



# Some Observations on Integrated Database System of MCD

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**Abstract--**MCD is a vast organization and offering many online citizen services to different customers but lot of possibilities exists to make their business processes and services more transparent and accountable to focus on integrating their different department's databases together into a single database. To avoid data redundancies, repeated work and time of customers, database integration among various departments according to established best standards should be achieved. In this work effort has been made in order to understand the perception of MCD officials, who are practically using software applications, about present MCD software's systems used at different departments having all benefits of integrated database management system.

**Keywords--** Information System, Decision Support System, Information and Communication Technology, Human Capital Management, Database Management System.

## I. INTRODUCTION

Municipal Corporation of Delhi (MCD) is on way to leverage information and communication technologies to provide efficient, affordable, accountable and transparent municipal services to the people of Delhi. [6, 11]. However, globalization led to immense competition and thus need of more shortened service life cycle by integration of various information systems. An information system includes the computer, people, procedures and software that store, organize, and deliver information. Those organizations which have disintegrated information system, can maintain individual software system to work with different business functions. In such disintegrated environment of information sharing, business organizations have multiple information systems like marketing information system, production information system, finance information system, human resource information system, sales information system, decision support system and so on. Each different information system requires its own set of hardware, software, and method of processing data [7]. This type of disintegrated information system might work well within the standalone functional area of a business but to achieve the common goal of organization an integrated information system is the ultimate requirement.

Disintegrated nature of database management system might be one of the major problems of MCD, which reduces their efficiency to deliver best quality of services to customers. Disintegrated information management system in MCD may lead work inefficiency (like if MCD property tax department require some information from MCD community or school management department because of the disintegrated nature of MCD information system a clerk from one such department takes printout of desired information and share it with other department.) This type of information sharing practice in MCD would make the whole system inefficient. Therefore, integrated information aspect in [8] at MCD is very important to enhance the work efficiency for delivering better services to the citizen. However, it is a known fact that in the past ten years, a large number of national and international organizations have started to standardize and integrate their processes in one system to manage their key resources more effectively by implementing ERP systems [10].

In this work effort has been made in order to understand the perception of MCD officials about present MCD software's systems at different departments of having all benefits of integrated database management system by getting feedback to MCD officials those who are practically using software applications. The objective of this paper is to look into the present MCD software's systems functional environment that is there any lack of databases integration among working of different departments and having all benefits of integrated database management system. If MCD may obtain this by better way of integrating their different department's databases together into a single database system then service delivery time, performance and revenues of MCD may also improve drastically.

The outline of this paper is as follows. We begin with introduction of problem of study of MCD in section 1. Section 2; contain the literature review related to database integration and information sharing aspect across the world. Hypothesis to test on the basis of MCD officials' response about present MCD software's systems at different departments having all benefits of integrated database management system is in section 3.



MCD officials' responses on various different issues are analyzed, interpreted and illustrated in section 4. Section 5 represents statistical tests results and significant findings to test the mentioned hypothesis of section 3 related to benefits of integrated database management system to make MCD more service providing organization. In Section 6, we give our concluding remark.

## II. REVIEW OF LITERATURE

**Batini et al.** [1] focused on general guidelines for future improvements and extensions of database integration. **Gupta and Kumar et al.** [6] highlighted issues involved with MCD functionality, ERP software, and identify the basic motivational requirements and concerns of ERP implementation for MCD to enable improved services. **Reddy et al.** [13] given importance of local database integration with global databases that require transformation of existing local databases to global level through the four layered procedure. According to them the proposed methodology covers both schema integration and database integration, and uses four layers schema architecture with each layer presenting an integrated view with the concepts that characterize the layer. **Bhatnagar** [3] highlighted the various benefits so that delays can be reduced and services can be made transparent, and are consistent across different branches of the same department. **Gupta and Kumar** [7] described study work that present MCD information system does not follow the single database management for sharing the records of their entire citizen's services. **Prakash and Gulla** [12] described the choice, analysis, decision, implementation and benefits of enterprise applications. The study revealed that such an approach works for government organizations and can also prove to be efficient and fast in terms of deployment, apart from bringing significant benefits in administrative and citizen service processes for the organization. **Gupta and Singh** [5] research objective provides insights paradigm and benefits of ERP applications for e-Government. **Frost & Sullivan** [4] research results concluded that more than sixty percent of governments including local, country, and state level etc. are not using ERP services and its applications. **Gupta and Kumar** [8] concluded that there is a lack of information sharing among various departments of MCD to flow real time information to offer quality online services for citizens. **Gupta and Kumar** [9] considered CSF and designed a SDM model of an ERP implementation for MCD. This will act as a reference model to help and avoid previous mistakes, and minimize the ERP failure risks associated with MCD for successful ERP implementation.

## III. HYPOTHESIS

In order to test the perception of the MCD officials about the current MCD integrated database management system aspect  $H_01$  hypothesis is derived to explore. Perception of MCD officials those who are practically using software applications are collected through questionnaire. Although, it is assumed that neither they are having good knowledge of ERP nor they are expert.

$H_01$ : Present MCD software's systems at different departments having all benefits of integrated database management system.

## IV. DATA ANALYSIS AND INTERPRETATION

The study undertaken was descriptive in nature to test the above hypothesis. Preliminary data is collected to throw the light on real nature of the issues which are analyzed and interpreted in brief as shown below.

### 4.1. Decision Support System

The innovation in the area of information and communication technology makes our world a global village. Many multinational organizations now a day operate and control their business and projects with support of latest software's like Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Supply Chain Management (SCH) etc. Such software's help in management for decision making and also allow them to do better-quality management of resources and processes from remote locations. The responses as shown in Figure-1 as A1 represents that more than **sixty five percent** of MCD officials disagree with the statement "*Present information system has a quality to manage projects and acts as a good decision support system*". Around **twenty eight percent** MCD officials are found to agree to the statement, because they believe that the present MCD software's system has a quality that helps MCD in managing stock as well as in decision making.

### 4.2. Online Citizen Services

At present MCD have around thirty four departments and many departments have its own database for managing citizen services. MCD already provides online services platform for many of their services with the help of Information and Communication Technology (ICT). During the MCD site visit it is observed that manual file based record system is still operational at various MCD online service provider departments like property tax department, hospital management etc. Digitization of the manual file base system is a big challenge for such departments.

More than **sixty two percent** of the MCD officials are found to disagree with the statement “*MCD information system available online for all citizen services*” as A2 in Figure-1 and around **thirty one percent** of the MCD official are found to be agree with the statement because they thought that all the customer data was online.

#### 4.3. Provide Business Transparency

Business transparency is one of the important components of any business organization that brings work transparency. Many private and government sector organizations implement software like ERP to make their business processes more transparent and accountable. At the time of MCD site visit it was found that software’s which are used by the MCD is not capable to bring business accountability for many MCD processes. Manual file based information sharing system is still quite famous at many MCD offices. Research study response shows in Figure-1 as A3 that around **sixty percent** of the MCD officials were found to disagree with the statement “*Present MCD information system capable to provide business transparency*”. Around **twenty four percent** of the MCD officials are found to agree with the statement because they are unaware of various software’s like ERP that fully brings business transparency after their implementation in the organization.

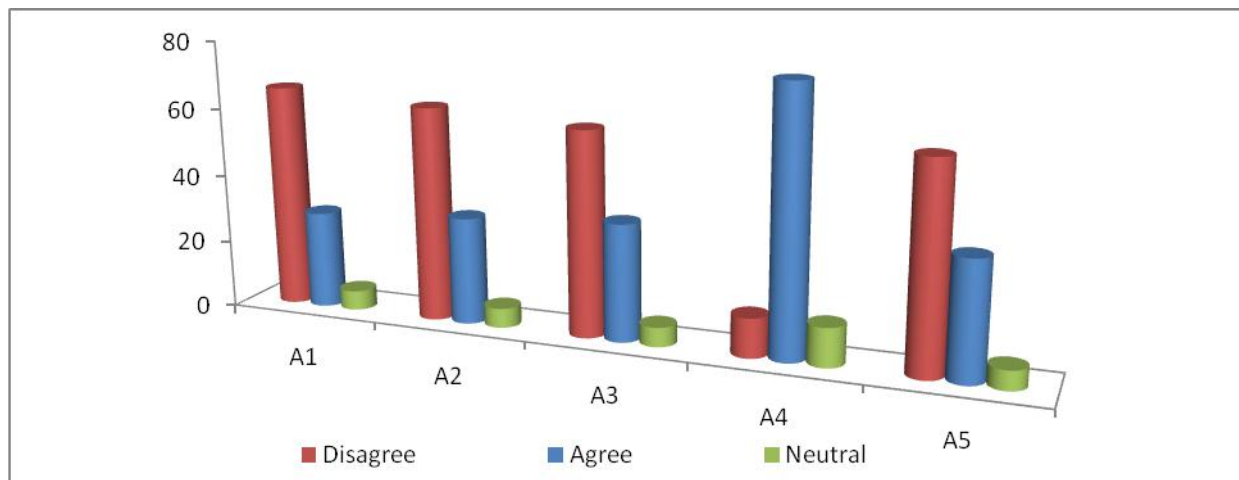
#### 4.4. Time Consuming Practices

Repeated entry of one customer’s data in database is called data redundancy.

In this problem, multiple copies of same data exist in database that occupy buffer memory space and slow down the process of data retrieval from database. Result of that size of data storage rapidly increases and that also creates inconsistency and disparity. During MCD site visit it was found that each MCD department has its own database. Citizens separately submit their personal details to each MCD department for availing school, community and hospital management services. Such practice is very time consuming for the citizen as well as the MCD officials because of the disintegrated nature of the database management system. Figure-1 as A4 shows that more than **seventy seven percent** of MCD officials were found to agree with the statement “*Repeated entry of citizen information’s at different department MCD databases is a time consuming practices*”. Around **eleven percent** of the MCD officials disagree with the statement because they unaware with the fact of disintegration of MCD database management system

#### 4.5. Human Capital Management

Human capital management or human resource management is one of the important jobs for any business organization to attain their business goals. Many private and public sector organization has human resource department enabled with Human Resource Information System (HRIS) that evaluate the performance of each employee on requirement basis.



**Figure-1**



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This department is also responsible for recruitment and training of the employee towards attaining the organization goals. During the research it is observed that at present in MCD approximately more than one fifty lakh employees are serving in three different zones of MCD. At present, MCD does not have any integrated human resource information system with them to monitor the performance of each MCD employee. Figure-1 as A5 shows that more than **sixty percent** of the MCD officials are found to disagree with the statement “*MCD present information system capable to do human capital management*”.

Around **thirty two percent** of the MCD officials are found to agree with the statement that present information system is capable to do human resource management because they are not aware of HIRS software or happy with manual file base systems.

#### V. RESULT AND DISCUSSION

In order to test the perception of the MCD officials about the benefits of integrated database management system, one sample, T-test is applied. The hypothesis tested in the research study using one sample T-test is as follows.

**Table -1**  
**One Sample T- test**

Statements	Mean	Std. Deviation	T- Statistics	P- Value	Remark
Present information system has a quality to manage projects and acts as a good decision support system (A1)	3.3429	1.93942	-2.005	.053	
MCD information system available online for all citizen services(A2)	3.2571	1.66879	-2.634	.013	
Present MCD information system capable to provide business transparency(A3)	3.2857	2.16349	-1.953	.059	
Repeated entry of citizen information's at different department MCD databases is a time consuming practices(A4)	5.4000	1.61245	5.137	.000	
MCD present information system capable to do human capital management(A5)	3.3429	2.16853	-1.793	.082	

An integrated database information system having a capacity for data sharing effectively and efficiently between and within different business domain of an organization that leads to more efficient execution of timely business processes. The integrated database information management systems are designed in such pattern that it always facilitates internal and external department data sharing. In today's competitive business scenario, only those companies can survive who are master in for delivering fast and efficient services to their customers.

Integrated information system adopted by many of private, public and government sector organizations for delivering quality of services to their customers. Integrated database enabled environment like ERP, provide dynamic information sharing platform to various functional department.

All the real time dynamic data refers to the business data and its processes that are always loaded with the current business information. The result as shown in table-1 all the probability values accept in the fifth statement is less than five percent problem level of significance hence with ninety five percent confidence level, it can be concluded that for statement one (Present information system has a quality to manage projects and act as a good decision support system), two (MCD information system available online for all citizen services ), three (Present MCD information system capable to provide business transparency ) the MCD officials found to significantly disagree with the statements because lack of integrated information management across the different department of MCD.





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Their software system cannot act as a good decision support systems as well as not able to provide fully business transparency of the many of MCD business processes. In case of statement four (Repeated entry of citizen information's, at different department in MCD databases, is a time consuming practices), MCD officials are found to significantly agree with statement because if same citizen approaches MCD for different services in that case the same citizen has to give their personal details to each respective service department of MCD to avail the required services. This type of repeated personal data entry of a same citizen at multiple places consume more MCD resources, and additional time wasting practice that lead to inefficiency in their various service processes. However, for statement five (MCD present information system capable to do human capital management) they found to neither disagree nor agree i.e. they are neutral with the statement. Hence, hypothesis  $H_{01}$  is **rejected**. Thus, this work results revealed that present MCD software's systems at different departments are not having all benefits of integrated database management system.

## VI. CONCLUSION

In this work effort has been made in order to understand the perception of MCD officials, about present MCD software's systems at different departments having all benefits of integrated database management system. The study results revealed that present MCD software's systems functional environment is having lack of databases integration among working of different departments and thus not having all benefits of integrated database management system. If MCD may obtain this by better way of integrating their different department's databases together into a single database system then will decrease effort required to interact with other software applications for dynamic information sharing. Outcome of that service delivery time, performance, and revenues of MCD may also improve drastically.

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