THEORETICAL ACCESSES TO ANALYSIS OF A USER BEHAVIOUR IN TRANSPORT

ТЕОРЕТИЧЕСКИЙ ПОДХОД К АНАЛИЗУ ПОЛЬЗОВАТЕЛЬСКОГО ПОВЕДЕНИЯ В ТРАНСПОРТЕ

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Abstract: *The paper deals with the general principles of user's behaviour and consequently the principles of user's behaviour within choosing, buying and using transport services. It defines four basic points of view, which can explain user's behaviour with greatest attention to economic rationality point of view. Behaviour of transport services user can be explained through the three relatively independent parts – understanding the user's reactions on external initiatives, understanding the user's train of thought after receipt of external initiatives and before making purchase decision and finally understanding the user's behaviour within the realisation of particular purchase decision steps.*

KEYWORDS: *UTILITY, USER, TRANSPORT SERVICE, PURCHASE DECISION*

1. Introduction

The issue of user's behaviour generally deals with users´ choosing, buying and using products that serve for satisfaction of their needs and wishes.

The behaviour of users on a market is a complicated process. Motives and behaviour of people in the frame of the buying process are mostly unpredictable and complicated. If often happens that users behave themselves in different ways in relation to their declared needs and wishes or they react in the fact of being at the place of purchase. The buying users tend to satisfy their wishes and needs or to solve their specific problems and so for example when you need to solve any matter at the region office, transportation can help you to solve your problem because you are able to transfer yourself to the region office.

2. General principles of user's behaviour

From the above mentioned it is clear that the only good knowledge of a level, time and space division of users needs can be the base for the choice of buying, marketing, technological and logistics strategy of a transport company.

With some specific probability we can indentify four basic view directions that are trying to explain the consumption behaviour of users [5]:

- on the point of economic rationality,
- on the point of psychology,
- on the point of sociology,
- on the point of marketing, so called model „stimulus – reaction".

On the point of economic rationality

This point of view is according to the orientation of our research project understood as a key one. The user is considered as totally rationally thinking subject behaving according to principles of economic profitability. The user behaving this way follows two basic elements [2]:

- satisfaction of needs brought by a product,
- costs of gaining product.

Costs of gaining product are determined by prices. To define the term satisfaction of needs economists use the term utility that determine a subjective feeling of satisfaction from consumption of a product. It performs scientific creation that economists use for understanding a principle how rational users divide their limited financial sources among products that brings them satisfaction.

Total utility is the function of quantity of consumed products for the same conditions "ceteris paribus". [3]

$$U = f(Q_1, Q_2, ...Q_n), \quad (1)$$

where Q_1, Q_2,… Q_n are quantities of separated products.

Marginal utility represents utility of additional gained unit of a product in given time. It is performed by a formula:

$$MU = \frac{\Delta TU}{\Delta Q} \; or \; MU = \frac{dTU}{dQ} \quad (2)$$

where Δ TU and dTU present a change of total utility, Δ Q and dQ present a change of consumed product quantity.

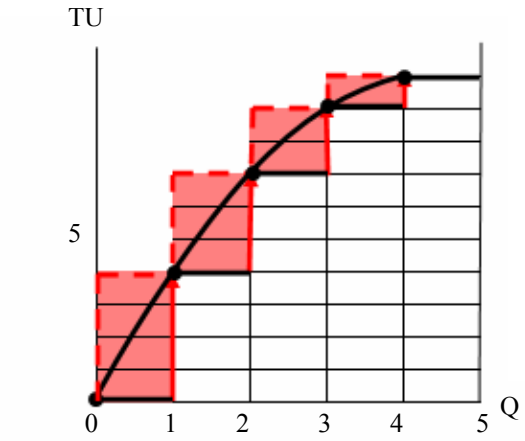

Fig. 1 Total utility

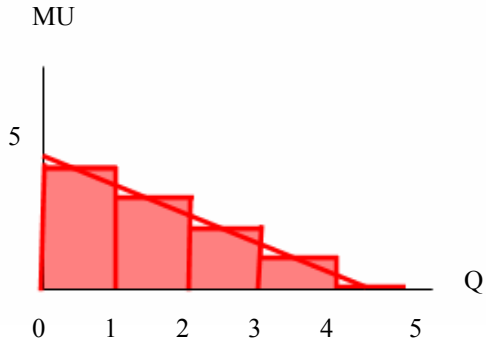

Fig. 2 Marginal utility

Source: [3]

Marginal utility depends on:

- importance and intensity of a need (if needs are urgent than each next unit of a product brings relatively big utility),
- dispensable quantity (the rarer is the goods the bigger is the marginal utility from the goods). [2]

Except the term marginal utility, also the term total utility has a big importance that express a total level of satisfaction of a need.

User tries to maximize his utility that brings him purchases of consumed goods. If a user change his consumption the way that each separated product brings him the same marginal utility on a money unit of expenditures then he reaches maximal satisfaction and utility from his purchases. [1]

$$\frac{MU_1}{P_1} = \frac{MU_2}{P_2} = \frac{MU_3}{P_3} = \dots \quad (3)$$

where MU_i are marginal utilities of separated products, P_i – prices of these products.

The term of marginal utility was appreciated for understanding the law of decreasing demand. But in several last decades the economists have come with alternative access for the analyses of demand and this access uses so called indifferent curves. This access offers deeper view on factors that usually cause sensitivity of demanded quantity to a price. It has been found out by the identification of income and substitute effect of a price change. [2]

On the point of psychology

There are especially focused psychological percepts and circumstances of consumer behaviour.

On the point of sociology

According to the sociological point of view one should on current conditions follow rules of social behaviour and social norms even if they are formal and often undefined but strongly used.

On the point of marketing

The behaviour of a user is explained on the reactions after conditioned stimulus.

3. Process of behaviour and decision making of users in transport

As a user of transportation services it is usually considered a forwarder of a consignment, passenger or a orderer of transportation.

On the general principles of user behaviour the total utility of a user of transportation services can be expressed as the whole level of satisfaction of a transportation need (a need of transportation from place A to place B) with the consumption of the product quantity. The total utility of a user of transportation service can be mathematically defined as a function [4]:

$$U = f(S, \theta) \quad (4)$$

where U is total utility, S – vector of service level: S = (t, p), here factually two most important factors – time of transportation and price for this service, θ – vector of evaluation parameters of the time and price factors θ = (α, β).

Vector of parameters reflects preferences of separated customers and substitute relation of these parameters can be expressed as a proportion α/β. [4]

The process of user behaviour in transport services can be divided into three relatively separated parts. The outgoing point in research of user behaviour is the knowledge of a user reaction on different external stimulus.

Especially following stimulus are focused [3]:

- marketing stimulus:
  - product of transportation service,
  - way of distribution,
  - price,
  - sale support,
  - people offering transportation services,
  - processes of service offering,
  - material environment.
- others:
  - political,
  - economic,
  - legislative,
  - technological,
  - natural,
  - cultural.

Marketing stimulus perform separated elements of marketing mix that transport companies use for influencing and gaining users.

Second part of the process of user behaviour in transport services is the only user who works as a "black box". The main task of marketing staff in a company is to recognize how the users think in time between gaining of external stimulus and buying decision making. [3]

This process is influenced by:

- user characteristics:
  - personal,
  - cultural,
  - social,
  - psychological,
- procedures of decision making of a user:
  - notifying of transportation need,
  - collection of information,
  - evaluation of alternatives,
  - decision making about a purchase,
  - behaviour after usage of transportation service.

Third part of the process of user behaviour in transport services perform the succession of separated steps in buying decision making [3]:

- choice of transportation service mode,
- choice of an afford company,
- time of decision making,
- volume of service usage.

It is important to recognise that behaviour of transport service users and transport service suppliers is different from buying behaviour of users and organisations of consuming and industrial products. Among most important differences belong following facts:

- users have limited possibilities of service suppliers choice and limited assortment of transportation services on a transportation market,
- risks of transportation service suppliers and users are bigger than buying of consuming and industrial products,
- user evaluate the quality of transportation service during or after its offering,
- acceptance of some kinds of transportation services is usually slower than consuming products,
- transportation service can not be storable,
- user of transportation service has limited possibilities to influence the process of service creation,
- users´ opinions of transportation service are created according to their personal experience and information.

4. Results and discussion

Among main factors influencing buying behaviour of users in transport belong: [3]

- *Personal factors:*
  - *age*
  - *life cycle*

- *profession*
- *economic conditions of users*
- *life style*
- *personality.*

- *Cultural factors* – influencing of culture has a big importance, because e.g. travelling for culture belongs to facultative needs that should be satisfied in requested volume.
- *Social factors*:
  - *referent groups*
  - *family*
  - *social roles.*
- *Psychological factors*:
  - *Perception* – from the point of view of a user in transport the perception of price and risk connecting with purchase is very important (a user perceives price especially in relation to quality, where it is generally valid that the higher price of a product the higher perceptive quality and as for risk it is perceived by a user the way that realization of bought transportation service need not to fulfil expectation).
  - *Learning* – if a user does not have any experience (e.g. in city public transport in unknown town, travelling abroad) at decision making about buying of a product, the buying process becomes for him a solution of an extensive problem; the more a user learns about a product and has more experience the sooner a buying situation becomes a solution of a limited problem or behaviour works automatically (e.g. every day commuting).
  - *Attitude* – people being interested in railway technology will follow not only its history but also its future development and tend to use more railway transport than other transport modes.
  - *Motivation* – basic element of motivation is actual need of a person; transportation need of persons do not exist separately but they are part of his/her way of life, profession, social interests, relations and attitudes and these needs are changing during his/her life (e.g. minimal number of change, minimal transport distance, minimal transport time etc.).

Motivation research serves to finding out the users´ motivation at buying a product. When we want to examine the motivation of transport services users it is convenient to come out from the philosophy of their thinking. The wish of transportation service users is to receive the service in the highest quality.

Requirements of transportation service users are usually very different, especially requirements concerning:

- price of service and possibilities of payment for the service,
- service quality,
- assortment of offer services.

A subject of transportation is usually a person (passenger) or goods (load). In personal transport users choose a transport mean according to several criteria. In passenger transport the choice criteria can be:

- transportation service price,
- transportation time,
- accessibility,
- travelling comfort,
- regularity and density of connections,
- additional services.

The main criteria for decision making of users in freight transport are:

- price for transportation,
- transportation time,
- direct delivery,
- maximal volume of transferred load,
- regularity and reliability of transportations,
- possibility of stocks minimizing at the side of a user (e.g. system Just-in-time).

Above mentioned criteria must be covered into specific aims, activities and programs of transport services suppliers. The most important conditions and presumptions for finding the equality between suppliers supply and requirements of transport users are hard market conditions, care of a current and future user, assurance of transportation capacity, usage of rules in different transport modes competitiveness etc.

5. Conclusion

General principles of users´ behaviour at the choice, buying and usage of products that serve to satisfaction of their needs and wishes are of course also applicable in the field of transportation services but we must respect specifics of this sector, as for example the situation that a user is able to evaluate the quality of offer transportation services even in time of realization or after it, transportation services are not storable, users opinion is created from personal experience etc.

A model of typical buying process in the field of transportation services covers plenty of steps (notifying of transportation need, collection of information for possibility of need realization, evaluation of alternatives, decision making about a purchase of a transportation service, behaviour after usage of transportation service). This model also reflects that buying process starts a long ago before the purchase and continues long time after it. From the practical life we know that users do not need to go through all these steps. In the case the user uses transportation services of the same company in personal transport every day; it skips and excludes the steps of information collection and evaluation of alternatives.

Note: This paper was made as a part of solution of the research project VZ-MSM 0021627505 „Theory of Transport Systems“.

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