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## **MARKETING AUDIT AND POSSIBILITIES OF FORECASTING**

The paper addresses selected qualitative and quantitative forecasting methods available for use in practical marketing for development of marketing strategies based on outcomes of marketing audit. Marketing and its application is an essential activity in any business. The task of marketing business audit is to point out and evaluate whether its marketing activities allow its future prosperity on the required level and competitiveness. This, however, is closely related to marketing forecasting. The contribution is characterized by the types of marketing forecasting (quantitative and qualitative) and a brief description of some used methods. Quantitative methods are based on the data obtained from the records of the relevant activities, which are then mathematically processed. These include particularly the method of moving averages, exponential smoothing method, the method of regression analysis, the method of classical decomposition and seasonal adjustment. Contrary to quantitative methods, qualitative methods are based on expert estimates and specialists in the field. The main reason for the use of these methods is that there are reliable and describe quality data of the investigated problem, on the other hand, these methods allow comprehensive solution to the problem. One of the fundamental methods of this group is Delphi method, query, the scenario method and the conjunctive method. The article is simultaneously remitted to the advantages and disadvantages, which indicate the possibility of their use. It is generally known that the accuracy of the forecasting depends on various factors, with the most important features in the first group (quantitative method) is the quality of the documents about the past activity and in the second group (qualitative methods) is the experience and professionalism of the experts. Eventual forecasting errors can be eliminated to some extent.

**Keywords:** marketing, marketing audit, information, qualitative and quantitative forecasting methods

### **1. INTRODUCTION**

Each marketing audit ends with a final report; a document which following a discussion with the client, can and normally also does form, along with other inputs, the basis

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for elaboration of marketing strategies developed with the view to forecasts. Marketing audit results serve as a starting point for the formation of marketing strategies, because marketing audit notes or existing marketing activities are in line with the company with their long-term objectives. Planning for long-term marketing objectives is then possible to use an appropriate method of forecasting. The article characterized by some forecasting methods and ways of reducing errors.<sup>5</sup> The process of forecasting also addresses proposals and selection of specific goals for setting direction of marketing activities in the long-run. An entrepreneur as well as a manager can use these, reflecting also marketing audit outcomes and using suitable forecasting methods, for setting the direction of further development of business<sup>6,7</sup>.

#### **Types of marketing forecasts**

At present, a variety of quantitative and qualitative forecasting methods are used; their classification can be e.g. as follows, based on:

- explanatory variable (development variable and effect variable),
- time horizon,
- type of forecast (qualitative methods - exact, qualitative methods – intuitive)<sup>8,9</sup>.

## **2. QUANTITATIVE FORECASTING METHODS**

The most frequently used quantitative methods comprise the balancing methods including:

- *moving average method.*

Principle: an average for a certain period is calculated (e.g. 3 months I-III), after the end of a third month, a fourth month is added into calculation while the first month is left out and a new average is calculated. The outcome of an average set always for a three month period, updated to reflect always the latest three months<sup>10,11</sup>.

Utilisation – sale forecast, the approximation is more precise in case of a longer time interval<sup>12</sup>.

- *Exponential balance.*

Principle: weighted average of past statistically identified values is used. The objective is to reflect the weights of individual values on the timeline in relation to their “distance from the forecast period”<sup>13,14</sup>.

Calculation:

Forecast for the period ( $t+1$ ) is calculated as a sum of a certain share  $\alpha$  of the last actual value  $Y_t$  and a certain share ( $1 - \alpha$ ) of the forecast value  $F$ , whereas the factor  $\alpha$  is within the interval  $0 \leq \alpha \leq 1$ .

<sup>5</sup> A. Alsbury, *Marketing: to nejlepší z praxe*, Computer press, Praha 2002.

<sup>6</sup> A. Csikósová, E. Weiss, *Prieskum trhu a marketing*, ES/AMS F BERG, Košice 2008.

<sup>7</sup> M. Jedlička, *Marketingové stratégie*, Univerzita sv. Cyrila a Metoda v Trnave, Trnava 2006.

<sup>8</sup> J. Čimo, M. Mariaš, *Riadenie marketingových aktivít*, Sprint Bratislava 1996.

<sup>9</sup> D. Lesáková a kol., *Marketingové analýzy a prognózy*, Bratislava 2002.

<sup>10</sup> I. Liberko, *Základy marketingu*, Vienala, Košice 1998.

<sup>11</sup> I. Liberko, R. Turisová, *Modelovanie marketingových činností*, Edícia študijnej literatúry, Košice 2006.

<sup>12</sup> R. Kalkar, A. Massen, *Marketing*, Grada: Mnichov 2002.

<sup>13</sup> P. Kotler, K. Keller, *A Framework for Marketing Management*, 3rd Edition, Prentice Hall, New Jersey 2007.

<sup>14</sup> P. Kotler, *Modrení marketing*, 4.vydanie, Grada Publishing, Praha 2007.

The basic relationship for exponential equation then is:

$$F_{t+1} = \alpha \cdot Y_t + (1 - \alpha) F_t$$

Practical application shows that the following is suitable for practical use:  $0,20 \leq \alpha \leq 0,35$ .

- *method of classical decomposition,*

Majority of time slots normally has the following key elements:

- |  |         |
|--|---------|
| 1. <i>Cyclical – cyclical factor</i>         | - $C_t$ |
| 2. <i>Seasonal element – seasonal factor</i> | - $S_t$ |
| 3. <i>Trend element – trend factor</i>       | - $T_t$ |
| 4. <i>Random element – random factor</i>     | - $N_t$ |

**Cyclical element** – becomes apparent after a certain time depending on economic conditions

**Seasonal element** – depends on certain volatility of conditions in time (e.g. holidays, bank holidays etc.)

**Trend element** – characterises a long-term tendency in time

**Random element** – short-term effects, which cannot be anticipated – there are no signs:

- *seasonal cleaning,*

The key principle is to clean the forecast of seasonal effects while retaining the trend element<sup>15,16</sup>

Principle: identified values (especially extreme ones) are subject to filtering in a certain data file; their advantage is that only data of that variable which is subject to forecasting are used.

- *regression analysis method.*

These methods are based on a conventional regression technique which maps out the relationship between two or several variables based on the regression model. The regression model characterises the relationship between dependent and explanatory variable<sup>17</sup>.

### 3. QUALITATIVE METHODS

Qualitative methods are methods based on expert estimates of specialists and professionals in the given area<sup>18</sup>. The key reason for using these methods is that:

- there are no reliable and quality data describing the issue in question,
- these methods enable addressing the given issue comprehensively

The main deficiency of the above methods is that they are restricted by the knowledge of experts as well as the causality problem, which does not make it possible to scrutinise the examined topic on the **cause – consequence** axis as well as the issue of **lack of structure** which causes highly problematic and frequently impossible explicit description of the examined topic<sup>19</sup>.

<sup>15</sup> D. Lesáková a kol., *Marketingové analýzy a prognózy*, Bratislava 2002.

<sup>16</sup> D. Lesáková a kol., *Strategický marketingový manažment*, Sprint, Bratislava, 2002.

<sup>17</sup> J. Tomek a kol., *Marketingová stratégia podniku*, Management Press, Praha 1992.

<sup>18</sup> J. Kita a kol., *Marketing*, Edícia Ekonómia: Bratislava 2005.

<sup>19</sup> Š. Kassay, *Marketingová stratégia korporácie*, Strateg: Nové Zámky 1999.

The most frequent qualitative methods can be attributed with the following methods:

- ***Collection of opinions from selected employee groups***

The basis of this method lies in selection of a group of employees – professionals and collecting their subjective opinions on possible future development.

- ***Delphi method***

A group of selected experts (5-20) present anonymously their opinions on the development of the examined issue in the upcoming periods. These opinions are presented in writing. The exercise comprises several rounds and after the 3<sup>rd</sup> or 4<sup>th</sup> round the ultimate estimate of the examined topic is established.

- ***Method of script***

The main idea is to determine future development in various – alternative conditions. The outcome of this method is not one variant but two or several variants, from which it is possible to set the optimum variant based on additional information, or a variant, which is closest to the optimum.

- ***Conjunctive methods***

The goal of this set of qualitative forecasts is to identify subjective opinions of management regarding the anticipated development. These researches are conducted normally in writing using a survey; with the basic idea being not expressed in exact values (figures) regarding the development but in expressed opinions, e.g. - better, worse, significantly better, stable etc.

Contrary to quantitative methods, the goal of qualitative methods is to come up with responses to such questions and issues, which normally cannot be unanimously quantified<sup>20,21</sup>.

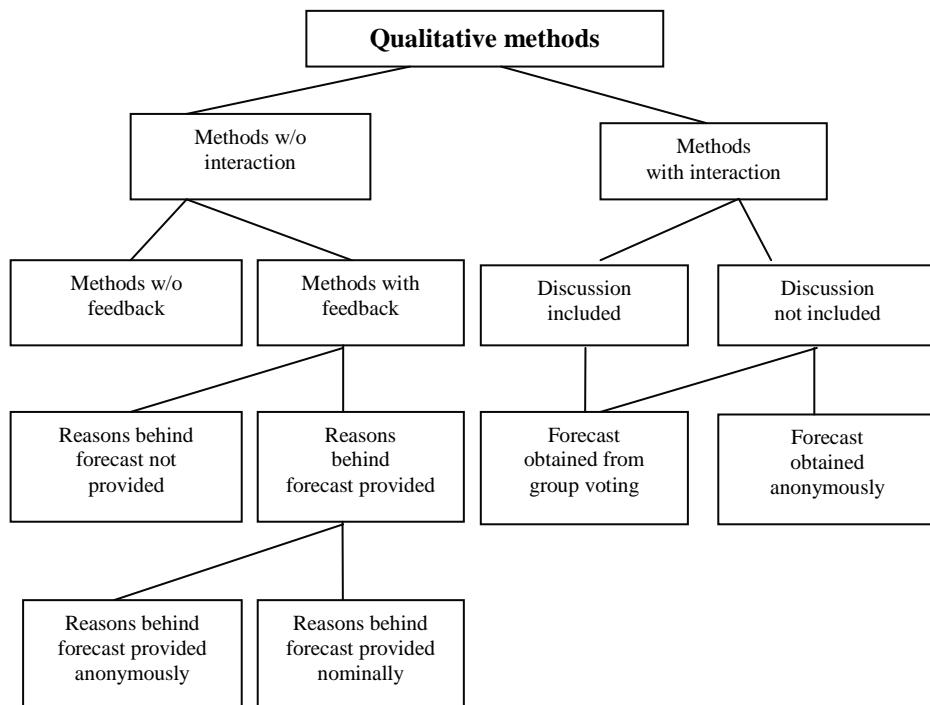
Qualitative methods are shown in Figure 1.

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<sup>20</sup> D. Lesáková a kol., *Marketingové analýzy a prognózy*, Bratislava 2002.

<sup>21</sup> J. Mikolaj, J. Klučka, B. Vančo, *Plánovanie a prognostika*, Fakulta špeciálneho inžinierstva ŽU v Žiline, Multprint,s.r.o. Košice 2005.

Figure1. Qualitative forecasting methods



Source: adjusted according to D. Lesáková a kol., *Marketingové analýzy a prognózy*, Bratislava 2002.

Similarly to everyday life, also solutions of specialised tasks are distorted by errors. It is evident that also forecasting methods, mainly those quantitative, are subject to deficiencies and defects<sup>22</sup>.

The following are used to eliminate errors mainly with respect to qualitative methods:

- **Average error method**

$$\Sigma ( Y_t - F_t )$$

$$PO = \frac{\Sigma ( Y_t - F_t )}{n}$$

- **Dithering (scattering) method**

$$\Sigma ( Y_t - F_t )^2$$

$$R = \frac{\Sigma ( Y_t - F_t )^2}{n}$$

<sup>22</sup> P. Smith, *Moderní marketing*, Computer Press, Praha 2000.

- **Signalling band**

$$SH = \frac{\sum (Y_t - F_t)}{PO},$$

where :

PO - average deviation (acronym from Slovak: priemerná odchýlka),

R - dithering (acronym from Slovak: rozptyl),

SH - signalling band (acronym from Slovak: signálne pásmo).

$Y_t$  - demand (acronym from Slovak: dopyt),

$F_t$  - forecast

To illustrate, below we include an example concerning use of exponential equation for sale forecasting. In this particular case, the marketing audit came up with a recommendation that a trading company (selling computer printers) changes the focus from inkjets to laser printers. Based on this assumption, the exponential equation method was applied for elaboration of a sale budget forecast wt  $\alpha = 0.33$  using the data in Table 1 and shown on a graph in Figure 2<sup>23,24</sup>.

Table 1 Example of calculation based on the exponential equation method

Month	Demand $Y_t$	$\alpha = 0.33$	Forecast $F_t$	Deviation
1.	342			
2.	313	342	342	-29
3.	356	0,33.313( 1- 0,33).342	332	+24
4.	360	0,33.356( 1- 0,33).332	340	+20
5.	377	0,33.360( 1- 0,33).340	346	+31
6.	350	0,33.377( 1- 0,33).346	356	-6
7.	380	0,33.350( 1- 0,33).356	354	+26
8.	410	0,33.380( 1- 0,33).354	362	+48
9.	421	0,33.410( 1- 0,33).362	378	+43
10.	418	0,33.421( 1- 0,33).378	392	+26
11.	417	0,33.418( 1- 0,33).392	400	+17
12.	430	0,33.417( 1- 0,33).400	406	+24
			414	

Source: own study based on: P. Smith, *Moderní marketing*, Computer Press, Praha 2000.

<sup>23</sup> L. Bednárová, *Ekonomická efektívnosť environmentálneho účtovníctva*, Grafotlač Prešov, s.r.o. 2008.

<sup>24</sup> J. Čimo, M. Mariaš, *Riadenie marketingových aktivít*, Sprint Bratislava 1996.

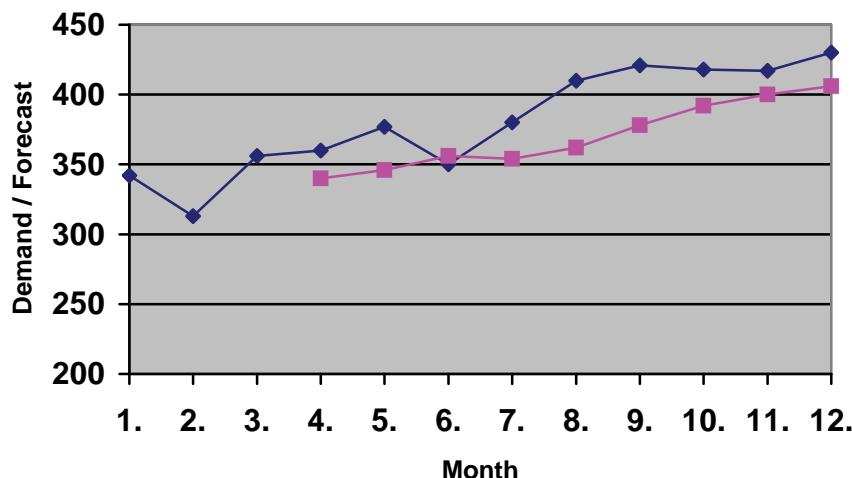


Figure 2. Graphical representation of exponential equation

Source: own study based on: P. Smith, *Moderní marketing*, Computer Press, Praha 2000.

## CONCLUSION

The use of marketing forecasting plays an important role for the company, therefore the marketing department staff undertaking this area should pay more attention mainly due to the fact that incorrectly set marketing objectives can ultimately reflected in the profit enterprise. Marketing forecasts are used mainly in relation to development of marketing strategies. It is natural that also marketing forecasts need to be reviewed and it is necessary to use feedback for reassessing whether some unexpected development has not caused a change of assumptions used for elaboration of forecasts. It is necessary to mention that in relation to the development of production and sustainable development one also needs to take into consideration environmental impact and economic implications of production.

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### AUDYT MARKETINGOWY ORAZ MOŻLIWOŚĆ PROGNOZOWANIA

W artykule omówiono wybrane jakościowe i ilościowe metody prognozowania do wykorzystania dla rozwoju strategii marketingowych opartych na wynikach audytu marketingowego Marketing i jego zastosowanie są niezbędne dla aktywności każdego przedsiębiorstwa. Zadaniem audytu działalności marketingowej jest wskazanie i ocena, czy dane działania marketingowe przyczynią się do dalszego rozwoju przedsiębiorstwa na wymaganym poziomie i konkurencyjności. Te jednak są ściśle związane z prognozowaniem marketingowym, który charakteryzuje się różnym rodzajem prognozowania gospodarczego (ilościowym i jakościowym). W artykule przedstawiono krótki opis niektórych zastosowanych metod. Metody ilościowe oparte są na danych uzyskanych z rejestrów odpowiednich działań, które następnie są matematycznie przetworzonych. Należą do nich w szczególności: metoda średniej kroczącej, metoda wygładzania wykładniczego, regresji, metody analizy regresji, oraz metody sezonowej korekty. W przeciwieństwie do metod ilościowych, metody jakościowe oparte są na szacunków ekspertów i specjalistów w danej dziedzinie. Głównym powodem zastosowania takich metod jest to, że są one niezawodne i opisują jakość danych badanych problemu. Z drugiej strony, metody te umożliwiają kompleksowe rozwiązywanie tego problemu. Jedną z podstawowych metod z tej grupy jest metoda Delphi, ale są również zapytania, metoda scenariuszy oraz metoda koniunkcyjna. Artykuł jednocześnie ukazuje zalety i wady oraz możliwość ich wykorzystania. Powszechnie wiadomo, że dokładność prognozowania zależy od różnych czynników, a do najważniejszych cech w pierwszej grupie (metody ilościowe) należy jakość dokumentów z działalności firmy, a w drugiej grupie (metody jakościowe) doświadczenie i profesjonalizm ekspertów. Ewentualne przewidywalne błędy mogą być wyeliminowane tylko do pewnego stopnia.

**Słowa kluczowe:** marketing, badanie marketingowe, informacje, jakościowe i ilościowe metody prognozowania

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