

### 3. Networked Society

To gain information, related to **Networked Society component index** variables (sub-indexes), from the questionnaires drawn up according to the approved methodology [1], the data has been collected from 60 members of the Republican Non-Governmental Organization “Information Society” - the high-level ICT-field specialists being the representatives of different ICT spheres in the Republic of Belarus: Academic, Education, Industry, Government, Private Business, Communication and etc.

The results of questionnaire analysis by 14 micro-indexes, combined into 4 indexes under Networked Society Component Index, are presented below. The Networked Society Readiness (or advancement) assessment in the country from 1st (least-advanced) to 4th (most-advanced) stage was carried out by the experts for each micro-index independently, and average data assessment for each index and generalized data assessment for Networked Society component index were evaluated on their basis.

#### 3.1. People and Organizations On-line

##### 3.1.1. Level of Internet awareness (Fig. 3.1)

Average readiness assessment in the country from 1st (least-advanced) to 4th (most-advanced) stage by Level of Internet awareness micro-index: regions - 2.4; republic - 2.6; Minsk - 3.6.

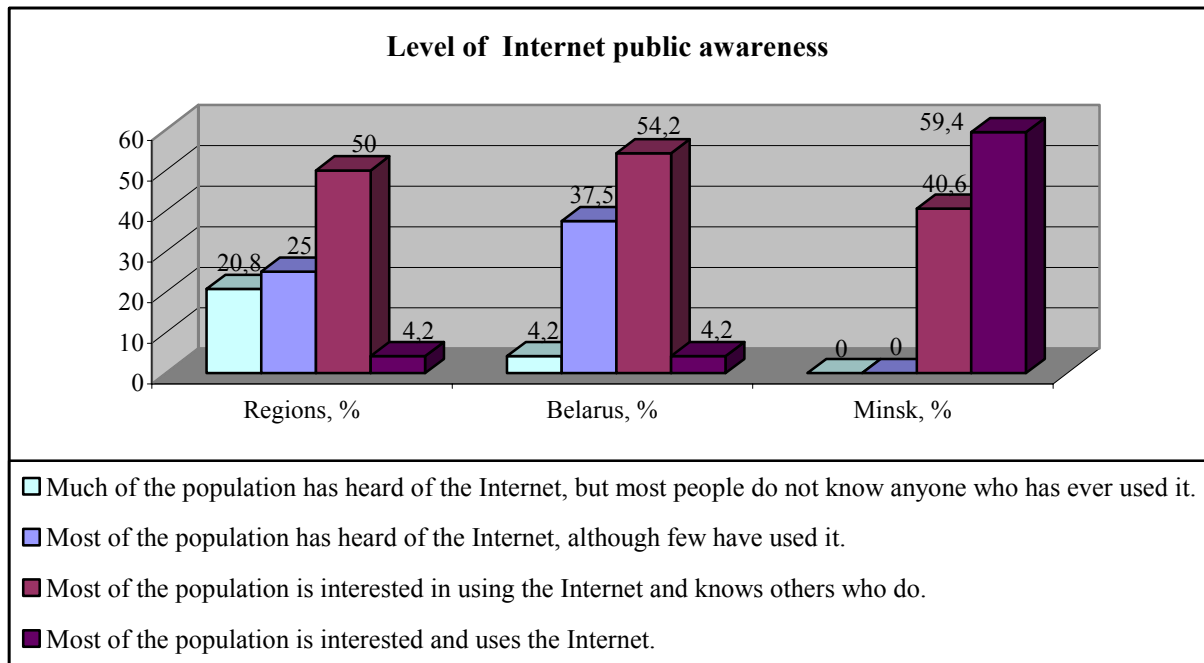


Fig. 3.1

On January 1, 2003 the world celebrated a 20<sup>th</sup> anniversary of Internet birthday (and 30<sup>th</sup> anniversary of e-mail birthday). Despite quite moderate indicators of world economy growth and devaluation of high tech shares of the world market, the number of Internet users during last two years has grown on almost 250 millions and exceeds 2/3 of billion people or almost 11% of mankind. The billion's Internet user is expected to appear to 2005. In spring 2002 a number of European Internet users (186 millions) exceeded North American ones (182 millions). But the most growing is the Asian-Pacific region: it has over 170 millions, and will outstrip North America in 2003. Small countries became the leaders of Internet use: 70% in Island, 65% in Sweden, 60% in Denmark and Hong Kong (US has 59%). But Americans are the most active Internet users: 43% of

the world Internet traffic, China has 6.7%, Japan – 5.3%, UK and Canada – 4%, Germany – 3.7%. 1.000.000.000<sup>th</sup> PC was sold in April 2002. 2.000.000.000<sup>th</sup> PC will be produced in 2008 (i.e. just in six years). Over 60% of families use PC at home in the US, 49% - in Western Europe, 38% - in APR. Analysts expect the most growth of PC use in next five years in China, India, Latin America and Eastern Europe.<sup>1</sup>

On-line media and Internet development in Belarus impresses by its scale and speed as well. The first Web site in BY domain appeared just eleven years ago, and now we face a real boom (Table 3.1 – 3.4).

Table 3.1

**Dynamics of passing capacity of external channel through Internet in Belarus (Mbit/sec)<sup>2</sup>**

1996	1997	1998	1999	2000	2001, I quarter	2002, II quarter	2002, IV quarter
0.26	1.2	2.3	7.04	16	16	44	79

Table 3.2

**Dynamics of Internet use, % \***

Use Internet:	11 '97	03 '99	10 '01	12 '02
Yes	3.8	4.2	12.0	15.9
Including those who use regularly (daily and some times a week)	-**	-**	3.6	5.7

\* According to the national public opinion polls conducted by the Independent Institute of Socio-Economic & Political Studies (IISEPS), Minsk, Belarus (1,500 respondents of age 18+ were face-to-face interviewed, marginal error did not exceed 0.03).

\*\* Data not available

Table 3.3

**Regularity of Internet use, %**

Regularity of Internet use	All respondents	Internet users
Yes, daily	2.4	15.0
Yes, some times a week	3.3	20.9
Yes, some times a month	5.3	33.8
Yes, some times a year	4.9	30.8
No	70.0	-
Do not know what is that	10.3	-

Table 3.4

**Duration of Internet use, %**

Duration of Internet use	All respondents	Internet users
Less that half an hour	2.8	16.6
From half to one hour	4.8	30.1
From one to two hours	5.2	32.5
From two to three hours	1.6	10.1
Over three hours	0.9	4.6
DA/NA	84.7	x = 75 minutes

Correlation analysis of tabs 3.3-3.4 allows to eliminate deviations (for example, those respondents who gave positive answer to question 3 but negative to question 4, or visa versa) and to select respondents with real Internet use experience (including occasional users) - **15% of Belarusian adult population, i.e. over 1.150.000 people.**

<sup>1</sup> Web site of *Russian Service of Radio Liberty*, September 9, 2002.

<sup>2</sup> *Beloruski Rynok*, June 17, 2001.

The structure of Internet use among general public is shown in Table 3.5.

Table 3.5

<b>Purposes of Internet use</b>	
<b>Purposes of Internet use</b>	<b>%</b>
To get professional information	62.6
To work with e-mail	52.8
To get entertainment	45.5
To get public-political information	24.2
To get goods and service through Internet shops	1.6

Internet use among Belarusian elite is much more well spread, both in the state and non-state sectors (Table 3.6): almost six times more than among general public (including over two thirds of regular users, i.e. almost twelve times more than among general public).

Table 3.6

<b>Regularity of Internet use among elite, %*</b>			
<b>Regularity of Internet use</b>	<b>All respondents</b>	<b>State sector</b>	<b>Non-state sector</b>
Yes, daily	39	38	41
Yes, some times a week	29	31	26
Yes, some times a month	11	6	15
Yes, some times a year	9	9	9
No	12	16	9

\* According to the elite poll conducted by IISEPS in February 2003 (66 policymakers, media leaders, analysts and businessmen equally represented both state and non-state sectors were face-to-face interviewed).

The structure of Internet use among general public (Table 3.5) and elite is almost the same (Table 3.7).

Table 3.7

<b>Purposes of Internet use among elite, %</b>			
<b>Purposes of Internet use</b>	<b>All respondents</b>	<b>State sector</b>	<b>Non-state sector</b>
To get professional information	71	72	70
To work with e-mail	64	59	68
To get public-political information	44	38	50
To get entertainment	3	–	6
To get goods and service through Internet shops	2	3	–
Other purposes	8	9	6

However, Internet boom in Belarus has a very specific character: all Internet communications go through mainly (except academic ISP BASNET) the only one provider – Beltelecom that is a part of the Ministry of Communications. Approximately 30 local providers that got license from Beltelecom ([www.providers.by](http://www.providers.by)) really provide various services (Internet, X25 Protocol, e-mail), but all providers have to buy channel access to Internet from Beltelecom (and by higher price than final users)<sup>3</sup>. By this way information flows from inside to outside the country and visa versa go through Beltelecom only (except academic ISP BASNET). Such a monopoly gives the state opportunity to introduce any prices for Internet use as it wants. The regular speed is extremely slow (sometimes users can't get access even to Belarusian Web sites). Users could get special dial-up lines but should pay for them up to \$ 500 per month but with average monthly salary less than \$

<sup>3</sup> Ibid.

100 it is available for a very limited number of institutions and citizens. In any words, information resources of Belarus Internet outstrip the access to Internet. To make profits as much as possible the state have to develop a public access to Internet (Table 3.8).

Table 3.8

**Regularity of Internet use depending on place of use, %**

<b>Internet use</b>	<b>At home</b>	<b>In office (class)</b>	<b>In library</b>	<b>In Internet-cafe</b>
Regular users	73.0	49.0	23.1	8.6
Irregular users	24.0	46.9	69.3	68.5

Development of Internet in Belarus is limited by a weak technological basis. For example, most of comprehensive school computers are very old. The Ministry of Education can't provide funding from the state budget, and appeal to the public. But installation of one informatics class only costs over \$ 5.260 and most of parents can't provide funding either<sup>4</sup>. Rely upon private business could be possible solution to this problem (thus, 88.4% of Belarusian private companies now use PC, over 70% use e-mail, and almost 30% have their own Web sites)<sup>5</sup>.

Another example is public access to Belarus think tanks information and analysis through Internet. According to the mentioned IISEPS survey 33.3% of adult population are acquainted with Belarus think tanks publications (including 20.2% with IISEPS materials), but much more among Internet users (Table 3.9).

Table 3.9

**Acquaintance with publications of Belarusian thinks tanks depending on Internet use, %\***

<b>Internet use</b>	<b>Acquainted with publications of Belarusian think tanks (33.7)**</b>	<b>Including IISEPS publications (20.2)</b>
Internet Users	50.4	35.7
Regular users	52.7	37.6
Non-users	30.0	17.5

\* From here read tables horizontally.

\*\* All respondents are shown in brackets.

Another problem for Internet use in Belarus is still unequal opportunities for different social groups (Tables 3.10 – 3.16).

Table 3.10

**Internet use depending on sex, %**

<b>Internet use</b>	<b>Men (48.5)</b>	<b>Women (51.5)</b>
Internet users	55.8	44.8
Regular users	59.6	40.4
Non-users	44.4	55.6

Table 3.11

**Internet use depending on age, %**

<b>Internet use</b>	<b>18-19 (4.8)</b>	<b>20-24 (9.8)</b>	<b>25-29 (9.4)</b>	<b>30-39 (18.3)</b>	<b>40-49 (21.0)</b>	<b>50-59 (14.5)</b>	<b>60+ (22.3)</b>
Internet users	10.6	32.7	15.9	21.7	15.5	2.7	0.9
Regular users	12.9	30.1	15.1	21.5	18.3	2.2	0

<sup>4</sup> Web site of the *Belarus Service of Radio Liberty*, January 10, 2003.

<sup>5</sup> Web site of *Belorusskaya Gazeta*, January 23, 2003.

Non-users	3.1	8.1	8.3	17.6	19.8	14.9	28.2
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Table 3.12

**Internet use depending on education, %**

<b>Internet use</b>	<b>Primary (5.4)</b>	<b>Uncompleted secondary (14.8)</b>	<b>Secondary (35.0)</b>	<b>College 26.5)</b>	<b>High (18.2)</b>
Internet users	0	2.6	29.3	28.3	39.8
Regular users	0	2.1	25.8	23.7	48.4
Non-users	8.3	17.1	38.8	23.6	12.1

Table 3.13

**Internet use depending on social status, %**

<b>Internet use</b>	<b>State sector (48.8)</b>	<b>Private sector (12.7)</b>	<b>Retired (25.8)</b>	<b>Students (7.1)</b>	<b>House wives (1.6)</b>	<b>Unem- ployed (3.6)</b>
Internet users	39.2	30.8	0.4	26.4	0.4	2.6
Regular users	34.0	40.4	0	24.4	0	1.1
Non-users	48.9	9.5	32.1	3.8	1.9	3.8

Table 3.14

**Internet use depending on incomes (per family member per month), %**

<b>Internet use</b>	<b>Up to \$ 22 (10.6)</b>	<b>\$ 22-41 (39.3)</b>	<b>\$ 42-63 (31.1)</b>	<b>\$ 64-94 (14.8)</b>	<b>Over \$ 94 (4.2)</b>
Internet users	5.8	19.3	31.8	30.9	12.1
Regular users	4.4	11.1	32.2	36.7	15.6
Non-users	11.2	44.1	31.1	11.2	2.5

Table 3.15

**Internet use depending on region of residence, %**

<b>Internet use</b>	<b>Minsk city (18.4)</b>	<b>Minsk region (15.0)</b>	<b>Brest region (14.2)</b>	<b>Grodno region (11.8)</b>	<b>Vitebsk region (12.1)</b>	<b>Mogilev region (11.7)</b>	<b>Gomel region (16.7)</b>
Internet users	22.9	11.4	15.0	4.0	17.6	15.0	14.1
Regular users	28.7	7.4	16.0	3.2	20.3	10.6	12.8
Non-users	16.3	15.7	14.4	12.6	11.7	11.9	17.4

Table 3.16

**Internet use depending on place of residence, %**

<b>Internet use</b>	<b>Capital (18.40)</b>	<b>Regional centre (16.40)</b>	<b>City (12.8)</b>	<b>Town (21.3)</b>	<b>Village (31.1)</b>
Internet users	22.9	37.9	16.1	12.9	9.8
Regular users	28.7	45.6	8.7	8.7	7.6
Non-users	16.3	14.3	15.1	19.4	34.9

3.1.2. Level of Internet use (Fig. 3.2)

Average advancement assessment by Level of Internet use micro-index: regions - 1.9; republic - 2.3; Minsk - 3.3.

In the course of research being carried out currently within the framework of grant # ICT 015 a number of the Internet *regular users* in Belarus as of the end of 2002 has been defined as **905500**. This assessment of the Belarusian Internet users has been obtained as the average value of:

1) a figure (1027600), defined by the national public opinion polls conducted by the Independent Institute of Socio-Economic & Political Studies (IISEPS, Minsk), the statistic data of TutBy portal and results of the questionnaire survey carried out by Mediareklama, a Belarusian Internet advertising agency;

2) a figure (1041000), reckoned by using results of the questionnaire survey canvassed by Mediareklama, a Belarusian Internet advertising agency (November, 2001) and data collected by Beltelecom RSA;

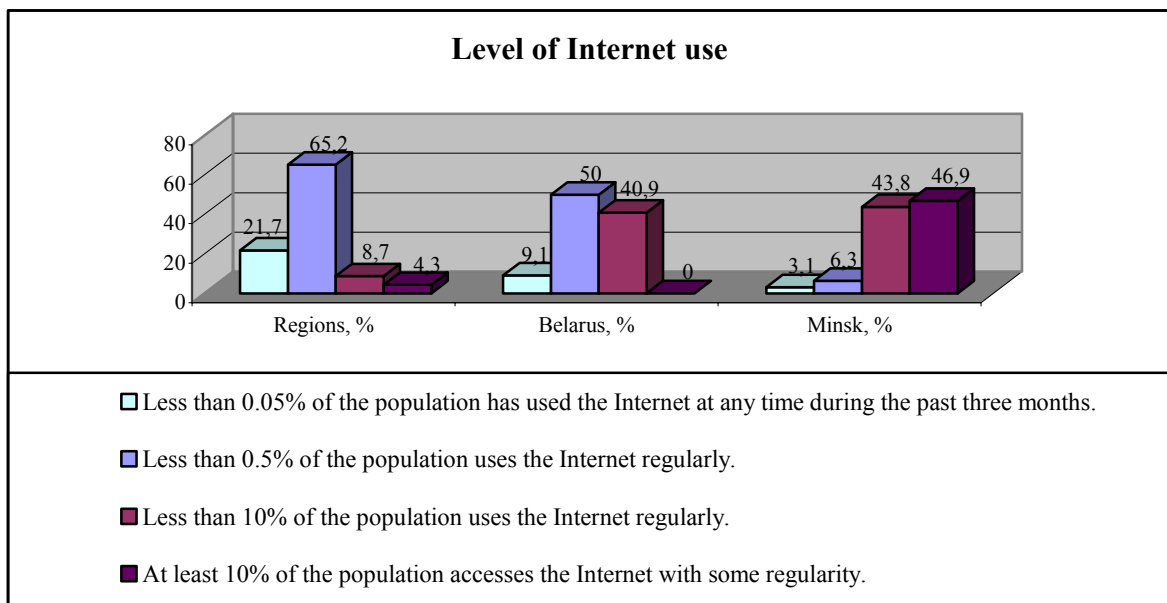


Fig. 3.2

3) a figure (648000), estimated by using reports of December, 2002 drawn up by a major Russian (Yandex) and Belarusian (Akavita) statistical services:

$$(1027600 + 1041000 + 648000) : 3 = \mathbf{905500}.$$

As estimated by the International Telecommunication Union ([http://www.itu.int/ITU-D/ict/statistics/at\\_glance/Internet01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/Internet01.pdf)) there were 422200 Belarusian Internet users registered in 2001.

**Estimations by the national public opinion polls (reviewed in 2001-2002) by the IISEPS, statistic data collected by TutBy portal and questionnaire survey results canvassed by Mediareklama, a Belarusian Internet advertising agency in November 2001.** IISEPS canvasses public opinion during the national public polls and surveys by employing a "face to face" interviewing 1500 respondents at the age of 18 years and older with a representativeness error, not more than 0.03. It is essential to define how many guys (percentage) aged 18 and younger are there among the total number of users since the said Internet users aged younger than or 18 year old constitute a considerable share in the Republic of Belarus (Table 3.17).

Each visitor while registering with Mail.TutBy portal fills out log-in form according to an obligatory procedure. Such procedure has been established since October 2000. About 200000 visitors have been registered within this time as of the end of 2002. TutBy users within an range of the age under consideration were divided as follows: users under and 16 year old, inclusively - 8 % a plus 5,8 % 17 years (summer) of 35 % of a category from 17 till 22 years, that is till 18 years - 13,8 %.

The Internet users aged under 18 make up 22 % of the total users in the Republic of Belarus according to questionnaire survey results (3107 questionnaires), canvassed from 2 to 23 November

2001 by Mediareklama, the Belarusian Internet advertising agency backed up by the data of BY'2001 Third Belarusian Internet Forum (<http://www.belarusmedia.com/?p=article768>).

Table 3.17

### Do you use Internet?

Reply Options	October 2001		April 2002 (%)		December 2002 (%)	
	(%)*	thou users **	(%)*	thou users **	(%)*	thou users **
Yes, every day	0.8	74,8	2.6	242,9	2.4	224,2
Yes, a few times a week	2.9	270,9	3.9	364,3	3.3	308,3
<b>Constant Users, Total</b>	<b>3.7</b>	<b>345,7</b>	<b>6.5</b>	<b>607,2</b>	<b>5.7</b>	<b>532,5</b>
Yes, a few times a month	4.3	401,7	4.2	392,4	5.3	495,1
<b>Regular Users, Total</b>	<b>8.0</b>	<b>747,4</b>	<b>10.7</b>	<b>999,6</b>	<b>11.0</b>	<b>1027,6</b>
Yes, a few times a year	4	373,7	4.6	429,8	4.9	457,8
<b>Users, Total</b>	<b>12</b>	<b>1121,1</b>	<b>15.3</b>	<b>1429,4</b>	<b>15.9</b>	<b>1485,4</b>

\* % of population 18 years and older.

\*\*It is assumed for estimation: 1) population of Belarus aged 18 and above equal 7670 thousand users; 2) Internet users younger 18 years of age constitute 17.9 % of the Internet users total in Belarus.

Further in our estimation we assume an average figure of Belarusian Internet users younger 18 years of age which equals 17.9 % = (22 + 13.8): 2.

**Estimations by using questionnaire survey results canvassed by Mediareklama, a Belarusian Internet Advertising Agency in November 2001 and Beltelecom RSA data.** According to questionnaire review results (3107 questionnaires), canvassed from 2 to 23 November 2001 by Mediareklama, the Belarusian Internet advertising agency backed up by the data of BY'2001 Third Belarusian Internet Forum (<http://www.belarusmedia.com/?p=article768>), there were 26.9 % of BelPak dial-up users who were canvassed.

83307 subscribers employed a dial-up network system to access the Internet as read the data of Beltelecom RSA in November 2002. This number will amount to 266582 of dial-up access potential users (if to have it multiplied by 3.2, the number of average family members, i.e. tentative users calling from one subscriber's number). Or it might raise up to 279911 if to take into account 5 % monthly growth as of the end of 2002. If to assume, that it makes up 26.9 % of the total users, we arrive, under this estimation, at **1041000** Internet users in Belarus.

**Estimation by Major Russian and Belarusian statistical services.** According to data furnished by Yandex, one of the Russian Internet major sites (<http://company.yandex.ru/>), its internal statistic system ([stat.yandex.ru](http://stat.yandex.ru)) registered in December 2002 as follows: unique hosts (**Hosts** - quantity of different IP-addresses, from which users visited Yandex within the indicated period) - 1538945; unique visitors (**Visitors** - quantity of the different users visiting Yandex within the indicated period. The users will be authenticated by Cookies files. If the latter are not available - by IP-addresses. While counting visitors, unique Cookies plus unique IP-addresses less Cookies are considered) - 6652325 and, hence, average quantity of the visitors per host - 4,32. As regards quantity of hosts as per Yandex geographic report, Belarus is ranking 3rd following Russia (79.29 %) and Ukraine (5.63 %) with 50027 hosts, that amounts to 2.15 % of total hosts registered at

Yandex. Taking into consideration, that 4.32 visitors, on the average, come from one host, the number of Belarusian visitors is about **216000** ( $50027 \times 4.32$ ).

The Belarusian Internet attendance at sites - participants of Akavita system was **158007** unique visitors in December 2002, that corresponds approximately to the quantity of the Belarusian visitors at Yandex (216000), cited in the previous paragraph, as reads the Belarusian Internet global statistics report made open to public on 24.12.2002, and posted at <http://www.stan.akavita.by>. The quantity of sessions thereby generated at Yandex.Ru from Akavita is 34.3 %, i.e. one-third (it corresponds actually to one outcome of questionnaire survey, canvassed from 2 to 23 November 2001 by Mediareklama, the Belarusian Internet Advertising Agency (<http://www.belarusmedia.com/?p=article768>), The outcome is that only 33.1 % of the Belarusian Internet users visit the Belarusian Web-sites daily, so it may be assumed, that the Belarusian users total **648000** people ( $216000 \times 3$ ) on the grounds of Yandex and Akavita statistical data.

### 3.1.3. Number of registered local domains (Fig. 3.3)

Average advancement assessment by Number of registered local domains micro-index: regions – 2.0; republic – 2.2; Minsk – 2.9.

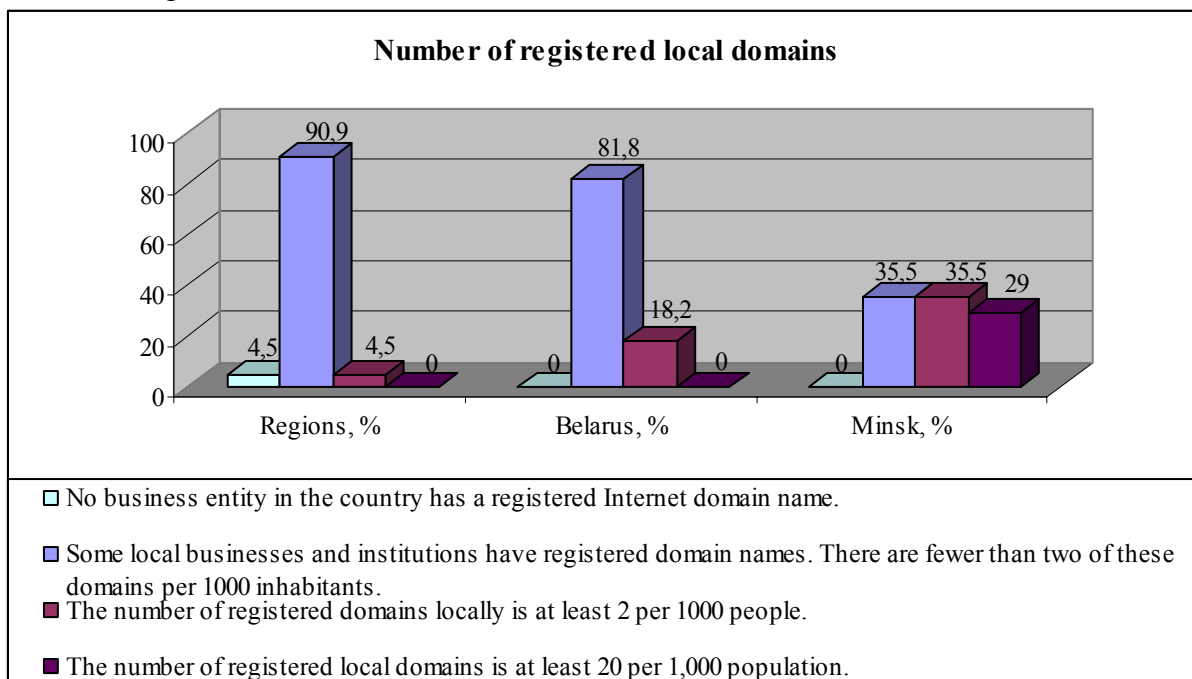


Fig. 3.3

Since 2000 according to <http://www.open.by/2002112807.html>, the State Center of Information Security under the President of the Republic of Belarus has registered about 2000 the second level domains in a .BY zone. Now almost 500 from them are suspended, since their owners do not prolong the contract. For information, the quantity of the Internet - addresses registered in the national domain of Russia, in 2002 in comparison with 2001 has grown on 66 %. Now in a zone .RU exists more than 156 thousand domains.

A unified system of electronic addressing, which constitutes an aggregate (collection) of unique IP-addresses and corresponding unique domain names, provides for the basis of the Internet system operation as a whole. Domain name system is actually a framework of the Internet web set-up.

To control domain name system, IANA (<http://www.iana.org/>), an international coordinating organization was established, which performs its activity by means of ICANN (<http://www.icann.org/>), the Internet Corporation for Assigned Names and Numbers, a service for assigning and using unique values of IP parameters, assigning numerical Internet addresses. While considering issues of delegating and re-delegating, IANA is guided by main guidelines and provisions, approved by the following main documents:

- IANA TLD "Delegation Practices Document" (ICP-1, <http://www.icann.org/icp/icp-1.htm>), 21 May 1999

- Request for Comments 1591 "Domain Name System Structure and Delegation" (RFC 1591, <http://www.isi.edu/in-notes/rfc1591.txt/>) / ISI March 1994.

On the grounds of IANA appropriate resolutions an administrator is assigned for each of existing top level domains, i.e. TLDs (.com .org .net .ge .ru .by etc.), the said administrator being authorized to register and delegate domain names of lower level in a domain zone, he administers.

While taking decision about delegating one or another organization with authority to administer TLDs, IANA sets a number of organizational and technical criteria and requirements for a new administrator to meet with. From the point of view of the organizational requirements, the administrator is obliged to provide a definite level of service, including obligatory operation of such service tools as WHOIS, which would provide access to services enabling the end users to register domain names and ensure transparency of the procedure.

Any infringement of the said requirements may entail revision of the decision taken in respect of delegating right on domain zone administration and its subsequent re-delegation to other individual (person). There have been already the similar previous cases in IANA practice. Since May 1999 IANA has satisfied the following inquiries on ccTLD re-delegation: Pitcairn Islands (.pn), Malawi Малави (.mw), Canada (.ca), Australia (.au), United States (.us) and Japan (.jp).

It is essential to state, that currently there are no normative statutory acts regulating the matters related to origination, operation and dispose of domain names in the Republic of Belarus.

A single regulative source in the said realm are the Provisional rules of registrating and delegating of the second level domain names in .BY zone (ref: <http://www.tld.by/rules.html>), approved in February 2000 (with subsequent revisions and addenda of 2002). Just not touching upon a problem of official confirmation, legality and authenticity of the information posted in electronic format in Internet at all, the rules in question are just an internal law-instituting document having legal effect only for the State Center of Information Security (SCIS) under the President of the Republic of Belarus. Actually the said rules are deficient in the main feature of a normative statutory instrument, namely in its standardized force, assuming that the legal regulation thereof would encompass an uncertain circle of the entities. The reason for this, first of all, is that a procedure for adopting the normative statutory documents instituted by the legislation of the Republic of Belarus was not observed, when the rules were adopted. Their registration in the Ministry of Justice of the Republic of Belarus was not made, and they were not published officially.

Posting of the information in Internet according to a Belarusian law is not recognized to be an official publication, moreover such information according to the same law of the Republic of Belarus (An Electronic Document Law) cannot be considered as documentary information at all. Thus, the said instrument (the rules) may be considered only as a confined document of SCIS, regulating its internal activity. However, it is obviously contradicting to the legislation of the Republic of Belarus now in force due to this reason, as far as its provisions claim for regulating the legal relations which are beyond the frame of SCIS internal activity and encompass the rights and lawful interests of other legal entities.

Multiple questions arise about legality of certain clauses contained in the indicated rules at more detailed learning of the document.

The rules establish that a decision about registration or delegating of domain is to be taken by SCIS within 14 days from the date of filing an application. As the result of examination either a favorable decision or a justified refusal is sent to an applicant. The rules do not define the list of grounds, on which SCIS may refuse in registering a domain. It turns out to be in fact, that the objectivity of «sufficiency of refusal» is determined by subjective perception of persons making a decision, and, in its turn, it creates prerequisites for probable abuses.

It is also determined by the rules that in case two or more applications on one and the same domain are filed simultaneously, a decision about registration is taken only after all applicants, except for one, have officially informed about waiving of the applications filed. The applications are considered to be filed simultaneously, if they have been registered WITHIN ONE WEEK FROM

THE DATE THE FIRST APPLICATION WAS FILED, what is, in general, nonsense both from the point of view of the law and common sense. The rules provide again for conditions for probable abuses and deliberate delay of awarding decision. The provisions of the rules create also conditions for implementing a vicious and faulty practice of so-called STOP - SHEETS, when by virtue of several applications for registration of a domain name that are in hand which were filed «simultaneously», further registration of them may be frozen.

It is also determined by the rules, that an applicant while choosing a domain name should avoid the names obviously conterminous to the known trademarks. The organizations having formal documents from the holder of the given trademark reconfirming authorities of the applicant to register a domain with a similar name make the exception. SCIS, in this case, assumes a function, not appropriate to it, to protect the rights of the holders of the trade marks and brands and other objects of intellectual property, whereas the said function should be of an application nature according to the Belarusian legislation (a holder of a trade mark is required to file an application for protection of his/her rights) and it is referred to the competence of the court.

There is also Instruction on registration of domains in .BY zone (<http://www.tld.by/instruction.html>). The said instruction reads that the information about the holders of domain names in .BY zone is not divulged and is not published without official permission of the holder, that it is, ostensibly, a trade secret. To justify non-availability of WHOIS service, the references to clauses of the Civil Code of the Republic of Belarus which regulate the issues of trade secret are made (Articles 140, 1010, 1011, 1012). It is obviously overlooked, at the same time, that the information related to the facts (cases) of creation, change or termination of the rights of possession, application or disposal of, and also registration of the rights can not fall under a trade secret according to the legislation of the Republic of Belarus (item. 3 of the same Article 1010 Civil Code).

Thus, the Provisional Rules of registration and delegating of the second level domains in .BY zone effective at present time neither correspond to the conventional international principles of domain name assigning approved by IANA and ICANN, nor conform with the standards of the Belarusian legislation. The effective rules of domain name registration in .BY zone actually are only a formal «legal justification» for infringing the conventional norms and standards in the course of registration of domain names. They create premises for probable abuses, deprive the domain name registration and delegating process of its openness and accessibility to the end users.

The solution of negative developments related to the domain name registration and delegating process in many respects depends on transparency and streamlining capability of the given process. Under current circumstances, the elaboration and adoption of our own uniform rules of registration and delegating of domain name, adapted to the Belarusian environment, may serve as an optimum and alternative solution of the problem, with the said rules envisaging appropriate procedures of the extrajudicial resolution of disputes on domain names by analogy with UDRP (<http://www.icann.org/udrp/>).

Thus, it is worth noting that the development and subsequent enactment of the rules and procedures as above will allow:

- to build up a unified system of registering domain names in .BY zone adequate to the requirements of the conventional world standards in this field;
- to raise potential attractiveness of .BY domain zone for registration of domains both for the needs of national and foreign users;
- to improve reliability of a domain name registration system and quality of user servicing;
- to provide for a great accessibility of domain name registration procedures to the end users, and also increase openness and transparency of such procedures;
- to create an effective, prompt and relatively low cost tool for fighting infringements in the field of intellectual property, suppression of cybersquatting;
- to bring the authority of the national logger of domain names in .BY zone to a higher level.

3.1.4. Advertising of the on-line service companies or resources in traditional media (Fig.

3.4)

Average advancement assessment by micro-index: regions - 2.3; republic - 2.9; Minsk - 3.3.

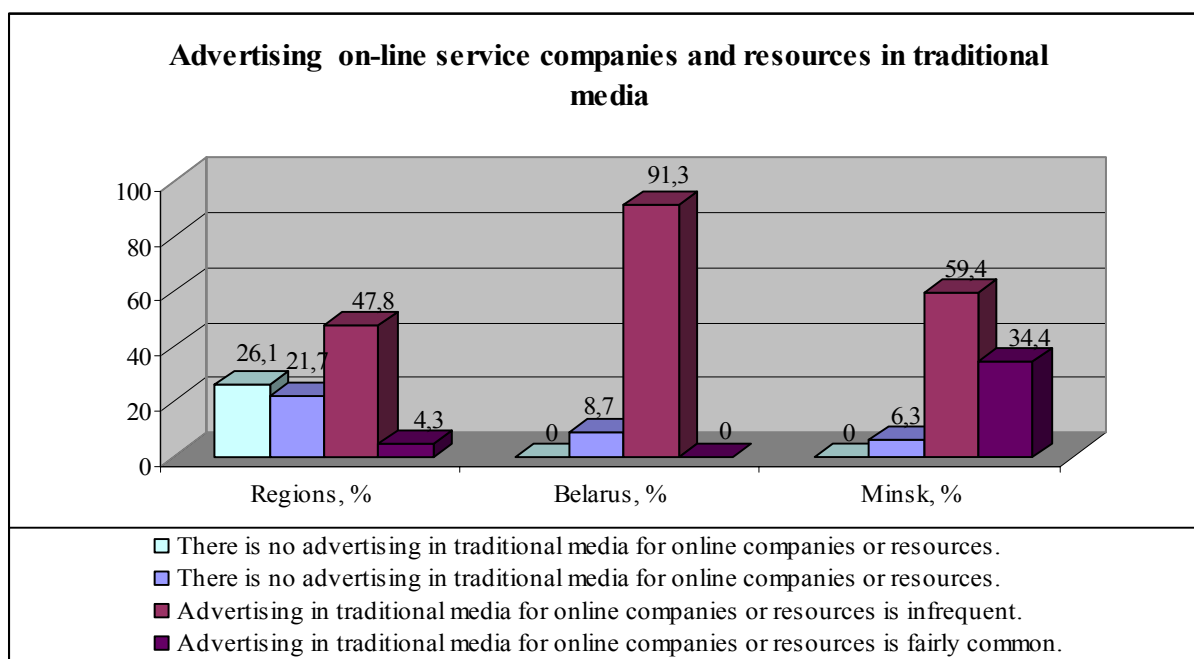


Fig. 3.4

### 3.2. Locally relevant content

#### 3.2.1. Web sites providing information on local topics (Fig. 3.5)

The present Belarusian Internet segment comprises about 3000 information sites. Out of the sites registered within the Belarusian network (first-level zone **by**) 95% of the sites are in Russian, 10% in Belarusian and 15% bilingual. About 8% of the sites possess an English version. About 10% of all the Belarusian sites do not use Belarusian hosting: 2% of the sites use foreign hosting and 8% use Russian hosting (mainly the second-level zone **by.ru**).

The rough distribution of the Bynet resources is as follows:

- 45% - information on production, goods and services;
- 12% - Internet services;
- 5% - entertainment;
- 6% - electronic versions of periodicals;
- 13% - education courses;
- 10% - information regarding activities of research institutes;
- 1.5% - information of the state authorities.

Average advancement assessment by Web sites providing information on local topics micro-index: regions - 1.9; republic - 2.3; Minsk - 3.

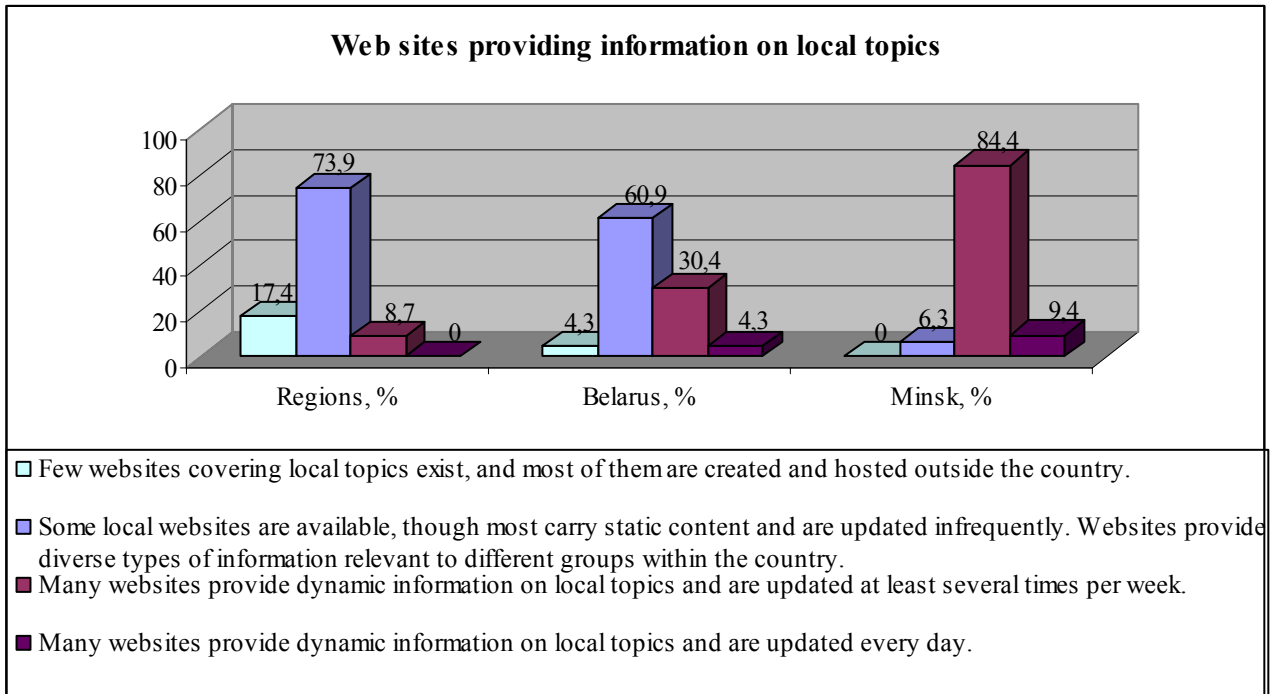


Fig. 3.5

Approximately 70 web-sites are registered providing information on health and medical market in Belarus. The text part of these sites exceeds 40 Gb. 83% of servers present medical field of Minsk, 9% - Vitebsk and Vitebsk region, 3% - Grodno and Grodno region, 3% - Gomel and Gomel region, 3% - other regions.

As well as in mass media, the most popular among Internet users are Russian rather Belarusian resources, that is explained firstly of all by their quality, and secondly by language situation in the country (Table 3.18).

Table 3.18

**Use of different Internet resources among elite, %\***

Internet resources	All respondents	State sector	Non-state sector
Russian	32	38	27
Belarusian	26	25	27
European	14	13	15
US	6	3	8
Other	2	—	3
DA/NA	20	21	20

\* According to the elite poll conducted by IISEPS in February 2003 (66 policymakers, media leaders, analysts and businessmen equally represented both state and non-state sectors were face-to-face interviewed).

Fig. 3.6 shows the results of the assessment by a 'Web sites providing information on local topics' micro-index, one of eighteen indexes, set in poll at *tut.by* site according to [1].

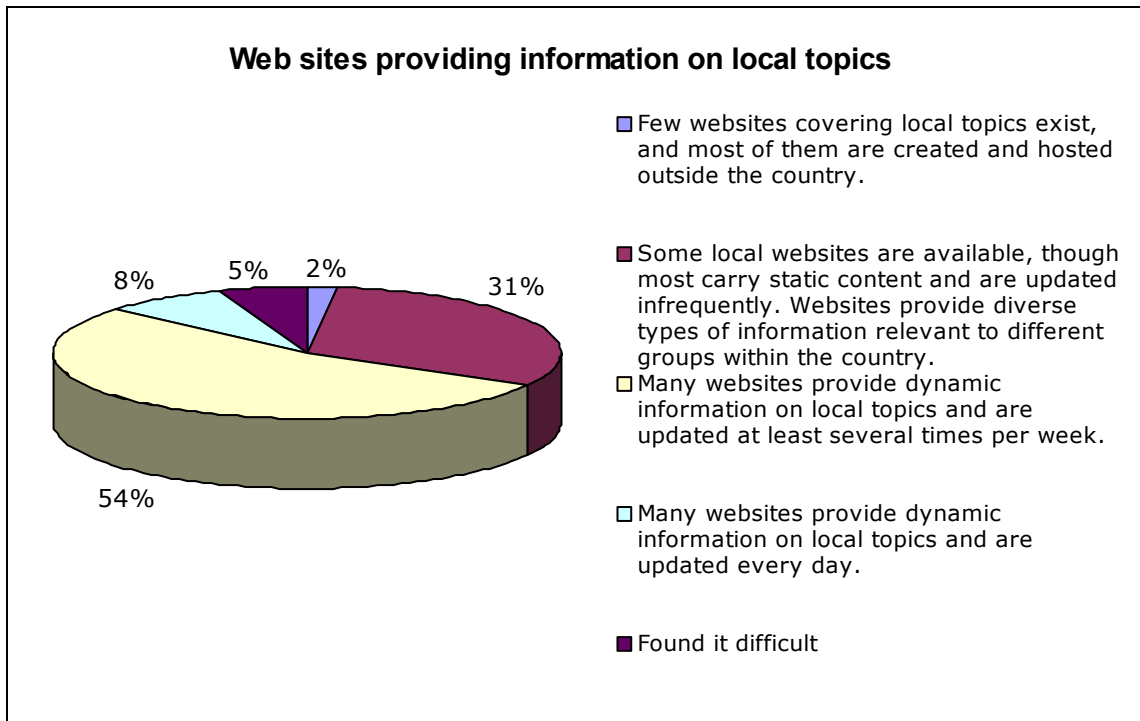


Fig. 3.6

### 3.2.2. Web sites in local or prevailing local languages (Fig. 3.7)

Average advancement assessment by micro-index: regions – 2.0; republic - 2.1; Minsk - 2.4.

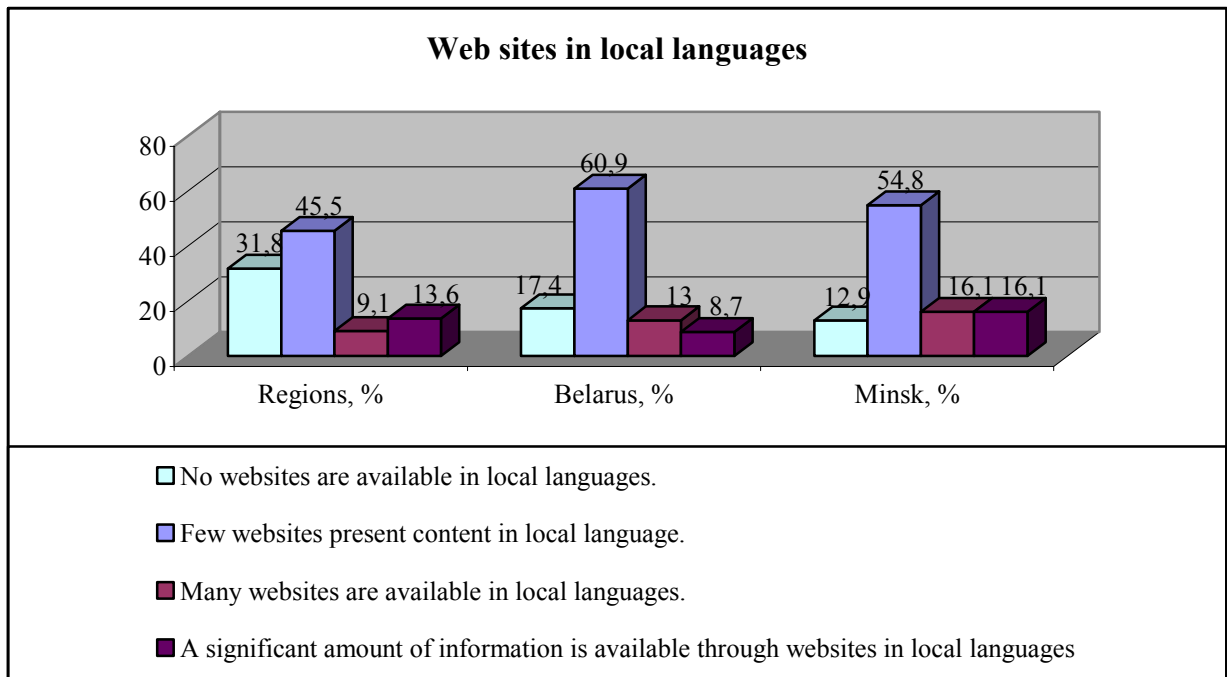


Fig. 3.7

Fig. 3.8 shows the results of the assessment by a 'Web sites in local languages' micro-index, one of eighteen indexes, set in poll at *tut.by* site according to [1].

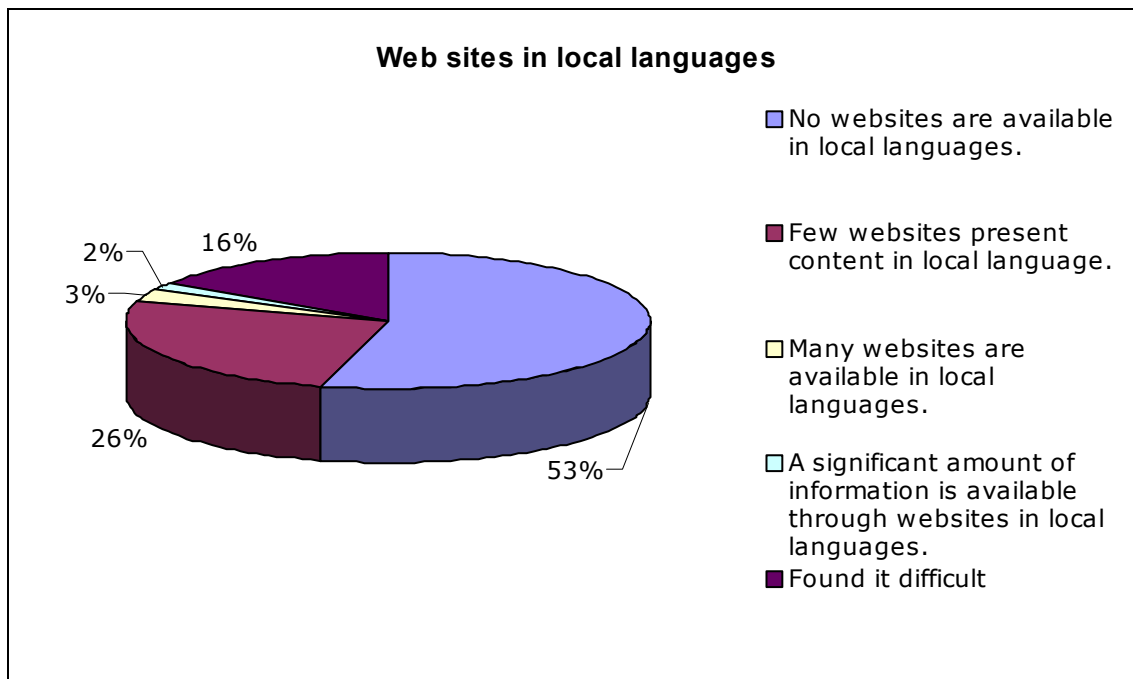


Fig. 3.8

3.2.3. On-line bulletin-board systems, Usenet groups, newsletters and/or listservs (Fig. 3.9)  
 Average advancement assessment by micro-index: regions - 2.1; republic - 2.2; Minsk - 2.9.

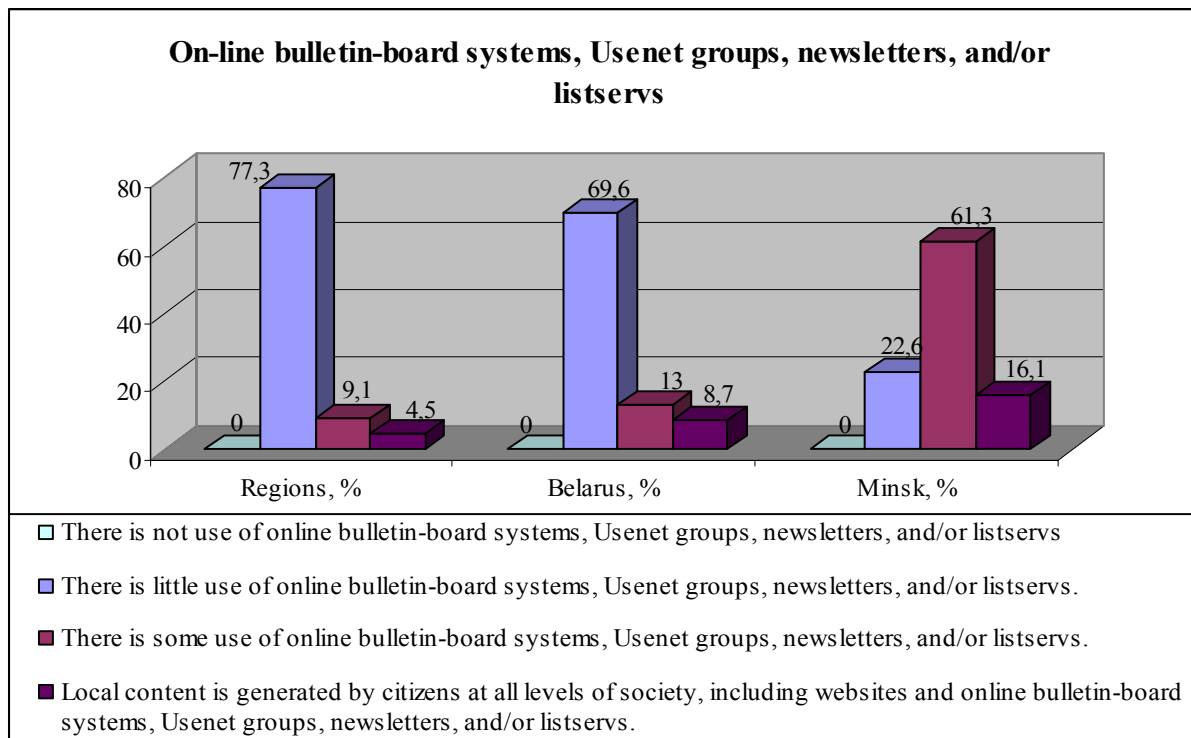


Fig. 3.9

Fig. 3.10 shows the results of the assessment by a 'Web sites in local languages' micro-index, one of eighteen indexes, set in poll at *tut.by* site according to [1].

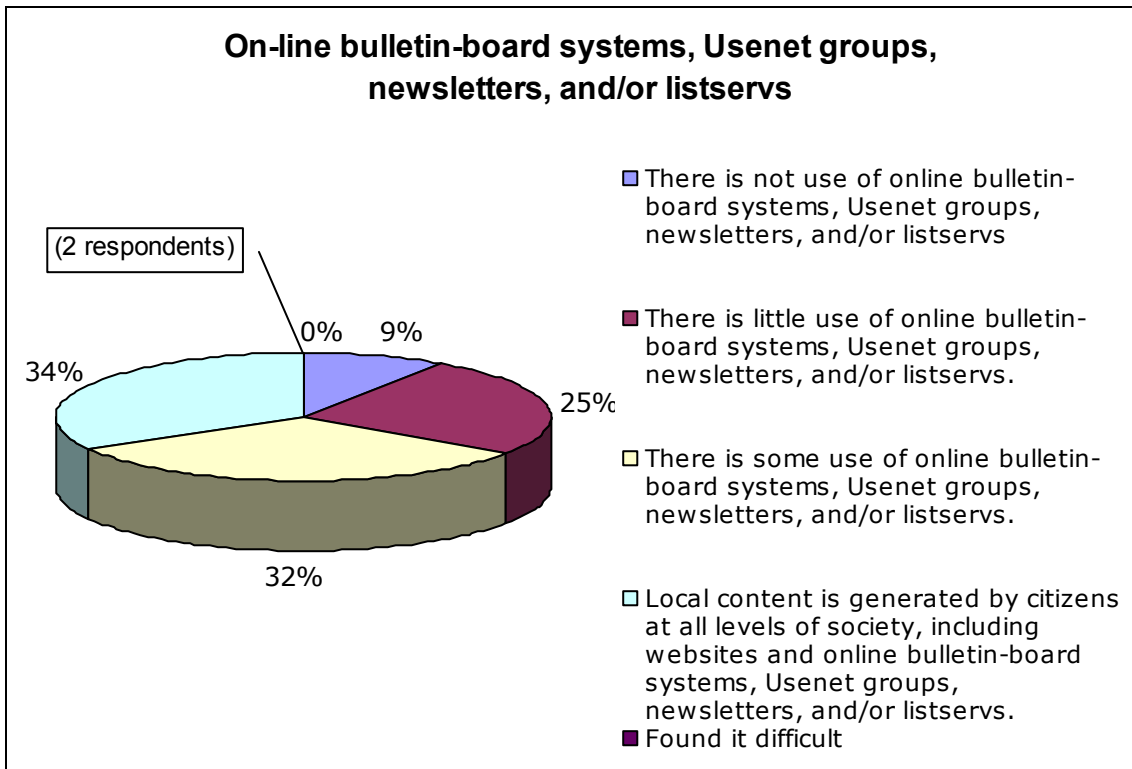


Fig. 3.10

#### 3.2.4. Opportunities for Web-related training (Fig. 3.11)

Average advancement assessment by micro-index: regions - 2.7; republic - 2.9; Minsk - 3.1.

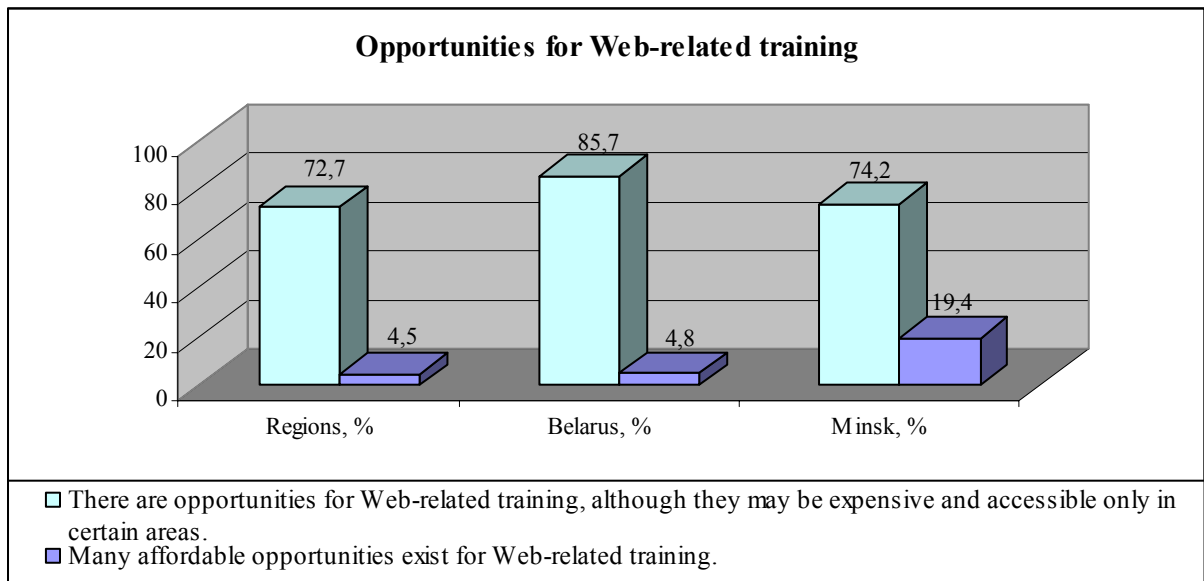


Fig. 3.11

### 3.3. ICT in Everyday Life

#### 3.3.1. Level of using ICTs in everyday life (Fig. 3.12)

Average advancement assessment by micro-index: regions - 2.3; republic - 2.6; Minsk - 3.6.

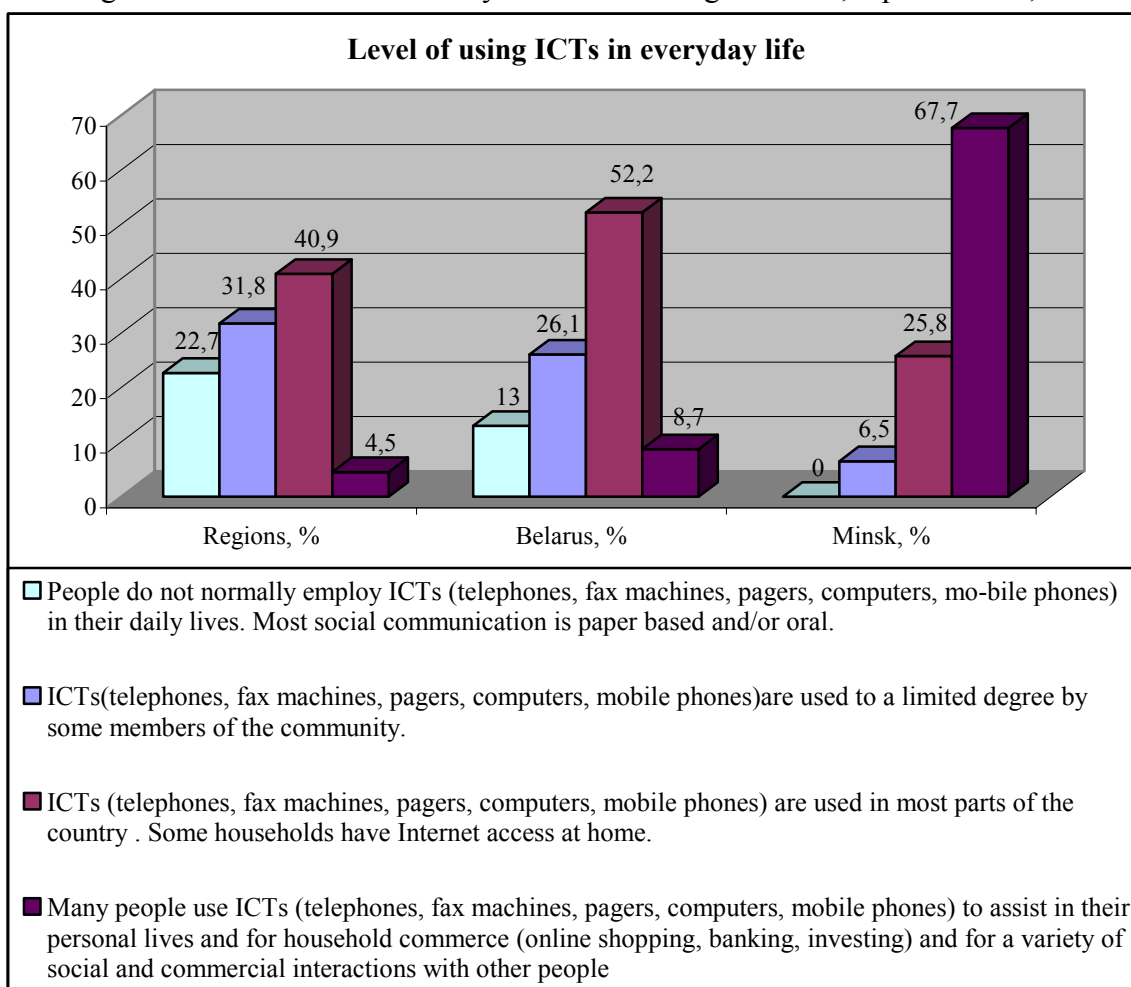


Fig. 3.12

Fig. 3.13 shows the results of the assessment by a 'Level of using ICTs in everyday life' micro-index, one of eighteen indexes, set in poll at *tut.by* site according to [1].

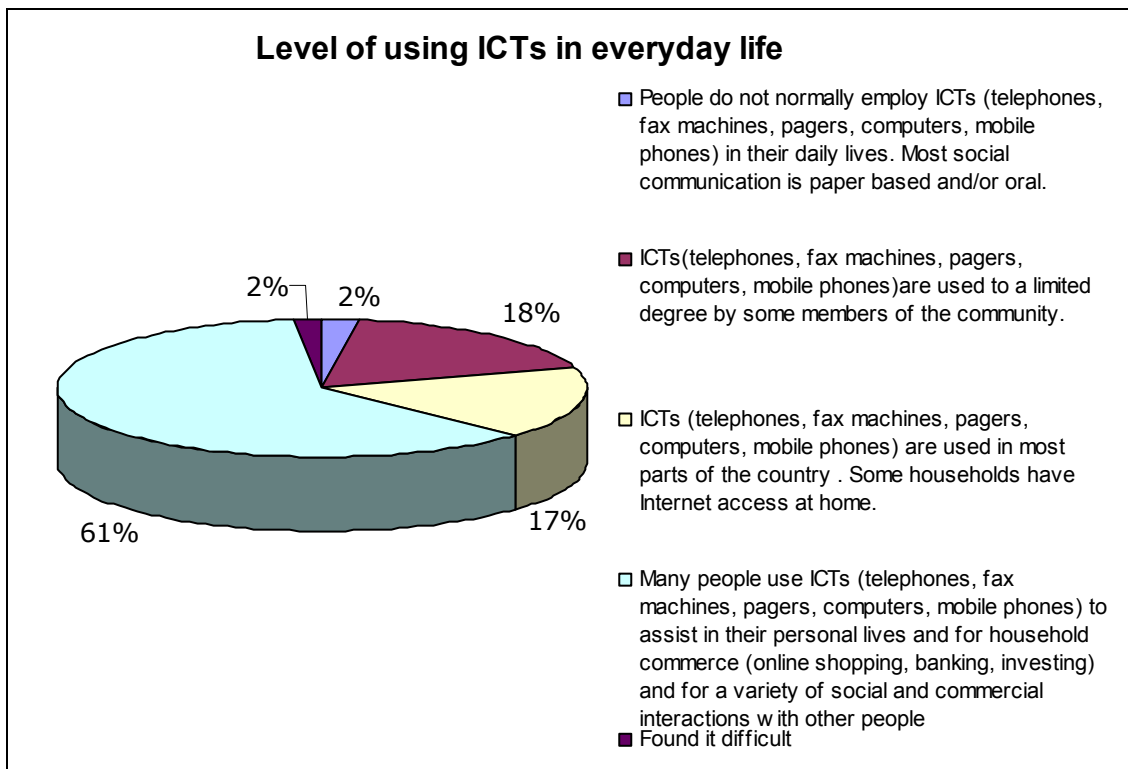


Fig. 3.13

### 3.3.2. Service quality while using ICTs in everyday life (Fig. 3.14)

Average advancement assessment by micro-index: regions - 2.3; republic - 2.4; Minsk – 3.0.

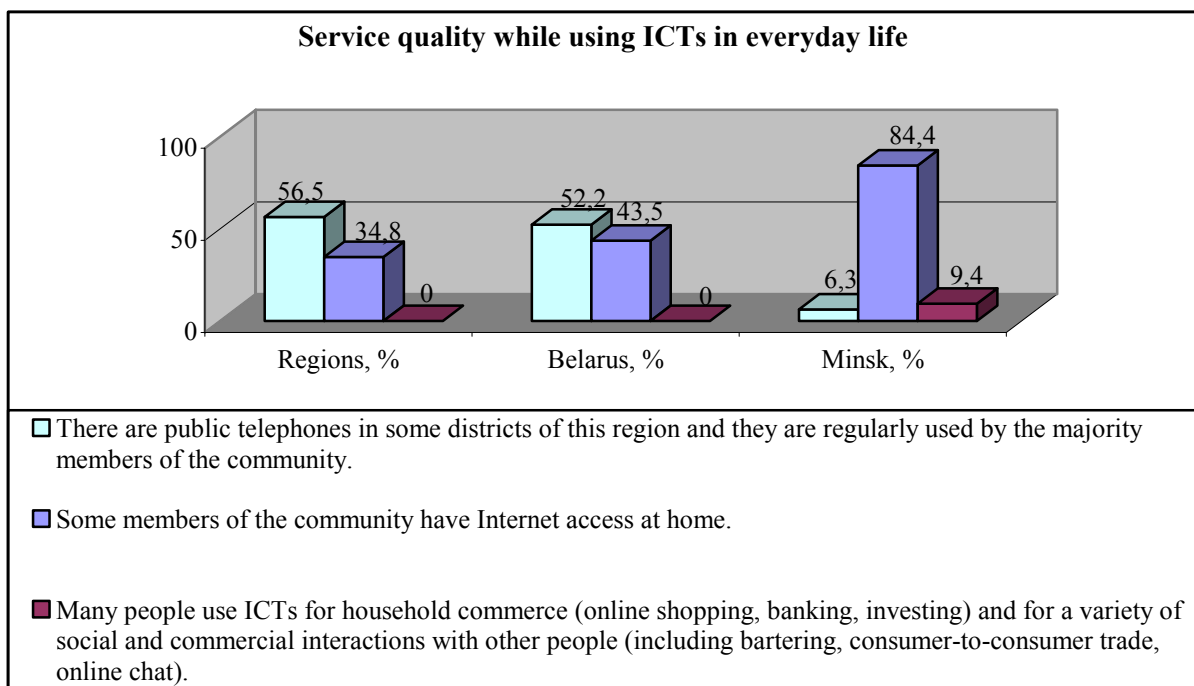


Fig. 3.14

### 3.3.3. Level of employing on-line services in community's daily life (Fig. 3.15)

Average advancement assessment by micro-index: regions - 2.4; republic - 2.7; Minsk - 3.6.

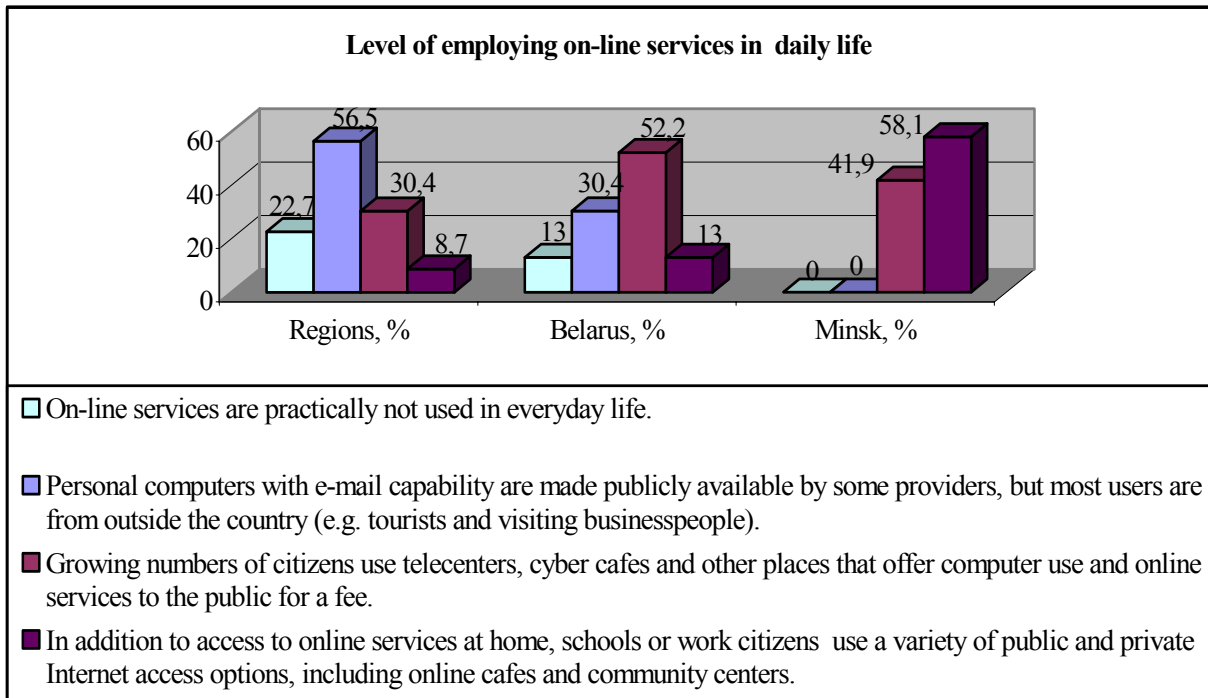


Fig. 3.15

**On-Line Personal Computer (PC) Percentage in Belarus.** There are not less than 775,000 PCs that are operated in the country by the end of 2002 (Table 3.19). It is estimated by experts regarding a PC average service life, which is as minimum as 5 years (actually up to 8 years in Belarus), and personal computer quantity of production and delivery to the Republic of Belarus (with the leading computer manufacturers of the Belaruss – Association of IT Companies members being canvassed).

Table 3.19

<b>Personal Computers in Belarus</b>							
	1995-1997	1998	1999	2000	2001	2002	1998-2002
PC employment by industrial sector, pcs		50 000	55 000	65 000	70 000	75 000	315 000
PC employment by population, pcs		40 000	45 000	50 000	55 000	60 000	250 000
Total, pcs	210 000	90 000	100 000	115 000	125 000	135 000	775 000

Currently, the leading ISPs in Belarus (Table 3.20), except BelPAK network of Beltelecom RSA (the former rendering services to 101005 subscribers via 5545 ports, i.e. it may be assumed, that it is servicing no more than 18.2 visitors from a host; BelPAK users comprise one-third, June 2001; the growth rate within 18 months is 180 % (June 2001 - December 2002), equals 5 % per month), are: Business Network, Open Contact, SOLO ISPs share is 22 % or 7000 subscribers (June 2001) and 12600 subscribers in December 2002. That gives a figure versus 100 % amounting to **57272** hosts in December 2002 in Belarus as a whole, that corresponds actually to Yandex ([stat.yandex.ru](http://stat.yandex.ru)) geographic report data for December 2002, when 50027 Belarusian hosts were registered.

The total, as may be claimed, is 57272 computers having direct connection to the Internet, or  $57272 : 775000 \times 100 = 7,39$  % of Belarusian computers are on-line to the Internet. The quantity of the Internet users per host is rated as follows:  $905,500 \text{ divided by } 57,272 = 15.81$ .

Table 3.20

Main IPs	June 1991, quantity of subscribers	2001, % subscribers	November 2001, % subscribers	Alteration
Avilink	N/a	0,30%	2,00%	1,70%
Anitex	244	3,30%	3,70%	0,40%
Atlant Telecom	N/a	-	1,00%	-
Basnet	N/a	1,10%	1,80%	0,70%
BelPAK (non- password)	N/a	47,20%	26,90%	-20,30%
BelPAK (password)	N/a	8,20%	8,00%	-0,20%
BellInternetPage	N/a	0,20%	0,50%	0,30%
BelINfonet	254	4,10%	5,60%	1,50%
Business Network	1880	5,80%	10,00%	4,20%
Golden Thaler Provider Ltd	236	0,60%	0,40%	-0,20%
Open Contact	2435	7,10%	7,20%	0,10%
SOLO	1310	5,10%	8,70%	3,60%
Unibel	N/a	4,90%	6,40%	1,50%
Network Systems (NSYS)	468	3,00%	3,50%	0,50%
GlobalOneBel	N/a	0,10%	0,40%	0,30%
Others	N/a	9,00%	9,90%	0,90%

### 3.4. ICTs in the Workplace

**ICTs status in actual sector of the economy.** One of the problems of the Belarusian IT market is that there is no certain statistics on many parameters available. Partly this gap is filled by the study and research report conducted late last (2002) year by a group of specialists from the Belarusian State Economical University (BSEU) headed by Prof. Boris Zhelezko [17]. It was for the first time that the research of such a large scale, when the managers and experts of 326 enterprises of various forms of ownership and branches of industry answered tens of questions of a questionnaire in the course of study that was held in Belarus. The collected data allow even schematically drawing up an outline of the IT status in actual sector of the economy.

So, according to BSEU study, 91.1% of the national top - managers consider that the integration of ICTs would improve economical and industrial indicators of a company. It was the most "unanimous" answer obtained in the course of questionnaire report making. At the same time each fourth respondent only does not see any negative sides during ICT integration, though it is impossible to do without them in practice. About 35 % of the respondents, in particular, have recollected additional expenses involved with purchasing hardware, personnel training; about 10% of them thought of unavoidable redundancy of employees, which would result from introducing modern technologies; about 9% worried about conventionalism, depletion of the labor process, etc.

**Priorities.** If to trust results of the questionnaire reports, the automation of the accounting and calculating tasks is 1.5 fold more significant than automation of information retrieval functions and 1.7 fold more significant regarding IT application aimed for optimization of business processes. Actually all is just accurate the other way round. IT experts have been quite aware for a long time of the following: no matter how relevant the accounting/ registration and retrieval functions are, they do not exert direct influence on the production growth. It makes not much difference from the point of view of the goods and service output, whether the month balance report was prepared by a computer program or it was reckoned by means of moving counters on the rods of an accountant's

abacus, or whether the information was retrieved in Internet or it was found in a public library. Yes, it is more convenient to an accountant or a manager to fulfil her/his functions aided by computer, but no more than that.

It is another pair of shoes though, when the computer helps to select, for example, a most economical method of fabric tailoring, the best and shortest route of goods delivery, a most favorable, for a particular moment, system of the rate scales and discounts, a most reliable business partner, the least risky project, etc, from a multiple choice of variants. All this is called optimization of different business processes, which is leading, in the long run, to efficiency growth in business as a whole.

Such tasks are solved successfully by powerful hardware and software mainframes used in business/enterprise management practice, and, in some cases, by some individually adapted auxiliary additional modules/ units supplied to known accountant's software tools. The Belarusian top - managers have already become familiar with it, though it may be sometimes partial, fragmentary information. To prove it, there were 80 % of positive answers given by respondents, not without reason, when they were asked a question whether it were essential to apply ICTs while preparing an alternate managerial decisions and selecting an optimum variant. Alas, we have to talk about a fragmentariness, inconsistency of Belarusian companies' policy in the field of ICTs for a while. It becomes more evident from the results of questionnaire reports as stated below.

**Electronic "Dragon" vs. Paper "Tiger" Battle.** It was but 43,5 % of respondents who have noted, that their enterprise requires intellectual tools for automation of their work. This figure is too optimistic to be valid. Suffice it to say that only 6 % of the canvassed enterprises have switched over, to the full extent, to electronic document circulation. At the same time, 3 out of 10 enterprises have adopted in-house paperless document circulation only by 10 %, and percentage of electronic document integration, in general, is not exceeding 30 % with half of enterprises.

The problem here is not only that the employees of various services and divisions are carrying papers to each other, like in the days of old, instead of interchanging files via the computer network. It is worth mentioning though that reducing expenses on paper, cartridges for printers, etc. by itself is far from being a "saving-on-matches" economy, even though it may look so at first sight: it is a common knowledge, that the share of total expenditures comprising the similar overheads along with expenditures on information technologies in certain companies makes up to 70 %. The most important advantage of the e-document circulation is that the information system of an enterprise starts to work in on-line [real-time] mode. It means that the manager is able to assess what is going on in any division (or subdivision) at that very moment he checks it, and not just "this week" or "this month", or "this quarter". In other words, the manager looks at and finds his/her business not the way he has done before, when all services submitted the "paper" reports last time, but he finds it alive, real, reacting to any demand of today's market right on the spot. In addition, he is able to analyze current data in real time, to compare efficiency of different variants of managerial decisions (provided that the software tools having similar intellectual functions should be certainly installed in the corporate network to meet end).

There is yet an external economic aspect of this problem. As is known, the foreign companies are applying extensively e-commerce methods to expand and enter new markets. However, Belarusian leading ICT-experts express a view, that one may talk about e-commerce application seriously, only when the internal business processes are fully automated at an enterprise.

**E-mail.** Other statistical data depict also not less vividly the quality of information systems of the Belarusian enterprises. The local computer networks, in particular, are installed and operational at 62.8 % of the researched enterprises (as for remaining part of organizations, there may be no even talk about e-document circulation before elementary network technologies are installed there). The own databases are available at 69 % of enterprises (the remaining ones, probably, have neither clients, nor business partners and do not need to keep useful records about the business background development accumulated in databases). The e-mail is used by 54.6 % of enterprises, Internet - by 46.9 % only, the own information resources are maintained in the Global Network by 18.7 % of companies. It is, truly, not a rare case, when an access to e-mail or Internet connection are

available only from a single stand-alone computer at the enterprise, and "the corporate Web-site" looks like an ordinary and unrepresentable page with contact information, which is out of control even to be updated occasionally when telephone numbers have been changed.

**ICT integration and adaptation problems.** Respondents have discovered a number of factors that hinder ICT integration and adaptation.

First of all, they noted a shortage of funds (72.6 % of respondents). This indicator is much higher at government enterprises and amounts to 78.4 % of the respondents; it makes up 68.1 % at NGOs. 41.7 % of canvassed users have complained about computers and hardware growing up old too fast (meaning that they are becoming out-of-fashion and out-of-date generation). This judgement though might be no more than a sustainable myth, as far as the computers and systems purchased 3 to 5 years ago, are doing a fine job while solving a greater part of modern office tasks despite of prompt development of computer technologies.

There were respondents who complained about lack of concern of making any ICT-advance at an enterprise (38.3 %), about insufficient knowledge of automation advantages (34.3 %), about mismatch between ICT benefits and particular manufacturing and technological conditions of a particular enterprise, under which it is operating (18.4 %), about unwillingness of some services to submit information and to disclose excess or idle production capacities (16.5 %).

**Management attitude.** A success of "the information breakthrough" at a particular enterprise in many respects depends on the psychological set of its managers. About 70% of respondents-managers have agreed that the computer helps to relieve a manager's work. However, it was disclosed, that about 35% of the researched enterprises only are headed by the people having skills and knowledge how to operate a computer and using it in their daily work. There will be hardly a proper e-document circulation established soon, while the services are forced to submit the hard copy reports to director.

According to questionnaire report, 7 out of 10 managers or directors spend up to 30% of their time to exercise the duties, which their subordinates could cope with easily. If a director does not rely on the team, he has cast or lined up himself, it is hard to believe that he would trust the "soulless" computer algorithms, even if they have proved to be efficient in practice thousand times.

Such a characteristic feature, as "the authority and reputation of the principal", among other factors influencing the quality of managerial decisions, has turned out to be somewhat more valuable and important than "the size and value of the information". The priorities of networked epoch yet have not occupied a dominating place in consciousness of the national top - managers.

**Personnel and application software.** About half of respondents have listed the lack of practical skills with the staff who are not capable to use the ICTs among the factors constraining ICT adaptation.

How "to re-forge" people into hard working stuff to meet the requirements of a networked economy? Some respondents have advised, as the main prescription, arranging on-the-job training using real networked database (45.7 %), others recommended conducting joint seminars to be attended by developers and users (15.3 %), those for off-the-job training (out of production) were 12.5 %. 94 % out of the total number of respondents favored the importance of target-oriented practical training and 6 % only were for basic theoretical training.

#### 3.4.1. Efficiency of using ICTs in the workplace (Fig. 3.16)

Average advancement assessment by micro-index: regions - 2.8; republic - 2.9; Minsk - 3.6.

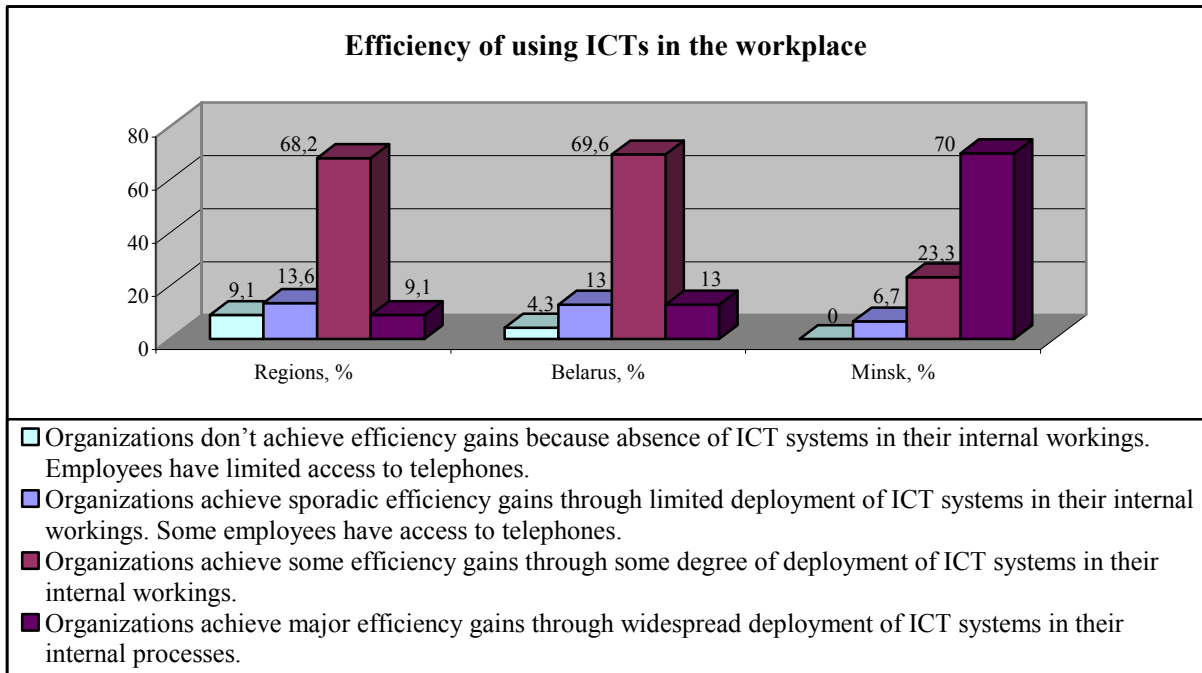


Fig. 3.16

### 3.4.2. Deployment of ICT systems in the workplaces (Fig. 3.17)

Average advancement assessment by micro-index: regions - 1.9; republic – 2.0; Minsk - 2.9.

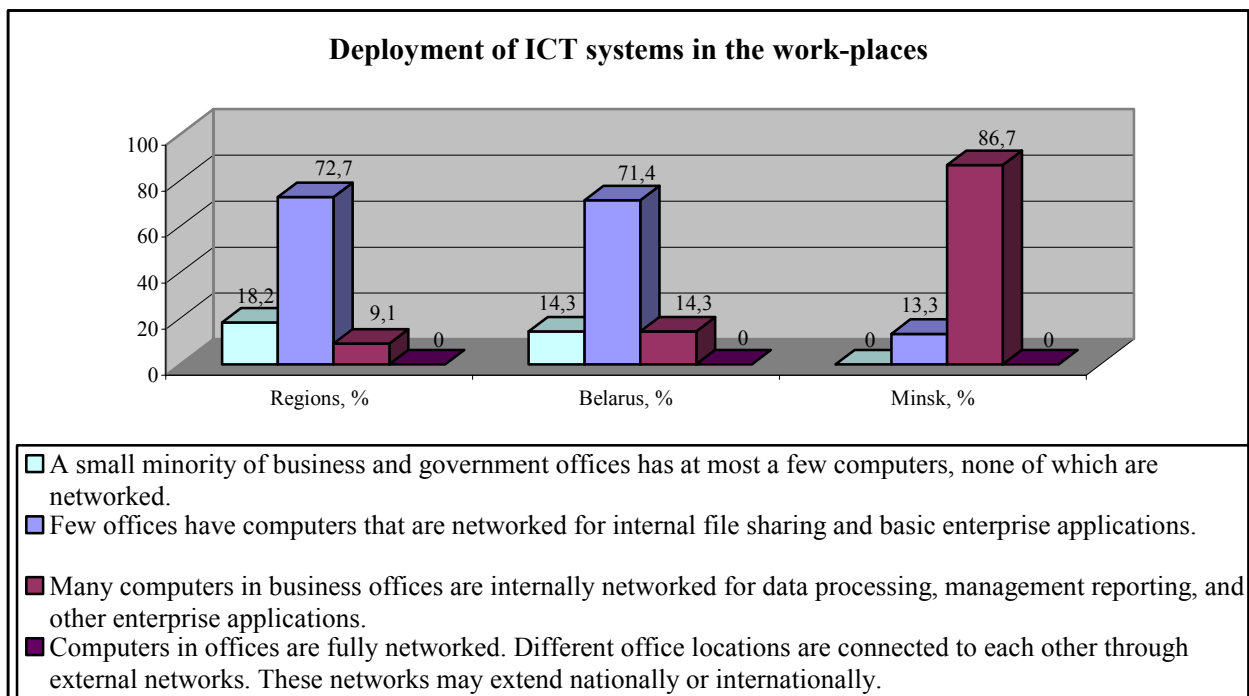


Fig. 3.17

### 3.4.3. Degree of using ICTs systems in technological processes / in internal and external communications (Fig. 3.18)

Average advancement assessment by micro-index: regions - 2.0; republic - 2.1; Minsk - 3.2.

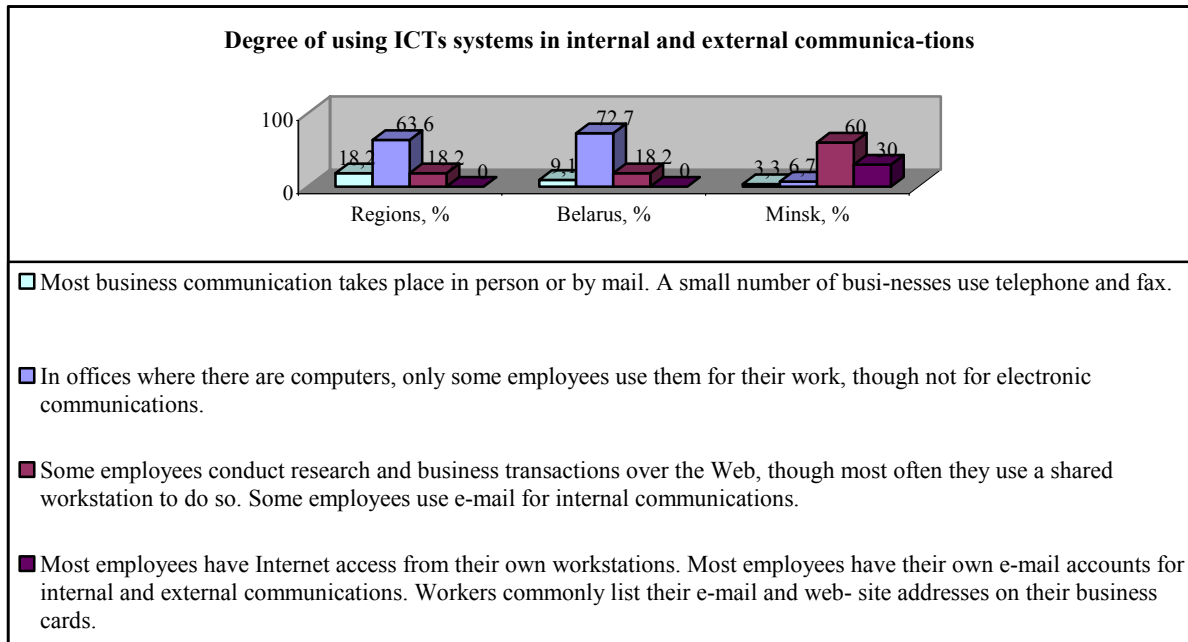


Fig. 3.18

Fig. 3.19 shows the results of the assessment by a ‘Degree of using ICTs systems in technological processes / in internal and external communications’ micro-index, one of eighteen indexes, set in poll at *tut.by* site according to [1].

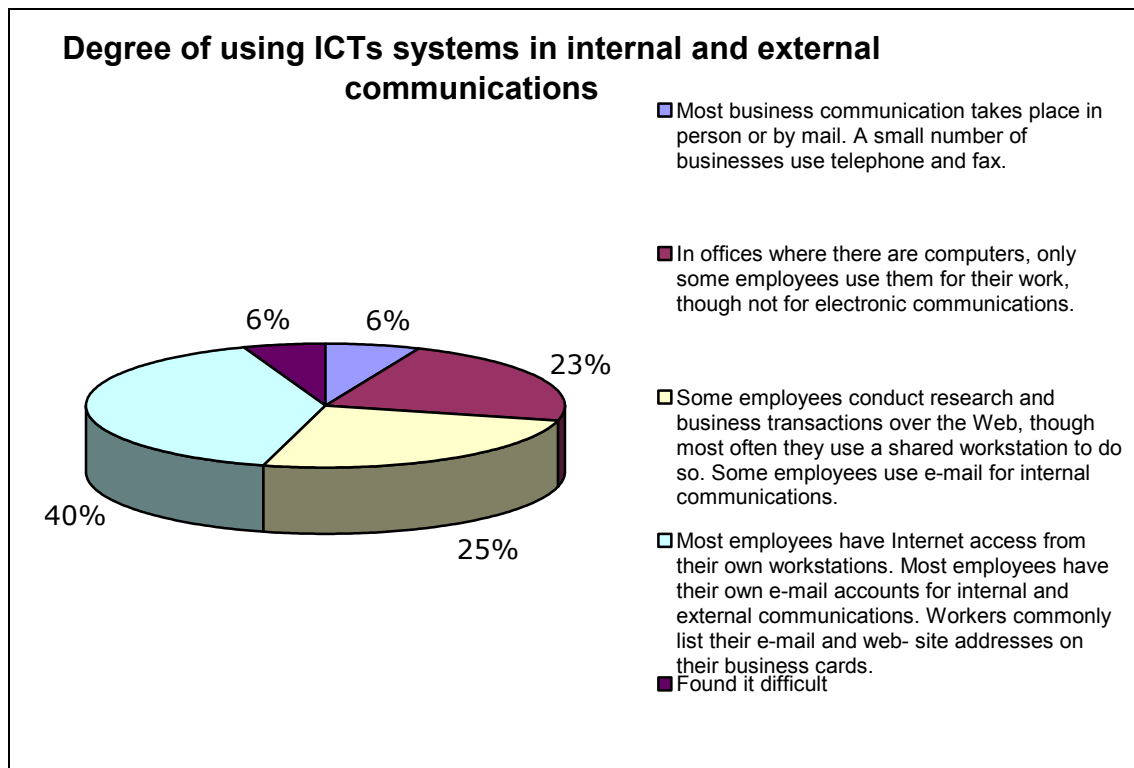


Fig. 3.19

**Summary.** A defined average estimation of advancement level/ stage by Networked Society component index is 2.44 (Table 3.21). However, the present estimation differs essentially for regions and Minsk, almost by one level/ stage: 2.22 and 3.19 - respectively. It means, that 3rd level/stage of development as assessed by the ICT indexes taken into account, was practically reached in Minsk, whereas the regions are at 2nd level/stage only.

Table 3.21

**Total Estimation by Networked Society Component Index**

No	Sub-index	Belarus	Minsk	Region
3.1	People and Organizations On-line	2.5	3.275	2.15
3.2	Locally relevant content	2.375	2.85	2.175
3.3	ICT in Everyday Life	2.57	3.4	2.33
3.4	ICTs in the Workplace	2.33	3.23	2.23
<b>Total Estimation by Component Index</b>		<b>2.44</b>	<b>3.19</b>	<b>2.22</b>