

Product Costs: Application in an Insurance Company

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INTRODUCTION

Greg McAndrews has recently been hired as Vice President for Expense Management at a large insurance company. His responsibilities include the process for allocating expenses to products. Through discussions with his staff, he has learned that there is a great deal of discontent with the expense allocation process. He decided that one of his top priorities will be to analyze the product costing process and make necessary corrections.

Greg is a CMA® (Certified Management Accountant) and CPA (Certified Public Accountant) with an undergraduate degree in accounting and a Master of Business Administration (MBA). Although he has worked in various roles with progressing responsibilities throughout his 12-year career, Greg has never been directly responsible for expense allocations. He has read numerous articles on the current applications of cost accounting techniques in service industries, including activity-based costing (ABC). He believes that he has a good understanding of cost accounting techniques and is eager for his team to improve the expense allocation process.

COMPANY OVERVIEW

AXE Life Insurance Company is among the leading life insurance companies in the United States. AXE Life employs more than 5,000 people and has assets in excess of \$17 billion and annual premiums (“revenue”) in excess of \$10 billion. The company is well established with a long successful history.

AXE Life sells individual life insurance products, individual annuities, and group annuities. The individual products, both life and annuity, are sold through insurance agents. The group annuity products are sold by banks and brokerage firms. The group business represents approximately 40% of total sales, and the individual business represents the remainder. The company continually develops new products, both life and annuity, typically bringing one or two new products to market each year. The company currently has 17 different life and annuity insurance products.

AXE Life has a functional organization structure with Sales, Marketing, Finance, IT, and Service departments representing a functional discipline. The Service department has a joint management team but has separate functions to service annuity products and life insurance products. All other departments provide support to both life and annuity products. Because of the size of the functional departments and their annual expense budgets, there are financial support roles in each department. The financial support staffs provide budgeting and financial analysis support to the departments.

LIFE INSURANCE TERMS, PRODUCTS, AND PROCESSES

The two primary types of products sold and serviced by life insurance companies are life insurance and annuities. These two products have different characteristics. In general, life insurance is used for financial protection and annuities

for retirement savings. A life insurance policy provides a payment to the beneficiary upon the death of the insured. An annuity provides a stream of periodic payments to the customer upon attaining a specified age.

A life insurance policy is usually sold to customers to provide financial protection for their families in the event of the insured's death. If the policy provides coverage for the full life of the insured, it is called whole life insurance. If the insurance coverage is only for a specified period, it is called term life insurance. For life insurance, customers most often pay the cost of the policy ("premiums") over a long period of time. During the period of time that the policy's coverage is active, the policy is considered to be "inforce." The process involved with life insurance begins with the sale of the policy, often through a life insurance agent. The life insurance agent meets with the potential customer and gathers personal information, which is collected using an application for insurance. Potential customers also will provide medical information and are often subjected to a medical examination. The application containing personal information and medical information is submitted to the Underwriting department, which is responsible for deciding whether a policy should be issued and the appropriate premium for the policy.

After the company and the customer agree on the policy's terms and conditions, the company issues the physical policy. Most life insurance companies have service departments that have an "issuance" function that performs this activity. After the policy has been issued, the company collects the premiums, answers ongoing customer questions, and terminates the policy if the insured decides to cancel the policy or fails to pay the premium. These functions also are performed in their service departments. Then, when the insured dies, the insurance company pays the benefits specified in the insurance policy to the beneficiary—this process is performed by the Claims department.

Premiums under an annuity product may be paid in a lump sum or periodically over a number of years. The insurance company invests these funds and provides either a set return ("fixed annuity") or a return that varies with investment performance ("variable annuity"). For individual annuity sales, the issuance and premium collection processes are very similar to the processes for life insurance policies. For group annuity products, the sales process is completed by a licensed representative of a bank or brokerage firm instead of an insurance agent. But the other activities are consistent with individual annuity sales.

Although many of the processes are similar for life and annuity products, insurance companies often have

separate Service departments performing functions for annuities products since there are activities associated with the products that differ. For example, when an annuity policy is canceled, or surrendered, the customer receives a payment that represents the premiums they have paid in addition to investment returns less a surrender fee. Most life insurance companies have a separate unit within its Service department that performs the surrender function. Once a customer reaches the age specified in the annuity contract, the company begins making a series of periodic payments, which is performed by the annuity Service department.

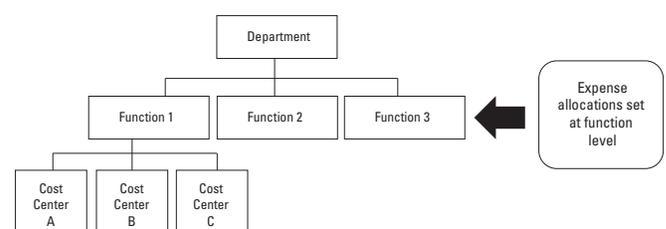
CURRENT COSTING SYSTEM

The vast majority of AXE Life's financial reporting is prepared at a company level, although there are periodic reports on product results. AXE Life allocates all expenses to products. All expense allocations are prepared within the expense management function in the Finance department with little input from the finance staff in the functional departments.

AXE Life has a cost center structure with approximately 1,000 cost centers. In its hierarchy, multiple cost centers make up a functional center (see Figure 1). Each of these functional centers is part of a department. A manager may be responsible for one or more cost centers, a higher-level manager for a functional center, and an executive-level manager for departments. One of the performance measurement factors for cost center managers is how effectively they manage the expenses of the cost center against the budget. For managers of functions, their performance measurement includes how effectively they manage the expenses of all of the cost centers within their function. For the executives managing the business departments, their cost effectiveness is measured on all of the cost centers and functions within their department.

Responsibility and accountability for expenses is based on responsibility center. There is no accountability for the expenses at the product level nor is there direct measurement or accountability for the cost effectiveness of any activities associated with the sale or service of the company's products.

Figure 1. Illustration of the Hierarchy of Departments, Functions, and Cost Centers



Expense data is captured at the cost center level, and the basis for allocating expenses is set at a functional center level. Because of the large number of cost centers and the lack of attention on cost allocations, Greg finds that cost driver information often is not used or is unavailable at the cost center level. The current system makes use of more generalized expense allocation bases, such as assets or sales, and uses that basis to allocate expenses of all cost centers within the functional center. These allocation bases may differ from the cost driver (the activities that actually drive expenses). For example, the expenses of the underwriting function within the Service department are allocated to products based on life insurance sales, even though the cost driver is the number of life insurance applications.

Even when cost driver information is available at a cost center level it can vary with the allocation basis for expense since the same basis is used for all cost centers within the functional center. Due to the limited time available to analyze the inputs and results of the process, the basis of expense allocations to products is only reviewed on an annual basis. Greg finds that much of the cost center information has not been updated in years.

During Greg's first month, he reviews AXE Life's process of allocating costs and finds that the current process takes up to three business days to complete during each monthly close, with significant manual intervention required. The expense allocation process is performed using a spreadsheet that was developed eight years ago, and the process requires a series of iterations. Under the current process, the staff accountant receives a downloaded file of cost center expenses on the day after the monthly expense accounting close is complete. She also receives information on the sales volume (in U.S. dollars) during the month, the annual premium for the policies in force, and the amount of assets under management. These measures serve as the bases to allocate expenses to products.

The staff accountant enters the volume information for the allocation bases (sales, assets, premium) for the month into the spreadsheet. She imports the cost center expenses into the spreadsheet to populate the cost centers with the expenses for the month. She runs a series of Microsoft Excel macros to allocate the expenses to product. The staff accountant then reconciles the allocations to ensure that all expenses have been allocated.

The costs for the Sales department, Marketing department, and Service department related to issuing new policies (new customers) are allocated to product based on sales volume. The total annual premium per product is used to allocate the costs for the service functions including those

related to supporting and terminating customers and the costs for the claims function.

After the costs are allocated to products, the process is considered complete. There are no rates per policy or per function calculated as part of the process. Additionally, there is no study of the time or cost required for activities. Table 1 shows the outcome of the expense allocations for the most recent month (July 2012) using the current cost allocation process.

**Table 1. Panel A: Monthly Expense Results
Expenses July 2012**

Expenses by Department	
Sales	\$ 30,700,125
Marketing	5,524,850
Finance	8,624,567
Customer Service	15,750,225
Information Technology	11,424,525
Human Resources	3,942,563
Executive	2,512,235
Corporate & Other	4,046,032
Total	\$82,525,122

**Table 1. Panel B:
Expenses July 2012 under Current Cost Allocations**

Product	Product Expense
Whole Life Series 1	\$ 2,212,742
Whole Life Series 2	2,598,048
Variable Life Series 1	3,718,892
Variable Life Series 2	3,983,063
Term Life 2000	1,315,393
Term Life New Horizon	1,627,201
Flexible Life	1,719,782
Secure Life	7,018,232
Brokerage Annuity	10,457,380
Fixed Annuity, Brokerage	3,298,115
Happy Life Annuity	12,849,825
Bankers Choice	1,958,313
Fixed Annuity, Bank	4,161,012
Individual Fixed Annuity 1	6,646,289
Individual Fixed Annuity 2	6,775,007
Individual Fixed Annuity 3	1,431,363
Life Style Annuity	<u>10,754,464</u>
Total Allocated	\$ 82,525,122

**Table 1. Panel C:
Product Allocations by Department, Current System**

Product	Sales	Service	Marketing	IT	Finance	All Other	Total
Whole Life Series 1	\$568,673	\$972,669	\$104,376	\$211,240	\$160,037	\$195,746	\$2,212,742
Whole Life Series 2	614,643	1,306,637	81,388	234,203	168,655	192,523	2,598,048
Variable Life Series 1	1,024,239	1,416,358	232,353	372,157	294,340	379,445	3,718,892
Variable Life Series 2	1,373,039	761,773	397,999	482,686	406,466	561,101	3,983,063
Term Life 2000	391,680	446,071	81,663	143,664	111,570	140,745	1,315,393
Term Life New Horizon	586,255	338,417	114,267	216,523	165,901	205,837	1,627,201
Flexible Life	279,446	962,249	146,498	85,970	91,727	153,893	1,719,782
Secure Life	1,520,900	3,049,065	698,525	486,402	485,649	777,691	7,018,232
Brokerage Annuity	4,731,929	959,177	341,303	1,856,485	1,259,212	1,309,274	10,457,380
Fixed Annuity, Broker	1,161,666	573,359	336,322	408,455	343,836	474,476	3,298,115
Happy Life Annuity	4,897,700	1,790,417	1,142,659	1,773,658	1,411,813	1,833,579	12,849,825
Bankers Choice	494,749	563,186	294,031	145,714	167,162	293,470	1,958,313
Fixed Annuity, Bank	1,912,221	283,261	163,261	745,479	512,342	544,447	4,161,012
Ind. Fixed Annuity 1	3,230,604	310,625	137,274	1,285,402	846,537	835,846	6,646,289
Ind. Fixed Annuity 2	3,268,866	402,744	114,201	1,305,252	853,169	830,776	6,775,007
Ind. Fixed Annuity 3	740,165	27,522	783	300,243	189,736	172,914	1,431,363
Life Style Annuity	3,903,351	1,586,694	1,137,947	1,370,992	1,156,416	1,599,065	10,754,464
Total Allocated	\$30,700,125	\$15,750,225	\$5,524,850	\$11,424,525	\$8,624,567	\$10,500,830	\$82,525,122

Table 1. Panel D: Cost Driver Information, Current Allocations

Department/Function	Description of Activities	Cost Driver	Products Supported	Allocation
Marketing				
Marketing Management	Manage marketing dept.	Marketing Campaigns	All	Sales
Marketing Department Staff	Marketing campaigns	Marketing Campaigns	All	Sales
Happy Retirement Annuity Campaign	Costs for media campaign	Media campaign	Happy Retirement Annuity	Sales
Secure Life Insurance Campaign	Media campaign for secure life product	Media campaign	Secure Life	Sales
Total Company Ad Campaign	Media campaign for company	Media campaign	All	Sales
Customer Service – Life				
New Business Management	Manage new business	New policy volume	Life (all)	Sales
Applications	Review applications	Number of applications	Life (all)	Sales
Underwriting	Underwriting applications	Number of applications	Life (all)	Sales
Policy Issuance	Issuing new policies	Number of policies issued	Life (all)	Sales
e-Issuance	Tech support for e-applications	Number of e-applications	Life (all)	Sales
Customer Service Management	Manage customer service	Number of policies	All	Premium
Call Center	Staff in call center	Number of phone calls	All	Premium
Life Insurance Inforce Maintenance	Servicing life policies	Number of policies	Life (all)	Premium, life
Claims Management	Manage staff for claims	Number of claims	Life (all)	Premium, life
Life Insurance Claims Adjusters	Adjudicate claims	Number of claims	Life (all)	Premium, life
Life Insurance Claims	Issue claim checks	Number of claims	Life (all)	Premium, life
Customer Service – Annuity				
New Business Management	Manage new business issuance	New policies sold	Annuities (all)	Sales
Applications	Reviewing applications	Number of applications	Annuities (all)	Sales
Policy Issuance	Staff issuing new policies	Number of policies issued	Annuities (all)	Sales
e-Issuance	Tech support for e-applications	Number of e-applications	Annuities (all)	Sales
Annuity Inforce Maintenance	Service all annuity products	Number of policies	Annuities (all)	Premium, annuity
Annuity Surrenders	Issue surrenders	Number of surrenders	Annuities (all)	Premium, annuity
Information Technology				
IT Management	Manage staff for IT	Number of systems/projects	All	Assets
Financial Management Systems	Managing financial systems	Number of systems/projects	All	Assets
Human Resource Systems	Manage HR systems	Number of systems/projects	All	Assets
Life Insurance Claims Systems	Managing life claim system	Number of systems/projects	Life	Assets
Life Policy Systems	Managing life systems	Number of systems/projects	Life	Assets
Annuity Systems	Managing annuity systems	Number of systems/projects	Annuity	Assets
Annuity Projects	Projects for annuity products	Project hours	Annuity	Assets
Life Insurance Projects	Projects for life products	Project hours	Life	Assets
Financial Systems Update	Project for upgrading financial system	Project hours	All	Assets
Controller	Accounting staff	Number of reports	All	Assets
Actuarial	Actuarial staff	Number of reports	All	Assets
Financial Planning and Analysis	Financial analysts and budget analysts	Number of analysis and reports	All	Assets
Expense Management	Cost accounting staff	Number of reports	All	Assets

Table 1. Panel D: Cost Driver Information, Current Allocations (continued)

Department/Function	Description of Activities	Cost Driver	Products Supported	Allocation
Human Resources				
HR Management	Manage staff	Employees	All	Assets
Compensation and Payroll	Executive and employee compensation	Employees	All	Assets
Staffing and Recruiting	Recruit for all company positions	Open positions	All	Assets
Sales				
Sales Management	Manage sales function for company	Sales	Life and annuity (all)	Sales
East Region	East coast sales staff and management	Sales for region	Life and annuity (all)	Sales
Midwest Region	Midwest sales staff and management	Sales for region	Life and annuity (all)	Sales
South Region	Sales staff and management for south	Sales for region	Life and annuity (all)	Sales
West Region	Sales staff and management for west coast	Sales for region	Life and annuity (all)	Sales
Facilities				
Facilities Management	Manage staff for Facilities	Number of employees/sq. ft.	All	Assets
Facilities Staff	Maintenance and other Facility staff	Number of employees/sq. ft.	All	Assets
Corporate Unallocated Rent	Rent for entire corporate office	Number of employees/sq. ft.	All	Assets
Treasurers				
Treasurer	Manage staff for Treasurer's dept.	Assets	All	Assets
Cash Management and Banking	Manage cash & banking relationships	Number of bank accounts	All	Assets
Investments	Manage investments	Invested assets	All	Assets
Executive & Corporate				
Office of the CEO	CEO and support staff		All	Assets
Corporate	Expenses not chargeable to any business area		All	Assets

In discussions with his team, Greg finds that the team does not fully understand how the information is used and its importance. Also, he learns that they are frustrated with the time required to complete the expense allocation process and complain that they do not have adequate time to review results or maintain the inputs for the expense allocation process. Greg believes that the expense allocation process could be accomplished in one business day instead of three. If processing time can be reduced, Greg anticipates the staff would be afforded more time to analyze the results and maintain the cost allocation information used in the process.

OBJECTIVES OF THE PRODUCT COST ALLOCATIONS

In his discussion with the staff, Greg learned that they receive limited information after recording the monthly product expenses. Their understanding is that the product expense allocation is coupled with claims information and premium revenue information to determine the profitability of each product. This process of reporting on product profitability is completed within the Actuarial department. To better learn what the objectives of the expense allocation process should be, Greg meets with the actuaries to find how the product expense information is used and gathers their concerns with the current process.

Sal Enrich, the company's chief actuary, discusses how his department uses the expense allocation information. Sal explains that the product-based expenses are critical for determining product profitability and for setting the pricing for products, both of which are vital to the company's success. The Actuarial department is the sole provider of product profitability information for the company. Sal explains that no individual manager is directly responsible for individual product profitability and that his department is in charge of monitoring product profitability, and the results are shared with executive management. Sal emphasizes that executive management looks to his department to ensure that products' profitability information is correct. Executive management uses the information to determine which products to emphasize in the sales process and the insurance agents receive larger commissions on the sale of more profitable products.

Sal details how the actuaries take the product expense information, revenue, mortality results (death benefits), sales commissions, and other nonoperating expenses to determine the profitability of each product. Since the product expense information is a significant component in determining the profitability of each product, misstating it could lead the company to cease selling a profitable product or to oversell an unprofitable product.

Sal further explains that the product expenses are a critical component in determining the appropriate pricing for each of AXE Life's existing products. Additionally, when new products are developed, the actuaries rely on the historical unit costs for similar products. Thus, if the product expenses are inaccurate, they could over-price or under-price a product, which would hurt AXE Life's long-term profitability.

Sal believes that the cost information is inadequate in meeting the needs of his department and AXE Life. Sal expresses concern that the cost system is inaccurate, and the information is not available in a timely fashion. As a result, Sal's staff spends hours analyzing the data and making adjustments, all within a compressed time frame. He outlines the format the actuaries would prefer the cost information to be organized, with the following broad categories of expenses organized along the major activities associated with a product:

- Cost to develop the product
- Cost to market the product
- Cost to sell the product
- Cost to issue the product
- Cost to service the product
- Overhead expenses (other administrative expenses)
- One-time expenses (such as special projects) and nonrecurring expenses

After the meeting, Greg decides that the expense allocation system needs immediate attention. He assembles a small project team and, during the first meeting, outlines the features of a useful cost system:

- Timely, accurate information
- Ability to use the information for product pricing, product profitability, and management decision making

Greg also lists the shortfalls of the current system:

- Requires significant manual intervention using spreadsheets
- Long processing time
- Expense allocations based on general factors (e.g., sales at the functional level)
- Outdated or nonexistent cost driver information for cost centers
- Lack of reporting (limited monthly information, no comparison of budget to actual results)
- Lack of cost information based on activity
- Lack of information on the time to complete each activity
- No identification of direct costs vs. indirect costs
- No identification of expenses as variable or fixed

PROJECT OVERVIEW

Greg and two staff members make up the primary project team. The team decides that the first two shortfalls (significant manual intervention and long processing time) can be improved by eliminating the current spreadsheet approach and replacing it with cost allocation software.

After the team has selected software to support their process, the next step is the most critical aspect of the project: solve the lack of sufficient and updated information to allocate expenses to products. To assist in improving and updating the cost driver information, the team decides to involve the financial support staff in the various functional departments since they have a better understanding of the activities in the respective departments they support and can easily meet with employees performing the activities. They put in place a project plan that includes the following actions for the initial phase of the project:

- Review available cost accounting software packages.
- Prepare a project proposal including estimates of cost and benefits.
- Submit the project plan and receive approval.
- Engage finance support staff to update all cost center/cost driver information.
- Purchase and install software.
- Load cost center data.
- Test it.
- Implement it.

The team sets a four-month time frame for the project with the goal to have the new process in place for the next calendar year. They also include as deliverables using the new process for the preparation of the current year's annual product expenses and the annual budgeted product expenses for the next calendar year.

During the first month of the project, Greg and his team review software products. After narrowing their choices, the team conducts an in-depth review of four potential software products. The team chooses a package from ABC Software, Inc. as its preferred software product. This product will not only support the department's ability to allocate the expenses quickly and accurately, but it also can support activity-based costing, which will be the second phase of the project. The team prepares a project proposal and receives approval from executive management to undertake the project.

Greg and his staff meet with the finance support staff from the various departments to put in place a process to update the information associated with the expense allocation process, including the cost driver information.

Greg explains the importance of the information to the company and the value of the involvement of the financial support staff. He also seeks management's input as how to best implement a process to ensure the information is consistently updated on an ongoing basis.

The group is receptive and agrees to the following actions:

- Complete an update of the cost center information within the next 30 calendar days.
- Provide activity and driver information for each new cost center that is added.
- Annually update all of the cost center information as part of the annual budget cycle.

The financial support staffs are given a grid to use while collecting data on each cost center, which includes:

- Function center number,
- Functional center,
- Cost center number,
- Cost center name,
- Activity,
- Cost driver, and
- Products supported.

ABC Software, Inc. completes the installation of the cost allocation software during week three of the four-month project. During week four, the project team loads all of the cost centers into the ABC software. By the end of the first month of the project, all of the finance support staff submits the updated cost center/cost driver information. For the next month, the project team loads all of the cost center information, including activities and cost drivers. For the first test of the system, the team loads the expense information for July 2012.

RESULTS OF THE FIRST TEST OF REVISED PROCESS

The team collects the volumes of activity (Table 3) and expenses for July 2012. Using the new process, the product allocations are completed with a summary of the results from Table 2. Panels A and B show the total expenses and the product expenses after allocation. Table 2, Panel C, shows a table with the grid completed for each of the functional centers within each department. The expense details for those functional centers for July 2012 allocated to product are provided in Table 2, Panel D.

Table 2. Panel A: First Test of Revised Cost Allocation Process Expenses by Department July 2012

Expenses by Department	
Sales	\$30,700,125
Marketing	5,524,850
Finance	8,624,567
Customer Service	15,750,225
Information Technology	11,424,525
Human Resources	3,942,563
Executive	2,512,235
Corporate & Other	4,046,032
Total	\$82,525,122

Table 2. Panel B: Expenses by Product July 2012 under Revised Cost Allocations

Product	Product Expense
Whole Life Series 1	\$ 3,186,824
Whole Life Series 2	2,945,549
Variable Life Series 1	4,105,859
Variable Life Series 2	5,571,684
Term Life 2000	3,245,164
Term Life New Horizon	2,432,906
Flexible Life	2,611,487
Secure Life	8,255,685
Brokerage Annuity	6,523,542
Fixed Annuity, Brokerage	4,239,529
Happy Life Annuity	12,511,268
Bankers Choice	3,539,366
Fixed Annuity, Bank	3,407,226
Individual Fixed Annuity 1	3,969,907
Individual Fixed Annuity 2	4,068,980
Individual Fixed Annuity 3	1,336,349
Life Style Annuity	10,573,797
Total Allocated	\$ 82,525,122

Table 2. Panel C: Product Allocations by Department, Revised Allocations

Product	Sales	Service	Marketing	IT	Finance	All Other	Total
Whole Life Series 1	\$584,062	\$1,290,124	\$157,635	\$660,831	\$300,011	\$194,161	\$3,186,824
Whole Life Series 2	458,626	1,155,822	141,994	661,092	312,748	215,267	2,945,549
Variable Life Series 1	1,307,471	1,159,683	244,710	662,657	389,270	342,067	4,105,859
Variable Life Series 2	2,238,117	1,476,626	357,415	663,911	391,954	443,660	5,571,684
Term Life 2000	453,580	1,653,389	142,181	660,064	203,902	132,048	3,245,164
Term Life New Horizon	641,752	522,565	164,365	660,891	244,317	199,017	2,432,906
Flexible Life	831,076	683,788	186,295	659,410	171,900	79,019	2,611,487
Secure Life	3,835,669	2,076,504	700,018	802,403	394,015	447,075	8,255,685
Brokerage Annuity	1,880,550	804,511	318,840	659,270	1,153,987	1,706,385	6,523,542
Fixed Annuity, Broker	1,832,987	722,040	315,451	642,840	350,779	375,431	4,239,529
Happy Life Annuity	6,182,754	1,767,557	1,019,206	803,455	1,108,043	1,630,254	12,511,268
Bankers Choice	1,662,587	611,271	286,676	639,859	205,039	133,933	3,539,366
Fixed Annuity, Bank	936,802	403,131	197,700	646,664	537,723	685,205	3,407,226
Ind. Fixed Annuity 1	784,688	333,724	180,019	652,790	837,212	1,181,475	3,969,907
Ind. Fixed Annuity 2	661,673	542,029	164,320	653,015	848,223	1,199,720	4,068,980
Ind. Fixed Annuity 3	5,226	35,638	87,150	641,612	290,755	275,968	1,336,349
Life Style Annuity	6,402,505	511,823	860,875	653,761	884,688	1,260,144	10,573,797
Total Allocated	\$30,700,125	\$15,750,225	\$5,524,850	\$11,424,525	\$8,624,567	\$10,500,830	\$82,525,122

Table 2. Panel D: Cost Driver Information, Revised Allocations

Department/Function	Description of Activities	Cost Driver	Products Supported	Allocation
Marketing				
Marketing Management	Manage Marketing dept.	Marketing Campaigns	All	Sales
Marketing Department Staff	Marketing campaigns	Marketing Campaigns	All	Sales
Happy Retirement Annuity Campaign	Costs for media campaign	Media campaign	Happy Retirement Annuity	Direct to Happy Retirement
Secure Life Insurance Campaign	Media campaign for secure life product	Media campaign	Secure Life	Direct to Secure Life
Total Company Ad Campaign	Media campaign for total company	Media campaign	All	Sales
Customer Service – Life				
New Business Management	Manage new business	New policy volume	Life (all)	# of new policies
Applications	Review applications	Number of applications	Life (all)	# of applications
Underwriting	Underwriting applications	Number of applications	Life (all)	# of applications
Policy Issuance - Life Insurance	Issuing new policies	Number of policies issued	Life (all)	# of polices issued
e-Issuance	Tech support for e-applications	Number of e-applications	Life (all)	# of e-applications
Customer Service Management	Manage customer service	Number of policies	Life and annuities (all)	# of policies
Call Center	Receive incoming calls	Number of phone calls	Life and annuities (all)	# of phone calls
Life Insurance Inforce Maintenance	Servicing life policies	Number of policies	Life (all)	# of life policies
Claims Management	Manage staff for claims	Number of claims	Life (all)	# of claims
Life Insurance Claims Adjusters	Adjudicate claims	Number of claims	Life (all)	# of claims
Life Insurance Claims	Issue claim checks	Number of claims	Life (all)	# of claims
Customer Service – Annuity				
New Business Management	Manage new business issuance	New policies sold	Annuities (all)	# of new policies
Applications	Reviewing applications	Number of applications	Annuities (all)	# of applications
Policy Issuance	Staff issuing new policies	Number of policies issued	Annuities (all)	# of polices issued
e-Issuance	Tech support for electronic applications	Number of e-applications	Annuities (all)	# of e-applications
Annuity Inforce Maintenance	Service all annuity products	Number of inforce policies	Annuities (all)	# of policies
Annuity Surrenders	Issue surrenders	Number of surrenders	Annuities (all)	# of surrenders
Information Technology				
IT Management	Manage staff for IT	Number of systems/projects	All	Assets
Financial Management Systems	Managing financial systems	Number of systems/projects	All	Assets
Human Resource Systems	Manage HR systems	Number of systems/projects	All	Assets
Life Insurance Claims Systems	Managing life claim system	Number of systems/projects	Life	Life claims
Life Policy Systems	Managing life systems	Number of systems/projects	Life	Life policies
Annuity Systems	Managing annuity systems	Number of systems/projects	Annuity	Annuity policies
Annuity Projects	Project for new annuity product	Project hours	Happy Retirement Annuity	Annuity policies
Life Insurance Projects	Project for new life product	Project hours	Secure Life Insurance	Life insurance policies
Financial Systems Update	Project for upgrading financial system	Project hours	All	Assets
Controller	Accounting dept.	Number of reports	All	Assets
Actuarial	Actuarial staff	Number of reports	All	Assets
Financial Planning and Analysis	Financial analysts and budget analysts	Number of analysis and reports	All	Assets
Expense Management	Cost Accounting staff	Number of reports	All	Assets

Table 2. Panel D: Cost Driver Information, Revised Allocations (continued)

Department/Function	Description of Activities	Cost Driver	Products Supported	Allocation
Human Resources				
Human Resource Management	Manage staff for HR	Employees	All	Assets
Compensation and Payroll	Executive and employee compensation	Employees	All	Assets
Staffing and Recruiting	Recruit for all company positions	Open positions	All	Assets
Sales				
Sales Management	Manage sales function for company	Sales	Life and annuity (all)	Sales
East Region	East coast sales staff and management	Sales for region	Life and annuity (all)	Sales
Midwest Region	Midwest sales staff and management	Sales for region	Life and annuity (all)	Sales
South Region	South sales staff and management	Sales for region	Life and annuity (all)	Sales
West Region	West coast sales staff and management	Sales for region	Life and annuity (all)	Sales
Facilities				
Facilities Management	Manage staff for facilities	Number of employees/sq. ft.	All	Assets
Facilities Staff	Maintenance and other facility staff	Number of employees/sq. ft.	All	Assets
Corporate Unallocated Rent	Rent for entire corporate office	Number of employees/sq. ft.	All	Assets
Treasurers				
Treasurer	Manage staff for Treasurer's dept.	Assets	All	Assets
Cash Management and Banking	Manage cash & banking relationships	Number of bank accounts	All	Assets
Investments	Manage investments	Invested assets	All	Assets
Executive & Corporate				
Office of the CEO	CEO and support staff		All	Assets
Corporate	Expenses not chargeable to any area		All	Assets

Table 3: Actual Cost Driver Volumes for July 2012

Product									in millions		
	Policies Issued	Apps	Inforce Policies	e-Apps	Phone Calls	Claims	Surrenders	Annuity Checks	Assets	Annual Premium	Sales
Whole Life Series 1	1,025	1,425	332,500	125	1,520	1,240	—		\$1,850	\$507	\$16
Whole Life Series 2	720	785	280,250	525	816	1,517	—		2,050	726	13
Variable Life Series 1	1,475	1,752	225,000	—	710	910	—		3,258	678	36
Variable Life Series 2	2,125	3,150	75,000	—	1,215	1,175			4,225	158	61
Term Life 2000	650	720	331,250	625	915	2,885			1,258	207	123
Term New Horizons	525	650	91,501	65	362	575			1,895	118	178
Flexible Life	715	755	147,250	70	1,665	615			753	469	23
Secure Life	2,150	2,252	252,500	775	5,517	2,410			4,258	1,309	108
Brokerage Annuity	1,150	1,175	88,125	—	4,175	—	1,415	12,125	16,250	1,823	53
Fixed Annuity, Broker	1,125	1,150	72,500	250	3,215	—	715	14,141	3,575	521	52
Happy Life Annuity	3,850	4,005	115,050	350	6,152	—	875	11,250	15,525	1,229	176
Bankers Choice Annuity	725	755	62,500	—	3,150	—	2,102	15,010	1,276	668	45
Fixed Annuity, Bank	625	650	25,250	120	1,185	—	1,650	5,500	6,526	270	25
Individual Fixed Annuity 1	525	550	42,500	—	1,275	—	125	10,101	11,251	475	21
Individual Fixed Annuity 2	375	415	85,750	415	2,282	—	450	19,252	11,425	891	18
Individual Fixed Annuity 3	10	10	8,520	10	115	—	10	1,010	2,628	91	0.1
Life Style Annuity	1,105	1,215	40,248	—	615	—	445	5,250	12,000	550	175
Total	18,875	21,412	2,275,694	3,330	34,884	11,327	7,787	93,639	\$100,000	\$10,690	\$850

ASSIGNMENT

1. Discuss some of the alternatives and factors that Greg should consider when developing the expense allocation system. What are some of the costs and benefits of the alternatives?
2. As shown in Table 1, Panel C, AXE Life is allocating all expenses of all departments to products. Are there any potential problems caused by allocating all expenses to products?
3. Review the basis for the expense allocations under the current system (Table 1, Panel D) and identify functional centers that are using expense allocation bases that may be inconsistent with the activities that drive costs for that function. Using the information provided, suggest changes to the expense allocations for each function.
4. Table 2 shows the results of the test month of the first iteration for the system. Greg has confirmed that all expenses were allocated. Review the expense allocations used in the first test and discuss the functional centers in which the expense allocation bases have been improved and those that still may need improvement.
5. Table 4 shows the cost centers for the Life Insurance Projects functional center and a description of the activities in each cost center that make up that functional center. Based on this information, is the proposed basis for allocating expenses for these cost centers accurate? Why? How could it be improved?
6. Discuss the steps Greg should take to complete the project and then maintain the expense allocation process going forward. Based on the data provided, what additional steps can be taken to improve the product expense allocation process at AXE Life?

PHASE II: ACTIVITY-BASED COSTING

Greg charges the project team to begin work on the second phase of the project, which is to use the expense allocation process to begin to develop activity-based costs. As an initial step, the team reviews the information provided on the activities performed by each of the functions as shown in Table 2, Panel D, and categorizes the activities as unit, batch, product, and facility.

7. Activities can be categorized as unit, batch, product, and facility. Provide the definitions of each of these categories and then use the information in Table 2, Panel D, to categorize the activities as unit, batch, product, or facility.
8. As its next step, the team gathers information in Table 5 and calculates a rate for each of the functions based on the associated volumes. Use the information in Table 5 to calculate cost rates for the functions identified. Is this information sufficient for decision making? Why or why not?

Referring back to his discussion with the chief actuary, Greg identifies two activities to begin developing activity-based costs: the cost to issue life insurance products and the cost to service them. The project team defines the activities encompassing the cost to issue a policy as the cost to receive and process applications, underwrite policies and print, and collate and mail policies (termed “issuance”). The cost to maintain policies is defined as the cost of storing policy information, updating policy information as needed, responding to requests for service on insurance policies, the payment of claims and benefits, and the associated computer costs.

Table 4: Cost Level Data for Life Insurance Projects Function

19008 Life Insurance Projects

Cost Center Number	Cost Center	Products Supported	Activity	Expense
19008-001	Whole Life Series 2 Update	Whole Life Series 2	Update system to reflect 2012 changes in policy conditions	\$ 12,425
19008-002	Variable Life Series 2 Update	Variable Life Series 2	Update system to reflect 2012 changes in policy conditions	11,429
19008-003	Term Life New Horizon Update	Term Life New Horizon	Update system to reflect 2012 changes in policy conditions	13,152
19008-004	Secure Life Project	Secure Life Project	System modifications for new secure life product	101,444
Total				\$ 138,450

Table 5: Cost and Volume Data

Department/Function	Driver	Volume	Expense
New Business Life	New life policies	9,345	\$ 191,525
New Applications	Number of life applications	11,489	815,251
Policy Underwriting	Number of life applications	11,489	1,610,825
Policy Issuance – Life	Number of life policies issued	9,385	1,155,424
e-Policy Issuance – Life	Number of electronic life policies	2,185	172,515
New Business Annuity	New annuity policies	9,490	397,125
New Applications	Number of annuity applications	9,925	1,215,241
Policy Issued	New annuity policies	9,490	1,192,500
e-Policy Issuance – Annuity	Number of electronic annuities	1,145	173,525
Customer Service Management	Number of policies (all)	2,275,694	1,156,250
Call Center	Number of calls	34,884	910,257
Life Inforce Management	Number of life policies	1,735,251	1,115,497
Annuity Inforce Management	Number of annuities	540,443	1,485,273
Annuity Surrenders/Payments	Number of annuities	101,426	415,125
Claims Management	Number of life claims	11,327	1,101,010
Life Claims Adjusters	Number of life claims	11,327	1,415,000
Life Claims Support	Number of life claims	11,327	1,227,904
Life Claims System	Number of life claims	11,327	1,215,250
Life Insurance System	Number of life policies	1,735,251	1,229,850
Annuity System	Number of annuities	540,443	\$1,201,525

As its first step, the team is going to focus on developing the costs to receive life insurance applications manually and issue a life insurance policy. During July 2012, the company received 11,489 applications and issued 9,385 life insurance policies. Not all applications are issued policies, thus the team must calculate the cost to receive and process the applications and adjust those costs to reflect that approximately one out of five applications does not result in a policy being issued.

9. Use the information provided in Table 6 to calculate the cost to issue a life insurance policy, including receiving and processing applications for each product.
10. Use the information from Table 7 to calculate the costs to service and maintain a policy for each product. Assume that AXE Life has defined the cost to service and maintain a policy as the customer service costs, call center costs, and costs to adjudicate and pay claims. What do you notice about the costs per policy? Is there other information that would make this analysis more useful?

11. An activity-based costing system would provide AXE Life with an understanding of the costs to develop, sell, and service their products. How can AXE Life use this information to improve the efficiency and cost effectiveness of their operations?
12. Greg also read an article that stated that using time-driven activity-based costing reduces the time and complexity associated with implementing an activity-based costing system. Based on his understanding, Greg believes that using a time-driven system may be an efficient way of implementing activity-based costing. Describe how Greg can create an activity-based costing system and include the steps necessary if the team follows (a) the traditional approach to activity-based costing and (b) a time-driven activity-based costing approach.

Table 6: Cost to Receive and Process Life Insurance Application – July 2012

Volumes for Cost Drivers

Applications	11,489
New Life Policies	9,385

Function	Variable	Fixed	Total	Characteristics of Costs
New Business – Life (Management): Manage new policy underwriting and issuance				
Salaries & Benefits		112,522	112,522	Fixed within range of +/- 20% of current levels
Supplies		4,252	4,252	Fixed within range of +/- 20% of current levels
Depreciation – Furniture		10,200	10,200	Fixed within range of +/- 20% of current levels
Leased PCs		14,650	14,650	Fixed within range of +/- 20% of current levels
Allocated Rent		15,250	15,250	Fixed within range of +/- 20% of current levels
All Other		34,651	34,651	Fixed within range of +/- 20% of current levels
Total		\$191,525	\$191,525	
New Applications: Receive and review new life policy applications				
Salaries & Benefits	225,125	252,500	477,625	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	62,150		62,150	Vary with applications
Depreciation – Furniture		32,500	32,500	Fixed within range of +/- 20% of current levels
Leased PCs		52,500	52,500	Fixed within range of +/- 20% of current levels
Allocated Rent		65,250	65,250	Fixed within range of +/- 20% of current levels
All Other		125,226	125,226	Fixed within range of +/- 20% of current levels
Total	\$287,275	\$527,976	\$815,251	
Policy Underwriting: Review and underwrite new life policies				
Salaries & Benefits	375,125	512,500	887,625	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Medical reports	215,047		215,047	Vary with applications
Supplies	61,250		61,250	Vary with applications
Depreciation – Furniture		51,500	51,500	Fixed within range of +/- 20% of current levels
Leased PCs		62,500	62,500	Fixed within range of +/- 20% of current levels
Allocated Rent		125,250	125,250	Fixed within range of +/- 20% of current levels
All Other		207,653	207,653	Fixed within range of +/- 20% of current levels
Total	\$651,422	\$959,403	\$1,610,825	
Policy Issuance: Process and issue new life policies				
Postage & Mail Costs	37,540		37,540	Vary with applications
Salaries & Benefits	412,525	125,862	538,387	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	72,175		72,175	Vary with applications
Depreciation – Furniture		56,750	56,750	Fixed within range of +/- 20% of current levels
Leased PCs		82,500	82,500	Fixed within range of +/- 20% of current levels
Allocated Rent		145,250	145,250	Fixed within range of +/- 20% of current levels
All Other		260,362	260,362	Fixed within range of +/- 20% of current levels
Total	\$484,700	\$670,724	\$1,155,424	

Table 7: Cost to Service Life Insurance Policies

Function	Variable	Fixed	Total	Characteristics of Costs
Customer Service Management: Manage customer service support of existing policies				
Salaries & Benefits	254,750	495,250	750,000	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	21,520		21,520	Fixed within range of +/- 20% of current levels
Depreciation – Furniture		55,425	55,425	Fixed within range of +/- 20% of current levels
Leased PCs		47,500	47,500	Fixed within range of +/- 20% of current levels
Allocated Rent		82,500	82,500	Fixed within range of +/- 20% of current levels
All Other		199,305	199,305	Fixed within range of +/- 20% of current levels
Total	\$ 276,270	\$879,980	\$1,156,250	
Call Center: Respond to customer inquiries				
Salaries & Benefits	415,150	42,520	457,670	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	21,514		21,514	Vary with applications
Depreciation – Furniture		62,520	62,520	Fixed within range of +/- 20% of current levels
Leased PCs		55,125	55,125	Fixed within range of +/- 20% of current levels
Allocated Rent		90,500	90,500	Fixed within range of +/- 20% of current levels
All Other		222,928	222,928	Fixed within range of +/- 20% of current levels
Total	\$436,664	\$250,665	\$910,257	
Life Inforce Management: Provide service to all existing policies (changes in beneficiary, address, questions)				
Salaries & Benefits	514,250	120,125	634,375	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	44,450		44,450	Vary with policies
Depreciation – Furniture		71,500	71,500	Fixed within range of +/- 20% of current levels
Leased PCs		61,750	61,750	Fixed within range of +/- 20% of current levels
Allocated Rent		95,120	95,120	Fixed within range of +/- 20% of current levels
All Other		208,280	208,280	Fixed within range of +/- 20% of current levels
Total	\$558,700	\$348,495	\$1,115,475	
Claims Management: Manage claims process				
Salaries & Benefits	417,500	215,250	632,750	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	21,250		21,250	Vary with policies
Depreciation – Furniture		81,742	81,742	Fixed within range of +/- 20% of current levels
Leased PCs		91,250	91,250	Fixed within range of +/- 20% of current levels
Allocated Rent		111,500	111,500	Fixed within range of +/- 20% of current levels
All Other			162,518	Fixed within range of +/- 20% of current levels
Total	\$438,750	\$499,742	\$1,101,010	
Claims Adjusters: Adjudicate claims				
Salaries & Benefits	607,150	333,525	940,675	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	41,525		41,525	Vary with policies
Depreciation – Furniture		101,525	101,525	Fixed within range of +/- 20% of current levels
Leased PCs		100,752	100,752	Fixed within range of +/- 20% of current levels
Allocated Rent		117,850	117,850	Fixed within range of +/- 20% of current levels
All Other		112,673	112,673	Fixed within range of +/- 20% of current levels
Total	\$648,675	\$653,625	\$1,415,000	

Table 7: Cost to Service Life Insurance Policies (continued)

Function	Variable	Fixed	Total	Characteristics of Costs
Life Claims Support: Support claims adjusters, process and issue all claims checks				
Postage & Mail Costs	91,425		91,425	Vary with claims paid
Salaries & Benefits	481,500	112,525	594,025	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	41,525		41,525	Vary with applications
Depreciation – Furniture		91,250	91,250	Fixed within range of +/- 20% of current levels
Leased PCs		77,141	77,141	Fixed within range of +/- 20% of current levels
Allocated Rent		99,750	99,750	Fixed within range of +/- 20% of current levels
All Other		23,788	232,788	Fixed within range of +/- 20% of current levels
Total	\$614,450	\$613,454	\$1,227,904	
Life Insurance Systems: System and IT personnel that supports life insurance policies				
Salaries & Benefits	115,400	411,500	526,900	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	11,750		11,750	Vary with applications
Depreciation – Furniture		66,271	66,271	Fixed within range of +/- 20% of current levels
Leased PCs		77,141	77,141	Fixed within range of +/- 20% of current levels
Allocated Rent		61,250	61,250	Fixed within range of +/- 20% of current levels
All Other		471,938	471,938	Fixed, mostly system maintenance charges
Total	\$127,150	\$1,088,100	\$1,215,250	
Life Claims Systems: System and IT personnel that support life insurance claims				
Salaries & Benefits	115,400	372,500	487,900	Hourly, part time considered variable; others are within a range of +/- 20% of current levels
Supplies	33,250		33,250	Vary with applications
Depreciation – Furniture		88,815	88,815	Fixed within range of +/- 20% of current levels
Leased PCs		91,250	91,250	Fixed within range of +/- 20% of current levels
Allocated Rent		91,475	91,475	Fixed within range of +/- 20% of current levels
All Other		437,160	437,160	Fixed, mostly system maintenance charges
Total	\$148,650	\$1,081,200	\$1,229,850	

ADDITIONAL READING

Robert S. Kaplan and Steven R. Anderson, "Time-Driven Activity-Based Costing," *Harvard Business Review*, November 2004.

Mohan Nair, "Activity-Based Costing: Who's Using It and Why?" *Management Accounting Quarterly*, Spring 2000, pp. 29-33.

Anna Szycha, "Time-Driven Activity-Based Costing in Service Industries," *Social Sciences/Socialiniai Mokslai*, 2010, pp. 49-60.

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