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Contents

Travel behaviour survey of urban inhabitants conducted in Polish cities. The theoretical and practical aspects

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Abstract

The article defines the travel behaviour of urban inhabitants as a form of consumer behaviour.

This forms the basis of the type of research conducted in Polish cities in order to establish the travel behaviour of urban inhabitants. The aim of the research is to show the similarities and differences between different types of market research. The advantages and disadvantages of different types of research will be also indicated.

The article presents the results of research conducted in cities of various sizes (small, medium and large) and in different regions of the country. They were formulated after the analysis of the published as well as the unpublished materials provided by their authors.

The results from Gdynia are the most widely discussed due to the personal commitment of the author. The research was conducted regularly, every 2-3 years, by the Department of Transportation Market at the University of Gdansk and by the Public Transport Authority of Gdynia. The respondents, who constitute 1% of Gdynia's population, are always chosen by random selection. Research is conducted in households of the respondents in the form of an interview and a questionnaire.

The article compares the results from the years 2008, 2010 and 2013, and as such facilitates the determination of trends in the travel behaviour of Gdynia's inhabitants, including the ways in which urban travel is being fulfilled, the destinations, the duration of the trip and the mobility rate.

The proposed principles for future research into the travel behaviour of the inhabitants in Polish cities are based on the above.

Key words*: urban transport, travel behaviour, market research*

Transport behaviour of Urban inhabitants as a form of consumer behaviour

Human behaviour that can be observed within the market of consumer goods and services (with exception of behaviour on the employment, financial and estate markets) constitute consumer behaviour. According to J.C. Mowen consumer behaviour is the science of individual decision making and of the processes of obtaining food, services, experience, and ideas as well as their consumption and disposal (Mowen, 1987). J. F. Engel, R. D. Blackwell, and P.W. Miniard describe consumer behaviour as a sum of activities connected with the acquisition and use of products and services, as well as their disposal, in connection with prior decisions which condition such actions (Engel & Blackwell &Miniard, 1993). On the other hand, G. Antonides and W.F. van Raaij, define customer behaviour also as psychological and physical actions, together with their causes and reasons, that are manifested by individuals and small groups, and refer to

orientation, purchasing, usage, and disposal of a product, which allow a consumer to function, reach their goals, and act according to their own values(Antonides & van Raaij, 2003). According to L. Rudnicki customer behaviour on a market has to be understood as the sum of actions and perceptions of a consumer which contribute to the preparation of a decision making process when selecting a product, making that decision, and eventually lead to a purchase (Rudnicki, 2000). S. Smyczek and I. Sowa broaden the concept of behaviour by adding the element of evaluation after the experience of usage and the elements of time, money, and effort management in the process of customer behaviour. They believe that it is necessary to analyse what customers purchase but also the reasons for purchasing a given product or service, when and how often it was purchased, as well as the usage frequency of the purchased product (Smyczek & Sowa, 2005).

Transport behaviour may be defined on the basis of general definitions of customer behaviour as a series of actions and activities aimed at the fulfilment of transport requirements by realisation of the process of re-location according to one's own system of preferences. The decision making process, that determines such actions, has to be seen as an integral part of transport behaviour. The definition includes all types of reactions typical of customer behaviour, namely experiencing a need for transport, their gradation, communicating with various entities on the market and gathering information, making a decision regarding the necessity and the way in which the trip will be fulfilled according to a complex set of personal criteria, the undertaking of the trip and the impressions that follow. Therefore, transport behaviour is a form of consumer behaviour and the specificity of the needs fulfilled in the process can serve as the basic criterion for distinguishing them from other types of behaviour. In the process of transport behaviour the needs fulfilled are those connected with transportation (Hebel, 2013).

Understood traditionally, the choice of destination and route as well as the means of transportation and the moment of realisation of the trip are considered transport behaviour. Additionally, time devoted to travel and the number of trips fulfilled in a unit of time (day, week, month), defined as transport mobility, are also considered transport behaviour. Taking into account the approach of specialists from other fields the purchasing of a ticket (single or periodical), including the purchase of a particular ticket from amongst available single or periodical tickets, be added to the list of types of transport behaviour. The choice made between direct and indirect connections seems to constitute an important behaviour (Goodwin, 2008).

Types of transport behaviour research in Polish cities

Data on transport behaviour of inhabitants is gathered in every Polish city in which public transportation is offered. The data reflects the effective demand and comes from secondary sources. The most common type of data collected refers to ticket sales which are divided into single and periodical tickets. As a result, the volume of the effective demand for public transport is determined as well as the proportion between regular passengers (those who purchase periodical tickets) and casual passengers (those who purchase single tickets).

The advantage of such research is its low cost whilst its disadvantage is its limited accuracy resulting from the fact that in many cities it is acceptable to purchase two single discounted tickets instead of one full price ticket or to join many different tickets in order to obtain a ticket of a desired feature. In the case of hourly or 24 hour tickets, as

well as in the case of 30 day and monthly tickets, the number of trips is uncapped within the time the ticket is valid, with no need to validate the ticket during each trip. It is impossible, therefore, to determine the precise number of passengers on the basis on information regarding ticket sales. The need to validate periodical tickets is accepted by the passengers only in a case of its validation outside the vehicle, i.e. at the turnstiles leading out from the underground. Since in Poland the only underground in operation is located in Warsaw it is possible to successfully use the data obtained from ticketing systems only in relation to trips by underground. Such a system also allows for the prevention of unpaid fares. Additionally, it allows the start and end point of each passenger's trip to be determined. The cost of its operations, however, constitutes its main downfall.

This short analysis already suggests that it is impossible to determine the factual transport behaviour of urban inhabitants on the basis of data coming from secondary sources. Thus, in the chosen cities of Poland, primary research of transport behaviour is being conducted concerning effective demand including:

- passengers of public transport at official stops (or at control points) - the so called 'stationary research' - or on board of public transport vehicles - the so called 'on-board research';
- people travelling by car at control points during comprehensive traffic research;
- cyclists at control points during comprehensive traffic research.

Observation and registration are used as research methods and measuring tools during transport behaviour research concerning effective demand for public transportation. The observer may or may not sit on board the vehicle. The observation is usually open and is characterised by standardisation. In order to standardise, the results of the observation are being recorded on specifically prepared forms (Wyszomirski, 2008). Stationary research is based on visual evaluation of the level of utilisation of vehicle transport capacity at the point of departing from chosen measurement stations (usually public transportation stops) by trained observers.

Transport behaviour research is also conducted in households. The advantage of such a method is that it allows for a random sample selection which, in turn, prolongs the research and inflates its costs. Therefore, this method has not been rolled out nationwide in Poland. It has been, however, conducted in Gdynia for more than 20 years and was since first implemented in Warsaw in 2012 with the usage of the methodology applied in Gdynia but modified in the area of research sample selection.

The advantage of such research is that it allows more specific questions to be answered. Apart from the 'a day in picture' method and establishing the way, destination, and duration of urban trips, the reasons behind prolonging the trips are also established together with the determinants of particular transport behaviours (i.e. determinants of choosing either a car or public transport), forming a part of an answer to such more defined questions.

Factors such as age, social, occupational, and vehicle ownership status are always taken into account during the research. Their influence on transport behaviour is later determined in the context of travelling around a city. It is important, however, that transport behaviour research in households includes both those who use public or private transportation and those choosing any other mode of transport, such as bicycle,

moped, or on foot, allowing not only the effective but also the potential demand for urban passenger transportation to be determined. If such research is conducted systematically it also enables for the determination of patterns of changes in particular types of transport behaviour.

The advantages and disadvantages of particular methods of research into transport behaviour of urban inhabitants are listed in table 1.

In only a few large cities comprehensive traffic research, which includes transport behaviour, is being conducted every 5-10 years.
Comprehensive traffic research comprises of (Pogłód, 2010):

surveys on transport behaviour of inhabitants (conducted in households and control points);

research (measurements) of inbound and outbound traffic of vehicles and passengers (conducted at cordon points);

surveys for managers of freight rolling stock.

Table 1. Advantages and disadvantages of primary research into transport behaviour of urban inhabitants

ADVANTAGES	DISADVANTAGES
CRAM RESEARCH	
Stationary research at control points	
• Simplicity • Low costs • Possibility to include passengers of public transport, those travelling by car and cycling	• Limited accuracy due to estimated passenger volumes • Non-random sample • Difficulties in establishing control points
On-board research	
• Simplicity • Low costs (however higher than in the case of stationary research)	• Limited accuracy (however higher than in the case of stationary research) • Non-random sample • Difficulties in choosing the vehicles involved
SURVEYS	
Stationary research at control points	
• Relatively low costs • Short time of realisation • Simple questions	• Limited subject area due to the necessity to ask short questions • Reluctance in answering on the part of respondents due to the presence of other people at the time of surveying • Non-random sample • Exclusion of those travelling by car and cycling • Difficulty in choosing control points
On-board research	
• Relatively low costs • Short time of realisation • Simple questions	• Limited subject area due to the necessity to ask short questions • Reluctance in answering on the part of respondents due to the presence of other people at the time of surveying • Non-random sample • Exclusion of those travelling by car and cycling • Difficulty in choosing the routes to be involved
Household research	
• Random sampling • Elaborated subject matter • Possibility to apply the 'a day in picture' method prior to research • Possibility to include passengers travelling by public transport, car and cycling	• High costs • Long time of realisation

Source: own work

The recorders stationed at chosen points within a city count the passing vehicles, the number of passengers and the passengers on board of public transport vehicles. The surveyors, on the other hand, stop chosen vehicles (i.e. every 10th vehicle) and by doing so reach both the passengers of public transport as well as car drivers.

Comprehensive traffic research (KBR) is costly and complicated from an organisational point of view thus it is only conducted in cities which aim at establishing a traffic model. For the aim of such research is to determine a traffic model whilst the aim of traffic behaviour research is to the establish services offered by public transport.

Results of transport behaviour research in chosen Polish cities

Transport behaviour research of inhabitants is conducted in chosen Polish cities at public transportation stops. The results of such research indicate that the transport behaviour of passengers varies according to weekdays.

Table 2. The share of passengers transported on a Saturday and Sunday compared to the number of passengers transported on a weekday in chosen Polish cities in the years 2008-2014

City	Year of research	Saturday (%)	Sunday (%)
Large cities			
Zielona Góra	2008	50.6	36.5
Lublin	2011	52.4	36.7
Płock	2011	47.7	31.7
Koszalin	2012	50.7	34.4
Zielona Góra	2014	49.0	32.8
Medium cities			
Piotrków Trybunalski	2008	42.8	37.2
Puławy	2008	47.6	37.7
Starogard Gdański	2009	51.8	35.0
Zgierz	2009	56.9	34.0
Słupsk	2010	46.7	30.1
Suwałki	2010	38.3	21.7
Ciechanów	2011	34.6	22.2
Lębork	2011	35.1	18.2
Mrągowo	2011	15.0	n/a
Pabianice	2011	50.6	31.4
Piotrków Trybunalski	2011	44.5	34.1
Bolesławiec	2012	35.8	17.8
Radomsko	2012	22.5	18.6
Reda	2012	47.0	38.0
Słupsk	2012	49.6	30.6
Starogard Gdański	2012	44.5	31.3
Tczew	2012	58.9	36.0
Nowa Sól	2013	25.3	23.5
Piotrków Trybunalski	2013	44.0	32.9
Rzeszów	2013	38.5	28.4
Tomaszów Mazowiecki	2013	38.9	25.6
Cieszyn	2014	41.6	35.1
Gorzów Wielkopolski	2014	53.4	39.8
Inowrocław	2014	46.6	30.6
Słupsk	2014	51.4	34.2
Wejherowo	2014	46.0	33.3

Source: own work on the basis of (Gromadzki, 2014)

Table 2 presents the share of passengers transported on a Saturday and Sunday as compared to the number of passengers transported on a weekday as established during research in the years 2008-2014 in chosen Polish cities. The cities were divided into large (above 100k inhabitants) and medium (between 20-99k inhabitants). The analysis is lacking data from small cities (below 20k inhabitants) due to the fact that they largely do not offer their own public transport but rather dispose of services provided by larger cities in their vicinity that plan routes reaching smaller settlements around agglomerations. Research results confirm that inhabitants travel more rarely on Saturdays (compared to a regular weekday) and travel the least on Sundays. The demand for public transport constitutes circa 50% of the weekday demand and only approximately 30% on Sundays. In medium cities the demand for public transport on weekends is smaller than in large cities.

In the group of medium cities a relationship between the demand and the size of a city can be observed. In the cities in which the number of inhabitants merely rises above 20k the demand for public transport on Saturdays and Sundays is distinctly lower in comparison to the demand on weekdays than in the cities where the number of inhabitants is closer to 100k.

Transport behaviour research in the chosen cities also includes the type of tickets purchased and used by passengers on board public transportation vehicles. This is inclusive of establishing the share of passengers travelling without tickets (Table 3). The passengers travelling on full price tickets constitute only 25-30% of the whole number of passengers. Passengers using discounted tickets amount to 30-40% whilst the share of passengers eligible for non ticketed travel reaches 15-30%. The passengers travelling without a valid ticket constitute 3-8% of the total.

Table 3. The structure of passengers in chosen Polish cities using public transport according to the type of ticket they use. Years 2008-2014

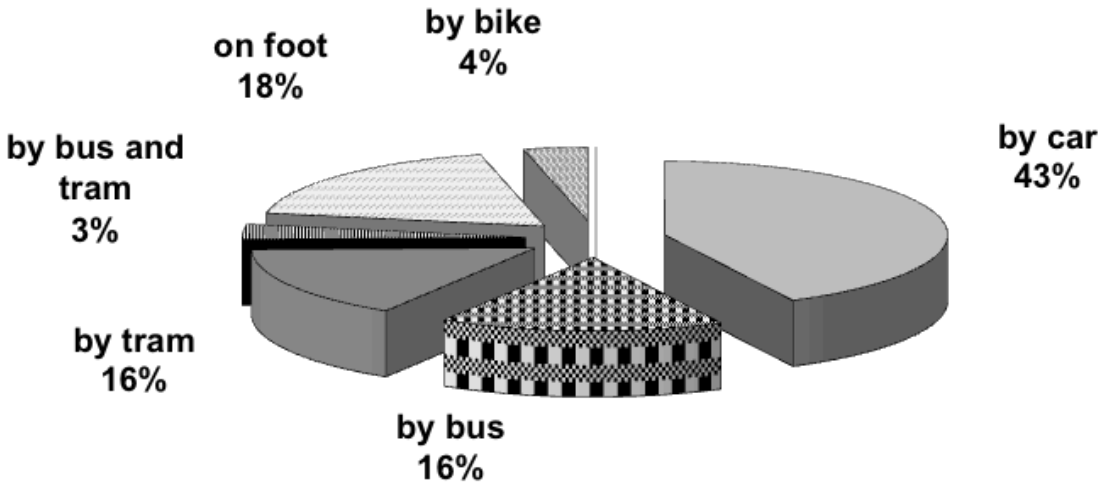
City	Year of research	Passengers travelling with full price tickets (%)	Passengers travelling with discounted tickets (%)	Passengers travelling without tickets – eligible (%)	Passengers travelling without tickets – non-eligible (%)
Lębork	2011	24.9	38.8	33.1	3.2
Płock	2011	34.6	44.1	16.7	4.6
Pabianice	2011	27.2	38.9	28.4	5.5
Gdańsk	2012	33.1	39.3	20.7	6.9
Gdynia	2012	30.6	36.9	24.3	8.2
Sopot	2012	29.5	31.2	32.2	7.1
Tomaszów Mazowiecki	2013	26.4	40.5	26.9	4.3
Zielona Góra	2014	26.0	50.0	19.0	5.0

Source: Own work on the basis of (Gromadzki, 2014)

Transport behaviour relies also on the choice of the way in which a trip will be undertaken. It can be determined as a part of many different types of research. Wroclaw

serves as an example of a city in which the way in which of transport was determined as a part of comprehensive traffic research. In the years 2010-2011 the inhabitants of Wroclaw fulfilled as much as 41.4% of their trips by car. 19.5% of trips which were not undertaken on foot were fulfilled by tram and only 3.9% of the inhabitants fulfilled their trips partly by bus and tram. Nearly 1/5 of trips in Wroclaw were fulfilled on foot (Beim, 2011). The volumes are presented in Figure 1. Only 4% of Wroclaw's inhabitants were undertaken by bike.

Figure 1. The ways in which inhabitants of Wroclaw undertook trips in the years

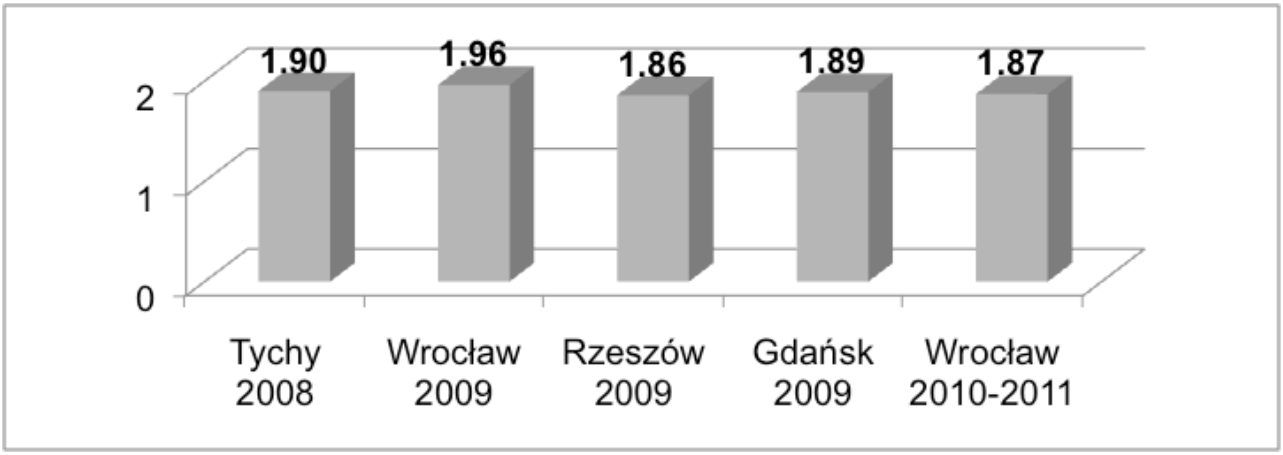


2010-2011

Source: own work on the basis of: (Beim, 2011)

One of the aims of transport behaviour research is to determine the transport mobility of urban inhabitants. Figure 2 presents transport mobility of chosen Polish cities on the basis of KBR research conducted in the years 2008-2011. The differences seem minor for the mobility amounts between 1.86 (in Rzeszów) and 1.96 (in Wrocław). For comparison: in 13 cities of Upper Silesia Agglomeration transport mobility in the year 2009 was established at a level of 1.83 and was established as a part of transport behaviour research conducted in households (Karoń & Żochowska & Sobota, 2010), whilst it reached between 1.72-2.28 (Table 4) in research conducted at stops and on-board of public transport vehicles with the participation of regular commuters (understood as an average transport mobility of regular passengers of public transport meaning those, who travel on monthly tickets) in the years 2008-2012. The differences were noticeable in all types of cities – small, medium, and large. Transport mobility among the inhabitants was distinctly higher on weekdays rather than on Saturdays and Sundays.

Figure 2. Transport mobility of the inhabitants of Polish cities established as part of KBR research in the years 2008-2011



Source: own work on the basis of: (Pogłód, 2009); (Urząd Miasta Rzeszowa, 2009), (Kompleksowe badania ruchu na terenie miasta Gdańska 2009, 2009), (Budziszewski, Mendel, 2010), (Beim, 2011)

Table 4. Transport mobility of public transport passengers using monthly tickets in chosen Polish cities in the years 2008-2012 (average daily trips/ 1 inhabitant)

City	Year of research	Transport mobility			
		Weekdays	Saturday	Sunday	On a statistical day
Large cities					
Gdynia	2012	2.32	1.83	1.07	2.05
Zielona Góra	2008	2.81	2.56	1.00	2.47
Medium cities					
Pabianice	2011	2.18	1.49	0.64	1.83
Rumia	2008	2.17	1.96	1.44	2.02
	2012	2.31	1.64	0.79	1.97
Sopot	2008	1.87	1.41	1.31	1.72
	2012	2.23	2.02	1.39	2.06
Lębork	2011	1.96	0.88	0.35	1.55
Small cities and administrative districts (Polish: gminy)					
Żukowo	2012	1.98	1.33	1.02	1.74
Gmina Szemud	2012	2.79	2.17	1.36	2.47
Gmina Wejherowo	2012	2.19	-	-	2.19
Gmina Kosakowo	2012	2.63	1.94	1.08	2.28

Source: own work on the basis of: (Gromadzki, 2014), (Zarząd Komunikacji Miejskiej w Gdyni, 2014)

Results of transport behaviour household research conducted in Gdynia

Gdynia serves as an example of a city which systematically conducts household research into the transport behaviour of its inhabitants. A direct, individual, standardised survey serves as a method for this research. The size of the research sample used

each time amounts to approximately 1% of the city's inhabitants between the ages of 16 and 75. In order to ensure that the sample provides a fair representation of the population it is obtained by way of stratified sampling which divides it into stratums on the basis of age, sex, and district in which they live. Simple sampling is then applied in each of the established stratums. The merit of this method is that it allows inhabitants of various districts to be incorporated and the road traffic structure be determined. It has to be mentioned, however, that the sampling error within the cross-section of each district is higher than in the entire randomly chosen sample of the city's inhabitants.

The minimal size of the research sample is determined using statistical methods. In practice, the average size of a research sample during household transport behaviour research is set at 1% of the population in the case of cities with a number of inhabitants greater than 100k, and 3% in the case of cities with a lesser number of inhabitants. The size of a sample may also be determined by the available funds or analyses which are to be carried out on the basis of research (Żurowska, 2005).

In Gdynia, for each randomly chosen respondent, there are the so called „substitutes" (from 3 to 10) meaning inhabitants residing the closest to them on the list of the general population and of identical age and sex. Such persons are listed in case the person listed on the original is unable to conduct the survey. This happens due to the danger that the results are distorted (as it is easier to reach respondents who are not equally active transport wise).

During household research into transport behaviour of the inhabitants of Gdynia what is being determined are the ways in which trips are fulfilled, the duration, reasons for travel and transport mobility together with the determinants for those activities.

The declared way of undertaking urban trips was established on the basis of an answer to the question: 'In what way do you carry out your urban trips'. Among possible answers there are six recognised categories:

- always by public transport;
- usually by public transport;
- equally by public transport and car;
- mostly by car
- always by car;
- in a different way.

The results obtained in the years 2008, 2010, and 2013 are presented in table 5 (new research will be conducted in 2015)

The results show that the share of public transport in the declared urban trips dropped. The share of trips fulfilled always or usually by public transport diminished from 53% to 46%. In the same period the share of trips fulfilled mostly or always by car rose from 35% to 41%. In the years 2008-2013 the inhabitants of Gdynia most often declared that they carry out their urban trips 'always by public transport'.

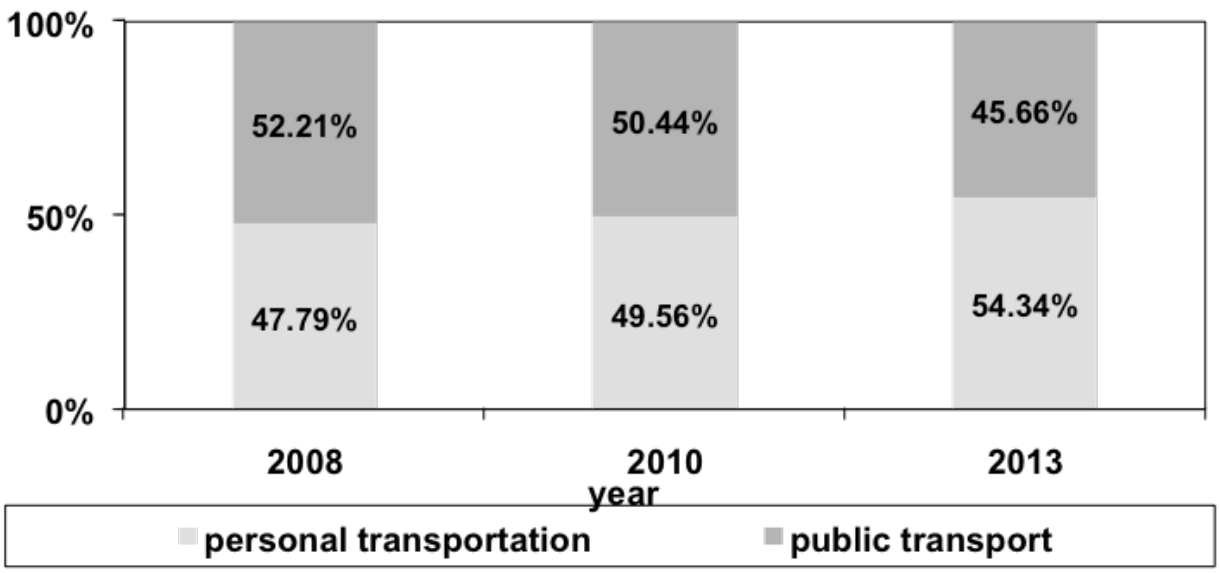
Table 5. Declared way of carrying out urban trips by Gdynia inhabitants in the years 2008-2013 (% of inhabitants)

The way of fulfilling urban trips	Year		
	2008	2010	2013
Always by public transport	27.62	31.3	28.35
Usually by public transport	25.67	20.3	18.15
Equally by public transport and car	11.06	12.4	11.85
Mostly by car	16.31	14.5	16.35
Always by car	18.93	21.00	25.00
In a different way	0.41	0.5	0.30

Source: own work on the basis of: (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2008), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2010), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2013)

The declared way of fulfilling urban trips was always verified in the research by means of establishing the way of carrying out trips the previous day, on the basis of the so called 'a day in picture'. On the basis of such research it was determined that in the years 2008-2013 the way in which Gdynia inhabitants travel is changing (Fig. 3). A rising trend can be observed in the share of trips fulfilled by personal transport (car, motorcycle, bike). Unfortunately, the share of trips fulfilled by private transportation rose above 50% - the critical point from the point of view of the principles of creating sustainable transport policies. In the cities within which the share of public transport becomes lesser than 50% re-locating during urban trips becomes more difficult for inhabitants and takes relatively more time. Taking Gdynia as an example, it can be said that it is necessary to undertake actions which would allow the share of public transport in the carrying out of urban trips to be remain at the current level in order to ensure proper functioning of the city.

Figure 3. The way in which Gdynia inhabitants carry out urban trips in the years 2008-2013 in the light of market research (on the basis of trips fulfilled on the day prior to the survey)*



***in case of trips with changes the trip was classified according to the first mode of transportation**

Source: own work on the basis of: (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2008), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2010), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2013)

During transport behaviour research in Gdynia the factors which determine the use of a car during urban trips were either always or most often established.

In the research conducted the respondents were asked about the factors determining the choice of a personal car for urban trips. Eight factors were revealed:

- safety – exposing oneself to aggression i.e. on the part of other passengers;
- no need to walk to and from the stop;
- no need to wait;
- shorter duration of the trip by car;
- more comfortable;
- lower cost of travel by car;
- car as a working tool;
- other.

The factors which seem to be the most important when choosing a personal car over public transport for urban trips, on the basis of the analysis of data from all the years the research was conducted in, are the comfort, shorter duration of the trip and no need to wait.

Twelve factors influencing the choice of public transport for urban trips were established during research:

- car in use by another person;
- physical and psychological indisposition;
- lower cost of travel by public transport
- availability of the metropolitan ticket;
- paid parking;
- difficulties with parking at the destination;
- satisfying quality of public transport;
- high traffic volumes;
- poor roads condition;
- poor technical state of owned vehicle;
- weather;
- other.

The three most important factors were recorded in order of their importance to the respondent. The weight of the reasons behind using public transportation differed throughout the research, however, the main reasons behind choosing such a mode of transportation for urban trips in all research years pointed to the difficulties with parking at the destination, the lower cost of public transport, and the car being used by another person. Bearing in mind the fact that in Gdynia the difficulties with parking at the

destination was the most important determinant behind such choices, it has to be added that the pay and display system functions within the city centre since 2009.

The shares held by each modes of transportation in urban trips in the years 2008-2013 were established on the basis of the research. Only the first mode used during a trip was taken into account during calculations, since a trip fulfilled by car usually does not require changes. Should the separate modes of transport be counted (i.e. 3 buses taken) then each change would increase the share of public transport in urban trips which would compromise the results. Another option was to divide the trips into stages and to count each change as a stage of the trip. We would then encounter a situation where travelling by one mode of transportation would stand for ½ or 1/3 of a trip. With regards to the P&R trips one way was counted as a car trip and the return as a trip by public transport. This could have resulted in a statistical error. Another error may be generated by situations in which the inhabitants travel a part of their trip as car passengers and a part as public transport passengers. Additionally, taking into account that a trip by train [Fast Urban Railway – SKM] often constitutes a stage of a trip the assumption could influence the evaluation of the share of SKM in terms of the general structure of the ways in which trips are fulfilled (Hebel, 2013).

After consideration of all the above mentioned factors it can be stated that the share of cars in urban trips is distinctly growing in the years included in the research (from 47% to nearly 53%). The means of public transportation most commonly used throughout was the bus, though its role significantly diminished (the share grew smaller from 30% in the year 2008 to 25% in 2013). Trolleybus proved to be the second most important means of public transportation in Gdynia. Trips fulfilled by SKM or by rail amounted to the lowest share in the aforementioned city (Table 6).

Table 6. The way in Gdynia's inhabitants fulfilled urban trips in the years 2008-2013, on the basis of trips fulfilled by the respondents on the day prior to the survey (according to the means of transportation used)*

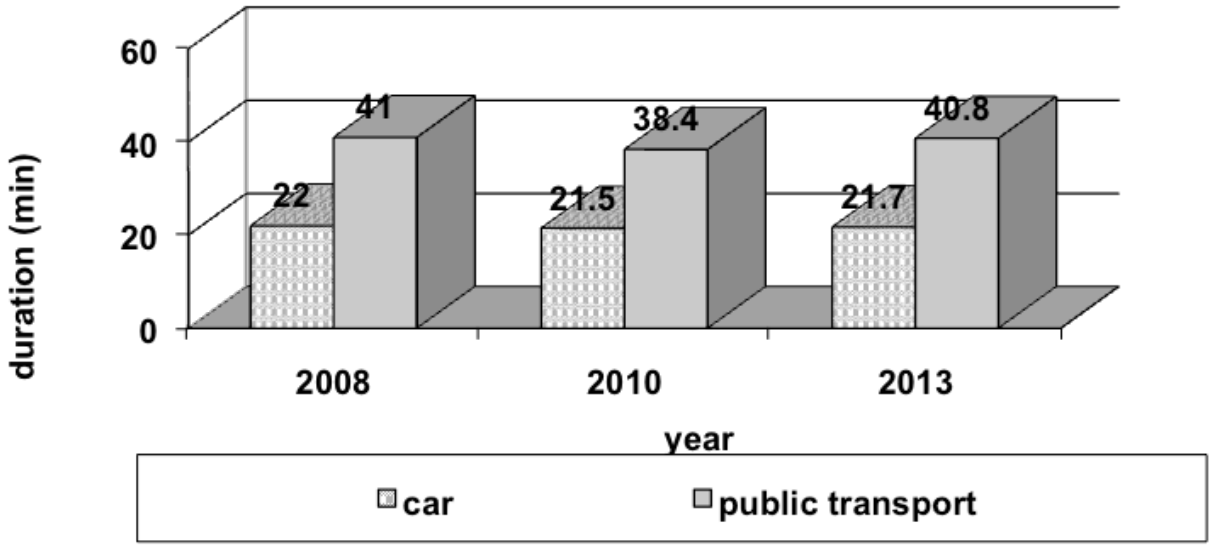
Way of travel	Year		
	2008	2010	2013
Bus	29.94	28.81	25.04
Trolleybus	14.72	14.97	14.00
Fast Urban Railway (SKM) or rail	7.20	6.32	6.40
Car	46.95	48.65	53.10
Bike	0.41	0.35	0.80
Other	0.78	0.90	0.66

*in case of trips which required changes it was classified according to the first mean of transportation

Source: own work on the basis of: (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2008), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2010), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2013)

Average time of travel to the place of work and study did not undergo any major changes in the years 2008-2013 (Figure 4 and 5).

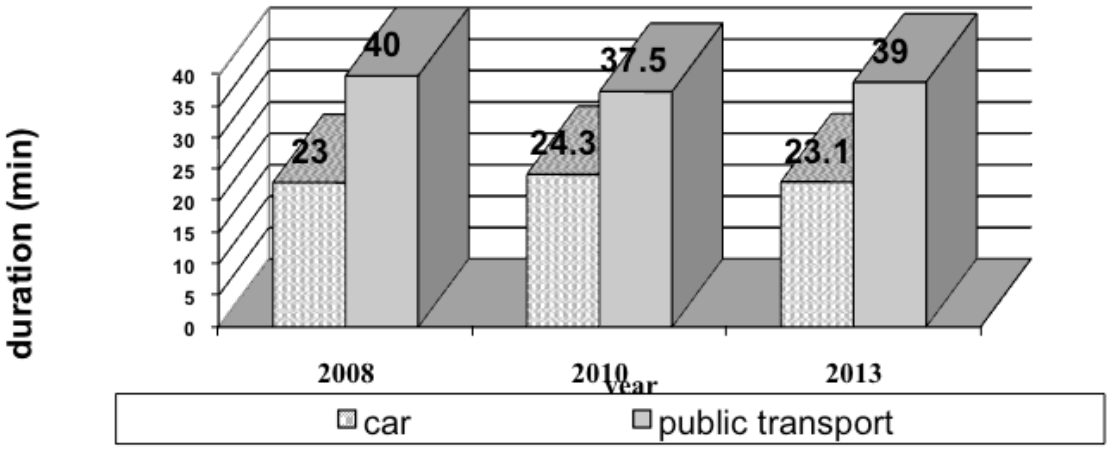
Figure 4. Average duration of travel to workplaces in Gdynia in the years 2008-2013 (min)



Source: own work on the basis of: (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2008), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2010), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2013)

The average duration of travel to workplaces and places of study remained at the same level.

Figure 5. Average duration of travel to places of study in Gdynia in the years 2008-2013 (min)



Source: own work on the basis of: (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2008), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2010), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2013)

The proportions between the duration of travel to a workplace or place of study as fulfilled by car and bus. The time devoted for door-to-door travel was nearly twice shorter by car.

Home constituted the main destination for urban travel in Gdynia in the years 2008-2013 (approximately 45% of trips). The other two main reasons accounting for travel were work (18-22%) and personal affairs (14-17%) with the 'work' share rising and 'personal affairs' share grew smaller. The share of travel for shopping remained at the same level of 7%. It is surprising that the share of trips to a place of study was lower than shopping trips and amounted to between 4 and 7% of all trips. Work-related travels are becoming rarer. It seems to be connected to the growing culture of electronic communications that allows many matters to be dealt with without the necessity for travel. The share of trips related with socialising was minimal. Table 7 presents the structure of destinations in the light of research conducted in Gdynia in the years 2008-2013.

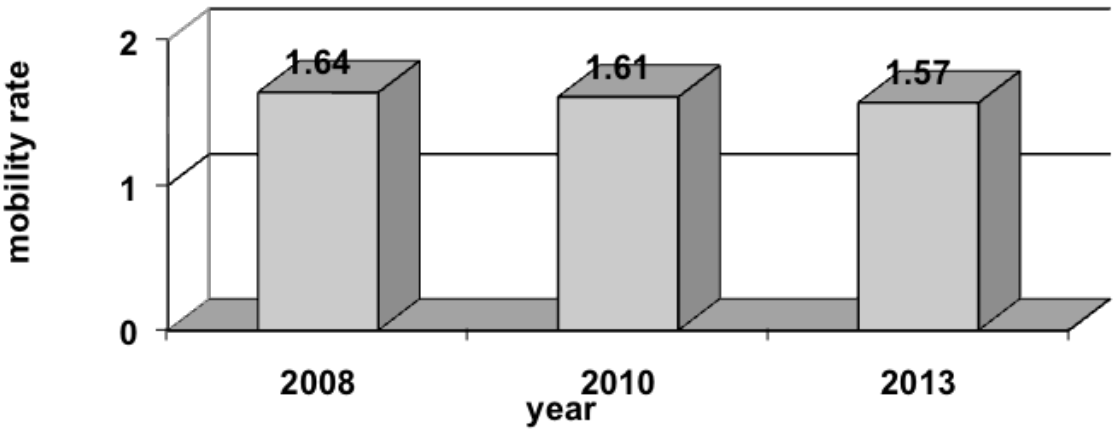
Table 7. Travel destinations of Gdynia's inhabitants in the years 2008-2013 (%)
Destination

Destination	Year		
	2008	2010	2013
Home	45.66	44.78	45.53
Work	22.42	22.17	23.29
Study	4.73	4.31	4.07
Personal affairs	14.84	14.37	14.41
Shopping	7.55	7.36	6.97
Work-related affairs	2.41	3.02	2.39
Socialising	1.38	2.30	2.20
Recreation	1,00	1,70	1,15

Source: own work on the basis of: (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2008), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2010), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2013)

Transport mobility was evaluated on the basis of trips fulfilled by passengers on the day prior to the survey with consideration of all modes of transportation (including cars).

Figure 6. Transport mobility of Gdynia inhabitants in the years 2008-2013



Source: own work on the basis of: (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2008), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2010), (Katedra Rynku Transportowego Uniwersytetu Gdańskiego & Zarząd Komunikacji Miejskiej w Gdyni, 2013)

The transport mobility rate of Gdynia inhabitants is falling (Figure 6). Undoubtedly, few determinants are standing behind this phenomenon, the difficulty with collecting research samples being one of them. For it is increasingly difficult to conduct a survey with people, whose names are on the original list and who, as can be presumed, are the main car owners and are often not at home. In effect the household surveys are being conducted with those who do not own cars and whose transport mobility is lower. It was established that most trips were fulfilled by respondents who always or mostly travel by car. People in education and employment were characterised by the highest levels of transport mobility. The sex of respondents is no longer a determinant connected to transport mobility.

Conclusions

Transport behaviour of urban inhabitants constitutes a kind of consumer behaviour and may be analysed according to similar principles.

Transport behaviour research in Polish cities is conducted according to various types of methodology. It is stationary research carried out at control points, on board of public transportation vehicles, as well as in households. The scope of research results from the requirements of each city and the funds available.

The results of transport behaviour research of urban inhabitants are used to shape the services offered by public transport companies and, consequently, to allow for them to be better adjusted to the needs of inhabitants in connection with timetables, capacity, quality of the rolling stock, as well as changes in the tariff and ticketing systems. The results also allow for evaluation of the essential funding of public transportation from public funds.

The importance of transport behaviour research among the inhabitants of Polish cities grew with the passing of the Public Transportation Act [Ustawa o publicznym transporcie zbiorowym] from 10 December 2010 and the obligation to prepare sustainable transport development plans. They are to take into account research results into transport behaviour of inhabitants. It is, therefore, suitable to share experience in the field of theory and practice of such research conducted previously in some cities.
The results of the transport behaviour research of urban inhabitants served as the basis for National Urban Policy the bill of which was presented by the Ministry of Infrastructure to the Council of Ministers in 2014.

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Pay-what-you-want as a participative pricing mechanism: Meta-analysis of development and knowledge dissemination

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Abstract

The participative pricing mechanisms field has developed over the last 10 years, with many research papers having been published in management-related periodicals. The number of papers on the pay-what-you-want (PWYW) mechanism, a type of participative pricing, published in academic periodicals has also increased year after year. Nevertheless, in the past literature, no formal research has explored the state of development and knowledge dissemination of this subject, and no studies have been conducted on the citation analysis of papers dealing with it. The growing interest of practitioners in PWYW poses an urgent challenge to researchers since they should understand the application of PWYW studies as they apply to direct future business practice. Consequently, this article has the following purposes: (1) to identify the state of development of the field, (2) to explore the citation of PWYW papers and the sequence of citations; (3) to identify the most influential researchers in the field, and finally (4) to identify the possible existence of research gaps that are important from the point of view of marketing. To achieve these goals, the authors use citation analysis based on Google Scholar and Harzings Publish or Perish, and use social network analysis based on software UCINET 6 for Windows (Borgatti et al. 2002). Meta-analysis research design is employed in order to obtain a quantitative description of the study in the literature. The unit analysis of the research is a paper on PWYW which was accessed through multi-search data bases. The findings show that the development of PWYW study has increased dramatically in both number and focus in the last five years. The analysis of the networks used in this article proves that the empiric study was salient, and the most influential researchers in the field have been identified. The study applies to marketing scholars conducting research in PWYW, especially in the context of consumer behaviour.

Keywords: *participative pricing mechanism, pay-what-you-want, meta-analysis, marketing*

Introduction

Pay-what-you-want (PWYW) as a pricing model is gaining more popularity, which can easily be observed in the Google Trends analysis of this term. The results of this analysis show that since 2007, when Radiohead released the digital version of its album “In Rainbows” using the PWYW formula, the number of searches regarding this term not only increased, but temporarily broke popularity records (see: Appendix 1).

Public attention is also accompanied by the growth of scientific publications addressing this form of participative pricing and other similar solutions (Chandran & Morwitz, 2005), allowing buyers to decide how much they will pay for a given product. In general, PWYW is not used for all products offered by a company, as it applies only to select

ones. The crucial feature of this mechanism is that buyers set the price they intend to pay for the product independently at their discretion, while the company cannot renounce the contract, being obliged to accept every price, even if their profit equals zero (J.-Y. Kim, Natter, & Spann, 2009). This mechanism has been already tested in many industries (for example, training services, catering businesses, the music industry, the publishing industry and entertainment) (Tuttle, 2014), but its characteristics and conditions for implementation are neither thoroughly recognised by practitioners, which is indicated by the ongoing discussion among managers (compare: Bertini & Koenigsberg, 2014), nor by researchers (compare: Friedman & Gerstein, 2014).

The state of affairs described above indicates the requirement to identify the knowledge advancement in a systematic way and, consequently, the general purpose of this article is to identify the level of literature advancement regarding PWYW and to determine desirable directions for knowledge development in this field. In order to achieve the above, bibliometric analysis is employed in this article, allowing not only to objectivise the literature review including substantial repertories, but also to discover relationships between particular sources, which constitute the meta-analytic approach. The nature of this analysis consists in identifying the set of publications dealing with a certain issue and researching their characteristics, including both similarities and differences. On this basis, conclusions are made regarding existing and forming trends of analysis on the indicated issues, which constituted the starting point for research work conducted in social sciences (Bryman, 2001).

The specific research objectives that are formulated in this article include:

(1) to identify the state of development of the field;
(2) to explore the citation of PWYW papers and the sequence of citations;
(3) to identify the most influential researchers in the field, and finally
(4) to identify the possible existence of research gaps that are important from the point of view of marketing.

The paper is organized as follows. Section ‘Methods’ discusses bibliometric methods and research design. Section ‘Data’ introduces the specific dataset analysed. Then Results and Discussion follow. Final conclusions and the limitations of the research are formulated in the last part.

Method

The bibliometric analysis (bibliometrics) uses mathematical and statistical methods to examine written communication between researchers, and due to its quantitative nature, it supplements qualitative analyses. It is aimed at identifying the process of knowledge development in selected areas, including also interactions between them (Westney, 1998). It is based on the assumption that scientific communication can be determined through the sources that authors indicate and refer to in their papers (Garfield, 1979). As the research findings show, despite the differences both in the quality of published works and the character of reference (positive or negative), citations may become a basis for evaluating not only the quality of particular authors’ output, but also a certain area of knowledge (Summers, 1984).

In the bibliometric analysis, data sources include all publications, i.e. articles in periodicals, research reports, books and monographs, and chapters in books, while

data mean elements which identify each publication, i.e. authors' names, title and reference list (perhaps also keywords). In the basic range of analysis, bibliometrics can be conducted in the form of citation analysis. It assumes that reference lists provided by authors in their publications reveal direct relationships with previous works and consequently show their importance in the process of forming knowledge on a given subject (Garfield, 1979).

There are also more advanced methods of bibliometric analysis, including bibliographic couplings and co-citations, used for analysing mutual relationships between works. For both, it is assumed that these relationships indicate affinity between papers that are coupled or co-cited. In the case of the first method, the affinity between two works results from the occurrence inside them of at least one reference to the other paper, which determines the strength of the relationship between first two works (Kessler, 1963). The other method focuses on the frequency characterizing the coexistence of two papers in others, which indicates the extent of their similarity (Small, 1973). Both methods are applicable in the case of numerous sets of publications and in the case of searching non-obvious relationships between various papers, when it is necessary to make a selection of units used for research. In this analysis, there is no need for such selection, because the subject of the research (PWYW) is clearly defined and allows separation of a not very large publication set, which can be entirely covered.

The citation analysis used in this article is aimed at determining mutual relationships between citing and cited authors as well as publications strictly focused on the PWYW mechanism (references to other literature are not taken into account), due to the fact that the most frequently cited publications include important findings that inspire other researchers to continue their work (it is suspected that sometimes this is for questioning reasons) (Tahai & Meyer, 1999). The aim is to identify the most active researchers in this issue to date as well as the most influential papers.

The analysis conducted in this article consists of the following states:

1. Selection of criterion defining the publication set for analysis.
2. Selection of data bases including information on publications.
3. Identification of publications fulfilling the initial criteria of selection.
4. General analysis of citations.
5. Network analysis.

Data

Bibliometric analysis can be based on various initial assumptions regarding the set of researched publications. Such a set can be defined through arbitrary selection of periodicals, publication periods or key words. The choice of the first criterion seems justified first of all when the area of knowledge is extensive, the periodicals contributing to its development are well-known, and there is a focus on obtaining the core of a certain output. The second criterion is applicable when the given area has a long history, which makes it reasonable to classify publications pertaining to selected periods in order to highlight certain stages of knowledge development. According to the authors of this article, the third criterion can be used in the initial stage of knowledge development in a given area, because in such a case, there is a need for identifying and situating a certain issue in general knowledge. As the PWYW mechanism is a new phenomenon and the literature addressing this topic has been emerging quite recently,

the third criterion was applied here with two key words allowing for selection of searched publications: 'pay what you want' and its synonym 'pay as you wish.'

Having selected the criterion determining the publication set for analysis, it was necessary to indicate the primary database and criteria for the addition of publications not included in this base, as well as to define methods of its supplementation. Initially it was assumed that the research would include full-text bases available through multi-search engines: EDS (serving EBSCO, HeinOnline, Scopus and JSTOR), AtoZ (serving EBSCO, Elsevier, Emerald, HeinOnline, JSTOR, ProQuest, SAGE and Springer). After preliminary analysis of the records indicated by multi-search engines, it was evident that the selection of publications is inappropriate (too wide) for analysis purposes. According to the alternative approach enabling selection of only relevant publications (Czakon, 2011), it was decided to use the Web of Science as this database adhered to a strict evaluation process, and one could be assured that only the most influential, relevant and credible publications were included. This time, however, the search results were too narrow. Taking the above into account, the final decision was made to use Harzing's Publish or Perish, a software programme for retrieving and analysing academic citations. This choice goes in line with the research findings showing a higher efficiency of Google Scholar searches (see: Repiso-Caballero & Delgado-López-Cózar, 2013). Three attempts were made to select the search database which allowed the authors of this article to reduce the range of units that were inadequate for the analysis purposes. In the stage, the inclusion criterion was applied: papers were qualified as scientific works, if they were published in a periodical, conference materials or as a book, or – if they were not published – they should be publicized through academic repositories on the Internet. The reason for also including the papers having no peer-reviewed status is that the relatively short history of research addressing the PWYW issue makes the number of reviewed works quite limited. The researchers' common practice consisting of the use of publications of various statuses through the Internet justifies the adoption of such an approach.

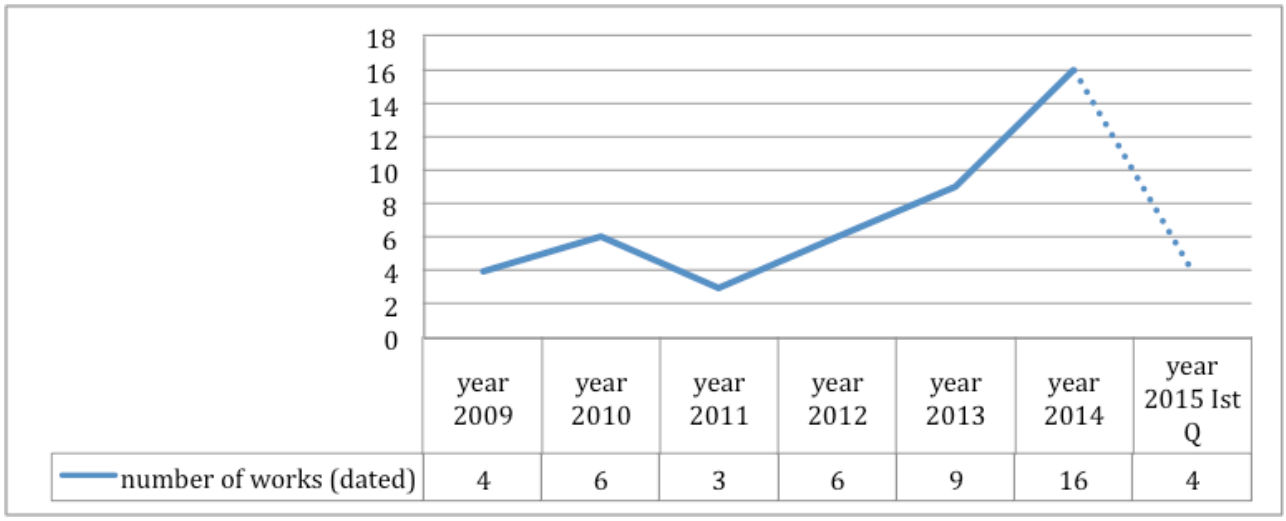
In addition to the above, two additional criteria were used to eliminate publications from the initially selected set. The first is the accidental occurrence of the 'pay-what-you-want' expression, in no way connected to the pricing mechanism. The other criterion is the publication in a language other than English, due to the initial assumption that knowledge dissemination is possible only if papers are available for the wide audience of scholars. In the case of management sciences, it warrants the publications in English. From the initial set of 714 records searched through Publish or Perish, 50 publications met the above-defined criteria and were selected for further analysis. Each of the research units was coded with the use of basic bibliographic data: authors' names, publication year, title and type of publication, and alternatively, title of periodical (in the case of articles).

Results and discussion

The first part of the analysis applies to the general characteristics of the set consisting of 50 publications focused entirely or to a large extent on the PWYW mechanism. These elements were taken into account: time distribution of publication release, characteristics of paper type, periodicals in which papers were published, and researchers' activity. The other part of the analysis is comprised of relationships occurring within the network created by these publications.

Papers on the PWYW mechanism that meet the criteria defined in this article have been published since 2009. The history of research work regarding this issue is therefore very short – only six years, which to a large degree explains why there are not many publications. The analysis of release time distribution shows the growing interest in this topic (Fig.1).

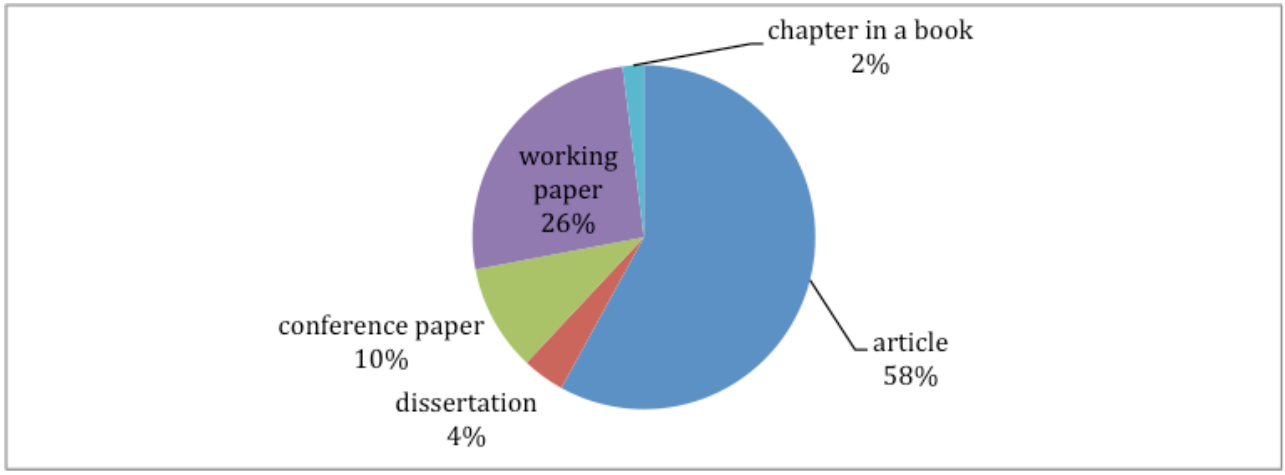
Figure 1 Number of works in original dataset (n=50)



[Ist Q – data cover only Q1 2015 r.]
Source: own

Taking the characteristics addressing the PWYW mechanism into account, the works can be classified into five types. Published papers represent 60 per cent (i.e. articles and single chapters in books), while the remaining 40 per cent include working papers, conference papers and also two dissertations. The diversity of these publications and shares of their particular types indicate the low level of maturity in the case of research works conducted in this field. (Fig. 2). Particularly noticeable is the lack of comprehensive works in book form, which by nature would present the issue more thoroughly.

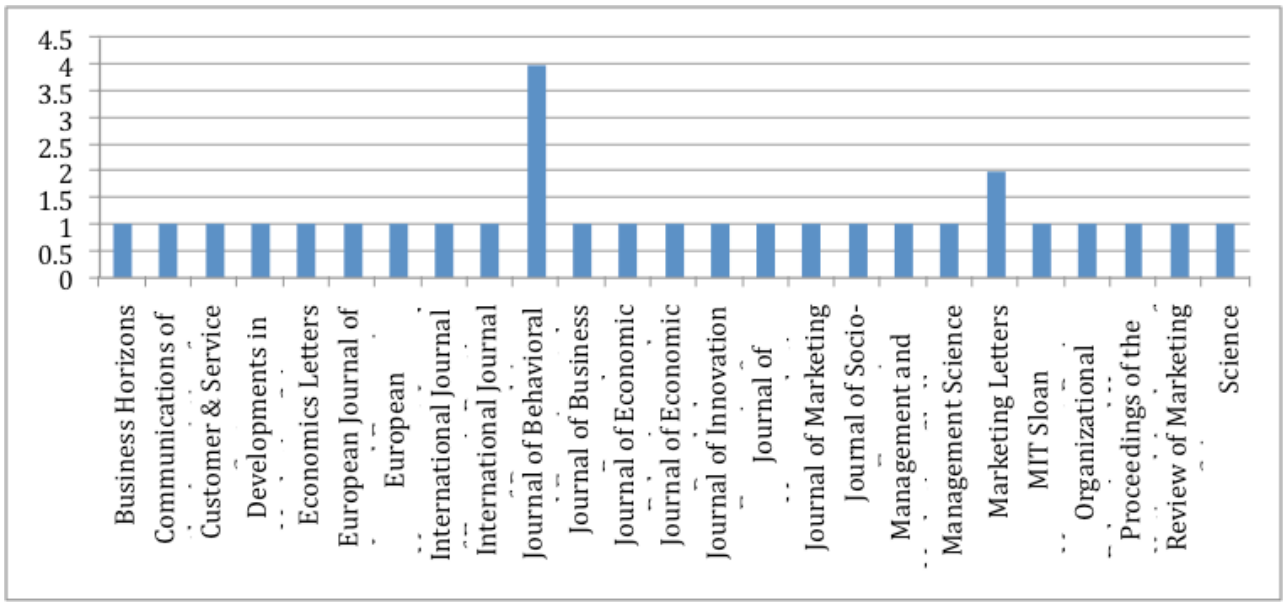
Figure 2 Types of works (n=50)



Source: own

The analysis of the most important group of works, including published articles that successfully underwent peer-review scrutiny, leads to the conclusion that the number of periodicals in which these works appeared is quite numerous (24 periodicals and 29 articles) and diverse (including periodicals addressing general areas of management, marketing, the economy and between economic and psychology issues). This indicates that the topic of PWYW is interdisciplinary by its nature. It is worth particular notice that articles on the PWYW mechanism are repeatedly published in the Journal of Behavioral and Experimental Economics, which leads to the supposition that researchers specializing in behavioural economics are the most active.

Figure 3 Journals publishing articles on PWYW (n=29)



Source: own

The analysis of works addressing PWYW also contributed to identification of the most active researchers involved in this issue. The Research Productivity Index (RPI) was used for that purpose. The procedure of RPI calculation includes: 1 credit is attributed to each article and proportionally divided in case it has more than one author (1 = 1 author, 2 x 0.5 = 2 authors, etc.), then credits are summed up and added to the number of works written by a given author (Pasadeos, Renfro, & Hanily, 1999).

The analysed set of publications resulted from the involvement of 98 researchers. Their direct contribution in the development of knowledge on PWYW was evaluated with the use of RPI (Appendix 2). The highest level of index was reported in the case of researchers who contributed to four papers, and they are as follows: Regner, Fernandez, Nahata and Kim (Tab. 1). The list does not consider the status of works taken for the RPI calculation, which means the equal treatment of works: published peer-reviewed, non-reviewed and various versions of the same articles, if new authors appeared and they were extended. Taking the above status into account, the greatest contribution was made by J.-K. Kim, thanks to four articles published in high-class, peer-reviewed periodicals.

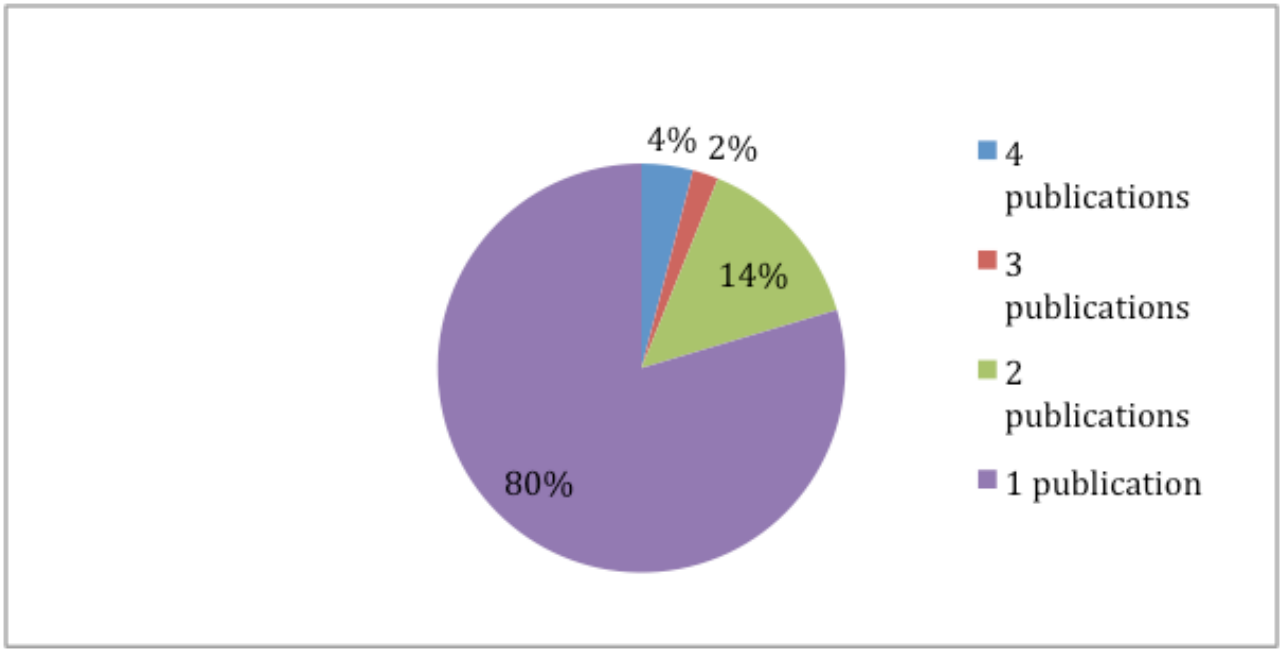
Table 1 Top ten authors of works on PWYW of 2009-2015 Ist Q: Research Productivity Index (RPI)

Author	No of works	Credits	RPI
Regner	4	3	7
Fernandez	4	1,66	5,66
Nahata	4	1,66	5,66
Kim	**4**	**1,32**	**5,32**
Mills	2	2	4
Natter	3	0,99	3,99
Spann	3	0,99	3,99
Riener	2	1,5	3,5
Zhang	2	0,88	2,88
Koenigsberg	2	0,83	2,83

Source: own

The list presented in Table 1 leads to the conclusion that to date, the absolute majority of authors (80 per cent) has contributed only incidentally, as they participated only in one paper (Fig. 4). Only a few researchers reached a more advanced stage of studies. This situation proves wide interest in the analysed issue among academics, but also confirms previous observations regarding the initial stage of its development.

Figure 4 Authors' activity



Source: own

The works of the most active authors address diverse theoretical aspects (including economic, marketing and psychological), confirming the inter-disciplinary character of the PWYW mechanism. Taking RPI and the additional work status criterion mentioned above, it can be stated that marketing aspects are of crucial importance, as they prevailed in works contributed by the most active researcher. They were aimed at the following: (1) explaining the customers' behaviour when the PWYW mechanism is used and its influence on revenues and sales in a quantitative approach (J.-Y. Kim et al., 2009); (2) analysing the efficiency of the PWYW mechanism in attracting new buyers in the case of products involving a high level of perceived functional risk (Ju-Young Kim, Natter, & Spann, 2010); (3) determining the importance of the PWYW mechanism as the alternative to free samples and price cuts used in an attempt to reduce risk perceived by new purchasers (J.-Y. Kim, Natter, & Spann, 2014); (4) identifying the meaning of the following conditions of PWYW utilisation: social distance in the relationship between buyers and companies, presentation of reference prices, determination of product value, reputation exposure and the duration of PWYW use (J.-Y. Kim et al., 2014).

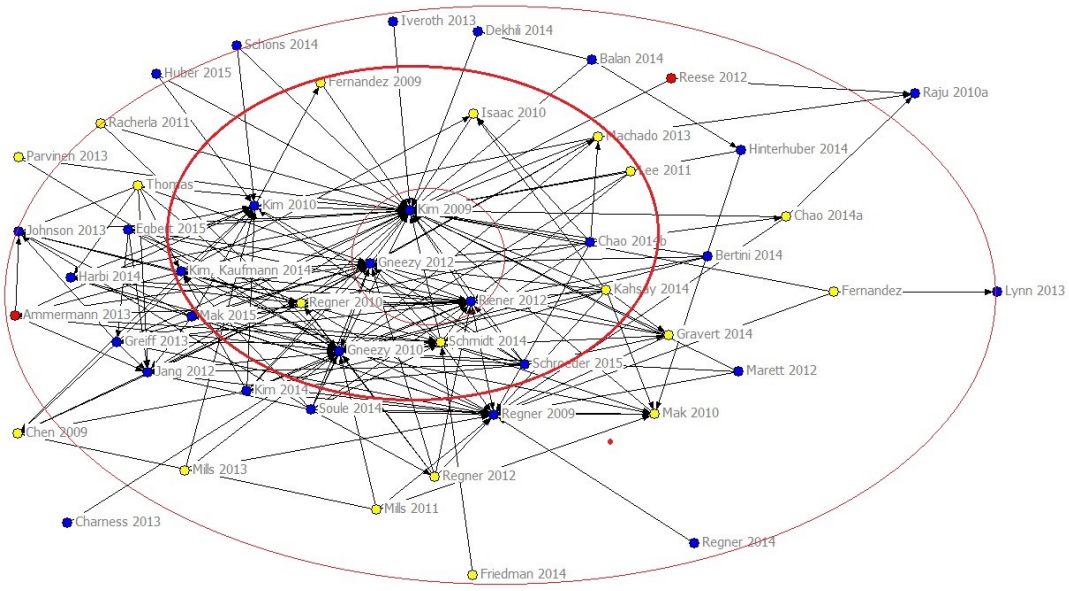
The essential element of the publication analysis consisted of analysing citations. It was conducted according to the authors' own approach called the focused citation analysis. Unlike the general citation analysis aimed at gauging the importance of a publication by counting the number of times it has been cited by all other scholars, in this case, it was reduced to identifying citations within the limit of 50 selected articles, as the goal was to determine the fundamentals of literature focused on PWYW on which the next layers are built, i.e. the most important works. For that reason, the intention was to find out how much impact a particular article had, by showing which authors of the other 49 papers based their work upon it or cited it as an example. This stage required identifying citations in particular works and then their reckoning. For that purpose, the 50x50 matrix was designed, in which all units selected for the research were placed, as

well as mentioned in their content citations of works belonging to the analysed publication set. This arrangement of data enabled implementation of the network analysis that allowed identifying and visualising relationships among researched units (Wasserman & Faust, 1994). As opposed to the previous stages of analysis, this one is much more focused on the general structure of scientific output in the researched area thanks to the use of science mapping instead of the characteristics of particular publications (Cobo, López-Herrera, Herrera-Viedma, & Herrera, 2011).

With the use of data collected in the matrix, three network diagrams were created on the basis of the spring embedder algorithm provided by the UCINET software package (Borgatti, Everett, & Freeman, 2002). The algorithm optimizes distances between every pair of nodes (i.e. publications), and they are approximated by the number of edges between them. The network is characterized by higher centrality when the mean path length between a given node and other nodes is shorter. Additional assumptions were made for each of three figures in order to analyse different aspects of the output structure examined according to citations.

Figure 5 is a two-dimensional mapping of nodes, representing all 50 articles. It shows the general structure of citations within the analysed set of publications, including the diversity of works classified as follows: dissertations, articles and books, working and conference papers. In this structure, three concentric layers can be separated, similar to wood grains; the central one is comprised of publications to which other researchers have referred most often, while the external layers show works that have only been drawn from the PWYW output, not being a point of reference for others. It is understandable that the latter group includes dissertations, which by their nature are more ‘consumers’ than ‘producers,’ as well as working papers. The middle grain contains works both citing and cited by others. The most important paper in this approach is Kim et al. (2009), which according to Figure 5 has collected the biggest number of citations.

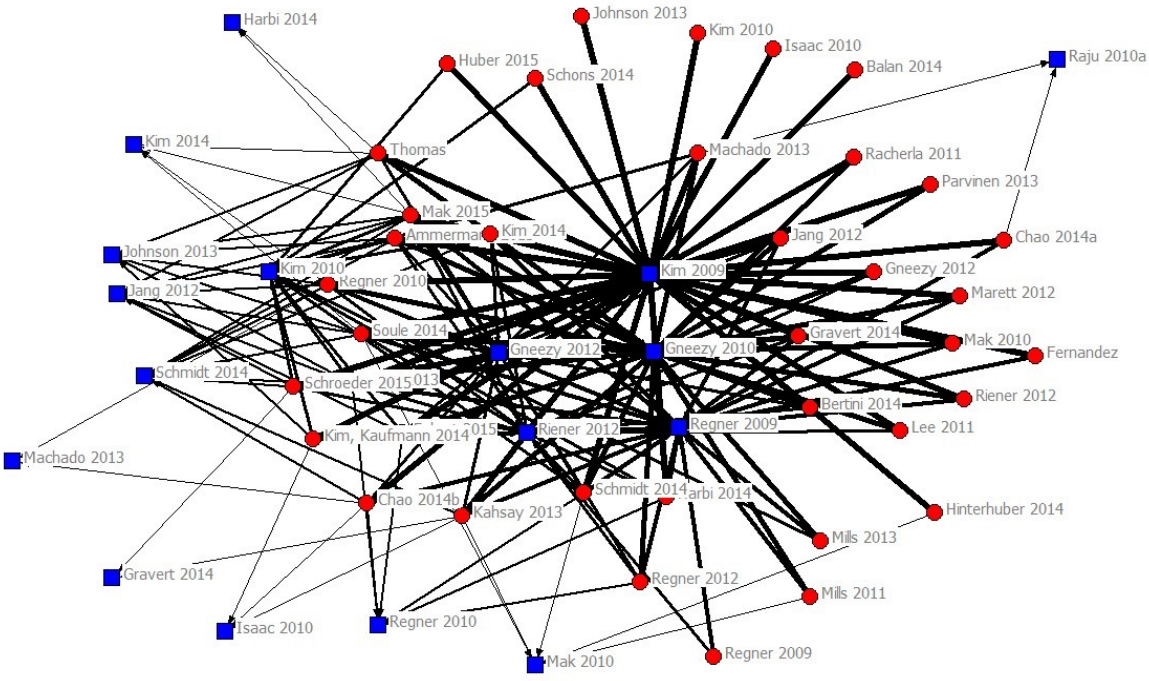
Figure 5 Citations analysis of articles on PWYW (n=50) (only first author’s name given)



Source: own

Figure 6 is based on the assumption of slightly higher criteria regarding the selection of publications. It includes only works that have been cited by at least two other authors (17) and works referring to at least two authors from the database (41). The thickness of lines uniting particular points illustrates the 'quality' of the citation understood as referring to a frequently cited work; the thicker the line, the bigger the tie strength with other publications because of the same point of reference. On the basis of Figure 6, it can be stated that the substantial core of the analysed publication set consists of five works situated in the center of the figure (A Gneezy, Gneezy, Nelson, & Brown, 2010; Ayelet Gneezy, Gneezy, Riener, & Nelson, 2012; Kim et al., 2009; Riener & Traxler, 2012, Tobias Regner & Barria, 2009) (Tab.2). They have attracted the most of the researchers' attention. There is also a group of publications of the second order, whose popularity is smaller as compared to the core; however, they constitute a significant output to which others refer. The assymetry between the number of works cited by at least two other researchers and the number of works citing at least two other papers confirms the previously mentioned supposition that the scientific output regarding PWYW develops fragmentarily; scholars do not have a full review of literature on this subject.

Figure 6 Citations analysis on PWYW; most cited and most citing articles (only first author's name given)



Source: own

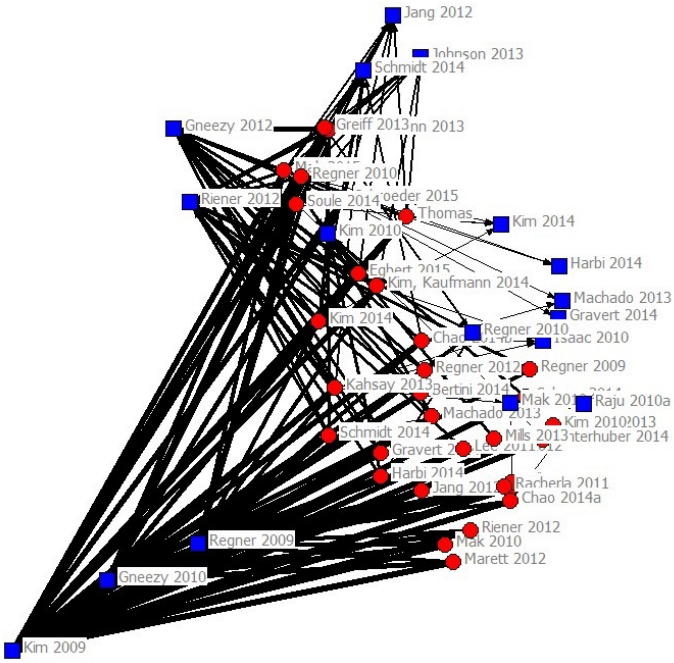
Table 2 Top five most cited articles on PWYW

Article authors	Article objective
(J.-Y. Kim et al., 2009)	Explanation of customer behaviour in the situation when the PWYW mechanism is used by a company and the influence of this mechanism on the level of revenues and sales in a quantitative approach.
(A Gneezy et al., 2010)	Identification of the meaning of the CSR idea in generating sales growth (tested among others through the PWYW mechanism).
(Ayelet Gneezy, Gneezy, Riener, & Nelson, 2012a)	Examining the influence of identity and image of buyers on using offers in which the PWYW mechanism is applied.
(Riener & Traxler, 2012)	Identification of payment level distribution in the PWYW mechanism and the changes in time.
(Tobias Regner & Barria, 2009a)	Identification of customer behaviour patterns within the PWYW mechanism.

Source: own

Figure 7 is the modification of Figure 6, resulting from the additional assumption considering the significance of the publication based on the number of ingoing and outgoing citations. For that purpose, the Ucinet's principal components analysis was used. Because the position of the publication depends on its significance, it is possible to identify the pecking order among the most frequently cited works.

Figure 7 Citations analysis on PWYW; most important articles (only first author's name given)



Source: own

On the basis of Figure 7, it can be concluded that the most important source to which the researchers of PWYW mechanism refer is the one by J. Kim (J. Kim, 2009). The position of this publication is well-deserved, because it was the first comprehensive work published in a reputable marketing periodical (Journal of Marketing), but the number two (A Gneezy et al., 2010) is also quite surprising, being only a short report on research not focused primarily on the PWYW mechanism (it is used only in conducted experiments). Still, it was published in Science magazine, whose reputation surely influenced the number of citations referring to this article. The third position belongs to the work whose authors (Tobias Regner & Barria, 2009b), analyse the payment behaviour of customers of online music, coming to the conclusion that an open-contracts design can encourage people to make voluntary payments and may be a viable business option.

Conclusions

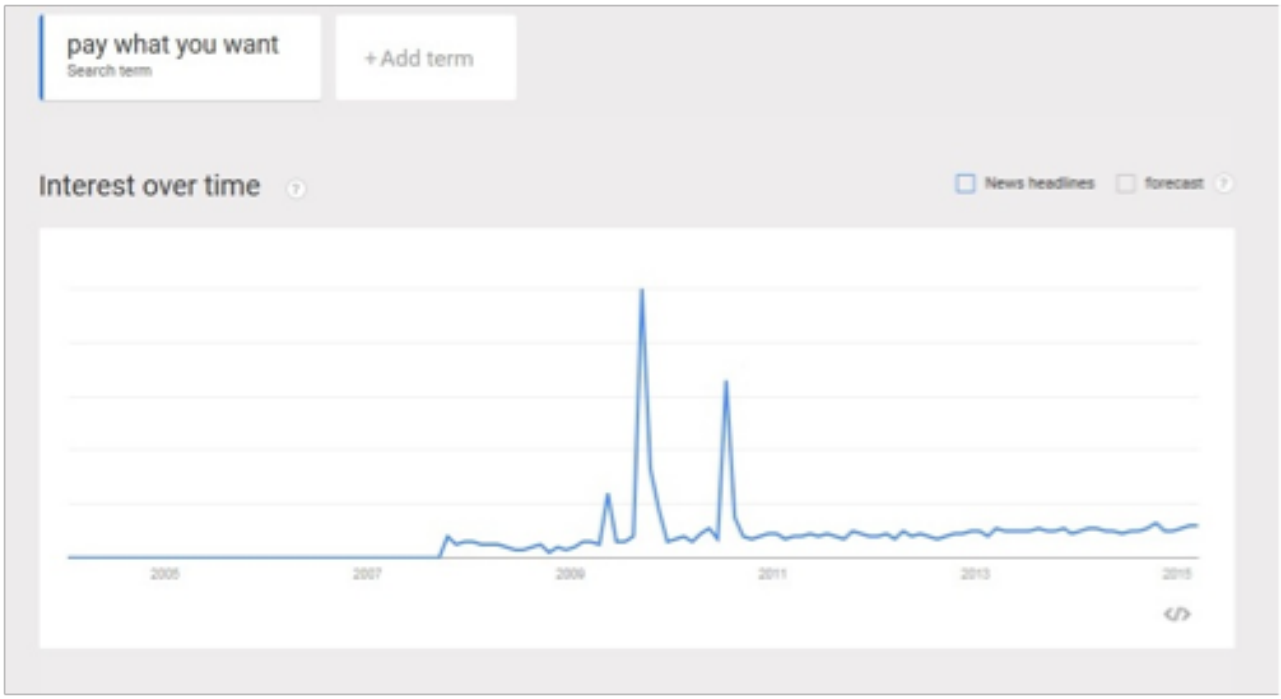
The literature on the PWYW mechanism has been developing for only six years, which leads to the conclusion that it is a new area of scientific cognition. This initial stage of development is characterised by three important features: dispersion and interdisciplinarity of academic searches, which is the result of conducting research in the same field concurrently by various scholars, but also with frail common theoretical foundations, as they come from only one publication (J.-Y. Kim et al., 2009). It is particularly concerning that the scholars do not strive for coherence of their empiric research work and mutual verification of findings, which can be compared to existing on islands, where inhabitants know of only one seaport. Such a situation could be understood in the past due to limitations occurring in the dissemination of knowledge, but in the contemporary world, access to scientific output – both peer-reviewed and work in progress -- is so easy that such autonomisation of research cannot be justified.

As the most significant publications focus on the psychological conditions of the PWYW mechanism being accepted by customers and its importance in the process of marketing activities, it can be stated that the literature on PWYW is rooted in marketing, and particularly in its sub-discipline, i.e. consumer behaviour. On that ground, various research projects should be integrated. It is an issue of greater importance due to the special characteristics of the PWYW mechanism consisting of the radical change of the traditional division of roles in market relationships, where the price settlement was interchangeably attributed to an enterprise, while a buyer could only accept or reject it. Giving customers total control over the pricing process and the mass scale it can be applied to -- thanks to Internet expansion -- lead to the supposition that the PWYW mechanism has significant potential regarding the change of business models, and therefore, studying the determinants of its efficient application seems to be a desirable line of research.

The analysis conducted in this paper was based on the quantitative approach, because it was aimed at finding works in the literature having the greatest importance as points of reference for other scholars. Thanks to the above analysis, such works have been identified, but it must be emphasized that these results do not mean that popular papers are also influential, because it requires more qualitative analysis. Furthermore, the authors of this article focused only on the literature in English, which was an obvious simplification, because in order to obtain the full picture, it would be necessary to include works in other languages.

The innovative (or even revolutionary) character of the PWYW mechanism and the growing interest in using it in business practice outline a promising future to this topic. The authors hope that these presented results will help to motivate further research on PWYW.

Appendix 1 Pay-what-you-want in Google Trends



Source: (Google, 2015)

Appendix 2 Authors of works on PWYW of 2009-2015 Ist Q: Research Productivity Index
Please contact the authors direct for this information

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Mobility management in Poland's air transport industry

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Abstract

The development of air transport in Poland since 2004 as well as the increase of the wealth of Polish society resulted in a plethora of new attractive forms of mobility. The constant analysis of passenger transport behaviour and the accessibility of air transport are among the effects of the above-mentioned process.

The main aim of this article is the analysis of mobility management and its influence on the development of air transport. The research which was conducted at certain airports associated with the development of airport system links may serve as an example.

Mobility management may be helpful in shaping demand, analyzing passenger transport behaviour, planning, organising and controlling passenger transportation. Moreover, it may influence airport links and, generally, the development of air transport.

The article analyses the factor of mobility within the European Union, presents the development of mobility in Poland as well as defines determinants influencing its development.

The system of airport links in Poland was analyzed as part of the research, taking into account the nature of travel, the method and the duration of the journey.

The overall conclusion emphasizes the essential levels of mobility management: adjusting supply to demand and travel behaviour through the development of air transport passengers.

Keywords: air transport, mobility management, airports, Poland.

Introduction

Air transport constitutes one of a few branches of the transportation system –regional, state, continental, and worldwide. The Polish air transportation system is an element of the European and worldwide transportation systems. The importance of air transport as a part of the worldwide transportation system is defined by the following characteristics of this branch:

- high speed and intercontinental range of the used mode of transportation (aircraft);
- the usage of natural air corridors.

The significance of air transport as a part of the worldwide transport system results from the utilisation of its advantages and characteristic features for the development of economic, political, scientific and technological, and cultural cooperation, as well as for the development of tourism.

It must be emphasised that air transport is one of the most important European and worldwide economic activities and bears a significant meaning both for the economic development and for the progress of integration processes.

It is assumed on the basis of the *Report Current Market Outlook* that by the year 2033 the number of passenger aircrafts will increase from 20.9k in 2013 to 42.2k. In the segment of aircraft with a seat capacity of no more than 90, dedicated to operate on regional connections, their number will increase from 2620 to 2640. The number of narrow-body aircraft will also increase from 13.6k in 2013 up to 29.5k by 2033. In the segment of small wide-body aircraft (capacity between 200 and 340 passengers) their number will increase from 2.4k in 2013 to 5.6k by 2033, whilst in the medium segment (capacity between 300 and 450 passengers) the number of aircraft will rise from 1.6k to 3.7k. In the segment of large aircraft (capacity above 400 passengers) their number will increase from 740 in 2013 to 790 by 2033. This means that the carriers will purchase 36.8k new aircraft, their total value amounting to 5200bn USD, by the year 2033.

The perspective of air transport development and its social and economic role results in the need to ensure that a high level of services is provided. These challenges are being recognised both by the carriers and operators managing the aviation infrastructure as well as by those authorities who dictate transport policies and mainly by chosen social groups.

Aim and scope of managing passenger mobility

The term ‘mobility’ can be used with different meanings. A ‘mobile’ person is an active, busy, energetic, entrepreneurial, restless, resourceful, bursting with temperament, and fickle person of a flexible way of thinking. The attribute of ‘mobile’ may also be used in connection with objects that are portable, shifting, sliding, moving, migratory, i.e. a telephone, a wall, a door.

In demographics ‘mobility’ of people stands for their inclination to change their place of residence or work. High mobility contributes to the diminishing of the social and economic differences between regions. It is also highly beneficial from an economic point of view as it plays a part in lowering the unemployment rate of a distinct regional structure

‘Mobility management’ is a term that can be encountered increasingly frequently in specialist literature. It can be described as a concept supporting sustainable development of transport. Management tools allow the demand and the behaviour of potential passengers to be influenced, as well as the choice of appropriate destinations to be examined, and also to plan, organise, coordinate and control the re-location of passengers and to influence the selection of branches connected with the way in which people travel and reach the airport.

Despite the fact that the issue of mobility management is broadly presented in specialist literature it is vital to turn our attention to two basic factors which emphasise the weight of the issue at hand. Sustainable transport development and skilful management of the supply through influencing the demand can be counted as such.

The determination of the mobility rate constitutes one of the mobility management tools. It indicates how many times an average inhabitant of a given region used air transport in a particular year. Table 1 presents the aforementioned rates for European countries.

Table 1. Mobility rate for European countries in the years 2004-2013

Ite	Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Austria	2,24	2,40	2,52	2,76	2,87	2,61	2,81	2,99	3,08	3,04
2	Belgium	1,68	1,70	1,82	1,96	2,06	1,98	2,09	2,28	2,33	2,36
3	Bulgaria	b.d.	b.d.	b.d.	0,80	0,85	0,78	0,83	0,90	0,93	0,97
4	Croatia	b.d.	b.d.	b.d.	b.d.	1,04	1,00	1,08	1,16	1,26	1,34
5	Cyprus	8,88	9,25	9,02	9,24	9,29	8,44	8,48	8,56	8,50	8,09
6	Czech	0,97	1,10	1,19	1,27	1,29	1,18	1,17	1,20	1,11	b.d.
7	Denmark	3,89	4,09	4,23	4,41	4,49	4,04	4,39	4,64	4,75	4,90
8	Estonia	0,72	1,02	1,13	1,28	1,34	1,00	1,03	1,43	1,66	1,48
9	EU (27	b.d.	b.d.	b.d.	1,60	1,60	1,50	1,55	1,64	1,65	1,26
10	Finland	2,25	2,35	2,55	2,74	2,80	2,59	2,65	3,04	3,04	3,05
11	France	1,65	1,72	1,79	1,88	1,91	1,82	1,90	2,02	2,06	2,10
12	Germany	1,64	1,76	1,87	1,99	2,02	1,92	2,03	2,14	2,22	2,24
13	Greece	2,67	2,78	2,94	3,12	3,07	2,93	2,87	2,99	2,83	b.d.
14	Hungary	0,63	0,78	0,81	0,85	0,83	0,80	0,81	0,89	0,84	0,85
15	Iceland	5,17	5,89	6,54	6,87	6,73	5,81	5,07	5,11	5,14	5,35
16	Ireland	6,50	7,19	7,59	8,00	7,10	5,75	6,41	7,73	8,57	9,94
17	Italy	1,41	1,51	1,65	1,82	1,79	1,72	1,84	1,95	1,95	b.d.
18	Latvia	0,46	0,83	1,11	1,42	1,68	1,87	2,19	2,45	2,32	2,36
19	Lithuania	0,29	0,42	0,54	0,67	0,79	0,58	0,72	0,88	1,05	1,17
20	Luxembour	3,31	3,33	3,40	3,43	3,54	3,11	3,21	3,58	3,60	4,03
21	Malta	6,97	6,84	6,66	7,32	7,62	7,10	7,95	8,45	8,74	9,56
22	Netherland	2,73	2,84	2,97	3,08	3,07	2,81	2,93	3,23	3,32	2,73
23	Norway	4,28	4,03	5,18	5,63	5,85	5,76	6,07	6,58	6,93	b.d.
24	Poland	0,16	0,18	0,36	0,44	0,49	0,44	0,48	0,53	0,56	0,64
25	Portugal	1,75	1,93	2,09	2,30	2,38	2,28	2,43	2,60	2,67	b.d.
26	Romania	0,14	0,16	0,23	0,32	0,38	0,39	0,43	0,48	0,48	b.d.
27	Slovakia	0,20	0,28	0,39	0,41	0,48	0,36	0,34	0,33	0,28	0,28
28	Slovenia	0,52	0,60	0,66	0,74	0,82	0,70	0,67	0,66	0,56	0,61
29	Spain	3,05	3,31	3,42	3,65	3,53	3,20	3,30	3,53	3,41	3,37
30	Sweden	2,22	2,33	2,84	2,95	3,02	2,72	2,85	3,15	3,20	b.d.
31	Switzerland	3,60	3,89	4,26	4,60	4,81	4,66	4,83	5,26	5,43	5,50
32	United	3,21	3,39	3,48	3,55	3,47	3,20	3,08	3,19	3,19	3,29

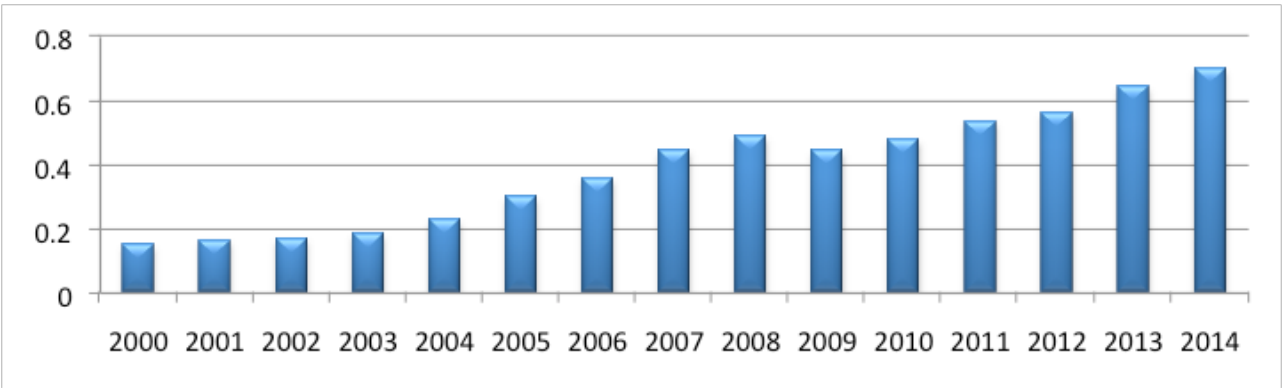
Source: on the basis of Eurostat

The countries classified in the ranking can be divided into three groups. Group one – sparsely populated countries – they manifest high rates (above 6%). Group two – countries at an advanced stage of development and stabilised air traffic dynamics – rates from 2 to 6%. Group three – other countries with a developing air transport market.

The mobility rate for Poland in the years 2008-2011 was at a level of 0.5. However, only in the year 2012 did it significantly rise above the previous 0.5 amounting to 0.56545.

Currently it is situated at a level of 0.703. Figure 1 presents the dynamics of the passenger mobility rate in Poland.

Figure 1. Passenger mobility rate in air transport for Poland in the years



2000-2014

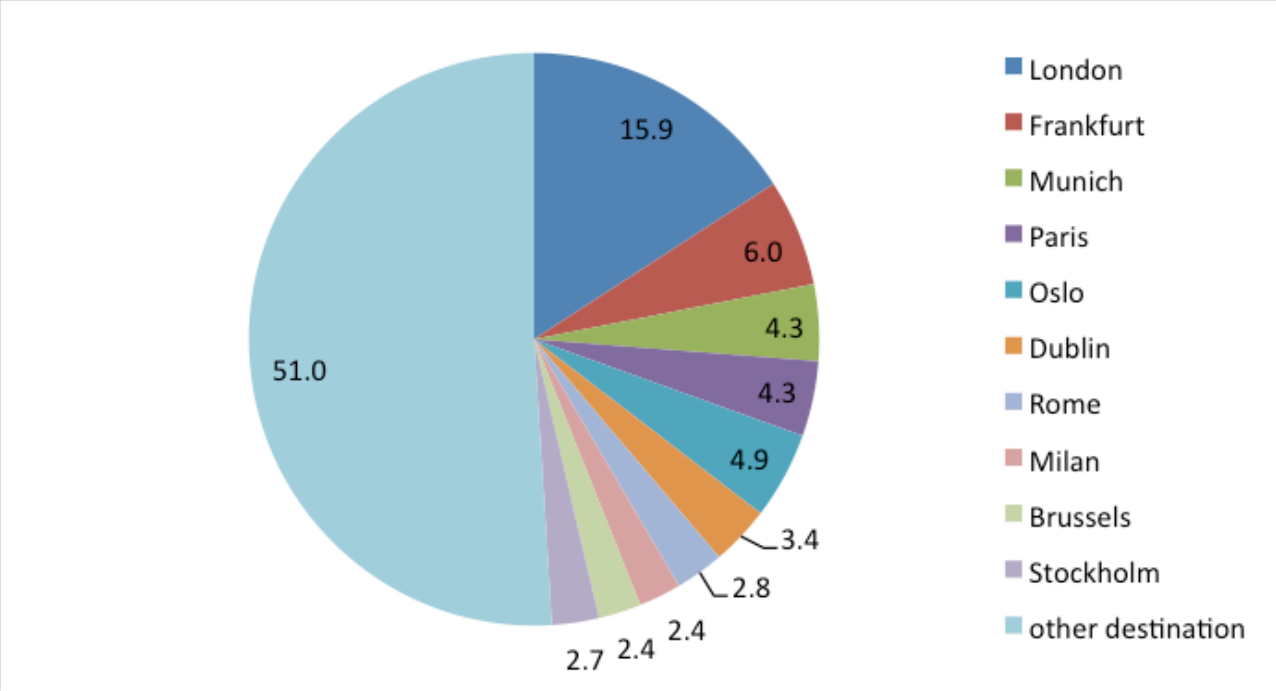
Source: on the basis of Eurostat

It should be estimated that in the years 2016-2017 the rate will reach 0.8. The high increase in the mobility rate will be a response to the change in the way passengers travel, wider competition between carriers, further development of the destinations network, and mostly to the appropriate price of air transport services offered.

The main destinations of passenger travel from Polish airports during three quarters of the year 2014.

London was the main destination of passengers travelling from Polish airports in 2014 (16%). Carriers transported over 2.4mln passengers to London during the period analyzed. Frankfurt was the second most popular destination with regards to passenger volume. Carriers provided services on routes connecting with Frankfurt to nearly 1mln passengers (6%).Oslo's large share at 5% of the total volume of passengers should be highlighted. This is a result of migration and medical tourism. Figure 2 presents the share of services provided to major city destinations in regular traffic in three quarters of 2014.

Figure 2. Structure of passengers serviced at Polish airports according to destinations in interstate regular traffic in 2014.



Source: on the basis of data provided by the ULC

The data testifies to the fact that the hub airports of London, Frankfurt, and Oslo constitute the main destinations the total share of which amounts to over ¼ of all destinations. At 15% of the total, London's share remains unchanged for a number of years. This is due not only to migration but also largely to the response of the carriers to market demand. In 2014 each Polish airport offered a connection with the capital of the United Kingdom, and some airports, such as i.e. Warsaw, Cracow, Gdansk, or Katowice even several serviced by different carriers. Table 2 presents detailed data on the number of serviced passengers.

Table 2. Number of passengers serviced at Polish airports in interstate regular traffic in the years 2011-2013 according to cities

Destination	2011		2012		2013		
	Air traffic	Share in market %	Air traffic	Share in market %	Air traffic	Share in market %	Dynamic %
London	2610951	16,12	2790835	15,75	3146316	16,07	12,74
Frankfurt	1018455	6,29	1070359	6,04	1113866	5,69	4,06
Oslo	635522	3,92	776702	4,38	929400	4,75	19,66
Munich	868421	5,36	943901	5,33	903669	4,62	-4,26
Paris	812124	5,01	864350	4,88	885545	4,52	2,45
Dublin	722698	4,46	694361	3,92	702794	3,59	1,21
Rome	396166	2,45	462402	2,61	504076	2,57	9,01
Stockholm	367714	2,27	437705	2,47	474616	2,42	8,43
Brussels	417692	2,58	443174	2,50	453593	2,32	2,35
Milan	451926	2,79	453862	2,56	446635	2,28	-1,59
Copenhagen	352357	2,18	388727	2,19	424926	2,17	9,31
Liverpool	394974	2,44	381667	2,15	397424	2,03	4,13
Barcelona	253480	1,56	340164	1,92	392612	2,01	15,42
Amsterdam	329701	2,04	353963	2,00	379417	1,94	7,19
Dortmund	425937	2,63	411738	2,32	375206	1,92	-8,87
Bristol	207346	1,28	262086	1,48	318032	1,62	21,35
Düsseldorf	250623	1,55	275851	1,56	304068	1,55	10,23
Berlin	b.d.	b.d.	144490	0,82	303574	1,55	110,10
Vienna	267400	1,77	292944	1,65	294163	1,50	0,42
East Midlands	172605	1,07	203453	1,15	267677	1,37	31,57
Moscow	204269	1,26	239700	1,35	263365	1,35	9,87
Eindhoven	167001	1,03	239615	1,35	258610	1,32	7,93
Zürich	221449	1,37	239586	1,35	255781	1,31	6,76
Edynburg	216349	1,34	220332	1,24	238621	1,22	8,30
Doncaster Sheffield	221810	1,37	213876	1,21	214514	1,10	0,30
Selected airports	12449381	76,85	13344993	75,29	14248500	72,78	6,77
Other airports	3750767	23,15	4379590	24,71	5329968	27,22	21,70
Total	16200148	100,00	17724583	100,00	19578468	100,00	10,46

Source: ULC

Table 3 presents the main tourist destinations of passengers leaving from Polish airports in the years 2010-2013.

Table 3. Number of passengers serviced at Polish airports in charter traffic in the years 2010-2013 according to country.

Destination	2010	2011	2012	2013	Share in market %	Dynamic %
Antalya	425678	484863	399637	386947	15,64	-3,18
Hurghada	515789	359560	416575	225533	9,11	-45,86
Szarm el-Szejk	372284	196896	268590	158984	6,42	-40,81
Tel Aviv	79867	94368	110722	137178	5,54	23,89
Heraklion	143136	212359	128210	134836	5,45	5,17
Rodos	110066	161563	98489	113194	4,57	14,93
Fuerteventura	47176	107380	120657	109413	4,42	-9,32
Burgas	58655	90293	102114	107103	4,33	4,89
Tenefyfa	61801	97116	98274	102149	4,13	3,94
Bodrum	79164	81199	87285	90212	3,65	3,35
Kos	40363	65948	60856	80589	3,26	32,43
Zakintos	39958	43817	45555	74821	3,02	64,24
Dalaman	196369	28895	53217	73764	2,98	38,61
Chania	53726	44803	55643	70818	2,86	27,27
Kerkyra	65985	55218	49996	68162	2,75	36,33
Enfidha	40044	161744	143956	63159	2,55	-56,13
Palma de Mallorca	69988	95337	68806	61208	2,47	-11,04
Warna	58038	67876	52754	58452	2,36	10,80
Agadir	29692	43633	39216	56518	2,28	44,12
Marsa Alam	38412	46717	72540	51932	2,10	-28,41
Dalaman	65985	72769	51013	50987	2,06	-0,05
Lanzarote	-	31546	38224	45834	1,85	19,91
Gran Canaria	32073	55161	44939	43087	1,74	-4,12
Izmir	-	39932	47806	37312	1,51	-21,95
Barcelona	-	36930	36398	37068	1,50	1,84
Total	3 130 968	3 279 418	3166878	2474864	100	-23,00

Source: ULC

Most passengers of charter flights departed for Antalya. Their volume amounted to 387k, a 16% share of the market, which equates to a drop of 3% in comparison to the previous year. Another drop in passenger volume was noted on the route to Hurghada (a drop of 191k, 46%) and Sharm-el-Sheikh (drop of 110k, 41%). The largest growth in passenger volume was noted by the Greek airports: Zakynthos 64%, Kos 32%, Kerkyra 36%, Chania 27%, Rhodes 15%, as well as by the Israeli Tel-Aviv airport – 24%. The change of preference with regards to the choice of destination is a consequence of political, economic, and social factors.

Egypt was the main destination of charter flights departing from Polish airports – 792k passengers, over 254% share in the market (a growth of 157k passengers. Turkey came in second, despite the 14% drop in the air traffic in comparison to the year 2011. 586k passengers departed for Turkey from Polish airports, which equates to 18% of

share in the market. The third most popular destination was Greece with nearly 0.5mln passengers; a15% share in the market (a drop from 2011). The highest dynamics was achieved by Thailand 187%, Ukraine 108%, and Croatia 106%. The high dynamics of the Ukraine destination was connected with the Football Championships – Euro 2012.

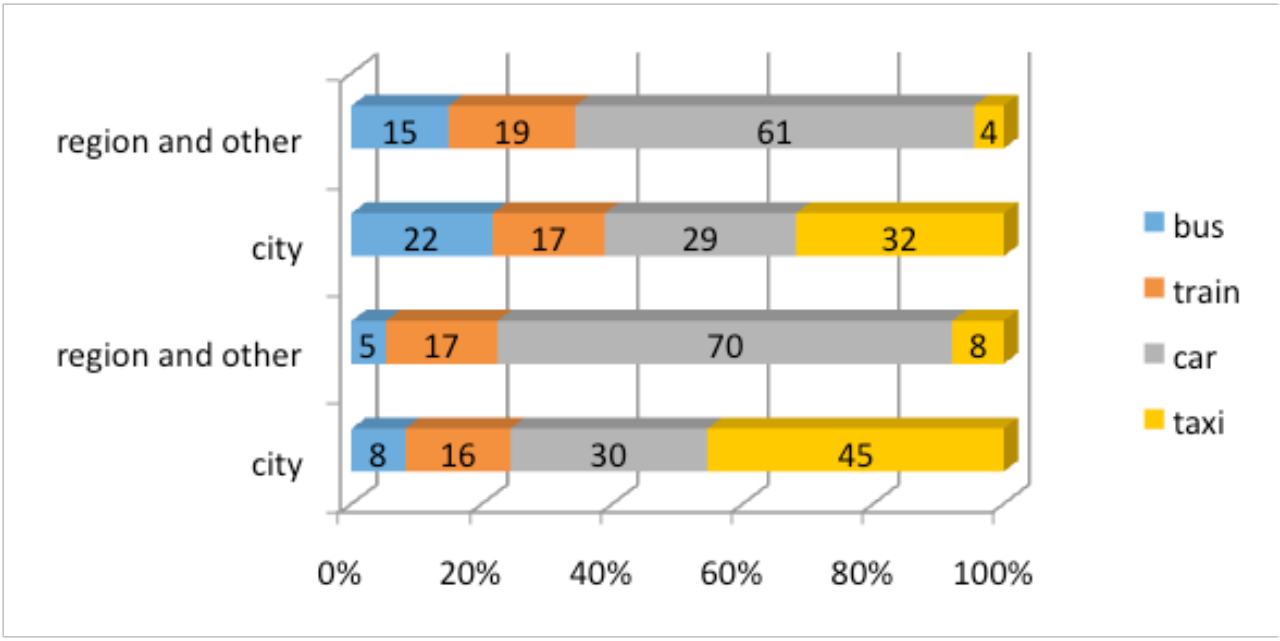
Air-links system in the light of market research

The overall system of passenger transportation to airports consists not only of the services transporting to and from the airport but also overall transportation within the city or region. Connections offering transportation to the airport constitute a specific kind of transport within agglomerations that manifest a flourishing development. In the case of increasing passenger volumes at the airports bus transportation is not appropriate. It must also be taken into account that such mode of transport is incapable of fulfilling travel requirements such as high level of comfort, high commercial speed, reliability, and the avoidance of traffic congestions. Therefore, new services based on track connections linking city centres with airports are a solution widely anticipated in Europe.

In Poland such airport links between city centres and airports are offered only a in few Polish cities, namely Cracow, Szczecin, Lublin, and Warsaw, among others.

Figure 3 presents the relationship between the nature of travel, point of origin from which the passengers are travelling to the airport, and the choice of the appropriate mode of transportation to the airport.

Figure 3. Relationship between the nature of travel and the chosen mode of transport



Source: on the basis of market research.

It has to emphasised that the car is the main mode of transportation between city centre and airport for passengers on business trips at 75% with 45% using taxi services. 16% of respondents from this segment declared they travelled to the airport by train and only

5% - by public transport. In the case of passengers travelling on business and coming from other parts of the catchment area, cars constitute the main mode of transportation, the share of passengers travelling to the airport by car amounting to 75%.

A car is also the main mode of transportation between city centre and airport for those passengers travelling to tourist destinations. 29% declared that they undertake their journeys using their own mode of transport and 32% - taxi services. 39% of passengers used services offered by public transport. A car is also the main mode of transportation for the passengers of this segment who live outside of urban areas, however, the significant role of public transport with regards to connections between agglomerations has to be noted.

Undoubtedly, regardless of the nature of their journey as whole it is still very much commonplace for the majority of passengers to travel to the airport by their own car or through use of a taxi service. Despite the large supply of public transport services offered there exists a strong need to manage the transport mobility of passengers by changing their habits connected with airport links.

Summary

Mobility management in air transport functions on an number of planes:

- adjusting the supply to the potential demand happens when the destination network of air travel is made more appealing and investment plans are realised;
- management of attitudes and behaviour is achieved through the resignation of those modes of transport which do not guarantee the fulfilment of the most important transport requirements: speed, comfort, and punctuality.

Therefore, in order to follow the policies connected with mobility management in air transport, actions have to be taken on the following three levels:

- information and promotion;
- organisation and coordination;
- education and training.

Taking into account the perspective for air traffic development in Poland it is necessary to undertake research into the changes in airport connectivity.

Issues of dual managerial roles in projects that are morphogenetic changes—Case studies

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Abstract

Pádár et al. (2011) analysed the connections between roles of project management (PM) and change management (CM) with the aim of enabling representatives of both of the fields to better exploit each other's body of knowledge. This case study analysis presents the application of their conceptual findings to two consultancy cases—in each of which technology roadmapping (TRM) was introduced at the client companies. TRM is a company-level strategic planning method to explore the evolution of markets, products and technologies and to make sure that necessary technological capabilities will be in the right place at the right time to achieve organizational objectives. The introduction of TRM is a disruptive activity and needs CM as well beside PM. Dual (project and change) managerial roles should have been played in both cases; however, only one of them is a positive example when the dual nature (both the PM and the CM side) of managerial efforts was understood and properly managed. The authors explain the underlying causes of success and failure in these cases based on the application of Pádár et al.'s (2011) conceptual work.

Keywords*: change management roles, change sponsor, change agent, project manager, case study.*

Introduction

Several such events occur in organizational life which are projects and major changes at the same time. In such dual-natured cases, managers should apply both project and change management concepts and tools. Neglecting either of these aspects of such cases can cause implementation difficulties or even failures.

The aim of this paper is to demonstrate and analyse that type of mistake when the management considers such a dual-natured case just as a project but not as a major change effort. For a recent extensive review of the conceptual literature of this mistake see Hornstein (2015). In this empirical paper, a negative example of this mistake will be examined in detail and compared briefly with a positive one, both cases taken from the authors' consultancy practice.

Theoretical background

The literature of change management and some other related areas (e.g. psychology) generally makes a distinction between first-order (or morphostatic) and second-order (or morphogenetic) changes of systems (Levy 1986; Lyddon 1990; Mink et al. 1993; Smith 1982; Watzlawick et al. 1974; etc.). First-order changes are adjustments that do not

change the system's core. During a first-order change the system itself remains basically the same. That is why it is also termed morphostatic change: the morphology of the system is static, i.e. remains unchanged. Second-order changes on the other hand are those which transform the system's very essence. During a second-order change the system itself undergoes a transformation. That is why it is also termed morphogenetic change: it generates a new morphology of the system. Morphogenetic change is called major change by Conner (1993, p.74): "Major change occurs when people believe they have lost control over some important aspect of their lives or their environment." Change management is about managing second-order changes, when people feel they lose control over important things.

There are projects that are second-order changes as well: these changes are unique and temporary (have a limited duration) and come together with a transformation in the system's very essence. Reshuffling the governmental structure after an election, just as mergers and acquisitions in a company's life, are good examples of second-order changes, which are also projects (Pádár et al. 2011).

In such dual-natured cases project managers have to play change managerial roles as well. There are four distinct key roles in change management introduced by Conner: sponsors, agents, targets, and advocates (Conner 1993, pp.105–124; Harrington et al. 2000, pp.53–58, 72–88, 90–93; Conner 1998, p.219), the correspondence of which to project management (PM) roles were examined by Pádár et al. (2011).

Sponsors are those individuals or groups who have the power to sanction or legitimize change. They decide which changes will happen, communicate them to the organization and create an environment that enables these changes to be made. There are two types of sponsors: initiating and sustaining. Initiating sponsors are generally higher in the hierarchy than sustaining sponsors. Initiating sponsors have the power and resources to break from the status quo and start the change process. Their role correspond to that of the owner (according to Turner's (2009) terminology) and/or the sponsor (PMI 2004; PMI 2008; PMI 2013; OGC 2004; OGC 2009; Kerzner 2003) if one thinks of PM-related terms. Sustaining sponsors are close enough to the targets (see the definition of targets below) to maintain their focus and motivation on the change goals to ensure that the initiating sponsor's directives are implemented. The role of sustaining sponsors in CM also equals the role of the sponsor in PM (PMI 2004; PMI 2008; PMI 2013; OGC 2004; OGC 2009; Kerzner 2003; Turner 2009).

Agents are those individuals or groups who are responsible for actually making the change. They diagnose potential problems, develop plans to deal with these issues, and execute the change effectively and efficiently. Just as project managers do. (PMI 2004; PMI 2008; PMI 2013; OGC 2004; OGC 2009; Kerzner 2003; Turner 2009) They are part of the project management team

Targets are those individuals or groups who are affected by the change, who must actually change. They are the focus of the change effort and play a crucial role in the success of the planned change. Thus, in PM terms, they are the customers/users (PMI 2004; PMI 2008; PMI 2013) of a given project.

Advocates are those individuals or groups who want to achieve a change but lack the power to sanction it—just how project champions (Kerzner 2003) also do. In most groups and organizational units there is someone who serves as the informal leader, whose

opinion is the highest-valued by the others. CM calls the informal leader of a target group influencing target: this person is a non-management member of the target group who sways the other members of the group as a result of the trust and respect that they have for this person.

There are three basic forms of possible relationship types of CM roles according to Conner (1993, pp.107–111): linear, triangular, and square. The *linear* relationship is the usual management chain of command: the target is the subordinate of the agent, and the agent is the subordinate of the sponsor. In the *triangular* configuration the target does not report to the agent and they are both subordinates of the sponsor. In this situation the sponsor cannot delegate the formal sanctioning power to the agent who does not hold the necessary position in the hierarchy. The sponsor must endorse and communicate the change before the implementation to demonstrate that he or she does own the change effort. In the *square* structure the agent and the target report to two different sponsors, they do not have a common one. The agent and his or her sponsor are actually in an advocate's position in this situation because they have no sanctioning power over the target. Informal networks are important for the agent's sponsor in square configurations as well, provided that he or she wants to convince the target's sponsor to cooperate.

Case studies

The nature of the cases

The importance of being not only a project manager but also a change manager (sponsor or agent) whenever a project causes morphogenetic change can be illustrated with the following cases of technology roadmapping (TRM) introductions at two different companies.

TRM is a strategic management technique to explore the evolution of markets, products and technologies and to make sure that necessary technological capabilities will be in the right place at the right time to achieve organizational objectives. (Phaal et al. 2003; Phaal et al. 2001; Phaal et al. 2011) Despite the name of the method, TRM is not only a tool for technologists but a company-level strategic planning method requiring inputs from several functions. For a recent overview of the literature on TRM see Carvalho et al.'s (2013) work. Strong commitment and ownership from senior management is vitally important for a successful and sustainable roadmapping initiative. TRM requires multifunctional input, it needs joint planning efforts of the company's several different divisions and functions (marketing, technology and product development, etc.). Only a top level executive with the necessary authority (cp. the role of the sponsor in both CM and PM) covering all the organizational units to be involved can make all the participants take part in TRM. It is almost impossible to involve the necessary participants by somebody on a lower level of the organization.

Simply 'supporting' TRM from the senior level is not enough: top management must own it. Without real ownership at the top, it is only a small group of enthusiastic people trying to produce a roadmap somewhere in the organization. They cannot involve the necessary participants, do not have enough time, resources, information, etc., and they are not authorized to make the necessary decisions. Top management has to decide whether they want to give TRM a serious test run or not. If they really want to test it, they have to initiate and manage the pilot TRM project personally. If they do not want to test it seriously, it is almost surely not worth giving a try to such an initiation at a lower level of the organization.

Without top-level ownership any TRM effort cannot produce serious results. Senior executives must be involved personally into the workshops by all means. Solely they know certain strategic priorities and information, and without their knowledge and guidance the participants can sometimes only make guesses when decisions are to be made during the TRM process.

The case of company ‘A’

At a large service company, hereunder called company ‘A’, the ownership of TRM was on a lower level than it should have been as the technological department initiated the TRM project. Senior managers only ‘supported’ the TRM project without fully understanding its real nature, potential key role and significance in the strategic planning process of the company. They regarded it as an exclusively technological planning tool without any close connection with other functions of the company and without any considerable strategic significance. Their ignorance was partly due to the name of the method, which often discourages the involvement of commercial functions.

The sponsor was the technological executive (see Figure 1, role “S_1”) without the authority to tell members of other, non-technological functions (see Figure 1, roles “S_2”, “S_3”, “T_2”, “T_2”) to participate. Experts from other functions were not his subordinates so they were asked only informally to take part in TRM sessions—this held especially true of marketing people. Members of the marketing department joined the meetings only when they had enough time and when the technologists were able to invite them convincingly enough. Because of that the composition of the actual team working on the TRM project was always changing from session to session and we, the consultants, always had to explain newcomers what TRM is, what was actually going on, etc. to put them in the picture, which process took up sometimes even more than half an hour, while the regular participants naturally became bored. This all happened in spite of the fact that written handouts had been provided about everything. Unfortunately, it was always uncertain who would show up for the next meeting (if anybody) from the marketing department or from the other non-technological functions, thus making it almost impossible to figure out whom should the materials be sent to. And even if they received the handouts, they almost never read them before the meetings as it was only an informal request from the technologists and they considered their participation to be a favour.

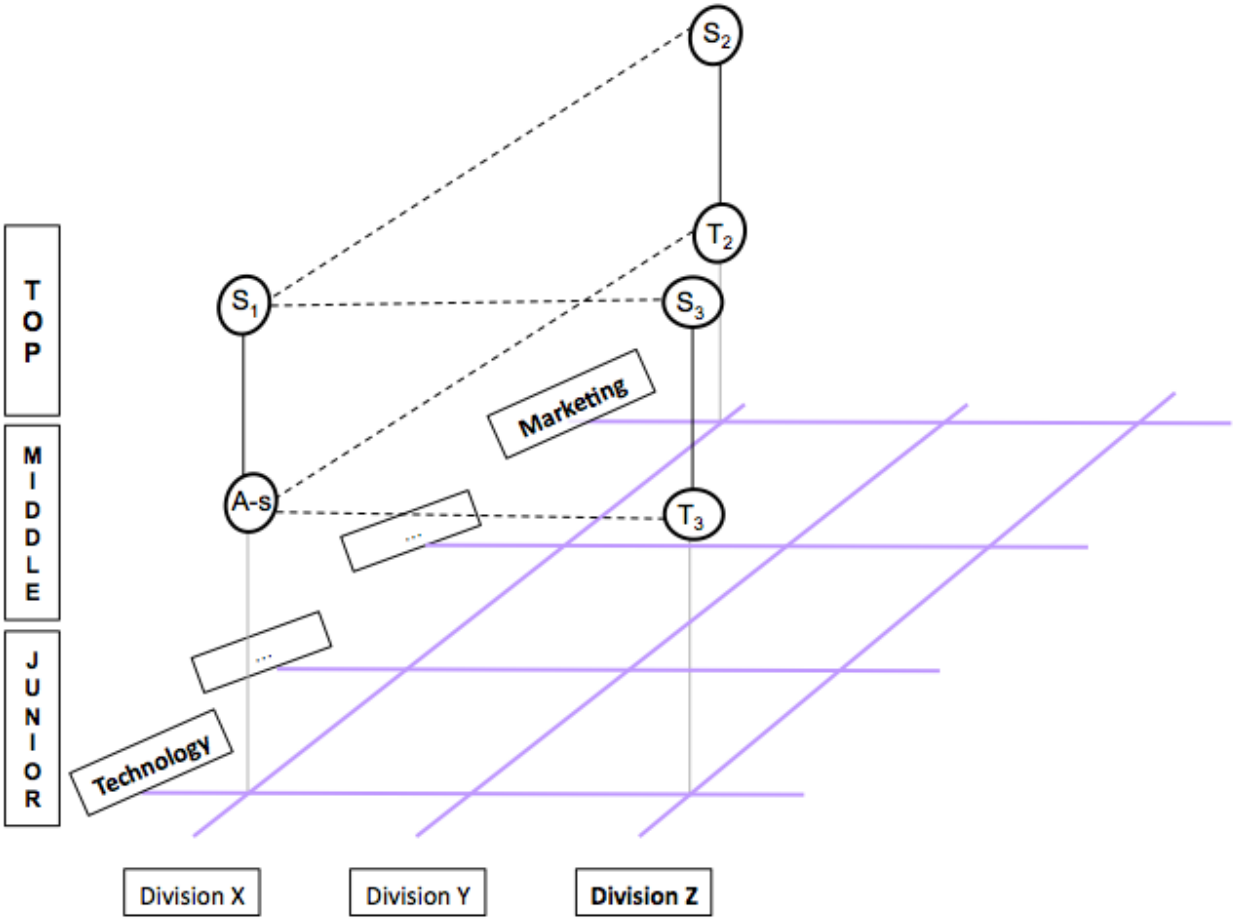
When we interviewed a marketing executive, it turned out that he did not even know about the TRM project at all before our interview. He also had no idea that we were external consultants, he thought we were employees of the company before we gave him our business cards. We had to spend almost half an hour on explaining what TRM is, what we were doing in that project, etc., while he had altogether only one hour for the whole interview with us. Then it was not surprising any more at all that his subordinates were missing from most of the workshops.

Consequently, in case ‘A’, the final map contained one-sidedly much more technology-related information, which was also more, accurate and less market-related information thus there were more knowledge gaps left to be filled after the TRM process in the market dimension.

We experienced a startling degree of secret mongering when we wanted to discuss the new product concepts of a division in order to make the necessary planning possible for the technology developments for those products. Company ‘A’ had a centralized

technology development department serving all their different product divisions so we went to that department to discuss their product and technology development plans in order to integrate them into the technology roadmap. They had several new product concepts based on both primary and secondary marketing information about consumer needs. They always wrote down their new product concepts in a shorter, sketchy form and in a longer, detailed version. They were only willing to show us the short sketches. We asked for the detailed ones as well but they refused to show us them in spite of the fact that we signed the secrecy agreement with the company. Then we asked for getting them sent to the central technology development department at least, but they refused even that request. The sponsor of the TRM project was not their boss so he was not able to get the necessary detailed information from them. (It also turned out that they never shared the longer versions with any other division nor with the central technology development department even though they worked on the same projects.) They operated as an isolated island within the organization—not sharing their ideas and information with any of the other divisions and central departments.

Figure 1: The square relationship(s) of roles in company 'B'

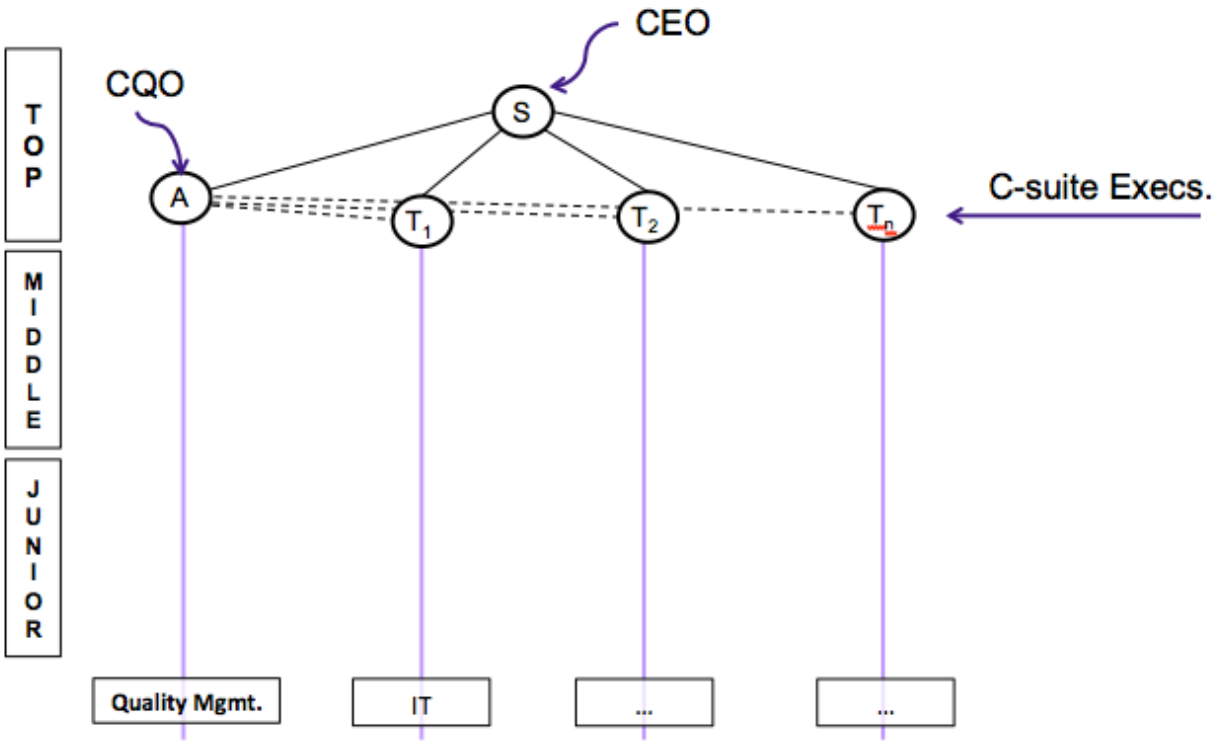


The case of company 'B'

The situation was just the opposite at a middle sized manufacturing company, hereunder called company 'B'. The sponsor of the TRM project was the chief executive officer (CEO) himself (see Figure 2, role "S"), who fully understood the significance of introducing TRM.

He told every function to participate and all the senior managers took part in the project as one of their duties not as an informal favour. The composition of the TRM team was almost always the same, everybody read the handouts for every session, so there was no need to waste time with repeating the same explanations again and again. It was clear to everybody what was going on and why it was important for the company. There was no problem with gathering ideas and information from all the relevant aspects. Even the CEO was present on each and every TRM meeting during the entire length of the project. The CEO, as the sponsor of the TRM project, appointed one of the executives, the chief quality officer (CQO), to be the project manager and change agent (see Figure 2, role "A") of the TRM effort. It was important that the CEO made the dual nature of the TRM effort (a project and a potential morphogenetic change at the same time) clear for everybody, especially for the CQO.

Figure 2: The triangular relationship(s) of roles in company 'B'



Discussion

This paper discusses only the CM and PM aspects of the cases above; for a TRM-related discussion of these two and for a similar third case see Pataki et al. (2010) and Pataki et al. (2013).

Discussion of case 'A'

Chief executives at company 'A' did not realize that the pilot TRM project is nothing less than the potential first step of a second-order change in their company-level strategic planning procedure—assuming that the result of the assessment of the pilot was going to be positive. They handled it as one of their numerous, usual technological development projects that will not cause any considerable morphogenetic changes for their company as

a whole. They thought that the TRM initiative is similar to any other technological development project and can be managed perfectly by the same middle technology managers as usual. But the sponsor's (see Figure 1, role "S_1") competency was insufficient for such an unusual project, the potential the beginning of a company-wide morphogenetic change, since a huge portion of the indispensable participants, that is marketing people, were beyond his reach.

The relationship between the technological and non-technological units formed a typical square structure (Figure 1, roles "S_1", "A-s", "S_2", "T_2"), where the 'de jure' sponsor was able to try to co-operate with the non-technological side as a 'de facto' advocate only. He had only two agents ("A-s"), both of them within his technological unit, none of them in non-technological functions or in other different divisions. That is why the reluctant and random participation of marketing and some other non-technological functions was impossible to be remedied. The secret mongering of the division was also impossible to change into a normal information exchange because of the same 'de facto' advocate role. These are typical problems of the square structure described by Conner (1993), even though from a PM point of view there was no serious problem with the design and the members of the project team.

At company 'A', only a higher ranking initiating sponsor would have been able to both make participation of every function become their official duty and obligate every division to provide all the necessary information. The sponsor of this TRM project (see Figure 1, role "S_1") should have played the sustaining sponsor's role with the authority of the initiating sponsor behind him. He also should have had committed agents in every division and functional unit. It would have been necessary to build up the whole CM role structure, not only the usual PM ones.

Discussion of case 'B'

At company 'B' it was clear for everybody that the TRM initiative is not only a project but it would potentially change the strategic planning process of the company as a whole. The CEO as the sponsor of the TRM effort (see Figure 2, role "S") declared the aim of the project at the very first executive meeting, and after that we, their counsellors, explained them what TRM was all about. The CEO also announced that the CQO would be the project manager and change agent of the initiative (see Figure 2, role "A"). Since the CQO was at the same organizational level of hierarchy as the other C-suite executives, the relationship between her and the other functions outside the quality management department was a typical triangular role structure (see Figure 2, roles "S", "A", "T_1"; "S", "A", "T_2" .. "S", "A", "T_n"—each set forming a triangle). In spite of not being the other executives' superior, the CQO was able to manage the TRM effort because the sponsor was the CEO with all the necessary formal authority. The CEO's participation on every TRM meeting cogently demonstrated the importance of the initiative, and reinforced the seriousness of his sponsorship as well as the power of the CQO as the project manager and agent at the same time. This structure worked well at company 'B' in the same way as Conner (1993) suggested managing such a situation.

Conclusion

The comparison of case 'A' and 'B' clearly demonstrates the difference between realizing and not realizing the (potential) second-order change nature of a project. Without realizing this dual nature, a project managerial role structure that is working well for managing a

usual project that does not cause any morphogenetic change will likely to be proven inadequate for managing not only the project but also the accompanying (potential) change. The targets accept the usual project managerial authority if the project does not cause any second-order change because they are familiar with such projects and consider them as normal parts of their jobs and organizational life in general. But they not necessarily accept the same person's authority when it comes to introducing a morphogenetic change since it is not part of the usual operation of the organization. If top management does not understand the dual nature, that is a project being a morphogenetic change at the same time, it can happen that the initiative will eventually lack the sponsor with the necessary authority—just like in the case of company 'A'. If the sponsor is on a lower level than needed, a problematic square structure can take shape when both the 'de jure' sponsor and the agent are only 'de facto' advocates.

The linear structure is the least problematic one, of course, but a triangular structure can also work well with strong sponsorship from the top as the case of company 'B' demonstrated it. It is vitally important to realize the dual nature of the case and to have a sponsor in a position, which is high enough in the organizational hierarchy, to have the authority across the whole area of the planned change.

But why is it not always realized that some projects are second-order changes as well? Because the type of the same change can be different for different participants and stakeholders. A change that is a morphogenetic one for a low level organizational unit can only be a morphostatic one for the senior management team. For instance, when an employee retires and a new worker is recruited and have to be trained and fitted into the team or when a new machine is implemented instead of a discarded old one and the operators have to learn how to handle and maintain it, it is obviously a second-order change for the operator team in both cases, and also for the new employee in the first example. The operator team members' working life will be different from that point on. But workforce fluctuation and machinery modernization is an absolutely normal, usual part of the routine operation of an organization from the senior management's perspective. Middle and junior managers manage such cases, while the senior managers' working life remains the same. It is absolutely right to manage such cases this way. But the TRM initiatives described above were not such cases: they were potentially morphogenetic changes for every organizational level of the two companies, not only for lower levels. At company 'B', the real nature of the TRM initiative was perfectly understood so their efforts were managed in the right way. At company 'A', the senior management was under the delusion that the TRM project is just a usual first-order change from their perspective, while it can be a second-order one for lower organizational levels, as usual when technologists implement a new method in their work. This misconception was the root cause of their mistake and is one that should be avoided.

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Behaviour research methods in doctor - patient relationship in terms of access to the online health information in Poland

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Abstract

Doctor's power in the relation with patients results most of all from his medical knowledge compared to the patient. So, when the patient has an access to health information, it can be assumed that difference in the level of knowledge will be reduced and the power of the patient will be larger. The online available health information changes this relationship because of enhancing patient's knowledge and empowerment.

The objective of this article is to show how to construct a conceptual model of the doctor – patient relationship in terms of access to the online health information in Poland. This model will be built based on criticism of a paternalistic model resulting reorientation towards growth of patient autonomy and building of a partnership model.

Research methodology consists of four steps:

1. Conceptualization - critical review and analysis of literature.
2. Operationalization - construction of research questionnaires addressed to doctors and patients using variables from the integrated behaviour models.
3. Implementation - primary researches using face-to-face surveys on a nationwide sample of 300-500 doctors and 1000-1200 patients randomly selected using multi-stage random selection.
4. Analysis and inference - statistical treatment using the available methods in the form of factor analysis, the assessment of the reliability of the scale, structural equation models.
Outcomes of this research will be the model of doctor - patients relationship in terms of access to the online health information. It will explain the discussed relationship in the contemporary reality of the medical services market and factors determine the behaviour of both sides of the relationship. It will also allow to formulate recommendations for action to improve this relationship for better treatment effects.

Keywords: *behaviour, patient, doctor, relationship, health information*

Introduction

In the past years and decades a lot of parts of our life have been affected in one or another way by the internet. This electronic medium has caused complete reconfiguration of communication, exchange of information and consequently relations between people. Many researchers (among others: Castells, 2000; Bennett, 2003; Silverstone, 2005; Bakardjieva, 2005) stress it's huge and increasing impact on the contemporary society, which becomes network society.

Interpersonal relationships were and are affected by the online world (Nie and Erbring, 2002; Nie and Hillygus, 2002; Sanders, Field, Diego and Kaplan, 2000; Shklovski, Kraut and Rainie, 2004; Behrens et al, 2007; Boase et al, 2006; Hamton and Wellman, 2000; Katz et al, 2001) and effects have been described by a lot of authors. According to them

the internet is used for contacts with other people, facilitates communication, expands and deepens friendships.

Because the internet have changed and is still changing relations between people, the question is whether the internet will continue to permeate more aspects of the live whether there are some limitation. Maybe there are same relationships, which aren't substantially affected by the internet or which can't be properly shaped by the internet. It goes about relationships marked by connections based on existential matters and urgency rather than feelings or sympathy. Relationship worth considering in this context is the relationship doctor - patient. It is not only characterized by urgency and existential matters but also by intimacy, confidentiality and trust. Such characteristics are more closely associated to offline rather than online reality.

Specific of the doctor - patient relationship

To clarify how the internet impacts on present-day relationship doctor – patient, it is necessary to know the specifics of this relationship. Particularly important are following topics:

1. theories on the relationship between physician and patient in general,
2. asymmetry in the knowledge and power in this relationship,
3. the role of the information,
4. the impact of online health information on this relation.

The relationship between doctors and patients is widely studied topic in the literature. In general it is presumed that the doctor is more powerful than the patient. Power of the doctor appears in terms of advice and medical treatment. As Broom (2005) describes, the doctor's power results from his medical knowledge compared to the patient. The patient looking for help has no option but to trust the doctor, his diagnosis and recommendations. Such situation is due to unequal access to information (Getzen, 2000, p 147) resulting asymmetry of information and knowledge (Korzeniowski, 2007). Moreover, a lack of medical knowledge in combination with urgent need for medical care enhances perceived doctor's power (Hall et al, 2001). On the other hand the doctor's power can be limited. It is possible if the patient is more active in the relationship. Furthermore the patient can influence the doctor (Stoeckle, 1987), leading to negotiation and conflicts.

Well-known and popular in medical practice paternalistic model (Parson, 1964; Szasz and Hollender, 195; Freidson, 1960; Waitzkin 1983; Navarro, 1976), which is dominated by authoritarian approach to the patient and limited autonomy of the patient (Ostrowska, 2006), is replaced in twenty-first century by partnership model (Cassef, 1986), which is based on the patient's independence and freedom to make decision regarding treatment (Wroński et al, 2009).

Patients don't have to be inferior actors in this situation (Haley, 1963) and can cooperate with doctors (Szasz and Hollender, 1956). This cooperation should improve efficient health outcomes through greater patient's involvement. In this context appears the concept of patient's empowerment. It means having and sharing power over a range of decisions such as provider and treatment choice and sources of power and ways to increase patient's power, refers to patient education, legal rights and others (Angelmar, Berman, 2007, p 141). The World Health Organization defines empowerment as 'a process through which people gain greater control over decisions and actions affecting their health' (WHO,

1998). Important is that the patient and the doctor should be complementary to each other because the common task is to restore the health to the patient (Stoeckle 1987, p 134). Although 'the doctor – patient encounters are in fact negotiations, the doctor is always one up in influencing the patient in the kind of illness or treatment' (Scheff, 1968).

To understand the process of interaction, both sides of this relationship should be seen in full context, not only social (Bloom 1963) but also economic. Authors, especially in the field of marketing, economics and management in healthcare, redefine the relationship in the direction of patient being comparable to consumer seeking medical aid of doctor as a provider (e.g. Reeder, 1972; Szeszycka, 1999; Eisenbach and Kohler, 2002; Anderson et al, 2003; Bukowska-Piestrzyńska, 2008; Kotler, Shalowitz, Stevens, 2011; Nowotarska-Romaniak, 2013). In such case a medical practice is understanding as a service (Czerw, 2010). According to Gelinger's idea of five services subsectors, healthcare is a kind of services focused on development of individual's personality (in Rudawska, 2009, p 5).

Patients become consumers because of the popularization of the consumerism concept in healthcare. Consumerism in healthcare is based on the idea that individuals should have greater control over decisions affecting their healthcare. It changes the practice of medicine relying on patients – consumers being willing and able to exercise choice about their doctors in the same way as they do about other services. In those days, most of patients want to decide how and when they should undergo treatment, and they hesitate to question a medical decision.

Despite partially conflicting arguments on the role of the doctor and patient in their relationship, the fact that medicine requires very specific and accurate knowledge can't be negated. Patients and doctors have a different level of knowledge and medicine is one of these sciences which create and maintain a 'social monopoly of expertise and knowledge' (Turner, 1990, p 47). Thus, doctor's knowledge advantage in a field of specialization is a source of the doctor's power.

Nevertheless, expert knowledge isn't the only one knowledge occurs in the discusses relationship. There is also patient's knowledge, which can be called lay knowledge. It 'differs from expert knowledge in the sense that it has an ontological purpose' (Popay et al, 2003, p 404) and is attached to experiences. According to Pearce (1993), own experiences and cultural factors create the knowledge in individuals and construct medical "truth". In the health context lay knowledge is rooted in the experiences of illness (Williams and Popay, 1994). Patient's inherent knowledge of their own symptoms and the experience of living with a disease that physicians lack. Even with the sophisticated diagnostic tools available today, physicians operate at a severe disadvantage without the patients' input. (Bensing et al, 2000).

Lay knowledge doesn't matter in traditional model of relationship patient - doctor, but in the contemporary, post-modern society characterized by the loss of trust in expert systems and of deference to expert authority (Giddens, 1990), patient's knowledge would challenge the science-based expert knowledge of medical professionals. The distance between the doctor's and patient's knowledge and experiences may lead to patient's active search for health information. Consumers have ample opportunities to become well informed regarding their conditions (Rudawska, 2010, p 11). Healthcare is one of the fields in which increasing volumes of information are available to increasingly large numbers of people. Being available over distances, anytime and from everywhere, the internet facilitates patients better and easier access to information about health conditions, diagnosis and

treatments (Ball and Lillis, 2001; Mittman and Cain, 2001). They are able to find on the internet countless websites covering topics that are in some way connected with questions relating to healthcare and illness (Soboń, 2013).

According to Anderson (2004), there are four main factors that contribute to the shift in the role of the patient from passive recipient to active consumer of health information. Advances in medicine lead to unrealistic expectations on the part of patients, the highly specialized health professionals are perceived by patients as being impersonal and aloof, patients are often left with a sense of frustration and dissatisfaction with the information provided during time constraint consultation and health professionals may lag behind the patient in terms of familiarity with the use of the internet, so patients often leave the consultation feeling they themselves are better able to seek information about their health condition and treatment options.

Paper objective

The objective of this article is to show how to construct a conceptual model of the doctor – patient relationship in terms of access to the online health information in Poland. This model will be built based on criticism of a paternalistic model (Parson, Szasz and Hollender, Freidson, Waitzkin, Navarro) resulting reorientation towards growth of patient autonomy and building of a partnership model. The online available health information changes this relationship because of enhancing patient's knowledge and empowerment. The research project will determine the significance of the e-information and its impact on discussed relationship resulting from a change in patients behaviour before going to the doctor, during a consultation and after an appointment from patients and doctors perspective. In this case it will be used Technology Acceptance Model (TAM), Health Belief Model (HBM), Theory of Planned Behaviour and Health Information Seeking Behaviour (HISB) models. According to the Cassef's consumer model both sides of the examining relation are seen as participants of the medical services market. Patient is a client and doctor is a provider of medical services in the area of primary healthcare.

Resulting from the main objective of the research specific objectives are as follows:

1. To examine patients in the area of:
- access to the internet, including skills for use,
- motivations for using the internet as a source of health information,
- methods of searching for online health information by patients,
- barriers to use it,
- trust and credibility related to internet-based health information.

2. To explore how the online health information educates patients, enhancing their knowledge about diseases and health management and how it influences their behaviour before, during and after an appointment.

3. To examine how doctors perceive the using of online health information by patients.

4. To analyse the impact of the health e-information on the physician – patient perceived relationship from the doctor's and patient's perspective.

The main scientific hypothesis of the research is, that health information available online affects the doctor – patient perceived institutional relationship helping to reduce

information asymmetry in the studied relationship. It is made based on the opinion, that doctor's power in the relation with patients results most of all from his medical knowledge compared to the patient. So, when the patient has an access to health information, it can be assumed that difference in the level of knowledge will be reduced and the power of the patient will be larger.

Specific hypothesis are following:

1) Patient's behaviour in the field of searching of online health information is affected first of all by perceived usefulness and perceived ease of use.

2) The way of using of found health information and its impact on patient behaviour before, during and after an appointment with doctor depends on the characteristics and attitudes of patients.

3) The impact of online health information has more positive than negative effect on the physician – patient perceived institutional relationship and depends on the physician's reaction and communication skills.

Work plan

The subject of the research is a procedure aiming ultimately to answers to questions:

1. How does the model of perceived institutional relationship doctor – patient in terms of access to electronic health information look like?

2. How strong is the influence of the online health information on decision making by patients with regard to medical issues?

Having access to health information through online services gives rise to concrete types of behaviour towards health professionals and health systems, namely making suggestions or queries on diagnosis or treatment, changing the use of medicine without consulting a health professional and making, cancelling or changing a medical appointment (Santana et al, 2011). Doctors sometimes see patients coming with found online health information as an attack on their authority and professional knowledge. Nonetheless online health information has more positive than negative impact on the discussed relationship. Furthermore, thei educates patients about their health problems and benefits in terms of improved self-care (Herwaarden et al, 2007), enhance patient's satisfaction (Krupat et al, 2000), improve health status (Engers et al, 2008) and reduce healthcare expenditure (Department of Health, 2007). Kassirer (2000) believes that physicians will be drawn into a new "partnership" with patients who are more responsible for their own care. Roter (2000) notes that improved patient outcomes have been documented in studies where patients took the initiative for obtaining their own information. Braddock et al (1999) propose shifting to a more balanced, two-way dialogue between patients and their physicians to encourage the "informed participation" of patients in making important clinical decisions.

In response to the 'internet informed' patient, the patient – doctor relationship can become the health professional-centred relationship with the health professional exerting patient's opinion, the patient-centred relationship where patient and health professional collaborate in obtaining and analysing the internet information or the relationship with doctor, who acknowledges the patient's 'search for knowledge' and guides the patient to reliable and

accurate information (McMulian, 2006). In such relationships e-patient should be seen as educated, enabled, empowered, engaged and equal.

The research questions, which emerge from the literature and conceptual framework are following:

– What is the frequency and the scope for using the internet to search for health information by patients?

– How are attitudes, behaviour, motivations and barriers for using the internet by patients as a source of health information?

– What does affect patient's behaviour in the field of searching of online health information?

– How does the internet affect the decisions taken by the patient on how to deal in connection with the observed symptoms (e.g. taking self-medication, the resignation of the visit, the delay or acceleration of doctor visits)?

– To what extend and in what way does online health information affect patient's power in relationship doctor – patient?

– What are key factors determining effect of use of the online found health information?

– How does information affect (facilitate or hinder) the communication between doctor and patient during the visit?

– What impact have online information on perceived relation between physician and patient from the doctor's and patient's perspective?

The knowledge about current behaviour of patients and doctors should point how to improve examined relationship, clinical outcomes and restore the health to the patient in the fastest possible way in the new decision-making doctor - patient relationship model. The element directly related to this is to measure the impact of e- health information on relationship doctor – patient taking into account the bipolarity approach – the perspective of the doctor and the patient, whose behaviour changes under the influence of the online health information found and used by patient.

The research process is divided into several stages corresponding with the specific objectives listed in research project objectives.

The first stage (theoretical) involves the study of literature published in Poland and abroad in the field of health economics, healthcare management, marketing of health services and sociology. The first task of this research stage is the identification of background of the undertaken methodological considerations, which is definition of the nature and mechanisms of doctor – patient relationship and determinants influencing it in different countries, focusing on Poland. The aim of the diagnosis of this issue is providing a basis for the construction of the path of conduct in the assessment of the central category of this project: the doctor – patient perceived relationship in terms of access to online health information, roles played by the patient and doctor and changes in the behaviour of market participants in examined relationship. The second task of this research stage includes the

interpretation and development of online health information, its quality, methods of measurement and impact of this information on doctor - patient relationship in the light of the earlier achievements in sociology, economic sciences and international experience. The two parts of the first stage of research are aimed at the conceptualization of the basic categories of the undertaken issues, selection and define the indicators and variables which will be used in the next stages of research.

The second stage (methodical) covers building of two questionnaires. The first questionnaire is addressed to doctors with questions about general characteristics, found and brought by patients online health information, its impact on behaviour of doctors and patients and their perceived relationship in terms of access to online health information. The second questionnaire is addressed to patients with questions about general characteristics, behaviour in seeking online health information, effects of information's searching, utilization of found information and its impact on perceived relations with doctors. The primary objective of this research stage is to create precise research tools to get the appropriate information, which will allow the researcher to do necessary analysis in subsequent stages of research.

The third stage (empirical) includes two groups of research - both quantitative. The purpose of the first round of quantitative survey of doctors is to collect data from purposefully selected doctors about all areas defined in the earlier stages of the study in the form of face-to-face, online and auditorium surveys. The purpose of the second round of quantitative survey of patients is to collect data from purposefully selected patients about all areas defined in the earlier stages of the study in the form of Computer Assisted Telephone Interview supplemented by face-to-face survey. The fundamental objective of this stage of the project is to examine patient's behaviour in seeking information, the utilization of information by patients and to evaluate impact of found health information on relation between doctors and patients from doctors' and patients' perspective.

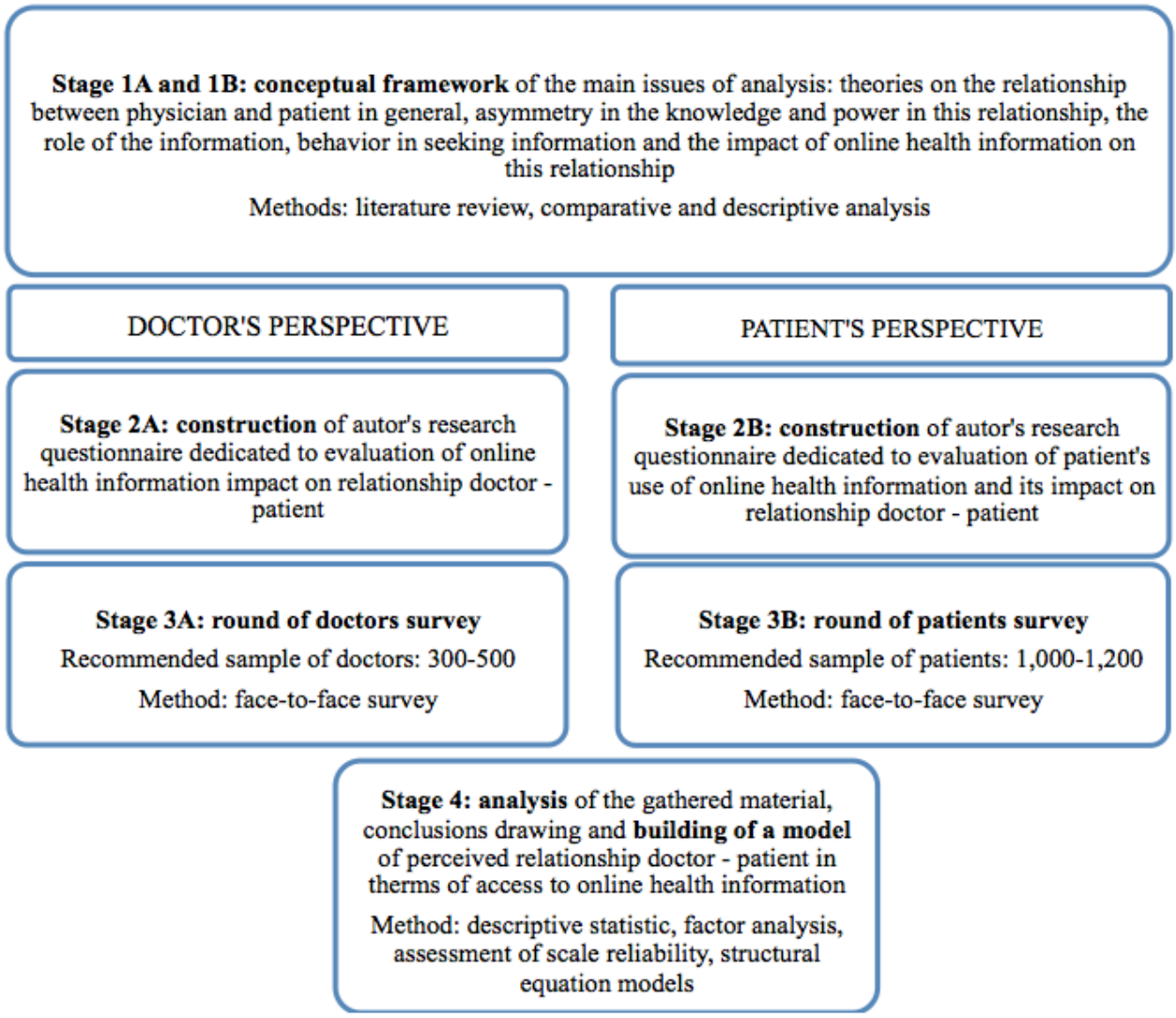
The fourth stage (statistical) involves submission of the empirical material to the appropriate statistical treatment in accordance with the description of methods contained in the methodological part of the application. Development of the accumulated source material will be made using available statistical package – Statistica. The applied methods include among others building model of new relationship doctor – patient in terms of access to electronic health information gives an answer to the question about how the internet impacts on studied relationship.

The primary objective of this research stage is to know how the online health information impact and changes relationships doctor – patients in the Polish healthcare system, what determinants impact on it and to build the model of this relationship.

Methodology

Approach to the main scientific problems, the objectives and the research methods for their achieving in the proposed research presents Figure no.1.

Figure 1. The proposed underlying scientific methodology.



Source: Self-study.

At the first stage of the research (conceptualization) will be used national and international literature. The following free access database will be searched: the Libraries of the University of Szczecin (Polish-language books), as well as international, English-language online bases including: ProQuest, EBSCO, Web of Science, Emerald, Springer Link, JSTOR, ViewsWire, Science Direct, Wiley online Library, Prol, Science, Nature.com, GMID, EMIS, Oxford University Press.

At the second stage of the study (operationalization) it will be constructed research questionnaires addressed to doctors and patients. The first one will comprise the following units related to doctors:

- general characteristics,
- quality and reliability of online health information,
- benefits and harms of using by patients online health information,
- actions taken by empowered patients,
- doctor's behaviour in the context of the presented information.

The second one will comprise the following units related to patients:

- general characteristics,
- variables in Yun integrated model (Kim and Park, 2012, p 4) built from Technology Acceptance Model, Health Belief Model, theory reasoned action and Theory of Planned Behaviour (health concerns, perceived susceptibility, perceived seriousness, subjective health-related knowledge, internet self-efficacy, perceived ease of use, perceived usefulness, perceived credibility, attitude, behavioural intention) and HISB (Health Information Seeking Behaviour) (Lambert and Loiselle, 2007),
- the frequency and extent of use of the internet to search health information, motivations for using the internet and finding appropriate information,
- actions taken in connection with the health information found on the internet with particular regard to changes in patient behaviour before, during and after an appointment with doctor,
- impact of found health information on perceived dimensions of doctor – patient relationship

At the third stage of the research (implementation) will be performed primary research of doctors and patients using a form of questionnaire developed for each of the treatment groups (direct survey). Sample selection is a multi-stage random selection, i.e.:

- In the first stage will be made the direct sampling of districts. They will be randomly selected from the alphabetical list of districts available in the form of list of identifiers and names in the number of the units of territorial division of the country (GUS, 2010).
- In the second stage will be made the direct sampling of health entities. Within districts will be randomly selected healthcare entities providing services in the field of primary healthcare in accordance with the act “ustawa o działalności leczniczej” (Dz.U. 2011 Nr 112 poz. 654) from the list available on the websites of regional branches of the National Health Fund.

All primary care physicians working in randomly selected entities and patients using the services of doctors in randomly selected subjects will be examined during the period of direct research (about 2 weeks).

A) The survey of doctors addressed only to primary care physicians target group results from the specific of contacts with this kind of doctors, which are the first stage of treatment and susceptible to actions taken by the patients searching health information on the internet. Sample size including 300-500 GP doctors working in units offering primary care (Churchil, 2002, p 562) will be asked using a questionnaire as needed, constructed based first of all on the Likert scale, due to the use in the study of structural equation modelling, allowing for testing hypotheses about the high possibility of the complexity of the relationship between variables. Range research covers the whole Poland because the aim of the research is to examine doctors in different regions of the country.

B) The survey of patients addressed to adult patients target group results from ability to decision making in the health area reserved for adults. Sample size including 1,000-1,200 patients using the services of doctors in sampled healthcare entities based on sampling strategy aims at maximizing the likelihood of capturing a variety of views on the topic, so that a variation in the sample is guaranteed (Churchil, 2002, p 562), will be asked using a questionnaire as needed, constructed based first of all on the Likert scale, due to the use in the study of structural equation modelling, allowing for testing hypotheses about the

high possibility of the complexity of the relationship between variables. Range research covers the whole Poland because the aim of the research is to examine the whole population of adult patients of the country.

Thanks to this surveys there will be collected required data to conduct further analysis.

At the fourth stage of the study (statistical treatment), statistical methods will be used to develop the collected source material. It is planned to use, according to the needs, of:

- factor analysis,
- assessment of scale reliability,
- structural equation models.

Listed statistical analyses will be accomplished using statistical programs, among others Statistica and SPSS. The intention of their use is to develop who is the typical online health information user, which determinants affect the patterns of behaviour in searching for online health information and using it by patients and finally to build the model of the doctor – patient perceived relationship in terms of access to the online health information in Poland.

Conclusions

The research is a comprehensive approach to the issue of the online health information and its impact on behaviour of patients and doctors. In many studies are usually examined some elements of patients' behaviour in terms of access to on line health information, neglecting assessment of the situation from the perspective of doctors.

This research concept give an opportunity to study the behaviour of the Polish patients during the whole process of acquiring and using information and doctor's reaction to online health information found and brought by the patient. It will be examine not only the frequency and extent of use of the internet to search health information but first of all attitudes and behavioural intention of patients seeking this information, actions taken in connection with the health information found on the internet and impact of found by patients health information on perceived dimensions of doctor – patient relationship from the perspective of patients and doctors. This approach using factor analysis, assessment of scale reliability and structural equation models gives the researcher the ability to find connections between information and the relationship doctor – patient. This will link all elements of the process of acquiring and using information and its impact on the perceived relationship doctor – patient.

Outcomes of the realization of the research will be theoretical effect relates to development of the model of perceived relationship doctor – patients in terms of access to online health information. This model will explain what is the relationship between the doctors and patients in the contemporary reality of the medical services market and what factors determine the behaviour of both sides of the relationship in connection with the use of patient health information from the internet. This model will link general characteristics of patient and other factors determining looking for health information on the internet with behavioural intention and patient's attitudes and actions taken in connection with the found health information with particular emphasis on the impact of this information on behaviour in relationship doctor – patient.

On the basis of the collected research material it will be known pattern of behaviour of patients and doctors and their reactions to available online health information, what will allow researcher to recommend actions to improve relation between doctor and patient in the reality of empowered patient. Answer to the question about the direction in which evolves the relationship will the basis for giving tips on how to increase the effects of treatment.

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The integration of e-learning into strategies of German-speaking universities– a literature survey

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Abstract

The Bologna-Declaration of 1999 as well as the Prague Communiqué of 2001 created a massive improvement of e-learning projects in universities. Today, the prestigious funding programs have produced a high number of content. However, these programs did not lead to a lasting acceptance of e-learning and also did not create a necessary change in the structure of German-speaking universities. Until now, we can identify only very few projects where the deployment of new media created an abiding change in university's culture and structure. Most of the e-learning projects are isolated applications, based on a self-generated initiative of some highly committed teachers, whose outreach does not enable a stable anchoring within the structure and culture of university landscape. The question is why the single application of e-learning seems to work at universities, but not the integrated implementation. This paper presents an overview of the current status of implemented e-learning strategies and the realisation of e-learning offerings in German-speaking universities. In this context, some problematic issues of e-learning in universities will be addressed, followed by a research overview of current e-learning strategy integration and implementation. The aim of this paper is to analyse why a thorough integration and implementation of e-learning fails in the university's organisational structure. To obtain a complete and lasting implementation the e-learning process has to be understood as a key management responsibility. Therefore, a detailed organisational concept with specific guidelines to coordinating staff, technique and tasks inside the process of e-learning is necessary.

Key Words: *E-learning –Strategic planning – University – Procedure model for e-learning – Implementation of e-learning with ITIL® and ISO®*

Introduction

At the beginning of the 21st century different funding programs have been introduced for the use of e-learning at German-speaking universities. In 2003, it could be observed that new media are not fully integrated in university's culture and structure but are rather seen as a supplement of existing teaching methods (Holten and Nittel, 2010, p19). The aim of this paper is to identify, if this problem still exists at German-speaking universities. Moreover, research identified a lack of e-learning acceptance and understanding on the authorised management level of universities as an explanation why e-learning is not integrated in the organisational structure of universities. With regard to this, the Office of Technology Assessment of the German Bundestag identifies an insufficient support from university boards. Furthermore, they claim an unadjusted infrastructure and lack of strategies for e-learning implementation at German-speaking universities (Revermann, 2006, p 8). These considerations suggest that the problem of an isolated solution can be deduced to the unreadiness of the university board to integrate e-learning into the university strategy. But also more ambitious university boards are faced with problems by implementing e-learning (Germ and Mandl, 2009, p 275). Getto (2013, pp 183-185) requires the development of university-specific

arrangements to incorporate e-learning in the specific organisational structures at universities, too.

This paper focuses on the complex issues of functional, organisational and technological implementation of e-learning at universities. A study by the University of Hamburg shows that e-learning is already a part of German university's teaching programs, but far from daily routine (Multimedia Kontor Hamburg, 2004, p 1). The aim of this paper is therefore to analyse why a lasting implementation of e-learning into the organisational structure of universities fails. Handke and Schäfer explain this failure with the lack of a commonly accepted concept of e-learning integration at universities (2012, p 6). Because of this lack a problematical structure has now been established. Problems arise from the organisational separation in functional, technological and didactical areas. Many universities established centralised support facilities whose tasks or functions are mainly specialised on key technological competencies. These competencies can be described as (among others) the setup and maintenance of e-learning platforms, maintenance and provision of specific hardware (server, computer labs etc.) and the organisation and support of e-Assessments. Functional and didactical competencies that are required for the creation of e-learning content are only held by teachers. Under the given separation of competencies, teachers do have neither the know-how nor the capacity to develop e-learning offerings. Simultaneously, the support facilities do not have the didactical or functional competencies. One explanation for the lack of lasting integration of e-learning at universities is the separation of functional, technological and didactical competencies (Handke and Schäfer, 2012, pp 7-9). Following this argumentation, an organisational concept is necessary that combines the single competencies. This does not necessarily mean a centralisation of the competencies but a useful concept to create and favour cross-departmental e-learning offerings. However, a centralised provision and maintenance of the e-learning infrastructure could be useful with regard to technology. A vital part of such a concept would be a consensus on the functional and didactical level of the e-learning design that offers enough freedom for individualised solutions.

The paper provides an overview of existing concepts and methods for the implementation of e-learning at universities. Challenges the implementation might face are strategy formulation, conception and realisation as well as quality assurance. Germ and Mandl identify the appropriate strategic development, the appropriate realisation as well as the quality assurance and development as the three essential problems in e-learning implementation (2009, p 275). This paper focuses on the first two problem areas and their current relevance. Are they still persisting or are there models which could solve the appropriate strategic development and the appropriate realisation of e-learning at universities? The third problem of quality assurance and further development should not be discussed in this paper, because quality assurance is a downstream problem. First, an overview of the current research in appropriate strategic development will be given, followed by an overview of the appropriate realisation of e-learning at German-speaking universities.

Integration and implementation of lasting e-learning strategies at universities

The necessity of e-learning strategies at universities

A major problem hindering the lasting implementation of e-learning at German-speaking universities is the lack of appropriate strategies (Germ and Mandl, 2009, p 275).

Reinmann identified e-learning as one of the main strategic challenges for the development of universities and not as a temporary phenomenon. However, only few German-speaking universities were able to integrate a lasting e-learning on a strategic base successfully in the past (2005, p 6). If universities do not establish e-learning within their strategies, this might result in problems in the near future. E-learning 2.0 is generally independent of a technological infrastructure provided by the universities. As result of that, independent education initiatives can be formed. These education initiatives consist of independently working teachers and students and can result in a loss of control of apprenticeship at universities (Carstensen, 2009, p 259), which reflects the mentioned future problem. Summarising, it can be noted that the initial impulse for a lasting integration of e-learning has to be done through the implementation of e-learning into university strategies and organisations. Moreover, the question arises how much e-learning has to be integrated in strategy and organisation of each university. Concerning this question, Euler and Seufert identify four types of strategies, which have attained a considerable prominence in the German-speaking literature. The strategies depend on the innovation direction (outward vs. inward perspective) and the innovation focus (optimisation vs. strategic change; 2005, pp 51-54).

The four resulting strategies are the strategy of professionalization, the flexible strategy, the reform strategy and the commercial strategy (see Figure 1) (Euler and Seufert, 2005, pp 51-54).

The strategy of professionalization considers the use of e-learning as potential of educational modernisation in general, whereas the strategy of flexibility focuses on individualisation and orientation towards the needs of education offerings with the support of e-learning. Both strategies are aimed at an increase of the existing course portfolio and differ primarily in their direction of innovation. The reform strategy is to insert e-learning as impulse for change in education and to shape teaching and learning cultures in a proactive way. The commercial strategy goes even further in using possible e-learning market potentials in trainings and generates additional sources of income for universities (Euler and Seufert, 2005, pp 51-52).

An alternative approach categorises e-learning strategies based on their proportion on digitalisation of apprenticeship. Bremer defines the following three categories of e-learning strategies: Concept of enrichment, integration concept and virtualisation concept. Following these strategies, increasing digitalisation of apprenticeship can be observed, starting with a simple integration of presence apprenticeship by accompanying materials online (concept of enrichment), over a combination of presence and online sessions (integration concept) up to exclusively online apprenticeship (virtualisation concept; Bremer, 2004, pp 11-12).

This alternative categorisation of e-learning strategies provides the opportunity to integrate e-learning into the strategy and organisation to an individually selectable degree. A lasting implementation of e-learning requires university-wide changes in culture and structure. These changes include a long-term and complex concept, realisation and lasting continuation that should not be underestimated with regard to financial and personal resources (Germ and Mandl, 2009, p 279). Given to the complexity of e-learning integration, it is necessary to consider the responsibilities, management structures and processes on all organisational levels of the university (university, department and project; Kleimann und Wannemacher, 2005, pp 4-5). The

selection of an appropriate strategy is only the first step of the implementation process. This step is followed by adapting the strategy to the specific needs of the university. How the appropriate development of e-learning strategies can take place is described in the scheme of Kleimann and Wannemacher in figure 2 (2005, p 4). For this the authors aligned to the basic approaches of strategic management theory.

The strategy development of Kleimann and Wannemacher is one of many approaches offered in academic literature. This scheme exemplifies that sheer project management offers freedom to universities and their e-learning implementation process. It is necessary to point out how e-learning can be integrated into the university system. Furthermore, it is important to describe which specific changes in organisation and structure have to be done, how the (IT-) infrastructure has to be adjusted and which kind of consulting can be used to ensure that e-learning is anchored on all organisational levels. By issuing concrete instructions that provide information on what has to be done to develop a strategy. All relevant organisational and technical areas can already be taken into consideration during the strategy development stage, and all affected employees can be identified and motivated. So far, no satisfying solution has been identified, though.

In the following section, this paper presents an overview of existing models and concepts. The following models deal with the solution of the second problem, the appropriate realisation of e-learning.

Implementation concepts of e-learning strategies at universities

The implementation of e-learning has to follow a top down approach (Getto, 2013, p 183). E-learning integration at universities is incomparable with enterprises because of the organisational structures differ significantly. Enterprises are traditionally managed by a single authority that is supported by different control systems (Getto, 2013, p 54), which allows a top-down approach. Contrastively, most university departments work to a large degree on an independent basis. Organisation in ‚loosely coupled systems' results in a limited authority of the university board regarding the realisation of innovations in teaching, like e-learning (Getto, 2013, p 54). In particular, the self-determination of university teachers in teaching design is to be emphasised. The teacher's liberty in choosing their methods and content of teaching is grounded in the German Higher Education Framework Act (Hochschulrahmengesetz) (Bundesministerium der Justiz, 2007, §4 (3)). This kind of freedom is why a bottom-up approach should to be taken into consideration, besides the top-down approach. The employees charged with creation of e-learning offerings need special incentives to get motivated. The creation of e-learning offerings is seen as hindering their career by university teachers. The creation of e-learning offerings involves an additional workload, which is often not appropriately honoured by colleagues and supervisors (Pfeiffer, Sindler and Kopp, 2005, p 49). In addition to intrinsic incentives of university teachers concerning their career planning, monetary incentives should also be considered. At the department of economics at Justus-Liebig-University of Giessen in Germany, for example, there are no additional financial resources for e-learning expenditures. In general, university departments receive a performance-based funding allocation (leistungsorientierte Mittelverteilung, LOM) by the federal state (Getto, 2013, p 83). Getto points out that the LOM-calculation considers only very few key performance indicators to create a transparent calculation. Neither apprenticeship nor innovations in teaching like e-learning affect the LOM. Regarding the scope of this paper the given

brief description should be sufficient to underline the importance of the problem of incentive systems at universities.

In summary, alongside strategical considerations also bottom-up approaches have to be developed to identify intrinsic and monetary incentives for the offering of lasting e-learning by the self-sufficient departments and university teachers (Getto, 2013, p 183). According to the mentioned reasons, the models for the realisation of e-learning at universities are using a combination of top-down and bottom-up approaches.

Gradual implementation of e-learning by using six project stages

Arnold et al (2013, p 306) adhere to this fundamental idea and developed a process for the implementation, which combines the e-learning strategy by the university board (top-down approach) with the e-learning approaches and projects at the departments (bottom-up approach). This process of e-learning implementation should be realised according to the following six project stages (Arnold, et al, 2013, pp 398-399):

- Stage 1: Development of a centre of excellence *(as a central advice centre for coordination and creation of e-learning* offerings*, in the* technological *as well as in the functional area)*.
- Stage 2: Development of competencies (*concerning the content development as well as the realisation and evaluation of e-learning* offerings *designed by teachers*).
- Stage 3: Conceptualisation of didactics (*to didactically produce and conceptualise the e-learning* offerings).
- Stage 4: Construction of an infrastructure (*to provide and conduct the technical infrastructure*).
- Stage 5: Implementation of a project management (*to ensure the development, the continuous operations and to evaluate the achievements of current e-learning projects*).
- Stage 6: Conceptualisation of quality management (*regarding the media in use, the operation processes and the current level of integration of e-learning in current teaching*).

The shown process seems to be encompassing at first sight, it considers organisational, technological as well as personnel aspects. What is lacking, though, is the consideration of an incentive system. The structure of organisation at universities provides extensive freedom in research and apprenticeship to university teachers. Without a working incentives system – regardless of the fully formulated e-learning strategy – e-learning will only be implemented by few committed university teachers, many will probably not be willing to shoulder the additional workload. Furthermore, this process is divided into roughly designed project stages. These provide a wide range for interpretation for the universities involved. The model does not specify in which areas (e.g. entry, basics or deepening) or field of study the use of e-learning appears reasonable, for example. Also the design of the shown process in project stages could be criticised: a project is defined by a temporal limitation with a fixed start and end date (Krüger, 2013, p 4). The lasting integration of e-learning in university's daily routine is no project following this definition. The implementation of e-learning to university's daily routine cannot be done in project structures but by developing strong structures and processes.

Model of lasting e-learning innovations in academic teaching

The model of Seufert (2008, pp 500-501) is more detailed and considers the strategical implementation as well as single e-learning projects and addresses special conditions at individual universities (see figure 3). This model is split into four categories that again are divided into 30 sub-categories. The realisation of these four categories is influenced externally by three conditions (characteristics of university, environment of university and properties of involved), defined by the fixed goal of lasting e-learning innovations in academic teaching.

This comprehensive visualisation reveals what needs to be considered to establish e-learning at universities. The model pictures which fields have to be implemented and which areas have to be considered in detail. Occasionally, even instructions are given; e.g. that centralised and de-centralised support structures should be built up to integrate e-learning systems into the infrastructure. In contrast to the model of Arnold et al, this starting point leaves only little space for interpretation but even in this model specific treatment instructions are missing. Following the example of the support structure, it could be scrutinised how the tasks should be distributed between the central and the local support centres, or how the single units should be integrated into the university's organisational structure. This model was developed in Seufert's habilitation treatise at the University of St. Gallen. The University of St. Gallen is one of the ‚lighthouses' in the area of e-learning at German-speaking universities. Therefore, it is not surprising that the model is very comprehensive, but it probably never was eligible for providing best practice examples for other universities. The model was not developed to be used as a best practice example that is generally accepted, the absence of specific treatment instructions may reflect the reason for that.

E-learning implementation with ITIL®

Other models attempt to phrase specific treatment instructions based on common frameworks or standards (e.g. ITIL®; Information Technology Infrastructure Library, ISO®; International Organisation of Standardisation). Schulmeister et al investigated the lasting integration of e-learning at universities from the perspective of business information systems. In their opinion, the provision of e-learning offerings is interpreted as an IT-service. They have identified the organisational and technological base as a fundamental condition for lasting e-learning. In accordance, their model recommends the orientation based on the IT-service management of ITIL® for the integration of e-learning at universities (Schulmeister, et al, 2008, p 40).

Treating e-learning offers as IT-Services and the high relevance of the technological area is often no significant part in other models, even though this position should not be dismissed. One disadvantage of using ITIL® for the integration of e-learning at universities, though, can be seen in the lack of recommendations regarding the organisational structure (Victor and Günther, 2005, p 19). Moreover, the reducing e-learning offerings to IT-services means neglecting the role of didactics, that is equally important for the development of e-learning offerings. The application of ITIL® is reasonable with regard to the technological organisation of e-learning; however this is not sufficient to establish e-learning at university, as didactical, functional and organisational factors play equally important roles

The Rostock model of systematic development of modular e-learning offerings (ROME)

The Rostock model of systematic development of modular e-learning offerings (Rostocker Modell zur systematischen Entwicklung modularer e-learning-Angebote (ROME)) combines all aspects of the development process, from planning to realisation and evaluation (Hambach, 2008, pp 51-55). ROME is based on the approach of systems engineering. The procedure model is based on a general accepted norm: DIN PAS 1032-1:2004 which was approved and international published as ISO/IEC 19796-1:2005 (Hambach, 2008, pp 51-55). This norm identifies and describes planning, development and implementation of educational processes and educational offerings in consideration of e-learning (DIN PAS 1032-1, 2004). The procedure model ROME is divided into six phases that again are divided into stages. A role model to describe the tasks and requirements of the respective roles as well as a resource collection and an artefact collection are further elements of ROME. The resource collection summarises all methods, tools and auxiliary devices used. The artefact collection documents the results of the various phases or stages (Hambach, 2008, pp 61-65). ROME's phases and stages can be summarised schematically as follows in figure 4.

The procedure model deals with content, method and materials of teaching and learning, evaluation, technological realisation and with the organisation of e-learning offerings. This all-embracing view on the process of development of e-learning offerings in addition to a model that is based on a common norm offers a stable basis for the lasting integration of e-learning offerings into an organisation. The procedure model aspires to be a universal model, therefore it does not go into detail with regard to the organisational structure of universities. The identified roles in the model can be transferred to the main actors at universities. However, the actors in enterprises differ regarding their incentives and motivation to operate e-learning. A role model aiming at the university structure needs an incentive management system to motivate university teachers to offer e-learning. This is crucial since their reputation depends primarily on research findings and not on the design of apprenticeship, for the mentioned reasons.

The problem of the realisation of e-learning at universities that was presented initially could be solved by the presented models only in some areas (the view on e-learning as an IT-service and the associated solution by the application of ITIL®) or by single universities, e.g. University of St. Gallen or University of Rostock. These models are not generally applicable for different reasons as they only consider some issues of lasting integration of e-learning at German-speaking universities.

Conclusion and outlook

The aim of this paper was to analyse why the complete implementation of e-learning at German-speaking universities is problematic. Three essential problems have been identified in the course of the literature evaluation: lasting strategic development, lasting realisation and quality assurance and further development. Based on the first two problems this paper gives an overview over different models and concepts, which propose solutions for the mentioned problems. Concerning the lasting strategic development a satisfying model which can give specific suggestions that goes beyond project management meditations could not be found. Specific suggestions for the process of strategy development are necessary to meet the demands of such a project in the specific case of a university. With regard to the demand-oriented realisation as a problem of lasting e-learning implementation no model could be found that could act as

a best practice guide in future for other universities. These models are not generally applicable for different reasons; they consider only a specific success of e-learning at German-speaking universities.

Concludingly, a concept for integration of e-learning into universities' teaching routine, that is generally accepted and adapted to the specific requirements the organisational structure or the development of a special incentive management system at universities is still to be found (Handke and Schäfer, 2012, p 6). Getto (2013, pp 183-185) requires the development of university-specific arrangements to incorporate e-learning in the specific organisational structures at universities, too. The necessity of developing such a concept is still high. This paper has shown that a concept to implement e-learning lasting should be an action guide that is customised to the special arrangements and obstacles of German-speaking universities.

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