**Introduction**: Business information systems can provide important insights, wide range information and analytics of the business environment [1]. Which is very helpful in order to understand customer’s demands, expectations and requirements. Due to the contribution of digital information and technology, it is now really easy to store, access and share information as well as understanding and analyzing them. But restructuring existing business processes into new information system can be challenging as huge amount of information and stakeholders are associated with it. And these information can also be sensitive. Without proper planning, implementation and deployment, information systems can lead to downfall for the business.

So, implementation of a business information system should be done with caution and proper planning. After developing the system, it must be tested and adjusted with the current system. And then to ensure the deployment process is completed, the stakeholders who are involved in day to day use of the system, should be trained on how to use the system properly and efficiently. A routine maintenance plan also should be developed in order to recover the system from any technical difficulty. Also current rules and regulation of the business should be reevaluated and renovated in order to align the new system’s configurations.

If proper implementation and deployment is not ensured, this transformation to new business information system will fail badly and the involved stakeholders including the customers will suffer largely. Which will eventually cost a ton amount of money and time as well as the business’s reputation. In this report, a case study based on an organizational context is discussed which also included the planning, implementation and deployment process of their business information system along with its consequences. The report critically analyzes the current scenario, identify the issues and propose an upgraded alternative plan with possible database storage options which can help to avoid any kind of technical disaster.

**Discussion**: The mentioned organization is United Kingdom (UK) passport agency. They had decided to introduce a digital information system in 1996 and implemented the system roughly after two years with the help of Siemens Business Services. But soon after they started its operations in a few of the branches, the system started to fail and customers raised their voices with complaints. [2] Eventually the company had to count a massive amount of loss. Critics pointed out the reasons behind its failure that the deployment process was not done with proper planning and even testing. The restructuring procedure didn’t align the existing processes to the newly developed system. Employees who meant to use the system on daily basis were not trained enough to adopt this change, as a result the processing time was vastly increased and caused customer’s dissatisfaction. In this section, first, importance of business information system in UK passport agency is discussed, also a few key issues are mentioned that may occur if the system was to implement again. Then based on the issues, an upgraded alternative information system is proposed to avoid them. Also a critical analysis of the possible information systems and options that could be employed by the organization is presented.

*Importance of business information systems*: The UK passport agency has so many complex and time consuming business processes that includes processing the passport applications and costs associated with it, verification and validation of information etc. The agency has several branches to perform these processes and there are a huge amount of consumers across the country. In order to provide the best services to the consumers, they should provide cost efficient, fast and error free services. Business information systems can accelerate these processes at low cost as digital media platforms are becoming cheaper than other forms of communication. Also for verifying and validating the process, they need to cross match data. Which can be done more efficiently by an information system. It will also reduce time and human resource involvement. Intelligent information systems now also can automate business processes by making human-like decisions as well. Storing, transferring and utilizing information will be very easy. That’s why, information system is important to accelerate their business processes. But to implement information system, there are few issues that need to be considered. First, a huge amount of data needs to be transferred to the new system. It is a matter of time and resource. The information are very sensitive as they contain national information of individuals. Also the system should be able to deal with the huge amount of information. The new system’s design must be very adequate and sophisticated so that will ease and smoothen the experience of the user. It must be cost effective and less time consuming, should give fast response in order to accelerate the processes. Data backup system should be considered. The system should be scalable and maintainable. Maintenance plans should be integrated before deploying it. Proper testing should be done in order to evaluate its performance in the real life environment. And finally proper guidance to maintain and use the system should be provided.

*An upgraded alternative*: Based on the mentioned issues, the agency can implement a cloud based information system. Cloud based information systems provide scalable, maintainable and reliable cloud resources with low cost and available services [3]. The main idea of cloud computing is to provide services by virtually allocating computing resources somewhere else. That means, the organization does not have be concerned to build, scale or maintain the physical machines or resources. They can just acquire the cloud services into their information system. It eliminates the risk factors of slow response and backup storages. The processing time will get reduced. And as it is highly scalable, it can assure that high amount of customers requirement can be fulfilled easily. Also cloud based systems are easy to maintain and renovate as they are not dependent on local machines. System maintenance routine and upgradation process also can be done in order to enhance the quality of user experiences. Cloud based information systems also provides distributed database networks which ensures reliable data storage policy by data replication and fragmentation. Data will be backed up and available from any devices in the agency. Also the information system will integrate intelligent algorithms to make good use of the data. It will provide data-driven analytics and insights by analyzing all the information stored in the database systems. Finally, there will be proper testing process in order to evaluate the performance of the system in real life application. A proper training with detailed guideline will also be provided in order to help the users of system.

*Analysis and Comparison*: A few possible options for storing information in the database systems are available which can be employed by the agency for data management and decision making process. The traditional database systems are centralized relational database management system (RDBMS). Which allows transactions from multiple clients to server [4]. RDBMS are efficient and fast for transactions and storing similar kind of data because of its tabular format. But for distributed database systems, RDBMS don’t perform very well. As the proposed alternative information system is a distributed data storage system, NoSQL database system is a good option to implement because it is different from traditional tabular database [5] and designed especially for distributed database systems. It stores data in a non-relational manner so that it does not have any dependency, it also can store large volume of structured, semi structured and unstructured data; a wide variety of data which can be of any kind or form. It is easy to scale, replicate and fragment data. Also the data is backed up by all nodes of the distributed network so that risk of losing data is reduced. It is more suitable for the hierarchical data storage. Distributed data storage systems are flexible to make changes and easy to maintain. So, we can conclude that, to implement the proposed business information system, NoSQL database systems are more appropriate.

**Conclusion**: Business information systems play important and valuable part in business progress as they provide useful insights and data-driven analytics by utilizing the information of business environment. But implementing and restructuring current system by information system can be challenging. With proper plan and alignment to the current system, information system can serve the purpose. Otherwise, it will cost money as well as customer’s struggle. So, possible options like cloud based infrastructures and distributed data storage systems to build an information system should be considered and evaluated in order to make the best use.

**References**:

[1] A. Vera-Baquero, R. Colomo-Palacios and O. Molloy, "Business Process Analytics Using a Big Data Approach," IT Professional, vol. 15, no. 6, pp. 29-35, Nov.-Dec. 2013, doi: 10.1109/MITP.2013.60.

[2] National Audit Office, “United Kingdom Passport Agency: The passport delays of summer 1999,” Oct. 1999 [Online] Available: <https://www.nao.org.uk/report/united-kingdom-passport-agency-the-passport-delays-of-summer-1999/>

[3] A. Y. Algrari, “The Impact of Cloud Based Information Systems on Organization's Performance,” IOSR Journal of Computer Engineering, vol, 19, issue 2, pp. 42-46. Doi: 10.9790/0661-1902024246.

[4] H. Fatima and K. Wasnik, "Comparison of SQL, NoSQL and NewSQL databases for internet of things," 2016 IEEE Bombay Section Symposium (IBSS), Baramati, 2016, pp. 1-6, doi: 10.1109/IBSS.2016.7940198.

[5] Y. Zhou, Q. Chen, B. Shan, F. Jiang and Y. Pang, "A Distributed Storage Strategy For Trajectory Data Based On Nosql Database," IGARSS 2019 - 2019 IEEE International Geoscience and Remote Sensing Symposium, Yokohama, Japan, 2019, pp. 3487-3490, doi: 10.1109/IGARSS.2019.8900482.