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ISTRIAN MARATHON USING CHAID  
ANALYSES****PREPOZNAVANJE TEKAČEV NA  
1. ISTRSKEM MARATONU  
Z UPORABO CHAID ANALIZE****ABSTRACT**

The present study uses the CHAID segmentation method with the purpose to identify the present market and predict the future target markets of the runners at the Istrian Marathon. The 1st Istrian Marathon was held in 2014 at the Slovenian coast and the runners have been surveyed. No sampling was used, but all runners have received an on-line questionnaire to fill. In total 770 valid answers were received that compose our database. The results show that marathon runners are heterogeneous by their motivation, where the travel companions and age have a significant influence to the motivation in taking part in the marathon running. Finally, 4 groups according to the motivation of the runners are suggested. The major motivation for attending the marathon is entertainment (almost 40%), but who travelled in an organised group of runners are mainly motivated by gathering with other runners. Also, younger runners than 40 and those older than 40 should be treated differently, our results predict. In the last part of the study the most profitable nodes for each included motive are presented. The findings from this study provide a number of insights and important implications for recurring small-scale marathon event organisers interested in developing marketing strategies based on the identification of the runners motivation.

*Key words:* marathon, motivation, sports tourism

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**IZVLEČEK**

Namen pričajoče študije je, da z metodo CHAID segmentacije na Istrskem maratonu ugotovimo trg tekačev in napovemo kakšni bodo ciljni trgi tekačev v prihodnje. Tekachi so bili testirani na prvem Istrskem maratonu, ki se je odvijal na slovenski obali. Vsi tekmovalci so prejeli spletni vprašalnik. Prejetih je bilo 770 veljavnih odgovorov, ki sestavljajo bazo podatkov. Rezultati kažejo heterogeno motivacijo aktivnih udeležencev maratona (tekli so polmaraton in maraton). Spremljevalna družba in starost tekmovalcev pomembno vplivata na motivacijo za udeležbo na maratonu. Glede na motivacijo tekačev so se oblikovale 4 skupine. Glavna motivacija za udeležbo na maratonu je zabava (skoraj 40%). Tisti, ki so na tekmovanje prišli z organizirano skupino so bolj motivirani kot drugi. Rezultati kažejo, da morajo organizatorji obravnavati tekače do in nad 40 let drugače. V zadnjem delu članka so predstavljena najbolj pomembna vozlišča za vsak izražen motiv. Ugotovitve te študije opredeljujejo motivacijo tekačev za udeležbo na maratonu in so namenjene organizatorjem malih prireditelj, saj omogočajo nadgradnjo in razvoj marketinških strategij.

*Ključne besede:* maraton, motivacija, športni turizem

## INTRODUCTION

Understanding motivation of sport consumers is complex (Funk & Bruun, 2007) and as such complicated for tourism destinations especially when targeting sport tourists. Thus, it is important for destination marketers to understand the motivational and behavioral profiles of sport tourism market segments (Hinch & Higham, 2011). Moreover, sport tourism market segments can be or for marketing purpose should be divided into sub-groups of sport tourists. Sport tourism is a form of activity that involves people travelling away from primary residence for the purpose of participating in a sport activity for recreation or competition (Gammon & Robinson, 1997). It also includes travelling for the purpose of watching sport events or visiting sport attractions at a specific time (Gibson, Attle, & Yuannakis, 1997) and as such distinguishes between active and passive sport tourists (Ritchie & Adair, 2002; Gibson, 2004; Weed & Bull, 2012). In other words, sport tourists can be motivated primarily by sport or by travel, and are either passive sport tourists, spectators or active sport tourists, participants (Ritchie, Mosedle, & King, 2002). Not an insignificant number of studies have been published on analyzing and understanding the 'passive' sport traveller (Preuss, Seguin, & O'reilly, 2007; Hall, O'Mahony, & Vieceli, 2010), mainly using marketing segmentation method (Ross, 2007; Bouchet, Bodet, Bernache-Assollant, & Kada, 2011; Dixon, Backman, Backman, & Norman, 2012;) and segmenting by motivation (Funk, Filo, Beaton, & Pritchard, 2009; Dwyer, Shapiro, & Drayer, 2011). The topic seems to be such important that Tkaczynski & Rundle-Thiele (2011), who have analyzed 120 academic papers on sport spectator's segmentation, found the 'motivation' variable to be included in 49 papers. In this same 120 academic papers review the authors found the data to be analyzed using 12 different techniques (regression, discriminant analysis, clusters and other analyses) that have been utilized by event academics, but no CHAID analyses (decision tree technique) have been used. Thus, the purpose of this study was to go a step forward and analyze a) active participants (and not visitors) of a small-scale sport event, b) using the CHAID method to understand how the respondents get classified in a decision tree and c) by their motivation to participate on a sport event. Also, with using the proposed technic is it possible to identify future target groups for a sport tourism destination, which is the destination of Istra in our case.

## EVENT SPORT TOURISM

Higham (1999) proposed that communities wishing to develop sport tourism should focus on regular season sports or hosting smaller scale sports events. Moreover, sports events can be used as tourist attractions by destinations and develop their own event image (Hallmann, Kaplanidou, & Breuer, 2010), if it is either a small, big, major or mega sport event. In fact, a successful event can be a mean of improving the destination image and community pride of residents (Allen, O'Toole, McDonnell, & Harris, 2002), which is the case of Istra as a tourism destination and the marathon organized in this same destination. Recently countries and government around the world have organized several environmental-friendly public sport events (e.g. bicycle races, running events, and walking tours) with the purpose of promoting green-growth and low-carbon movement. Following the 'green' philosophy London hosted first 'sustainable' Olympic games in 2012 (Hayes & Horne, 2011), confirming that sport events can contribute in changing a tourism destination image. The results of Sun & Paswan (2012) indicate that hosting the Olympic games had direct and indirect effects on purchase intention due to the change in country brand image. Nevertheless, returning to the aim of a local event needs to be pointed out that Higham (1999) has started with the idea of a small-scale sport tourism, which by his opinion, might comply with

the principles of sustainable tourism more than sporting mega events. Moreover, a small-scale sport event has an impact to the destination image (Kaplanidou & Vogt, 2007), which when is held in the rural destination is perceived differently among spectators and participants (Hallmann & Breuer, 2011). This is especially important for a local sport event like is the case of Istrian Marathon that was held for the first time in 2014 in Slovenian Istra with an attempt to connect the three Communities in the Primorska region (Koper, Izola and Piran) and promote recreation and sport in an healthy and environment-friendly surroundings. Three distance-different running tracks where possible, 10, 21 and 42km as presented in the Picture 1. The study by Kaplanidou and Gibson (2010) suggests that the hosting of recurring sport events can contribute to a sustainable customer base of active event sport tourists (i.e., participants) resulting in repeat event participation in the host destination, which is also one of the aims of Istrian Marathon. In fact, the plan of the Istrian Marathon organizers is to make that event a yearly recurring event, which may result in changing the image of the Primorska region as a tourism destination. The numbers of participants and marathon events have increased, demanding more effective marketing strategies, not only to meet participants' needs but also to maintain the popularity of the marathon events (Koo, Byon, & Baker, 2014).



Picture 1: Istrian Marathon tracks, 10, 21 and 42km

The 1<sup>st</sup> Istrian Marathon has recorded 2032 runners and the estimation is about 10.000 spectators ([www.istrski-maraton.si](http://www.istrski-maraton.si)). That spectators (passive attendees) and participants (active attendees) perceive an event differently has been confirmed by previous researches: active and passive sports tourists perceive sports event images differently, with active sports tourists having a more distinct perception of the sports event image (Hallmann, Kaplanidou, & Breuer, 2010). Since the differences between spectators and active participants have been confirmed, a tourism destination hosting the event needs to target the two groups differently. For being able to do that it is important to understand their motivation foremost. In fact, existing studies suggest that also the motives of sport participants may differ from watchers (Lera-Lopez & Rapun-Garate, 2011; Tokuyama & Greenwell, 2011). Thus, for better understanding of active runners at the 1<sup>st</sup> Istria Marathon the present study has been developed.

Runners who train for and participate in long distance running events are often questioned about their motives (Hanson, Madaras, Dicke, & Buckworth, 2015), often using The Motivations of Marathoners Scales (MOMS) developed by Masters, Ogles, & Jolton (1993) which results in 4 general motivation categories: physical, social, personal (achievement motive) and psychological.

However, a marathon can be also defined for a tourism event where especially on a local level more “*tourism based motives*” can be identified among runners, such as relax, experience, being part of or similar. Thus, the present research focus on a tourist based motivation.

As found by Ogles & Masters (2003) the marathon runners are heterogeneous when considering their motives for running and ‘their motives are sufficiently diverse that the runners can be statistically clustered based on their self-report motives for marathon running’ (pg. 80). Following this finding and the fact that the Istrian marathon organizers needs to define their target groups for the future repetitive events, the focus of the present paper is to identify the runners according to their motivations and based on defined independent variables explained in the next paragraph.

## MATERIALS AND METHODS

The research was conducted using the survey methodology and the target population was composed of all runners at the 1st Istrian marathon. The sample frame is represented by all runner emails, which have been collected by the organizer at the time of registration. The organizer also sent an email invitation to participate in the survey to all registered runners. No sampling was used. In total 2032 runners participated at the marathon. The web questionnaire was uploaded online at [www.lka.si](http://www.lka.si) from the day after the event up to the 17<sup>th</sup> of July 2014. In total 770 valid answers were received that compose our database.

## SAMPLE

Demographic characteristics of the 1st Istrian marathon runners are presented in Table 1.

Table 1: Description of the interviewed runners by demographics

	Frequency	Valid Percent
Gender		
Male	390	55.8
Female	309	44.2
Educational level		
Elementary school or less (8 years)	9	1.3
Vocational school (2 or 3 years)	33	4.8
High school (4 years)	181	26.2
College degree	183	26.4
Bachelor degree	212	30.6
Postgraduate degree	74	10.7
Self-estimated economic status		
A lot under average	19	2.8
Under average	62	9.0
Average	431	62.8
Above average	158	23.0
A lot above average	16	2.3

More male (1151) than female runners (881) were present at the 1st Istrian marathon held in 2014 ([www.istrski-maraton.si](http://www.istrski-maraton.si)), which reflects in the interviewed sample as well (55.8 % male, 44.2 % female). 9.2 % of the interviewed runners did not report their gender. The majority (30.6 %) of the runners hold a bachelor degree (10.1 % of the interviewed runners did not report their educational level) and 62.8 % reported having an average economic status (10.9 % of the interviewed runners did not report their economic status). The descriptive statistics of the respondent's age is presented in Table 2. 9.4 % of the interviewed runners did not report their age.

Table 2: The descriptive statistics of the participant's age

N	Valid	698
	Missing	72
Mean		40.69
Std. Deviation		10.858
Skewness		0.252
Kurtosis		-0.127
Minimum		14
Maximum		80

The respondent's average age is 40.69 years. The standard deviation is 10.858 years. The youngest interviewed runner was 14 years old and the oldest 80. Skewness (0.252) and kurtosis (-0.127) coefficients show a distribution that is close to normal.

Table 3: Running distances

		Frequency	Percent	Valid Percent
Valid	8,5 km	229	29.7	30.0
	21 km	398	51.7	52.1
	42 km	137	17.8	17.9
	Total	764	99.2	100.0
Missing	No answer	6	0.8	
Total		770	100.0	

In addition to the demographic characteristics, the running distance is presented (Table 3). 0.8 % respondents have not answered that question and were omitted from further statistical analysis.

In the following the characteristics of the event are presented. Runners were asked who they came with to the race. The following options were possible: alone, with the partner, with the family, with friends, with colleagues from work, with an organized group of runners and other. The distribution of the variable is presented in Table 4.

Table 4: The travel company

	Frequency	Percent	Valid Percent
Alone	96	12.5	13.2
With the partner	182	23.6	25.0
With the family	139	18.1	19.1
With friends	197	25.6	27.0
With colleagues from work	39	5.1	5.3
With an organized group of runners	54	7.0	7.4
Other	22	2.9	3.0
Total	729	94.7	100.0
Missing	41	5.3	
Total	770	100.0	

5.3 % of the interviewed runners have not answered the question and they were omitted from further statistical analysis. Also the last category (Other) was excluded from further statistical analysis.

Respondents were also asked to choose one of the following motives for attending the marathon: entertainment, participating at the event, recreation, gathering with other runners, obtaining a results and self-confirmation and other motives.

Table 5. Main motive for attending the 1st Istrian marathon

	Frequency	Percent	Valid Percent
Entertainment	269	34.9	37.5
Participating at the event	106	13.8	14.8
Recreation	155	20.1	21.6
Gathering with other runners	70	9.1	9.7
Obtaining a result and self-confirmation	102	13.2	14.2
Other	16	2.1	2.2
Total	718	93.2	100.0
Missing	52	6.8	
Total	770	100.0	

The runners that have not answered that question (6.8 %) and those who have chosen the option 'other' (2.2 %) were omitted from further statistical analysis. As presented in the table 5 the major (37.5 %) motive for attending the marathon is entertainment.

## RESULTS

The dependent variable used in the present analysis was the main motive for attending the 1st Istrian marathon. Used independent variables are demographic variables (gender, age, educational level and economic status), sports activity (number of hours exercising per week, usual ran distance at running competitions, running distance) and the travel company. For the purpose of

identifying the runners the CHAID (CHi-square Automatic Identification Detector) technique was used. To include the variable into the analyses tree three rules apply: 1. the independent variable had a statistical significance lower than 0.05, 2. the parent node had at least 50 units and, 3. the child node had at least 25 units. The results are presented in Chart 1.

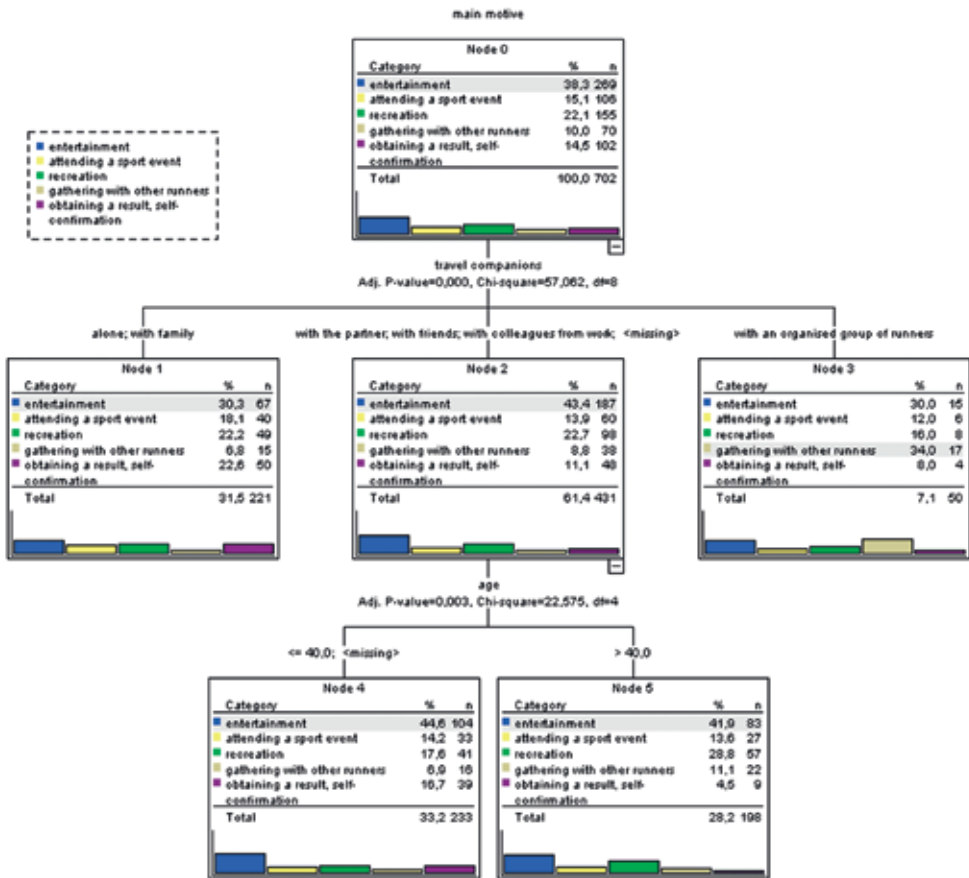


Chart 1. CHAID analysis

CHAID analysis reported 4 groups (Node 1, 3, 4 and 5). The first independent variable that influences significantly the main motive for attending the marathon at the level 0.05 is the travel companion. 3 groups derive from this influence (Chart 1), however 5 nodes are noticed in total.

The first node is composed of those who came alone or with the family at the event and entertainment (30.3 %) was their main motive to attend the marathon. The second node split into two groups. The variable that significantly separates the two groups is the age of the respondents (<=40 and > 40, p=0.003). Both groups (Node 4 and 5) came to the marathon mostly for an entertainment also. The third node is composed of runners who came along with an organized

group of runners and the majority of them (34 %) came at the event with the main motive of gathering with other runners.

In this last part the most profitable nodes for each motive are presented. First, the results for the entertainment motive are presented (Table 6).

Table 6. Gains for each node for 'entertainment' as the main motive

Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
4	233	33.2%	104	38.7%	44.6%	<b>116.5%</b>
5	198	28.2%	83	30.9%	41.9%	<b>109.4%</b>
1	221	31.5%	67	24.9%	30.3%	79.1%
3	50	7.1%	15	5.6%	30.0%	78.3%

For the entertainment as the main motive to participate at the analyzed marathon the most profitable Nodes are 4 and 5. Index higher than 100 % is showing the two groups of runners that are more likely to come to the event for the entertainment. Runners coming to the marathon with partner, friends or colleagues from work are more likely to come to the event for the entertainment.

Table 7. Gains for each node for 'attending a sport event' as the main motive

Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
1	221	31.5%	40	37.7%	18.1%	<b>119.9%</b>
4	233	33.2%	33	31.1%	14.2%	93.8%
5	198	28.2%	27	25.5%	13.6%	90.3%
3	50	7.1%	6	5.7%	12.0%	79.5%

For the motive 'attending a sport event' the most profitable is the Node 1 (Index>100 %), showing these group of runners are more likely to come to the event for attending a sport event. In addition is showing that runners who came to the marathon alone or with the family are more likely to come to the event for attending a sport event.

Table 8. Gains for each node for 'recreation' as the main motive

Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
5	198	28.2%	57	36.8%	28.8%	<b>130.4%</b>
1	221	31.5%	49	31.6%	22.2%	<b>100.4%</b>
4	233	33.2%	41	26.5%	17.6%	79.7%
3	50	7.1%	8	5.2%	16.0%	72.5%

For 'recreation' as motive the most profitable are the Nodes 5 and 1 (Index>100 %), showing this two groups of runners are likely to come to the event for recreation. In other words, runners who came to the marathon alone or with the family or those aged above 40 and who came with



the partner, with friends or with colleagues from work are more likely to come to the event for recreation.

Table 9. Gains for each node for ‘gathering with other runners’ as the main motive

Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
3	50	7.1%	17	24.3%	34.0%	<b>341.0%</b>
5	198	28.2%	22	31.4%	11.1%	<b>111.4%</b>
4	233	33.2%	16	22.9%	6.9%	68.9%
1	221	31.5%	15	21.4%	6.8%	68.1%

For ‘gathering with other runners’ as the main motive the most profitable are the Nodes 3 and 5. In both cases the index is higher than 100 % (for the Node 3 the Index is even higher than 300 %) showing these two groups of runners are more likely to come to the marathon for gathering with other runners. Runners who came to the 1st Istrian marathon with an organized group of runners, those aged above 40 and who came with partner, friends or colleagues from work, are more likely to come to the marathon for gathering with other runners.

Table 10. Gains for each node for ‘obtaining a result and self-confirmation’ as the main motive

Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
1	221	31.5%	50	49.0%	22.6%	<b>155.7%</b>
4	233	33.2%	39	38.2%	16.7%	<b>115.2%</b>
3	50	7.1%	4	3.9%	8.0%	55.1%
5	198	28.2%	9	8.8%	4.5%	31.3%

Finally, for obtaining a result and self-confirmation as the main motive to come to the 1st Istrian marathon the most profitable are the Nodes 1 and 4 (Index > 100 %), showing these two groups of runners are more likely to come to the marathon for obtaining a result and self-confirmation. Specifically, runners who came to the 1st Istrian marathon alone or with the family and those aged below 40 who came with partner, friends or colleagues from work are more likely to come to the event for obtaining a result and self-confirmation.

## DISCUSSION AND CONCLUSIONS

The aim of the Istrian Marathon organization is to promote recreation and sport in the healthy and green environment, but a long-term aim of any sport event is to attract more competitors, tourists, visitors, sponsors and others. For understanding how to future drive the Istrian Marathon to achieving those aims, the runners have been ask to identify a motivation for their participation on this event. Marathon running is an endurance-promotion exercise (Du et al., 2005) and as such the runners-active participants are the first promoters. Thus, their motivation needs to be understood for better plan of further promotional activities in order to attract more as runners as visitors-passive attendees. In fact, despite the positive effects and the prevalence of small-scale events, very few studies have identified the important determinants of post-decision

behaviors, limiting the development of effective marketing strategies for small-scale event organizers (Koo, Byon, & Baker, 2014). In addition, this study is one of the few that examines sport tourists by using CHAID analyses. To fill these voids, the present research was prepared. The findings from this study provide a number of insights and important implications for recurring small-scale marathon event organizers interested in developing marketing strategies based on the identification of the runners motivation. First, the runners at the 1<sup>st</sup> Istrian Marathon are heterogeneous by their motivation, where the travel companions and age have a significant influence to the motivation in taking part in the marathon running. As previously found by Ogles & Masters (2003) who have confirmed that runners motives are sufficiently diverse that the runners can be significantly clustered by their motivation, can be confirmed in Slovenia also. Thus, the target groups are important to define before starting with marketing activities for the next year same event

Second, overall the major motivation for attending the marathon is entertainment (almost 40%), but who travelled in an organized group of runners are mainly motivated by gathering with other runners. Node 3 is also important for that same motive: those aged above 40, who came with partner, friends or colleagues from work, are more likely to come to the marathon for gathering with other runners also. The organizer should take this finding into consideration, if targeting those who come in organized groups, but should also take into consideration this same group is the smallest among all (7.1 %).

Third, runners who come with partner, friends, colleagues (Node 4 and 5) statistically differ ( $p=0.003$ ), where the age of 40 is the braking point. Thus, younger runners than 40 and those older than 40 should be treated differently, our results predict. Node 2 (those that split into Node 4 and 5) is also the biggest group (more than 60 %), which confirms the importance of their splitting. That the age has a strong impact on motivation in marathon running was also confirmed by Ogles and Masters (2000) who argued that older runners are more motivated by a general health orientation, weight concern, life meaning, and affiliation with other runners, on the other hand younger runners are more motivated by personal goal achievement. Thus, the marathon organizers could organize two different starts for them, maybe from two different starting points or with a starting time difference. Similarly has been suggested by Cheng (2013) who has suggested 'to increase different groups', but separated by gender, 'so that female can have more choices, enhancing the number of female participants' (pg. iii). In addition it is our suggestion to organize the accompanying events (e.g. music concerts), by our results identified, two age groups, to increase the number of participants and visitors. For the further research is also suggest to surveys the visitors of that same running event and try to understand if the same segmentation by age groups apply.

Fourth, runners coming to the marathon alone and with families represent one third of all runners and are mainly motivated by entertainment, but following by recreation and obtaining a result. Thus, children and families activities should be included into the marathon organization, with two aims: first, to entertain family members and kids and second, to attract more families. Those who came mainly to achieve a result would also value a family support, if more activities for families would be organized.

Finally, it has to be pointed out that the present paper is a contribution in terms of a method used in sport tourism. The literature using CHAID segmentation method is scarce as in tourism as in sport related research. Segmentation studies using the CHAID analyses in hospitality and

tourism literature are less common than studies using other segmentation tools (Hsu & Kang, 2007), and even less CHAID analyzes have been found in sport literature (e.g. Ragan, Kang, & Flegel, 2002). Thus, the present paper has not practical implications and suggestions for the organizer only, but it contribute to the sport and tourism CHAID method literature also.

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