changing. Big data analytics, machine learning, and artificial intelligence are being used by researchers more and more to gather, process, and interpret data. With the use of these technologies, researchers are now able to solve difficult problems and uncover fresh information that was previously impossible.

All things considered, the way research is carried out has been significantly impacted by the use of IT in research. Researchers can now get more data, evaluate it more quickly, and present their findings more clearly thanks to IT. Additionally, IT is helping researchers find new information and provide sophisticated answers to topics that were previously unachievable.

Aspects to consider and Suggestions:

The organizations that fund the country's researchers must acknowledge and fulfil their obligations to create and maintain the services, standards, and rules that enable more widespread and effective use of information technology by researchers. In particular, universities must to offer knowledgeable assistance that is easily accessible for learning how to use technology.

Career ladders for employment in scientific programming should be established by university departments, research groups, and professional associations.

Funding agencies should support research programming and offer assistance in learning and utilizing information technology systems for research. Scientific and professional groups, as well as university departments, should put in place systems for the assessment, distribution, and merit (peer) review of software that is helpful for conducting research.

It is recommended that software providers, as well as scientific and professional bodies, establish program libraries and make them available over networks.

Information service providers ought to establish more straightforward common standards for information source access and querying in order to finally offer unified information access.

IV. CONCLUSION

Instead of tools specifically made for a particular research interest, software such as the academic writing tool REF-N-WRITE, free online statistical testing tools, Microsoft Excel, Google Scholar, Research Gate, Plagiarism Checker, and project management tools are more often used even in research activities. The reason for this is that the relevant researchers are not trained in using them, as the survey's results make clear. Furthermore, appropriate report production tools and analysis procedures are absent from the current software. The lack of a need for a correlation between business intelligence and research operations was another important finding in our study. It is recommended that

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software solutions provide data analysis features and be user-friendly in order to encourage researchers to use IT more often.The development of software applications for mobile devices has great promise for research, given there are now very few such apps available. Government and commercial funding organizations must also take proactive measures to include an increasing number of individuals in the research.

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