Lab-1109

SOA

业务模型分析与设计

Version 1.0

版本记录

Date	Version	描述	作者
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内容

业务模型分析与设计

1. 引言

1.1 编写目的

这篇文档主要描述了对业务进行建模，即利用 IBM WebShpere Modeler 工具对业务流程进行描述和模拟。业务流程是指由业务事件触发的，由一系列相互关联的业务活动组成的，可以实现一个或多个业务功能的工作流程。这是业务领域的问题。我们将总结企业现有流程以及整合后的流程，并比较包括时间开销、人力成本在内的几个关键指标。

1.2 背景

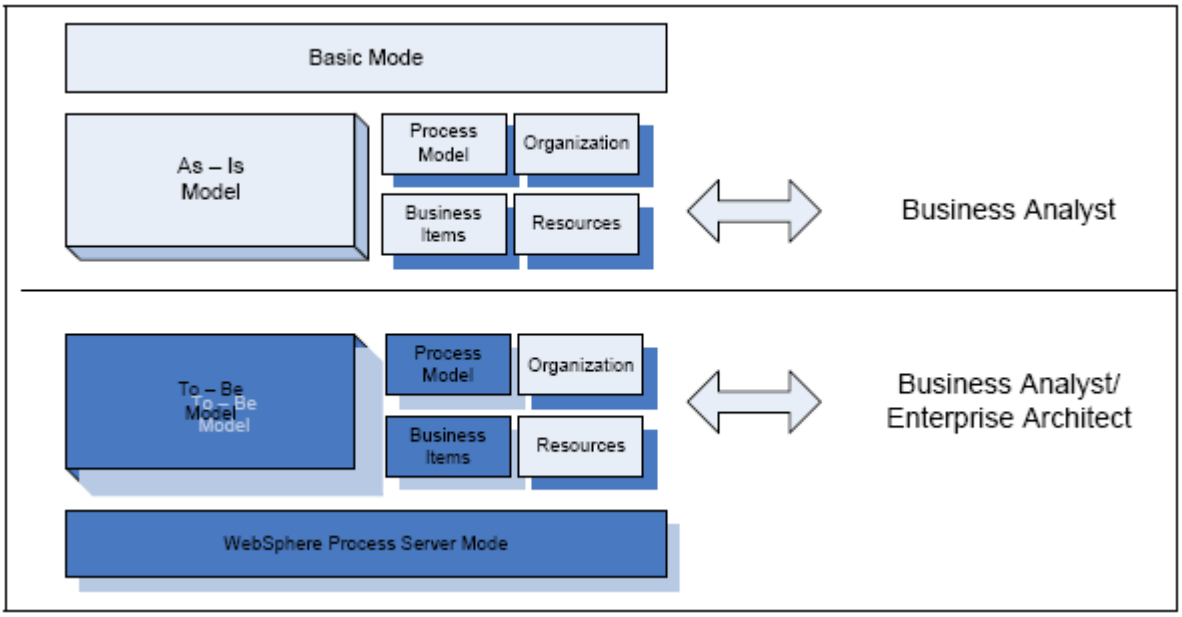
业务模型建立在一定的需求分析基础上，比如系统需求分析师已经完成了系统 Use Case 的设计。业务模型将再现企业的真实地商业流程。

1.3 参考资料

1） 使用 Modeler 进行业务建模：
http://www-128.ibm.com/developerworks/cn/webservices/ws-odbp3/

2. 业务模型

In this section, we will create two models, the ‘As-Is’ model that represents the businesses current business processes, and a ‘To-Be’ model that defines the new business processes we will be deploying. Figure 1 shows our modeling approach.



图表 1——Modeling approach

This 'As-Is' model is our analysis model, that is, its main purpose is to document the current business processes and provide a level of understanding to the business analyst and to the enterprise architect before they begin to develop the implementation 'To-Be' business model.

Both business analyst and enterprise architect are responsible for the 'To-Be' implementation business model, although the main effort will be by the enterprise architect who will ensure that the model is ready for export to WebSphere Process Server.

2.1 "AS-Is" Business Model

This section provides an initial overview of the SOA scenario business model, explains the existing business process, rules, and measures and defines the roles within SOA scenario.

2.1.1 Initial Content

凤凰医疗设备有限公司（以下简称"凤凰"）是一家专门制造和营销专业医疗器械和实验仪器仪表等仪器的民营企业，其购销客户和网络遍布 全国各地。凤凰成立于 2000 年，现有员工 750 名。公司领导一直非常重视企业信息化建设，投入大量的资金支持，并制定"把握趋势、兼顾现实、统一规划、逐步实施"的发展策略。

2004 年凤凰公司引进并在公司内部成功实施了某 ERP 系统（部署在凤凰企业内部的 Web 应用），主要用于凤凰公司的财务管理，其中包括产品库存及订单管理等。ERP 的实施大幅度地提高了公司的管理效率。

随着公司业务规模的扩大和产品质量的提升，凤凰公司的客户数量越来越大。凤凰公司有一批精干的销售队伍，他们经常出差和客户打交道。虽然销售人员都配备了笔 记本电脑，使他们能够方便地和公司通过 email 发送和接受文档，但是竞争的压力使得凤凰公司不得不考虑使用客户关系管理系统（CRM）来进一步提高销售人员的工作效率。于是，2005 年 8 月份凤凰公司 引进并在企业内部成功实施了某客户关系管理系统。凤凰的销售人员在任何时间和地点只需要连接企业内部网，并通过普通的 Web 浏览器就可以使用和管理客户及销售信息，包括客户信息，商机，业务机会，以及客户及销售信息分析图表等。

现在凤凰公司的财务和销售人员分别在 ERP 和 CRM 系统上工作，工作效率有很大提高。但是公司目前也面临挑战。一方面，ERP 和 CRM 中分别维护产品和客户信息，而公司规定 ERP 必须作为这些信息的主数据源，ERP 中的这些信息需要随时同步到 CRM 中去；另一方面，CRM 中维护的业务机会和 ERP 中维护的销售订单有着非常紧密的关系，凤凰公司希望能够把业务机会和销售订单有效地整合起来，而进一步提高业务运作的效率。

2.1.2 Existing Process

The existing process is:

1) Salesman logins in CRM by browser, uses and manages customer information.
2) Creating Business Opportunity.

   Salesman manages opportunity by CRM. When a lead or another origin leads a opportunity, salesman will creates a business opportunity in CRM.
3) Managing product list.
4) Modify business opportunity’s state.
5) Salesman sends order request and detail information to accountant by email.
6) Reviewing the order.
7) If the order is ok, accountant creates formal order.
8) If not, accountant notifies salesman that the order request is lost.

2.1.3 Business Rules and Measures

1) Email must include full order information when salesman sends an order request.
2) Reviewing customer’s information means reviewing customer’s email.

2.1.4 Business Item

Business items are business documents, work products, or commodities that are transformed in business operations. You can model as a business item anything that is created, assembled, inspected, tested, modified, or worked upon. Business items undergo changes as they are passed from one process step to the next.

- Request

  This is the request coming from a lead or another opportunity.

- Business Opportunity

  The Opportunity will be lead an order.

- Product List（CRM Order）

  Similar to the order, consist of some products, related to Business Opportunity.

- Customer Record

  The data kept for a customer is composed of basic attributes and additional linkman, business opportunity.

- Unsettled Order

  Similar to the order, but not be confirmed.

- Order

- Email

2.1.5 Resource

A key to documenting any process is determining the resources and roles required to complete each of the activities. Resources represent the people, equipment, or material used to perform a project or a task. Resources are not the same as business items. The objects that undergo changes and are passed from one process step to the next should be modeled as business items, whereas the things that are performing the work or are required prerequisites for this work such as machines, fuel, vehicles, or skilled personnel, should be modeled as resources.

- CRM system

- ERP system

- Email system

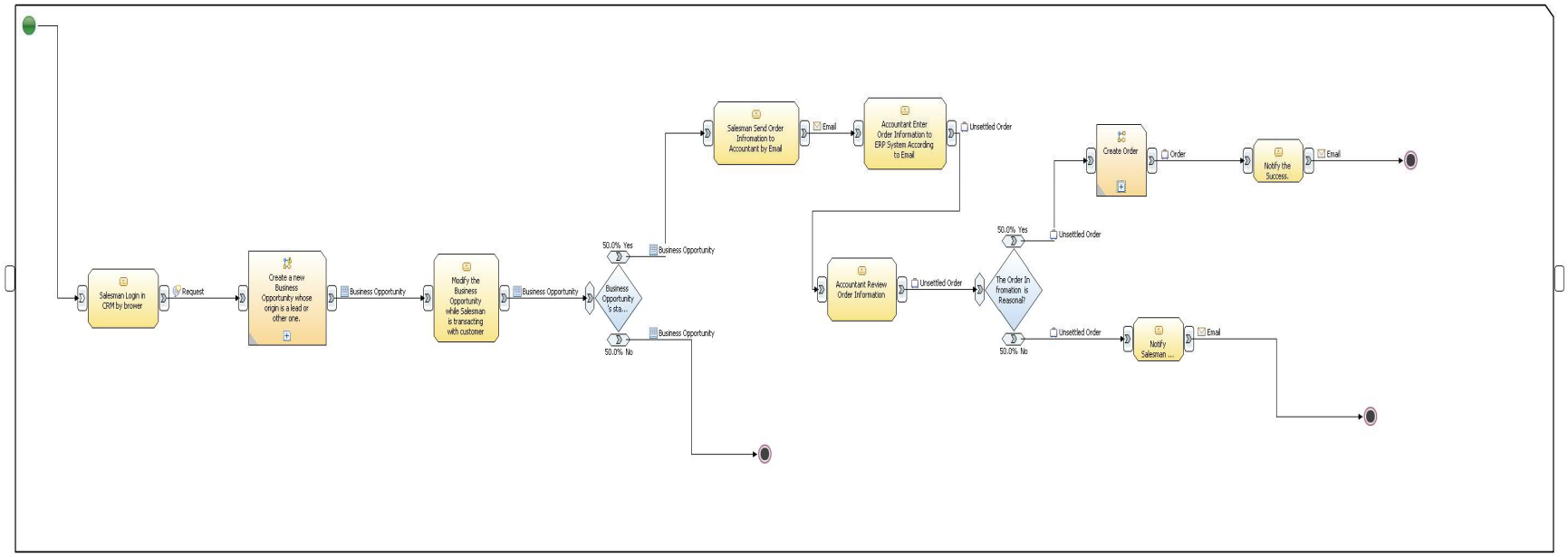
- Salesman
- Accountant

2.1.6 Timetables

An accurate model must also take into account the schedules of the resources involved in the process. Timetables specify what times certain resources are available. The following timetables are required to indicate the work hours of the key roles in the process:

- Work Shift
- System Shift
- Weekend

2.1.7 Process Diagram



图表 2——Current Process Model

2.2 “As-IS” Process Model Simulation

2.2.1 Role Resource Matrix

The role resources matrix (Figure 3) shows the number of people for a specific role and resources assigned to activities. This matrix also shows the cost by roles.

表格 1——Role Resource Matrix

Activities/Resource	CRM System	ERP System	Email	Salesman	Accountant
Cost USD per hour	0.00	0.00	0.00	10.00	20.00
Salesman Login in CRM by browser					
Determine if Customer has Existing Account					
Enter Customer Information and Assign Account Number					
Enter Business Opportunity					
Modify the Product List(CRM Order) while Salesman is transacting with customer					
Modify Business Opportunity's state					

Salesman Send Order Information to Accountant by Email					
Accountant Enter Order Information to ERP System According to Email					
Accountant Review Order Information					
Notify Salesman the case and the reason					
Determine if Customer has Existing Account					
Accountant Review the Customer Information					
Modify Customer Information					
Create Customer Record					
Create Order					
Notify the Success					

2.2.2 Duration Matrix

The duration matrix (Figure 4) shows the duration of human tasks for a specific role and a specific activity.

表格 2——Duration Matrix

Activities/Resource	Activity Duration	CRM System	ERP System	Email	Salesman	Accountant
Salesman Login in CRM by browser	30 sec	30 sec			30 sec	
Determine if Customer has Existing Account	20 sec	10 sec			10 sec	
Enter Customer Information and Assign Account Number	5 min 10 sec	10 sec			5 min	
Enter Business Opportunity	10 min 10 sec	10 sec			10 min	
Modify the Product List(CRM Order) while Salesman is transacting with customer	30 sec	30 sec			30 sec	
Modify Business Opportunity's state	10 sec	10 sec			10 sec	
Salesman Send Order Information to Accountant by Email	40 min			30 min	10 min	
Accountant Enter Order Information to ERP System According to Email	20 min		20 min			20 min
Accountant Review Order Information	10 min					10 min
Notify Salesman the	40 min			30 min		10 min

case and the reason						
Determine if Customer has Existing Account	10 sec		10 sec			
Accountant Review the Customer Information	11 min		1 min			10 min
Modify Customer Information	5 min					5 min
Create Customer Record	10 sec		10 sec			
Create Order	10 sec		10 sec			
Notify the Success	40 min			30 min		10 min

2.2.3 Availability Matrix

- Work Shift
  - 8 working hours a day,
  - Working days are Monday to Friday
  - Working hours 9:00 AM to 5:00 PM
- System Shift
  - 24 hours * 7 days a week

表格 3——Availability Matrix

Timetables/Resources	CRM System	ERP System	Email	Salesman	Accountant
Work Shift					

System Shift					

2.2.4 Probabilities on Process Decision

One of the process model components is a decision. It assigns a probability on decision choices, which determines the method of selecting a path through the processes.

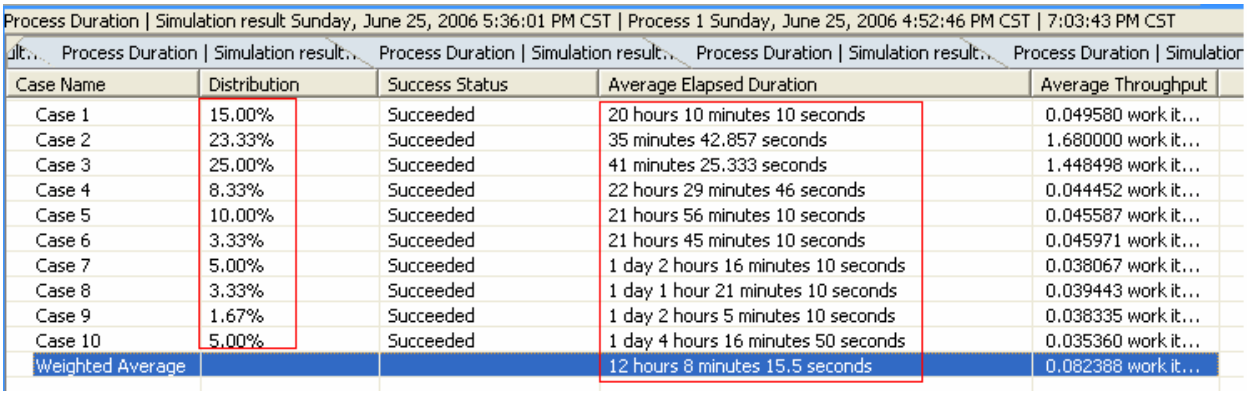
表格 4——Probabilities on Process Decision

Decision/Probability	Yes	No
Existing Account in CRM?	50%	50%
Business Opportunity's state is Close-Won?	50%	50%
The Order is reasonable?	50%	50%
Existing Account In ERP?	50%	50%

2.2.5 Analyze the Simulation Result

1) Process duration

Shows average duration of each process case.



Process Duration | Simulation result Sunday, June 25, 2006 5:36:01 PM CST | Process 1 Sunday, June 25, 2006 4:52:46 PM CST | 7:03:43 PM CST

ult... Process Duration | Simulation result... Process Duration | Simulation result... Process Duration | Simulation result... Process Duration | Simulation

Case Name	Distribution	Success Status	Average Elapsed Duration	Average Throughput
Case 1	15.00%	Succeeded	20 hours 10 minutes 10 seconds	0.049580 work it...
Case 2	23.33%	Succeeded	35 minutes 42.857 seconds	1.680000 work it...
Case 3	25.00%	Succeeded	41 minutes 25.333 seconds	1.448498 work it...
Case 4	8.33%	Succeeded	22 hours 29 minutes 46 seconds	0.044452 work it...
Case 5	10.00%	Succeeded	21 hours 56 minutes 10 seconds	0.045587 work it...
Case 6	3.33%	Succeeded	21 hours 45 minutes 10 seconds	0.045971 work it...
Case 7	5.00%	Succeeded	1 day 2 hours 16 minutes 10 seconds	0.038067 work it...
Case 8	3.33%	Succeeded	1 day 1 hour 21 minutes 10 seconds	0.039443 work it...
Case 9	1.67%	Succeeded	1 day 2 hours 5 minutes 10 seconds	0.038335 work it...
Case 10	5.00%	Succeeded	1 day 4 hours 16 minutes 50 seconds	0.035360 work it...
Weighted Average			12 hours 8 minutes 15.5 seconds	0.082388 work it...

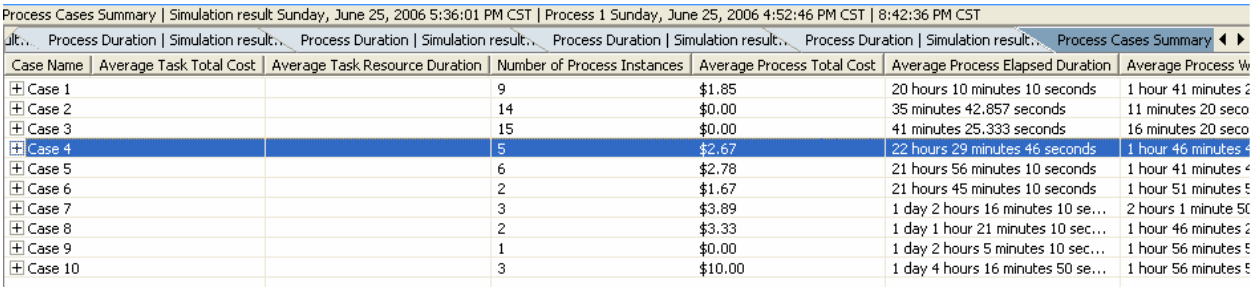
图表 3——Process Duration

- Case 1：财务人员认为订单不合理，退回订单并通知销售人员
- Case 2：CRM 中不存在客户信息，业务机会失败
- Case 3：CRM 中存在客户信息，业务机会失败
- Case 4：成功创建销售订单
- Case 5：成功创建销售订单
- Case 6：成功创建销售订单
- Case 7：成功创建销售订单
- Case 8：财务人员认为订单不合理，退回订单并通知销售人员
- Case 9：成功创建销售订单
- Case 10：成功创建销售订单

Conclusion of the business analyst: At this point, about 18.33% were unreasonable and the average duration is 12 hours 8 minutes 15 seconds.

2) Process Cases Summary

Shows the percentage of each possible case in the process


Process Cases Summary | Simulation result Sunday, June 25, 2006 5:36:01 PM CST | Process 1 Sunday, June 25, 2006 4:52:46 PM CST | 8:42:36 PM CST

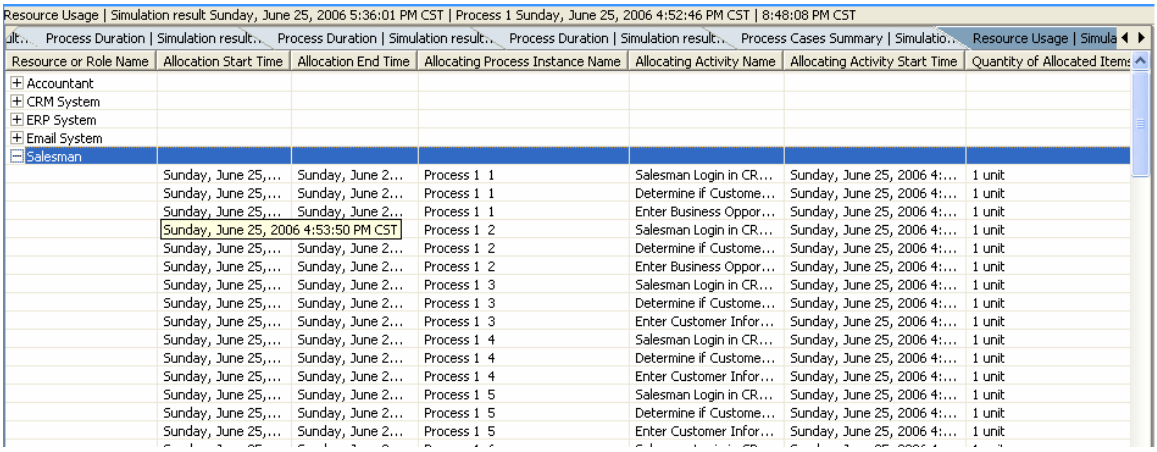
Case Name	Average Task Total Cost	Average Task Resource Duration	Number of Process Instances	Average Process Total Cost	Average Process Elapsed Duration	Average Process W
Case 1			9	$1.85	20 hours 10 minutes 10 seconds	1 hour 41 minutes 2
Case 2			14	$0.00	35 minutes 42.857 seconds	11 minutes 20 seco
Case 3			15	$0.00	41 minutes 25.333 seconds	16 minutes 20 seco
Case 4			5	$2.67	22 hours 29 minutes 46 seconds	1 hour 46 minutes 4
Case 5			6	$2.78	21 hours 56 minutes 10 seconds	1 hour 41 minutes 4
Case 6			2	$1.67	21 hours 45 minutes 10 seconds	1 hour 51 minutes 5
Case 7			3	$3.89	1 day 2 hours 16 minutes 10 se…	2 hours 1 minute 50
Case 8			2	$3.33	1 day 1 hour 21 minutes 10 sec…	1 hour 46 minutes 2
Case 9			1	$0.00	1 day 2 hours 5 minutes 10 sec…	1 hour 56 minutes 5
Case 10			3	$10.00	1 day 4 hours 16 minutes 50 se…	1 hour 56 minutes 5

图表 4——Process Cases Summary

Conclusion: There are many cases that are unreasonable because the information in the CRM don't not refresh immediately. So we must improve the communication.

3) Resources Usage

Shows resource usage for each process instance.


Resource Usage | Simulation result Sunday, June 25, 2006 5:36:01 PM CST | Process 1 Sunday, June 25, 2006 4:52:46 PM CST | 8:48:08 PM CST

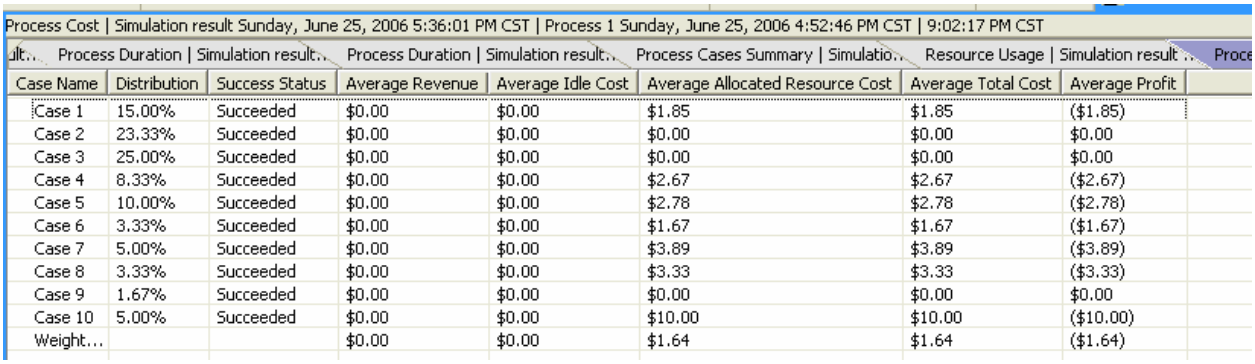
Resource or Role Name	Allocation Start Time	Allocation End Time	Allocating Process Instance Name	Allocating Activity Name	Allocating Activity Start Time	Quantity of Allocated Items
Accountant						
CRM System						
ERP System						
Email System						
Salesman						
	Sunday, June 25,…	Sunday, June 2…	Process 1 1	Salesman Login in CR…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 1	Determine if Custome…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 1	Enter Business Oppor…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25, 2006 4:53:50 PM CST		Process 1 2	Salesman Login in CR…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 2	Determine if Custome…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 2	Enter Business Oppor…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 3	Salesman Login in CR…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 3	Determine if Custome…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 3	Enter Customer Infor…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 4	Salesman Login in CR…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 4	Determine if Custome…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 4	Enter Customer Infor…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 5	Salesman Login in CR…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 5	Determine if Custome…	Sunday, June 25, 2006 4:…	1 unit
	Sunday, June 25,…	Sunday, June 2…	Process 1 5	Enter Customer Infor…	Sunday, June 25, 2006 4:…	1 unit

图表 5——Resource Usage

Conclusion: Account is bottleneck. She/he must costs much time on order inputting.

4) Process Cost

Shows average cost for each process case.



Process Cost | Simulation result Sunday, June 25, 2006 5:36:01 PM CST | Process 1 Sunday, June 25, 2006 4:52:46 PM CST | 9:02:17 PM CST

ult... | Process Duration | Simulation result... | Process Duration | Simulation result... | Process Cases Summary | Simulatio... | Resource Usage | Simulation result ... | Proce

Case Name	Distribution	Success Status	Average Revenue	Average Idle Cost	Average Allocated Resource Cost	Average Total Cost	Average Profit
Case 1	15.00%	Succeeded	$0.00	$0.00	$1.85	$1.85	($1.85)
Case 2	23.33%	Succeeded	$0.00	$0.00	$0.00	$0.00	$0.00
Case 3	25.00%	Succeeded	$0.00	$0.00	$0.00	$0.00	$0.00
Case 4	8.33%	Succeeded	$0.00	$0.00	$2.67	$2.67	($2.67)
Case 5	10.00%	Succeeded	$0.00	$0.00	$2.78	$2.78	($2.78)
Case 6	3.33%	Succeeded	$0.00	$0.00	$1.67	$1.67	($1.67)
Case 7	5.00%	Succeeded	$0.00	$0.00	$3.89	$3.89	($3.89)
Case 8	3.33%	Succeeded	$0.00	$0.00	$3.33	$3.33	($3.33)
Case 9	1.67%	Succeeded	$0.00	$0.00	$0.00	$0.00	$0.00
Case 10	5.00%	Succeeded	$0.00	$0.00	$10.00	$10.00	($10.00)
Weight...			$0.00	$0.00	$1.64	$1.64	($1.64)

图表 6——Process Cost

2.3 “To-Be” Process Model

“To-Be” process model will serve as a blueprint for the solution architect and programmers whose responsibility it is to create and implement the new runtime process.

2.3.1 Business revision

凤凰公司的销售人员通过 CRM 管理业务机会(Opportunity)。每当一个商机(Lead)或者其他来源导致产生一个新的业务机会时，销售人员就会在 CRM 中创建新的业务机会。假如新业务机会对应的账户不存在，销售人员首先在 CRM 中增加新的客户账户（以及此账户对应的联系人）再创建此业务机会。销售人员会根据和客户的商谈状况随时更改业务机会的状态。

要判断业务机会的可能性,销售人员需要了解当前最新的产品目录以及相关产品的库存和价格信息。这些信息随时从 ERP 更新到 CRM 供销售人员使用。销售人员会基于和客户的谈判，在业务机会中指定并随时修改此业务机会对应的产品列表，包括每个产品的名称、代码、价格、以及相应的数目。

当销售人员将业务机会的状态改为"赢"（Closed-Won），即表示此业务机会已经成功。此时，销售人员需要通知财务人员（工作在 ERP 上）来创建销售订单。销售人员只需要在 CRM 相应的业务机会中点击"生成销售订单（Place Order）"链接即可提交创建销售订单的请求。

虽然销售人员事先已经查看了产品库存情况,但某些突发事件可能导致创建销售订单时库存不足。只有当订单中的产品库存满足要求时，创建销售订单的请求才能被发送给财务人员处理。如果不满足要求，则订单被冻结。销售人员被通知不能提交订单。当产品库存满足要求时，系统会发短信通知销售人员重新提交订单。

创建销售订单的请求被发给财务人员等待处理。财务人员会收到一个手机短信告知他有一个销售订单需要处理；同时，为了保证订单请求能够及时处理（例如没有收到短信），财务人员的日程表中被自动添加一项新的事务，要求他处理这个销售订单。财务人员的日程表是集成在 ERP 上的一个小巧的日历应用，每个财务人员都可以创建和跟踪每天的工作（To-Do List）。

财务人员在收到短信或者看到日历上的工作项后及时地登陆 ERP 系统，财务人员会仔细地审查这个订单，并可能会修正某些数据项（如价格、数目等）。检查完毕，财务人员会点击"确认"来创建订单。

如果财务人员认为这个订单不合理,他可以写下退回理由并点击"退回"按钮来拒绝这个订单请求。销售人员会收到一个手机短信获悉他的销售订单请求是否被通过，如果被拒绝他会被告知拒绝的理由。

如果财务人员通过了订单处理请求，ERP 系统会创建一个新的销售订单。但是在此之前，ERP 可能会发现这个订单的客户在 ERP 中不存在（新客户），此时 ERP 会和财务人员核实。财务人员核实后（可能会有客户信息修正），ERP 会在系统中创建此新的客户及其联系人记录信息。财务人员核实的一项重要信息就是客户联 系人的 Email 地址。财务人员通过点击"验证 Email 地址"按钮来确认这个联系人的 Email 地址是否存在。如何不存在，则财务人员需要修正后才能核实通过。

如果成功地创建了销售订单，ERP 里的客户信息、订单信息（例如订单号）都及时地更新到 CRM 中。从业务机会生成销售订单的业务流程结束。

2.3.2 Business Rule

1) Reviewing order in the CRM means that if stock satisfies the order's product list.

2) Reviewing customer's information means reviewing customer's email.

2.3.3 Flow revision

1） 销售人员通过 Web 浏览器登录 CRM，使用和管理客户及销售信息。

2） 创建业务机会

凤凰公司的销售人员通过 CRM 管理业务机会(Opportunity)。每当一个商机(Lead)或者其他来源导致产生一个新的业务机会时，销售人员就会在 CRM 中创建新的业务机会。

3） 管理业务机会对应的产品列表

4） 修改业务机会状态

5） 如果业务机会为“赢”，销售人员提交订单处理请求

6） CRM 检查库存是否满足订单

7） 如果库存满足订单请求，发送订单信息到 ERP

8） 如果库存满足订单请求，通知财务人员

9） 如果库存不满足订单要求，冻结订单

10） 如果库存不满足订单要求，通知销售人员

11） 财务人员审核订单

12） 订单通过审核，创建销售订单

13） 订单未通过审核，退回订单

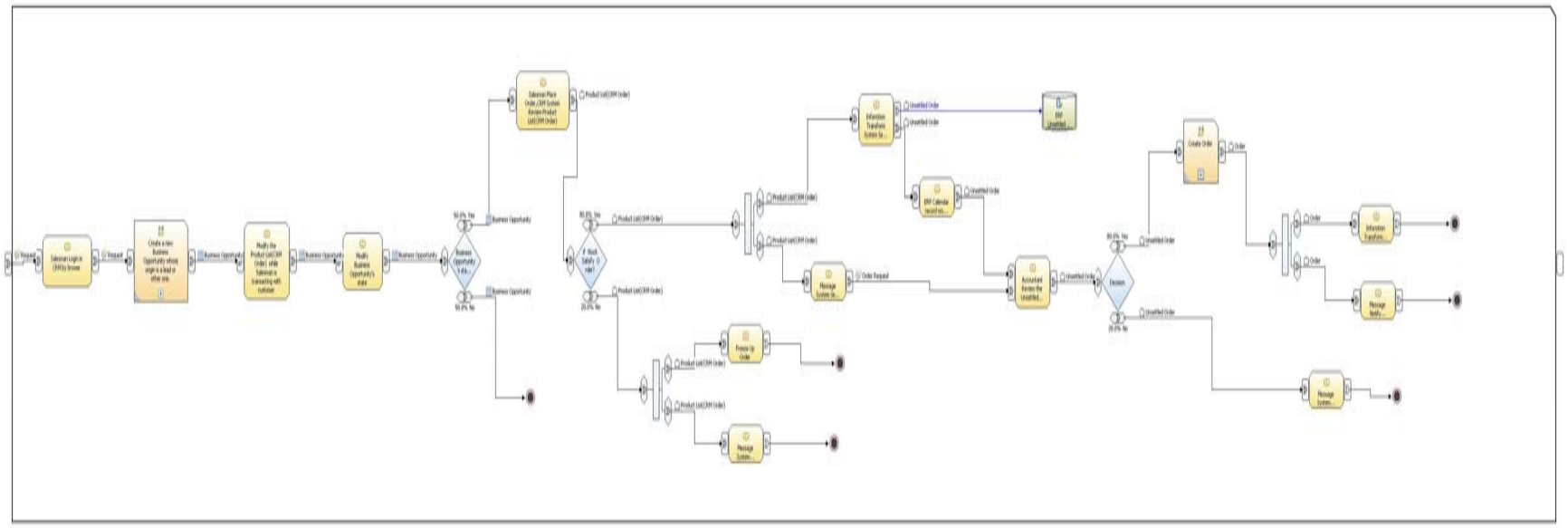
14） 通知销售人员订单处理结果

2.3.4 Resource items revision

We require creating the following model elements:

- Message System —— Notify people.
- Check out Order service.
- Information Transform System——Be used for communicating between CRM and ERP

2.3.5 Process Diagram



图表 7——Revision Proces

2.4 “To-Be” Process Model Simulation

2.4.1 Revision Role Resource Matrix

表格 5——Revision Role Resource

Activities/Resource	CRM System	ERP System	Message System	Information Transform System	Check Out Order Service	Salesman	Accountant
Cost USD per hour	0.00	0.00	0.00			10.00	20.00
Salesman Login in CRM by browser							
Determine if Customer has Existing Account							
Enter Customer Information and Assign Account Number							
Enter Business Opportunity							
Modify the Product List(CRM Order) while Salesman is transacting with customer							

Modify Business Opportunity's state							
Salesman place order, CRM System Review Product List(CRM Order)							
Freeze Up Order							
Message System Notify Salesman that the Order is Frozen							
Information Transform System Send Order Information to ERP							
Accountant Review the Unsettled Order Information							
Determine if Customer has Existing Account							
Accountant Review the Customer Information							
Modify Customer Information							

Create Customer Record							
Create Order							
Message System Notify Salesman the case and the reason.							

2.4.2 Revision Duration Matrix

表格 6——Revision Duration Matrix

Activities/Resource	Activity Duration	CRM System	ERP System	Message System	Information Transform System	Check Out Order Service	Salesman	Accountant
Salesman Login in CRM by browser	30 sec	30 sec					30 sec	
Determine if Customer has Existing Account	20 sec	10 sec					10 sec	
Enter Customer Information and Assign Account	5 min 10 sec	10 sec					5 min	

Number								
Enter Business Opportunity	10 min 10 sec	10 sec					10 min	
Modify the Product List(CRM Order) while Salesman is transacting with customer	30 sec	30 sec					30 sec	
Modify Business Opportunity's state	10 sec	10 sec					10 sec	
Salesman place order, CRM System Review Product List(CRM Order)	15 sec					10 sec		5 sec
Freeze Up Order	10 sec	10 sec						
Message System	10 sec			10 sec				

Notify Salesman that the Order is Frozen								
Information Transform System Send Order Information to ERP	10 sec				10 sec			
Accountant Review the Unsettled Order Information	11 min		1 min					10 min
Determine if Customer has Existing Account	10 sec		10 sec					
Accountant Review the Customer Information	6 min		1 min					5 min
Modify Customer Informat	1 min							1 min

ion								
Create Customer Record	10 sec		10 sec					
Create Order	10 sec		10 sec					
Message System Notify Salesman the case and the reason.	10 sec			10 sec				

2.4.3 Revision Availability Matrix

表格 7——Revision Availability Matrix

Activities/Resource	CRM System	ERP System	Message System	Information Transform System	Check Out Order Service	Salesman	Accountant
Work Shift							
System Shift							

2.4.4 Revision Probabilities on Process Decision

表格 8——Revision Probabilities on Process Decision

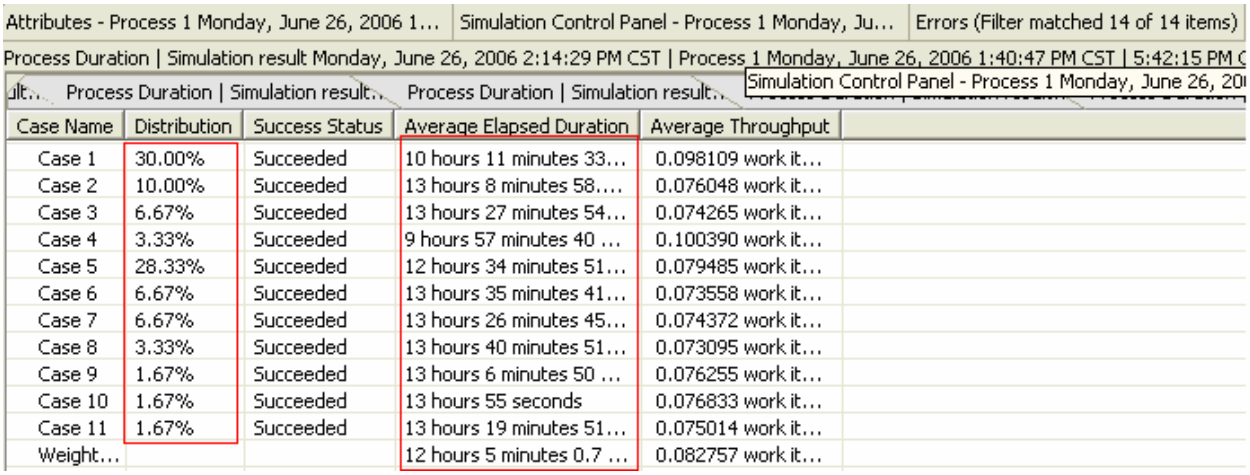
Decision/Probability	Yes	No

Existing Account in CRM?	50%	50%
Business Opportunity's state is Close-Won?	50%	50%
Stock Satisfy Order?	80%	20%
The Order is reasonable?	80%	20%
Existing Account In ERP?	50%	50%

2.4.5 Analyze the Simulation Result

1) Process duration

Shows average duration of each process case.



Case Name	Distribution	Success Status	Average Elapsed Duration	Average Throughput
Case 1	30.00%	Succeeded	10 hours 11 minutes 33...	0.098109 work it...
Case 2	10.00%	Succeeded	13 hours 8 minutes 58....	0.076048 work it...
Case 3	6.67%	Succeeded	13 hours 27 minutes 54...	0.074265 work it...
Case 4	3.33%	Succeeded	9 hours 57 minutes 40 ...	0.100390 work it...
Case 5	28.33%	Succeeded	12 hours 34 minutes 51...	0.079485 work it...
Case 6	6.67%	Succeeded	13 hours 35 minutes 41...	0.073558 work it...
Case 7	6.67%	Succeeded	13 hours 26 minutes 45...	0.074372 work it...
Case 8	3.33%	Succeeded	13 hours 40 minutes 51...	0.073095 work it...
Case 9	1.67%	Succeeded	13 hours 6 minutes 50 ...	0.076255 work it...
Case 10	1.67%	Succeeded	13 hours 55 seconds	0.076833 work it...
Case 11	1.67%	Succeeded	13 hours 19 minutes 51...	0.075014 work it...
Weight...			12 hours 5 minutes 0.7 ...	0.082757 work it...

图表 8——Revision Process Duration

- Case 1：业务机会失败
- Case 2：成功创建销售订单
- Case 3：成功创建销售订单
- Case 4：CRM 检测到库存不能满足订单
- Case 5：业务机会失败

- Case 6：成功创建销售订单
- Case 7：财务人员认为订单不合理，退回订单
- Case 8：成功创建销售订单
- Case 9：CRM 检测到库存不能满足订单
- Case 10：CRM 检测到库存不能满足订单
- Case 11：成功创建销售订单

Conclusion of the business analyst:At this point, the average duration is 12 hours 5 minutes 15 seconds. It shows that creating an order successfully cost almost 13 hours 30 minutes. The time is less than the current process's 23 hours.

2) Revision Process Cases Summary

Shows the percentage of each possible case in the process

Process Cases Summary | Simulation result Monday, June 26, 2006 2:14:29 PM CST | Process 1 Monday, June 26, 2006 1:40:47 PM CST | 6:37:12 PM CST

ult... | Process Duration | Simulation result... | Process Duration | Simulation result... | Process Duration | Simulation result... | Process Duration | Simulation result... | Process Cases Summary

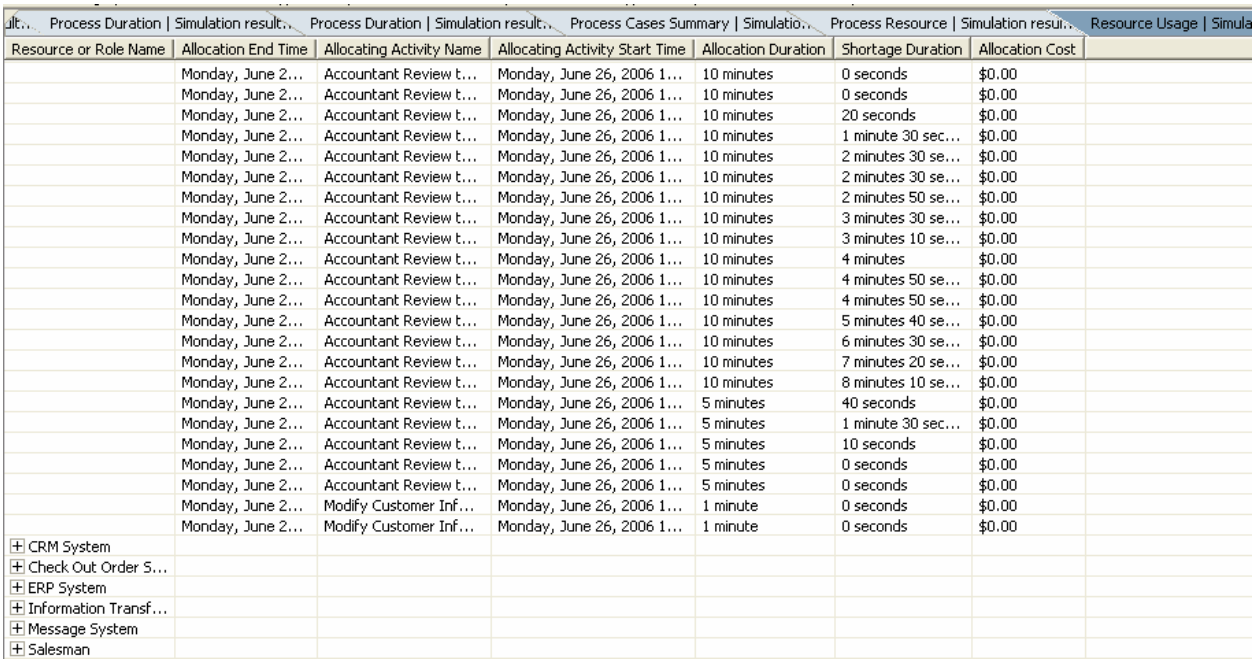
Case Name	Activity Name	Average Task Working Duration	Average Task Delay Duration	Number of Process Instances	Average Process Total Cost	Average Process Elapsed Duratio
Case 1				18	$1.26	10 hours 11 minutes 33.888 sec...
Case 2				6	$1.24	13 hours 8 minutes 58.5 seconds
Case 3				4	$2.65	13 hours 27 minutes 54.75 seco...
Case 4				2	$1.89	9 hours 57 minutes 40 seconds
Case 5				17	$1.01	12 hours 34 minutes 51.764 sec...
Case 6				4	$1.50	13 hours 35 minutes 41 seconds
Case 7				4	$1.36	13 hours 26 minutes 45 seconds
Case 8				2	$0.53	13 hours 40 minutes 51 seconds
Case 9				1	$0.11	13 hours 6 minutes 50 seconds
Case 10				1	$0.11	13 hours 55 seconds
Case 11				1	$0.11	13 hours 19 minutes 51 seconds
	Accountan...	10 minutes	4 minutes			
	Business O...	0 seconds	0 seconds			
	Accountan...	5 minutes	10 seconds			
	Create Cus...	10 seconds	0 seconds			
	Create Order	10 seconds	0 seconds			
	Determine i...	10 seconds	30 seconds			
	Existing Ac...	0 seconds	0 seconds			
	Existing Em...	0 seconds	0 seconds			
	Merge	0 seconds	0 seconds			
	Merge:2	0 seconds	0 seconds			
	Create Order					

图表 9——Revision Process Cases Summary

Conclusion: The unreasonable cases reduce from 18.8% to 6.67%.

3) Resources Usage

It shows revision resource usage for each process instance.



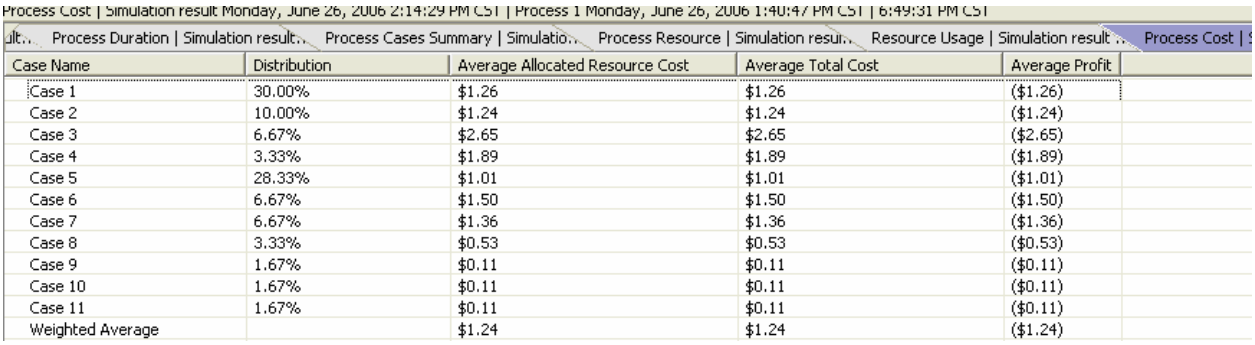
Resource or Role Name	Allocation End Time	Allocating Activity Name	Allocating Activity Start Time	Allocation Duration	Shortage Duration	Allocation Cost
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	0 seconds	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	0 seconds	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	20 seconds	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	1 minute 30 sec...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	2 minutes 30 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	2 minutes 30 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	2 minutes 50 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	3 minutes 30 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	3 minutes 10 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	4 minutes	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	4 minutes 50 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	4 minutes 50 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	5 minutes 40 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	6 minutes 30 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	7 minutes 20 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	10 minutes	8 minutes 10 se...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	5 minutes	40 seconds	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	5 minutes	1 minute 30 sec...	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	5 minutes	10 seconds	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	5 minutes	0 seconds	$0.00
	Monday, June 2...	Accountant Review t...	Monday, June 26, 2006 1...	5 minutes	0 seconds	$0.00
	Monday, June 2...	Modify Customer Inf...	Monday, June 26, 2006 1...	1 minute	0 seconds	$0.00
	Monday, June 2...	Modify Customer Inf...	Monday, June 26, 2006 1...	1 minute	0 seconds	$0.00
⊞ CRM System						
⊞ Check Out Order S...						
⊞ ERP System						
⊞ Information Transf...						
⊞ Message System						
⊞ Salesman						

图表 10——Resource Usage

Conclusion: Accountant's load decline and she/he can deals with more orders.

4) Process Cost

Shows average cost for each process case.



Case Name	Distribution	Average Allocated Resource Cost	Average Total Cost	Average Profit
Case 1	30.00%	$1.26	$1.26	($1.26)
Case 2	10.00%	$1.24	$1.24	($1.24)
Case 3	6.67%	$2.65	$2.65	($2.65)
Case 4	3.33%	$1.89	$1.89	($1.89)
Case 5	28.33%	$1.01	$1.01	($1.01)
Case 6	6.67%	$1.50	$1.50	($1.50)
Case 7	6.67%	$1.36	$1.36	($1.36)
Case 8	3.33%	$0.53	$0.53	($0.53)
Case 9	1.67%	$0.11	$0.11	($0.11)
Case 10	1.67%	$0.11	$0.11	($0.11)
Case 11	1.67%	$0.11	$0.11	($0.11)
Weighted Average		$1.24	$1.24	($1.24)

图表 11——Revision Process Cost

Conclusion: The average cost reduces from 1.64$ to 1.24$.

3. 业务模型对 IT 系统的挑战

业务模型对原有流程就行了较大调整：

- ERP 及时将库存和产品信息更新到 CRM 中，供销售人员查询。

- CRM 要向 ERP 传送订单数据，减少人工手动操作，既可以提高效率，又可以避免人工操作可能产生的错误
- ERP 将生成的订单信息发送给 CRM，在 CRM 中维护着业务机会和销售订单的紧密联系
- 系统调用外界服务，即短信系统来通知销售人员和财务人员
- 日历组件安排、记录财务人员的工作内容

由此可见，业务模型对系统提出了许多新的挑战：

- ERP 和 CRM 之间的信息交换。这是对系统最大的挑战。ERP 和 CRM 之间信息交换关系到整个业务流程的成败。ERP 和 CRM 之间，怎样实现信息同步？系统怎样在多种信息格式下实现信息的传递？怎样完成信息之间格式转换？这些都是 IT 系统需要解决的问题。
- IT 系统不仅要在企业内网运作，而且还需要调用外界服务（短信系统）。怎样解决内网和外网的交互问题？怎么样维护网内信息的安全性？怎样提高短信系统的信息丢失问题？
- IT 系统需要整合人，信息和流程。在日历组件方面，财务人员工作内容的管理是主要内容。IT 系统怎样合理编排财务人员的工作内容？怎样及时通知财务人员新的订单处理？

4. 总结

业务模型改善了原有企业业务流程，在更短的时间内响应销售人员的订单处理请求，同时也将部分工作有人工转为系统自动完成，降低了人工可能带来的错误；降低了流程的平均成本，财务人员可以在相同的时间内处理更多的订单。同时，也无模型也给 IT 系统带来了挑战。怎样实现 ERP 和 CRM 中信息的同步，使对 IT 系统的主要挑战。