MATERIAL AND METHODS

This third chapter is describing research material and methodology. This chapter also helps to present wide-ranging logic to select methods, cases and tools used in this research work. It will also assist to choose appropriate methodology and make guidelines for material collection. Materials finding and searching important articles are also very important towards the research study so, also included in this chapter. Thus this chapter covered research process, primary research output for proposal purposes in the context of implementation of integrated e-Governance with an overview of qualitative and quantitative methods, data collection, recording and analysis.

3.1 RESEARCH MATERIAL AND MANEUVER PHASES

In general way, research refers to search for knowledge. In term of scientific way research refers to systematic method consisting communicative problem, formulating hypothesis, collecting the facts/data and analyzing the facts with reaching certain conclusions either in the form of solution of the given problem or in certain generalization for same hypothetical formulation. Through the research, we can devise alternative policies and can as well examine the consequences of each of these alternatives. Decision-making may not be a part of research, but research certainly facilitates the decision or indirectly to economic conditions. In the area of government, where research is necessary is collecting information on the economic and social structure of the nation. In the context of e-Governance, research as a tool of economic policy which is into three distinct phases of operations such as:

i. Investigation of economic structure through continual compilation of facts;

ii. Diagnosis of events that are taking place and the analysis of the forces underlying them

iii. Prediction of future developments
A key part of architecture analysis of the existing system or architecture is gathering all relevant information about the new architecture. For collecting the research materials, person should be think like a analyst because only analyst know that what information to gather, where to find it, how to collect it. And we can also use various tools for gathering the information or materials.

In dealing with any real life problem it is often found out that data at hand are inadequate, so it becomes necessary to collect data that are correct and appropriate. There are numerous way of collecting the suitable data within the context of costs, time and other resources at the disposal of the researcher. Primary materials or data is recognized as data is assembled and collected particularly for the research at hand with interviews, questionnaires, survey or observations. While secondary data can be collected from various documents such as, books, periodical, articles, on the Internet and newspapers. Secondary data can be assembled faster than primary data.

### 3.2 MATERIAL COLLECTION TECHNIQUES

One gathers many types of research material to the current system during system development. While gathering material we decide which sort of information we have to collect than after this what are sources of information? and how those sources can be brought to maximum use ? main sources of material are authorities, personnel, input and output processes for while many sorts of formats such as-interview, questionnaire etc. Generally following collecting material techniques is used to which are based on some standards.

i. Already available documents, samples of documents form and database

ii. Research & site inspection

iii. Observation of working environment

iv. Questionnaires

v. Interviews
Gathering information/materials in large and complex organizations either in the government or private sector is a very crucial part and it is time-consuming. So, all the relevant personnel should be consulted. The analyst should evolve a clear strategy:

**What Kinds of Information Do We Need?** Answer of this question is given by depicting the following diagram. Lots of information and material, we need to analyze which is related to the organization, the user staff, and the workflow as shown following figure:

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**Figure: 3.1 Research Material/Information Gathering Techniques**

It depends on which type of information we need, then we will proceed further to collect that information.
3.3 INFORMATION SOURCES

Material should be obtained all the above-mentioned sources. The consistency should be checked between them and summarized briefly. This research study is based on a concept of implementation of technical architecture in a growth oriented region with the involvement of Government that considers delivery of various services of government towards the different end users such as citizen, Business, Employee and government.

i. The major sources of information are:

ii. Users/user staff of the system.

iii. Forms, documents, manuals, reports etc. used in the organization

iv. Financial reports

v. Personnel staff.

vi. Computer programs of existing system.

vii. Procedure manuals and rulebook, which specify how various tasks, are carried out in the organization.

viii. Professional staff.

After material have collected, task turn to analyzing these collected material, which requires a number of closely related operations such as establishment of categories, the application of these categories to raw data through coding, tabulation and then drawing statistical inferences.

In this study, data condensed into a few manageable groups and tables for further analysis. More data are shown in this study in form of tabulation because tabulation is part of the technical procedure wherein the classified data are put in the form of tables.
3.4 RESEARCH METHODOLOGY

“As the Method can be defined as a systematic and orderly procedure for attaining specific objective, Methodology may be a description of process, or may be expanded to include a philosophically coherent collection of studies, concepts or ideas as they relate to a particular discipline. A documented process for management of projects that contains procedures, definitions and explanations of techniques used to collect, store, analyze and present information as part of a research process in a given discipline. the study or description of methods. Methodology doesn't describe specific methods; nevertheless it does specify several processes that need to be followed. These processes constitute a generic framework. They may be broken down in sub-processes, they may be combined, or their sequence may change. However any task exercise must carry out these processes in one form or another.”

At last we can say methodology may refer to nothing but more than a simple set of methods or procedures, analysis of the principles of methods, rules and postulates or it may refer to the rationale and the philosophical assumptions that underlie a particular study relative to the scientific method.

3.5 CLASSIFICATINS OF PRESHEACH MEHODOLOGY

It is not simple to research on e-Governance due to its integration and interdisciplinary nature. This is also not similar as traditional research because it is quite difficult to observe and view the inside and outer side of e-Governance. By choosing correct research methodology, it becomes simple to explore e-governance research. As the pervious researches it can be say, research can be descriptive (describe a phenomenon without reference to theory), philosophical (reflects upon a phenomenon without data or reference to any theory), theoretical (reflects on some phenomenon based on some theory but without empirical data or with only anecdotal or particular case), theory generating (attempts to analyze or interpret qualitative or quantitative data in a systematic manner for the purpose
of model building) and theory testing (attempts to test a theory using quantitative).

We can categories the research methodologies based on research objective, purpose and some measures.

According to Yin (1994) research study can be distinguished in three categories based on their purpose: exploratory, descriptive, or explanatory.

**Exploratory Research:** Exploratory research is frequently used when a problem is not recognized, or the available information is not complete. The procedure that is appropriate for information gathering when implementing an exploratory research is interviews. (Yin,1994).

**Descriptive Research:** Sekaran (2000) states that descriptive research is carrying out when information is clearly available, accessible and known much about the situational factors. We can say descriptive research used when needs to know the characteristics of individuals, group and permit them to give their opinion methodically and systematically related to the area.

**Explanatory Research:** According to Yin (1994) an explanatory research approach could also be used when the study aims to explain certain procedures from different perspectives or situations with given set of events. The research purpose and research frame shows that this study is actually descriptive. While research objective is moderately explanatory, since it has been trying to review and justify the findings in the study and drawing conclusions. However, the study is descriptive therefore objective is to describe the area of research and attempt to clarify the collect the data in organize to find out the differences and similarities against theories and frame of reference.

This research study discovers the answers of various scientific and procedural application related questions with the purpose to gain familiarity with a phenomenon such as e-Governance and to achieve new insights into it, so this is exploratory or formulate research study.
3.6 PROJECTED METHODOLOGY FOR THIS RESEARCH STUDY

To develop Integrated Transactional Model, we have to use N-Tier Architecture to data transmission and data record to the main database server.
Following table showing the basic features as outline of N-Tier Architecture, through this architecture we can develop Integrated Model with in better transaction speed means within less receiving and respond time to and from the server. The main thing of this architecture is work can be divided into multiple more servers.

<table>
<thead>
<tr>
<th>Architecture- PL+BL+DL</th>
<th>1. PL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. BL*5</td>
</tr>
<tr>
<td></td>
<td>3. DL</td>
</tr>
<tr>
<td>Language Used</td>
<td>.NET/J2EE</td>
</tr>
<tr>
<td>Type Of Language</td>
<td>OOPS</td>
</tr>
<tr>
<td>Min No Of Computer</td>
<td>5 TO 10</td>
</tr>
<tr>
<td>Data Sharing</td>
<td>YES</td>
</tr>
<tr>
<td>Extendibility</td>
<td>YES</td>
</tr>
<tr>
<td>Scalability</td>
<td>YES (SUPPORTING THREADING)</td>
</tr>
<tr>
<td>Accessibility</td>
<td>- LOAD ON SERVER NO</td>
</tr>
<tr>
<td></td>
<td>- NETWORK TRAFFIC NO</td>
</tr>
</tbody>
</table>

Table: 3.1 N-Tier Architecture Basic Feature Outline

Qualitative methods are an essential complement to both quantitative and participatory methods in any impact assessment. Qualitative methods are usually understood to do case studies for combining different methods to compile a holistic understanding of individuals, communities or institutions. In my case the qualitative method was based mostly on systematic survey of relevant literature using the electronic databases.
Our aim is to investigate integrated e-Governance implementation in successful manner and draw out issues and find out better solutions which give most suitable technique for prediction and best possible classification of Integrated Transactions. Even we can develop an application on the earlier version of Microsoft platform visual basic but visual basic platform works only in three tier architecture that why we should use visual studio .NET platform for development of application, so that we can work on n-tier architecture for successful of data transmission and implementation of integrated application.
Following figure 3.5 shows the .Net working architecture used encoding the application development.
Integrated delivery model can be an ideal solution for all mentioned challenges if the citizen and Government department work in the proper manner just like public private participation.
centralization architecture design, departmental structure, h/w & s/w availability, accessibility and multiple services of multiple departments deliverance.

I was ongoing with the instructions given by my guide and co-guide. During the collection of materials from various sources we came to know some vital details and structures to be used. The next stair was to write a key outline of the thesis. Now I was started publishing papers in conference and journals to be able to get adequate and reliable information, a qualitative method was used.

To accomplish this thesis, seeking and searching in some relevant literature sources has been performed for the purpose of this study, which also has involved a review and synthesis of results from scientific publications available on the Web, published by several authors. To get the theoretic connection I have also studied other literature in the subject field. I have therefore tried to gather and declare some relevant facts which relates to the essentials of this thesis. It was however not too easy in the beginning to find enough studies which can fulfill my needs.

My next step was studying the gathered documents and analysis at every steps and find out the benefits and there drawbacks.

Existing research on e-Governance architectures and performance models concentrate on structures that confirm to network based and object oriented regular topology. In this research study I present automated techniques to generate application specific.

The main objectives of this study are to view the progress of E-Governance, difficulties to implementation of E-Governance and to provide a technical architectural solution to effective delivery of governance to a particular region. So, we have to collect, analyze new data, compare it to existing theories and get the opportunity to make comparisons between cases to detect possible similarities or differences. Therefore, we have chosen qualitative research strategy for this study. By only this strategy we can better understand and gain this research study.
3.7 **APPLIED APPROACH FOR INTEGRATED APPLICATION EVENT-HANDLING**

Research approaches have a special significance in solving various operational and planning problems of business and industry. As the consolidation research are the fountain of knowledge for the sake of knowledge and an important source of providing guidelines for solving different business, government, and social problems. It is a sort of formal training that enables one to understand the new development’s in one’s field in a better way.

The purpose of research approach is to discover answers to questions through the application of scientific procedures and find out the truth which is hidden and which has not been discovered as yet. While qualitative approach is used when necessary to enhancement, supplement, authenticate, explain and reinterpret or re-construe.

Just following some figures or diagrams represents working events for users as demonstrative integrated e-governance application:
Figure: 3.12 Consolidate Representation of Service Menu Event (Pre-State, Process, Output, Post-State)