



Report  
on telecommunications sector  
in Poland

## Spis treści

1.	CHARACTERISTICS OF THE SECTOR (SIZE AND STRUCTURE) .....	3
2.	OVERVIEW OF THE SECTOR AND THE MAIN TRENDS.....	8
3.	LEGAL REGULATIONS.....	10
4.	BUSINESS ENVIRONMENT .....	11
5.	SALARY STRUCTURE.....	11
6.	PROJECTS AND INVESTMENTS IN 2007-2008 .....	14
6.	PROJECTS .....	14
7.	R&D ACTIVITIES IN THE TELECOMMUNICATIONS SECTOR .....	16
8.	FORECAST AND OPPORTUNITIES: 2009-2013.....	18
9.	NATIONAL ASSOCIATIONS, CHAMBERS OF COMMERCE AND BUSINESS CLUSTERS.....	19

## **1. Characteristics of the sector (size and structure)**

Value of the Polish telecommunications market is estimated to be worth of 49.6 billion PLN. In this part of the report we characterize telecommunications companies which have more than 1% share of the retail or wholesale telecommunications market due to their primary activity in the telecommunications sector.

### **1.1. Characteristics of particular segments of the telecommunications sector**

#### **Fixed-line telecommunications**

Telekomunikacja Polska S.A. (TPSA) is still the leading company in the market in terms of revenue. Other entities which have more than 1% market share are Netia S.A., Dialog S.A., Tele2 Polska Sp. z o.o., UPC Polska Sp. z o.o. and Polska Telefonia Cyfrowa Sp. z o.o. In 2008, there was an increase of small operators' market share to the level of 26.7% in relation to overall revenue from providing fixed-line telecommunications services while TPSA market share decreased to the level of 73.3%. In 2005-2008 a decrease of 36% in the amount of revenue from fixed-line telecommunications services was observed. Due to lowering prices in the voice transmission market and decreasing popularity of fixed-line telecommunications services, operators concentrate on maximizing the profit from fixed phone subscriptions. Customers increasingly tend to choose telephone packages with free calls on specified days or hours.

#### **Mobile telecommunications**

In 2008, there were 43 million of mobile telecommunications users in Poland, which equals 115.2% market penetration. However, taking into account that 17.7% of them are inactive users, the real market penetration amounted to 97.5%. According to the European Commission report, Poland took the 22<sup>nd</sup> place in terms of market penetration out of all 27 European Union countries. Market penetration in Poland is estimated to be at the level of 101% while European Union average amounts to 119%. In 2008, as in recent years, the average revenue per subscriber decreased. According to the Analysis Research prognosis dated September, 2008, at the end of 2008 it amounted to 59.42 PLN.

In 2008, seven new companies started to operate on Polish mobile telecommunications market: Mobile Entertainment Company, CP Telecom, MediaTel, Cyfrowy Polsat, Aster, Crowley Data Poland Centertel and Netia.

#### **Internet access**

The number of broadband Internet users (with permanent access) in Poland has increased to 4.7 million during 2008, which is an increase of 12% compared to 2007. At the same time, the number of subscribers with dial-up access has significantly decreased. In 2008, the most common means of Internet access was neostrada tp based on xDSL technology as well as services provided by cable TV operators through TVK cable modem. The value of the Polish market of Internet access in 2008 amounted approximately to 3.93 billion PLN. Broadband Internet access services in Poland are provided by 13 dominant telecommunications operators. Three of them, including the largest, TPSA, are also fixed-line telecommunications operators, four are mobile telecommunications operators and the remaining six are cable TV operators.

## **Retail market of leased lines**

By the end of 2008, the value of the retail market of leased telecommunications lines exceeded 448 million PLN.

In 2008, the largest companies (in terms of revenue) operating on the market of leased lines: Telekomunikacja Polska S.A., Exatel S.A., Telekomunikacja Kolejowa Sp. z o.o., Netia S.A., Crowley Data Poland Sp. z o.o. and GTS Energis Sp. z o.o.

In 2008, TPSA held the biggest share of this market. Since 2002, this company has been the leader in terms of revenue as well as the number of leased lines.

## **Wholesale market**

TPSA holds the biggest share of the interconnection market; at the end of 2008, it was more than 43.5%. The second biggest operator, with the market share of 8%, is GTS Energis Sp. z o.o.

In 2008, the most successful operators on the wholesale market of leased lines, in terms of revenue and the number of leased lines, were: TPSA, Exatel, Telekomunikacja Kolejowa, Netia and GTS Energis.

## **1.2. Characteristics of the fixed-line telecommunications market in Poland in 2008**

### **Characteristics of the market**

In the retail market, telecommunications entrepreneurs provide access to the fixed-line network and the phone call service.

The market, which consists of this category of phone call services, has been liberalized.

In 2008, there were no restrictions whatsoever, that could prevent entering the market. On the presently analyzed market, the revenue comes from the following services: connections to the fixed-line network, readiness to provide telecommunications services and phone call charges.

### **Value of the market**

In recent years, the value of the fixed-line telecommunications market has been in a downward trend. In 2005-2008 the revenue dropped by 36%. In 2008 alone, decrease of the market value amounted approximately to 11%. In the same year, TPSA had the highest revenue from services in this market. It was also most affected by the decline of revenue.

Other operators' revenue have fluctuated: in 2006, a small increase was observed, revenues significantly declined the next year (-8.5%), and in 2008, again increased by 5.5%.

Among the main reasons for the decrease of the market value are the following factors: growing popularity of mobile telecommunications services and the VoIP technology.

## **Market structure by entity**

Among the entities that operate in the fixed-line telecommunications market are companies which provide services either using their own infrastructure or through other operators' network.

Usually connection to the network and phone call services are offered in one package, though some companies operating on the Polish market do not provide connection to the network; instead, they buy other operators' lines on the wholesale market and offer their customers fixed phone subscriptions only.

In 2008, TPSA remained to be the main player on the fixed-line telecommunications market, although growing significance of alternative operators, such as Netia, Telefonía Dialog and Tele 2 Polska, could be observed.

## **Market structure by income**

Since 2005, the revenue structure has changed slightly. There is an increasing proportion of revenue from connections to the fixed network and phone subscription fee: in 2006, it exceeded 50% of total revenue. In 2008, the proportion of revenue from subscription fee and new phone line installations decreased slightly, but still amounted to over a half of total revenue. This continuously high proportion is associated with growing convergence of services; customers are able to get one, two or three services within one subscription, which would have cost more if purchased separately.

By analyzing the above data, it is possible to conclude that the proportion of fees included in phone subscriptions is rising.

## **Number of users**

In 2008, the number of users was 20% lower compared to 2009. Decrease in the number of users of fixed-line telecommunications was undoubtedly due to growing popularity of mobile telecommunications.

## **Convergence of telecommunications services**

Polish telecommunications market has been increasingly marked by a new trend; more and more fixed-line telecommunications operators offer packages which include not only traditional phone services but also Internet, mobile phone service or TV.

As of July 2008, about 344000 customers chose one of 466 linked offers of national fixed-line operators. The majority of users consider double pay offers most interesting.

## **1.3. Internet Access**

### **Characteristics of the market**

In 2008, the number of people using Internet increased significantly which was accompanied by the growing popularity of broadband Internet services. During 2008, the number of people with permanent Internet access in Poland has reached 4.7 million, which represents increase of more than 12% compared to 2007. At the end of 2008, the number of users with mobile Internet access amounted to 1.06 million, an increase of 45% compared to June 2008. In 2008, the number of users using dial-up Internet has dropped to 378 000.

Polish market is characterized by significant differences between the regions in terms of the number of users. Mazowieckie region (Mazovia) has the biggest proportion of users. In southern regions the market penetration is also high and amounts to approximately 10%. In 2008, the most popular means of Internet access were still neostrada tp (based on xDSL technology) as well as services provided by cable TV operators through TVK cable modem. In 2008, the number of broadband xDSL access lines amounted to more than 2.7 million. It is important to remember, however, that this kind of service is still expensive and should not be treated as a full substitute for broadband services.

In 2008, prices of Internet services have stabilized.

## **Value of the market**

In 2008, the value of the Polish market of Internet access services amounted to 3.93 billion PLN.

## **Market structure**

Broadband Internet access services in Poland are provided by 13 dominant telecommunications operators. Three of them, including the largest, TPSA, are fixed-line telecommunications operators, four are mobile telecommunications operators and the remaining six are cable TV operators. Due to increasing convergence of services on the telecommunications market, operators place a strong emphasis on providing double and triple pay services. Although the domination of the 13 biggest operators, which provide broadband Internet access, is significant, minor ISPs have 17% share of this market.

## **Broadband Internet access in Poland**

In Poland, virtually all possible technologies which are used to provide broadband Internet access are now available. The major technologies to provide permanent access are currently: xDSL, TVK cable modem and LAN/WAN Ethernet.

Despite the development of wired Internet connections other than xDSL, other technologies still have less than 50% share of the market. Since 2006, there is a significant upward trend in the number of xDSL connections, with market share of 57%.

There is a similar tendency in other European Union countries and throughout the world as well.

The available data show that there are slightly above 3 000 optical fiber connections, which represents 0.05% of the total number of connections.

Nevertheless, after three years of operation of the mobile telecommunications firms in the wireless Internet access market, significant changes occurred. Currently, out of all Internet users, one in five uses this technology.

## **1.4. Mobile telecommunications**

### **Characteristics of the market**

As of December 31, 2008, there were 15 mobile telecommunications operators on the Polish market (PTK Centertel, Polkomtel, PTC, P4, emFinanse, Avon Mobile, Wirtualna Polska, MNI Telecom), including 7 firms which started operating in 2008 (Mobile Entertainment Company, CP Telecom, MediaTel Cyfrowy Polsat, Aster, Crowley, Centertel and Netia).

## **Number of users and penetration of the market**

In 2008, more than 43 million of consumers have used mobile telecommunications services. According to the Office of Electronic Communications (Urząd Komunikacji Elektronicznej, UKE) estimates, however, at the end of 2008, the actual market penetration was close to 97.5%.

## **Value of the market**

The total value of the market, measured by operators' revenue, amounted to almost 19 billion PLN, from which virtually all went to: PTK Centertel, Polkomtel, PTC and P4.

## **Market structure**

The market structure hasn't changed in 2008.

Firms which have operated on the market for many years (PTK Centertel, Polkomtel and PTC), maintain significant advantage over their competitors in terms of the number of users.

## **1.5. Retail market of leased lines**

### **Characteristics of the market**

In 2008, the largest firms – in terms of revenue – operating on the retail market of leased lines were: TPSA, Exatel S.A., Telekomunikacja Kolejowa, GTS Energis and Crowley Data Poland.

Commercial offer addressed to the customers of this market is based on sharing a permanent, dedicated line, with certain signal parameters, between two sites. Most of the purchasers of this service are corporate clients: banks, energy providers, insurance companies, government administration and other public institutions.

This service includes two types of lines: analogue and digital.

### **Value of the market**

By the end of 2008, the value of the retail market of leased lines amounted to more than 448 million PLN. Compared to 2007, the revenue from providing this type of service increased by 21%.

### **Market structure**

In 2008, the largest player in the retail market of leased lines was TPSA. Other operators, such as Exatel, Telekomunikacja Kolejowa or GTS Energis, have also gained considerable market share. Decrease in TPSA's share is a sign of emerging competition in this market. In 2005-2008 TPSA's market share, in terms of the number of lines, decreased by 21%.

Exatel has quite significant share of this segment of the market: by the end of 2008, it amounted to 33% in terms of revenue and 24% in terms of the number of lines.

## **1.6. Wholesale market**

### **Characteristics of the market**

On April 8, 2008, the President of UKE issued a decision which confirmed TPSA's framework of the offer of telecommunications access, involving the connection of telecommunications networks.

As of 2008, the process of issuing regulations for firms operating on the market of fixed-line network termination was still in progress.

### **Value of the market**

Fixed-line telecommunications firms operating on the market of interconnection are entities which provide services through interface between their own and other operators' networks (TPSA's, in most cases). Currently in Poland, operators which have more than 3% of market share in terms of revenue, apart from TPSA, are: GTS Energis, Netia, Telefonía Dialog, Mediatel, Długie Rozmowy and e-Telko.

The above mentioned operators, including TPSA, have reached revenue of approximately 1.34 billion PLN from interconnection services, which represents nearly 79% of total market share. In 2008, TPSA had the biggest share (43.7%) of the market of interconnection services. The second largest player was GTS Energis (8%), followed by Netia (7%) and Telefonía Dialog (6%).

### **Wholesale leased lines services**

Wholesale market of the leased line services can be divided into two sectors:

- market of leased local loops (subscriber lines);
- market of leased lines other than local loops.

At the end of 2008, the value of the market amounted to more than 580 million PLN. Total revenue from leased analogue lines amounted to approximately 8 million PLN, whereas from leased digital lines – 572.5 million PLN.

In 2008, the revenue from providing wholesale leased line services has increased by 45% compared to the previous year.

### **Market structure**

In 2008, the biggest operators in terms of revenue and the number of leased lines were: TPSA, Exatel, Telekomunikacja Kolejowa, Netia and GTS Energis.

The largest operators of the telecommunications sector and their investments are presented in the Appendix No. 1

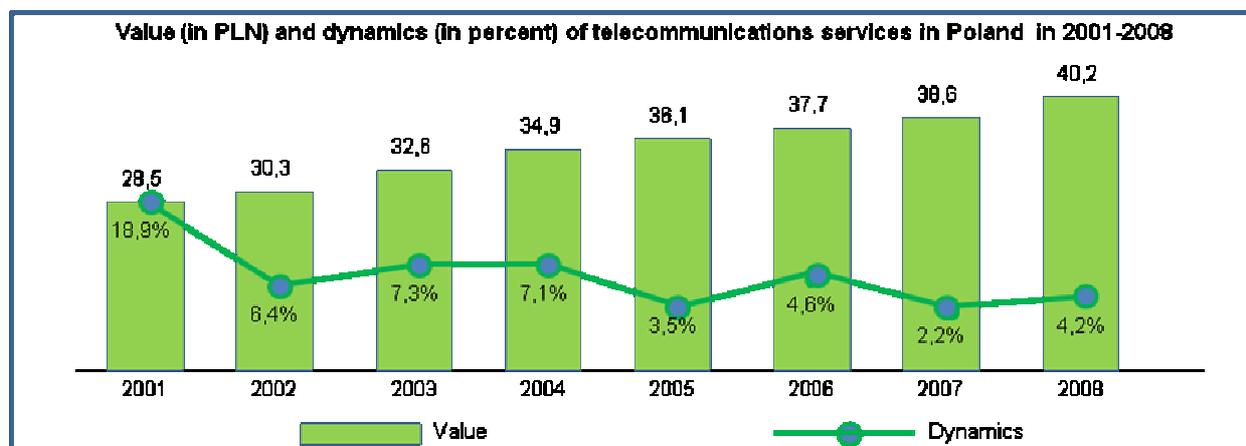
*[1] UKE Report of 2008 and its update of June, 2009*

## **2. Overview of the sector and the main trends**

Telecommunications market in Poland has entered the maturity stage. Over the last three years, the market value has increased slightly, at the level of 2-5% a year. Despite the projected increase in market growth in 2008 compared to 2007, reversal of the above mentioned trend and, consequently, higher growth rate should not be expected. Fixed-line

## Report on telecommunications sector in Poland

telecommunications remains to be the segment which has the most negative impact on market growth. Moreover, in the face of pressure on prices of services, the growth of mobile telecommunications and Internet access markets fail to fuel the overall growth of the market.



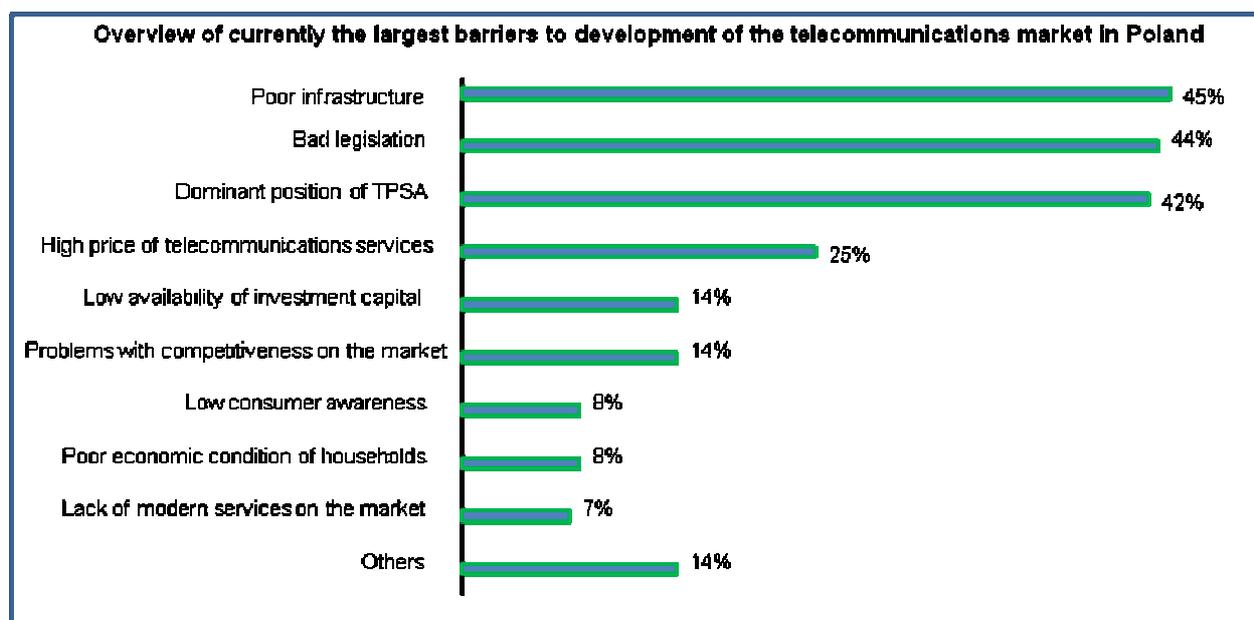
Source: "Telecommunications market in Poland in 2008. Development prognosis for 2008-2013" („Rynek telekomunikacyjny w Polsce 2008. Prognozy rozwoju na lata 2008-2013") report. PMR Publications Ltd. 2008

According to PMR analytical company estimations, included in the report "Telecommunications market in Poland in 2008. Development prognosis for 2008-2013", in 2007 the value of the Polish market has increased by 2% year after year, reaching the value of 38.6 billion PLN.

This represents a two times lower growth rate compared to 2006. The increase in the value of the market was possible mainly due to constantly growing revenue of mobile telecommunications operators. Fixed-line telecommunications remains to be the second largest segment, though its market share is systematically decreasing – from 58% in 2000 to 27% in 2007. This sector has decreased by nearly 10% for the second consecutive year, mainly due to substitution for mobile telecommunications. This negative trend is not likely to change over the next 2-3 years. Markets of leased lines, data transmission and Internet access (DLISP) remain to grow fast. In 2007, the DLISP market generated the revenue of 4.7 billion PLN, most of which came from Internet access segment.

Polish market is getting similar to West European markets in terms of dominant trends. Operators are making efforts to maintain their client base. There is a trend of offering more services of better quality, at the same price. At the same time, operators systematically expand the range of services in order to offer packages consisting of telecommunications and multimedia services. On the other hand, price competition is losing its importance, as it causes the decrease of average revenue per user. On August, 2008, PMR company conducted a study among the 100 largest telecommunications firms in Poland. Predictions of companies' representatives remain to be optimistic. Nevertheless, significant barriers to development persist, as illustrated on the chart below.

## Report on telecommunications sector in Poland



Source: "Telecommunications market in Poland in 2008. Development prognosis for 2008-2013" („Rynek telekomunikacyjny w Polsce 2008. Prognozy rozwoju na lata 2008-2013") report. PMR Publications Ltd. 2008

Over the next four years, Polish telecommunications market is expected to grow at the rate of approximately 2.5%. The regulators actions are of paramount importance to the sector value (e.g. plans to introduce more restrictive reductions of interconnection rates or efforts to separate TPSA into few smaller operators).

[2] PMR Report of 2008.

### 3. Legal regulations

The main act which regulates the sector is Telecommunications Law ("Prawo telekomunikacyjne") of July 16, 2004 with subsequent amendments (Journal of Laws 2004.171.1800). Other legal regulations are included in the Appendix No. 2.

Current legal regulations fail to keep pace with the changes and the market needs; this notion is illustrated by the above chart.

Ministry of Infrastructure is currently working fast on the bill on promoting the development of broadband telecommunications networks and services. The main purpose of this new act is the development of information society through removal of barriers to investments in information and communication infrastructure. This document will open new investment possibilities for the telecommunications sector.

The main source and initiator of legal regulations of the telecommunications sector is the Office of Electronic Communications (UKE) – a body established to regulate the telecommunications market.

The office works on the basis of Act of July 16, 2004 – Telecommunications Law (Journal of Laws 2004.171.1800 with subsequent amendments).

The main tasks of the UKE are, inter alia:

1. regulation, analysis and supervision of the telecommunications market,
2. regulation and supervision of the frequency range,

3. regulation of the numeration,
4. regulation and supervision of the electromagnetic compatibility,
5. regulation, analysis and supervision of the postal services market.

## **4. Business environment**

Traditional telecommunications operators are forced to seek for new potential sources of profit, due to dropping prices of basic voice communications services and the substitution of fixed-line telecommunications by mobile networks. The technological, infrastructural and organizational potential of national entities allows them to gradually move towards being providers of IT networking services and comprehensive information and communication services (ICT).

Development of such services is made possible due to effacing of the boundaries between telecommunications, information technology and the growth of broadband Internet access services. ICT services are broad and include services typical of the telecommunications, i.e. voice transmission, value-added services, WAN and PABX services and other IT services. Focusing on ICT services provides at least two benefits: cost reduction and possibility of avoiding, to some extent, the burden of development and maintaining IT telecommunications infrastructure.

While conducting business activities on the national level it is important to consider the following issues:

- the influence of regulatory policy on the development of telecommunications services;
- convergence of telecommunications services;
- aspects of liberalization of the telecommunications services market (e.g. local loop unbundling);
- virtual operators' market share (strategic, economical and technical concepts).

In order to meet these demands, national ICT organizations should become more flexible, capable of identifying business environment and applying necessary changes on time, within reasonable budget. ICT departments have began to change – if not already changed – their role from strictly maintenance sections into organizations that provide services and are conducted as businesses, not cost centers. Thus, these organizations increasingly concentrate on providing services for corporate clients instead of performing administrative tasks.

*[3] UKE Report of 2008 and its update of June, 2009.*

## **5. Salary structure**

In 2008, the median of total monthly gross salary in Poland amounted to 3 800 PLN. According to the fifth Nationwide Salary Study, half of the respondents earned 2 500-6 400 PLN, 10% – less than 1 750 PLN and also 10% - more than 10900 PLN.

In 2008, salaries in the banking sector increased by 28.9% (median – 4 900 PLN), in the construction sector – by 27.3% (median – 4 200 PLN). As in the previous years, the

highest salaries, however, are reported to be in the telecommunications and IT sectors – 5 500 PLN and 5 100 PLN, respectively.

Salaries in the sector are characterized by large disproportions between the workers on the lowest and the highest levels of management. Half of the telecommunications firms directors earn 12 500-28 000 PLN, whereas the median of their salary amounts to 17 000 PLN. Merely 15.6% of this amount equals the median of low-level workers salary (2 655 PLN). Specialists earn more by 74.5% (4633 PLN), whereas senior specialists get another 48% more (6862 PLN). Salaries of the managers of small teams (2-10 persons) and teams consisting of more than 10 people do not differ significantly; the median salary of the latter is by 7.7% higher.

<b>Salaries in the telecommunications sector by levels of management (PLN)</b>					
Level of management in the telecommunications sector	lowest 10%	lowest25 %	median	highest 25%	highest 10%
low-level worker	1 400	1 800	<b>2 655</b>	3 785	5 360
specialist	2 300	3 200	<b>4 633</b>	6 600	9 100
senior specialist	3 712	4 964	<b>6 862</b>	9 600	13 700
manager of small team (2-10 persons)	2 750	4 438	<b>7 100</b>	12 200	17 000
team leader (11 persons and above)	3 300	4 375	<b>7 650</b>	11 000	19 750
president of the company	8 300	12 500	<b>17 000</b>	28 000	45 000

Source: *Nationwide Salary Study (Ogólnopolskie Badanie Wynagrodzeń)* by Sedlak & Sedlak – 2008

## **5.1. Salaries by size of the firm and the type of its capital**

In the firms with a predominance of foreign capital, more than 75% of specialists are paid more than 4 500 PLN, whereas in Polish firms – only 50%. The half of the employees of Polish firms earn 1 600-3 300 PLN, and in foreign firms this indicator amounts to 2 300-4 764 PLN. The amount as well as the range of salaries depend on the size of the company: median workers salary in large firms (i.e. with more than 250 employees) is amounted to 3 200 PLN and is by 53.2% higher than in small firms (i.e. with less than 50 employees). Specialists working for large firms earn 6 000 PLN, which is more by 76.5% than in small ones and more by 39.5% than in medium-sized ones. The median salary of specialists and managers in medium-sized firms are close. Also the salary range in medium-sized firms is narrow.

## **5.2. Salaries by region**

Employees in Mazowieckie region (Mazovia) earn the highest wages. The median low-level workers salary equals the median specialists salary in Eastern regions. Half of the workers in Mazovia earn 7 275-15 650 PLN, in the South Western region – 3 900-9 185 PLN and in North Eastern region – 3 240-7 775 PLN. The top 10% of highest-earning managers in Mazovia receive the salary of more than 22 000 PLN, whereas in South Eastern region – 14 200 PLN.

The median specialists salary in Mazovia amounts to 7 000 PLN, which is two times more than in Eastern regions.

## **5.3. Salaries by employees' foreign language skills**

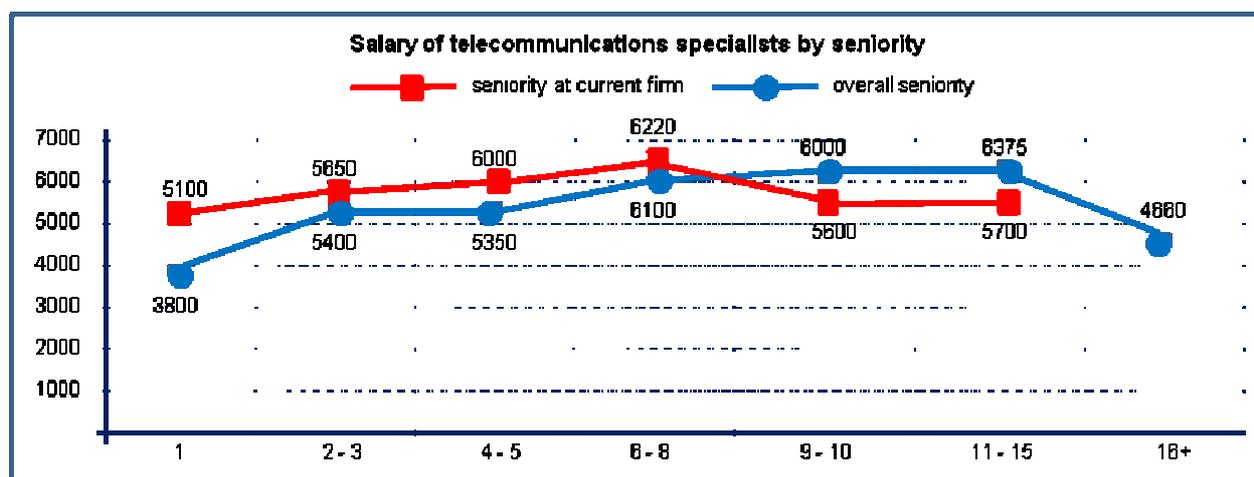
Good or very good foreign language skills basically mean higher wages. The median specialists salary without a good knowledge of foreign languages amounts to 4550 PLN, which is less by 25.4% than workers (at the same level of management) who speak at least one foreign language are paid. The salaries of managers without at least good knowledge of foreign language are lower than the salaries of specialists who speak one foreign language well.

## **5.4. Salaries by level of education and seniority**

Low-level workers who are high school graduates earn 2 200 PLN, those with BA degrees and above (but not MA) receive 19.3% higher salaries (2 625 PLN), whereas university graduates earn more by 40.9% (3 099 PLN). The salaries of managers who finished postgraduate studies amount to 10 000 PLN, which is more by 24.2% than managers with only MA degree earn. The top 10% of the highest-earning managers with postgraduate degree receive the salary of more than 22 000 PLN.

## **5.5. Salaries of the telecommunications sector specialists by seniority**

The chart below shows the relation between seniority and salary. Specialists with seniority of one year earn 3 800 PLN. Employees with 2-3 years of seniority would be paid more by 42.1% (5 400 PLN), whereas specialists with overall seniority of 11-15 years have the highest median salary – 6 375 PLN. Analyzing the level of seniority at each company brings a different picture. Specialists with seniority of one year at their current workplace, earn 5 100 PLN. Those who worked 2-3 years longer would be paid 550 PLN (10.8%) more.



Source: Nationwide Salary Study (Ogólnopolskie Badanie Wynagrodzeń) by Sedlak & Sedlak - 2008

## 5.6. Salaries of specialists in selected departments

Employees who work at client service have the lowest median salary – 3 500 PLN. At the IT departments, workers are paid almost two times as much – the median is at the level of 6 950 PLN. Specialists working at the marketing departments earn only a little less; their median salary amounts to 6 850 PLN. Sales departments specialists are paid 4 700 PLN, whereas workers at repair services and technical departments – 4 370 PLN.

[4] Nationwide Salary Study (Ogólnopolskie Badanie Wynagrodzeń) by Sedlak & Sedlak, 2008

## 6. Projects and investments in 2007-2008

### 6.1. Projects

#### Infovide-Matrix firm

In the first six months of 2009, within the framework of public administration sector, the company realized numerous advisory and implementation projects, supporting transformation of public administration institutions as well as considerably supporting effectiveness of service offered by these institutions. Entering into an agreement between Infovide-Matrix and the Ministry of Foreign Affairs and Administration regarding advice services as a part of projects carried out by the Center of IT Projects (in Ministry of The Interior and Administration, MIA) was crucial for the works of the sector. Pursuant to the agreement, Infovide-Matrix obtained a commission on the provision of advice services with regard to preparation of ePUAP2 project. Furthermore, there was a successive agreement with MIA concerning the support of supervision over construction and development of Cepik system. For Social Insurance Company, Infovide-Matrix prepared documentation necessary for the creation of Electronic Service Platform (ESP). Under the authority of the agreement, Infovide-Matrix was assigned main consultant of Central Statistical Office to supervise the realization of the projects: PSR 2010 and NSP 2011, aim of which is to conduct National Agricultural Census in 2010 as well as National General Census in 2011.

As far as energetic sector is concerned, Infovide-Matrix ended realization of the project connected with implementation of management and supervision rules to IT projects of ENEA Capital Group.

To industrial sector, Infovide-Matrix implemented ERP system into ITI Neovision Company, a deliverer of digital television of new generation “n”.

## **Office of Electronic Communications (Urząd Komunikacji Elektroniczej, UKE)**

„Monitoring and simulation of telecommunications market development” it is another project, aim of which is to adjust Polish telecommunications market to UE standards. A beneficiary is the Office of Electronic Communications (UKE), earlier the Office of Telecommunications and Post Regulations (OT&PR).

The project consists of three parts. Within one of components will be developed “a bottom-up model” used for calculation of costs of telecommunication services offered by mobile network operators – that is, mobile telecommunications. Such tool will enable UKE to verify the costs of telecommunications services through comparison with the costs calculated on the basis of data taken from the market.

## **Netia**

One of the most important projects carried out recently is the one prepared for Netia S.A., which includes such systems as: LLU Relay, WLR Relay, IP-Remote, Netia On-line and BOLS.

Ericsson and Netia concluded an agreement concerning expansion of the Next Generation Network system (NGN). The range of the contract includes installation of the new version of software, expansion of NGN system and replacing current media gateway with the solution proposed by Ericsson company. The expansion of the system will allow an operator to offer to both corporate and individual clients new, attractive services, such as call center.

## **TPSA**

The development of concept as well as organizational, legal and investment foundations for the project: Broadband Network on behalf of national operator – TPSA.

## **Telekomunikacja Kolejowa**

Aiming at realization of decisions enclosed in NPW ERTMS, Telekomunikacja Kolejowa appointed GSM-R Office, task of which is the realization of projects connected with implementation of GSM-R system in Poland. Currently, in the course of realization are the following two projects:

- project based of TEN-T aid fund entitled “The analysis of feasibility and technical analysis of GSM-R system for railway network TEN-T in Poland”;
- individual Project of Telekomunikacja Kolejowa entitled “GSM-R financing”.

## **Polkomtel**

Comarch, a global deliverer of software and services for telecommunications operators and content suppliers, has recently ended the last phase of the project carried out for Polkomtel SA. The implementation of a solution based on Comarch InterPartner Billing product proved to be a success.

## **GTS Energis**

This alternative telecommunication operator, in the first stage builds 60 km of own optical fiber networks in Warsaw, Katowice and Chorzów.

In 2008, the operator intends to build next 300 km of networks in other cities and further 500 km in the following years. The initiated first stage of investment gives us an access to 162 000 subscribers lines in TP telephone switches.

## **6.2. Investments**

### **TPSA**

In 2008, TP Group was still developing and implemented numerous innovative and convergent products and services in order to maintain market position as well as to prevent clients' leavings from both fixed-line and mobile telephony. TP Group has introduced Orange Sport television channel into the market. GTP continued to invest in the development of CDMA networks enabling transition on hard to reach areas and expansion of UMTS/HSPA network in order to deliver high quality services.

## **7. R&D activities in the telecommunications sector**

Over the last several years in Poland, we observe the development of research and developmental IT enterprises. The analysis of 75 the most innovative companies, carried out by DiS in March 2008, shows an increased activity of both international and national entities.

In Poland about 80 000 companies operates in the sector. However, only a few of them conduct research and developmental (R&D) activity. It is estimated that the works of R&D are carried out by an elite group of about 1 200 companies specializing in product development and telecommunications projects.

### **7.1. Organization of Works**

The methods of organization of the research carried out by local and foreign companies slightly differ from one another. Local companies usually conduct R&D works for own purposes, in order to improve their products and services. Nevertheless, there are also projects financed by UE, commissioned to the companies. As far as research and developmental works aimed at the creation of new product are concerned, local companies do not tend to cooperate with one another. Exceptions are the works financed by UE, which in many cases imposes such cooperation. To lower their costs, international companies commission the works of R&D to one another. In addition, more and more often they establish special entities which constitute common capital enterprise even for competing companies. According to the DiS study, local specialists have already become more visible in certain product and software niches, which international sponsors invested in. Their investments have dominated such fields of research conducted in Poland as CAD-GIS market, telecommunications, media and entertainment or system technologies. Far smaller is the contribution of international investors to local development of company management systems (including ERP), electrical power industry and public sector.

Key proposals for R&D business activity, business surrounding, education and ICT sector:

- increase the expenses of R&D in Poland from current GDP level in order to intensify the activity of R&D in the private sector, it is necessary to improve the quality of business environment,
- regarding the system of education in Poland, there is a proposal to improve the quality of education system and adjust it to the requirements of economy based on knowledge and closer relations between universities, academic communities and business, presence of which in other countries favors the technology transfer process,
- taking into consideration the fact that so far the process of liberalization has not been brought to an end, the competition within telecommunications sector should be increased, whereas the costs of long-distance and international calls – considerably diminished,
- acceleration of legal regulation of EU legislation
- in order to support competition, it is recommended to strengthen a regulating organ such as Office of Information Communications (UKE) and its market credibility, modernization of broadband telecommunications sector and radio-communication, development of command systems, radio-location and military communications.

## **7.2. Sources of financing R&D business activity:**

- budget funds – e.g.: targeted projects, long-term programs,
- EU structural funds,
- financial aid within the framework of other EU programs,
- funds from World Bank, European Investment Bank and European Bank for Reconstruction and Development,
- funds earned in the companies,
- funds from economic self-government.

Currently, the main national source of financing research and technological development within telecommunications sector is the the EU. The Operation Program: Innovative Economy 2009 supports the projects of R&D, which are within the subject area – INFO (information and telecommunications technologies, new generation of intelligent, telecommunications and IT networks).

Within the framework of financing, the following activities are taken into account:

- external funding of the projects from the field of technical, technological and telecommunications enterprises,
- application of highly-innovative organizational and technological solutions in telecommunications production and service,
- providing access to broadband Internet to citizens while preserving the market competition and technological neutrality.

## **8. Forecast and opportunities: 2009-2013**

Characterization of the most important new trends that may influence the directions of the development of the electronic communications market, especially global processes.

The experts from Deloitte predict the presence of ten main trends, which will influence the directions of the entities' actions.

The anticipated changes will be influenced, first and foremost, by slowing down of the economy, which will affect the companies operating on the services market as well as producers connected with this line of business.

According to the report, the trends expected to appear are the following:

1. negative influence of slowing down the economy on smart phone segment. It is due to verification of external funding to mobile phones, which cost this line of business dozens of million dollars per year;
2. rapid growth of mobile applications offered by third parties without the operators' agency;
3. discount of rates for finished voice connections of mobile networks (MTR) due to the European Union recommendations on the reduction of disproportions between the number of mobile and traditional telephony;
4. increasing importance of the data on clients. Possessing reliable data about clients may facilitate the operators to win and maintain them;
5. retardation of the development of digital communications caused by overuse of digital connections by companies, which has negative influence on its effectiveness;
6. introduction of mobile telephony convergention as the effect of proceeding technological integration;
7. resignation from investing in digital transmission caused by the decrease in liquidity in the field of mobile TV and the reduction of external funding to phones. It may result in a decrease in the number of mobile telephony devices;
8. beginning of the era of wireless telephony. A mobile phone will cease to be a device dedicated only to mobile networks and will become a multifunctional wireless device;
9. slowing of the rate of mobile broadband transmission caused by network overload. Such situation is brought about by rapid growth in selling broadband Internet technologies, which translates into a considerable increase in the number of connections;
10. influence of the development of optical fiber networks on the competition.

An undesirable effect may be the duplication of estate components on a big scale.

Despite weakening the developmental dynamics of the services market, the sector is better situation in relation to other sectors of modern economy. Such situation is, for the most part, due to high level of innovativeness and factors related to growing needs of information society. Information flow is becoming more and more desired service, which in a lesser degree is exposed to weakening of economic situation.

An important role in maintaining the dynamics of service sector development is played by presently conducted actions, related to the reformation of frameworks for electronic communications market, aiming at assuring coherent and effective legal solutions in all member countries of the European Union.

*[6] Deloitte expertise, 2008*

## **8.1. Barriers to the development of telecommunications market in Poland**

Adam Smith Center published a report according to which the key barriers to the development of that market are: small competition, excessive legal regulations and administrative obstacles. The experts of the Center also criticize governmental project of "free Internet access for all citizens". According to CAS' experts, one of the major worries of our telecommunications market is small competition. Furthermore, CAS blames ruling parties for indolence in liquidation of actual monopole of TPSA. The authors of the report postulate division of TPSA into numerous regional companies with the exclusive right to make local connections and a company for interregional and international connections. CAS scrutinizes many actions of UKE. Unclear rules of the regulator's proceedings result in decrease of the investments on telecommunications market. Operators and investors function in the atmosphere of constant uncertainty, which is not conducive to investments. Unfavorable solution is the model of frequency partition for mobile telephony. Three out of four winners of a recent bid of frequency partition organized by UKE failed to start business activity. The solution is the change of the frequency partition model. By means of the introduction of a rule: 1 subject – 1 concession, CAS offers equal treatment of all market participants. Additionally, it is necessary to execute the conditions of concession and its recovery if no business activity is initiated within a period of time specified in the conditions of a tender. Important obstacles standing on the way of the development of telecommunications market are also excessive legal regulations and bureaucratic barriers regarding infrastructure construction. This matter calls for radical changes through liquidation of many useless acts and concentration of the regulations in no more than two acts. The first, concerning building law for small investments and the second, an infrastructural act for large investments. The Center's experts also criticize a governmental project "free Internet access for all citizens". In their opinion, it is justified to claim that the project will prove to be advantageous exclusively for the companies that will implement it. Furthermore, it will contribute to limitation of the investments of legal entities in infrastructure and that, to a large degree, will be of little use. CAS emphasizes that a mass, cheap access to Internet, as well as its effective use, may be achieved assure only by real competition on telecommunications market between legal entities.

*[7] Adam Smith Center report*

## **9. National associations, chambers of commerce and business clusters**

- Association of Telecommunications Engineers, [www.sit.org.pl](http://www.sit.org.pl)
- Association of Telecommunications Builders, [www.sbt.mcnet.pl](http://www.sbt.mcnet.pl)

### ***Report on telecommunications sector in Poland***

- Polish Chamber of IT and Telecommunication, [www.piit.org.pl](http://www.piit.org.pl)
- Polish Chamber of Electronic Communications, [www.pike.org.pl](http://www.pike.org.pl)
- National Chamber of Electronic Communications, [www.kike.pl](http://www.kike.pl)
- National Chamber of Electronics and Telecommunications, [www.kigeit.org.pl](http://www.kigeit.org.pl)
- National Chamber of Telecommunications Construction
- ICT Business Cluster of Mazovia, [www.klaster.ict.pl](http://www.klaster.ict.pl)
- IT Cluster of Małopolska, [www.eklaster.org](http://www.eklaster.org)
- ICT Cluster of Wielkopolska, telecommunications section, [www.wklaster.pl](http://www.wklaster.pl)
- Eastern ICT Cluster, [www.wschodni.klaster.ict.pl](http://www.wschodni.klaster.ict.pl)
- ICT Pomerania, [www.teleakademia.pl](http://www.teleakademia.pl)
- Cluster of Kujawsko-Pomorskie, [www.klastry.tarr.org.pl/klastry](http://www.klastry.tarr.org.pl/klastry)
- ICT Cluster of Western Pomerania, [www.spnt.pl](http://www.spnt.pl)
- Stowarzyszenie Inżynierów Telekomunikacji, [www.sit.org.pl](http://www.sit.org.pl)
- Stowarzyszenie Budowniczych Telekomunikacji, [www.sbt.mcnet.pl](http://www.sbt.mcnet.pl)
- Polska Izba Informatyki i Telekomunikacji, [www.piit.org.pl](http://www.piit.org.pl)
- Polska Izba Komunikacji Elektronicznej, [www.pike.org.pl](http://www.pike.org.pl)
- Krajowa Izba Komunikacji Elektronicznej, [www.kike.pl](http://www.kike.pl)
- Krajowa Izba Gospodarcza Elektroniki i Telekomunikacji, [www.kigeit.org.pl](http://www.kigeit.org.pl)
- Krajowa Izba Gospodarcza Budownictwa Telekomunikacyjnego
- Mazowiecki Klaster ICT, [www.klaster.ict.pl](http://www.klaster.ict.pl)
- Małopolski Klaster IT, [www.eklaster.org](http://www.eklaster.org)
- Wielkopolski Klaster Teleinformatyczny – sekc. ds telekomunikacji, [www.wklaster.pl](http://www.wklaster.pl)
- Wschodni Klaster ICT, [www.wschodni.klaster.ict.pl](http://www.wschodni.klaster.ict.pl)
- ICT Pomerania, [www.teleakademia.pl](http://www.teleakademia.pl)
- Kujawsko-Pomorski Klaster, [www.klastry.tarr.org.pl/klastry](http://www.klastry.tarr.org.pl/klastry)
- Klaster ICT Pomorze Zachodnie, [www.spnt.pl](http://www.spnt.pl)