

# *Strategy of 5G development in the Republic of Serbia*

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- *Mobile electronic communications market in Serbia,*
- *Strategy for Development of New Generation Networks Until 2023,*
- *5G spectrum issues, auction plans*
- *Study on EM radiation regarding 5G*

## *Mobile penetration 121 %*

Mobile communications operators:

- Telekom Serbia, more than 50% state owned,
- Telenor Serbia, owned by PPF Telecom Group B.V., Netherlands,
- VIP Mobile, Mobilkom CEE Beteiligungsverwaltungs GmbH, Austria.

All operators work within their groups in region.

- Additionally - Two VMOs.

# *Strategy for Development of New Generation Networks Until 2023*

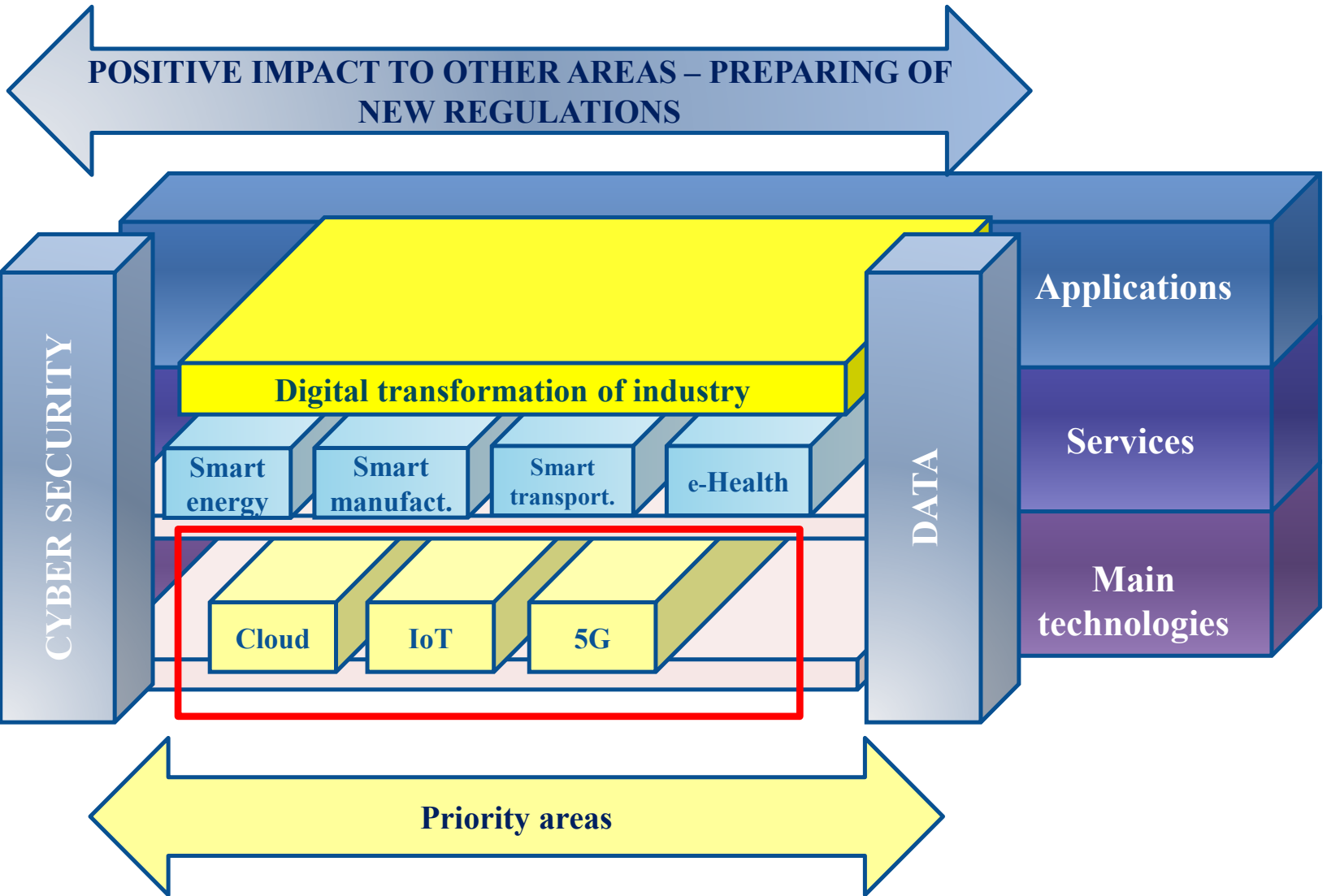
## Strategy

- has been adopted in 2018,
- brings vast analysis of infrastructure and services in different areas of electronic communications,
- defines measures to ensure the infrastructure development for Digital Single Market.

Strategy considers conditions for effective expansion of:

- Cloud computing,
- Internet of Things (IoT), and
- development of mobile systems pertained to the 5G areas.

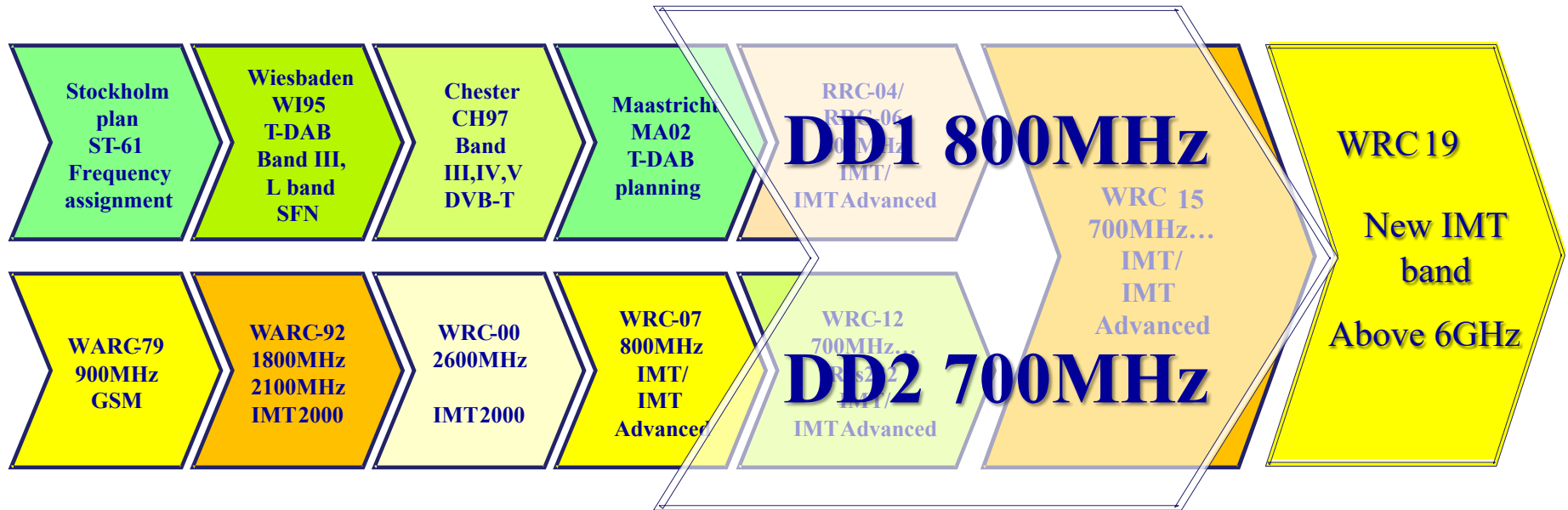
# *DSM structure*



# *Bases for Development of Initial Network for Testing of New Technologies Necessary for Inclusion to Digital Single Market.*

- Bases have been adopted in 2019.
- It has been developed in line with goals defined in the Strategy for Development of New Generation Networks and Services until 2023.
- According to the Bases, the first base station of the Initial network has been launched for the pre-commercial tests.
- License for temporary 5G spectrum usage in 3.4-3.8GHz (100MHz; 3.45-3.55GHz) with LTE anchor in 2.6GHz (2x20MHz; 2.64-2.66GHz DL; 2.52-2.54GHz UL), has been issued by Regulatory Agency.

# *From 5% of radio frequency spectrum – towards 17.4 GHz allocated to 5G*



Serbia has already “reserved”:

- 700 MHz (almost free from 2015),
- 3400-3800MHz (not assigned now).

*Allocation Plan of Radio Frequency Spectrum  
 (“Official Gazette of RS”, No. 89/20)  
 adopted after the WRC 19*

**WRC19**

**New IMT  
 bands**

- 700MHz (694-790MHz), 26GHz (24.25-27.5GHz) for IMT-2020 purposes.
- 3400-3800MHz has already been allocated for the IMT,
  - a. 3400-3500MHz band has been reserved for new projects with that goal for the period of next three years,
  - b. 3500-3800MHz band will be subject of the next auction in Serbia.



## *Bylaws adopted after WRC19*

New spectrum assignment plans for:

- 2500MHz-2690MHz, and
- 3400MHz-3800MHz bands,

enabling the 5G technology, prepared by the Regulatory Agency and the Ministry, have been adopted (21<sup>st</sup> of October 2020).

## *Mobile networks EM issues*

- Ministry, in cooperation with the Organization for Security and Co-operation in Europe (OSCE), have organized workshops intended for local government representatives on the territory of Serbia.
- Workshops highlighted the importance of new technologies in broadband access and their impact on the development of industry.

Representatives of Ministry, RATEL and Academics introduced

- relevant data and challenges related to the setting up of base stations,
- data on the limits of exposure levels of electromagnetic radiation produced by mobile systems.

## *Organization for Security and Co-operation in Europe (OSCE)*

- OSCE initiated development of a study that will cover major aspects of introduction of the 5G, its regulation and exploitation.
- The study is aimed at, not only experts, but also to give insight to public about main 5G performances as well as obstacles that could slow down the realization of a new network.

*Auction plans for introducing the 5G technologies are changed due to COVID19 pandemic*

Auction for radio frequency spectrum 3400-3800MHz planned for 2021.

Minimal requirements:

- for coverage are not going to be severe, as 5G is seen as mostly industrial standard,
- introduction and spreading of the IPv6 is seen as necessary for 5G, IoT and artificial intelligence work in synergy.

*Common for development of Cloud computing,  
IoT and 5G is the necessity for the  
**Broadband Infrastructure Availability***

Thank you for the attention!

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