

IMPLEMENTING THE KNOWLEDGE SUPPORT SYSTEMS TAPS IN A RETAIL BANK: A CASE STUDY

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Abstract

In this paper we describe how Midland Bank which is one of the big four U.K. Clearing Banks adopted the knowledge support system TAPS (targetted allocation of promotional spend) as a group decision support aid for helping with the sizing, allocation and targetting of its promotional spend across its full range of products and media types. Given the large size of this spend and the essentially judgemental basis on which decisions were made in this area, TAPS provided a very useful structured framework for this important area of the Bank's decision making. The paper outlines the TAPS approach and describes how initial scepticism of key managers was gradually overcome such that TAPS is now an integral part of the planning process of the Bank and provides significant input for the spend decisions. We also highlight the critical factors in this technology transfer process which enabled success to be achieved.

Introduction

More than 50 years ago Lord Leverhulme is reputed to have said: *"Half the spend on advertising has no effect, but which half?"* Today, as expenditure on both above and below the line of promotional activities continually increases, so there is a real need to disentangle the effective from the less effective.

World-wide above the line expenditure is estimated at more than £200 billion per annum. Banks spend around 10% of profits and pharmaceutical companies more than 20%, of their revenue on marketing campaigns. The FMCG sector is another huge spender. But is all this spending generating the desired increase in profits? The true answer is that no-one really knows and that is why in recent years a great deal of time has been devoted to researching ways of measuring advertising effectiveness.

Most research has concentrated on evaluating the impact levels of different media exposure. There has been little insight into the more complex problem of how to decide the overall size of a marketing budget and how it should be allocated between products. Given the large amounts of money spent on advertising, a number of "methods" for sizing and allocation of the promotional budget have been identified [1]. These are:

1. The "affordable" method

As the name implies, the company decides the total or brand budget size based on managerial perception of what can be afforded.

2. The "percentage of sales" method.

In this case, one fixes a percentage of some indicator e.g. sales or profits and this provides the budget size.

3. The "competitive parity" method.

This assumes that although one's own company may not be that clever at this job, the competitors are undoubtedly smarter so that if one could follow them, one will do well.

4. The objective and task method.

This method is much favoured by the advertising agencies and it essentially requires one to spend as much as is necessary to achieve the objectives. We note that in this method, there is no limit on total budget size!

5. Model Based Approaches [2]

These have been used so far only to look at a single campaign media selection and scheduling and concentrate only on short term effects.

Given the limitations of all the above 5 approaches, Singh and Bennavai [3] have developed a new decision technology approach to address this problem in a unique way. This approach brings together ideas from a number of disciplines - systems engineering, computer science, cognitive science, marketing and mathematics - to produce a practical computer based aid to budget allocation. The development of TAPS as a practical tool has been heavily influenced by Peter Stevens, Head of Research and Analysis at Midland Bank, and by Peter Simpson, Head of Brand Management who have used the approach in budget planning as described in the present paper.

The Traditional Way

Before each budgetary cycle many multi-product firms draw up a tentative total marketing budget that is often based on a "back of an envelope" calculation. This then has to be distributed between products and allocated across media types. Whoever fills in the figures works under the implied assumption that overall sales can be achieved within the spend.

This in turn may lead to bargaining with individual brand managers, during which the views of in-house experts and external advisers on their perception of market trends will be sought to support their cases. At the same time, the results of tracking surveys may

be used to incorporate the company image dimension into the equation. The result of all this is that the complicated process of converting the tentative budget to a final budget is largely judgementally based.

The TAPS Approach

Using a combination of the disciplines mentioned earlier, TAPS assists managers in their decision making by enabling them to look at the total budget allocation process - from refinement of the tentative budget, to full campaign planning, backed by a thorough knowledge support system.

TAPS follows a three stage process (see Fig. 1). In stage 1 the judgements of a group of managers in response to a series of "what if" expenditure scenarios generated by TAPS are captured. Each scenario seeks individual views of the impact on sales and/or image of different expenditure levels. The scenarios are based on a long term strategic framework determined by the fixing of minimum/maximum spends for each media type. The responses are then drawn together to establish a consensus view and then combined with any available historical and market research information, to make up the initial knowledge base.

In stage 2, the expert knowledge base is used with mathematical optimisation routines within TAPS to build up individual campaign models, and indeed a model of the total budget allocation across all campaigns. These can be used to yield optimal spend decisions to maximise sales, or image, and to explore the trade off between the two.

Stage 3 is one of exploration which can provide answers to questions such as: How can sales be increased from the same budget? How, if the budget is increased or decreased, will it be allocated across different products and media types, to maximum effect? How are trade offs made between sales and image?

TAPS in Practice

Although TAPS involves complex mathematical optimisations, it can be used by non-computer experts. The process starts by modelling the allocation of expenditure for a particular market segment, in terms of short or long term earnings, and image. The first result is a set of recommendations as to the inclusion or exclusion of particular media types for a given campaign, i.e. should TV or press be included, and the allocation of spend across media type.

The individual product models can then be used to construct elasticity curves defining the relative importance of increasing spend on one product in relation to another. These elasticities are crucially important since they provide the key to tackling the higher level problem of allocating the total budget across all campaigns.

Fig. 2 shows how the individual product models build up to the model of total promotional budget. TAPS can then be used to examine expenditure decisions at any level - total budget allocation by product or product allocation by media type.

Finally Fig. 3 shows the types of output produced by TAPS. The relationship between total expenditure and sales and/or image is given, and the breakdown by media type. This type of information can be used to assess for example the media expenditure mix across all products that will maintain short term earnings and image at an acceptable level, whilst maximising long term earnings.

In the rest of this paper, we describe how the approach was introduced at Midland Bank and is now an integral part of their decision making in this important area.

We begin in section 2 by describing the marketing and promotional budget allocation problems as perceived by the Bank. In section 3, we describe how TAPS was gradually introduced into the bank and the critical factors which led to its long term acceptance. Section 4 highlights how TAPS is used and its perceived benefit to the Bank. Section 5 provides some concluding remarks.

Midland Bank's Promotional Spend Allocation

As a leading U.K Clearing Bank with over 2000 branches, Midland spends a substantial amount of money every year to promote its different brands and products which are aimed at different market segments. The Bank's key brands include Vector Meridian and Orchard aimed at personal sector consumers with differing life style characteristics. Distinct products also exist aimed at small businesses, savers with differing levels of funds available to invest over different maturity periods, borrowers who wish to take out house loans, car loans or other personal loans, students etc. Inherent in the marketing of the Bank's brands and products is the desire to build up long term brand equity and enhance the image of the Bank whilst ensuring that short term as well as long term sales and profitability targets are met.

Given the size of the marketing and advertising operation, the Bank employs a large marketing staff comprising Brand Managers and their Assistants for managing each of the brands plus a Research and Analysis Department which helps to sharpen the focus and quality of marketing decision making.

The discretionary part of the Marketing Budget is the Advertising Budget. The latter is used to promote the Bank's Brands and Products through TV advertising, radio and press advertising as well as advertising through the so called below the line media channels i.e direct mail, statement inserts, staff training, data bases etc. Prior to the use of TAPS at Midland, the marketing budget allocation sizing and targeting decisions were constructed "bottom-up" with the head of the Brands and Products arbitrating between the brand promotional needs perceived by particular brand managers and the Head's perception of the overall interests of the Bank. This was done within an overall budget constraint which the head of Brands agreed with the marketing director who agreed the same with the Board of directors.

Given the intuitive nature of this decision making process, it appeared to the Bank that knowledge based approaches might be appropriate in providing help in this area of decision making. However, it was recognised that

- This decision area is surrounded by many vested interests:
 - Product managers with their own objectives.
 - Advertising managers with their objectives which are not necessarily the same as product managers.
 - Advertising agencies with their own views of how to allocate expenditure.
- In this environment it is extremely difficult to introduce models which try to set common objectives and integrate the decision processes across these groups.

Next we describe how TAPS was introduced at Midland Bank.

Introduction of TAPS at Midland Bank

Given the difficulties of implementing a new approach in this group decision making environment it was decided to implement the TAPS methodology on a phased and progressive basis. This involved:

- Initially, a 'back room' study remote from real decision making but used to test out the methodology. TAPS was thus applied to a single product (the lower level in Fig 1).
- The next stage was to apply the methodology in the planning on a single product campaign. At this stage we were getting closer to the decision making process.
- The final stage was to use TAPS to build the entire promotional plan. Again TAPS was used initially in parallel with the true decision making process but subsequently (for the next year) as part of the planning process. This stage represented full implementation.

The whole process involved winning the acceptance of the users. Indeed, the problems experienced in this process are easy to define, but must be explicitly handled. These include:

- Sceptism of the expert "brand managers".
- Difficulty in making absolute judgements.
- Need to convince experts that relative judgements are the key.
- Highlight the critical importance of sensitivity analysis, i.e. varying the constraint structures and the elasticities to explore the response space.

From our experience in introducing TAPS at Midland Bank, we feel that the critical success factors included:

- Having an in house champion.
- Having small pilot studies and building up progressively to the total problem.
- Ensuring the problem being tackled was relevant and centred on real decisions, i.e. not tackling a peripheral issue.
- Flexibility, i.e. being able to adapt the definition of the problem to the real life circumstance at the moment.
- Timings - results must be available at the time decisions are being made. This often leads to short deadlines and there is the need for clear project planning in advance.

Next we describe the practical use of TAPS at Midland Bank and its perceived benefits.

Implementation Results

Results from the TAPS studies were initially put alongside decisions made by the experts but over time the TAPS result became an integral part of the decision making process.

- Result challenged traditional thinking, prompted people to step outside of their usual way of doing things.
- The ability of TAPS to produce fast results was crucial to the implementation process. Often new issues arose which required modelling support to be extremely rapid in response and flexible. (It is this area where traditional techniques fall down).
- The importance of the relative judgements in determining the ultimate solution as opposed to absolute measures was confirmed.
- Sensitivity analysis of the final solution to the:

- starting point and
- the constraint structures.

was explored. The results were found to be largely insensitive which confirmed our confidence in the TAPS approach.

TAPS in Use

TAPS is now an integral part of the planning process and provides significant inputs to expenditure decisions in the Marketing Department at Midland Bank.

Conclusions

Knowledge Support Technology is a key way of moving organisations from having an information to a Decision Focus. There are very few reported examples of successful real life implementations of Knowledge Support Systems in a conflictual group decision environment. TAPS at Midland Bank has described above of one of those few. Given the proprietary nature of TAPS on one hand and the need of the Bank to keep its own processes and procedures confidential on the other, no specific results have been shown here. Suffice it to say that the Bank perceives TAPS to have been a significant success.

References

1. Broadbent S "The Advertising Budget: The advertisers guide to budget determination" McGraw Hill, 1989.
2. Lillian and Kotler "Marketing Decision Models" Harper and Row, 1983.
3. Singh M and Bennavall J "TAPS: A KSS for marketing budget allocation, sizing and targeting in retail Banking and other industries" Proc IEEE SMC Conference, Boston, 1989.

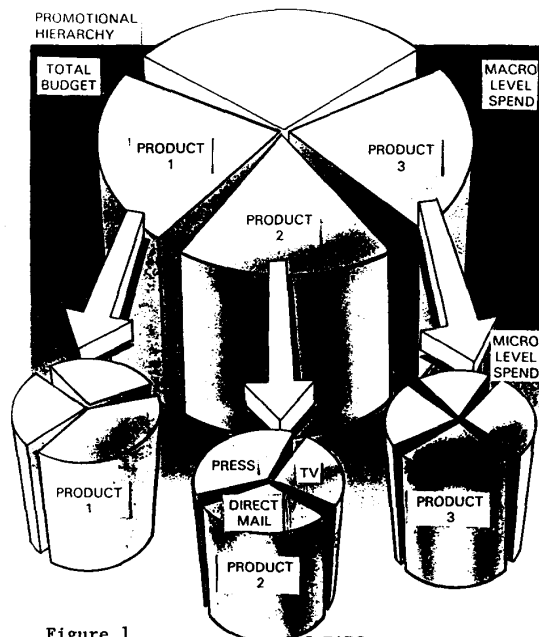


Figure 1 Three Stages of TAPS

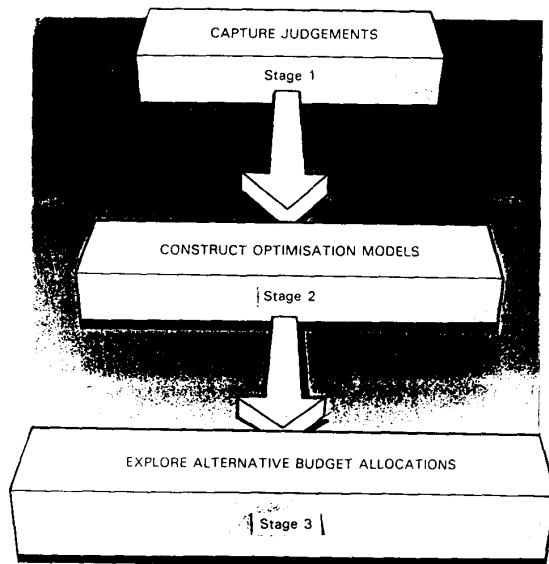


Figure 2 Promotional Hierarchy

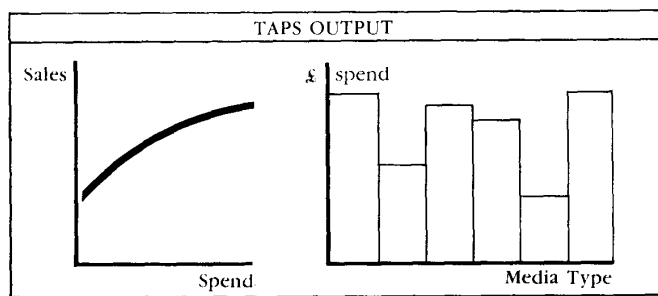


Figure 3 TAPS Output