

# **THE BUSINESS VALUE OF AN ERP SYSTEM**

***AJMAL BEG***

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This technology described in this publication is based on a patent application

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Dedicated to my family



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# Chapter 1

## Introduction

ERP system is used to support core business processes of an enterprise. For example; accounting related business documents in an ERP system are used to manage expenses and revenues of an enterprise, material management related business documents in the ERP system are used to manage materials that are used in manufacturing of products, human resource related business documents in the ERP system are used to manage information about employees and sales/client relationship management related business documents in ERP system are used to manage sales/relationship with the customers. An ERP system may support only those core business processes that belong to some specific business area(s) of the enterprise; such as client relationship management or production planning simulation. ERP system can be regarded as a collection of business documents belonging to different business processes and business logic to use/manage such business documents. Same business document may generate different business values for different companies. For example; let's assume Enterprise C and Enterprise D. Enterprise C sells screw drivers to small retail businesses and enterprise D sells sport cars. Both Enterprise C and Enterprise D have equal chances of turning a business opportunity lead into a sales order. A business opportunity identification document in ERP used by Enterprise D has obviously average higher business value compared to that of Enterprise C. When an ERP system manufacturer charges the same ERP license fee regardless of the business value an ERP system generates, the revenues for ERP system manufacturer may be negatively impacted. The license fee for ERP system may become excessive for some business. Excessive license fee of using ERP system may limit the wide use of ERP systems and thus reduce the potential revenues for the ERP system manufacturer and also result in some unhappy enterprises which use ERP and believe that they are paying more in terms of business value compared to some enterprises without knowing accurate

figure of business value of the ERP system. On the other hand, the ERP license fee may be too low for an enterprise which generates huge business value from using business documents in an ERP system, resulting in lost revenues for the ERP system manufacturer. An accurate figure of business value of an ERP system help justify the ERP license fee to the enterprise. Therefore, there is a need for means for calculating accurately the business value resulting from the usage of business documents in ERP system.

The book is divided into different chapters dealing with different aspects of the think process.

### **Chapter 1: Introduction**

This chapter introduces the purpose and structure of this book.

### **Chapter 2: The business value of an ERP system**

This chapter focuses on how to calculate the business value of an ERP system.

### **Chapter 3: Summary**

This chapter summarizes the the previous chapters.

# Chapter 2

## The business value of an ERP system

This chapter focuses on how to determine the business value of an ERP system.

### 2.1 The detailed description

Figure 2.1 illustrates an exemplary ERP system **190** and an exemplary ERP business value calculation system **100** which collaborate together to determine the ERP license fee based on the business value generated from the usage of the exemplary ERP system **190**. The exemplary ERP business value calculation system **100** may also process the financial transaction related to the determined ERP license fee. The exemplary ERP system **190** connects to the exemplary ERP business value calculation system **100** through network **107**. The ERP business value calculation system **100** stores information in a database **101**. The ERP business value calculation system **100** contains business values calculation module provider **103**, business values collection module **104**, business values verification module **105**, financial transaction processing module **106**, business values calculation module configuration provider **107** and, reporting and analysis module **108**. The business values calculation module provider **103** transfers the business values calculations module **194** to the exemplary ERP system **190**. The exemplary ERP system **190** installs the business values calculations module **194**. The business values calculation module provider **103** routinely checks for the latest version of the business values calculations module **194** at the exemplary ERP system **190** and updates the exemplary ERP system **190** whenever necessary. The business values calculation module configuration provider **107**

transfers the configuration for the business values calculation module **194** to the exemplary ERP system **190**. The business values calculation module configuration provider **107** routinely checks for the latest version of the configuration for the business values calculations module **194** at the exemplary ERP system **190** and updates the configuration whenever necessary. The business values collection module **104** collects the business values from the exemplary ERP system **190** by using the business value calculation module **194**. The business values verification module **105** verifies the business values collected by business values collection module **104**. The business values verification module **105** verifies the business values collected from the exemplary ERP system **190** from different prospects such as deception, misuse, errors, corrupted data or inconsistency in the data. The financial transaction processing module **106** calculates the ERP license fee, generates the detailed data related to the ERP license fee and transfers it to the registered parties related to the exemplary ERP system **190**. The reporting and analysis module **108** analyzes the business values collected from multiple ERP systems and generates new ERP license fee and/or new payment plans. The modules **103 104 105 106 107 108** connects to the database **101** through middle-ware **102**. The middle-ware **102** provides infrastructure for running different modules **103 104 105 106 107 108**. The middle-ware **102** provides services such as user management, security, run-time, job scheduling, printing, network access through multiple interfaces such as SOA-based services or web-based interface in form of a portal, data import/export in different forms such as XML and data conversion facilities. The exemplary ERP system **190** stores information in database **191**. The business logic **193** accesses the database **191** through the middle-ware **192**. The middle-ware **192** provides services such as user management, security, run-time, job scheduling, printing, network access through multiple interfaces such as SOA-based services or web-based interface in form of a portal, data import/export in different forms such as XML and data conversion facilities. The business logic **193** provides logic to use business documents related to different core business processes. The business values calculation module **194** calculates the business value of the exemplary ERP system **190**. The financial transaction processing module **195** is used for submitting a modification request to the ERP license fee received from the exemplary ERP business value calculation system **100**. The same financial transaction processing module **195** is used for making payments for ERP license fee. The payment plan change module **196** is used to accept, change and request new payment plan for the ERP license fee. Users of the exemplary ERP business value calculation system **100** connect to the system **100** using network **107**. Users of the exemplary ERP system **190** connect to the system **190** using network **107**. The databases

**101** and **109** are shown as single database here. However, the database **101** and **109** may be realized by logically connected multiple databases. Here, modules **103 104 105 106** are shown existing on the same computer. In other embodiments, modules **103 104 105 106** be distributed over multiple computers which are connected through a network **107**. Similarly modules **193 194 195 196** may be distributed over multiple computers which are connected through a network **107**. In other embodiments, the functionality provided by middle-wares **102 109** may exist in separate modules which connect to the database **102 109**. In this case, the modules **102 109** connect to the databases directly without need of a middle-ware **102 109**.

Figure 2.2 illustrates multiple ERP systems belonging to different enterprises **202** that are connected a ERP system business value calculation system **100** which determines the business values for each ERP system **202** and then use the collected business values to calculate the ERP license fee. The system **100** may analyze the data from multiple ERP systems **202** and generate a new ERP license fee and new payment plans to meet the needs of the enterprises and/or ERP manufacturers.

Figure 2.3 shows a block diagram of an example computer system **300** on which the computer instructions can be executed to implement the methods of technology described here. Computing devices such as laptop, desktop, server and cluster are examples of such computer system **300**. Processor **301** can be microprocessor, digital signal processor, a conventional processor, micro controller, virtual machine or any logic that executes computer instructions. Memory **302** can be any kind of memory device such as read only memory (ROM), random access memory (RAM) and flash memory. Storage device **303** can be any medium which can be used as persistence storage. For example, hard drive, tape drive, optical disk drive and disk arrays. Input device **304** is used to input external data and can be any kind of device such as mouse, trackball, light pen, biometric mechanism including voice recognition. Output device **305** can be any kind of device used for data output. For example, cathode-ray-tube (CRT) monitor, plasma display, crystal display, projector, printer and speaker. Communication interface **306** can be a interface to any kind of network such as internet, intranet, local area network, wide area network, a telephone network such as Public Switched Telephone Network, or combination of different kinds of networks. Bus **307** is used to communicate information and commands between different subsystems **301 302 303 304 305 306**. Bus **307** may be implemented using any kind of data transfer technology such as USB, serial connection, parallel connection and circuit board connections. In some computer system embodiments, the storage device **303** is connected to the bus **307** through communication interface **306**.

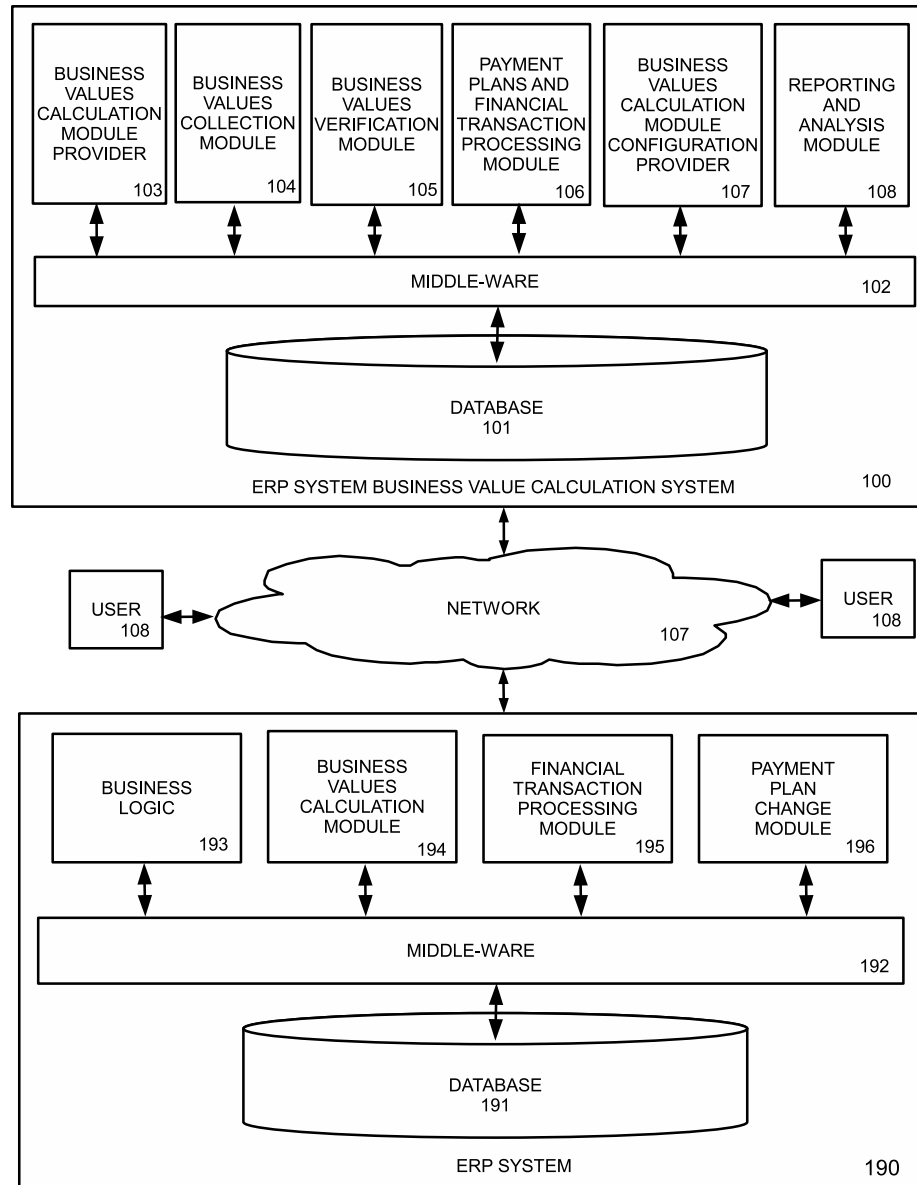


Figure 2.1: An ERP system connected to a Business value calculation system

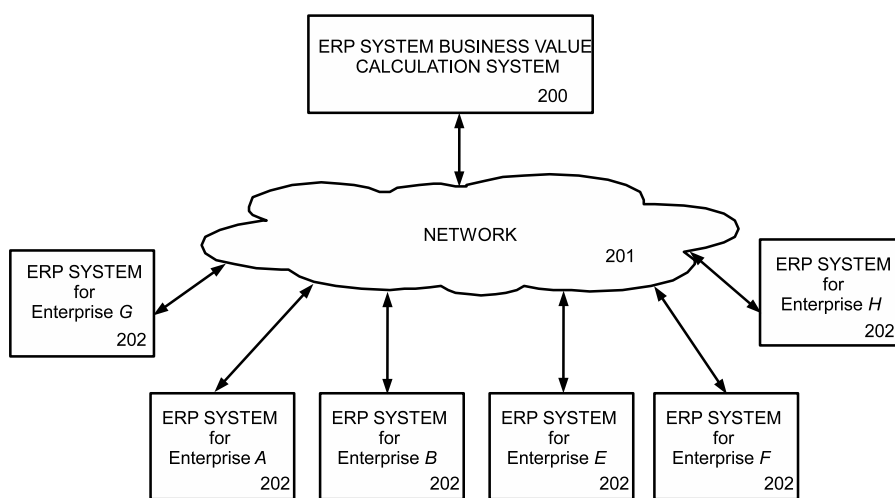


Figure 2.2: Multiple ERP systems connected to a Business value calculation system

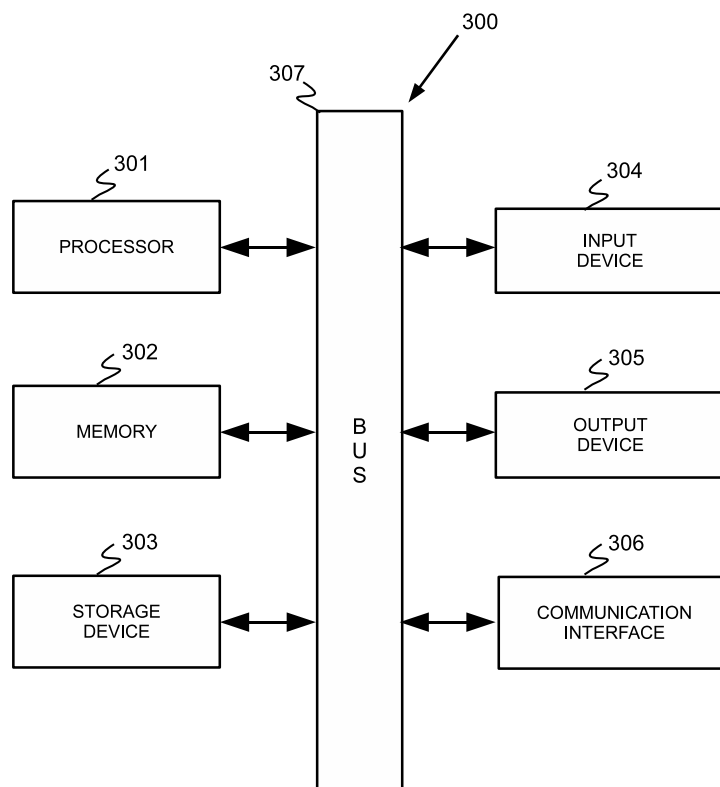


Figure 2.3: Block diagram of an exemplary system

Figure 2.4 is an exemplary flow chart illustrating the flow of determining the business value of exemplary ERP system **190**. The exemplary ERP business value calculation system **100** determines the time period/event(s) for which the ERP system's business value is to be calculated using the contract data and/or payment plan(s) (act **401**). Alternatively, a user of the systems **100 190** may define such time period/event(s) through a graphical user interface or by uploading time period/event(s) information into the system **100**. The system **100** determines the business documents and associated actions that contribute to the ERP system's business value related to the specified time period/event(s) (act **402**). Business opportunity identification document is an example of such business document in an ERP system. The system **100** determines the significance of each action related to the business document in the terms of contribution to the ERP system's business value related the specified time period/event(s) (act **403**). For example: the action of changing shipping address to another address in the same district in a sales document has less significance in the terms of business value compared to the action of increasing/decreasing the number of items in sales document. The system stores the information from act **401** and act **402**. The system **100** transfers this stored information to the exemplary ERP system **190** (act **404**). The business values calculation module **194** of the exemplary ERP system **190** uses the received information and calculates the number of actions taken related to the business document and relevant values to each action related to the specified time period/event(s). The system **100** receives from the ERP system **190**, the number of actions taken related to the business document and relevant values to each action during the specified time period (act **405**). The relevant values may need to be determined from other business documents. For example, the action of creating a business opportunity identification document may need the final amount of sales from the sales order that resulted from the business opportunity identification document. The system **100** calculates the business value for the specified time period using the information from act **405** and act **403** (act **406**).

Figure 2.5 is an exemplary flow chart **500** illustrating the flow of collecting the ERP business usage statistics by the exemplary ERP system **190**. The exemplary ERP system **190** receives the information related to act **401** and act **402** from the exemplary ERP business value calculation system **100** (act **501**). The exemplary ERP system **190** determines a schedule to collect the number of actions taken related to the business document and relevant values to each action related to the specified time period/event(s) from the database **191** (act **502**). Such a schedule may be defined using input from a user of system **190** through a graphical user interface or by using executable. The

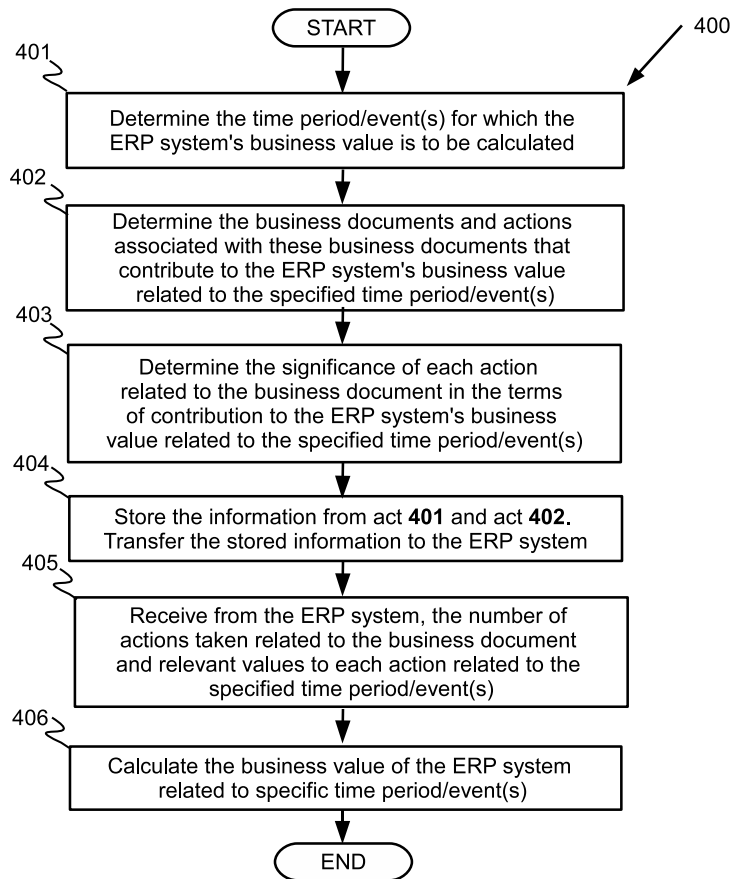


Figure 2.4: Determining the business value of an ERP

exemplary ERP system **190** collects the number of actions taken related to the business document and relevant values to each action related to specified time period/event(s) (act **503**). The exemplary ERP system **190** transfers to ERP business value calculation system **100**, the number of actions taken related to the business document and relevant values to each action related to the specific time period/event(s) (act **504**).

Figure 2.6 is an exemplary flow chart illustrating the calculating ERP license fee based on the business value and transferring ERP license fee to the registered parties. The system **100** determine the business value relevant to the specific time period/event(s) (act **601**). Let's assume there is an already created sales order worth 1 million dollar without delivery details and one other delivery order delivering 2 million dollar worth products to an address. During the specified time period, there is an addition of 1000 dollar to the already created sales order and the change of delivery address to another location in the same district. Modification to the sales order is an action which has an associated value of 1000 dollars. This action has significance of 0.1. The system calculates the business value of modification to the sales order as 1 dollar (1000 dollars\*0.1). The action of changing shipping address has associated value of 0 dollar as there is no change in the shipping cost. The associated significance is 0.01 for changing the shipping address as it barely creates any new business value for the enterprise. The business value of the ERP is a mathematical function (such as sum) of business values associated with the modified sales order and delivery order in this example. A value associated with an action related to a business document may be derived from other business documents. For example, an action related to business opportunity identification document in ERP may need the amount of sales order that resulted from the business opportunity identification document. The system **100** calculates the ERP license fee for the specified time period/event(s) using the determined business value relevant to the specific time period/event(s) (act **602**).The system **100** creates a financial transaction relevant to the ERP license fee (act **603**). The system **100** stores the financial transaction data (act **604**). The system **100** transfers the financial transaction data with the ERP license fee data to the registered parties (act **605**).

Figure 2.7 is an exemplary flow chart **700** illustrating the adjustment of ERP license fee based on the modification request from the registered parties. The system **100** checks the status of the financial transaction periodically. The financial transaction completes when the financial transaction is approved and paid by the registered parties (act **701**). In case, the registered parties do not agree with the ERP license fee , a modification request may be created by the registered parties. In case, a modification request

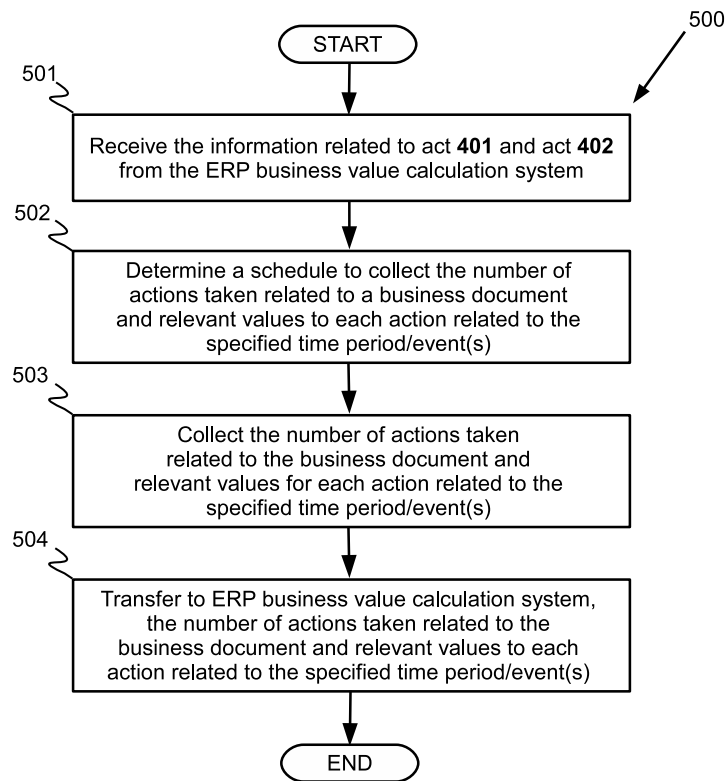


Figure 2.5: Collecting the ERP business value statistics by an ERP system

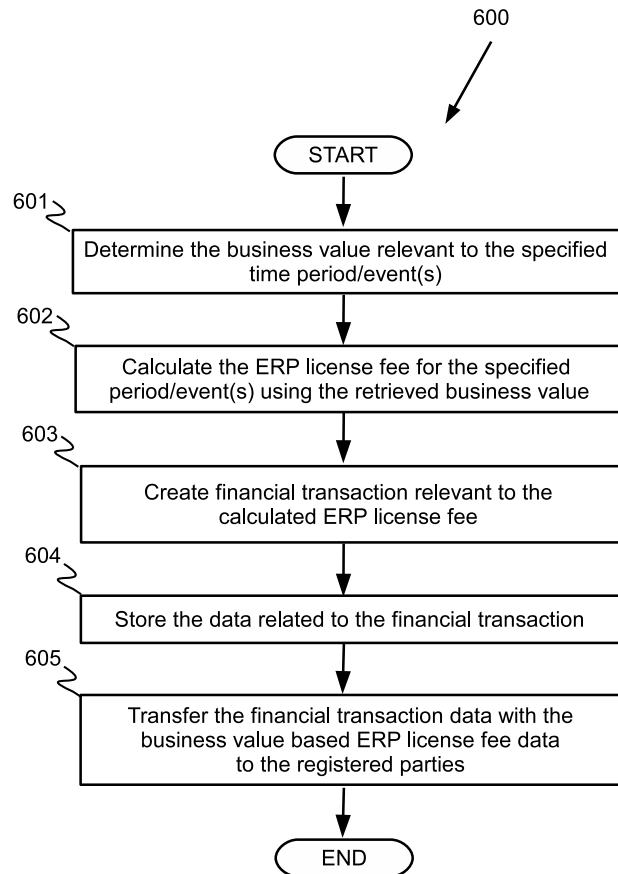


Figure 2.6: calculating ERP license fee based on the business value

related to the ERP license fee is received (act **702**), the system **100** checks whether a modification is feasible based on automatic checks and/or a user input through graphical user interface (act **703**). In case a modification is feasible, the system **100** modifies the ERP license fee data (act **704**). The transaction is updated with the modified ERP license fee data (act **705**). The modified financial transaction data is transferred to the registered parties and a notification is sent to the registered parties (act **706**). In case a modification is not feasible (act **703**), the system **100** notifies the registered parties (act **707**). In case, a modification request related to the ERP license fee is not received (act **702**), the system sends a reminder to the registered parties (act **708**).

Figure 2.8 is an exemplary flow chart illustrating of recommending and accepting a new payment plan. The system **100** analyzes the ERP license fee/business value history using reporting and analysis module **108** (act **801**). The system **100** determines ERP license fee payment plans which match the needs of the enterprise from the historical data **1108** and payment plans **1107** (act **802**). The system **100** sends a recommendation to the registered parties related to the ERP **190** to change the ERP license fee payment plan (act **803**). The system **100** periodically checks for acceptance data related to at least one recommended payment plan (act **804**). In case the recommendation is accepted (act **805**), the system **100** changes the payment plan (act **806**).

Figure 2.9 is an exemplary flow chart illustrating the operation of selecting a payment plan according to the needs of an enterprise. Requirements are submitted to the system such as maximum monthly payments amount an enterprise can afford (act **901**). ERP business value/license fee history **1108** is analyzed based on the received requirements; for example, analysis performed to determine what has been the business value, generated by the system in last 12 months (act **902**). ERP license fee payment plans which match the need of the enterprise are determined (act **903**). A payment plan change request is received from the user of the exemplary ERP **190** (act **904**). A payment plan change request is analyzed by the system **100**. For example, payment plan change request is analyzed for accuracy (act **905**). A payment plan change request is accepted/rejected by the system **100** (act **906**). The payment plan is changed according to the payment plan request if payment plan change request is successful (act **907**). Notification is sent to the registered parties regarding the result of the payment plan change request (act **908**).

Figure 2.10 is an exemplary flow chart illustrating the operation of determining a new ERP license fee and payment plans by the ERP manufacturer. The system **190** analyze the history of ERP business value/license fee data **1108** from multiple ERP system to determine the existing relationship

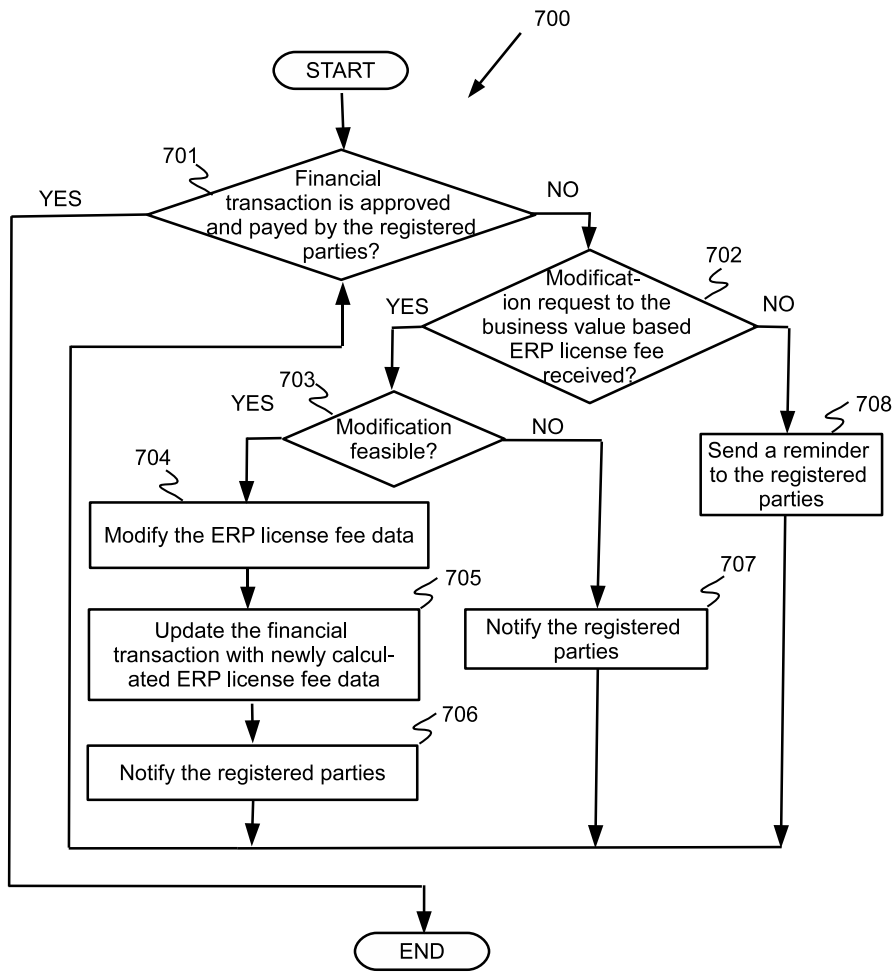


Figure 2.7: Adjustment of ERP license fee based on the modification request

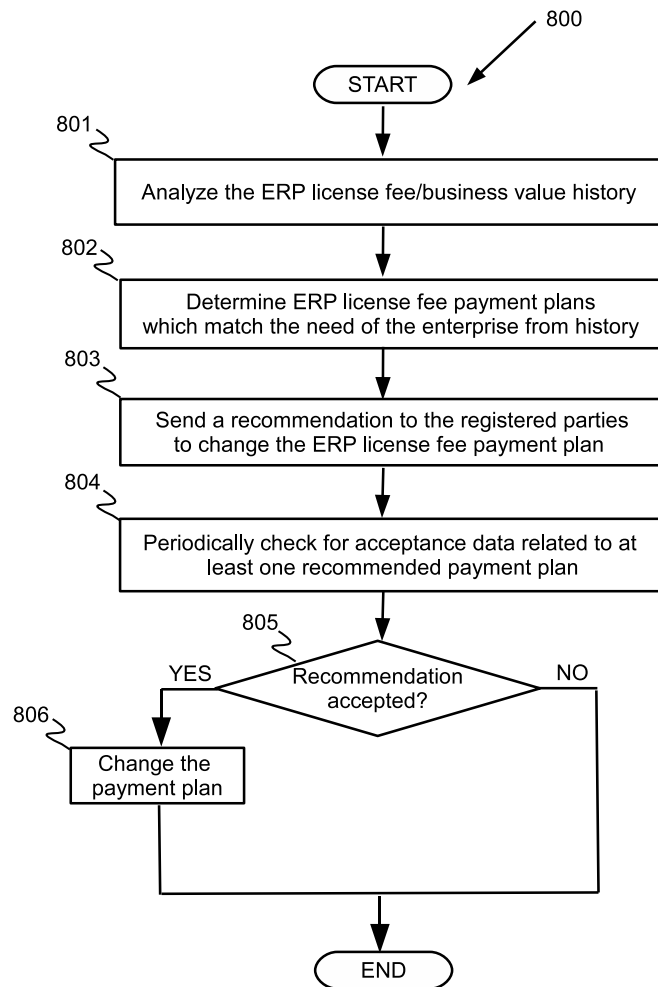


Figure 2.8: Recommending and accepting a new payment plan

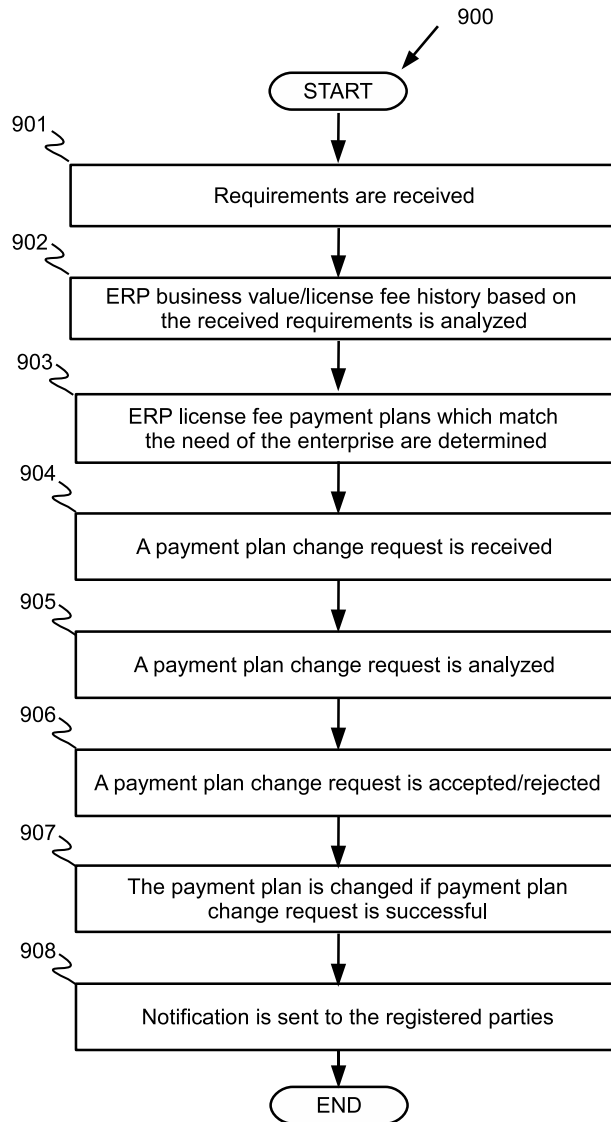


Figure 2.9: Selecting a payment plan

between business value of ERP and the ERP license fee (act **1001**). The system **190** calculates the modified ERP license fee (act **1002**) and generate new payment plans (act **1003**). The system **190** determine the start date for new payment plans (act **1004**). A user may provide approval for modified ERP license fee, new payment plans and start date for new payment plans through graphical user interface. The system notifies the new payment plans and their start date to the registered parties (act **1005**). The system **190** receives the new payment plans for the start date (act **1006**).

Figure 2.11 illustrates an exemplary data model stored in database **101**. Data collection schedule **1001** stores schedules for collecting business value related data from the ERP system **190**. A user of the exemplary ERP **190** may specify the details of the schedules. Profiles **1102** stores the configurations specific to different types of ERP usage. Business documents definitions **1103** stores the definition of different types of business documents in the ERP system **190**. Significance definition **1104** stores the definitions of significance for each action associated with a business document. Calculation rules and formulas definitions **1105** stores definition of different rules and formulas used to calculate the business value. Actions definitions **1106** stores definition of different actions and associated values. Payment plans **1107** stores the details about payment plans. Historical data (ERP business value/license fee data from past) **1108** stores historical data regarding the ERP business value/license fee. Existing ERP business value/license fee data **1109** stores the latest ERP business value/license fee data. Contract information **1110** stores the contract information and relevant parties information. Financial information **1111** stores the financial data related to the ERP license fee. Business values verification data **1112** stores data used by the business values verification module **105**.

It is to be understood that while the detailed description describes the present invention, the foregoing description is for illustrative purpose and does not limit the scope of the present technology. Other embodiments, arrangements and equivalents will be evident to those skilled in the art. Other embodiments, arrangements, usages and equivalents are within the scope of the present technology.

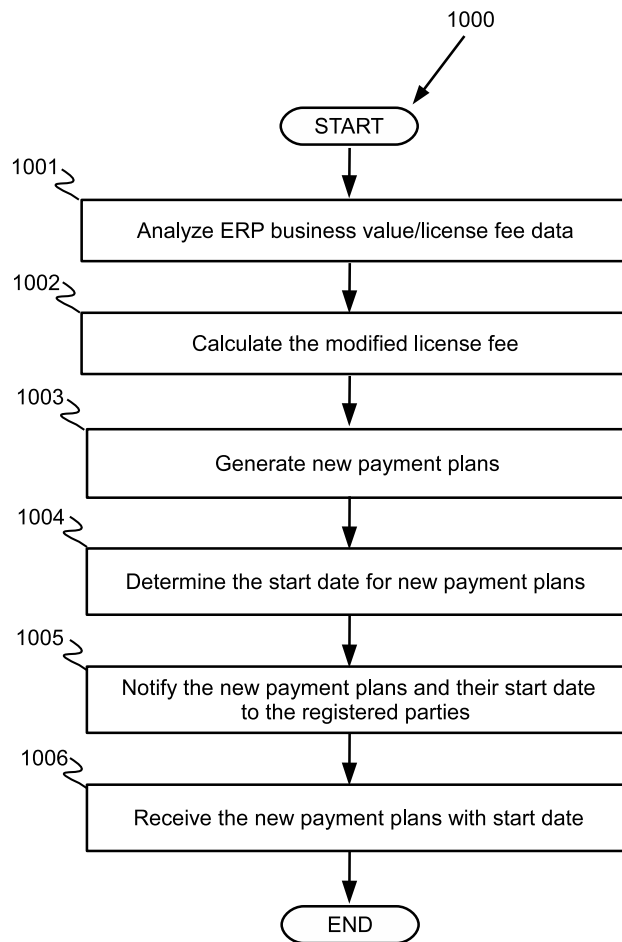


Figure 2.10: Determining a new ERP license fee and payment plans

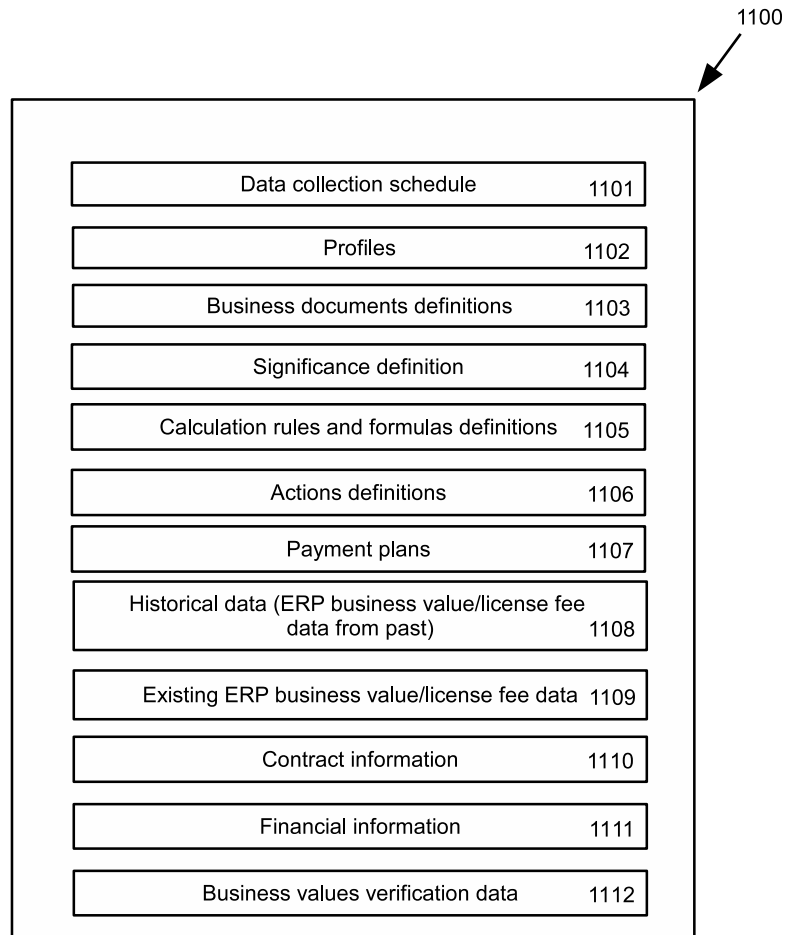


Figure 2.11: Model of information

# Chapter 3

## Summary

This publication introduces a system and method for determining the business value of an ERP system related to a specific period/event(s).

- The calculated business value of an ERP system is used to calculate the license fee.
- An ERP manufacturer can collect business value information from different enterprises to calculate a new license fee and/or payment plans.
- An enterprise can use the historical data of business value to switch to a new payment plan.
- An ERP manufacturer can also recommend a payment plan to enterprises which use the ERP.

