Real-time database analysis: Customer knowledge as a value-determining factor in e-commerce

Received: 13th July, 2000

Drs Natasha E. Walk and Edwin Kooge

are both consultants of the database marketing group VODW, a marketing consultancy in market strategy, CRM and e-business and business execution. VODW has extensive experience with the introduction and development of database-driven marketing for, among others, banks, insurance companies, publishers, telecom operators and companies in the leisure industry.

Kooge and Walk specialise in database analysis and are experienced in the transformation of internal and external data sources of organisations into useful marketing information and customer knowledge. Together they are responsible for the 'customer intelligence' competence centre at VODW.

Abstract Web and e-mail are producing massive amounts of data, but only a few organisations are able to recognise their customers within these mountains of bits and bytes. Even fewer companies are really using the knowledge they can collect from in- and outbound e-mail and log files from the web. The reasons for this lie not only in the quantity of incoming data, but also in the fact that web and e-mail are often not yet integrated with other media and operational systems of the organisation. The unprecedented opportunities offered by web and e-mail in real-time interaction with customers are thus not used although, for many Internet players, actionable customer knowledge is their only value determining factor. Real-time database analysis can help in this.

INTRODUCTION

As the Internet comes of age as a medium and massive amounts of data become available, a new necessity is beginning to emerge. It is becoming increasingly important to be able to find the customer among the mountains of bits and bytes. Which is why such terms as 'webmining', 'click-stream analysis' and 'webanalytics' have been coined. The appropriate methods and techniques do not always prove to be applicable in this field, often this is simply due to a lack of sufficient time for the thorough analysis of data. The lack of knowledge and experience in working with other types of data in order to be able to make the, potential, customer a well-timed,

targeted and desirable offer also plays a role. Real-time marketing via the Internet and direct e-mail therefore also requires real-time database analysis as it were, or in other words directly deployable and result-oriented customer knowledge.

In this paper, we investigate what the significance of data analysis is or should be for e-commerce. We will therefore be dealing with the analysis of customer behaviour as a result of site-visiting and direct e-mail.

THEN AND NOW

In the early years of direct marketing (with the advent of direct mail) data

Dr Natasha Walk
VODW, Dodeweg 6, 3832
RC Leusden, The
Netherlands.

Tel: +31 33 432 6432; Fax:
+31 33 432 6433; e-mail:
info@vodw.com

analysis in the 'classic' situation was often a process which took a few weeks or even months: starting with a thorough target group analysis, in order to make a selection from the target group, followed by a period of several weeks waiting for the response before making a response analysis. Based on this, follow-up activities could then be managed more specifically. Gradually, the domain of data analysis has expanded further in the direction of the acquisition and retention of customer knowledge that can be used on a one-to-one basis in customer contact.

This has given the outcome of data analyses a far more structured nature and answers such questions as:

- who are my customers
- what kind of profile do my customers have
- which are good customers and which not so good
- what is the lifetime value of my customers
- how do I acquire qualitatively good customers
- how do I retain my customers
- what requirements/wishes do my customers have?

Organisations that concern themselves with the above questions are all aware not only that the customer file determines the value of their organisation to a great extent, but also that there can be a great deal of variation in the level of the added value of individual customers. This value can only be made clear by building up knowledge of individual customers on the basis of their behaviour, transactions and characteristics. Only a very few organisations currently do so, however. Any charity fundraiser knows, for example, that it is only a small minority of donors that provide the majority of the income, but only a few

are able to show the proceeds from each individual donor. An even smaller number can name those top donors.

The deployment of various media (parallel or consecutively) in building up a relationship with customers and non-customers, has subsequently made it possible to send out, design to order and, above all, register all manner of outgoing customer contact. Here, the customer knowledge obtained from data forms the guiding factor and the contact also provides even more data.

With media such as the Internet and e-mail, the situation is somewhat different. This is the case not only for organisations that use a multimedia approach with their customers, but even more so for organisations that use exclusively these media for collecting and activating customer knowledge. This is primarily due to the fact that the initiative to make contact no longer lies solely with the organisation. This makes managing, influencing and tailoring customer contact considerably more difficult.

BUILDING UP AND DEPLOYING CUSTOMER KNOWLEDGE VIA THE INTERNET

A company may currently be building up knowledge through the registration of hits and transactions and the analysis of click-streams, but this is generally generic knowledge on the effectiveness of campaigns, banners, routing and the structure and design of websites. Little or no use is being made of data obtained via the Internet to distinguish customers from non-customers, build up profiles or segment customers, let alone amass and deploy individual customer knowledge.

Reasons for not using customer knowledge lie, for example, in the enormous quantities of incoming data (there are quite a few organisations that

Figure 1: Real-time database analysis: Current situation

are only able to retain log-files for a few days, but here absolutely everything is retained, including pictures, banners etc.). They lie also in the fact that many organisations have not yet integrated the Internet with other available media applications and are not able to recognise customers.

The first step in enabling the deployment of customer knowledge during site visits is identification. Just as the response to an old-fashioned mailing is divided into response from mailed customers and spontaneous response, customers need to be distinguished from non-customers as quickly as possible. This can be achieved through logging in with a username/password, placing cookies or recognising the IP address.

This first step is essential, because, if the distinction between existing customers and non-customers can be made, then all available historical information and knowledge can subsequently be retrieved, including that knowledge concerning customers that has been obtained via other media or from

external data sources. It would be useful, for example, if an on-line supermarket recognised the customer and, based on earlier orders/shopping lists, made suggestions (in the right quantities) for the shopping list and reminded them of articles that might have run out by that time or articles that are frequently purchased, which are on special offer. The fact that behaviour can be related to relations is extremely important. After all, it is a recognised fact that historical behaviour is the best predictor of current and future behaviour.

Dividing the customers from the non-customers can also provide insight into the click behaviour of non-customers.

In addition to behaviour (visiting data, page views and the search path through the site), the Internet also offers the opportunity to collect data on preferences, sociodemography (age, gender, etc.) and, above all, on transactions. Recording, combining and analysing, but primarily making use of this information, makes it possible to

Figure 2: Real-time database analysis: Desired situation

Figure 3: Webmining: Desired situation

segment and profile customers and to define the value of each customer in each segment and by profile. Based on this segmentation and these profiles, customers are stimulated and encouraged to carry out (further) transactions not

only on future visits, but chiefly during the current visit. This stimulation comes in the form of a desirable and specific offer during the visit. The crucial factor in the above process is recognising the customer during the online identification

Figure 4: Webmining: Desired situation

process and subsequently defining and prompting his or her current behaviour on the basis of pre-defined business rules.

Using customer knowledge obtained through off-line analysis, a marketer can then immediately make a targeted, well-timed and desirable offer.

Example 1: if customer x from the 'loyal and active customers' segment of the on-line supermarket visits the site and the previous visit is more than five days before, then make this customer an attractive offer on product y, which this customer buys regularly.

Example 2 (on-line supermarket): send a reminder e-mail at 13.00 hours to all those customers who order daily but have not yet ordered today.

Such a process can also be followed with non-customers, although no historical profile has yet been recorded for these visitors and the marketer has not yet established the segment or customer group to which they belong. Based on real-time analysis of the current behaviour (by comparing it with the current behaviour of customers) patterns can, however, be recognised as belonging

to a specific profile and segment.

Capitalising immediately and specifically on this information (collaborative filtering) can considerably improve the chance of acquiring a new customer.

All the aforementioned activities that take place online then need to be recorded offline and analysed, in order to be able to influence online future and current behaviour even more specifically. Here, it is essential to define beforehand what should be recorded and what not, as, without filtering the incoming data, an organisation will get bogged down with the amount of data.

BUILDING UP AND DEPLOYING CUSTOMER KNOWLEDGE VIA E-MAIL

In addition to the website, e-mail also offers a unique opportunity to communicate directly with customers and non-customers. The analysis of direct e-mailings can also provide very useful input in the process of building up customer knowledge. This is particularly because this medium possesses a number

of unique characteristics for building up a relationship with a customer:

- costs: the costs per contact are low, certainly in comparison to sending printed matter and/or dealing with contacts in a call centre
- speed: direct e-mail adds a new dimension to the word 'direct' in direct mail. Not only because of the short delivery time to the mailbox, but also because of the possibility of responding quickly to developments in the market. This is emphasised by the low degree of dependence on external parties (print agency, fulfilment, postal service, etc.)
- testing: the testing and analysis of offers, target groups and promotions is essential in DM campaigns. It is often, however, neglected due to cost and lack of time. Direct e-mail overcomes these drawbacks
- anytime, any place: an e-mail can be sent and responded to at any time of the day or night and from anywhere in the world
- volume: 'classic' direct mail is often only interesting (considering the cost), when the volume is high enough. On the other hand, however, a mailing cannot be too large, because of the costs. This drawback does not apply to direct e-mail, so a mailing can be sent at any time in any amount the marketer wishes.

One comment should be made on the above, and that is that the advantages named can also have enormous negative consequences when used wrongly. Careful and moderate use of direct e-mail is therefore the motto. The risks from wrong use apply to direct e-mail to a far greater extent than to the webmining described above. The big difference is that with direct e-mail the initiative lies with the organisation but,

with visiting a website, it lies with the customer. The customer receives a tailor-made offer almost without noticing.

Just as with the analysis of data obtained via the website, it also applies to e-mail. The marketer needs to be able to establish (as quickly as possible) whether they are dealing with an existing customer or not, in the case of both incoming and outgoing e-mail, so that all available information can be immediately linked to the e-mail address and used. Registration (who received which offer when and who has responded and when and to what) and analysis (which segments and profiles can be distinguished, what is the response and conversion per segment and what type of segments score the best) can then take place offline. Profiles can then be built up and deployed, thus increasing the effectiveness of future customer contact.

CONCLUSION

The availability of the Internet and e-mail is opening up unprecedented new opportunities for the database marketer. It is no longer a question of, 'How can I obtain information on my customers and non-customers?', but more a question of, 'What should I record and what not?' and 'How can I distil customer knowledge from the mass of available data that will make the value of my customer file transparent?'. For many Internet players, the latter question, in particular, will be a crucial one, in order to be able to justify their stockmarket value. To be able to benefit from the opportunities offered by the Internet in amassing and retaining customer knowledge, it will be necessary to scrutinise not only the entire infrastructure, but also the current data analysis process and ensure that the online and offline activities are organised and

geared to each other. Additionally, knowledge concerning data analysis and the Internet will have to be mobilised and integrated with data analysis activities concerning other media, to be able to build up and deploy a total customer profile.

The consequences of the deployment of real-time database analysis for designing and using the website should also not be underestimated. The website must be flexible in the use and presentation of the available customer knowledge.