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(54) Title: SYSTEM AND METHOD FOR IMPORT OF ELECTRONIC DOCUMENTATION INTO A GLOBAL ENTERPRISE CONTENT MANAGEMENT SYSTEM

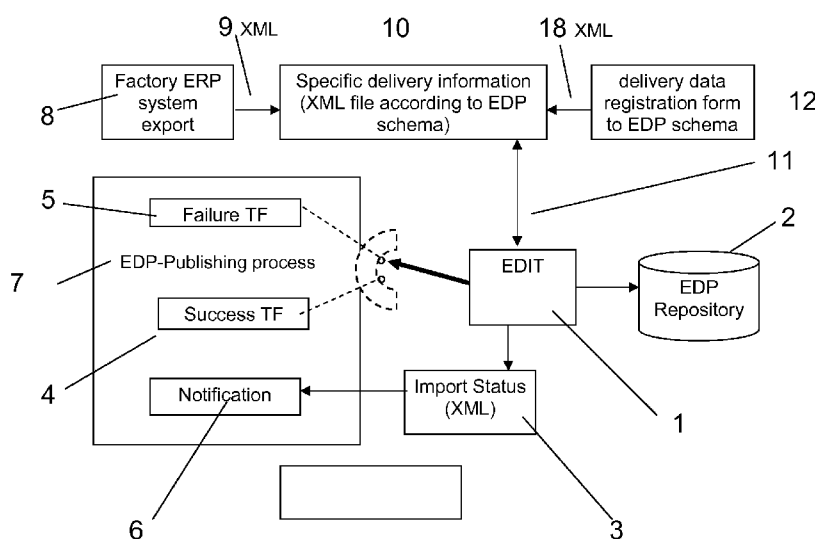


Fig 1

(S7) Abstract: The invention specifies a system and method for electronic documentation import from different locations to a repository/ECM. This is achieved by reading a triggering XML-file with technical documentation file names and document delivery data before importing the specific delivery documentation. After importing the specific delivery documentation, a document import status is produced as another XML-status file, which is used for follow up in the publishing processes of notification, archiving and collaborative portals.

System and Method for Import of Electronic Documentation into a global Enterprise Content Management System

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FIELD OF INVENTION:

The present invention relates, in general, to the field of electronic documentation importing tools for importing documentation of technical equipment in digital form from different factories located in different locations into a global repository, functioning as Enterprise Content Management System (ECM). This is a publishing process which is called EDP publishing in this description

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TECHNICAL BACKGROUND:

Publishing electronic documentation into a central repository requires that information other than the technical documentation itself, information about the delivery as well as the technical documentation to be published, is pulled from a number of different and separate systems. The actual import of the delivery documents is a time consuming process. Moreover, presently available importing tools need to be user friendly and produce status of the import in an industrial standard format like XML.

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US Publication 20060031411 describes a server for delivering an electronic document to a user device which dispatches the document when the identifier of a defined portion of document content is determined to be redundant based on capabilities of the user device. However, it is a generic structure for a document to control individual access to document parts.

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US Publication 20040034686 discloses an electronic information delivering system. It has a server that collects electronic information related to the users preset customized profile for delivery to a client component from internal sites and server. It deals with the creation of documents and their distribution, based on customer subscription. However it does not describe how the transmitted document is deleted from a repository

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A set of patents describe a method or system for delivery and exchange of electronic documents. WO2001060035 discloses a system for delivery and exchange of electronic data comprising of a sending device, which functions to send an electronic document, and receiving device, which functions to receive the electronic document from the sending device. A network between the sending device and the receiving device functions to allow the sending device to send a notification to the receiving device. The receiving device sends a notification to the sending device whereby the sending device forwards the electronic document to the receiving device. The sending device automatically records all the notifications sent to and received from the receiving device and the receiving device automatically

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records all notifications sent to and received from the sending device. WO2002015518 discloses a method for secure delivery of electronic documents between the users over the internet issuing a request to the Digital Asset Distribution causing files residing on local computers to be transferred to recipients. US Publication 20040225751 deals with information packaging and a delivery system for an electronic-business transaction. WO2000051029 describes an electronic document delivery apparatus using the internet. It includes sending to a computer which transmits an encoded document to a server for decoding, encoding and transmission to a receiving computer. However it describes such cases where documents are encoded before transmitting on the network and decoded via a server system before delivering the document to the receiving system.

US Publication 20040255034 deals with general server client architecture providing all kind of services like mailing, data collection and publishing on a very high level, but it is applicable only on the level of communication ports and device.

In basic concepts of Electronic Documentation Systems and related Electronic Documentation Programs (EDP), as disclosed in Proceedings of IDETC/CIE 2006, ASME 2006 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, September 10-13, 2006, Philadelphia, Pennsylvania, USA, DETC2006-99194 "MOVING PRODUCT INFORMATION ALONG THE VALUE CHAIN: OVERCOMING CHALLENGES OF DISTRIBUTED ORGANIZATIONAL STRUCTURE AND A HETEROGENEOUS INFORMATION ENVIRONMENT" by Harshavardhan Karandikar, Bruno Schilli, Wolfgang Schellhammer, Roar Karlsen, and as disclosed on the International Conference on Product Lifecycle Management PLM06, July 10 -12, 2006, Bangalore in "Cost-effective Electronic Delivery of Product Data and Documentation" by Bruno Schilli, Wolfgang Schellhammer and Harsh Karandikar, the sender of information publishes documents and meta-data into a specific file directory, which is supervised by a so called EDP Publishing Services using a procedure called Batch Conversion Service (BCS). The EDP Publishing Services collect, upload and transform the project specific documents and data into a document repository, which consists of a database server and a file server. While delivery specific project specific documents are copied to the file server of the EDP Repository, type specific documentation, that is technical documentation for a specific type of technical equipment, will remain in the central documentation library. In order to inform the customer about a documentation delivery, EDP Publishing Services creates a notification to the receiver of the respective documentation, which contains a link to the relevant documentation set. With this link the customer can access individual documents and properties of one delivery through a web interface.

However in the above system, documents for uploading must be specified manually by a sender or publisher. Technical documentation for equipment typically requires uploading a plurality of digital files

comprising huge and bulky documents. Also, in a large organisation different versions of the same technical documentation for a given product may exist at the same time, for example on different servers or in different regional systems. It is a demanding and time consuming process to identify the correct version for a specific delivery. It is also a demanding and time consuming process to coordinate the publishing of technical documentation for a specific delivery because a plurality of factory sites are often involved in providing parts or systems for a specific delivery of equipment. This is a difficulty faced in particular by large organizations with manufacturing facilities in many countries of the world.

OBJECTS OF THE INVENTION:

The principal object of the present invention is to provide a system and method of importing electronic documents efficiently from different locations to a global repository, dealing as Enterprise Content Management System of the enterprise, e.g. Documentum of EMC Corporation.

Another object of the present invention is to provide a method to integrate functions for providing appropriate notifications about publishing process results and enabling access to product documentation for one or more potential receivers.

Yet another object of the invention is to provide a tool which reads information about the documentation to be electronically published, other than the technical documentation itself (Metadata) for the purpose of performing the operation of importing.

The use of Metadata is also described in an Indian patent application IN 1099/KOL/2008 filed 24-06-2008, in India entitled System and method for automated preparation and publication of information of technical equipment; which is hereby incorporated in full in this specification by means of this reference. In this description, Metadata comprises information and data in documentation which are specific to a specific delivery of technical equipment and formatted in a structured text format such as XML.

Another object of the invention is to provide a tool which continuously monitors specified folder or file locations for documentation to be imported.

Another object of the invention is to provide a tool which is pluggable to any windows based application as a tool.

Still another object of the present invention is to provide a tool and a method of importing electronic documents in which only released documents are imported for a predefined life cycle status as a

document set.

Yet another object of the present invention is to provide a tool and a method of importing electronic documents which produces document import status in a structured text or

5 mark-up format such as XML format.

Still another object of the present invention is to provide a method of handling failure import and required Metadata information passed in the form of XML to convey a status of a publishing process.

10 Another object of the invention is to provide a method of automating the process of importing a plurality of digital files comprising huge and bulky documents.

Yet another object of the present invention is to provide a method of trace of log information during the import along with log customized option for the tool.

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Still another object of the present invention is to provide a method to switch between two or more points for collecting documents for import.

According to another aspect of the invention, a system is provided for preparation and publication of
20 technical equipment documentation which system comprises at least one data processing device cooperating with at least one data storage device and at least one tool or module for automatically importing documents to a document repository of an electronic publishing system.

25 SUMMARY OF INVENTION:

Accordingly the present invention relates to a method of electronically publishing technical information about a technical equipment or product, from here on called documentation from defined locations into a central repository/ECM system. The method of collection of documentation disclosed by the present invention is a process which runs independently of a publishing process once the collection of
30 documentation has been triggered by an overall publishing process control or orchestration. The method of collection comprises reading a triggering XML-file with life cycle and document delivery data, before importing the specific documentation. After the specified documentation has been imported, the document import status showing which documents have been imported is produced as an XML-status file. The XML-status file can be used for follow up processes such as but not limited to archiving,
35 providing secure access to authorised persons via collaborative portals etc. by means of ACL (Access Control List) or other secure access system. A fully automated publishing process is triggered and fed

with the required data automatically according to the method described here. The described method, possibly implemented as a service, stores the documentation in the enterprise repository provided by a ECM system of the enterprise.

- 5 In an embodiment of the present invention, a method of importing electronic documents from different locations to a repository is provided wherein said method comprises the steps of:
- a. using the Metadata related to the life cycle status and the document set during EDP publishing process, to orchestrate or otherwise coordinate preparation and publication of information of technical equipment
 - 10 b. specifying the location of the documents to be fetched for import;
 - c. specifying the failure location in case of failure in importing documents;
 - d. putting and storing specific delivery documents with GUID (global unique ID/delivery ID) as folder under root level Success Transaction Folder if the business process and transaction is successful otherwise in root level Failure Transaction Folder, as per EDP publishing process business
 - 15 logic;
 - e. carrying out an error correction process on the documents in root level Failure Transaction Folder;
 - f. importing the specified delivery documents to the enterprise repository; and
 - g. generating the document import status.

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In another embodiment of the present invention, the Metadata is present in XML format.

In another embodiment of the present invention, an updated version of the Metadata is present in an extended file in structured text or XML format.

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In yet another embodiment of the present invention, the document import status is generated in XML format.

- 30 In still another embodiment of the present invention, the document import status is used for supervision or control purposes in publishing processes like notification, archiving and for access via a collaborative portal.

In another embodiment of the present invention, the document import status contains information about the recipient or recipients of the notification of delivery information.

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In another embodiment of the present invention, the document import status contains information about the recipient of the notification of delivery information for providing a notification of the delivery

information to a potential receiver using integrated functions.

In yet another embodiment of the present invention, the method is implemented in a multilayer format comprising the layers of:

- 5 a. presentation layer;
 b. publishing process layer;
 c. data logic layer; and
 d. data access layer.

- 10 In still another embodiment of the present invention, the presentation layer is used for a configuration purpose.

In another embodiment of the present invention, the publishing process layer identifies and categorizes the required services.

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In yet another embodiment of the present invention, data logic based on the logic of publishing process layer is created in the data logic layer.

- 20 In another embodiment of the present invention, the required application program interface to communicate to the central repository is implemented in the data access layer.

In yet another embodiment of the present invention, the security level access is maintained by means of ACL (Access Control List).

- 25 In still another embodiment of the present invention, import of the specified delivery documents to the EDP repository is done as a batch process.

In another embodiment of the present invention, the method provides configurable feature to customize the tool for business need.

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In yet another embodiment of the present invention, the method automates the process of importing huge & bulky documents.

- 35 In still another embodiment of the present invention, the method provides trace of log information during import along with log customize option for the tool.

In another embodiment of the present invention, the method switching between two or more points for

collecting documents for import is provided.

According to another aspect of the invention, a system is provided for preparation and publication of technical equipment documentation which system comprises at least one data processing device cooperating with at least one data storage device and at least one tool or module for automatically importing documents to a document repository of an electronic publishing system. The system according to the invention may comprise a module based structure or apparatus with devices and units, wherein the units or devices respectively may be implemented on commercially available workflow management tools.

BRIEF DESCRIPTION OF FIGURES :

It is to be noted, however, that the appended drawings illustrate only typical embodiments of this invention and are therefore not to be considered for limiting of its scope, for the invention may admit to other equally effective embodiments.

FIG. 1 shows schematic diagram of Electronic Documentation Importer Tool according to an embodiment of the invention,

FIG 2. shows a schematic flowchart of method steps for automatically importing electronic documents for automatic preparation and publication of information of technical equipment according to an embodiment of the invention,

FIG 3 shows a schematic diagram of Electronic Documentation Importer Tool according to another embodiment of the invention.

DETAILED DESCRIPTION OF INVENTION:

In the present invention, various steps involved in the process of importing electronic documentation from different locations are provided. Publishing customer documentation into a central repository of an automatic electronic publishing system requires that Metadata about a specific document delivery in respect of a specific technical equipment as well as the technical documentation to be published are pulled from underlying systems.

In an embodiment of the invention the Metadata is a text file with mark-up, modelled/prepared as an XML-model, here called EDP XML schema, which describes the publishing services and required data from supplying factories and which includes a Business Service Request (BSR) and a Business Data Object (BDO). The BSR may contain/include the necessary mark-up to notify the publishing person and potential consuming persons, namely customers by eMail. The BDO contains elements to describe

delivery, product, related information and/or documentation and related product properties. A metadata file is an instance of EDP XML Schema, called EDP XML File.

The Metadata about a specific delivery comprises information about the documentation to be electronically published, e.g. lists of identified technical documents, lists of references to other specified information, delivery details, contact details of supplier and customer and a flexible combination of Technical and non technical information about the specific product delivery. As the technical documentation can be a huge set of digital files, this invention discloses a method for the collection of documentation which is run as an independent process within the Electronic Document Program (EDP) publishing process once it has been triggered by the overall publishing process control or orchestration with the help of an Electronic Documentation Importer Tool.

Figure 1 illustrates a schematic diagram including the Electronic Documentation Importer Tool (EDIT) 1. The Metadata 10 in XML format has information of the life cycle status and has a document set which is used to orchestrate or otherwise coordinate the preparation and publication of information of technical equipment process.

The EDP XML file contains all information tags to control the publication workflow, notify intended persons and deliver the necessary information. It is comprised of a Business Service request (BSR) and one or more Business Data Objects (BDO).

As the information for a specific delivery (Metadata 10) is preferably as a structured text document in a generic data format, especially as XML-file, this file could be created automatically (in XML format) from various user interfaces. An interface for specifying a delivery from the automatic EDP system may be implemented either as a user driven form-based user interface 12, or as part of a local document management system (as indicated by DMS 14 in Fig 3). In the case of a form-based implementation the user interface may be a data registration form provided by an enterprise form server in a suitable format, such as implemented as a local client or implemented in a suitable format for a Visual Basic compatible application such as Excel, or the data registration form may be provided as eg a web form, wherein, as well as collecting manually or automatically input information, when saving the form the Metadata 10 XML-file is created automatically (9 Fig 1, 18 Fig 3). In the case where the user interface is implemented as integral part of document management system, DMS 14, and the necessary information/data is collected by means of the document management system it may be automatically extracted as an XML-file, together with the related information and/or documents and is triggered by user request. In an embodiment of the invention, the Meta-data for specific delivery information may also be obtained from an ERP (a manufacturing control system or a generic enterprise resource planning (ERP) System 8, as an automated process 9XML, when the status of customer

documentation has been set to appropriate status, e.g. "ready for customer" or "released". (See also 18 XML in Fig 3, below).

BSR here specifically represents a request for publishing of documentation for one specific Delivery. In
5 general a Business Data Object describes the structure and the included elements of a business
service request in business information terms, e.g. request of information on a product, request of
information on an invoice or in case of this invention request publication of delivery information. The
latter requires splitting of BDO into three parts – about technical equipment (identification and
classification of product), documentation related to the technical equipment and product properties.
10 This BDO (Metadata 10) is therefore split in these three parts. Each Metadata 10 can contain many
BDO instances, e.g. to describe many products delivered with individual information items.

Once the preparation and publishing process starts the Metadata 10 undergoes schema validation and
quality check of data content. During the publishing process an Extended EDP XML file (see 13 Fig 3
15 below) is created, which is a copy of the original EDP Metadata with appended runtime generated
information items, like unique delivery GUID, time stamp of processing, or history of process. The
Extended EDP XML file 13 is a separate file, with a file name related to the original xml file. E.g. if
original EDP Metadata XML is named as 123.xml, the generated Extended EDP metadata is named as
Ext-123.xml. The extended EDP XML file (Metadata 13 in Fig 3) is utilized by the EDIT tool 1 as a
20 required input for importing specific delivery documents. The EDP XML file (Metadata 10) is a
collection of the information from the publisher (person responsible for delivering the information),
information from ERP system from Sales Order Support and information from Line of Business (LOB-
like company customer, & product system). A LOB adapter may be a software tool adapted to suit a
line of related technical products manufactured or otherwise provided by the enterprise. A LOB adapter
25 provides communication between the EDP publishing process and databases with information for a
LOB of related products of the enterprise. EDP XML 10 will get extended with updated information
along with the original information and as well holds the individual transaction status which may include
a document import status

30 Figure 2 shows a schematic flowchart of steps for automatically importing electronic documents for
automatic preparation and publication of information of technical equipment. It shows

- reading 20 in a structured text document or Metadata 10 an instruction that triggers automatic
import of technical documentation for a specific publishing transaction,
- reading 21 an identity of one or more identified files in the structured text document or the
35 Metadata,

- detecting 22 such one or more such identified files at a specific location,
- importing 23 such identified files from a specific location,
- error checking 24 such identified files,
- storing 25, 26 such identified files in a memory storage device with a unique name (or GUID)
- 5 and storing such files at a specific address such as Success Transaction Folder TF 4, or storing such files if containing errors at a specific and different address such as in a Transaction Folder Failure TF 5.
- 27 correcting an error in a file.
- 28 Update of Import Status file 3, used for Notification 6 to customer;
- 10 - 29 Update of error case and notification of severe system errors to services group for the publishing application, and a notification in the case of minor data errors reported to publishing person

The EDIT 1 is a configurable tool for importing electronic documentation from different locations to a repository 2. The technical documentation and order/delivery documentation is published by placing

15 the technical documentation and delivery documents into in a document repository e.g. Documentum. Documentum may be a commercially available product such as the Documentum system from EMC Corporation. The repository is globally available and is arranged to provides access to users via the web. The EDIT tool 1 reads a triggering extended EDP XML-file (13) which was created during publishing process with a life cycle and document delivery data, before importing the specific delivery

20 technical documents and produces the document import status 3 as an XML-status file. This status file can be later used for follow up processes, such as but not limited to providing secure access to authorized persons via collaborative portals etc. by means of ACL or other secure access system. A fully automated publishing process is triggered and fed with the required data automatically. The described service stores the specified documentation into the ECM System of an enterprise

25 (Repository).

A system is provided which comprises in part an electronic document importer which has an option to configure, e.g. to specify location of the documents to be fetched for import, to specify failure location in case of failure in importing documents, preparing import status in XML format for transaction and to

30 specify the log option to be traced. It also specifies the log files to be deleted or retained. The system for an automatic preparation and publication of information of technical equipment includes a module-like structure comprising several module-based devices and/or units. A data processing device cooperating with at least one storage device is provided, wherein the module based devices and/or

units comprise means for detecting, collecting and storing digitally stored information, especially documents, and/or its related meta-data, especially in a distributed environment. The system implementing the electronic document importer tool also comprises units for checking the quality of collected data, for transferring the detected and/or collected information to the at least one storage device and/or storing the respective data in digital form in a first information and/or document repository. The electronic document importer EDIT 1 puts and stores specific delivery documents with a unique identifier for the process, a GUID, in a folder under root level Success Transaction Folder (TF) 4 if the business process and transaction is successful otherwise in root level Failure TF 5 where one or more error correction processes are carried out. EDIT 1 is configured for reading the extended Metadata XML file from Success TF 4 to detect imported documents and generate the import status 3 in XML format, which contains the information about the recipient of the notification of the delivery information. The generated import status XML 3 is utilized by the EDP publishing process 7 for automatically generating and sending a notification 6 to a delivery recipient. Once the correction process (see 27 Fig 2) is completed, then EDIT 1 is configured to import all the documents from that folder to the central EDP repository 2. After the import tool EDIT has imported the specified files to the ECM System 2, the notification 6 is sent to the intended recipient of the specific delivery. The notification allows the recipient to access the technical documentation that has been published into the ECM System 2 to view and/or print or copy files and so on. The notification will typically comprise a link such an URL for the intended recipient to access the technical documentation for the specific delivery of equipment as ordered.

In an embodiment, Figure 3 shows the EDP publishing process 7 in more detail, Interface 12 has the function of a data registration form which may be implemented as a web client, as a form generated by an enterprise form server, or an application compatible with Visual Basic, such as Excel, as described above and information regarding the specific delivery is entered manually, semi-automatically or automatically in the form. An XML file is then generated, 18 XML, which file includes the data from the form. Fig 3 also shows the updated Metadata file, which is the extended specific delivery information file 13 preferably formatted as an XML file. This file is updated during the life cycle of the specific document delivery publishing process 7 to include results of schema validity checking, and with appended runtime generated information items, such as unique delivery GUID, time stamp of processing, or history of process. The Extended EDP XML file 13 information is used by the EDIT importer tool to automatically generate actions such as Import status 3 and Notification 6.

All the implementation of the above mentioned process is carried out in a multilayer format comprising of the following layers:

Presentation layer:

A user interface window is provided to the end user to specify the location where the Metadata and the

document set is to be monitored and picked up from. The main purpose of this layer is to set up the functions to be performed such as archiving, trace transaction log, collaborative portals etc.

Publishing Process Layer:

- 5 The main function of this layer is to identify and categorize the required services like trace transaction log, import status, archiving etc as per the option selection in the presentation layer. This is achieved by first reading the Metadata (EDP XML) from the specified location in the presentation layer. Accordingly, the publishing process logic is created for categorizing the required folder structure and for placing the document inside the repository/ECM. The security level access is maintained by means of ACL (Access Control List) parameters for placing the document set in the repository. Finally, the import status XML file 3 is prepared which has sufficient information required for sending notification 6.

Data Logic Layer:

- 15 Based on the logic of the publishing process layer, the data logic is created i.e. required business data is organized. This business data is the information fetched from the Extended EDP XML file, like creation, groups, cabinet structure, ACL creation, GUID etc. This business data will be base for import. Implementation logic for the individual categorization for folder structure and ACL security for the document set in the repository is created.

20 Data Access Layer:

This layer provides a simplified access to data stored in the repository. The required application program interface to communicate to the central repository is implemented in this layer.

- 25 Separation of components in different layers allows for a more easily maintained code base and also ensures that when the code is to be turned into a component, the effort required is minimized and hence reusability of the code is enhanced.

- 30 The methods for automatic import of technical documentation in a distributed system to an electronic document publishing system EDP and an enterprise content management system ECM as described in this specification may be carried out by a computer application comprising computer program elements or software code which, when loaded in a processor or computer, causes the computer or processor to carry out the method steps. The functions of the modules of the EDP system may be carried out by processing digital functions, algorithms and/or computer programs and/or by analogue components or analogue circuits or by a combination of both digital and analogue functions.

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The methods of the invention, as previously described for example in respect of Fig 2, as well as processes indicated in Figs 1,3, may be carried out by means of one or more computer programs

comprising computer program code or software portions running on a computer or a processor. The microprocessor (or processors) comprises a central processing unit CPU performing the steps of the method according to one or more facets of the invention. This is performed with the aid of one or more said computer programs, such as, which are stored at least in part in memory and as such accessible
5 by the one or more processors. The or each processor may be in a module, a server or hub or router unit or may as well run in a local or central computer system in a local or regional distributed computerized system.

Various other modifications and alterations in the structure and method of operation of this invention
10 will be apparent to those skilled in the art without departing from the scope and spirit of the invention. Although the invention has been described in connection with specific preferred embodiments, it should be understood that the invention as claimed should not be unduly limited to such specific embodiments. It is intended that the following claims define the scope of the present invention and that structures and methods within the scope of these claims and their equivalents be covered thereby.

CLAIMS

1. A method of importing electronic documents for automatic preparation and publication of information of technical equipment from a plurality of different locations to a repository/ECM (2), wherein said method is **characterised** by:

- 5 a. retrieving by means of an importing tool (1) information stored in a structured text format document as a Metadata (10, 13) related to the life cycle status and the document set during publishing process, to automatically coordinate said preparation and publication of information of technical equipment;
 - b. configuring via an interface a location from which the documents with information of technical equipment are to be fetched for import;
 - 10 c. specifying a failure location in case of failure in importing documents;
 - d. automatically storing specific delivery documents and information of technical equipment with GUID (global unique ID/delivery ID) in a folder under root level Success Transaction Folder (4) if the importing process and transaction is successful otherwise in root level Failure Transaction Folder (5), as per EDP publishing process logic;
 - 15 e. carrying out an error correction process (27) on any documents stored in root level Failure Transaction Folder;
 - f. importing (23) the information of technical equipment documents and delivery documents to the ECM repository (2); and
 - g. generating (28) a document import status (3).
 - 20
2. The method of importing electronic documents from different locations to a Repository/ECM as claimed in claim 1, wherein said structured text format or Metadata is in XML format.
3. The method of importing electronic documents from different locations to a repository/ECM as
- 25 claimed in claim 1, wherein said document import status (3) is generated in XML format.
4. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein said document import status is read and used to carry out one or more follow up processes including any from the group of: notification, notification of delivery, archiving,
- 30 access by means of a collaborative portal.
5. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein said document import status (3) contains information about a specific recipient of the notification (6) of delivery information.
- 35
6. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein A EDP publishing process accesses product information held in one or

more databases for a Line of Business related products of the enterprise by means of a LOB adapter.

7. The method of importing electronic documents different locations to a repository/ECM as claimed in claim 1, wherein said method is implemented in a multilayer format comprising the layers of:

- 5 a. presentation layer;
b. publishing process layer;
c. data logic layer; and
d. data access layer.

10 8. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 6, wherein said presentation layer is used for a configuration purpose by specifying the location from which a file shall be imported.

15 9. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 6, wherein said publishing process layer identifies and categorizes the required services.

20 10. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 6, wherein data logic based on the logic of publishing process layer is created in said data logic layer.

25 11. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 6, wherein a required application programming interface for communication with the central repository is implemented in said data access layer.

12. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein security level access is maintained by means of an Access Control List ACL.

30 13. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein said import of the specified delivery documents to the EDP repository (23) is done as a batch process.

35 14. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein said method provides at least one configurable feature to customize the tool for a requirement of the publishing process.

15. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein said method automatically carries out the import and error checking of a plurality of digital files containing a great amount of data representing huge & bulky documents.

5 16. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein said method provides trace of log information during import along with log customize option for the tool.

10 17. The method of importing electronic documents from different locations to a repository/ECM as claimed in claim 1, wherein said process of importing documents is triggered and initiated (9) by the overall publishing process orchestration.

15 18. A computer program product directly loadable into the internal memory of a digital computer comprising software code portions for performing the steps of claim 1 when said product is run on a computer.

20 19. A system for importing electronic documents for automatic preparation and publication of information of technical equipment from a plurality of different locations to a repository/ECM, **characterised** in that said system comprises an electronic document importing tool (1) further arranged

- a. for retrieving information stored in a structured text format document as a Metadata (10, 13) related to status in a life cycle of a technical equipment and the document set during EDP publishing process, to automatically coordinate said preparation and publication of information of technical equipment ;
- b. for reading from an interface (12, 14) a specified location of the documents to be fetched for import;
- 25 c. with means for specifying a failure location (5) in case of failure in importing documents;
- d. with means (1) for storing specific delivery documents arranged with GUID (global unique ID/delivery ID) as digital files in a folder under root level Success Transaction Folder (4) if the business process and transaction is successful otherwise in root level Failure Transaction Folder (5), as per EDP publishing process logic;
- 30 e. with means for carrying out error correction (27) on the documents in root level Failure Transaction Folder;
- f. with means for importing the specified delivery documents to the EDP repository (2); and
- g. with means (1) for generating the document import status (3).

35 20. A system for automatic import and publishing of electronic documents as claimed in claim 18, further comprising at least one computer readable memory storage medium containing one or more of computer programs for carrying out a method according to claim 1.

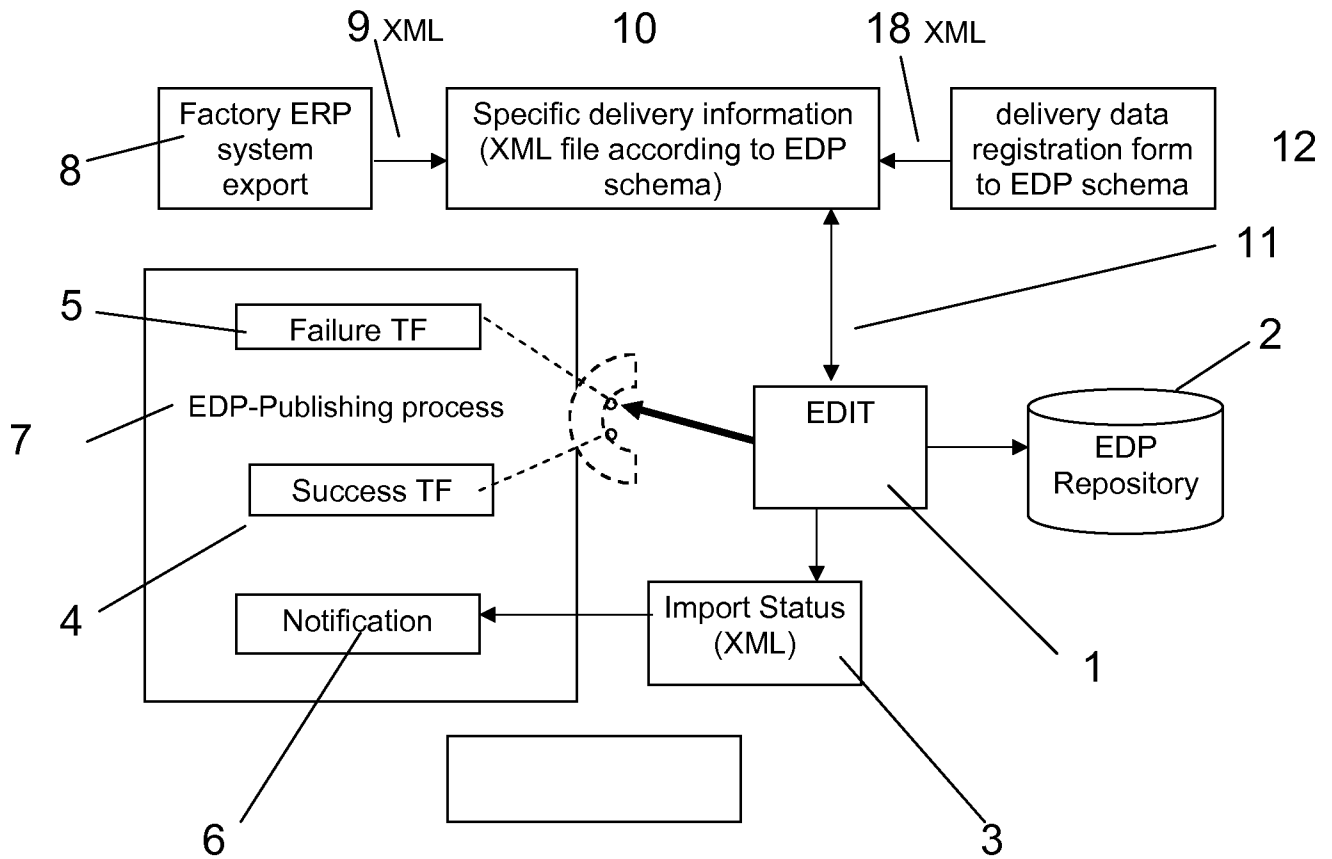


Fig 1

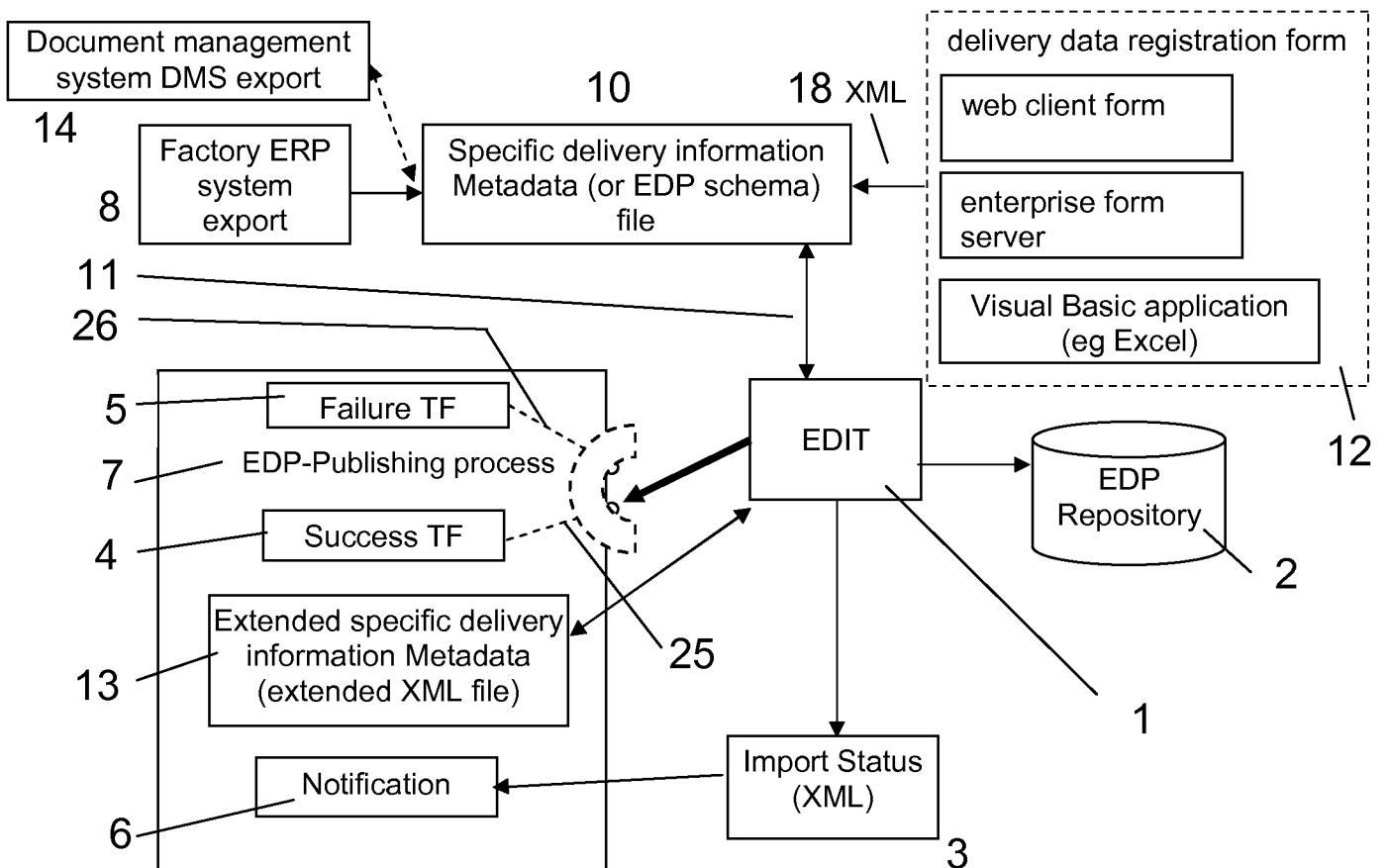


Fig 3

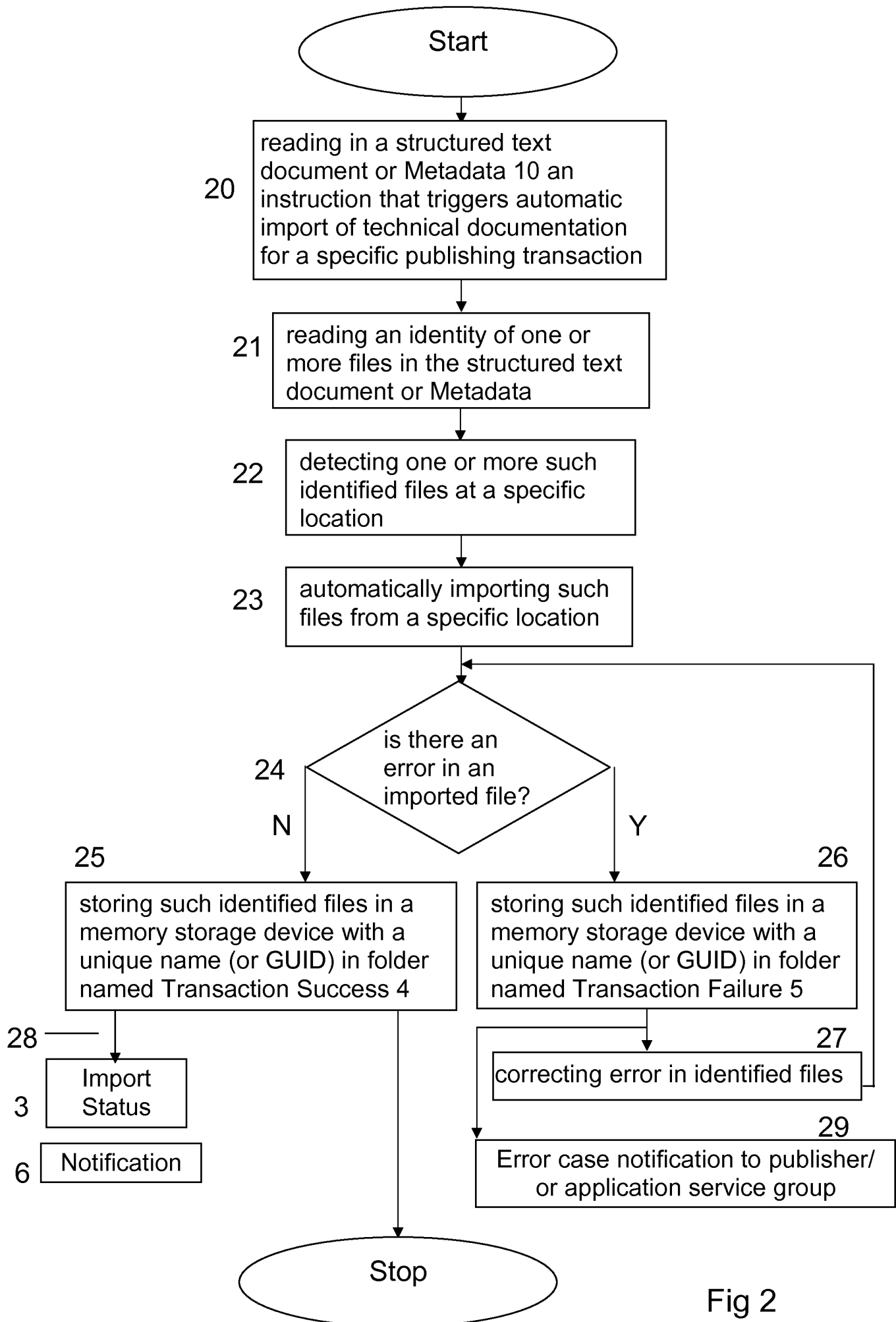


Fig 2

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2008/065816

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06Q10/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06F G06Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/167711 A1 (CHAKRABORTY AMIT [US] ET AL) 27 July 2006 (2006-07-27) abstract; figures 1,2a-2e,3 paragraph [0002] paragraph [0006] - paragraph [0009] paragraph [0035] paragraph [0040] - paragraph [0043] paragraph [0047] - paragraph [0052] -----	1-28
X	US 2008/027830 A1 (JOHNSON JERRY [US] ET AL) 31 January 2008 (2008-01-31) abstract; figures 1,2 paragraph [0003] - paragraph [0005] paragraph [0009] - paragraph [0010] ----- -/--	1-28

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

11 June 2009

Date of mailing of the international search report

23/06/2009

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2008/065816

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/031746 A1 (TOEPFER JOHN R [US] ET AL) 9 February 2006 (2006-02-09) abstract figures 1-3 paragraph [0002] paragraph [0014] paragraph [0033] - paragraph [0038] paragraph [0115] - paragraph [0116] -----	1-28
A	US 2002/002560 A1 (SHAH SNEHANSHU [US] ET AL) 3 January 2002 (2002-01-03) abstract figures 2-5 paragraph [0003] paragraph [0012] -----	1-28
X	KARANDIKAR H ET AL: "Moving product information along the value chain: overcoming challenges of distributed organizational structure and a heterogeneous information environment" PROCEEDINGS OF THE ASME INTERNATIONAL DESIGN ENGINEERING TECHNICAL CONFERENCES AND COMPUTERS AND INFORMATION IN ENGINEERING CONFERENCE - 2006 SEPTEMBER 10 - 13, 2006, PHILADELPHIA, PENNSYLVANIA, USA, ASME, NEW YORK, NY, US, 1 January 2006 (2006-01-01), pages 549-559, XP008106863 cited in the application the whole document -----	1-28

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2008/065816

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006167711	A1	27-07-2006	NONE
US 2008027830	A1	31-01-2008	NONE
US 2006031746	A1	09-02-2006	NONE
US 2002002560	A1	03-01-2002	NONE