Calculating the contribution of customers — A practical approach

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Roger Connell

is an independent consultant with over 11 years' experience specialising in the information needed by senior management to run their businesses. He has undertaken assignments in many parts of the world, drawing upon his experience in the IT and banking sectors.

Abstract Successful customer management requires the ability to provide the services customers want and the provision of those services at a cost the business can afford. The first requirement should be easily determined because it is, normally, a prime objective of market research programmes conducted by an organisation's marketing department. The ability to determine whether the business can afford the customer base it has or desires is, however, another issue and one that few organisations address successfully. Understanding the financial contribution of each customer is recognised as an essential component in determining business strategy but there are few, if any, guidelines or models to assist in the development of the necessary processes. This paper discusses a practical approach to the determination of customer contribution that has been successfully used in a number of organisations.

THE PROBLEM

The contribution a customer makes to the organisation's profit¹ is a composite value that requires the input of many items of data from across the organisation. It is often the organisation's realisation of the magnitude and diversity of the data required that creates the initial obstacle to the development of a process to determine customer contribution. This arises for a number of reasons but the principle ones are:

- financial accounts not structured to provide customer contributions
- product data relating mostly to customer activity rather than the processes performed by the organisation
- supplementary data on the organisation itself rarely kept, thus

preventing the allocation of some costs

- failure to understand the interrelationship of the data elements.

While each of these is important in developing a profitability measurement facility, the one aspect that is frequently overlooked is understanding why the facility is required. The requirement for such an understanding may seem obvious but in practice there can be many separate objectives that a facility has to address. It is, therefore, essential that a main objective is determined and agreed upon at the outset in order that the development of the profitability model can focus on it. (This is not to say that other requirements are not important. They clearly are and need to be considered in the overall structure of the

Roger Connell
ROC Consultancy,
76 Folders Lane, Burgess
Hill, West Sussex RH15
0DX, UK
Tel: +44 (0)1444 244539;
Fax: +44 (0)1444 230913;
e-mail:
roger.connell@lineone.net

facility,² but unless a main deliverable is identified the development could be side tracked.)

OBJECTIVES

An organisation must consider a number of possible objectives to determine the focus of the initial development of the profitability model. Part of this determination needs to be an appreciation of the processes involved in model development because this will determine the resources needed for its implementation. Accordingly, it is usual to start with one of the simpler requirements to prove the methodology and to provide the initial payback before proceeding to more complex routines. A list of objectives that can be considered follows.

Improving the existing customer base

As the acquisition of new customers is becoming more costly it is essential that maximum benefits are obtained from the organisation's existing customers. It is not appropriate, however, to manage all customers in the same way because some will be beneficial while others will be a burden. To understand the differences between them it is necessary to know the contribution each customer makes — to know the 'best' and the 'worst'. Until the extent of a customer's contribution or cost to the organisation is quantified no decision can be taken on how to deal with them. Should they be priced differently? Can the organisation dispense with their custom? What is the knock-on effect? How can the most profitable customers be identified and protected? Is there a retention cost that will negate the contribution?

The fact that customer contribution is not uniform can be seen when examining the profile across the customer

base, as the results from a UK bank show in Figure 1. Figure 1 illustrates the fact that the profit from only 15 per cent of the customers is the same as the profit from the whole of the customer base and that about 60 per cent are, in practice, negating the contribution from 25 per cent of the base.

Having the ability to evaluate all customers also makes it possible to identify the customers who need to be protected as well as those who need radical action to prevent them haemorrhaging the organisation's profits.

While improvement of the existing customer base is an obvious 'first choice' for any development it has to be recognised that it is invariably the last requirement that can be addressed because of the complexity of the processes involved. Knowing that it is an ultimate requirement will ensure, however, that it is uppermost in the mind at each stage of model development.

Improving the products provided

Products³ can involve a number of common processes. Additionally, similar processes can be undertaken in different parts of an organisation. An understanding of the processes and the products to which they relate is necessary to enable them to be separately costed. This may seem obvious but it is surprising how many organisations do not have a clear idea of all the processes and the products to which they relate. Indeed, in one bank processes varied from branch to branch because they had not been supplied with updated versions of the standard processes, the preparation of process costs could therefore have been compromised if only one branch had been examined.

Business process re-engineering is a well understood methodology so is not

Figure 1 Contribution profile

explored any further in this paper except to note that it may be a pre-requirement of the development of a profitability facility if the maximum benefits are to be obtained. Alternatively, the ability to cost individual processes will enable the consequences of change to be quantified before they are introduced.

As the contribution of a customer to profitability is the sum of the contributions from each of the products used, the determination of product contribution must precede determination of customer profitability.

Improving delivery channels

In organisations such as banks the branch networks are one of their major delivery channels. The operating cost of individual branches can, however, vary considerably. For example, a head office branch in a central city site will have an inherent 'status' cost which may not be supportable by its own customers but is necessary for the provision of products to customers from other branches. In contrast, a small rented branch in a growing suburb may have a disproportionate

number of customers. Which is the more profitable? On what basis is profitability to be measured?

This indicates that there may be a dual costing requirement as regards delivery channels. On the one hand there will be a need for a common delivery channel cost that ignores the costs of specific branches and, on the other, there will be the need to know the true cost of running individual branches. Delivery channels for products may include alternatives such as electronic and card systems. What are the comparative costs for the same activity through different delivery channels? Are the additional overheads covered by increased activity and revenue?

A Eastern European bank introduced a new centralised electronic service with a lower tariff to encourage the transfer of activity. While the costs of such a service could be justified on their own, the consequence was that the existing branch network still had the same costs but with fewer profitable activities. The net result was less income for an increased infrastructure and resource cost.

Figure 2 Comparison of acquisition programmes

Evaluating alternative strategies

Evaluation of alternative scenarios requires knowledge of the underlying activity data. For example, determining the amount of charges applied requires data such as the charges tariff and the number of each type of transaction charged. Consequently, only recording what was charged at a point in time would not enable alternative tariffs to be evaluated.

Because the underlying financial data used in an evaluation could be actual, budget or planned values there is no single value for the contribution from a customer, product or delivery channel. Care has to be taken, therefore, in any evaluation to ensure that the underlying data used are reported to enable subsequent comparisons to be undertaken on compatible bases.

The ability to evaluate alternative scenarios requires the collection of data

beyond that which may be held about customers and products. This again reinforces the need to be clear about the likely scope of the profitability measurement facility so that the data content and structure can be designed from the beginning for the complete facility, even if only a part of it may be implemented initially.

Holding the base data also enables comparisons to be made that would not otherwise be possible, eg evaluating a number of customers over time when their start dates are spread over a year or so. Knowledge of the base activities enables a set of financial values to be applied to all customers, irrespective of the values that applied in practice, to enable direct comparisons to be made. This is illustrated in Figure 2 where two acquisition programmes have been standardised to the same start date.

Programme A had previously been

given priority because of the lower average acquisition cost but when the results from the two programmes were evaluated over time it was readily apparent that the best return was from the more expensive acquisition programme. Accordingly, the marketing programme was re-directed according to the return on investment rather than on the up-front costs.

AGREEING THE OUTPUT

The multiple objectives for a profitability measurement facility mean that different parts of the organisation will receive and take action on the reports produced. It is important to recognise that many of the reported data will be determined from sensitive information. Accordingly, the ability to receive reports (either as hard copy or on a screen) has to be controlled to prevent unauthorised access.

In designing the reporting format the following should be observed:

- a common structure for the report will make comparisons easier
- the structure should represent managerial responsibility
- the time period and basis of the evaluation should be included on each report.

Report

A suitable structure for a report is shown in Figure 3. The report can have a consistent 'Contribution Component' format (vertical axis) with alternative 'Contribution Sources' such as product, customer group, branch etc. The analysis of a customer will be the sum of the contribution from each of the services the customer uses. While the full financial breakdown is not usually required for personal customers it may be for business and corporate

customers who have specific tariffs where the analysis of alternative tariffs is necessary. Accordingly, the contribution format can also be adopted as a uniform approach to the reporting of customer profitability with the option to limit the amount of detail.

For purposes of illustration the contribution components have been simplified because each organisation will have its own reporting needs that reflect its management structure and responsibilities. A significant aspect of the analysis and reporting is the need to accommodate internal revenue and cost transfers. The example used is that of a bank which shows the application of such transfers in the management of funds with 'Treasury' acting as an additional 'product' to accommodate the internal funds transfer. Other revenue and cost transfers would be evident from, say an analysis by 'Division' whereby, for example, the direct costs of central services such as information technology (IT) or human resources (HR) would be transferred to the branches and included as their 'Direct Overhead Costs'.

Managerial responsibility

The suggested structure for the 'Contribution Components' has the added benefit of being able to relate the contributions to management responsibility. For example, the 'Gross Contribution' is determined by the organisation's pricing policy. The 'Direct Resource Costs' relate to those items that are normally under the direct control of product managers. This can provide a ready means of identifying the relative operational costs of each product. The 'Direct Overhead Costs' give the costs that are not under the direct control of the product managers but which are provided from within the organisation in support of the service

As at year end 200X					
all values in millions					
Contribution component	Contribution source				
	Current accounts	Deposit accounts	Lending	Treasury	Total
Interest margin					
Revenue from funds investment	10,814	754	0	2,549	14,117
Interest paid / Cost of funds	9,880	679	0	11,568	22,127
Interest received / Revenue from funds	180	0	12,849	9,898	22,927
Cost of funds borrowed	150	0	9,748	466	10,364
Net interest margin	964	75	3,101	413	4,553
Financial revenue					
Account fees	5,578	195	1,331	0	7,104
Forex gains	0	0	0	275	275
Securities revenue (net)	0	0	0	57	57
Total financial revenue	5,578	195	1,331	332	7,436
Financial costs					
Account charges	2,094	12	100	0	2,206
Loan losses (net)	49	0	567	0	616
Total financial costs	2,143	12	667	0	2,822
Gross contribution	4,399	258	3,765	745	9,167
Direct costs					
Acquisition and marketing	384	39	453	0	876
Materials, post etc	59	12	14	1	86
External fees and charges	159	1	2	34	196
Total direct costs	602	52	469	35	1,158
Operational contribution	3,797	206	3,296	710	8,009
Direct resource costs					
Employee costs	1,386	238	768	20	2,412
Processing costs	464	11	127	23	625
Services and facilities	435	19	119	12	585
Total direct resource costs	2,285	268	1,014	55	3,622
Direct contribution	1,512	-62	2,282	655	4,387
Direct overhead costs					
HR resources	45	13	12	3	73
IT	98	4	56	5	163
Reserves, changes (net)	23	0	175	0	198
Total direct overhead costs	166	17	243	8	434
Allocated contribution	1,346	-79	2,039	647	3,953
Central overhead costs					
Finance and HO costs	22	4	6	1	33
Depreciation	435	19	119	0	573
Total central overhead costs	457	23	125	1	606
Product contribution	889	-102	1,914	646	3,347

Figure 3 Contribution summary

operations. Comparing these costs will give a clear indication of any support facilities that are disproportionately expensive or which ones are subsidising others. The 'Central Overhead Costs' are the responsibility of the general management functions and they have to be covered by the sum of the product contributions in a full absorption analysis. Accordingly, it is the responsibility of

general management to control these costs in the same way that line managers have to control their operating costs.

DEFINING THE MODEL

Model structure

The ability to integrate the disparate data is a central objective of the model

Figure 4 Model structure

design. An overview of the recommended structure of the profitability model is shown in Figure 4.

Financial accounts

The financial accounts are invariably structured to provide statutory and regulatory information. This means that they are not normally suited to the determination of the contribution from customers and products. They do sometimes, however, reflect the

organisation's structure, such as by branch, division, etc.

It is not always possible to extract, retrospectively, from the financial accounts the revenue and cost values for each month as they are normally aggregated for the year. A parallel set of accounts, structured along the lines of the chart of accounts, will be required to accommodate the financial account data on a month-by-month basis. Such a parallel set of accounts may be more complex than the financial accounts

because it will take on the structure that will eventually be required to service the model.

Financial accounts transformation

This process will reorganise the financial accounts into the contribution headings as used in the reporting structure. This will provide the first opportunity to review the revenue and costs components and to determine whether the subdivisions are reasonable in terms of the information reported. For example, if a significant amount of the costs are within one category it will be worth investigating that category to determine if it can be further subdivided to provide more worthwhile information.

In addition to the revised presentation of the financial values the minimum analysis dimensions are likely to be delivery channel, organisation divisions and products together with time. These components define, therefore, the minimum structure for the transformed financial accounts as discussed later in this paper.

Product data

Product data will include all the activity data relating to products. Such data are normally available from the processing systems but they may not be retained on a month-by-month basis or in their component parts as previously noted for the evaluation of alternative charges tariffs.

The requirement to be able to model the operational services from the base data is often not readily available. Consequently, effort needs to go into carefully designing the extraction and retention of the base data as they could form, in many situations, a larger database than the operational source. For this reason representative samples may be required. (This was the case with a bank with several million customers and a

large range of products. The volume of data to be processed would have been unmanageable but a sample of around 100,000 provided sufficient accuracy for strategic applications. The examination of specific products or customer segments required other samples that were, again, representative of the segment being examined).

Product data transformation

If the product data are cumulative the transformation process will need to convert and hold the data in the same time periods as used for the financial data. Similarly if product data are only available at, say, the organisational level the transformation process may have to allocate the data to branches until the actual values are available.

One of the applications of contribution analysis will be the evaluation of alternative future scenarios. The transformation process may have to include a business model to provide volume projections if they are not otherwise available.

Some services provided by the organisation, such as automated teller machines, may relate to more than one product. If this is the case then the data relating to these services may need to be allocated to the products on an agreed basis until actual usage values are available.

Ancillary data

Ancillary data include all other data that will be used in the allocation and evaluation routines. Some of the more usual items of additional data are noted in the following paragraph on revenue/cost allocation.

Revenue/cost allocation

This is the heart of the processing because it brings together the financial and product data to generate the

contribution components by product. As many of the values will not be readily available from the financial accounts they will need to be allocated on the best available basis. Examples of the methods that can be used are given for each of the main contribution components.

Financial: These should be directly available from the financial accounts or product systems. For example, if the financial accounts do not itemise product income by product an invoicing system may be able to provide the revenue flows and discount data for each of the products. Alternatively, where the revenue data are not available it may be possible to generate a best estimate from the product data and the product tariff. All financial data obtained or generated from systems other than the financial accounts should be validated against the financial account values to ensure best accuracy.

Direct costs: vary in direct ratio to activity levels. For example, the cost of issuing statements (eg stationery and post) will be dependent upon activity levels and/or numbers of accounts. Similarly, the cost of bank cards issued will vary according to the number of new accounts and the re-issue policy for existing accounts. In all cases there should be the possibility of directly relating costs in the financial accounts with the corresponding products.

Direct resource costs: such as branch staff salaries, need to be allocated across the products. If there is no resource usage available the number of process activities on products can be used as a first approximation. This can be refined at a later stage with weighted activity values dependent upon the work involved. Other direct resource costs such as processing costs can be on the basis of an agreed transfer price of, say, \$x for every 1,000 activities on accounts. In this

situation IT would have an income stream dependent upon the activity level and the products would have a corresponding cost.

Direct overhead costs: relate to all other organisational costs that directly support the products or delivery channels. Their allocation will be in two stages. The first will be to the direct resource cost centres (eg branches) and then to the products. The first stage will be on the basis of the underlying costs, for example personnel costs can be allocated on a *pro rata* basis to head counts while infrastructure costs could be on, say, floor area. The second stage will be an allocation on the identical basis as the direct resource costs used above. Although these costs could be added onto the direct resource costs it is preferable to keep them separate to identify the proportion of the total costs that are incurred by these parts of the organisation.

Central overhead costs: will cover all remaining organisational costs. They will be allocated in two phases as for direct overhead costs.

Activity unit values

This part of the process generates the costs of the individual activities that are used in providing products for customers, for example, the cost of acquiring an individual customer, issuing a statement, posting a payment. From these unit values and the product activity volumes for a customer the customer's product contribution and total contribution can be determined.

Customer data

Customer data will be in two main parts. The first is information about the customer that is used for characteristic analyses such as address, marital status, employment, date of birth etc. The second part is a record of the products that the customer uses together with the

Figure 5 Customer characteristics by contribution

activity data for each of these products. The combination of these data will enable a contribution profile of the customer base to be prepared and the socioeconomic characteristics of segments to be analysed to generate characteristic profiles that reflect the organisation's customer base.

An example of such an analysis is given in Figure 5. The customer base is divided into five groups by contribution value. With this knowledge the characteristics of the customers that comprise each group is analysed to determine the characteristics that differentiate the different groups. Such information provides important information for customer acquisition and management.

Delivery channel data

Delivery channel data provide information about the different ways in which products are provided. It may also include a record of individual customers if they relate to a specific delivery channel.

Data dimensions

Although the model represents the basic structure it has to be remembered that the model is multidimensional and has to accommodate data that represent:

- products
- customers
- delivery channel
- organisational structure
- time
- financial characteristic.

The first three dimensions are obvious characteristics for the data. The last three dimensions need to be understood so that they can also be included in the data structure.

Organisational structure

It is necessary to be able to analyse the organisation by its management structure of which the delivery channel is one part. This is particularly relevant when all parts of the organisation are 'profit centres' with each part 'selling' and/or 'buying' services from other parts of the

organisation. For example, HR selling training courses to the branch network. The transfer of costs/revenue such as this can be either through the financial accounts if they are structured to allow such internal charges, or as part of the profitability routine.

Time dimension

Each evaluation will generate a calculated contribution at a point in time but the greater benefits of a profitability model are obtained from monitoring values over time. (In the way that sequential weather maps are used to determine weather trends that can then be used in forecasting). For this to be effective all data need to be recorded on a regular basis, say, monthly. A series of data will thus provide the ability to evaluate periods and compare periods. For forecasting and the evaluation of alternative scenarios the data structure must be capable of holding both estimated and actual data and identifying them as such when they coexist for monitoring purposes.

Financial characteristic

Financial data from the financial accounts will form the main data source for actual revenue and costs. The evaluation of budgets, forecasts and alternative scenarios, however, will require estimated financial data. Each version of the financial data must be identified and reported on any output to ensure that the correct one is used in evaluations.

MODEL DEVELOPMENT

As will be appreciated from the range of data and the number of processes the development will be complex and this can cause, as mentioned previously, an obstacle to the development. To overcome this obstacle the development

plan needs to progress in stages as follows:

- agreement on an output format
- making a simple start to prove the concepts and to highlight any problem areas
- creation of an initial model that generates an early payback
- evolution of the facility as resources and data come available.

Output format

An example of one format that has been successfully used is given in Figure 3. If this is used as a template in the initial development the components can be validated before too many resources have been used because making changes later can affect both data captured and how they are stored. The important point is that no one financial entry should dominate the others such that control is difficult to exercise.

The first model

The first model can be based on spreadsheets with the processing stages being interconnected. This has the advantage that the processing can be easily changed to compare alternative methods of presentation and allocation. In addition, the absence of data will be readily identified such that they can be estimated or obtained and entered directly into the model as and when they become available.

Because of the complexity of the processes it is preferable to make the first model relate to full accounting years so that there are direct comparisons with the organisation's overall profit and loss account. An early evolution of the first model can be, therefore, a change to the reporting periods to, say, quarterly. (A change to monthly is possible but the

number of models will increase significantly. While this is not a problem in itself it will become increasingly difficult to keep the models in step if changes to the processes or allocation methods are required).

Balancing the disadvantage of multiple models is the advantage that the first model will define the structure and contents of the end reports and the source data that can be used as templates for future developments. It will also clearly demonstrate the capabilities of the model and introduce the concept of management of products and delivery channels according to their contribution.

Model evolution

The first evolution will be to use a simple desk-top relational database system to undertake the processing. Central to this evolution will be the use of a single processing routine that is driven by parameters held within the database. For example, the transformation of the financial accounts can be through a table that relates the input financial account number to the contribution component. Such a relationship can be a simple one-for-one or a more complex one that enables a single financial account value to be allocated over more than one contribution component — for example, the spreading of a cost across a number of branches on the basis of the head count. This form of processing allows for easy changes to the processes that are then applicable to all subsequent evaluations. Indeed, it is also possible to have alternative sets of relationships that enable alternative cost allocation on different bases.

Although the processing will be more involved, the steps noted in Figure 4 are still applicable. Instead of having several models, as for the spreadsheet version, there will, however, be only one model that will generate results as and when

required from the base data. This means that only the end results need to be retained, not all the intermediate data processes. A fundamental requirement for such reporting will be that the basis of the evaluation is included on the report so that when comparisons are made between reports generated at different times any variation due to the underlying data is recorded.

Final model

The final model will be integrated into the financial and product processes such that the data are automatically extracted and stored ready for use by all authorised persons in the organisation. This requires a support structure that prepares and validates the processing parameters. Such a support resource should be responsible for developing the model as and when additional data become available and when the methodology of allocation is refined. It will also have the responsibility of validating the model to ensure that it still replicates the organisation's revenue and cost structure.

Proving the model

Each version of the model must be able to prove that the calculated contributions continue to reflect the organisation's total profit. This can be easily undertaken by including at each stage of the model a balancing figure that can be compared with the input net profit from the financial accounts.

Customer evaluation

Each version of the model can generate unit costs for the product processes. The only difference will be the accuracy and speed of their generation.

The final application will be, therefore, the ability to use the unit values to

determine the contribution of a single product and from that to determine the contribution of individual customers. Running such an evaluation will determine the 'best' and the 'worst' contributors. Combining the value of a customer with their socioeconomic profiles will provide great insight into the customer base and result in, say, recruitment campaigns aimed at selected customer segments.

It is necessary to be aware that the recording of an actual contribution value on a customer's record may, in many countries, be subject to disclosure under data privacy regulations. Accordingly, specific customer contribution data will need to be determined only as and when they are required to prevent them being subject to disclosure — this imposes many constraints on the processing and its application.

Management responsibility

The introduction of management by contribution will be a significant change to how responsibility will be assessed. It is important, therefore, that the profitability measurement facility is sponsored and supervised by a senior manager in the organisation to ensure its proper integration into the organisation's culture. It will also be apparent that over the lifetime of the model development a significant amount of resources can be

expended. Consequently, the correct framework for the development must be laid down at the outset.

CONCLUSIONS

Determining customer, product and delivery channel contributions may seem daunting at the start. Breaking the components down into manageable parts and being prepared to evolve a solution rather than trying to understand and developing everything from the start will, however, result in a practical working solution. It will also provide the organisation with an advantage over competitors who cannot measure the worth of their customers.

References

- 1 The term 'profit' in this paper is used to refer to the net income for an accounting unit such as the organisation or a branch while the term 'contribution' is used to refer to the net income of a component of an accounting unit such as a product or customer.
- 2 Each industry or service provider will have its own specific needs and data sources. To be able to describe a working methodology the development described in this paper relates, when necessary, to a retail banking environment because the terms and explanations used should be familiar to most readers. Accordingly, organisations wishing to adopt the methodology may need to refine it to suit their own circumstances.
- 3 For convenience the term 'product' is used to describe what the organisation provides to its customer base. It is, therefore, interchangeable with 'service' for service-orientated organisations.