

BBA THESIS
MASTER DATA QUALITY IN ERP DEPLOYMENT PROJECTS
CASE SAP

Roman Korolev

Thesis
Bite/Degree Programme in Business
Information Technology
2009



DP in Business Information Technology

Author: Roman Korolev	Group: BITES05
Title: Master Data Quality in ERP Deployment Projects Case SAP	Number of pages and appendices 70 pages + 3 Ap- pendices
Supervisors: Erkki Koskela	
<p>Data Quality is not new. Many organizations are trying to reach quality during their deployment projects in different ways and using different tools. However following study is not going to talk about tools and how SAP is handy in different aspects of business life.</p> <p>The purpose of the study is to explore the importance of master data quality during deployment projects.</p> <p>Study is representing combination of theory and practical suggestion which can be utilized in real world. Theory part introduce to the reader main aspect of master data in material management and sales and distribution modules of SAP. However the methodology of the study is base on the governance approach which controls master data by variation of regulations and rules. Base on the governance approach, study suggests templates which could be utilize by any organization during collection of master data. Following templates represent general view of the research problem, that means each organization has own way of utilization of the suggested templates base on their own processes. In practical part of the study is shown interaction between theory and suggested templates, which are utilize in procurement process in SAP. Such utilization will show importance of collection of valid and complete master data during deployment project.</p> <p>Knowledge gained from this study has the potential in assisting medium-sized organizations to improve the quality of the data used in their ERP systems.</p>	
Key words: Data Quality, SAP, Master Data	

Table of contents

Abbreviation	1
1 Introduction.....	3
1.1 The extent of the work.....	3
1.2 Document outline	3
2 The goal to the work	5
3 Master data in material management module	6
3.1 Vendor master data.....	7
3.2 Material master record.....	8
4 Master data in sales and distributions module.....	11
4.1 Customer master data.....	12
5 Master data quality	13
5.1 Taking control of master data quality.....	15
5.2 Why is this so difficult?	16
6 Master data governance.....	17
6.1 Risks which drives master data governance	17
6.2 Master data templates toward governance approach	20
6.3 Case 1	22
6.3.1 Vendor general data form	22
6.3.2 Vendor company code form.....	22
6.3.3 Customer general data form	23
6.3.4 Customer company data form.....	23
6.3.5 Material master data form	24
6.4 Case 2.....	25
6.4.1 Vendor general data form	25
6.4.2 Vendor company code form.....	26
6.4.3 Vendor purchasing organization form.....	26
6.4.4 Customer general data form	27
6.4.5 Customer company data form.....	28
6.4.6 Customer sales organization form	28
6.4.7 Material master data form	29

7	Research method.....	30
7.1	Qualitative method.....	30
7.2	Empirical method.....	30
7.3	Why qualitative and empirical research?	31
8	Test of master data	32
8.1	Case 1	33
8.1.1	STEP 1 Vendor master data creation.....	33
8.1.2	STEP 2 Material master data creation.....	34
8.1.3	STEP 3 Purchase order creation.....	35
8.1.4	STEP 4 Goods receipt creation	36
8.1.5	STEP 5 Invoice verification creation	37
8.1.6	STEP 6 Customer master data creation.....	38
8.1.7	STEP 7 Sales order creation	39
8.2	Case 2	40
8.2.1	STEP 1 Vendor master data creation.....	40
8.2.2	STEP 2 Material master data creation.....	41
8.2.3	STEP 3 Purchase order creation.....	44
8.2.4	STEP 4 Goods receipt creation	45
8.2.5	STEP 5 Invoice verification creation	46
8.2.6	STEP 6 Customer master data creation.....	47
8.2.7	STEP 7 Sales order creation	48
9	Findings.....	49
9.1	Master data extracts from SAP.....	50
9.1.1	Vendor master data	50
9.1.2	Customer master data	51
9.1.3	Material master data	52
9.2	Case 1	54
9.2.1	Purchase Order	54
9.2.2	Goods Receipt & Invoice Verification.....	55
9.2.3	Sales Order	56

9.3 Case 2	57
9.3.1 Purchase Order	57
9.3.2 Goods Receipt	58
9.3.3 Invoice Verifications	59
9.3.4 Sales Order	60
10 Conclusion	61
Bibliography	62
Appendix 1	64
Appendix 2	65
Appendix 3	66
1. Introduction.....	67
1.1. Purpose and Scope.....	67
1.2. Test Cases.....	67
2. Integration Test.....	68
2.1. General Description.....	68
2.2. Environment.....	69
2.3. Integration Test Entry Criteria.....	69
2.4. Entry criteria	69
2.5. Deliverables from System Solution phase	69
2.6. Test Validation.....	69
3. Scope of Test – Master Data & Business Processes to be tested	69
3.1. Features to be tested inside the scope.....	70
4. Enterprise Structure and Master Data	70
4.1. Enterprise structure	70
4.2. Master Data.....	70
5. Test Acceptance / Rejection Criteria.....	70
6. Deliverables and Test logs.....	70

Abbreviation

ERP: Enterprise Resource Planning

"Enterprise resource planning (ERP) is a company-wide computer software system used to manage and coordinate all the resources, information, and functions of a business from shared data stores."

PIM: Personal Information Management

"Personal information management (PIM) refers to both the practice and the study of the activities people perform in order to acquire, organize, maintain, retrieve and use information items such as documents (paper-based and digital), web pages and email messages for everyday use to complete tasks (work-related or not) and fulfill a person's various roles (as parent, employee, friend, member of community, etc.)."

SCM: Supply Chain Management

"Supply chain management (SCM) is the management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers (Harland, 1996). Supply Chain Management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption."

CRM: Customer Relationship Management

"Customer relationship management (CRM) consists of the processes a company uses to track and organize its contacts with its current and prospective customers. CRM software is used to support these processes; information about customers and customer interactions can be entered, stored and accessed by employees in different company departments. Typical CRM goals are to improve services provided to customers, and to use customer contact information for targeted marketing."

BI: Business Intelligence

"Business intelligence (BI) refers to skills, technologies, applications and practices used to help a business acquire a better understanding of its commercial context. Business intelligence may also refer to the collected information itself."

DQ: Data Quality

"Data quality (DQ) the processes and technologies involved in ensuring the conformance of data values to business requirements and acceptance criteria."

MM: Material Management

"SAP MM is the materials management module of the SAP ERP software package from SAP AG. Materials management is integrated with other modules such as SD, PP and QM. Materials management is used for procurement and inventory management."

SD: Sales and Distribution

"SAP SD is the Sales and Distribution module of the SAP ERP software package from SAP AG. Sales and Distribution is integrated with other modules such as MM, PP and QM."

PO: Purchase Order

"A purchase order (PO) is a commercial document issued by a buyer to a seller, indicating types, quantities, and agreed prices for products or services the seller will provide to the buyer. Sending a PO to a supplier constitutes a legal offer to buy products or services. Acceptance of a PO by a seller usually forms a one-off contract between the buyer and seller, so no contract exists until the PO is accepted."

SO: Sales Order

"The sales order, sometimes abbreviated as SO, is an order received by a business from a customer. A sales order may be for products and/or services. Given the wide variety of businesses, this means that the orders can be fulfilled in several ways."

1 Introduction

SAP, as one of the leading ERP systems, has gained popularity for not only large organization as well. In order to help build the awareness of Data Quality issues and assist medium size organization handling DQ in the process of ERP implementation the following study has been done.

1.1 The extent of the work

The work is done within framework of a Bachelor Thesis, in fulfillment of requirement for the award of the degree: Bachelor in Business Information Technology in the University of Applied Sciences Haaga-Helia AMK, Finland.

The role of the thesis is to give the student an opportunity to show his/her ability for applying the knowledge and skills accumulated during the studies. Thesis is based on Haaga-Helia AMK process and serves as the bridge between a theory and the practice at the final stage of studies integrating earlier studies to each other.

Thesis is aimed at "Master Data Quality in ERP Deployment projects", as to investigate the areas in DQ where Data governance method could be implemented and then utilized considering the efforts and resources that are involved in known method. The work explores how this could be achieved with the available functionality of SAP and governance approach.

1.2 Document outline

The documentation of the Bachelor's Thesis is outline in the following way. Chapter Two present the goal to the work and main aspects of research problem. Chapter Three presents master data in SAP MM module which are relevant to our research As well chapter cover involvement of master data in procurement process. Chapter Four presents SD process and cover customer master data in SAP SD module. Chapter Five explains master data quality, benefits of taking control of DQ and why applying data quality is so difficult. As well chapter covers set of regulation in filed of DQ which have been introduced by state such as: "Basel II, Sarbanes-Oxley and HIPAA".

Chapter Six present master data governance approach and utilization of such approach during deployment. In chapter Seven describes methodology in which whole project is conducted. Chapter Eight presents test master data setup and interact with Chapter Nine where test results are represented and hypothesis is proved. Chapter Ten represents conclusion and summarizes findings and results.

2 The goal to the work

The management of key organizational data has always been important. Knowing who your customers are, what products and services you offer, and what arrangements or accounts you have with your customers and suppliers is a key to the operation of most organizations.

Master data is some of the most valuable information that an organization owns. It represents base of the organization, such as customers, suppliers, products, and accounts, and the relationships between them. Generally master data describes an enterprise because each object of master data represents information that is needed across various business processes, across organizational units, and between operational systems.

Referring to article "Master Data Management: An Introduction" which is published by Inform It, master data captures the key things on which all parts of an organization must agree, both in meaning and usage. For example, it's important that all parts of an organization share an understanding of what defines a customer, which customers exist, where customers are located, and what products they have purchased or have been offered.

It leads to common understanding that is useful to prevent bad things from happening occasionally such as a wrong address, as well as to provide an opportunity for significant business benefits and growth.

That brings us to logical question to which I will try to answer in my research:

"How master data governance approach within master data management is relevant towards master data quality issues during ERP deployment projects?"

Target area of research is *"Data Quality of Master Data"*

However we have to understand that governance approach is a part of master data management. In my research I will just describe main aspects of governance approach towards master data quality. The reason is that my time line is short to describe all aspects of "Master Data Management" within of one research that could lead for future studies on that area.

3 Master data in material management module

Master data comprises data records that are stored in the data base for a long period of time. These data records are stored centrally, and are used and processed on a cross-application basis. In this way, the multiple storage redundancy of data is avoided. (Sap Tscm50. 2006, 71)

The vendor master record, the material master record and the purchasing info record belong to the most important master data in the procurement process.

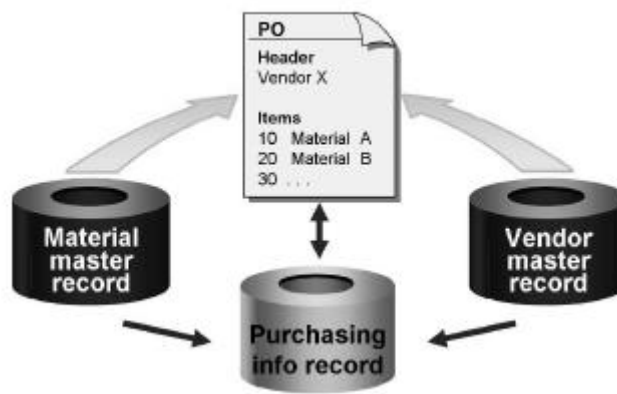


Figure1: Master Data in the Procurement Process (Sap Tscm50. 2006, 71)

Before describing master data which are used in MM module I want to describe in brief flow of master data during procurement process.

When creating purchasing document [Figure 1], for example PO data is transferred to the purchasing document by default from existing master records. That minimizes effort required to enter the data.

Other data from the material master record, such as unit of measure, material short text, and the PO text, is also adopted in the new document. The data in the vendor master record includes address and payment data. As well you can store vendor particular data on certain material, such as delivery time and purchasing price in the purchasing info records.

3.1 Vendor master data

The vendor master record contains information on an enterprise's vendors. This information is stored in individual vendor master records. In addition to the vendor's name and address, a vendor master record contains following data:

- Currency used in transactions with the vendor
- Terms of payment
- Names of important contacts (e.g. sales persons)

For accounting purposes, the vendor is also a creditor of the enterprise; vendor master record also contains accounting data such as reconciliation account from general ledger.

The vendor master record can be maintained by purchasing and accounting, that explains why data are subdivided in two different records.



Figure 2: Vendor master record (Sap Tscm50. 2006, 72-82)

The data in the vendor master record [Figure 2] is subdivided into the following categories:

- *General data:*

This data is valid for the whole client. It includes the vendor's address and bank details as example (Sap Tscm50. 2006, 72-82).

- *Accounting data:*

Maintained at company code level, it includes number of the reconciliation account and the payment method for automatic payment transactions. (Sap Tscm50. 2006, 72-82)

- *Purchasing data:*

This data is maintained for each purchasing organization, it includes the purchasing order currency, Incoterms, and various control data assigned to the vendor. As well you can maintain vendor for different plants or vendor sub ranges. (Sap Tscm50. 2006, 72-82)

You can decide where vendor master records are to be maintained centrally or on a decentralized basis (purchasing).

3.2 Material master record

The material master record is an enterprise's main source of material-specific data. It is used by all areas of logistics. (Sap Tscm50. 2006, 88-100)

The integration of all material data in a single object reduces the problem of data redundancy. All areas, such as purchasing, inventory management, material planning and invoice verification, can use the data stored from one source. (Sap Tscm50. 2006, 88-100)

The data stored in the material master record is required for many purposes, including the following:

- Purchasing data is required for ordering purposes
- Inventory management data is needed to post goods movements and carry out physical inventories
- Accounting data is required for material valuation
- Material planning data is needed for material requirement planning

Since different user department within enterprise work with one material, and each department enter different information relating to it, the data in a material master record is subdivided according to area of use. Each department within enterprise has own view of a material master record and is responsible for maintaining the data covered by this view.

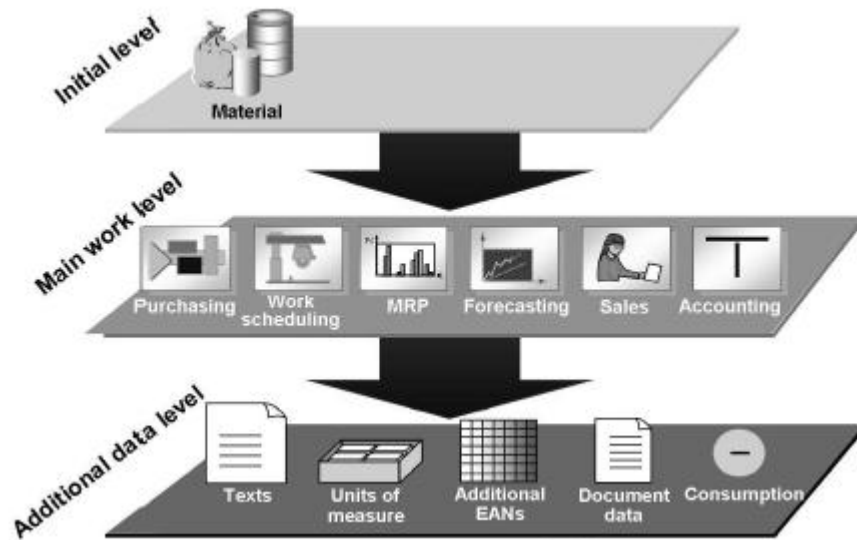


Figure 3: Data screen in Material Master Record Maintenance (*Sap Tscm50. 2006, 88-100*)

Material process master data screens [Figure 3] can be subdivided into the following types:

- **Main data**

Include screens of the individual user departments, such as basic data, materials planning and etc.
- **Additional data**

Include additional information, such as alternative units of measure, material short descriptions and consumption data such as value.

The material master data can be maintained at different organization laves. Why is needed; so material data can be maintained centrally without unnecessary load on the database due to redundant information and it reflects enterprise structure. (*Sap Tscm50. 2006, 88-100*)

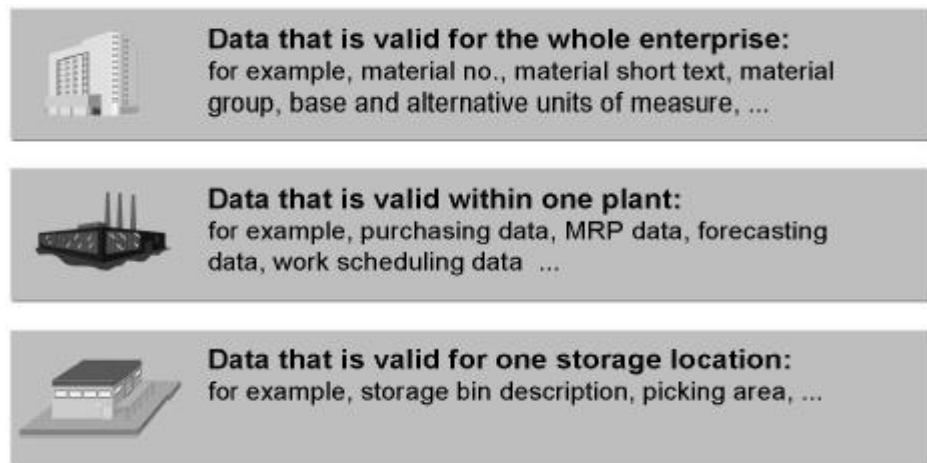


Figure 4: Material Master: Organization levels (Sap Tscm50. 2006, 88-100)

Let's see at what organization levels [Figure 4] material is maintained:

- Data client level

General material data that is valid for the whole organization is stored at client level.

- Data at plant level

All data that valid for within a plant and for all storage locations belonging to it is stored at plant level.

- Data at storage location

All data that is valid for a particular location is stored at storage location level.

Organization levels which mentioned above are relevant for external procurement. If we want to refer to sales and distribution then other data is entered depend on the sales organization and the distribution channel and you must specify warehouse number and storage type for the warehouse management data. (Sap Tscm50. 2006, 88-100)

4 Master data in sales and distributions module

Sales and Distribution module consist of the following master data; the customer master record, the material master record and the customer –material info belong to the most important master data in the sales and distribution processes. However for our study most important master data parts will be customer master data and material master data.

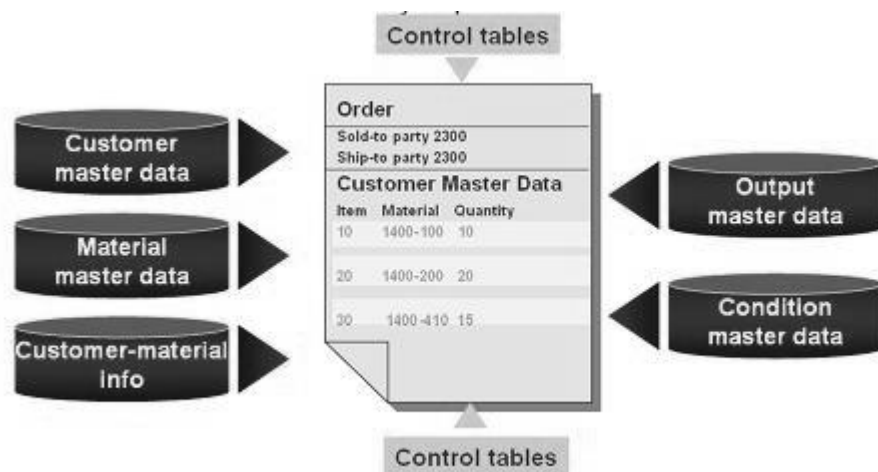


Figure 5: Master Data During Sales and Distribution Process (SD Participants Handbook.2005, 70)

Before describing master data which are used in SD module I want to describe in brief flow of master data during sales and distribution process.

When creating order document [Figure 5], for example SO data is transferred to the order document by default from existing master records. That minimizes effort required to enter the data.

Other data from the material master record, such as unit of measure, material short text, is also adopted in the new document. The data in the vendor master record includes address and payment data. As well you can store vendor particular data on certain material, such as delivery time and purchasing price in the purchasing info records. (SD Participants Handbook.2005, 70)

4.1 Customer master data

The Customer Master Data groups' data in three views [Figure 6]: General, Sales Area and Company Code Data

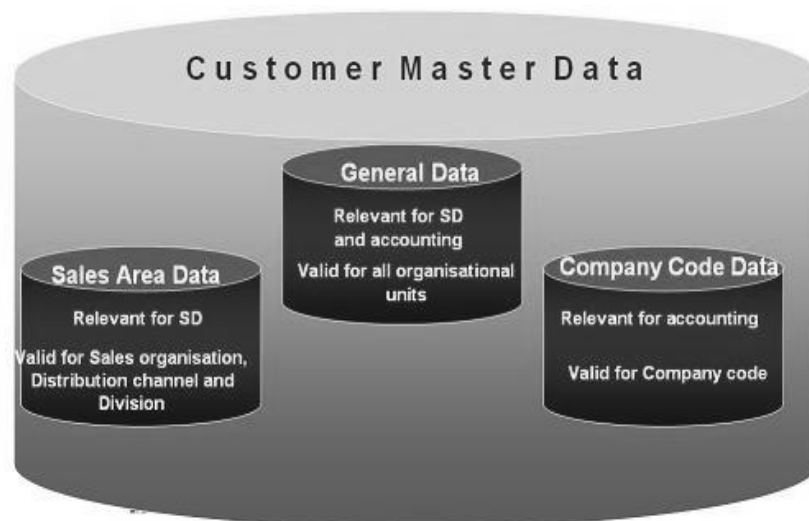


Figure 6: Customer master data (SD Participants Handbook.2005, 85)

- General Data is maintained independently of the organizational elements. The data is common to all organizational structures within the client
- Sales Area data is for SD processes and specific to a given sales area
- Company Code Data is relevant for financial accounting processes and is specific for a given company code

A single customer master includes all the data necessary for processing orders, deliveries, invoices and customer payments.

5 Master data quality

Master data consists of the core business data shared across systems in large enterprises, including product, part, customer, and supplier data. In the vast majority of companies, master data tends to be extremely problematic. While serving as the basis for crucial systems such as ERP, PIM, SCM, CRM, and BI, this master data – which is stored in different formats among different databases and applications – typically represent inaccuracy, inconsistency, errors, spelling errors, duplications, mismatched codes, and uncategorized or miss-categorized items.

Really on ZooMiX article in which discussed how master data quality solution brings possibility of achieving and maintaining high-quality master data that delivers numerous operational benefits to the enterprise, including higher customer satisfaction, more effective marketing campaigns, faster new product introductions, less expensive procurement, more efficient inventory management, and more accurate financial reporting and business analysis. (ZooMiX. 2008)

As well we have to understand that master data quality is achieved not just by master data quality program within master data management, organization relies on governmental legislation such as:

- Basel II

Basel II is the second of the Basel Accords, which are recommendations on banking laws and regulations issued by the Basel Committee on Banking Supervision. The purpose of Basel II, which was initially published in June 2004, is to create an international standard that banking regulators can use when creating regulations about how much capital banks need to put aside to guard against the types of financial and operational risks banks face. (Basel II.2002)

- Sarbanes-Oxley

Sarbanes-Oxley contains 11 titles that describe specific mandates and requirements for financial reporting. Each title consists of several sections, summarized below.

- Public Company Accounting Oversight Board (PCAOB)
 - Auditor Independence
 - Corporate Responsibility
 - Enhanced Financial Disclosures
 - Analyst Conflicts of Interest
 - Commission Resources and Authority
 - Studies and Reports
 - Corporate and Criminal Fraud Accountability
 - White Collar Crime Penalty Enhancement
 - Corporate Tax Returns
 - Corporate Fraud Accountability
- (Sarbanes-Oxley Act Pub.L. 2002)

- HIPAA

According to the Centers for Medicare and Medicaid Services (CMS) website, Title I of HIPAA protects health insurance coverage for workers and their families when they change or lose their jobs. Title II of HIPAA, known as the Administrative Simplification (AS) provisions, requires the establishment of national standards for electronic health care transactions and national identifiers for providers, health insurance plans, and employers. It helps people keep their information private. (Insurance Portability and Accountability Act. 1999)

Mentioned above regulations have placed additional pressure on companies to ensure accurate reporting, an impossibility with systems full of "dirty" data.

5.1 Taking control of master data quality

In a real world of Master Data Management we can say that data quality represent two different levels. First the master data object has to be defined correct and accurate. Second data quality tools and techniques are used in the integration and consolidation processes.

David Loshin suggests in his book (David Loshin. 2009, 1-200) that a data quality program will eventually result in a change to the organization, particularly in the way that management, and in turn individual staff members, relate to and asses the information value. Instead considering data as only the raw input to the running application individuals will understand how information becomes an asset to be used in many ways to for improving data. As business practice continues to relay on master data, they will become more dependent on high-quality.

The benefits of employing Master Data Quality Management are:

- Better customer service/satisfaction
- More effective sales campaigns and improved Web-based sales
- More efficient business processes
- Reduced time-to-market for new product introductions
- Less expensive procurement
- More effective business performance management
- Better reporting
- Reduced waste
- Reduced business risk

However master data quality is important in organization; still organizations face difficulties towards quality.

5.2 Why is this so difficult?

There are widely-used tools Scala, Speridon, Zoomix, TxShuttle and etc on the market designed to address the quality of customer data. However, the problems of these solutions are free-form data that makes them unmanageable, expensive and unapproachable to implement:

- They are rule-based systems, meaning that they require huge investments in the manual development and maintenance of rules, dictionaries and data repositories. (MDQ internet magazine. 2008)
- Because it is impossible to anticipate rules for every real-world case, the accuracy of these tools is never sufficiently high. (MDQ internet magazine. 2008)
- These tools are used in separate data quality projects, which are disconnected from the daily business use of corporate data. These projects are risky and must be repeated periodically as data quality degrades during routine business operations. (MDQ internet magazine. 2008)

Corresponding to data quality problems Dan Power discuss in his article that “Dirty data” can be a problem for any type of system, but data quality and MDM are strongly linked, because the net purpose of MDM initiatives is to deliver a single source of truth on one or master data domains containing accurate, complete, timely and consistent data. Without early, systematic attention to high levels of data quality your master data hub simply is a fast, automated way to shoot yourself in the foot. (Information-Management Magazine. 2008)

Out of that Dan Power suggest three real-world recommendations for incorporating data quality into your MDM initiative:

- Profile Early and Often
- Cleanse Your Data Automatically Where Possible
- Create an Ongoing Data Governance Program

That recommendation logically leads us towards governance approach toward master data quality which will be discussed in following chapter.

6 Master data governance

There are different definitions what is meant by the term “data governance”. Data governance is expected to ensure that the data meets the expectations of the business purposes, in the context of data stewardship, ownership, compliance, privacy, security, data risks, data sensitivity, metadata management, and MDM. Each aspect of data governance relates to the specification of a set of information policies that reflect business needs and expectations, along with the processes for monitoring conformance to those information policies. (David Loshin. 2009, 75)

Policies relay on the accessibility and usability enterprise data, and the way each business policy uses data defines a set of information usage policies. Each information policy represents a set of data rules or constraints associated with the definitions, formats, and uses underlying data elements. (IBM Press. 2008, 10)

Qualitative statements about the quality of the data values, records, and the consistency across multiple data elements are the most important level of the governance. Together these provide a layer of business metadata that will be used in automating the collection and reporting of conformance to the business policies, where noncompliance with external reporting requirements (e.g. Sarbanes-Oxley in the United States) can result in fines and prison sentences, the level of sensitivity to governance of information management will only continue to grow. (Maydanchik Arkady. 2007, 50-58)

6.1 Risks which drives master data governance

A data quality and data governance assessment clarifies how the information architectures is used to support fulfillment with different information policies. It suggests that data quality and standards management are part of a much larger picture with respect to oversight of enterprise information.

To ensure that data meets the quality expectations of the client application be positioned within the management of the corresponding line of business we have to introduce data ownership which must be aligned within the line of business so that ultimate responsibility for the quality of data can be properly identified. (David Loshin. 2009, 90)

Above mentioned statements bring us to the question "What truly drives the need for governance?" In a real world there are many drivers such as business and risks drive governance, however few of the risks associated with master data such as:

- Business and Financial

If the objective of the MDM program is to improve productivity and the organization's bottom line, then the first area of the risks involves understanding how nonconformance with information policies puts the business's financial objectives at risk. For example, identifying errors within financial reports that have a material impact requiring restatement of results not only demonstrates instability and lack of control, it also is likely to have a negative influence on the company as a whole, often reflected in a decrease in the company value.

Absence of oversight for the quality of financial data impacts operational aspects as well. The inability to oversee a unified master view of the accounts, customers, and suppliers may lead to accounting anomalies, including under billing of customers, duplicate payments or overpayments to vendors, payments to former employees and etc. (David Loshin. 2009, 92)

- Reporting

Certain types of regulations (eg., Sarbanes-Oxley for financial reporting, 21 CFR Part 11 for electronic documentation in the pharmaceutical industry, Basel II for assessing capital risk in the banking industry) required that the organization prepare documents and reports that demonstrate compliance, which establishes accurate and auditable reporting as an area of risk. (David Loshin. 2009, 92)

For example, consider that in financial reporting, determining that flawed data was used in assembling a financial statement may result in a material impact that necessitates a restatement of the financial report. (David Loshin. 2009, 93)

- Entity knowledge

Maintaining knowledge of the parties with whom the organization does business is critical for understanding and reducing both business risks (eg. credit rating to ensure that customer can pay their bills) and regulatory risks. Many organizations are governed by regulations that insist on customer awareness, such as the USA PATRIOT Act, the Bank Secrecy Act, and Graham-Leach-Bliley, all of which require the ability distinguish between unique individual identities. Ensuring that the tools used to resolve identities are matching within expected levels of trust and that process exist for remediating identity errors falls under the realm of the governance and stewardship. (David Loshin. 2009, 93)

- Protection

The flip side of the entity knowledge is protection of individual potentially private information. Compliance directives that originate in regulation such HIPPA and Graham-Leach-Bliley require that organizations protect each individual data to limit data breaches and protect personal information. (David Loshin. 2009, 94)

- Limitation of use

Regulations and business arrangements both establish governance policies for limiting how data sets are used, how they are shared, what components, may be shared, and the number of times they can be copied, as well as overseeing the determination of access rights for the data. (David Loshin. 2009, 94)

6.2 Master data templates toward governance approach

In the following chapter I will introduce examples of templates which can be utilized during ERP Deployment Project. Current templates which represent collection forms of master data for vendors, customers and materials of organization can be utilized with SAP system.

Each part of template interacts with organizational structure of the master data within SAP.

Vendor Master Data Template:

- General data
- Company code
- Purchasing organization

Customer Master Data Template:

- General Data
- Company code
- Sales organization

Material Master Data Template:

- Represents main material view which are used during procurement and sales and distributions processes.

The aim of the presented solution is to guide organizations how master data should be collected before deployment project and daily business life of organization. However solution just represents the idea of author which gives the way to organization how to organize the way of the collection of master data during deployment projects.

Organization is titled to select own way of utilization of solution towards governance of master data, that means each value of master data views in vendor, customer and material objects are represented by selection of different mandatory fields which can be stated in collection templates or via IMG SAP system customizing where particular mandatory field can be maintained and particular organization views restriction can be maintained in the system.

However customization is out of scope of the research and won't be described and suggested to the organization because of the high cost.

Templates will be divided in two parts one set of templates will be represented in Case 1 and other set of templates will be represented in Case 2. Case 1 and Case 2 set of templates will be used during collection of master data for integration testing

6.3 Case 1

6.3.1 Vendor general data form

New vendor	
Change vendor	
Block/unblock vendor	
Mark for deletion	

INFORMATION ABOUT REQUESTORS

Reason for change	
Vendor number	
Date	
Requestor	
Company code	
Purchasing organization	

GENERAL DATA

Name		Search Term	
Name2			
District		Region	
Country		Jurisdiction Code	
Telephone No			
Fax No			
Email address			
Contact person name		Tax(VAT) registration number	
Payment Method			
Bank Country			
Bank Code			
Bank Name			
Bank Street Address			
Bank City			
Bank Account No			
Credit Term/Payment Term			

6.3.2 Vendor company code form

Table	LFB1	LFB1	LFB1
Field	AKONT	ZTERM	ZWELS
Table-field	LFB1-AKONT	LFB1-ZTERM	LFB1-ZWELS
Data element	AKONT	DZTERM	DZWELS
Data type	CHAR	CHAR	CHAR
Length	10	4	1
DECIMAL PLACES	0	0	0
Status	Mandatory	Mandatory	Mandatory
Short description, definition	Reconciliation Account	Payment Term	Payment Method

6.3.3 Customer general data form

New customer	
Change customer	
Block/unblock customer	
Mark for deletion	

INFORMATION ABOUT REQUESTORS

Reason for change	
Customer number	
Date	
Requestor	
Company code	
Sales organization	

GENERAL DATA

Address

Postal code	
City	
District	
Country	
Region	
PO Box	
Transport zone	
Language	

Control data

VAT registration no.	
----------------------	--

Payment Transactions

Bank code	
Bank account number	
Control key	

LOCAL DATA

Terms of payment	
Terms of delivery	
Invoicing currency	
Requested credit limit	
Risk category	
Guarantees	

SALES AREA DATA

Shipping conditions	
Customer classification	

6.3.4 Customer company data form

Table	LFB1	LFB1	LFB1
Field	AKONT	ZTERM	ZVELS
Table-field	LFB1-AKONT	LFB1-ZTERM	LFB1-ZVELS
Data element	AKONT	DZTERM	DZVELS
Data type	CHAR	CHAR	CHAR
Length	10	4	1
DECIMAL PLACES	0	0	0
Status	Mandatory	Mandatory	Mandatory
Short description, definition	Reconciliation Account	Payment Term	Payment Method

6.3.5 Material master data form

Material master form can be seen in Appendix 1

6.4 Case 2

6.4.1 Vendor general data form

New vendor	
Change vendor	
Block/unblock vendor	
Mark for deletion	

INFORMATION ABOUT REQUESTORS

Reason for change	
Vendor number	
Date	
Requestor	
Company code	
Purchasing organization	

GENERAL DATA

Name		Search Term	
Name 2			
Street		Street 2	
City		PO Box	
District		Region	
Postal Code		Jurisdiction Code	
Country			
Telephone No			
Fax No			
Email address		Tax(VAT) registration No	
Contact person name		Tax Code 1	
Payment Method		Tax Code 2	
Bank Country		Tax Code 3	
Bank Code		Tax Code 4	
Bank Name		Tax number	
Bank Street Address			
Bank City		Bank Currency	
Bank Account No			
Bank Control Key			
SWIFT code			
IBAN		Alternative Payee	
Bank Type		Permitted Payee	
Credit term/Payment Term			

6.4.2 Vendor company code form

Table	LFB1	LFB1	LFB1
Field	AKONT	ZTERM	ZWELS
Table-field	LFB1-AKONT	LFB1-ZTERM	LFB1-ZWELS
Data element	AKONT	DZTERM	DZWELS
Data type	CHAR	CHAR	CHAR
Length	10	4	1
DECIMAL PLACES	0	0	0
Status	Mandatory	Mandatory	Mandatory
Short description, definition	Reconciliation Account	Payment Term	Payment Method

6.4.3 Vendor purchasing organization form

Table	LFB1	LFM1	LFM1	LFM1	LFM1	LFM1	LFM1	LFM1
Field	BUKRS	LIFNR	EKORG	WAERS	ZTERM	INCO1	INCO2	WEBRE
Table-field	LFB1-BUKRS	LFM1-LIFNR	LFM1-EKORG	LFM1-WAERS	LFM1-ZTERM	LFM1-INCO1	LFM1-INCO2	LFM1-WEBRE
Data element	BUKRS	ELIFN	EKORG	BSTWA	DZTERM	INCO1	INCO2	WEBRE
Data type	CHAR	CHAR	CHAR	CUKY	CHAR	CHAR	CHAR	CHAR
Length	4	10	4	5	4	3	28	1
DECIMAL PLACES		0	0	0	0	0	0	0
Status	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Short description, definition	Company code for co code level data	Account Number of the Vendor	Purchasing Organization	Purchase order currency	Terms of payment key,	Incoterms (part 1),	Incoterms (part 2)	Indicator: GR-based invoice verification,

6.4.4 Customer general data form

New customer	
Change customer	
Block/unblock customer	
Mark for deletion	

INFORMATION ABOUT REQUESTORS

Reason for change	
Customer number	
Date	
Requestor	
Company code	
Sales organization	

GENERAL DATA

Address

Company's legal name	
Street address	
Postal code	
City	
District	
Country	
Region	
PO Box	
Transport zone	
Language	
Telephone	
Fax (Accounting)	
E-mail	
Customer contact	

Control data

VAT registration no.	
----------------------	--

Payment Transactions

Bank code	
Bank account number	
Control key	

LOCAL DATA

Terms of payment	
Terms of delivery	
Invoicing currency	
Requested credit limit	
Risk category	
Guarantees	

SALES AREA DATA

Shipping conditions	
Customer classification	

6.4.5 Customer company data form

Table	LFB1	LFB1	LFB1
Field	AKONT	ZTERM	ZWELS
Table-field	LFB1-AKONT	LFB1-ZTERM	LFB1-ZWELS
Data element	AKONT	DZTERM	DZWELS
Data type	CHAR	CHAR	CHAR
Length	10	4	1
DECIMAL PLACES	0	0	0
Status	Mandatory	Mandatory	Mandatory
Short description, definition	Reconciliation Account	Payment Term	Payment Method

6.4.6 Customer sales organization form

SOLD-TO PARTIES

Data area	General Data	General Data	Sales area Data	Sales area Data	Sales area data	Sales area data	Sales area data
Field name	R/3 Customer number	Customer name	Sales organization	Currency	Incoterms (part 1)	Incoterms (part 2)	Terms of payment key (Same as Sold-to Party)
Field length	CHAR 10	CHAR 35	CHAR 4	CURY 5	CHAR 3	CHAR 28	CHAR 4
	Prefilled by CMO Specialist	Prefilled by CMO Specialist	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Technical name	KNA1-KUNNR	ADDR1_DATA-NAME	KNVV-VKORG	KNVV-WAERS_KNVV	KNVV-INC01	KNVV-INC02	KNVV-ZTERM_KNVV

SHIP-TO PARTIES

Data area	General Data	Sales area Data	General Data	General Data	General Data	General Data	General Data	General Data	Sales area Data	Sales area data	Sales area data
Field name	R/3 Customer number	Sales organization	Search criteria	Customer name	Street address	City	ZIP code	Country Key	Currency	Incoterms (part 1)	Incoterms (part 2)
Field length	CHAR 10	CHAR 4	CHAR 20	CHAR 35	CHAR 35	CHAR 35	CHAR 10	CHAR 3	CURY 5	CHAR 3	CHAR 28
	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Technical name	KNA1-KUNNR	KNVV-VKORG	KNVV-SORTL	ADDR1_DATA-NAME	ADDR1_DATA-STRAS	ADDR1_DATA-ORT01	ADDR1_DATA-PSTLZ	ADDR1_DATA-LAND1	KNVV-WAERS_KNVV	KNVV-INC01	KNVV-INC02

BILL-TO PARTIES

Data area	General Data	Sales area Data	General Data	General Data	General Data	General Data	General Data	General Data
Field name	R/3 Customer number	Sales organization	Search criteria	Customer name	Street address	City	ZIP code	Country Key
Field length	CHAR 10	CHAR 4	CHAR 20	CHAR 35	CHAR 35	CHAR 35	CHAR 10	CHAR 3
	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Technical name	KNA1-KUNNR	KNVV-VKORG	KNVV-SORTL	ADDR1_DATA-NAME	ADDR1_DATA-STRAS	ADDR1_DATA-ORT01	ADDR1_DATA-PSTLZ	ADDR1_DATA-LAND1

SITE AND DOP'S

Data area	Sales area Data	General Data	General Data	General Data	General Data	General Data	General Data	General Data	General Data	Sales area data	Sales area data
Field name	Sales organization	Search Criteria Unique Identifier	Unique Identifier	Title (Site or DOP)	Customer name	Street address	City	ZIP code	Country Key	Incoterms (part 1)	Incoterms (part 2)
Field length	CHAR 4	CHAR 20	CHAR 15	CHAR 35	CHAR 35	CHAR 35	CHAR 35	CHAR 10	CHAR 3	CHAR 3	CHAR 28
	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Technical name	KNVV-VKORG	KNVV-SORTL_M	KNA1-BAHNS	KNA1-ANRED	ADDR1_DATA-NAME1	ADDR1_DATA-STRAS	ADDR1_DATA-ORT01	ADDR1_DATA-PSTLZ	ADDR1_DATA-LAND1	KNVV-INC01	KNVV-INC02

6.4.7 Material master data form

Material master form can be seen in Appendix 2.

7 Research method

For my research I selected Qualitative and Empirical type of research designs. Before applying research types to my thesis I want to give description of each type.

7.1 Qualitative method

Qualitative part of the research will be based on work of Joseph A. Maxwell "Qualitative Research Design An interactive Approach".

Definition for qualitative method:

"Qualitative type of the research is a field of inquiry that crosscuts disciplines and subject matters. Qualitative researchers aim to gather an in-depth understanding of human behavior and the reasons that govern such behavior. The discipline investigates the why and how of decision making, not just what, where, when. Hence, smaller but focused samples are more often needed rather than large random samples." (Joseph A. Maxwell. 1996, 45)

7.2 Empirical method

Empirical part of the research will be base on work of A.D. de Groot "Empirical cycle of A. D. de Groot".

Definition for empirical method:

"Empirical type of the research is any research that bases its findings on direct or indirect observation as its test of reality. Such research may also be conducted according to hypothetical-deductive procedures." (Empirical research. 2002)

Empirical cycle of A.D. de Groot:

- Observation: The collecting and organization of empirical facts; forming hypotheses.
- Induction: Formulating hypotheses.
- Deduction: Deducting consequences of hypotheses as testable predictions.
- Testing: Testing the hypotheses with new empirical material.
- Evaluation: Evaluating the outcome of testing.

7.3 Why qualitative and empirical research?

Research will be based on existing facts which will be gathered and utilized and observed on bases of Qualitative research. Hypotheses and methods which will be developed from theory have to be tested in real case where I would apply empirical approach.

Test of hypotheses will show if my findings are right and they can be applied in real practice.

8 Test of master data

The test is done within theory and collection master data templates which are mentioned in chapter 6.

The purpose of testing is to show interaction of master data governance approach during procurement and sales distribution processes. Test will cover creation of the vendor, customer and material master records in the system. Created master data will be utilized in integration testing which will show impact on following master data on business process. Test plan of integration testing can be seen in Appendix 3.

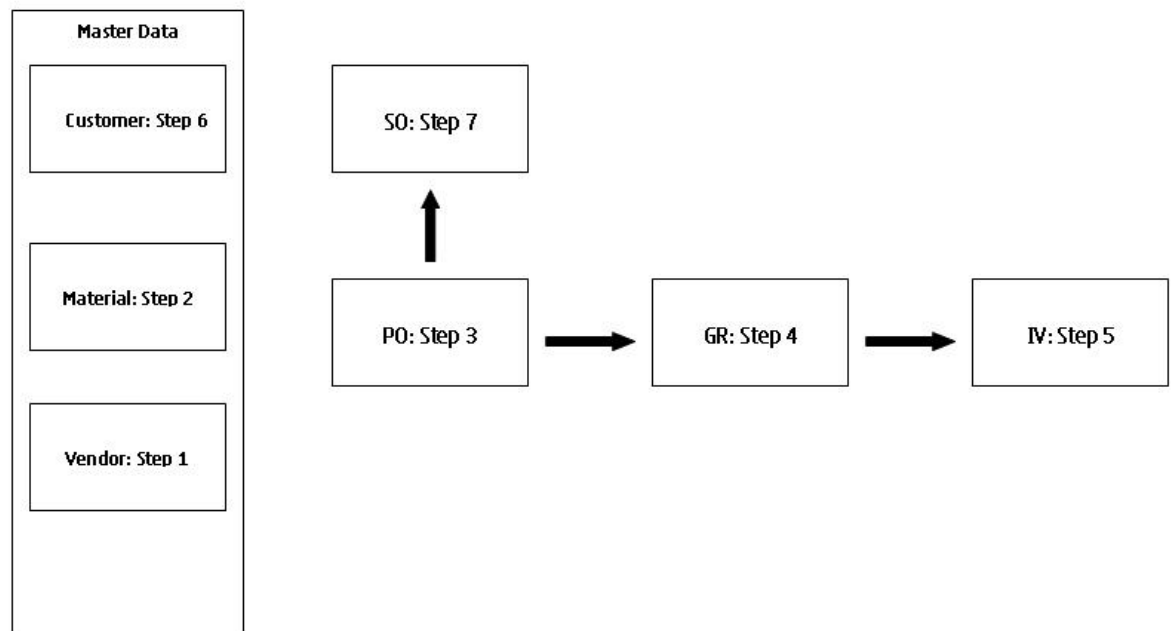


Figure 7: Master Data utilization during test

As it mention above and presented in the [Figure 7] the test will start with creation of the vendor and material master record. The following steps will be preceded such as creation of purchase order, goods receipt and invoice verification. When all documents are created and procurement process is ended, we will create customer master and sales order will be created with reference to purchase order.

The results of the test have to show that all documents which are created during test complete and master data utilized with suggested approach with deferens to chapter 6.

8.1 Case 1

8.1.1 STEP 1 Vendor master data creation


Your company has entered in to a business relationship with a new vendor. Since you intend to place orders with this vendor frequently in future, you create a new master data record.

Choose Logistics -> Materials Management -> Purchasing -> Master Data -> Vendor -> Central -> Create (transaction XK01).

Enter the following data on the initial screen:

Field name	Field value
Vendor	T-K901
Company Code	1000
Account Group	ZTMM

Confirm you entries with Enter.

Enter the following data on the individual data screens. In each case, choose , with the quick-info text Enter, to get to the next data screen.

Address	
Name	High-speed Gr.
Search term	HGR
Postal code/City	53223
Language	English

Control, Payment transaction, general	
	No input necessary

Choose save, with the quick-info text Save.


8.1.2 STEP 2 Material master data creation

Various departments in your enterprise access and use existing material master records.

Choose Logistics -> Material Management -> Material Master -> Material -> Create (General) -> Immediately (MM01).


Enter the following data on the initial screen:

Material	T-M901
Industry sector	Mechanical Engineering
Material type	Finished Goods

Then choose , with the quick info text Enter.


Select following view on the select views screen:

- Basic Data 1
- Purchasing
- Purchase order
- General Plant Data/Storage 1

Choose , with the quick-info text Continue.

Enter the following data in the Organizational Levels box:

Plant	1000
Storage location	0001

Choose , with the quick-info text Continue.

Enter the following data on the Basic data screen.

Basic data	
Material description	Headlight Extra Bright
Base unit of measure	pc
Material group	003
Gross weight	4
Net weight	3,8
Unit of weight	KG

To get to the next view in each case, choose , with the quick info text Enter.

Purchasing	
Purchasing group	T00
Purchasing value	1
GR processing time	1

Choose save, with quick-info text Save.

8.1.3 STEP 3 Purchase order creation

In your company you, material must be procured from external vendor. As an employee in Purchasing, you need to know about the procurement process in particular the purchase order.

Create a purchase order with the following header data:

Vendor	T-K901
Purchasing organization	1000
Purchasing group	Z00
Company code	1000

Check whether the above values for the purchasing organization, purchasing group, and company code are included as default values in the Personal Settings for transaction ME21N or ME21(old transaction). If not, enter the relevant default values.

Item view:

Quantity	100 boxes
Material	T-M901
Delivery date	Current date
Plant	1000
Storage location	0001

SAP Menu -> Logistics -> Material Managements -> Purchasing -> Purchase Order -> Create -> Vendor/Supplying Plant Known

Choose save, with the quick-info text Save, and make the note of the PO number.

Display Purchase Order.

8.1.4 STEP 4 Goods receipt creation

In your company, materials are procured from external suppliers. As a member of the warehouse staff, you exam how deliveries of ordered materials are entered in the SAP system and what effects these goods receipt have with regard to the purchase order.

SAP Menu -> Material Management -> Inventory Management -> Goods Movement -> Goods Receipt -> For Purchase Order -> GR for Purchase Order (MIGO).

Choose transaction Goods Receipts and the reference document PO. Enter 101 as the default value for movement type.

Field name	Field entry
Vendor	T-K901
Material	T-M901
Delivery date	7 days from current date

Open the header data and enter LS-A100 in the delivery note field on the general tab page.

Set the Ok indicator for the item. Note that you can set the indicator in the detail data if detail data area is open.

Then all data is entered press Post and make note of the material document number.

Display Goods Receipt document.

8.1.5 STEP 5 Invoice verification creation

The procurement process ends with entry of the vendor invoice. You are responsible for testing the functionality of Logistics Invoice Verification.

SAP Menu -> Material Management -> Logistics Invoice Verification -> Document Entry -> Enter Invoice (MIRO).

Enter following into Basic Data tab page:

Field name	Field entry
Invoice date	Today date
Reference	RE-A100
Amount	1000
Tax amount	100
Tax Code	1I (10%)

On PO reference tab page, choose Purchase Order/Scheduling agreement as reference document category and enter PO number.

Choose Save, with the quick info text Post, and note the number of the invoice document.

Display Invoice document.

8.1.6 STEP 6 Customer master data creation

Your company has entered in to a business relationship with a new customer. Since you intend to place sales orders with this customer frequently in future, you create a new master data record.

From the initial create customer screen enter the customer data from the tables below. Select enter at each screen after completing the data input.

Logistics -> Sales and Distribution -> Master Data -> Business Partner -> Customer -> Create Complete
(use the account group overview icon and select account group 0001 sold to party)

Account group	001
Customer	409873
Company Code	1000

Choose the appropriate view and enter following data:

General Data	
Name	Miller Ltd
Search term	MLTD
Postal Code	20111
City	Berlin
Country	DE
Region	11
Transportation zone	0000000001
Language	English
VAT reg no	DE1234567

Choose other view.

Company code	
Reconciliation account	140000

Choose save, with quick-info text Save

8.1.7 STEP 7 Sales order creation

Create a standard sales order for a customer by referencing the previously created purchase order document. Then add a second item to the sales order.

Logistics > Sales and Distribution > Sales > Order > Create

Select Order Type OR.

Select the *Create with Reference* pushbutton.

Enter quotation number to *Offer* field.

Select *Copy* pushbutton.

Purchase order number	can be taken from previous PO test
Material	T-M901
Quantity	1

Choose save, with quick-info text Save.

Display Sales Order document.

8.2 Case 2

8.2.1 STEP 1 Vendor master data creation


Your company has entered in to a business relationship with a new vendor. Since you intend to place orders with this vendor frequently in future, you create a new master data record.

Choose Logistics -> Materials Management -> Purchasing -> Master Data -> Vendor -> Central -> Create (transaction XK01).

Enter the following data on the initial screen:

Field name	Field value
Vendor	T-K900
Company Code	1000
Purchasing organization	1000
Account Group	ZTMM

Confirm you entries with Enter.

Enter the following data on the individual data screens. In each case, choose , with the quick-info text Enter, to get to the next data screen.

Address	
Title	Company
Name	High-speed Gr.
Search term	HGR
Street/House number	Lincolnstrabe 99
Postal code/City	81549
Country	DE
Region	09
Language	English

Control, Payment transaction, general	
	No input necessary

Payment transactions (Accounting)	
Terms of payment	0002

Correspondence Accounting	
	No input necessary

Purchasing data	
Order currency	EUR
Terms of payment	0002
Incoterms	FH

Partner Roles	
	No input necessary

Choose save, with the quick-info text Save.


8.2.2 STEP 2 Material master data creation

Various departments in your enterprise access and use existing material master records.

Choose Logistics -> Material Management -> Material Master -> Material -> Create (General) -> Immediately (MM01).


Enter the following data on the initial screen:

Material	T-M900
Industry sector	Mechanical Engineering
Material type	Finished Goods

Then choose , with the quick info text Enter.


Select following view on the select views screen:

- Basic Data 1
- Sales: Sales.org. Data 1
- Purchasing
- Purchase order
- General Plant Data/Storage 1

Choose , with the quick-info text Continue.

Enter the following data in the Organizational Levels box:


Plant	1000/0001
Storage location	0001

Choose , with the quick-info text Continue.


Enter the following data on the Basic data screen.

Basic data	
Material description	Headlight Extra Bright
Base unit of measure	pc
Material group	003
Gross weight	4
Net weight	3,8
Unit of weight	KG


Enter the following data in the remaining views selected. To get to the next view in each case,

choose , with the quick info text Enter.

Sales: Sales.org 1/2	
Plant	1000/0001
Sales org	0001
Distr.Chl	01
Base Unit of Measure	PC
Material group	003
Tax category	1

Choose , with the quick info text Enter.

Sales: general/plant	
Trans.grp	0001
LoadingGrp	0002

Choose , with the quick info text Enter.

Purchasing	
Purchasing group	T00
Purchasing value	1
GR processing time	1

Choose save, with quick-info text Save.

8.2.3 STEP 3 Purchase order creation

In your company you, material must be procured from external vendor. As an employee in Purchasing, you need to know about the procurement process in particular the purchase order.

Create a purchase order with the following header data:

Vendor	T-K900
Purchasing organization	1000
Purchasing group	Z00
Company code	1000

Check whether the above values for the purchasing organization, purchasing group, and company code are included as default values in the Personal Settings for transaction ME21N or ME21(old transaction). If not, enter the relevant default values.

Item view:

Quantity	100 boxes
Material	T-M900
Delivery date	Current date
Plant	1000
Storage location	0001

SAP Menu -> Logistics -> Material Managements -> Purchasing -> Purchase Order -> Create -> Vendor/Supplying Plant Known

Choose save, with the quick-info text Save, and make the note of the PO number.

Display Purchase Order.

8.2.4 STEP 4 Goods receipt creation

In your company, materials are procured from external suppliers. As a member of the warehouse staff, you exam how deliveries of ordered materials are entered in the SAP system and what effects these goods receipt have with regard to the purchase order.

SAP Menu -> Material Management -> Inventory Management -> Goods Movement -> Goods Receipt -> For Purchase Order -> GR for Purchase Order (MIGO).

Choose transaction Goods Receipts and the reference document PO. Enter 101 as the default value for movement type.

You can search your last PO or use from the note which you make in previous test.

Field name	Field entry
Vendor	T-K900
Material	T-M900
Delivery date	7 days from current date

Choose fined. A separate screen area with the search result appears. Select your purchase order and click adopt.

Open the header data and enter LS-A100 in the delivery note field on the general tab page.

Set the Ok indicator for the item. Note that you can set the indicator in the detail data if detail data area is open.

Then all data is entered press Post and make note of the material document number.

Display Goods Receipt document.

8.2.5 STEP 5 Invoice verification creation

The procurement process ends with entry of the vendor invoice. You are responsible for testing the functionality of Logistics Invoice Verification.

SAP Menu -> Material Management -> Logistics Invoice Verification -> Document Entry -> Enter Invoice (MIRO).

Enter following into Basic Data tab page:

Field name	Field entry
Invoice date	Today date
Reference	RE-A100
Amount	1000
Tax amount	100
Tax Code	1I (10%)

On PO reference tab page, choose Purchase Order/Scheduling agreement as reference document category and enter PO number.

Choose Save, with the quick info text Post, and note the number of the invoice document.

Display Invoice document.

8.2.6 STEP 6 Customer master data creation

Your company has entered in to a business relationship with a new customer. Since you intend to place sales orders with this customer frequently in future, you create a new master data record.

From the initial create customer screen enter the customer data from the tables below. Select enter at each screen after completing the data input.

Logistics -> Sales and Distribution -> Master Data -> Business Partner -> Customer -> Create Complete
(use the account group overview icon and select account group 0001 sold to party)

Account group	001
Customer	409872
Company Code	1000
Sales Area	1000/0001

Choose the appropriate view and enter following data:

General Data	
Name	Miller Ltd
Search term	MLTD
Street	Vennustr 12
Postal Code	20111
City	Hamburg
Country	DE
Transportation zone	0000000001
Language	English
VAT reg no	DE1234567

Choose other view.

Company code	
Reconciliation account	140000

Choose other view.

Sales Area Data	
Customer group	02
Shipping condition	50
Delivery plant	1000/0001
Incoterms part 1 and part 2	019 DDU/ DDU Hamburg
Terms of payment	3000
Tax classification	1 (Liable for tax)

Choose save, with quick-info text Save

8.2.7 STEP 7 Sales order creation

Create a standard sales order for a customer by referencing the previously created purchase order document. Then add a second item to the sales order.

Logistics > Sales and Distribution > Sales > Order > Create

Select Order Type OR.

Select the *Create with Reference* pushbutton.

Enter quotation number to *Offer* field.

Select *Copy* pushbutton.

Purchase order number	can be taken from previous PO test
Material	T-M900
Quantity	1

Choose save, with quick-info text Save.

Display Sales Order document.

9 Findings

In the following chapter will be represented findings from the master data test cases. Data will be representing as extracts from the SAP system, screen capturers and follow-up documents as PO.

The main goal of the chapter is to show interaction governance approach and data quality in real life. As well results gained during test will prove hypothesis to which study is aiming. All master data was collected with introduced templates in Chapter 6.

Collection of master data which were used during test will be collected in master data collection table. Such table will help to understand deferens of master data used in different test cases.

Master data collection table

Customer		
Table Name	Case 1	Case 2
KNA1-MANDT	510	510
KNA1-KUNNR	409873	409872
KNA1-LAND1	DE	DE
KNA1-NAME1	Miller Ltd	Miller Ltd
KNA1-NAME2	N/A	N/A
KNA1-ORT01	Berlin	Hamburg
KNA1-POSTLZ	N/A	20111
KNA1-REGIO	11	2
KNA1-SORTL	MLTD	MLTD
KNA1-STRAS	N/A	Vennustr 12
KNA1-TELF1	N/A	12345678
KNA1-TELFX	N/A	N/A
KNB1-BUKRS	1000	1000
KNB1-PERNR	0	0
KNB1-ERDAT	6.11.2009	28.10.2009
KNB1-ERNAM	KOROLEV	KOROLEV
KNB1-AKONT	140000	140000
KNB1-ZWELS	AC	R
KNB1-ZTERM	1	1
KNB1-ZINDT	00.00.0000	00.00.0000
KNB1-ZINRT	0	0
KNBK-BANKS	N/A	DE
KNBK-BANKL	N/A	10050033
KNBK-BANKN	N/A	12345678
KNBK-KOINH	N/A	Miller Ltd
KNBK-KOVON	N/A	00.00.0000
KNBK-KOBIS	N/A	00.00.0000
KNVK-PARNR	N/A	152667
KNVK-NAMEV	N/A	Korolev
KNVK-NAME1	N/A	Roman
KNVK-ABTNR	N/A	2
KNVK-UEPAR	N/A	0
KNVK-PAFKT	N/A	11
KNVV-VKORG	N/A	1
KNVV-VTWEG	N/A	1
KNVV-SPART	N/A	1
KNVV-ERNAM	N/A	KOROLEV
KNVV-ERDAT	N/A	28.10.2009
KNVV-VERS	N/A	1
KNVV-KALKS	N/A	1
KNVV-KDGRP	N/A	2
KNVV-BZIRK	N/A	DE0010
KNVV-KONDA	N/A	1
KNVV-AWAHR	N/A	100
KNVV-INCO1	N/A	DDU
KNVV-INCO2	N/A	DDU Hamburg
KNVV-AUTLF	N/A	X
KNVV-ANTLF	N/A	0
KNVV-KZTLF	N/A	C
KNVV-KZAZU	N/A	X
KNVV-LPRIO	N/A	1
KNVV-VSBED	N/A	1

Vendor		
Table Name	Case 1	Case 2
LFA1-MANDT	510	510
LFA1-LIFNR	T-K901	T-K900
LFA1-POSTLZ	N/A	81549
LFA1-REGIO	N/A	9
LFA1-SORTL	HGR	HGR
LFA1-STRAS	N/A	Lincolnstrabe 99
LFA1-ADRNR	53223	53172
LFA1-MCOD1	HIGH-SPEED GR.	HIGH-SPEED GR.
LFA1-MCOD3	N/A	BERLIN
LFA1-ANRED	N/A	Company
LFA1-BBBNR	0	0
LFB1-BUKRS	1000	1000
LFB1-PERNR	0	0
LFB1-ERDAT	6.11.2009	28.10.2009
LFB1-ERNAM	KOROLEV	KOROLEV
LFB1-AKONT	31000	31000
LFB1-ZWELS	R	2A
LFB1-ZTERM	2	1
LFB1-ZINDT	00.00.0000	00.00.0000
LFM1-EKORG	N/A	1
LFM1-ERDAT	N/A	28.10.2009
LFM1-ERNAM	N/A	KOROLEV
LFM1-WAERS	N/A	EUR
LFM1-MINBW	N/A	0
LFM1-ZTERM	N/A	2
LFM1-INCO1	N/A	FH
LFM1-INCO2	N/A	FH Berlin
LFM1-WEBRE	N/A	X
LFM1-PLIFZ	N/A	0

Material		
Table Name	Case 1	Case 2
MARA-MANDT	510	510
MARA-MATNR	T-M901	T-M900
MARA-ERSDA	6.11.2009	28.10.2009
MARA-ERNAM	KOROLEV	KOROLEV
MARA-LAEDA	00.00.0000	28.10.2009
MARA-AENAM		KOROLEV
MARA-VPSTA	KCVEBG	KCVELB
MARA-PSTAT	KCVEBG	KCVELB
MARA-MTART	FERT	FERT
MARA-MBRSH	M	M
MARA-MATKL	3	3
MARA-MEINS	ST	ST
MARA-BLANZ	0	0
MARC-WERKS	1000	1000
MARC-PSTAT	VEBG	VELB
MARC-MMSTD	00.00.0000	00.00.0000
MARC-EKGRP	0	100
MARC-PLIFZ	0	0
MARC-WEBAZ	0	1
MARC-PERKZ	M	M
MARC-AUSSS	0	0
MARC-MINBE	0	0
MARC-EISBE	0	0
MARC-BSTMI	0	0
MARD-WERKS	N/A	1000
MARD-LGORT	N/A	1
MARD-PSTAT	N/A	L
MARD-LFGJA	N/A	2009
MARD-LFMON	N/A	10
MARD-LABST	N/A	0
MARD-UMLME	N/A	0
MARD-INSME	N/A	0
MARD-EINME	N/A	0
MARD-SPEME	N/A	0
MARD-RETIME	N/A	0
MARD-VMLAB	N/A	0
MARD-VMUML	N/A	0
MBEW-BWKKEY	1000	1000
MBEW-LBKUM	0	100
MBEW-SALK3	0	1.000,00
MBEW-VPRSV	S	S
MBEW-VERPR	0	10
MBEW-STPRS	10	10
MBEW-PEINH	1	1
MBEW-BKLAS	7920	7920
MBEW-SALKV	0	1.000,00
MBEW-VMKUM	0	0
MBEW-VMSAL	0	0
MBEW-VMVPR	S	S
MBEW-VMVER	0	0
MBEW-VMSTP	10	10
MBEW-VMPEI	1	1
MVKE-VKORG	1	1
MVKE-VTWEG	1	1
MVKE-LVORM	X	X
MVKE-SKTOF	00.00.0000	00.00.0000

9.1 Master data extracts from SAP

To bring better understanding of importance of master data following extracts had been made.

9.1.1 Vendor master data

Table:			LFA1									
	MANDT	LIFNR		PSTLZ	REGIO	SORTL	STRAS	ADRNR	MCOD1	MCOD3	ANRED	BBBNR
Case 1	510	T-K901				HGR		53223	HIGH-SPEED GR.			0
case 2	510	T-K900		81549	9	HGR	Lincolnstrabe 99	53172	HIGH-SPEED GR.	BERLIN	Company	0

LFA1 table extract represent address data of the vendor from general data view in SAP. As we can see some data are missing from the vendor T-K901 in case 1. In future missing data will cause problem, however system allows saving data us such to SAP.

Table:			LFB1									
	MANDT	LIFNR		BUKRS	PERNR	ERDAT	ERNAM	AKONT	ZWELS	ZTERM	ZINDT	
Case 1	510	T-K900		1000	0	28.10.2009	KOROLEV	31000	R		2	00.00.0000
Case 2	510	T-K901		1000	0	6.11.2009	KOROLEV	31000	2A		1	00.00.0000

LFB1 table extract represent company code data. As we can see vendors are existed under company code level in SAP.

Table:			LFM1										
	MANDT	LIFNR		EKORG	ERDAT	ERNAM	WAERS	MINBW	ZTERM	INCO1	INCO2	WEBRE	PLIFZ
Case 1	510	T-K901		PURCHASING ORGANIZATION DATA NOT CREATED									
Case 2	510	T-K900		1	28.10.2009	KOROLEV	EUR	0	2	FH	FH Berlin	X	0

LFM1 table extract represent purchasing data of the vendor. However we can see that for vendor T-K901 which used in case 1 purchasing data are missing, that will bring problems in vendor utilization during procurements process.

9.1.2 Customer master data

Table:			KNA1										
	MANDT	KUNNR		LAND1	NAME1	NAME2	ORT01	PSTLZ	REGIO	SORTL	STRAS	TELF1	TELFX
Case 1	510	409873		DE	Miller Ltd		Berlin		11	MLTD			
Case 2	510	409872		DE	Miller Ltd		Hamburg	20111	2	MLTD	Vennustr 12	12345678	

KNA table extract represent address data of the customer from general data view in SAP. As we can see some data are missing from the customer 409873 in case 1. In future missing data will cause problem, however system allows saving data us such to SAP.

Table:			KNB1										
	MANDT	KUNNR		BUKRS	PERNR	ERDAT	ERNAM	AKONT	ZWELS	ZTERM	ZINDT	ZINRT	
Case 1	510	409873		1000	0	6.11.2009	KOROLEV	140000	AC		1 00.00.0000		0
Case 2	510	409872		1000	0	28.10.2009	KOROLEV	140000	R		1 00.00.0000		0

KNB1 table extract represent company code data. As we can see customers are existed under company code level in SAP.

Table:			KNBK										
	MANDT	KUNNR		BANKS	BANKL	BANKN	KOINH	KOVON	KOBIS				
Case 1	510	409873		BANK DATA NOT CREATED									
Case 2	510	409872		DE	10050033	12345678	Miller Ltd	00.00.0000	00.00.0000				

KNBK table extract represent bank details of the customer. As we can see for customer 409873 which use in case 1 bank details are missing. From business point of that data are important and needed during business life.

Table:			KNVK										
	MANDT	PARNR		KUNNR	NAMEV	NAME1	ABTNR	UEPAR	PAFKT				
Case 1	510			CONTACT DATA NOT CREATED									
Case 2	510	152667		409872	Korolev	Roman	2	0	11				

KNVK table extract represent contact person data from client point of view such information is important and has to be entered to the system, as we can see in case 1 such data is missing.

Table:			MARD													
	MANDT	MATNR		WERKS	LGORT	PSTAT	LFGJA	LFMON	LABST	UMLME	INSME	EINME	SPEME	RETME	VMLAB	VMUML
Case 1	510	T-M901		STORAGE LOCATION NOT CREATED												
Case 2	510	T-M900		1	1	L	2005	1	0	0	0	0	0	0	0	0
Case 2	510	T-M900		1000	1	L	2009	10	100	0	0	0	0	0	0	0

MARD table extract represent storage location of the material within organization. As we can see for case 1 material T-M901 storage location is missing and such product does not have any location within organization. Missing storage location data for material T-M901 will reflect in future procurement process of the product.

Table:			MBEW															
	MANDT	MATNR		BWKEY	LBKUM	SALK3	VPRSV	VERPR	STPRS	PEINH	BKLAS	SALKV	VMKUM	VMSAL	VMVPR	VMVER	VMSTP	VMPEI
Case 1	510	T-M901		1000	0	0	S	0	10	1	7920	0	0	0	S	0	10	1
Case 2	510	T-M900		1000	100	1.000,00	S	10	10	1	7920	1.000,00	0	0	S	0	10	1

MBEW table extract represent accounting view of the material. As we can see such data are missing for material T-M901, the reason behind that such material is not activated under such view.

Table:			MVKE										
	MANDT	MATNR		VKORG	VTWEG	LVORM	SKTOF	VMSTD	AUMNG	LFMNG	EFMNG	SCMNG	MTPOS
Case 1	510	T-M901		1	1		X	00.00.0000	0	0	0	0	NORM
Case 2	510	T-M900		1	1		X	00.00.0000	0	0	0	0	NORM
Case 2	510	T-M900		1000	1		X	00.00.0000	0	0	0	0	NORM

MVKE table extract represent sales organization view of the material for bough cases data exist.

9.2 Case 1

Chapter presents general documents screen captures from test Case 1.

9.2.1 Purchase Order

The screenshot displays the SAP 'Create Purchase Order' interface. The top menu bar includes 'Purchase order', 'Edit', 'Goto', 'Environment', 'System', and 'Help'. The title bar reads 'Create Purchase Order'. Below the title bar, there are tabs for 'Document overview off', 'Hold', 'Print preview', 'Messages', and 'Personal setting'. The main area is divided into several sections. On the left, there is a sidebar with 'No variant defined' and 'Hierarchy'. The central area contains a form with the following fields: 'Standard PO' (set to 'Standard PO'), 'Vendor' (set to 'T-K901 High-speed Gr.'), 'Doc. date' (set to '06.11.2009'), 'Purch. Org.' (set to '1000 IDES Deutschland'), 'Purch. group' (set to 'Z00 SCM520-00'), and 'Company Code' (set to '1000 IDES AG'). Below these fields is a table with columns: 'S.', 'Itm', 'A', 'I', 'Material', 'Short text', 'PO quantity', 'O...', 'C', 'Deliv. date', 'Net price', 'Curr...', 'Per', 'O...', 'Matl Group', 'Plant', 'Stor.loc', and 'B...'. The table is currently empty. At the bottom of the screen, there is a status bar with the message: 'Vendor T-K901 has not been created for purch. organization 1000'. The status bar also shows 'A59 (2) (510)' and 'a59z INS'.

In the screen capture we can see that purchase order cannot be created because vendor T-K901 does not exist under purchasing organization 1000 that error interacts with vendor purchasing data extract which can be seen under table LFM1.

In the same screen view if we will press "Print preview" we can display PO document which can be seen below. From that document we can see that vendor general data are missing such as address and legal attributes. Missing general data can be seen under LFA1 table and legal attributes belong to purchase order number which cannot be generated because of inconsistency in master data for vendor.

High-speed Gr.

Purchase order

PO number/date
/ 06.11.2009
Contact person/Telephone
SCM520-00

Our VAT registr. no.
DE123456789

Your vendor number with us
T-K901

Please deliver to:
Werk Hamburg
Alsterdorfer Strasse 13
22299 Hamburg-Alsterdorf

Delivery date: Day 06.11.2009

					Currency EUR
Item	Material	Unit	Description	Price per unit	Net value
Order qty.					
00010	T-M901	100 piece(s)	Headlight Extra Bright	10,00	1.000,00 0,00
Total net value excl. tax EUR					1.000,00

9.2.2 Goods Receipt & Invoice Verification

Following document cannot be created because PO is not created, because of not complete master data of vendor.

9.2.3 Sales Order

The screenshot shows the SAP 'Create Standard Order: Overview' screen. The 'Sales' tab is active. At the top, the 'Sold-to party' is set to '409873'. Below the tabs, various order details are visible, including 'Req. deliv. date' (17.11.2009), 'Deliver Plant', 'Total Weight' (0.000), 'Volume' (0.000), 'Pricing date' (06.11.2009), and 'Exp. date'. The 'Sales area' is '0001 / 01 / 01 Sales Org. Germany, Direct Sales, Pumps'. A table titled 'All items' is present, with columns for Item, Material, Order quantity, SU, Description, S, Customer Material Numb, ItCa, DGL, HgLvlt, D, First date, Plnt, Batch, CnTy, and Amou. The table contains 15 rows, all with 'First date' set to '17.11.2009'. At the bottom, a status bar displays the error message: 'No customer master record exists for sold-to party 409873'. The status bar also shows 'A59 (2) (510)', 'a59z', and 'IINS'.

Standard Order: Net value: 0,00

Sold-to party: 409873

Ship-to party: 409873

PO Number: PO date:

Req. deliv. date: D 17.11.2009 Deliver Plant:

☐ Complete delv. Total Weight: 0,000

Delivery block: Volume: 0,000

Billing block: Pricing date: 06.11.2009

Payment card: Exp. date:

Payment terms: Incoterms:

Order reason:

Sales area: 0001 / 01 / 01 Sales Org. Germany, Direct Sales, Pumps

Item	Material	Order quantity	SU	Description	S	Customer Material Numb	ItCa	DGL	HgLvlt	D	First date	Plnt	Batch	CnTy	Amou
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				
											17.11.2009				

No customer master record exists for sold-to party 409873

A59 (2) (510) a59z IINS

In the screen capture we can see that we cannot continue with sales order creation because customer 409873 does not exist under sales organization 1000/01/01 that error interacts with customer sales organization data extract which can be seen under KNVV table.

9.3 Case 2

Chapter presents general documents screen captures from test Case 2.

9.3.1 Purchase Order

With comparison to case 1 we can see that PO is created and all data can be seen from the PO print preview.

Company
High-speed Gr.
Lincolnstrabe 99
81549 Berlin

Your vendor number with us
T-K900

Please deliver to:
Werk Hamburg
Alsterdorfer Strasse 13
22299 Hamburg-Alsterdorf

Terms of delivery: FH FH Berlin
Terms of payment: Within 14 days 3 % cash discount Currency EUR
 Within 30 days 2 % cash discount
 Within 45 days Due net

Item	Material	Description	Unit	Price per unit	Net value
Order qty.					
00010	T-M900	Headlight Extra Bright	100 piece(s)	10,00	1.000,00
					0,00
*** Item completely delivered ***					
Total net value excl. tax EUR					1.000,00

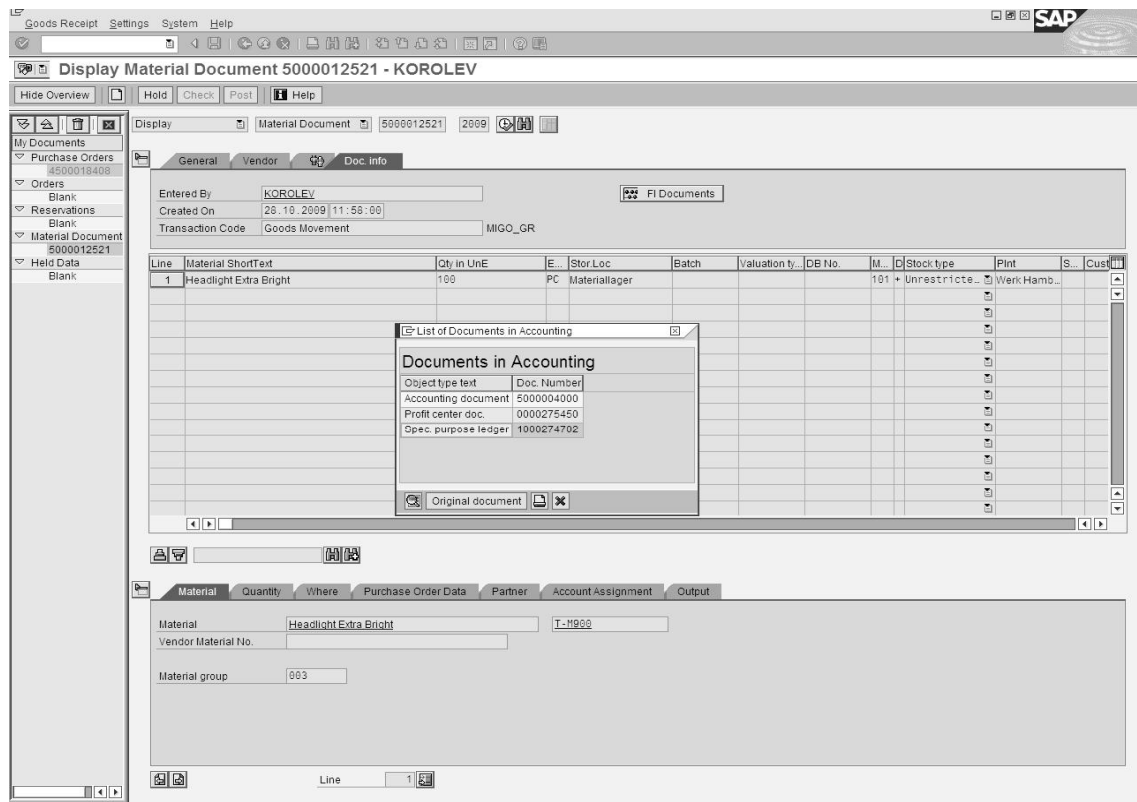
Purchase order

PO number/date
4500018408 / 28.10.2009
Contact person/Telephone
SCM520-00

Our VAT registr. no.
DE123456789

9.3.2 Goods Receipt

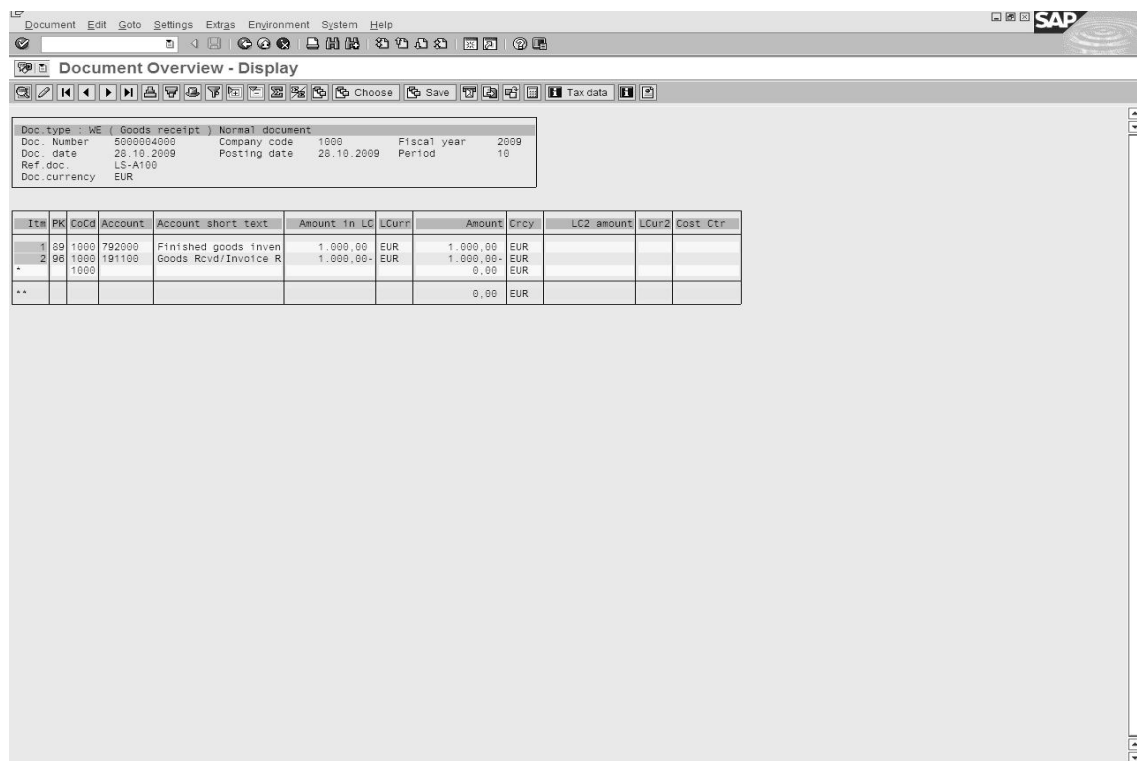
When goods receipt is created and posted we can display Material document.



The screenshot shows the SAP 'Display Material Document' interface for document 5000012521. The 'General' tab is active, displaying document details such as 'Entered By: KOROLEV', 'Created On: 28.10.2009 11:58:00', and 'Transaction Code: Goods Movement'. A table lists the document lines, with line 1 for 'Headlight Extra Bright'. A pop-up window titled 'List of Documents in Accounting' is open, showing a list of accounting documents linked to the material document.

Object type text	Doc. Number
Accounting document	5000004000
Profit center doc.	0000275450
Spec. purpose ledger	1000274702

If material document created correctly we can see which Accounting documents are created.



The screenshot shows the 'Document Overview - Display' interface. It provides a summary of the document's accounting impact, including document type, number, date, and currency. Below this, a table details the accounting entries, showing the debit and credit sides for various accounts.

Itm	PK	CoCd	Account	Account short text	Amount in LC	LCurr	Amount	GrCy	LC2 amount	LCur2	Cost Ctr
1	29	1000	792000	Finished goods inven	1.000,00	EUR	1.000,00	EUR			
2	96	1000	191100	Goods Rcvd/Invoice R	1.000,00-	EUR	1.000,00-	EUR			
*							0,00	EUR			
**							0,00	EUR			

9.3.3 Invoice Verifications

When invoice is created and posted we can display Invoice document

Transaction: Invoice 5105608312 2009

Basic data: Invoice date 26.10.2009, Posting Date 26.10.2009, Amount 1.100,00, Tax amount 100,00, Text, Company Code 1000 IDES AG Frankfurt

Reference: EUR, Calculate tax, 11 (input tax 10%)

Vendor T-K900: Company High-speed Gr., Lincolnstrabe 99, 81549 Berlin

Documents in Accounting:

Object type text	Doc. Number
Accounting document	5100000000
Profit center doc.	0000275452
Spec. purpose ledger	1000274703

PO reference table:

Item	Amount	Quantity
1	1.000,00	

If invoice document created correctly we can see which Accounting documents are created.

Doc. type: RE (Gross Inv. receipt) Normal document

Doc. Number 5100000000 Company code 1000 Fiscal year 2009

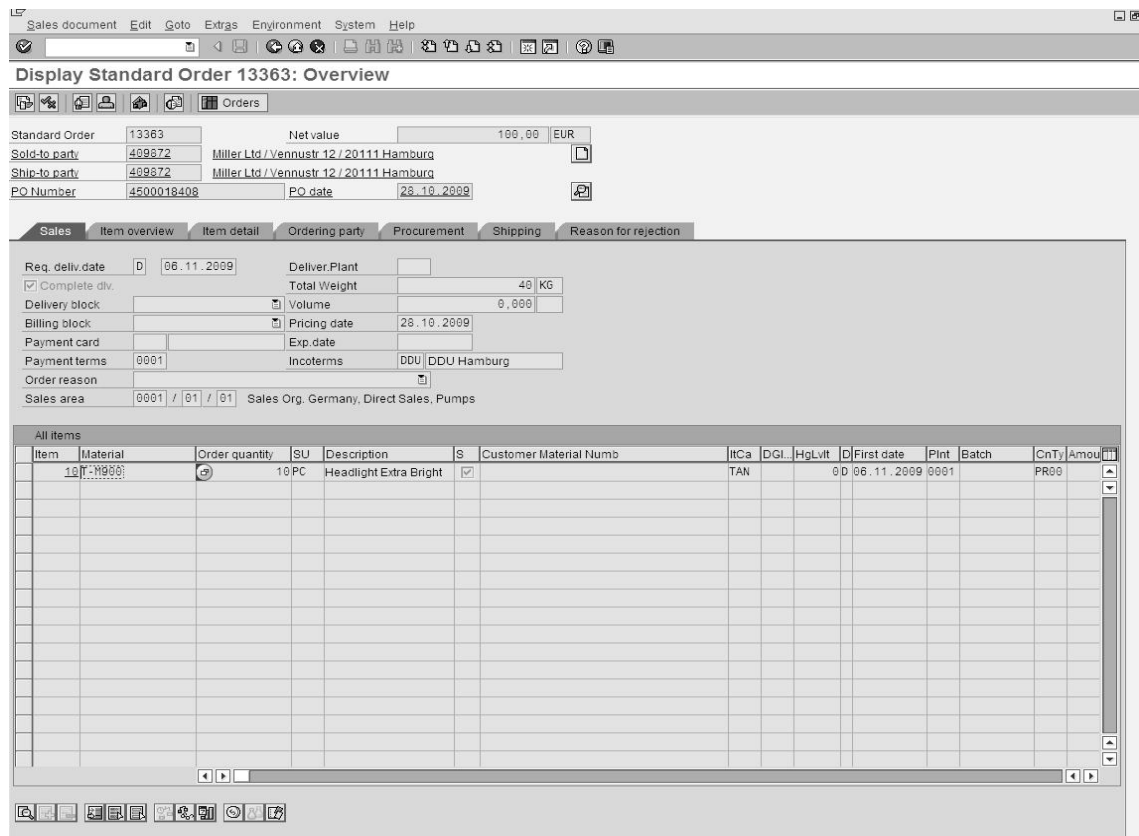
Doc. date 26.10.2009 Posting date 26.10.2009 Period 10

Doc. currency EUR

Its	PK	CoCd	Account	Account short text	Amount in LC	LCurr	Amount	GrCy	LC2 amount	LCur2	Cost Ctr
1	31	1000	T-K900	High-speed Gr.	1.100,00	EUR	1.100,00	EUR			
2	26	1000	191100	Goods Rcvd/Invoice R	1.000,00	EUR	1.000,00	EUR			
3	40	1000	154000	Input tax	100,00	EUR	100,00	EUR			
*			1000				0,00	EUR			
**							0,00	EUR			

9.3.4 Sales Order

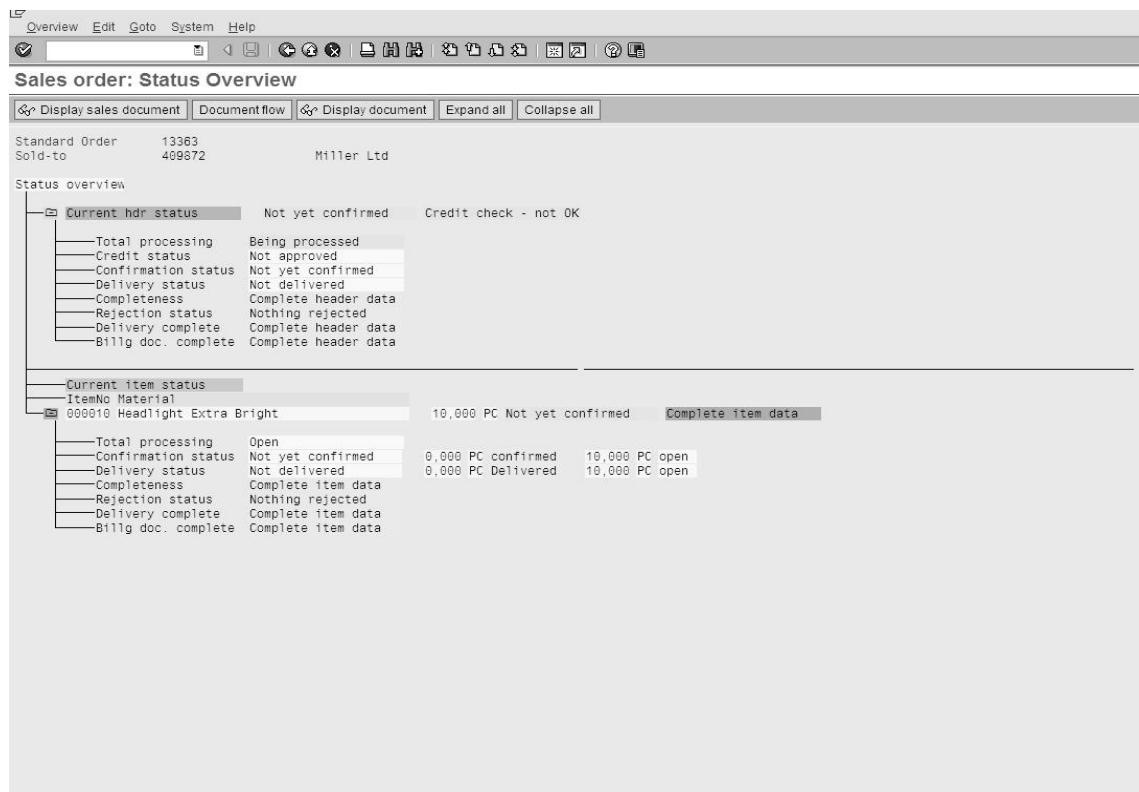
From the picture below we can see that sales order created an ready for the following sales and distribution processes.



The screenshot shows the SAP 'Display Standard Order 13363: Overview' window. The interface includes a menu bar (Sales document, Edit, Goto, Extras, Environment, System, Help) and a toolbar. The main area is divided into several sections:

- Header Data:** Standard Order 13363, Net value 100,00 EUR, Sold-to party 409872 (Miller Ltd / Vennustr. 12 / 20111 Hamburg), Ship-to party 409872 (Miller Ltd / Vennustr. 12 / 20111 Hamburg), PO Number 4500018408, PO date 28.10.2009.
- Ordering party:** Tabbed interface with 'Sales' selected. Fields include: Req. deliv. date 06.11.2009, Deliver. Plant, Total Weight 40 KG, Volume 0,000, Billing block, Pricing date 28.10.2009, Payment card, Exp. date, Payment terms 0001, Incoterms DDU DDU Hamburg, Order reason, Sales area 0001 / 01 / 01 Sales Org. Germany, Direct Sales, Pumps.
- All items:** A table listing items with columns: Item, Material, Order quantity, SU, Description, S, Customer Material Numb, ItCa, DGL, HgLvlt, D, First date, PInt, Batch, Cnt, Amount. The first item is 1000010 Headlight Extra Bright, 10 PC, with a checkmark in the 'S' column.

If sales order created correctly we can display status overview of the sales order.



The screenshot shows the SAP 'Sales order: Status Overview' window. The interface includes a menu bar (Overview, Edit, Goto, System, Help) and a toolbar. The main area is divided into several sections:

- Header Data:** Standard Order 13363, Sold-to 409872, Miller Ltd.
- Status overview:** A tree view showing the status of the sales order. The 'Current hdr status' is expanded, showing: Not yet confirmed, Credit check - not OK, Total processing Being processed, Credit status Not approved, Confirmation status Not yet confirmed, Delivery status Not delivered, Completeness Complete header data, Rejection status Nothing rejected, Delivery complete Complete header data, Billg doc. complete Complete header data.
- Current item status:** A tree view showing the status of the items. The 'Current item status' is expanded, showing: ItemNo Material 000010 Headlight Extra Bright, 10,000 PC Not yet confirmed, Complete item data, Total processing Open, Confirmation status Not yet confirmed, Delivery status Not delivered, Completeness Complete item data, Rejection status Nothing rejected, Delivery complete Complete item data, Billg doc. complete Complete item data.

10 Conclusion

This study represents the foundation for master data governance approach, which is based on common processes for continuous data quality and improvement during ERP deployment projects. The main aspects of the research are adopted from SAP master data theory with interaction of quality and governance approach which are tried to introduce suggestion to the organization which are planning or in the phase of the collection and validation of master data.

Base on findings we can say that suggestion which are introduced in the following study is one of the steps out of many towards clear understanding of master data need during ERP deployment projects. Current solution could help overcome such problems as duplication, invalidity or redundancy of master data in the system. However governance approach aim towards particular legislation which organization has to apply during they business life.

Certain types of regulations are (eg. Sarbanes-Oxley for financial reporting, 21 CFR Part 11 for electronic documentation in the pharmaceutical industry, Basel II for assessing capital risk in the banking industry) required that the organization prepare documents and reports that demonstrate compliance, which establishes accurate and auditable reporting. Consider that in financial reporting, determining that flawed was used in assembling a financial statement may result in material impact that necessitates a restatement of the financial report.

Clear understanding of the exact master data need will help minimize costs and flow of fake data to the system. However, with commitment from all levels of the organizations, and appropriate controls, training and understanding of the systems and DQ issues, it is possible for any organizations to successfully implement ERP systems.

The study can be utilized as a base for future researches, because SAP as ERP system represents different aspects of the organizational business life such as product planning and financial part of organization. Impact of master data in mentioned areas are very important and makes valuable for future studies.

Bibliography

Books:

Joseph A. Maxwell "Qualitative Research Design An interactive Approach, SAGE Publications 1996"

SD Participants Handbook, Course Version 2005, Material Number: 50060030

SAP TSCM50 Participants Handbook, Course Version 2006 Q2, Material Number: 50080041

SAP TSCM52 Participants Handbook, Course Version 2006 Q2, Material Number: 50079968

Data Quality Assessment by Maydanchik Arkady, 2007

Enterprise Master Data Management: An SOA Approach to Managing Core Information, IBM Press, 2008

David Loshin "Master Data Management, Morgan Kaufman Publisher 2009"

Articles & Internet Sources:

Article: ZooMiX

URL: <http://www.masterdataquality.com>

Article: Information-Management Magazine, 2008

URL: <http://www.information-management.com>

Article: Basel II

URL: <http://www.bis.org/publ/bcbsca.htm>

Article: Sarbanes-Oxley Act Pub.L. 107-204, 116 Stat. 745, enacted July 30, 2002

URL: <http://www.sarbanes-oxley.com>

Article: Health Insurance Portability and Accountability Act
URL: <http://www.hhs.gov/ocr/privacy>

Article: Empirical research
URL: http://en.wikipedia.org/wiki/Empirical_research

MDQ internet magazine
URL: <http://www.masterdataquality.com>

Appendix 1

Item Type	Views	Sales Org	Distribution channel	Plant	Storage location	Material Type
		PRMG1- VKMG	PRMG1- VTWEG	PRMG1- WERKS	PRMG1- LG009	PRMG1- MTART

BASIC 1			BASIC		CLASSIFICATION			SALES: gen./plant			Foreign Trade				Purchasing					
Material description	Material Group	External Material Group (GIC)	Environmentally rht	Class	Class Type 001	Class Type 022	Availability check	Transport group	Loading group	Profit center	Serial no. profile	Customs p. code no.	Country of origin	Export Licenses (bottom)	Order unit	Var. 00th	Purchase price group	Tax indicator	Batch management indicator	
MABA-MATX	MABA-MATNL	MABA-EXTWG	MABA-KZUW	PMICF-KLAFT	PMICF-CLASS	PMICF-CLASS	PMITVP	MABA-TRAGR	MABA-LABOR	MABA-PICTR	MABA-SERIP	MARC-STAWN	MARC-HERKL	MARC-MTYVER	MABA-ALNUM	MABA-BSTIME	MABA-VABIME	MARC-EXGRP	MARC-MAYM	MARC-XCHPF

Account1		Costing Estimate 1									
Valuation class	Price control	Price unit	standard price	Origin group	With sp. structure indicator	Material origin indicator	Variance key	Plant SP Material Status	Spec. price, type for costing	Costing lot size	MARC.
BOLAS	WPPSW	PERIN	MIEW:	MHEFT	EBALL	MHEWT	AVGSL	ABC-MNMT	MARC-SUBS	LOSLGR	

Appendix 2

Item Type	Views	Sales Org	Distribution channel	Plant	Storage location	Material type
		RAMG1- VKORG	RAMG1- VTWEG	WERKS	LGORT	RAMG1- MTART

BASIC 1			BASIC CLASSIFICATION			SALES: Sales org. 1				SALES: Sales org. 2				SALES: gen./plant										
Material description	Material group	External material group (GIC)	Class	Class type	Class type 001	DChain spec status	Belonging plant	Cash discount indicator	Tax category	Delivery unit	Matl. statistics group	Volume reb. grp	Account assignm. at grp	Gen. item category grp.	Item category group	Picking reference material	Prod. hierarchy	Commission on group	Pref. ind.	Availability check	Transport group	Loading group	Profit center	Social no. profile
MATX- MATX	MARA- MATL	MARA- EXTWG	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT	0001- KLAUT

Foreign Trade					Purchasing			MRP1				MRP2			MRP3			
Comm. in p. code no.	Country of origin	Export license (bottom)	Order unit	Var. 00n	Purchasing group	Tax indicator for material	Batch indicator for material	MRP Group	MRP type	MRP control	Lot size	Procurement type	Batch entry	Prod. stor. location	Prod. delivery time	Schedule gln key	Period indicator	Fiscal year variant
MARC- STAWN	MARC- HERKL	MARC- ALNUM	MARA- BSTIME	MARA- VABME	MARC- ENGPP	MARC- MAG- TAXUM	MARC- XCHFF	MARC- BEGOR	MARC- DISAM	MARC- DISFO	MARC- DISLS	MARC- BESKE	MARC- KZECN	MARC- LOPPO	MARC- PLIFZ	MARC- PHOHI	MARC- PERKZ	MARC- PERIV

Account1		Costing Estimate 1								
Valuation class	Price control	Price unit	standard price	Origin group	With ops. structure indicator	Material indicator	Variance key	Plant SP. Material Status	Spec. proc. type for costing	Costing lot size
MARC-BULAS	MARC-VPSV	MARC-PBBH	MARC-STPPS	MARC-HRNET	MARC-EKALR	MARC-HREMT	MARC-ANVSL	MARC-ANVSL	MARC-ANVSL	MARC-LOSGR

Appendix 3

TEST PLAN

Master Data Quality In ERP Deployment Projects

Roman Korolev

1. Introduction

1.1. Purpose and Scope

This document covers Integration Testing.

Integration Testing will be carried out according to high level testing schedule:

Week 44 - Testing at HH premises

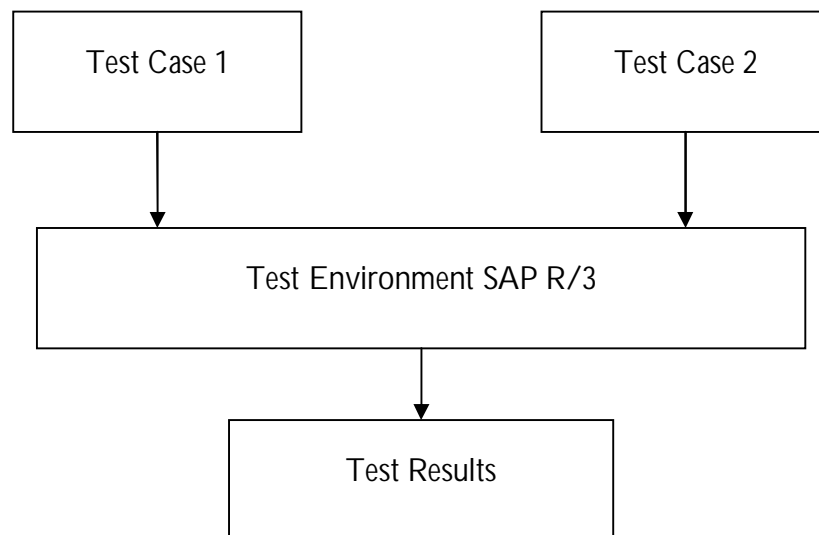


Figure 1: Test scope

1.2. Test Cases

Test cases are based on set of templates which will be tested during integration testing. Templates represent; vendor, material and customer master data collection templates. Master data templates can be see in chapter 6.2 in thesis document. Master data will be tested base on procurement and sales & distribution processes.

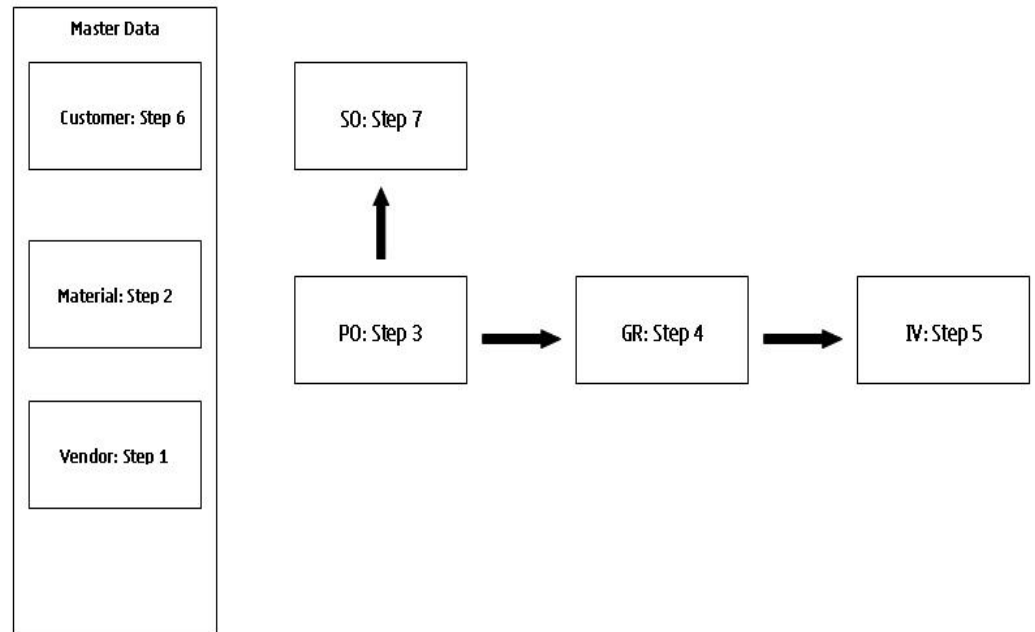


Figure 2: Master Data utilization during test

2. Integration Test

2.1. General Description

The primary objective of the Integration Test is to ensure that the required functionality in the SAP system with interfaces to legacy systems and other systems supports the business processes as defined Integration test scripts. Integration Testing involves testing the integration aspects of master data to be integrated. Test also ensures that end-to-end integration works both from logistics.

All functionalities in the ERP deployment project are tested in the Integration Test. The aim is to verify that the SAP system is working as designed (concepts, scenarios) and without defects. Integration testing is conducted to discover and correct processing and procedural defects. If defects are found during the Integration Test all the corrections of defects have to be tested again.

- 2.2. Environment
The integration test is executed in SAP environment/Client 510.
- 2.3. Integration Test Entry Criteria
Entry criteria for Integration Test execution: all functionalities in project are configured and tested.
- 2.4. Entry criteria
- Test environments are ready
 - Configuration is frozen
 - Authorizations are defined
 - Master data is created and verified
 - Integration test scripts are ready
 - Integration test scripts are approved
- 2.5. Deliverables from System Solution phase
- Technical documentation (Configuration and system solution documents)
 - Integration Test plan and test scripts
- 2.6. Test Validation
Key user or other person nominated to tester role by Deployment Manager will participate to testing sessions and they are doing validation all the time.
- Integration Testing Sign off meeting:
Purpose of this meeting is to go through testing status and results of the validation meeting and decide if system is ready.
3. Scope of Test – Master Data & Business Processes to be tested
Scope of test (= list of the business scenarios = test cases which will be tested during Integration testing is defined.

3.1. Features to be tested inside the scope

User Interface: All interface functions have to be tested.

Configuration: All functions have to be tested.

Interfaces: Modified interfaces to other systems have to be tested as a part of Integration Test: All basic interfaces in scope are tested as a part of Integration Test processes.

Printouts and Reports: All new or modified printouts and reports defined in scope have to be tested by printing them both on screen and on printer

4. Enterprise Structure and Master Data

4.1. Enterprise structure

Enterprise Structure represents how the organizational structure of the xxx business is implemented in SAP, i.e. Legal entities and plants.

4.2. Master Data

Materials, Customers and Vendors

5. Test Acceptance / Rejection Criteria

Integration Test is accepted when all test scripts in testing scope are completed and their results are accepted. Results can be accepted if they correspond with expected output and if no input generates uncontrolled defects. Accepted test results can't contain defects.

The tests are rejected if test results contain defects in any status other than "closed". NOTE: Certain test environments may have defined exceptions to these criteria. All the exceptions need to be documented and approved.

6. Deliverables and Test logs

The following deliverables must result from Integration Test. Possible found defects are recorded, fixed and re-tested