



# Broadband Development in Republic of Moldova

*31 March – 1 April 2015,  
ITU Regional Forum, Moldova*



[www.anrceti.md](http://www.anrceti.md)

**Roman BAHNARU**

Deputy Chief Execution Regulation  
Department

[roman.bahnaru@anrceti.md](mailto:roman.bahnaru@anrceti.md)

# Chapter I – Regulation in Republic of Moldova



# Chapter II – Broadband Statistics

# History



1876.....2000

**Information Society**

YouTube Facebook Google **BIG Three**

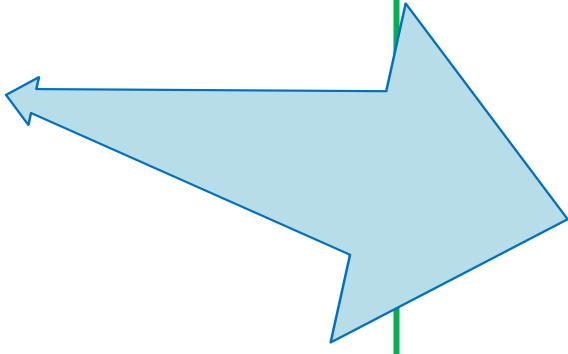


Viber Connect. Freely. amazon skype™

Now 2015

**OSI Model**

	data unit	layers
Host Layers	data	application Network Process to Application
	data	presentation Data Representation & Encryption
	data	session Interhost Communication
Media Layers	segments	transport End-to-End Connections and Reliability
	packets	network Path Determination & Logical Addressing (IP)
	frames	data link Physical Addressing (MAC & LLC)
	bits	physical Media, Signal and Binary Transmission



TCP/IP Model	OSI Model
Application Layer	Application Layer
Application Layer	Presentation Layer
Application Layer	Session Layer
Transport Layer	Transport Layer
Internet Layer	Network Layer
Network Access Layer	Data Link Layer
Network Access Layer	Physical Layer

**Technical View**

## *1.1 National regulatory framework in a nutshell*

### **Law on electronic communications nr. 241/2007**

It transposes into the national legislation the provisions of the regulatory framework for electronic communications networks and services, adopted by the European Union in 2002:

- Directive 21/2002/EC
- Directive 19/2002/EC
- Directive 20/2002/EC
- Directive 22/2002/EC



- 
- Commission guidelines on market analysis
  - Recommendation 2003/311/EC
  - Recommendation 2007/879/EC
  - **NGA Recommendation 2010/572/EU**

## *1.2 Markets analyzed by the ANRCETI (4 markets) – related to broadband*

**Market 4** - Wholesale network infrastructure access (including shared or fully unbundled access) at a fixed location.

**Market 5** - Wholesale broadband access.

**Market 6** - Wholesale terminating segments of leased lines, irrespective of the technology used to provide leased or dedicated capacity.

**Market 8** - Wholesale trunk segments of leased lines.

### Reference Offers for specific markets

**Market 4** Reference Offer for Access, Reference Offer for Access to Ducts, Reference Offer for Access to Pillars, Reference Offer for Colocation Services

**Market 5** Reference Offer for Bitstream

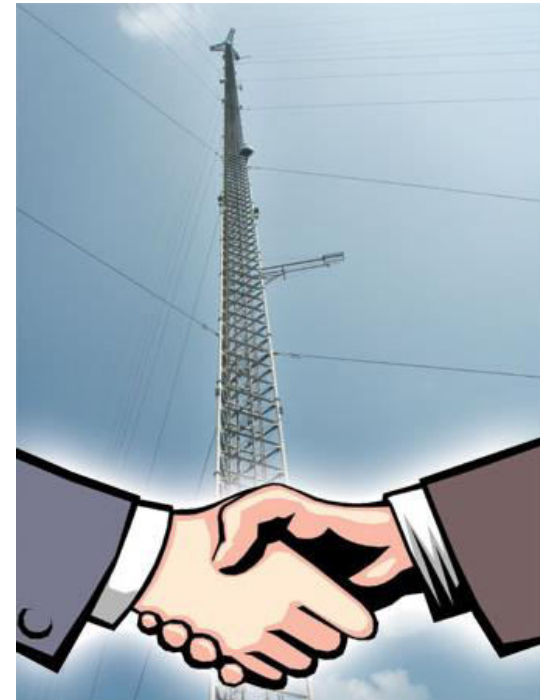
**Market 6** Reference Offer for Leased Lines Services

**Market 8** Reference Offer for Leased Lines Services

## *1.3 Access to, and use of, specific network facilities*

This remedie is targeted at:

- **Encouraging** shared use and co-investments
- **Encouraging** the use of alternative infrastructures for fiber deployment
- **Mandating** equal access to SMP's infrastructure
- **Access to** fiber loops of the SMPs
- **Access to** FTTx loops as bit-stream

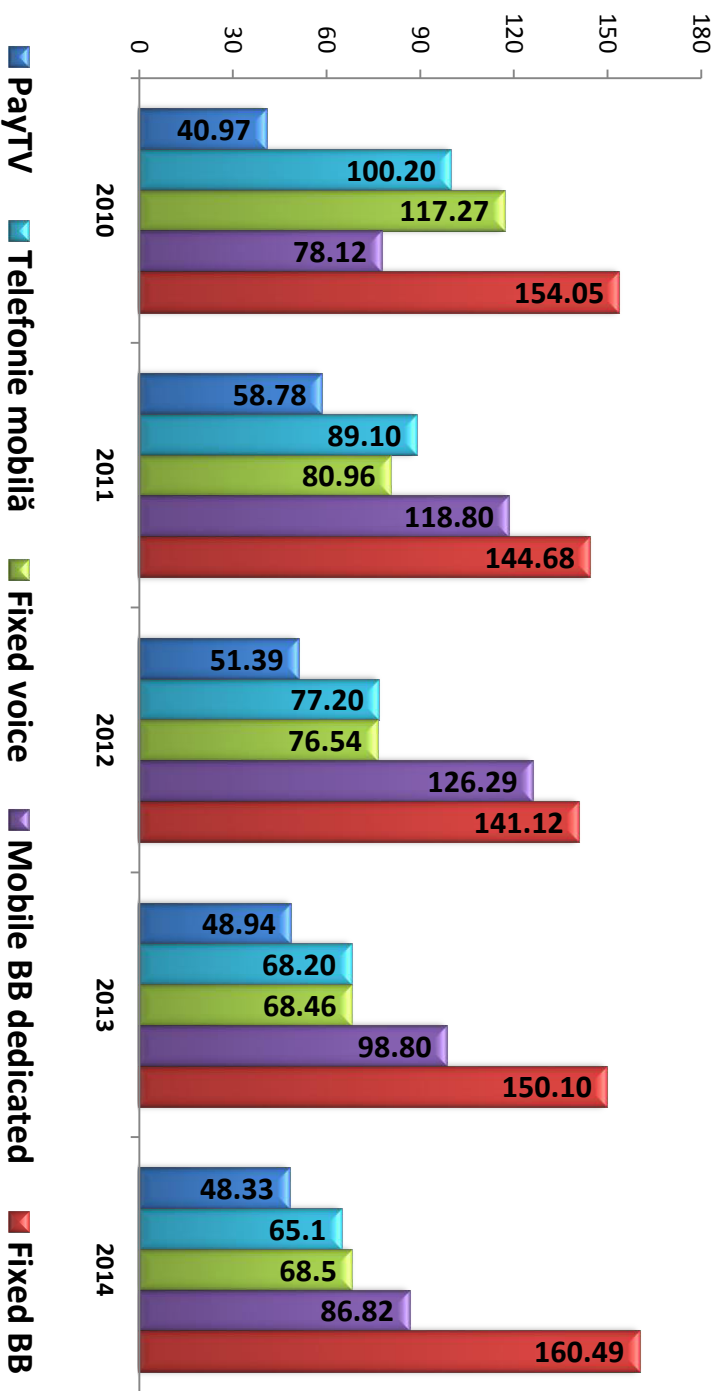


## 2.1 Broadband revenue (MDL): mobile and fixed

	2011	2012	2013	2014
Revenue fixed broadband	540.236.600	652.578.643	785.261.930	927.657.696
Revenue mobile broadband:	256.355.767	383.431.766	407.898.597	482.159.803
<i>from mobile voice users (addons)</i>	103.294.833	113.533.803	148.219.189	190.880.955
<i>from mobile dedicated users</i>	153.060.934	269.897.963	259.679.408	291.278.849
<b>Overall revenue: fixed and mobile</b>	<b>796.592.367</b>	<b>1.036.010.409</b>	<b>1.193.160.526</b>	<b>1.409.817.499</b>
Market share % fixed BB	67,8%	63,0%	65,8%	65,8%
Market share % mobile BB	32,2%	37,0%	34,2%	34,2%
<b>Overall revenue from: mobile/fixed voice, mobile/fixed BB and PayTV</b>	<b>6.219.748.857</b>	<b>6.282.166.707</b>	<b>6.642.559.735</b>	<b>6.801.702.820</b>



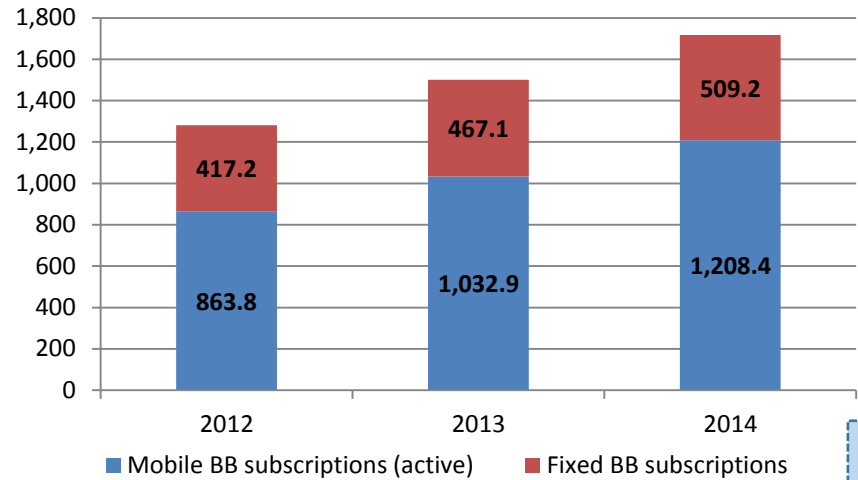
## 2.2 ARPU (MDL) - Mobile and Fixed Broadband



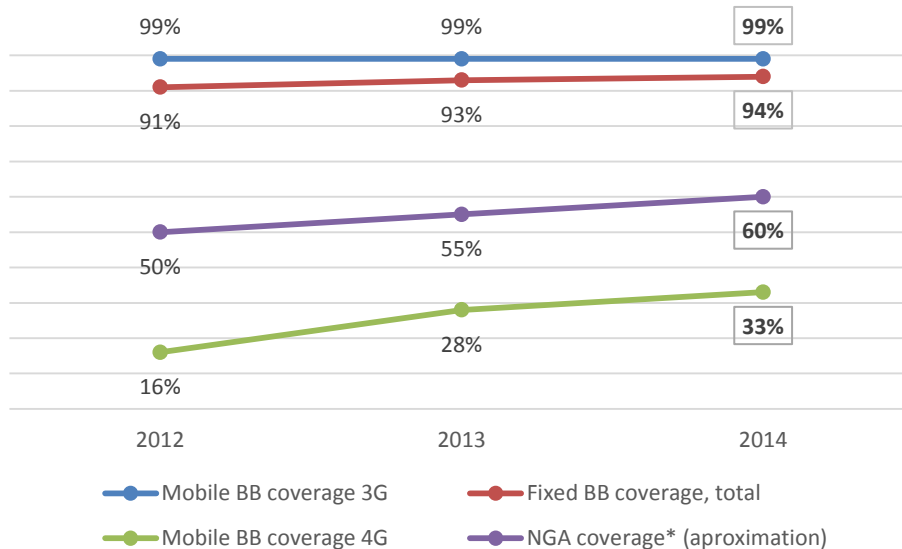


## 2.3 Broadband subscriptions: mobile and fixed

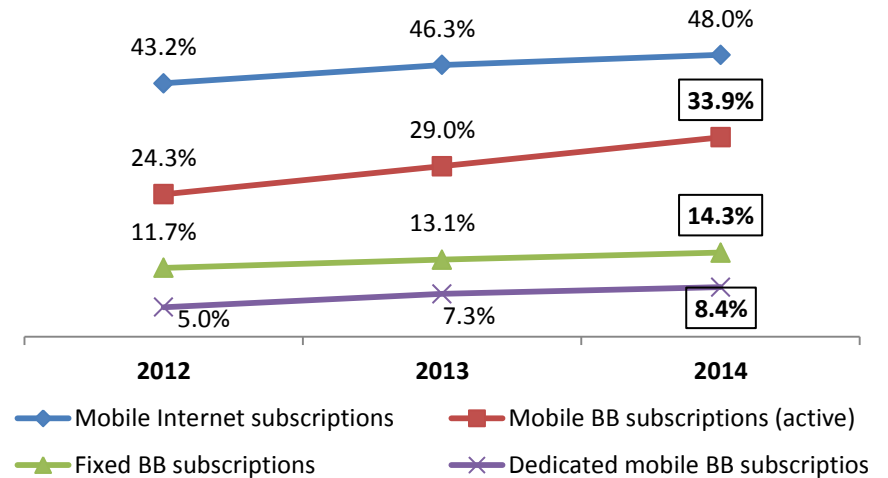
- Basic broadband is available to all citizens in Republic of Moldova, 99% is coverage for 3G services, and 94% is coverage for fixed broadband;
- As of December 2014, almost 33% was coverage for 4G services offered by operators.
- 1/3 of population have Mobile BB subscription;
- About 3/4 of households have Fixed BB subscriptions (in which over a half are NGA subscriptions – FTTB/FTTH or DOCSIS 3.0).



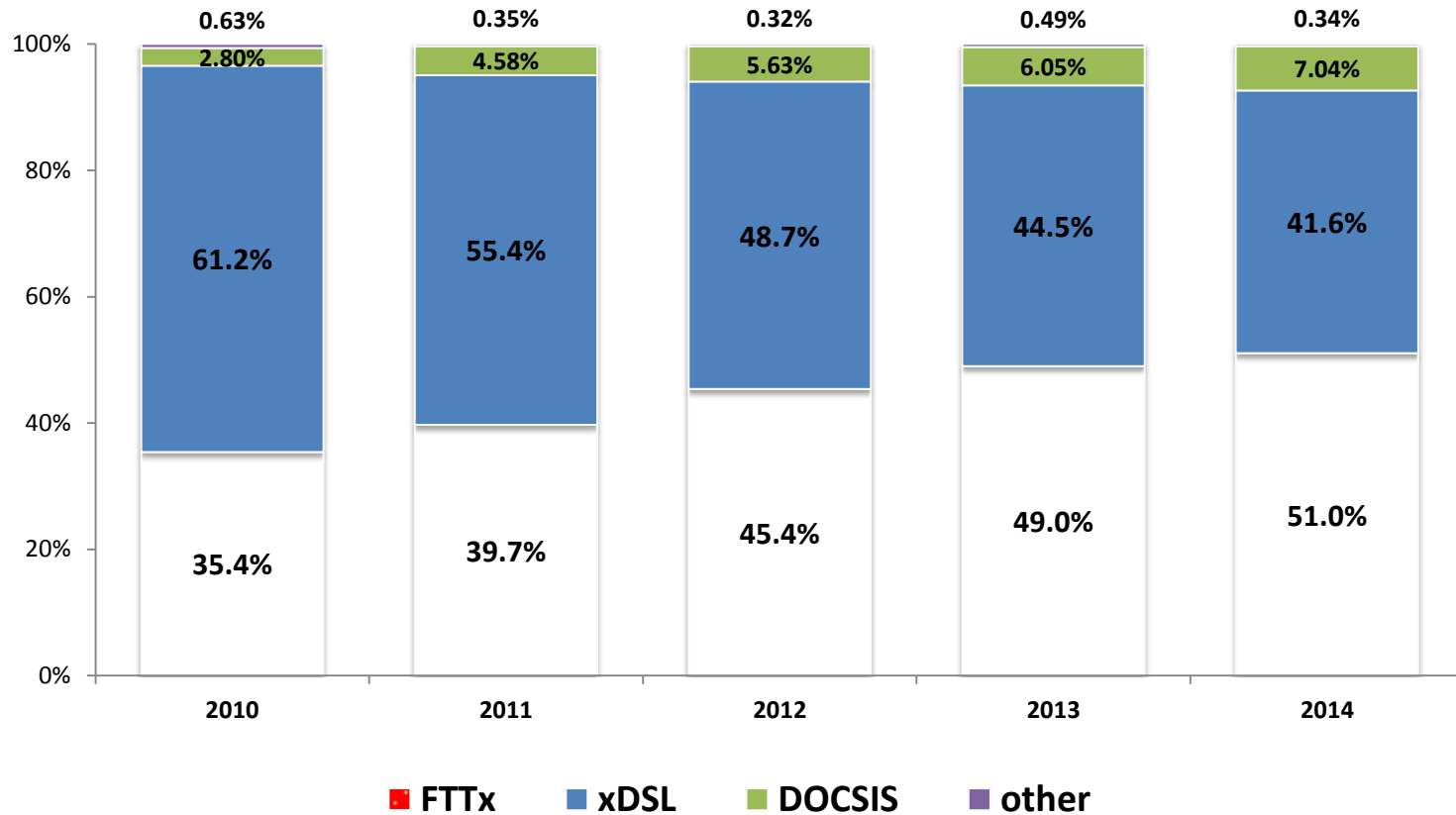
Mobile Broadband coverage, 2012-2014



Mobile and Fixed Broadband (BB) subscription %, 2012-2014



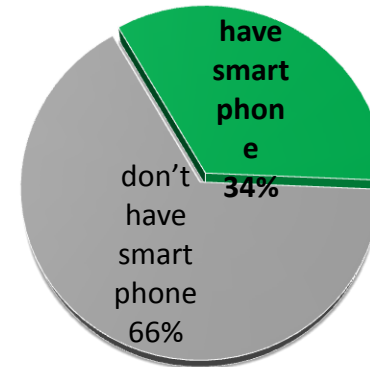
## 2.4 Fixed broadband by technology



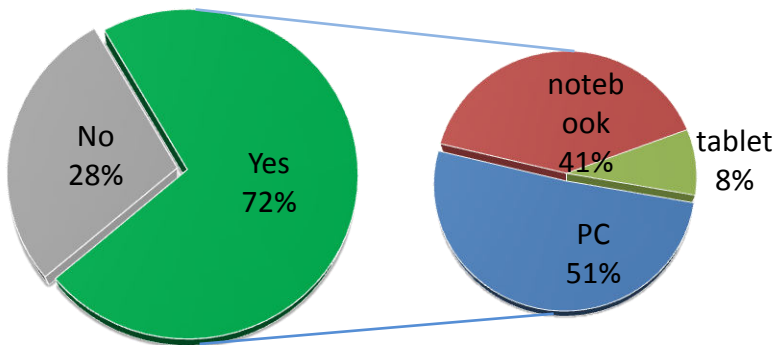
## 2.5 Internet users/household profile

- About 3/4 of households are connected to Internet;
- Over one half of total connections are connected by PC;
- 1/3 of voice mobile users have smartphones (or about 1/4 of citizens of Moldova);
- 80% of Internet users, use Internet daily;

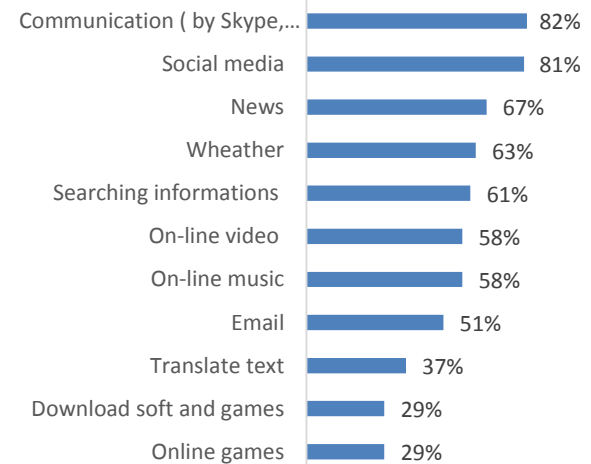
Voice mobile users, possession of smartphones



Household connection to Internet (%), type of device

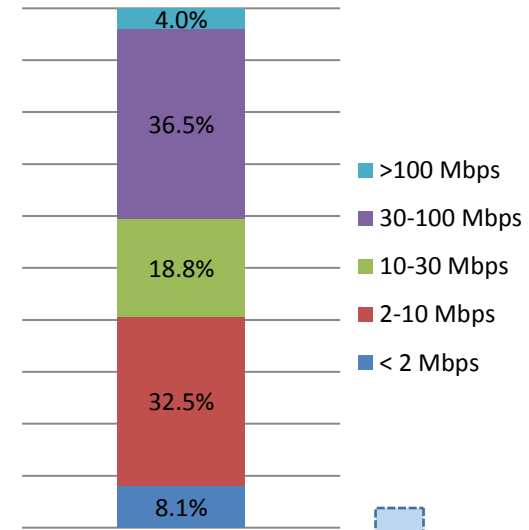


Usage of broadband

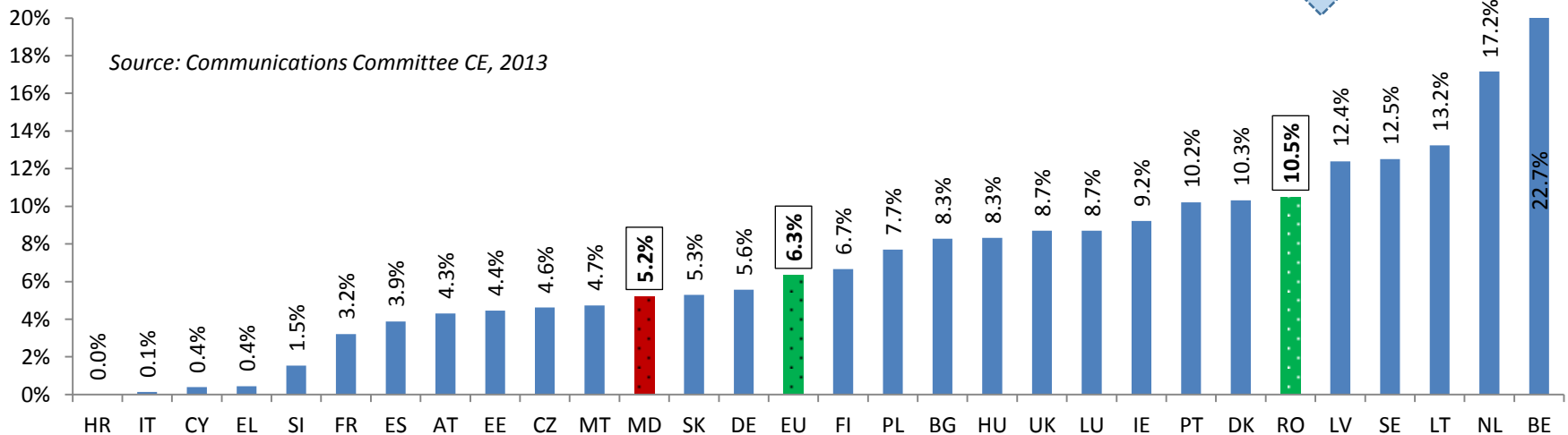


## 2.6 Fast and ultrafast broadband

- Fast broadband (>30 Mbps) is getting popular, while ultrafast broadband (>100 Mbps) is still rare.
- An estimated 18% of homes subscribe to fast and ultrafast broadband

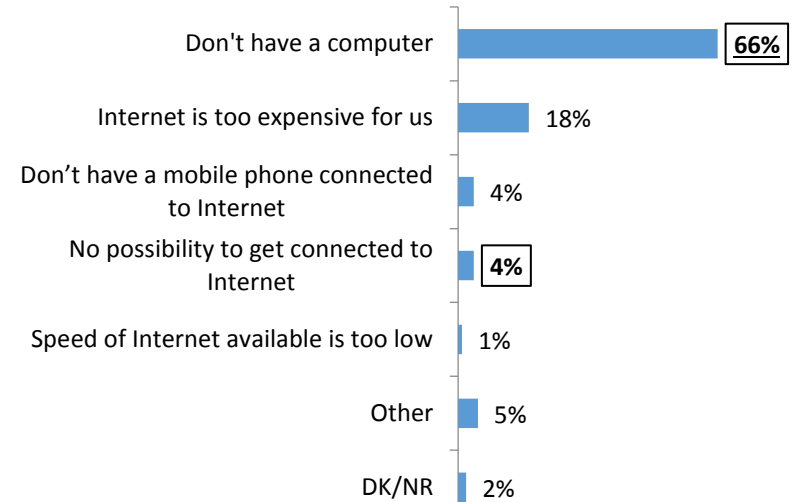


Fast broadband (at least 30 Mbps) penetration (subscriptions as a % of population)



## 2.7 Reasons for lack of Internet connection

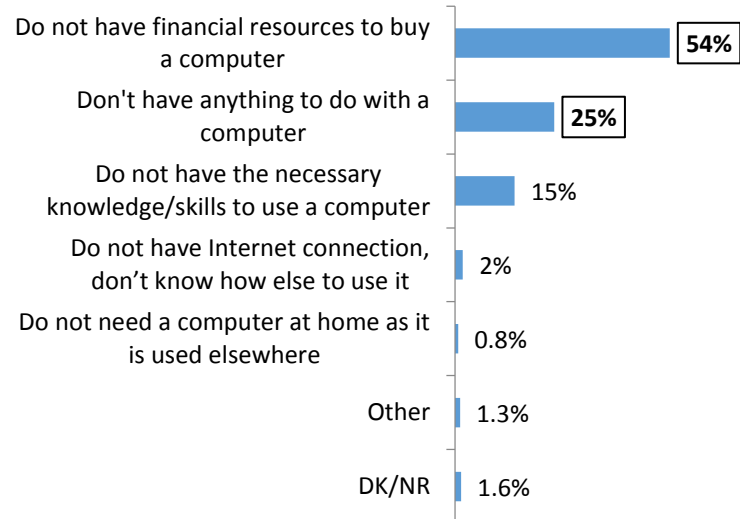
- As mentioned by **66%** of respondents (who aren't connected), the main reason why their households are not connected to Internet is that they do not have computers.
- About 18% of those who do not have Internet connection reiterated that the service is too expensive for them.
- And only, about 4% said that there is no possibility to get connected to the service at their residential area.**



Source: Centre for Electronic Governance, [www.egov.md](http://www.egov.md), 2013

- Over half of respondents (54%) who do not have computers in their households explained it by lack of financial resources to purchase it (*purchasing power - affordability*)
- 1/4 stated that they don't have anything to do with a computer (*digital literacy*)
- 15% of respondents do not have the necessary skills to use it (*digital literacy*)

### Main reasons for the lack of computers in households, 2013



Source: Centre for Electronic Governance, [www.egov.md](http://www.egov.md), 2013

## 2.8 M2M communications

# M2M решения machine to machine

эффективное управление ресурсов



### Транспорт и Логистика

Часто, для эффективного управления основными средствами компании, требуется много усилий, которые повышают расходы на ресурсы.

[подробнее »](#)



### Автоматизация процессов в Промышленности и Сельском хозяйстве

Промышленная автоматизация совершила революцию в производстве ...

[подробнее »](#)



### Мониторинг и безопасность

Охрану недвижимости можно менять неоднократно, но как правило это дорогостоящий процесс, что обескураживает многие компании.

[подробнее »](#)



### Финансовые услуги

Рынок финансовых услуг в настоящее время сталкивается с новыми испытаниями, связанными с законодательством, содействием и...

[подробнее »](#)



### Менеджмент коммунальных услуг

Компании, специализирующиеся на распределении коммунальных услуг (электричество, вода, газ, отопление)...

[подробнее »](#)



### Бытовая техника

Ассортимент бытовой техники широкого потребления предлагает большой спектр возможностей для всех...

[подробнее »](#)



### Дистрибуция и Торговля

Компании, работающие в сфере дистрибуции и торговли, как правило, стараются воспользоваться каждой возможностью продажи и обеспечить...

[подробнее »](#)



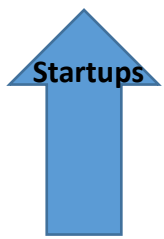
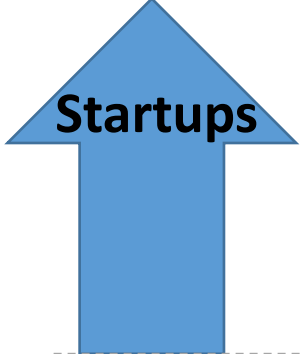
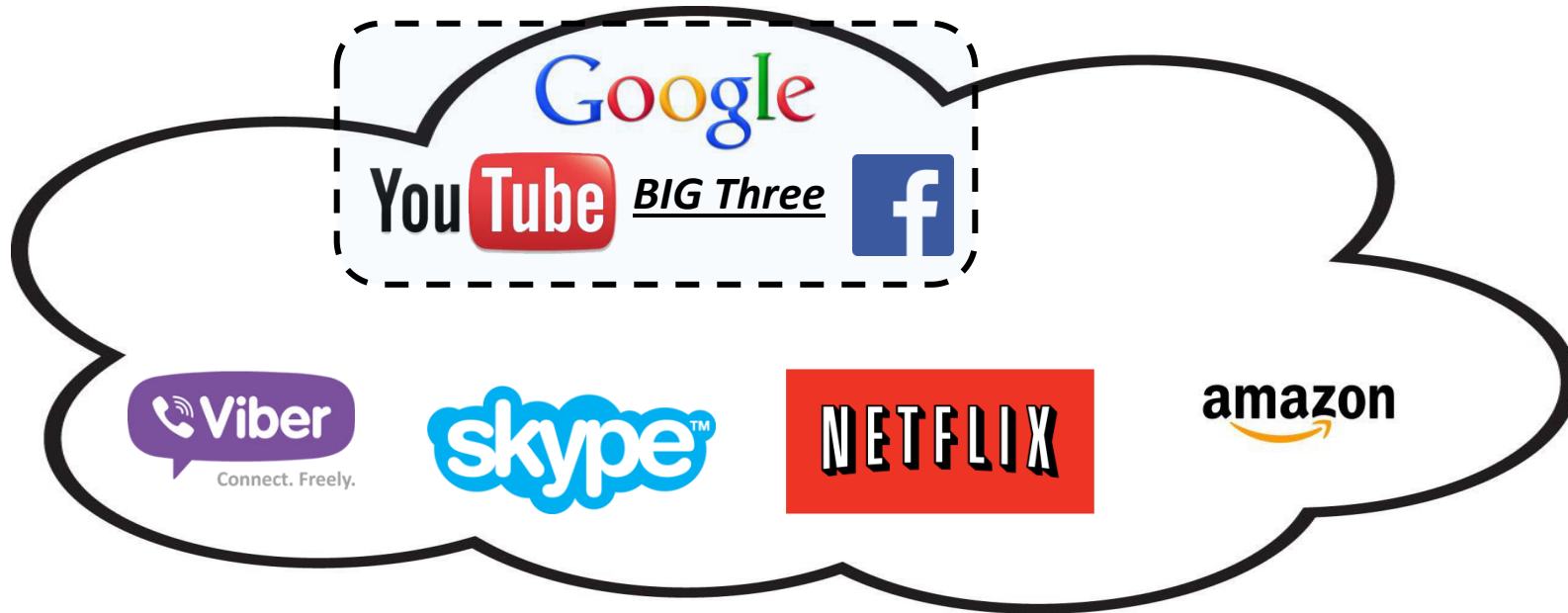
### Медицина и здравоохранение

Высокое качество медицинских услуг, по доступным ценам, является целью, к которой движется наше общество...

[подробнее »](#)



# OTT, content and netneutrality "regulations" ???





# Thank you!



**Roman BAHNARU**

Deputy Chief,

Execution Regulation Department,

National Agency for Electronic

Communications and Information

Technology (ANRCETI), Republic of Moldova

E-mail: [roman.bahnaru@anrceti.md](mailto:roman.bahnaru@anrceti.md)