

Arhitektura i funkcionalni zahtjevi na suvremene informacijsko komunikacijske sustave u podršci integriranog prijevoza putnika

Ericsson Nikola Tesla



Ericsson Nikola Tesla d. d.

– To smo mi!



>2.500

zaposlenika u
Zagrebu, Splitu i
Osijeku

7 %

doktora i magistara
znanosti

96 %

visokoobrazovanih
stručnjaka

10 godina

prosječna
dužina staža

36 %

Zaposlenika mlađih
od 32 godine

38 godina

prosječna dob
zaposlenika

73 % : 27 %

omjer muškaraca i žena

20 %

žena u rukovodećoj
strukturi

36 %

Zaposlenih s do 2
godine radnog staža

70 godina povezuje ljude i tehnologiju



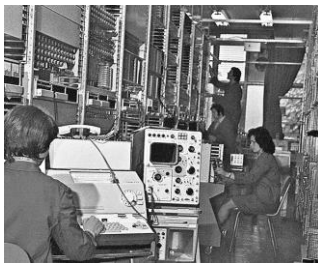
Manualne centrale

1949.



Crossbar sustavi

1955.



Razvojno-istraživački centar

1963.



Cestovna signalizacija

1965.



Poluelektroničke SPC centrale

1974.



UMTS

2005.



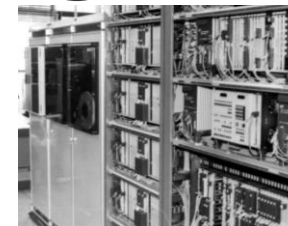
GSM

1999.



NMT

1990.



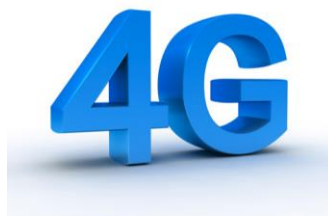
AXE sustavi

1981.



e-zdravstvo

2007.



2012.



Zajednički informacijski sustav zemljišnih knjiga i katastra

2014.



prvi 5G demo u Hrvatskoj

2018.

2019.

Svaki novi G omogućuje nove načine upotrebe



glas

... mobilni širokopolasni internet

... i IoT

... i?

Promet je industrija koja se stalno mijenja



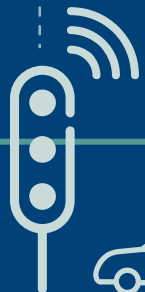
Navigacijski sustavi



Novi pružatelji usluga mobilnosti



Povezani putnici



Zadnje desetljeće



Razvoj telekomunikacijske industrije
(LTE, V2X, 5G, IoT...)



Nove usluge, mobilnost kao usluga itd...



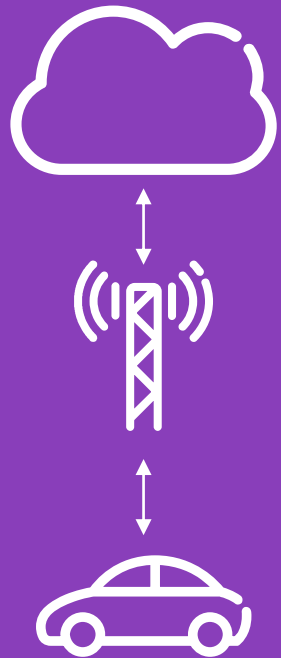
Sljedećih 5 godina

Automotive developments
(electrification, automation, ...)

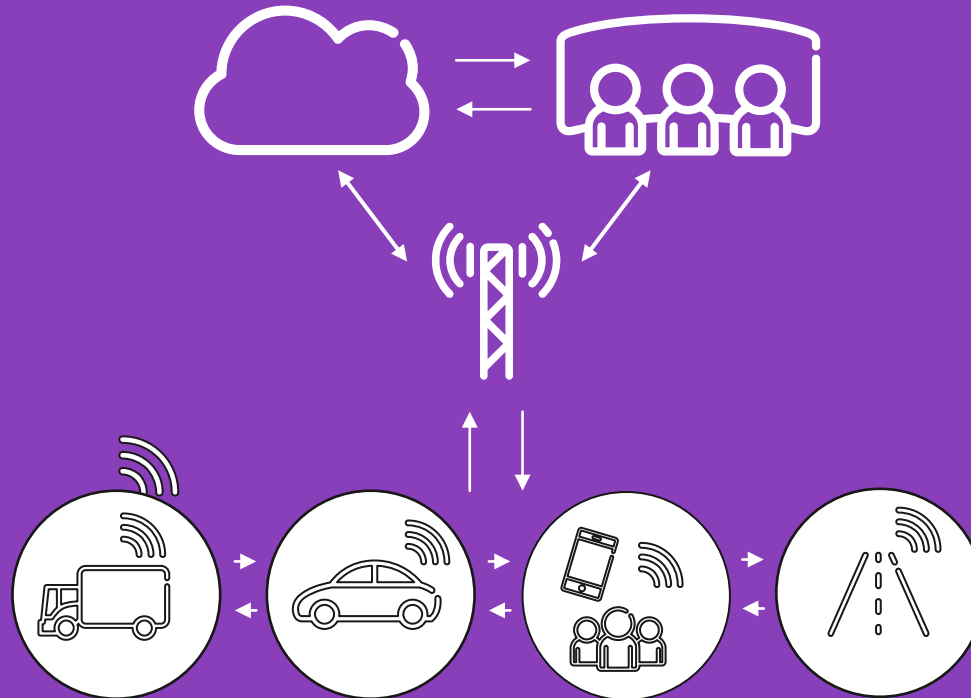


Evolucija digitalizacije transporta

Povezan



Kooperativan



Automatiziran



Arhitektura sustava u podršci integriranog prijevoza putnika



Aplikacije

Agregacijska platforma

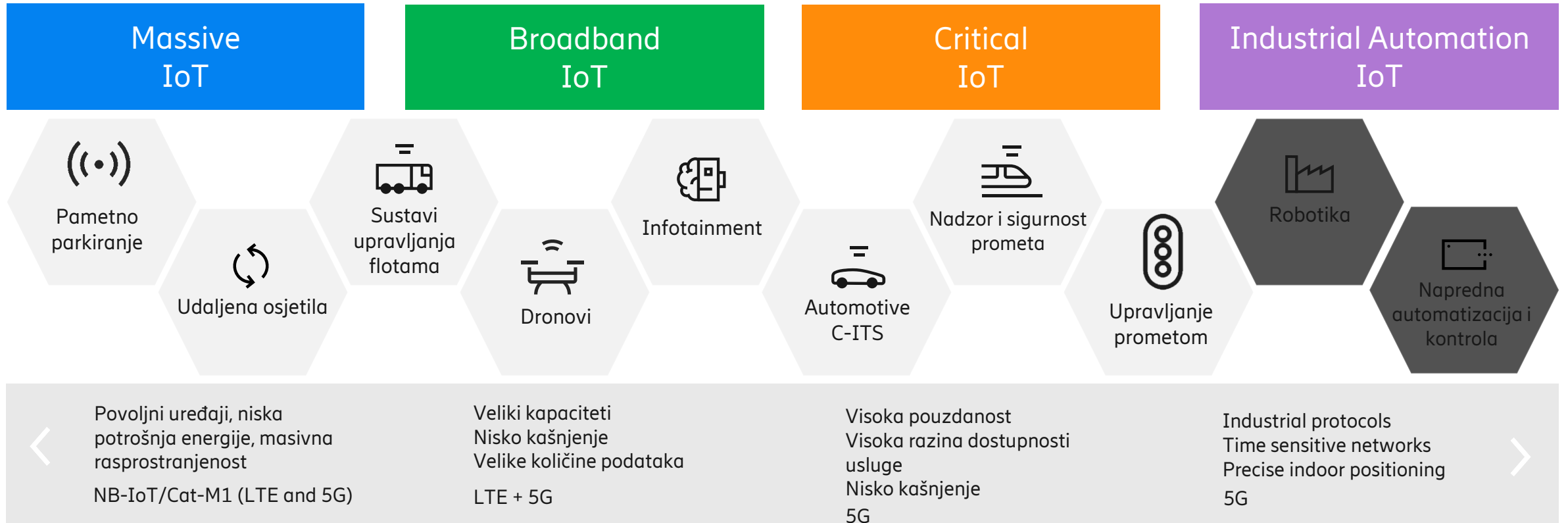
Izvori podataka

Uloga tehnologije interneta stvari
















Komercijalni ugovori

Piloti i faze standardizacije



5G mreža



	Peak Data Rate	1 - 20 Gbps		Connection Density	10k - 1m devices / km ²		Reliability	99.999% (of packets)
	User Experienced Data Rate	10 - 100 Mbps		Network Energy Efficiency	×1 - ×100		Position accuracy	10m - <1m
	Spectral Efficiency	×1 - ×3		Area Traffic Capacity	0.1 - 10 Mbps / m ²		Security	Strong subscriber authentication, user privacy and network security
	Mobility	350 - 500 km/h		Availability	99.999% (of time)			
	Latency	1 - 10 ms		Battery life	10 years*			

*For low power IoT devices

Source: ITU-R, NGMN, 3GPP

5G mreža



Addressable market for telcos (2030, USDbn)



	Agro	Auto	Energy & Utilities	Financial Services	Health	Mfg.	Media & Entmt.	Public Safety	Public Transport	Retail	TOTAL
Enhanced video	Green	Black	Black	Light Green	Orange	Light Yellow	Red	Light Yellow	Black	Light Green	118
Real-time Automation	Green	Black	Red	Light Green	Yellow	Orange	Black	Green	Black	Black	107
Connected vehicle	Green	Red	Black	Black	Light Yellow	Black	Black	Light Yellow	Light Green	Black	89
Other	Black	Black	Light Green	Yellow	Green	Light Green	Light Green	Orange	Light Green	Light Green	78
Monitoring & tracking	Green	Light Green	Green	Black	Yellow	Orange	Black	Green	Light Yellow	Light Yellow	72
Hazard & mnt. sensing	Green	Light Green	Yellow	Black	Orange	Light Yellow	Black	Light Green	Light Green	Black	69
Autonomous Robotics	Black	Light Green	Black	Black	Orange	Orange	Black	Black	Black	Light Green	58
Remote Ops	Green	Light Green	Yellow	Black	Light Yellow	Light Green	Black	Green	Black	Black	41
Smart Surveillance	Black	Light Green	Black	Black	Black	Light Green	Light Green	Light Yellow	Light Yellow	Black	36
AR	Green	Light Green	Black	Black	Light Green	Light Yellow	Light Green	Black	Black	Light Green	32
	11	81	86	37	147	132	73	73	32	27	700

Source: Ericsson and Arthur D Little

Znanost o podacima

