



ActiveModeler Advantage

Business Process Improvement Examples

B U S I N E S S P R O C E S S I M P R O V E M E N T E X A M P L E S

DISCLAIMER: The names of files, values and reports in this Guide may differ slightly from those in the example files supplied with your software.

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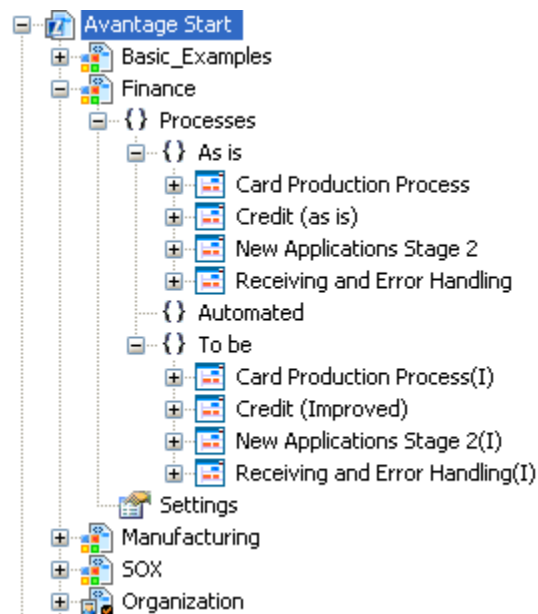
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The example files

This document contains examples of Business Process Improvement (BPI) using ActiveModeler Advantage. While the examples are fictitious, they *are* based on reality and situations the KAISHA-Tec team have met in the field.

This example is in a banking system, it analyses flow of work involved with processing customer applications for Bankcorp Banking Corporation credit cards.

The example comes with the Advantage software and can be found in the Finance process model file of the Advantage Start Project as shown below:.



You can see we have both “As is” and “To be” processes defined :The “As is” disposition has the following process diagrams:

- **Credit(as-is) process** - Top level credit card process
- **Receiving and Error Handling** - Sub process
- **Card Production Process** - Sub process

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- **New Applications Stage2** - Sub process

The “**To be**” disposition has the following process diagrams:

- **Credit(Improved) process** - Improved top level credit card process
- **Receiving and Error Handling(I)** - Improved receiving and error handling process
- **Card Production Process(I)** - Sub process
- **New Applications Stage2(I)** - Sub process

Bankcorp Banking Corp.

The briefing

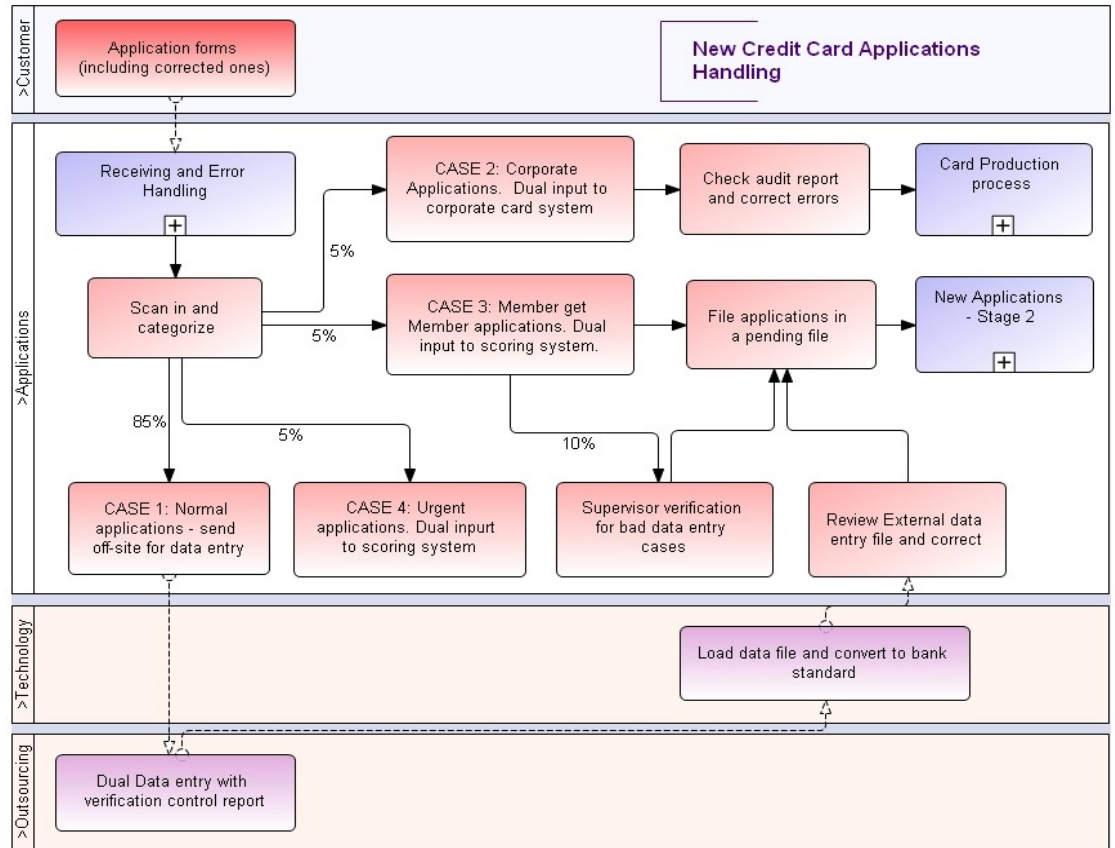
The Bankcorp Credit Card Processing group had been operating with a weak management team for many years. During this time, the size of the Card Group had increased considerably as new products were introduced. However, as old products declined in popularity, the old processes and associated staff remained completely as before. There was poor process visibility to management, who didn't really understand what was happening in the group.

In addition, the whole processing had stayed largely manual with the computer system really only used to store data rather than helping with the actual work to be done. The proliferation of paper due to increased business diversity had also become difficult to manage. The final straw was a large drop in the actual card base due to increased competition. This decrease in the number of active card holders forced the issue and highlighted the urgent need to revitalize the Card Business in all sectors from Marketing to actual Operational Processing. The Directors ordered an immediate Operational Process Review, and the development of a Business Process Improvement (BPI) plan. A BPI team was rapidly assembled with ActiveModeler Advantage as the analysis tool. During the analysis, many diagrams were drawn to clarify the operational procedures, often with surprising results. Inefficiencies which had been submerged for years were finally brought to the surface. The volume and costing findings were equally illuminating. What follows is just one of areas which were reviewed, namely the Card Application process.

The “As is” process diagrams

Credit(as-is) diagram:

*New Credit Card
Applications Handling*



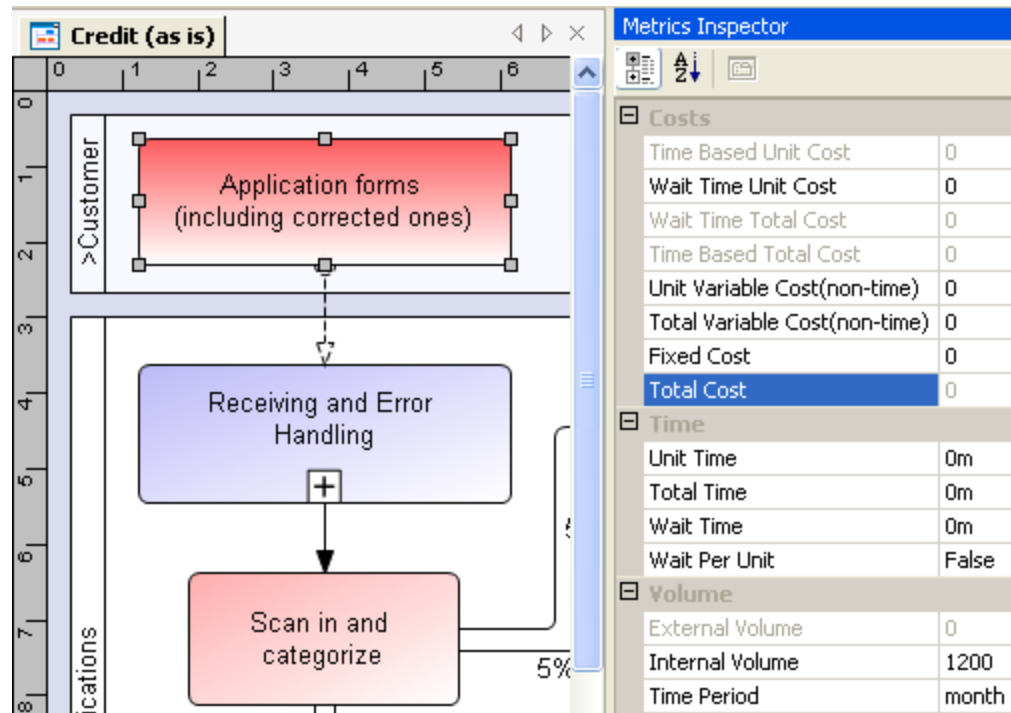
This is the top level diagram for the current credit card application processing, before any improvement. The organizational entities defined in the four pools are:

- Customer
- Applications Group
- Technology
- Outsourcing

1200 applications per month (including corrected items received from the customer) come into the Applications department and go through a “Receiving

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and Error Handling” sub-process. To see this quantity, open the Credit (as is) diagram, then from the **View** menu, choose **Metrics Inspector**. If you click on the first task as below you will see the Internal generated volume set as 1200. This volume of transactions now flows from task to task according to the splitting rules defined in the diagram and any consumption due to rejects etc.



After clicking the “+” indicator of the sub-process object, the sub-process links to another diagram which is opened, namely the Receiving and Error Handling diagram.

This shows it is an actual input to the department and enables more informative reporting when you request a project summary report.

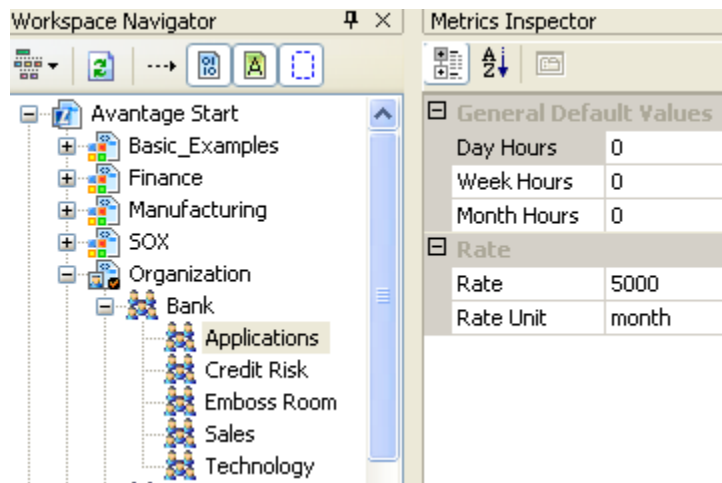
Note also that the “Receiving and Error Handling” process has a monthly Maximum Volume of 1200 units. This is the maximum volume the sub-process

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encountered and in this case is the volume it started out. However some applications were rejected during the subprocess.

If you click the “Scan and categorize” task you will see the volume has been set automatically to 1080 units, showing that 120 applications were not carried through from the “Receiving and Error Handling” sub-process. This task takes 15 seconds per item with a total monthly cost \$155.17 for all volume(1080 units). The total time is 4hours 30 minutes for all the applications.

How was this cost figure calculated? We firstly need to check the Organization tree. Here a figure for the Applications Group as a whole has been defined as \$5000 per month.



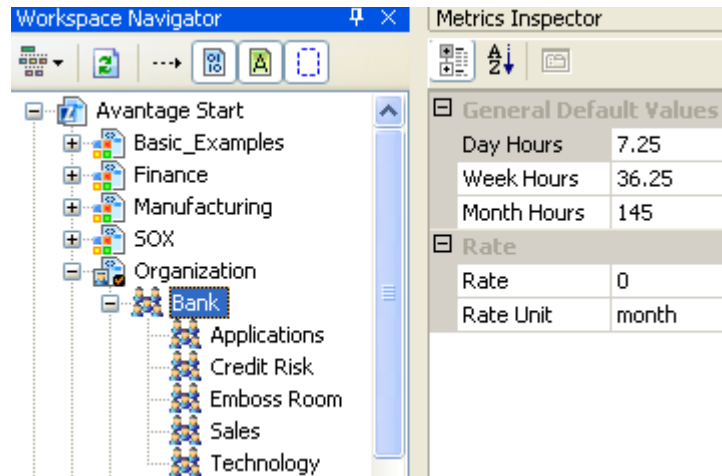
The screenshot displays two panels from a software application. The left panel, titled 'Workspace Navigator', shows a hierarchical tree structure. The root node is 'Avantage Start', which branches into 'Basic_Examples', 'Finance', 'Manufacturing', 'SOX', and 'Organization'. Under 'Organization', there is a 'Bank' node, which further branches into 'Applications', 'Credit Risk', 'Emboss Room', 'Sales', and 'Technology'. The 'Applications' node is currently selected. The right panel, titled 'Metrics Inspector', shows a table of 'General Default Values' and 'Rate' settings. The 'Rate' is set to 5000 and the 'Rate Unit' is 'month'.

General Default Values	
Day Hours	0
Week Hours	0
Month Hours	0

Rate	
Rate	5000
Rate Unit	month

Let's now have a look at the working regime. This had been defined at the higher Bank level, and unless it is again defined in a child entity, this value is taken for an organization unit.

We can see that the bank operates on a 145 hours per month standard.



So we have 145 hours equating to \$5000. But the “Scan and categorize” task takes 4.5 hours.

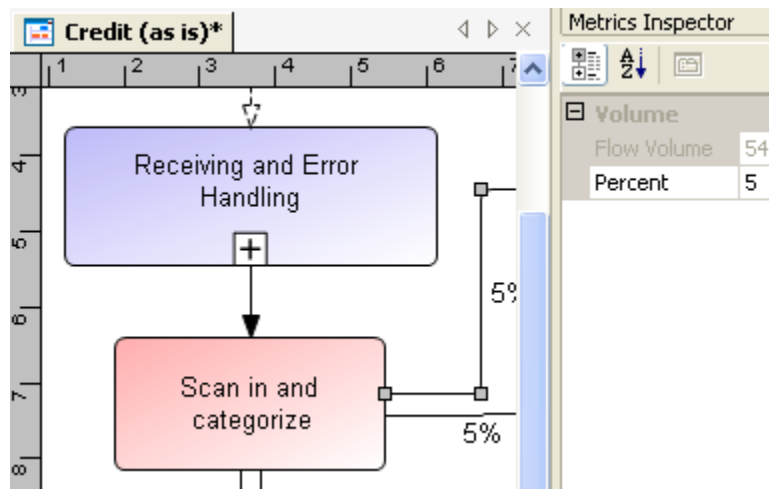
Therefore in this case we have $Cost = 4.5 \times 5000 / 145 = \155.17

From here the flow volume is split according to their type:

- Case 1: 85% - 918 Normal applications are sent off-site for data entry
- Case 2: 5% - 54 Corporate applications are input directly to the corporate computer system
- Case 3: 5%- 54 "Member get member" applications are input directly to the Scoring computer system
- Case 4: 5% - 54 Urgent applications are also input directly to the Scoring computer system

In this case, the splitting of the volume is performed by assigning a relative percentage to each output link; then if the feeder volume changes, all output link volumes are automatically changed. You can do this as below by selecting the link and inputting the percentage volume:

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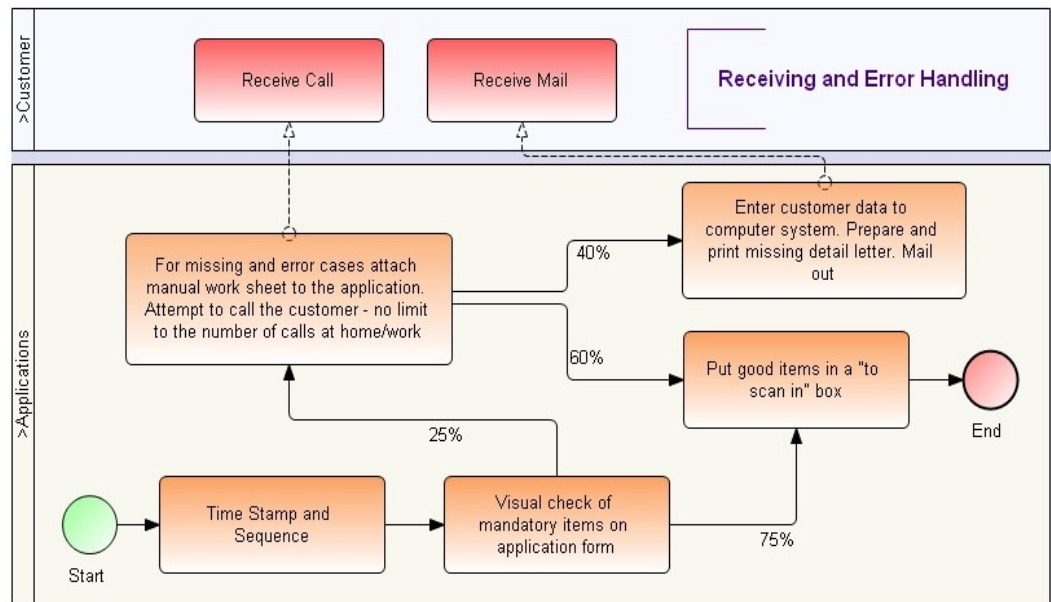
For “Member get member” applications, 10% of data entry results in a problem and is sent to the “Supervisor verification for bad data entry cases” .

The “Outsourcing” process is performed off-site at a cost of \$3 per unit (total monthly cost \$2,754 for the 918 applications). After this, a “Dual Data entry” is loaded to the Technology department computer and processed at a total monthly cost of \$1000. This charge is applied irrespective of volumes.

The main diagram finishes with two further sub-process. One for the “Card Production process” and the other as a “New applications stage 2” process. Clicking on the “+”sign of these sub-process objects will give you a detailed view of the respective sub-process.

Receiving and Error Handling diagram

Receiving and Error Handling



This is the “Receiving and Error Handling” sub-process diagram.

The first true business process is “Time Stamp and Sequence”. This has a unit time of 1 minute 30 seconds. Note that the volume of 1200 was not defined in this sub-process, it was passed down from the main diagram.

The next sequential process is the “Visual check of mandatory items on the application form”. This takes 3 minutes 30 seconds for each application.

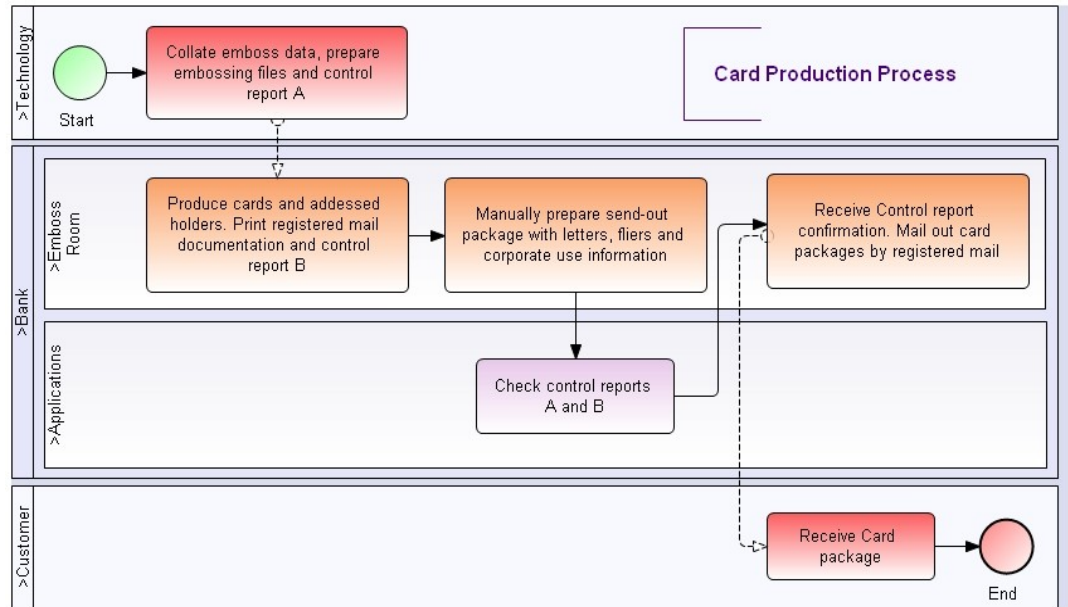
75% of applications have the correct information and pass directly to the “to scan in..” process , however 25% pass for error handling. The first step here is the attachment of a manual work sheet and there are attempts to call the customer at home and office.

There is a 60 % success rate for this contact work, but the remaining 40% results in data/entry and mail out of a missing detail letter.

The result of the diagram shows the 1080 good applications being sent back to the main diagram and the 120 cases still in error requiring a letter to be sent to the customer.

Card Production Process diagram

*Card Production
Process*



You can get to this diagram by clicking on “+”sign of the Card Production process" sub-process object in Credit(as-is) diagram.

The first business process is the "Collate emboss data, prepare...." by the Technology department. The fixed cost is \$500.

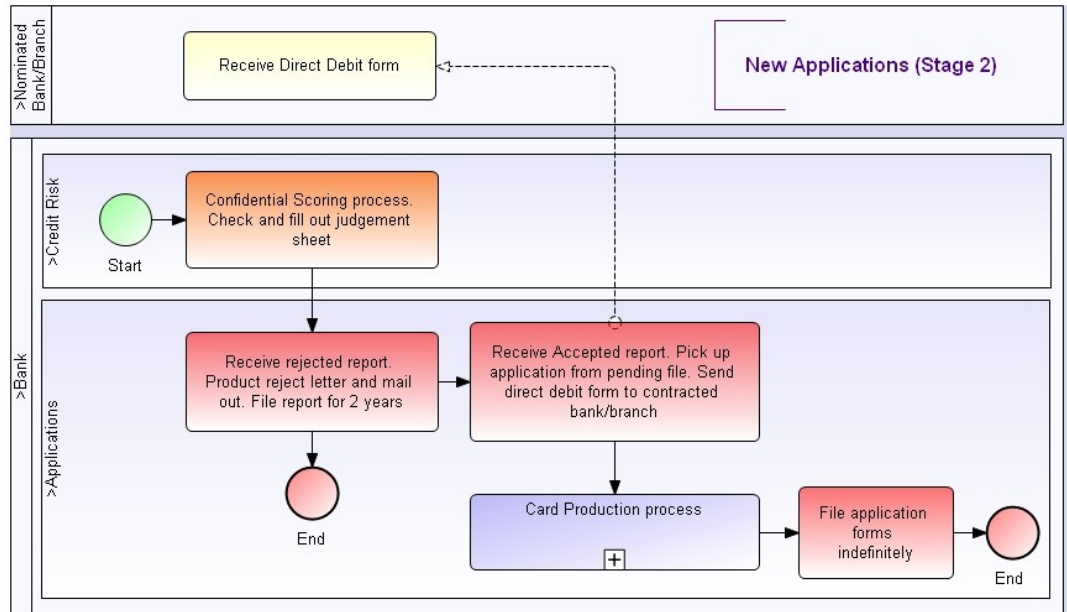
After Technology, the data is passed to the Emboss Room from the Bank department where the cards are actually produced. The “Produce cards...” process has been set up un-costed. The other processes are self-explanatory.

The result, of the process, is the mail out of card packages to the customer.

Note that no actual volume has been associated with the “Receive card package” process for the Customer department, because this process is, in fact, an extension of the “Receive control report...” process.

New applications Stage 2 diagram

New Applications
Stage 2



From the main diagram, clicking on the “+” sign of the "New Applications Stage 2" sub-process object gives you the “New Applications Stage 2” sub-process.

The first actual business process is the “Confidential scoring process...” with a volume of 972 units, unit time of 20 minutes and a total cost monthly \$13.407.

The accepted applications follow through to the "Card production process".

The final application process is the “File application forms...” process.

You can see above the **Volume and Costs** report which is produced automatically by selecting the **Volume and Costs (XL)...** option from the **Analysis** menu. By selecting the analysis level in the process tree, you can get the corresponding Volume and Costs report. In this case we have taken the report by clicking on the high level Credit (as is) diagram to get an analysis of this and all sub-processes.

The first entry in the report is for the *Customer* organization entity, showing the monthly volume of 1200 application forms. There are no costs associated with the Customer.

The next organization entity shown is *Applications* which has 12 activities.

The first is the “Receiving and error handling” activity. The costs for this process originate in the sub-process and have been carried forward to this high level diagram. You will see the entry underlined in blue. You can click on this to see the costs for the sub-process which have been rolled up. For experience, you should run a “volumes and costs” analysis on the sub-process (Receiving and Error Handling) and reconcile the totals.

The maximum monthly volume for the process is 1200 units with a total cost of \$6517 per month.

All other processes in the *Applications* department follow a similar pattern. After the last process in the department, a departmental total is shown, summing all the 12 processes.

The *Technology* department shows one process with a volume of 918 transactions. There is a fixed cost of \$1000 given for this process. A calculated unit cost of \$1.09 is also shown.

Outsourcing is the last department shown. Here there are 918 transactions with a given unit cost of \$3.00 and total fixed cost of \$2,754. The final line is an “all departments” map grand total.

Receiving and Error Handling process. Volumes and Costs Report

B	C	D	E	F	G	H	I	J	K	L	M	N	O
No.	Capiton	Time Based Unit Cost	Wait Time Unit Cost	Wait Time Total Cost	Time Based Total Cost	Unit Variable Cost(non-time)	Total Variable Cost(non-time)	Fixed Cost	Total Cost	External Volume	Internal Volume	Time Period	Unit Time
1	Bank Applications												
2	Time Stamp and Sequence	0.86	0	0	1034.48	0	0	0	1034.48	1200	0	0	1m 30s
3	Visual check of mandatory items on application form	2.01	0	0	2413.79	0	0	0	2413.79	1200	0	0	0 3m 30s
4	For missing and error cases attach manual work sheet to the application. Attempt to call the customer - no limit to the number of calls at home/work	8.62	0	0	2586.21	0	0	0	2586.21	300	0	0	0 15m
5	Start	0	0	0	0	0	0	0	0	0	0	0	0 0m
6	End	0	0	0	0	0	0	0	0	0	0	0	0 0m
7	Enter customer data to computer system. Prepare and print missing detail letter. Mail out	2.3	0	0	275.86	0	0	0	275.86	120	0	0	0 4m
8	Put good items in a "to scan in" box	0.19	0	0	206.9	0	0	0	206.9	1080	0	0	0 20s
9					6517.24	0	0	0	6517.24	1200			
10	Customer												
11	Receive Call	0	0	0	0	0	0	0	0	300	0	0	0 0m
12	Receive Mail	0	0	0	0	0	0	0	0	120	0	0	0 0m
13					0	0	0	0	0	300			
14					6517.24	5.43	0	0	6517.24	1200			

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This report shows the “as-is” "Receiving and error handling" sub-process. Totals are carried forward to the main diagram calling process, again called “Receiving and Error Handling”.

The first department shown is *Customer* with no associated costs.

A monthly volume of the “Receive call” :300 units.

A monthly volume of the “Receive mail”:120 units.

Next, the *Applications* department totals are shown. The five process totals are given followed by the department total .

The final entry is the sub-process totals line. This can be reconciled with the totals on the main map calling process. The total monthly cost for this sub-process is \$6,517.

Card Production process. Volumes and Costs Report

B	C	D	E	F	G	H	I	J	K	L	M	N	O
No.	Caption	Time Based Unit Cost	Wait Time Unit Cost	Wait Time Total Cost	Time Based Total Cost	Unit Variable Cost(non-time)	Total Variable Cost(non-time)	Fixed Cost	Total Cost	External Volume	Internal Volume	Time Period	Unit Time
1	Bank												
2	Bank-Embloss Room												
3	Manually prepare send-out package with letters, files and corporate use information	1.15	0	0	62.07	0	0	0	62.07	54	0	0	0 2m
4	Receive Control report confirmation. Mail out card packages by registered mail	0.57	0	0	31.03	0	0	0	31.03	54	0	0	0 1m
5	Produce cards and addressed holders. Print registered mail documentation and control report B	0.01	0	0	0.52	0	0	0	0.52	54	0	0	0 1s
6					93.62	1.73	0	0	93.62	54			
7	Bank-Applications												
8	Check control reports A and B	0.01	0	0	0.52	0	0	0	0.52	54	0	0	0 1s
9					0.52	0.01	0	0	0.52	54			
10					94.14	3.48	0	0	94.14	54			
11	Technology												
12	Start	0	0	0	0	0	0	0	0	0	0	0	0 0m
13	Collate emboss data, prepare embossing files and control report A	0	0	0	0	0	0	500	500	54	0	0	0 0m
14					0	9.26	0	500	500	54			
15	Customer												
16	Receive Card package	0	0	0	0	0	0	0	0	54	0	0	0 0m
17	End	0	0	0	0	0	0	0	0	0	0	0	0 0m
18					0	0	0	0	0	54			
19					94.14	11	0	500	594.14	54			

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This report shows the “as-is” Card Production sub-process.

Totals are carried forward to the main map calling process.

There are four departments shown, with their respective totals

With *Technology*, there was no cost explicitly attributed to this process, so costs are shown as zero.

Similarly, there are no costs shown for the *Emboss Room* “Produce cards + addressed holders...” process and the *Customer* total.

The Final total line is the diagram total.

New Applications Stage 2 process. Volumes and Costs Report

No.	Capiton	Time Based Unit Cost	Wait Time Unit Cost	Wait Time Total Cost	Time Based Total Cost	Unit Variable Cost(non-time)	Total Variable Cost(non-time)	Fixed Cost	Total Cost	External Volume	Internal Volume	Time Period	Unit Time
1	Bank												
2	Bank Credit Risk												
3	Start	0	0	0	0	0	0	0	0	972	0	0	0.0m
4	Confidential Scoring process. Check and fill out judgement sheet	13.79	0	0	13406.9	0	0	0	13406.9	972	0	0	0.20m
5				0	13406.9	11.49	0	0	13406.9	972			
6	Bank Applications												
7	Card Production process			0	94.14	11	0	500	594.14	54			
8	End	0	0	0	0	0	0	0	0	972	0	0	0.0m
9	File application forms indefinitely	0.57	0	0	558.62	0	0	0	558.62	972	0	0	0.1m
10	Receive rejected report. Product reject letter and mail out. File report for 2 years	2.28	0	0	2215.86	0	0	0	2215.86	972	0	0	0.3m 58s
11	Receive Accepted report. Pick up application from pending file. Send direct debit form to contracted bank/branch	4.58	0	0	4450.34	0	0	0	4450.34	972	0	0	0.7m 58s
12	End	0	0	0	0	0	0	0	0	972	0	0	0.0m
13				0	7318.97	8.84	0	500	7818.97	972			
14				0	20725.86	21.84	0	500	21225.86	972			
15	Nominated Bank/Branch												
16	Receive Direct Debit form	0	0	0	0	0	0	0	0	972	0	0	0.0m
17				0	0	0	0	0	0	972			
18				0	20725.86	21.84	0	500	21225.86	972			

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Again, the sub-process volumes and cost figures are carried forward to the main diagram calling process called “New Applications Stage2”.

In *Applications* , the “Card Production Process” itself calls another sub-process (Card Production Process), whose costing figures are included in “New Applications Stage2”.

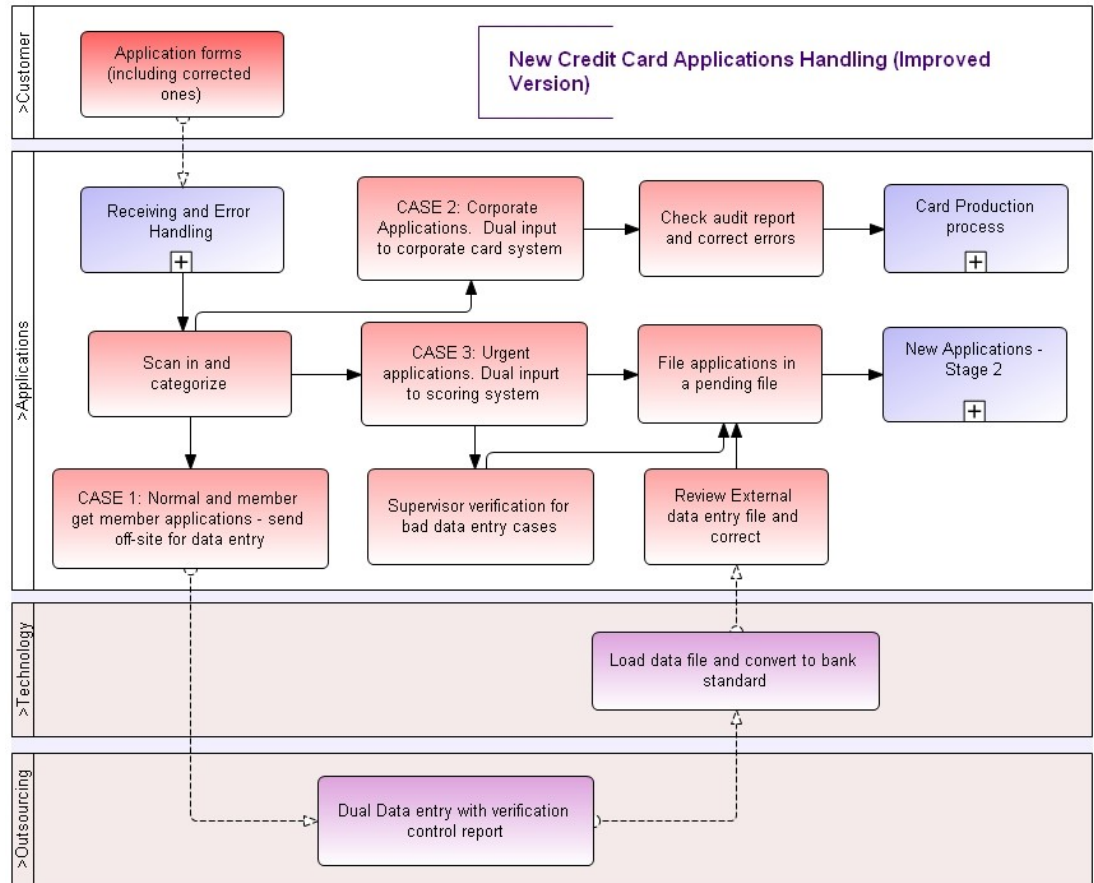
The table follows a similar pattern to the tables already mentioned.

The final line is the map total line with the total cost :\$21,225 .

The “To be” (improved) process diagrams

Credit(Improved) diagram

*Improved process,
New Credit
Card Applications
Handling*



This is a top level diagram for the Credit Card Application processing after improvement and should be compared with the Credit(as-is) diagram.

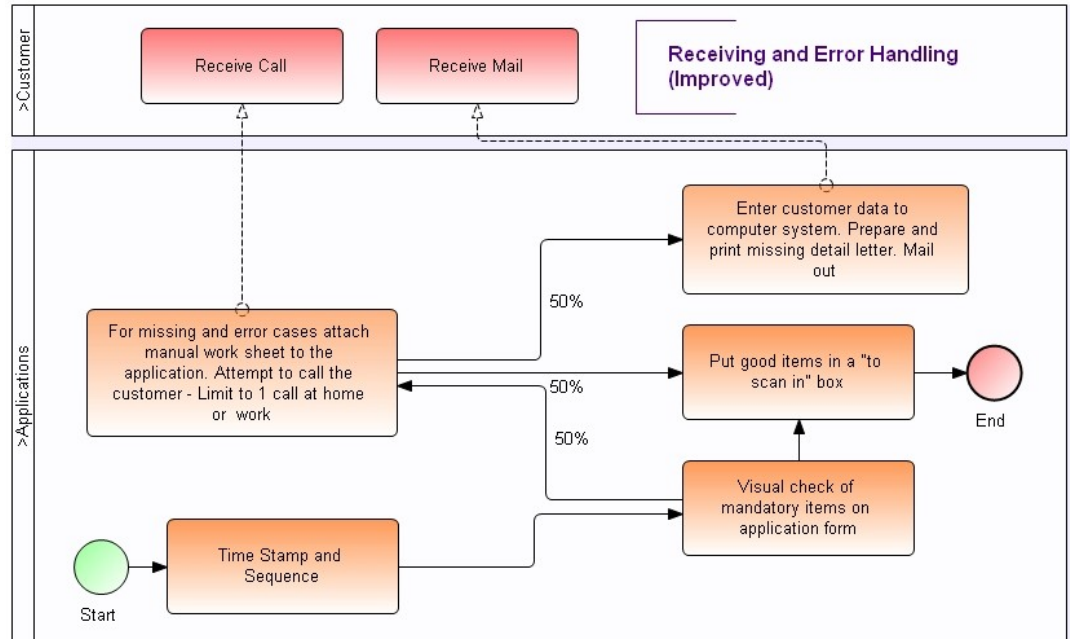
Rather than 4 processing routes for the processing of application forms, the flow is streamlined into only 3 patterns. The improvement analyst founds there was essentially no difference between "Normal applications" and the "Member get member" type. Therefore, both were recommended to be sent for off-site data entry at the lower cost of \$3 per application.

This is a saving of approximately \$300 per month.

You will notice that the volume of accepted applications coming from “Receiving and error handling” is less. This is due to different sub-process work practices.

Receiving and Error Handling (Improved) diagram

*Improved process,
Receiving and Error
Handling(Improved)*



In this improved sub-process, the major change is the way in which the customer is contacted for missing details. Rather than having no real limit to the number of call attempts at home or office, a restriction of 1 call only is imposed and no work sheet is used. This results in a Headcount saving of 0.1722 (or \$862 per month at the Headcount cost of \$5000 per month).

180 more letters per month are sent out, but the monthly cost is increased only with \$70 because the processing time is reduced by not entering the details to the computer system at this premature stage.

The monthly processing volume of 1200 (as sent down from the main map) will in fact increase slightly if you take into account the extra 180 letters which are sent back round the system. For simplicity this is not taken into account here.

Other Credit diagrams

The processes were not changed, so the current diagrams are used as sub-process.

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This report shows the new costings after improvement. The explanations follow the “as-is” diagram. The total cost of the new process is \$32,526 as compared to \$36,367 before.

Receiving and Error Handling(Improved) process. Volumes and Costs Report

BUSINESS PROCESS IMPROVEMENT EXAMPLES

No.	Caption	Time Based Unit Cost	Wait Time Unit Cost	Wait Time Total Cost	Time Based Total Cost	Unit Variable Cost(non-time)	Total Variable Cost(non-time)	Fixed Cost	Total Cost	External Volume	Internal Volume	Time Period	Unit Time
1	Bank-Applications												
2	Put good items in a "to scan in" box	0.19	0	0	172.41	0	0	0	172.41	900	0	0	0 20s
3	For missing and error cases attach manual work sheet to the application. Attempt to call the customer - Limit to 1 call at home or work	2.87	0	0	1724.14	0	0	0	1724.14	600	0	0	0 5m
4	Time Stamp and Sequence	0.86	0	0	1034.48	0	0	0	1034.48	1200	0	0	0 1m 30s
5	Start	0	0	0	0	0	0	0	0	1200	0	0	0 0m
6	Visual check of mandatory items on application form	2.01	0	0	2413.79	0	0	0	2413.79	1200	0	0	0 3m 30s
7	Enter customer data to computer system. Prepare and print missing detail letter. Mail out	1.15	0	0	344.83	0	0	0	344.83	300	0	0	0 2m
8	End	0	0	0	0	0	0	0	0	900	0	0	0 0m
9					5689.66	0	0	0	5689.66	1200			
10	Customer												
11	Receive Mail	0	0	0	0	0	0	0	0	300	0	0	0 0m
12	Receive Call	0	0	0	0	0	0	0	0	600	0	0	0 0m
13					0	0	0	0	0	600			
14					5689.66	4.74	0	0	5689.66	1200			

This report shows the new costings after improvement. Again, explanations follow the “as-is” diagram.

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The total cost of this new sub-process is \$5,689 as compared to \$6,517 before. The other processes were not changed, so they were incorporated in the improved diagrams.

This is a good example of how AVANTAGE encourages diagram re-use to avoid redundancy.

Study results

BUSINESS PROCESS IMPROVEMENT EXAMPLES

The total review of the Credit Card Operations highlighted many major inefficiencies.

ActiveModeler Advantage was able to make the “as is” processes much more visible and enable the development of more streamlined and efficient “improved process” flows.

In particular, the Card Application process review (considered here as an example) yielded the following main improvement applications:

Main Bankcorp Banking Application Processing (Credit process diagram)

1. All applications except for Urgent and Corporate are now sent off-site (outsourced) for data entry. This allows for more standardization and allows Bankcorp to take advantage of a good external data entry price.

Receiving and Error Handling Sub-process

2. It was found that a lot of time was spent trying to contact applicants who had incorrectly filled in their application forms. There was no guideline as to how many times the operations staff should call.

It was agreed to limit the telephoning to 1 attempt.

3. The use of the work sheet for contact attempt history is eliminated. The application itself is annotated.

4. Input to the computer of applicants with missing details is eliminated. A pre-printed form is simply sent with the missing items circled.

Conclusions

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Summary chart for the Credit(as-is) diagram:

Credit (as-is) diagram	Rate based costs monthly	Time Based Total Cost	Unit Variable Cost(non-time)	Total Variable Cost(non-time)	Fixed Cost	Total Cost	Volume max	Total Time
Departments:								
Customer	\$0	0	0	0	0	0	1200	0m
Bank Applications	\$5,000	31613.28	27.18	0	1000	32613.28	1200	851h 59m 6s
Technology	\$0	0	1.09	0	1000	1000	918	0m
Outsourcing	\$0	0	3	2754	0	2754	918	0m
TOTAL		31613.28	30.305	2754	2000	36367.28	1200	851h 59m 6s

Summary chart for the Credit(improved) diagram:

Credit improved diagram	Rate based costs monthly	Time Based Total Cost	Unit Variable Cost(non-time)	Total Variable Cost(non-time)	Fixed Cost	Total Cost	Volume max	Total Time
Departments:								
Customer	\$0	0	0	0	0	0	1200	0m
Bank Applications	\$5,000	27980.02	24.15	0	1000	28980.02	1200	751h 59m 26s
Technology	\$0	0	1.01	0	1000	1000	990	0m
Outsourcing	\$0	0	3	2545.83	0	2970.14	990	0m
TOTAL		27980.02	27.1	2545.83	2000	32525.85	1200	751h 59m 26s

A comparison of before and after costs

	As-is	Improved	Saving
Headcount	6.3226	5.596	0.730
Time Based Total Cost	31613.28	27980.02	3633.26
Fixed Cost	2000	2000	0
Total Variable Cost(non-time)	2754	2545.83	208
Total cost	\$36,367.28	\$32,525.85	\$3,841

We therefore see the monthly saving of **\$3,841**. The ActiveModeler Avantage software has proved invaluable in highlighting this cost saving.