MARKET AND MARKETING PECULIARITIES OF VENDING CHANNELS

PhD student Dobromir Stoyanov

Introduction:

Over the last couple of years, the popularity of non-store retailing formats has taken off as a reasonable cost-effective alternative to traditional retail forms, offering more consumer convenience. In the focus of the present article are hi-tech vending channels being typical representatives of this type of distribution means. In fact, vending machines have been installed in almost every country around the world – from Africa to South America and from the Arctic pole to the Antarctic\(^1\). In 2012 only, highly developed countries such as Japan and USA generated an annual turnover of well over 50 billion dollars, every fifth purchase being MADE/done through vending machines\(^2\). An unofficial survey, conducted last century in Russia reasoned that were vending machines on the whole planet to be put in one place, they would exceed the entire population of Australia, estimated at 15 million\(^3\). In comparison, this type of distribution facilities in Bulgaria are at a stage of re-introduction, and are yet to be developed in terms of possible new areas of application and adoption of new and more effective forms of payment and market stimulation. Basically, existing vending machines offer cheap and convenient consumer products such as hot and cold drinks, snacks and sweets. In developed countries such as France, Germany, Japan and USA, vending machine operators have turned already to more sophisticated products (MP3s, mobile phones, even gold bars). By its very nature, the vending machine business can be seen both as product and distribution channel. Not only does it provide goods and services but it is a product in itself, subject to sale and purchase relationships. It is therefore the purpose of the present article to study the multifaceted nature of the vending business where terms such as vending, vending channels, vending distribution and a vending machine are being used as synonyms. Further on, the article aims to analyze market and marketing peculiarities of vending channels. It also examines the role and place of vending channels in business today. The state of this particular market in Bulgaria is briefly discussed. On the basis of the traditional 4Ps marketing mix model, certain essential market peculiarities have been outlined, which can be used to differentiate between vending distribution and traditional retail distribution forms.

\(^2\) Source: Euromonitor www.portaleuromonitor.com
\(^3\) Chigarin, Т., citation., p. 6.
1. The role and place of vending channels in business today

The meaning of the word *vending* can be derived from the English word “*vend*” – i.e. trade, offer goods for sale, sell⁴. This is a business concept, which implies bringing the store to the client and not the client to the store⁵. As the idea of vending is to have an automated service process, in specialized English sources it is often referred to as ‘automatic retail trade’ (Saxena, 2009, p. 472), “automatic merchandizing” (NAMA, 2014) and “automatic sale” (Цzer & Phillips, 2012, p. 37). Some authors discuss vending in terms of product innovations across marketing distribution channels (Dupuis, 2000; Dawson, 2001), whereas others discuss it from the point of view of innovations in terms of the value chain. (Musso, 2010). In this respect, the evolution of the vending concept is related to the IT and communication technologies which are revolutionizing the industry, and it is seen as part of the so-called *SST technologies* (self-service technologies). With SST technologies, the user alone is doing the purchase, and there is no ‘face-to-face’ communication between client and vendor. These services are based on some integrated technology innovations, which exclude any intervention or interaction whatsoever between user and vending operator. That’s why, vending channels can be generally defined as a means of providing goods or services through a vending machine on a self-service basis.

To further clarify the role and place of vending machines in today’s business environment, it is necessary to discuss the vending market from the point of view of non-store retailing of goods and services used by companies and operators in the retail sector. In view of a classification recognized by many specialists in the area of distribution management, non-store retailing formats are seen as an aggregate model, comprising direct sales, direct marketing, home shopping, electronic and vending channels of distribution (Couglan et al. 2001). The *non-store retailing formats/channels* include any form in selling new or used products, without establishing a physical store, where the vending operator is freed from a physical retail presence (Dancette & Rithorrit, 2000), as compared to the so-called ”brick & mortar distribution” (Kotler & Keller, 2011, p. 328, 364). The significance of non-store retail distribution, vending channels in particular, seen as a percentage of global retail trade is illustrated in Fig.1.

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⁵ Stoyanov, ., The Vending Business in Bulgaria-opportunities and threats. Archives of the National Economy, 2/2009.
2. State of the vending market in Bulgaria

For 2013, the vending market in Bulgaria accounted for a total sales volume of 14.7 million BGN, exhibiting a 10% growth in the last six years. The most successful product category, both in quantity and value, seems to be the hot drinks, especially coffee, which is the main early morning drink for many Bulgarians on their way to work. Since it is a small market, vending operators run their businesses on very narrow margins, while high costs deter operators from upgrading their machines or investing in new ones. Normally, old or imported retrofit versions are in use. Most often, vending machines are installed in busy or high street locations seen as custom catchment areas (captive & semi-captive environment). These are bus stops, railway stations, hospitals and schools. Administrative and institutional buildings and offices are also seen as some of the most important locations to put vending machines as these are points through which a lot of people go.

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6 The figure is based on data and classification criteria, submitted by Euromonitor. The selected year is 2012, as the latest reports on the state of the vending market worldwide haven’t been published yet. Data provided reflect global, not national market trends as by the time this article was written, data on retail and not-store formats with reference to retail trade in Bulgaria was not available.

Dynamics in the development of vending machines in Bulgaria in terms of product categories for 2008-2013.

<table>
<thead>
<tr>
<th>Product categories</th>
<th>Net vending sales (BGN)</th>
<th>Growth rate 2008 – 13</th>
<th>Annual growth on average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaged drinks</td>
<td>0.5</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Packaged foodstuffs</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Hot drinks</td>
<td>11.8</td>
<td>11.7</td>
<td>12.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13.4</td>
<td>13.2</td>
<td>13.4</td>
</tr>
</tbody>
</table>

As seen from the table, packaged goods sales fluctuate around the same level, exhibiting no actual growth within said period. There is a limited number of vending machines in the country dispensing both packaged drinks and foodstuffs at locations such as picture theatres and airport terminals, but their distribution is limited to big cities only, with negligible sales. Besides, drinks offered by vending machines are considerably cheaper than drinks served in coffee shops and cafeteria, which accounts for the fact that nearly 1 million users consume hot drinks from vending machines on a daily basis. In 5 years’ time, the hot drinks category will show an expected growth of 2-3%, but as compared to the category ‘other products’, Euromonitor experts predict a growth of over 600 %. This huge growth can be attributed to the increasing use of vending channels in the distribution network of the country. For example, kiosks where you can pay your utility bills are already installed in many of the big retail chain stores, mobile phone retail outlets, parking meters installed in ‘blue zones’, etc.
As seen from fig. 2 above, two companies stand out as market leaders in Bulgaria. These are Overas Vending Ltd and Zagato Ltd, official importers of new and recycled vending machines. Either company has a well-established distribution or logistics network in Bulgaria. In 2008, their joint market share accounted for over 70%, but in 2013 it sank dramatically, reducing market share by half as compared to 2008. If we look at 2008 we can see that there are many small players on the market (marked as “other companies”) whose market share is only 26.3%, rising up to 64.3% in 2013, to show that said industry sector has become much more attractive for new entrepreneurs and investors.

To obtain more accurate results, the vending market structure is defined on the basis of applying the HHI index (Herfindahl-Hirschman index) which is a measure of market concentration (Djolov, 2013), the Rozenblunt index (Bikker, 2002) and Horvat (Barthwal, 2004). The results show that market concentration tends to increase over the discussed period. As mentioned above, this is mainly due to the growing number of smaller companies and not the increased share of market leaders, which can be a serious deterrent for new entrants (see Table 2).

**Use of market concentration indices for the vending market in Bulgaria**

<table>
<thead>
<tr>
<th>Year</th>
<th>( HHI = \frac{\sum s_i^8}{n} )</th>
<th>( R = \frac{1}{2(\sum s_i^2) - 1} )</th>
<th>( CCI = s_1 + \frac{\sum s_i^2 (2 - s_i)}{n} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0.34</td>
<td>0.36</td>
<td>0.69</td>
</tr>
<tr>
<td>2009</td>
<td>0.33</td>
<td>0.35</td>
<td>0.69</td>
</tr>
<tr>
<td>2010</td>
<td>0.36</td>
<td>0.40</td>
<td>0.70</td>
</tr>
<tr>
<td>2011</td>
<td>0.41</td>
<td>0.45</td>
<td>0.73</td>
</tr>
<tr>
<td>2012</td>
<td>0.46</td>
<td>0.47</td>
<td>0.75</td>
</tr>
<tr>
<td>2013</td>
<td>0.48</td>
<td>0.48</td>
<td>0.76</td>
</tr>
<tr>
<td>Average for the period</td>
<td>0.39</td>
<td>0.42</td>
<td>0.72</td>
</tr>
</tbody>
</table>

8 The Herfindahl-Hirschman index is used to measure the level of competition in a particular market sector. It is estimated in the interval \( \frac{1}{n} \leq HHI \leq 1 \). When \( 0 \leq HHI \leq 0.20 \), this is indicative of a highly competitive market and low level of market concentration (ideal competition). At \( 0.20 < HHI \leq 0.40 \) the level of market concentration is moderate (monopolistic competition). At \( 0.40 < HHI \leq 0.70 \) the level of market concentration is high (oligopoly), and \( HHI > 0.70 \) is indicative of a highly concentrated market (monopoly).

9 The Rozenblutz index (Hall-Tideman) is used to measure market competition with uneven distribution of market share between companies operating on the market. It takes into account values in the interval \( 0 \leq R \leq 1 \). Similarly to HHI, it allows to measure the absolute market concentration, but unlike HHI, it takes into consideration i ranks of individual market players.

10 Horvat index is an alternative measure for market concentration. It takes into consideration the company with the largest market share and weighted market shares of other companies.
3. Vending channels and their marketing peculiarities

In view of the conventional 4Ps marketing mix model (McCarthy, 1964) we can outline the following inherent marketing categories: 1) product 2) price 3) place or distribution 4) promotion.

Product peculiarities

One of the main product features, which serves to distinguish vending from other traditional forms of retail distribution is that it allows for easy introduction of new products and dispensing of old ones, which proved hard to sell. It does not require further software or hardware upgrades and if needed, changes can be implemented from a distance (where vending services are concerned). Some of the vending machines allow for personalization of the product to meet specific customer needs (see Coca-Cola freestyle fountains, which combine more than 127 different tastes). Vending automat can be quickly and easily adapted if the company suddenly decides to change its brand strategy or to relocate. Take for example, the Coca Cola branded vending machine, with its own facade, which shows a well-known iconic statue in Warsaw (Jaworski & Thurlow 2010). Vending machines of special artistic design, the so-called (art-o-mats) are often sited in galleries, museums and cultural institutions. Branding in this sector can be seen as a way of improving the automat design and outer appearance and boosting sales by offering premium brands, e.g. premium coffee brands (Rosenbloom, 2013). This will take the vending business to a new level where ‘customer satisfaction is so high that they want to leave a tip’ (Maras, 2011, p. 20). Industrial design is also important in achieving the desired communication effects. The Diet coke slender vender of Coca-Cola communicates the message that the drink is void of sugar content, largely to blame for overweight and obesity. A major weakness of the vending channels is their limited capacity to stock large quantities of products. To overcome this, a number of assortment-wise, mathematical and statistical models have been developed: some aim at projecting consumer demand forecasts, in answer to a sudden shortage of merchandize (Anupindi, Dada & Gupta, 1998), Miyamoto algorithm for the item assortment problem (2003), PROFSET program model for product selection (Brijs, 2004). Partly, such restraints in capacity can be overcome by the so-called fully automated convenience stores. Unlike conventional vending options, convenience stores occupy a larger area (around 8 m²) and use bigger displays. Their storage capacity is bigger, allowing to store more and various articles (up to 200 items). A certain disadvantage of the vending machines however is the fact that customers have limited access to information about the products before their actual purchase as they can pick up the product only after they pay for it. Customers have no idea about the expiry period of stocked merchandise, nor do they get information about product ingredients, particularly ingredients they are allergic to and their nutritional value i.e., percentage of carbohydrates, fats, proteins, etc. This may be crucial for customers who adhere to

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11 This section focuses on the marketing peculiarities of vending in a global context. Studies and data provided are not restricted to Bulgaria only, as it is a market showing a potential for development. Following the best practices in this sector, Bulgarian vending operators can be more successful in setting out their marketing strategies.
special healthy diets or have specific dietary needs such as those with weight problems or suffering from diabetes. There is no clear policy on complaints either, which makes them difficult to handle. In contrast to traditional distribution channels, with vending, the customer is unable to complain at the moment of purchase. There is no direct connection with the supplier of service which acts as a deterrent to many consumers using the vending channels today. When a refund is required, because the vending machine is broken or failed to charge adequately, vending operators can tackle the situation in one of the following ways. With coin operated hot drink vending machines, offering products at the low end of the market (hot and cold drinks), a button is envisaged whose function is to return the last amount of money, when pressed, even in cases of machine malfunction. With vending machines offering mid-range products, (personal products and photographic services) also taking banknotes as a form of payment, the customer has the option to call an assigned number and remotely with the help of an operator or through inspection by a technician on spot, get their money back. With vending machines that offer high-end products and accept cashless payment, i.e. credit and debit cards and mobile phones, many operators take the opportunity to transfer money to a customer’s bank account after an official complaint has been filed. At the same time, hi-tech vending channels can be used to receive real customer feedback if they are made part of the self-service technology complaint system (Robertson, 2012). The hitch is that many vending operators fail to provide consistent maintenance and customer support service. A telephone number is often assigned for complaints, however this number may not be accessible at the weekend and certain hours during the night. Last but not least, security issues in some locations and vandalism can limit vending machine adoption.

Pricing

However, restraints to capacity, mentioned earlier, can be seen as an opportunity, especially when various surveys on the product–price ratio need to be done. Availability of lesser items (prices respectively) helps to conduct market studies in a real environment which are of shorter duration and incur less expenditure. Fast and easy price change of vended products is applicable to tourist venues where tourists flock in large numbers. Thus the risk to subject the usual consumer to frequent change of price is limited. From a technological point of view, the policy of price discrimination can be easily applied, but it may present a certain ethical problem. Take for example the Coca-Cola company which in 1999 developed a machine prototype, designed to hike the price of drinks during the warm period. Regretfully, subsequent public backlash forced the company to drop its invention (Lal, Quelch, & Rangan, 2004, pp. 493–498).

Vending machines offer a wide variety of payment methods, discussed in detail in the Table 3 below:
A common strategic and marketing advantage of cashless and non-contact payment formats is that they allow for electronic gathering of data on consumers. These have the potential to offer new and conventional products at higher prices as the customer is free to choose alternative means to cash payment. (Kasavana, 2005). In 2012, Coca–Cola and Google launched a pilot project promoting payment via a mobile phone application, called “Google wallet”. This cell-phone app offers payment flexibility at thousands of vending machines across the United States (Maras, 2012). Although products open to cashless vending are of higher value, lower distribution costs tend to push down prices, with a negligible effect upon returns on the vending channel. This accounts for two major price peculiarities of the vending distribution – cost effectiveness and profitability which are among the main advantages of the vending format as compared to traditional retail formats, particularly in the developed countries where the percentage of labour costs is rather high in the overall fixed costs. Rental

### Table 3

Vending methods of payment – opportunities and constraints

<table>
<thead>
<tr>
<th>Methods</th>
<th>Opportunities</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cash payment</td>
<td>The cheapest mechanisms for purchases from vending operators. Most popular and largely used by consumers. No personalized information is required (PIN code), which can be subject to theft or mishandling.</td>
<td>The capacity of vending machines to receive and store cash requires regular collection of money to prevent vandalism; problems arise from recognition of crumpled or newly emitted banknotes; access is limited to consumers prepared to pay cash; need to install a facility for return of change.</td>
</tr>
<tr>
<td>2. Cashless payment</td>
<td>This method overcomes the deficiencies of cash payment. It offers greater convenience for the customer and more security in cash turnover. It has a proven record of return.</td>
<td>Risk of theft with credit or deposit cards; less payment security from consumer point of view; more expensive than cash payment options, often need video surveillance.</td>
</tr>
<tr>
<td>3. Non-contact payment</td>
<td>This method overcomes the weaknesses of the first two methods. It gives the customer the feeling of convenience and security. It generates sales volume.</td>
<td>Requires significant investment. Not so popular with customers.</td>
</tr>
</tbody>
</table>
space is more efficiently used in terms of communication and achieving sales targets. Rental costs are low as the machines occupy a comparatively small area – up to 2-3 m². However, one of the main concerns with vending distribution is accountability of revenue, generated from vending operations. No receipt is issued, at the moment of purchase which can reduce VAT collection of revenue. The hi-tech vending machines often require special software with integrated fiscal functions, with capability to keep records of daily and monthly company sales. With mechanical vending machines (chewing gums, large gumball, and souvenir items) and some coffee vending automats, such records are entered by hand by the maintenance personnel. This may leave the door open to unscrupulous vending operators and subsequent irregularities (i.e. hidden operator revenue). In 2012, a decision by the Ministry of Finance in Bulgaria imposed a mandatory real-time connection between the fiscal devices in vending machines and the National Revenue Service, sending information on every transaction registered. Later on, the decision to install such fiscal devices in vending machines was repealed by the Supreme Administrative Court on the grounds of being illegal.

**Distribution peculiarities**

A key feature of the vending machines is their location adaptability. They can be installed almost everywhere as they need a small area to be put up. In the past, vending machines were installed in places seen as large catchment areas (captive environment). Most machines are found in busy locations such as factories, offices, warehouses and transport hubs as railway stations, airport terminals, cruise ships and public areas. Today, vending machines are often sited in theatre and hotel lobbies, garage spaces, drugstores, hospitals and schools. At the same time, countries such as USA and Great Britain, impose regulations on the installation of vending machines in hospitals and educational institutions. Their main considerations here are that certain items dispensed through the vending distribution system can cause serious health problems, such as foods and drinks with high sugar, salt and fat content. Among other concerns is that access to vending machines located in governmental institutions and military sites (municipalities, ministries, military bases) is extremely difficult to gain, which makes it labour intensive. This process is also time-consuming, as it requires applying and participating in tendering procedures in the public procurement sector, filling in documents, etc. On the other hand, government institutions are characterized by a higher degree of security compared to ‘open space’ locations, due to enhanced security measures and closed-circuit television cameras (CCTV) or video surveillance. The same holds true for public spaces – bus and railway stations, airport terminals, etc. In addition, when vending machines have an outdoor location, they are largely exposed to various climatic and atmospheric conditions, such as sun, wind, humidity, etc.

Accessibility and convenience are among other important features of vending distribution. Notwithstanding the specific marketing peculiarity which is in the focus

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of discussion – whether it is an item assortment problem, location or methods of payment, vending’s main concern remains customer convenience. It is defined as “the minimum financial, physical and mental effort required of the consumer to compensate for the difference between time and space during shopping”. (Schary 1971, p. 52). This is a subjective category which depends on consumer perceptions. Customer convenience comprises the following three components: price, time and effort (Risch, 1987). The price reflects the perceived consumer value of the product or perceived benefits in buying the product. Therefore, in order to offer a better and pricier product, vending operators need to win customers’ trust. This is made possible by improving the design and hygiene of the vending machines. Time is another attribute that determines convenience, because more and more consumers nowadays are pressed for time when they have to make a purchasing decision (time buying consumers). Actually, many of the last century studies predicted that “a large number of the city dwellers would rather buy time than products” (Risch, 1987, p. 60). This means, that in choosing from among thousands of products available on the market, consumers purchasing habits will be dominated by the time-saving factor. This is how time or rather lack of time, becomes a critical value. The third component in defining convenience is the effort exerted by the consumer to get the product. Vending machines offer fast and standardized service. They are easy to use and interaction with them provides a dynamically visual experience as with video games (Weijters et al., 2007). They reflect the impact of new and modern technologies on marketing: Internet based applications, payments via mobile phones, use of VoIP software13, gathering and processing of biometric data. In this respect, remote tracking of storage capacity and merchandize stocking, regular maintenance and software prediction of delivery periods, have become important features of vending distribution (Rusdiansyah & Tsao, 2005). In terms of the Quality Management concept (TQM), advanced vending combines increased functionality towards reduction of delivery periods, decreasing direct and indirect costs, and gathering relevant information for the decision making process. This is witnessed by the integration of Internet-based management systems (VMS). These allow for real-time, remote tracking of stock levels, automating business processes and reducing down time due to low stock. (Case & Newman 2004)

Promotional peculiarities

Vending distribution channels offer great opportunities for communication with consumers. As studies in interactive advertising show, vending channels can be seen as both distribution and communication channels or a standalone media, alongside broadcast, TV and electronic media (Schumann, Artis & Rivera, 2001; Tan, Kwek & Li, 2013). In 2010, in an effort to launch (roll out) a premium coffee brand and increase its mass market appeal, the Starbucks Co. introduced its new model of a coffee vending machine, instantly grinding the coffee beans and dispensing a high quality hot drink to the consumer. The company’s new slogan read: “Great Coffee Everywhere”. For their integrated multi-channel advertising campaign, Starbucks mounted a series of on-line TV commercials, bill boards and digital signage on their vending machines.

13 VoIP – software products of the Skype type, which integrate “Internet telephony” service (ITSP).
Furthermore, advanced vending formats integrate innovative means to boost sales such as price reductions, bonuses, competition and games, tokens, and sample demonstrations. These support a range of multimedia features, to attract customers in increasingly dynamic ways. In 2010, Coca cola and Intel, launched a new corporate vending model designed around integrated interactive technologies to encourage sales. Having purchased a Coca cola product, the customer can take a picture of him/herself and share it via e-mail with his friends. Thus, on the one hand, the range of services is extended while on the other – the company is able to visually observe the degree of customer satisfaction with the product. Vending channels can be part of integrated marketing communications. For example, Coca-Cola socially orientated campaigns under the motto “Share the happiness” successfully complement Coca cola happiness vending machines. The customer who complies with a command, i.e. to smile, kiss their boyfriend/girlfriend, sing a song, dance, etc. is awarded a free drink from the machine.

Vending channels prove quite suitable for applying such marketing techniques as cross-selling and up-selling. The Economist magazine defines the cross-selling technique as “the synergistic notion that buyers of one of a firm’s services would become customers for another” (Hindle, 2008, p. 51). Generally, this involves selling an additional product or service on top of the one that a customer has already agreed to buy (or has already bought). Its close cousin is up-selling, in which case, the customer is sold a more expensive product instead of the product he/she was originally purchasing. (Carysforth & Neild, 2006). Today, the last generation of the fully automated convenience stores that can be seen in the United States and Japan, offer a wider variety of products at a different price. Over the last years, shopping malls and hyper-markets in Bulgaria also rent space for vending operations with fully-automated convenience stores. Such are the mechanical gumball vending machines that vend a handful of candy, a bouncy ball, or a toy capsule, charging a coin of 1 BGN. These are often sited near a photo booth and charge five times the regular price.

Conclusion

The above study of the state of the Bulgarian vending market reveals that it is a dynamic and fast growing market. The liberalization of measures banning vending machines and the tendency to reduce market leaders share create a favourable climate for new entrants in this market. An old truth about vending is that everything sold by a man can be also sold through a machine. Vending machines are everywhere, delivering just about everything you can think of: from fresh eggs, lingerie, gold bars, spaghetti and pizza to some bizarre vending items such as pet laundry and other doggy treats. Not surprisingly, the next ten years or so can be witnessing a more mature vending market, attracting significant investments in the sector. In conclusion, this type of non-store retail distribution calls for higher awareness of the marketing peculiarities on the part of vending operators. It is a hi-tech, distribution and communication product-channel, demanding a differentiated approach to the elements in the marketing mix.
References

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PhD student Dobromir Stoyanov

Abstract

In recent years there has been an ever-increasing rise in the importance of non-store distribution formats as a cost-effective, as well as providing considerable consumer convenience alternative to the traditional store forms. The subject of the present article are the high-tech vending channels as a typical representative of this fast developing type of distribution. The main aim of the present article is to analyse the market and marketing specifics of vending channels. In this connection there are discussed their role and place in contemporary business. There is given a brief overview of the state of the Bulgarian vending market during the past few years and there are deduced some anticipated trends for its development in the future. Along with that, based on the traditional 4P model of the marketing mix, there are outlined some major marketing specifics of vending itself, distinguishing it from the traditional store distribution formats.

Keywords: marketing specifics, vending channels.