THE BUSINESS VALUE OF AN ERP SYSTEM

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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 date 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 analysis 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
2.1. THE DETAILED DESCRIPTION

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
2.1. THE DETAILED DESCRIPTION

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
2.1. THE DETAILED DESCRIPTION

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
CHAPTER 2. THE BUSINESS VALUE OF AN ERP SYSTEM

Figure 2.5: Collecting the ERP business value statistics by an ERP system
2.1. THE DETAILED DESCRIPTION

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

START

600

Determine the business value relevant to the specified time period/event(s)

601

Calculate the ERP license fee for the specified period/event(s) using the retrieved business value

602

Create financial transaction relevant to the calculated ERP license fee

603

Store the data related to the financial transaction

604

Transfer the financial transaction data with the business value based ERP license fee data to the registered parties

605

END
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

1. Analyze the ERP license fee/business value history
2. Determine ERP license fee payment plans which match the need of the enterprise from history
3. Send a recommendation to the registered parties to change the ERP license fee payment plan
4. Periodically check for acceptance data related to at least one recommended payment plan
5. Recommendation accepted?
   - Yes: Change the payment plan
   - No: End
2.1. THE DETAILED DESCRIPTION

Figure 2.9: Selecting a payment plan

START

901
Requirements are received

902
ERP business value/license fee history based on the received requirements is analyzed

903
ERP license fee payment plans which match the need of the enterprise are determined

904
A payment plan change request is received

905
A payment plan change request is analyzed

906
A payment plan change request is accepted/rejected

907
The payment plan is changed if payment plan change request is successful

908
Notification is sent to the registered parties

END
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
<table>
<thead>
<tr>
<th>Data collection schedule</th>
<th>1101</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profiles</td>
<td>1102</td>
</tr>
<tr>
<td>Business documents definitions</td>
<td>1103</td>
</tr>
<tr>
<td>Significance definition</td>
<td>1104</td>
</tr>
<tr>
<td>Calculation rules and formulas definitions</td>
<td>1105</td>
</tr>
<tr>
<td>Actions definitions</td>
<td>1106</td>
</tr>
<tr>
<td>Payment plans</td>
<td>1107</td>
</tr>
<tr>
<td><strong>Historical data (ERP business value/license fee data from past)</strong></td>
<td>1108</td>
</tr>
<tr>
<td><strong>Existing ERP business value/license fee data</strong></td>
<td>1109</td>
</tr>
<tr>
<td>Contract information</td>
<td>1110</td>
</tr>
<tr>
<td>Financial information</td>
<td>1111</td>
</tr>
<tr>
<td>Business values verification data</td>
<td>1112</td>
</tr>
</tbody>
</table>

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.