Monitoring of RSPIs

- Case study in the Republic of Serbia -

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BASICS OF ROAD SAFETY MANAGEMENT SYSTEM

TARGETS

MANAGEMENT

CURRENT STATE

CURRENT STATE

TARGETS

EFFECTS

COMPARING

MEASUREMENT AND ASSESSMENT OF ROAD SAFETY

Traditional approach

Road accidents and consequences

Modern approach

Include indirect indicators

– road safety indicators –

''Can we predict road accidents and consequences by other indicators which is not in direct relation with accidents and consequences?''.

''Can we assess road safety before first accident occurrence and also without knowing data about road accidents and consequences?''

Nowadays, measurement tools in road safety are developing

So,

Road safety will develop

And,

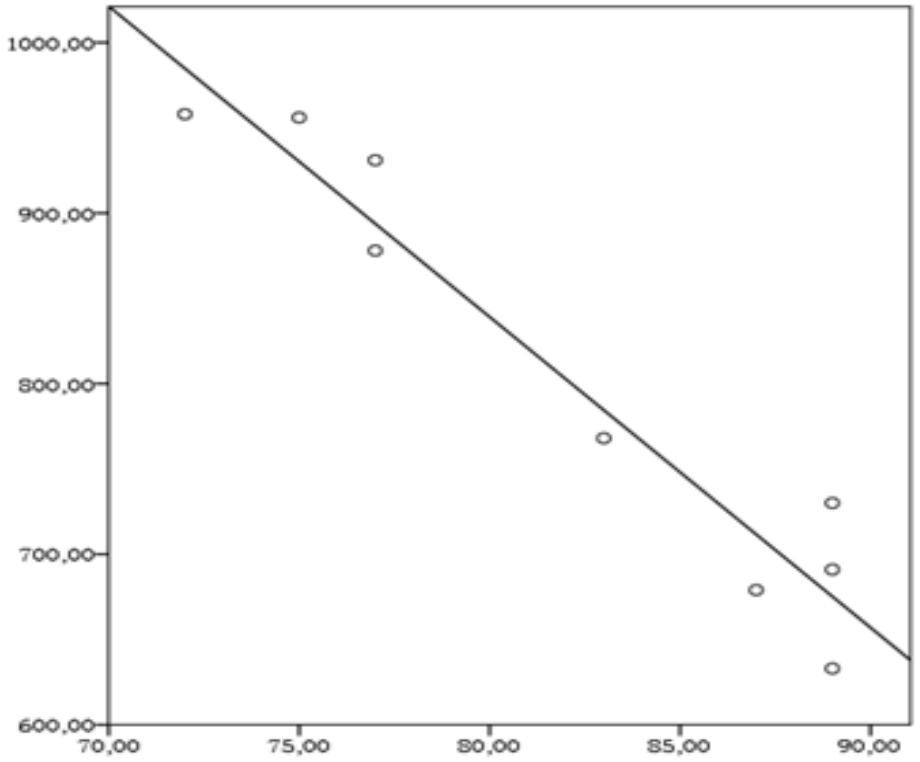
Less people will be killed in road accidents

ROAD SAFETY INDICATORS

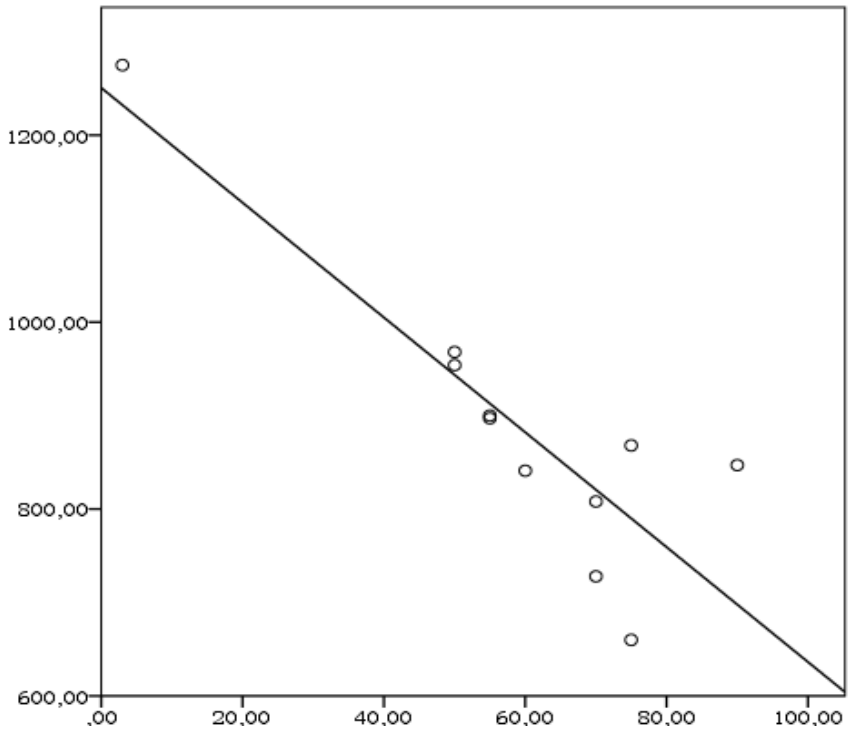
"... Road safety indicators present any measurement in correlation with road accidents and consequences ..."

(ETSC, 2001)

EXAMPLE - SEATBELTS



	r^2	p	r	p
Austria	0,929	0,01	-0,964	0,01



	r^2	p	r	p
Serbia	0,765	0,01	-0,874	0,01

RSI	r^2	p	r	p
SEATBELTS	0,382 - 0,942	0,01	-0,618 - -0,971	0,01 - 0,05
ALCOHOL	0,569	0,01	0,754	0,01
SPEEDING	0,498 – 0,884	0,01 – 0,05	0,706 – 0,940	0,01 – 0,05
DRL	0,159 – 0,991	0,01 – 0,25	-0,399 - -0,995	0,01 – 0,13
MOBILE PHONE	0,662	0,01	0,814	0,01
HELMETS	0,393	0,07	-0,627	0,05
VEHICLE FLEET	0,574 – 0,857	0,01 – 0,05	-0,758 - -0,926	0,01
EMERGENCY RESPONSE	0,605	0,01	0,774	0,01

WHAT RSI ALLOWS?

- MONITORING CURRENT STATE IN ROAD SAFETY
- MONITORING TRENDS IN ROAD SAFETY
- MEASURING EFFECTS OF APPLIED ACTIONS
- DETERMINING KEY ROAD SAFETY PROBLEMS
- ALLOCATING ACTIONS AND FUNDS
- PREPARING ROAD SAFETY PROGRAMS
- ESSENTIALLY – ‘’DO NOT WAIT BLOOD’’ – PROACTIVE

ROAD SAFETY INDICATORS IN SERBIA

2013 – National methodology

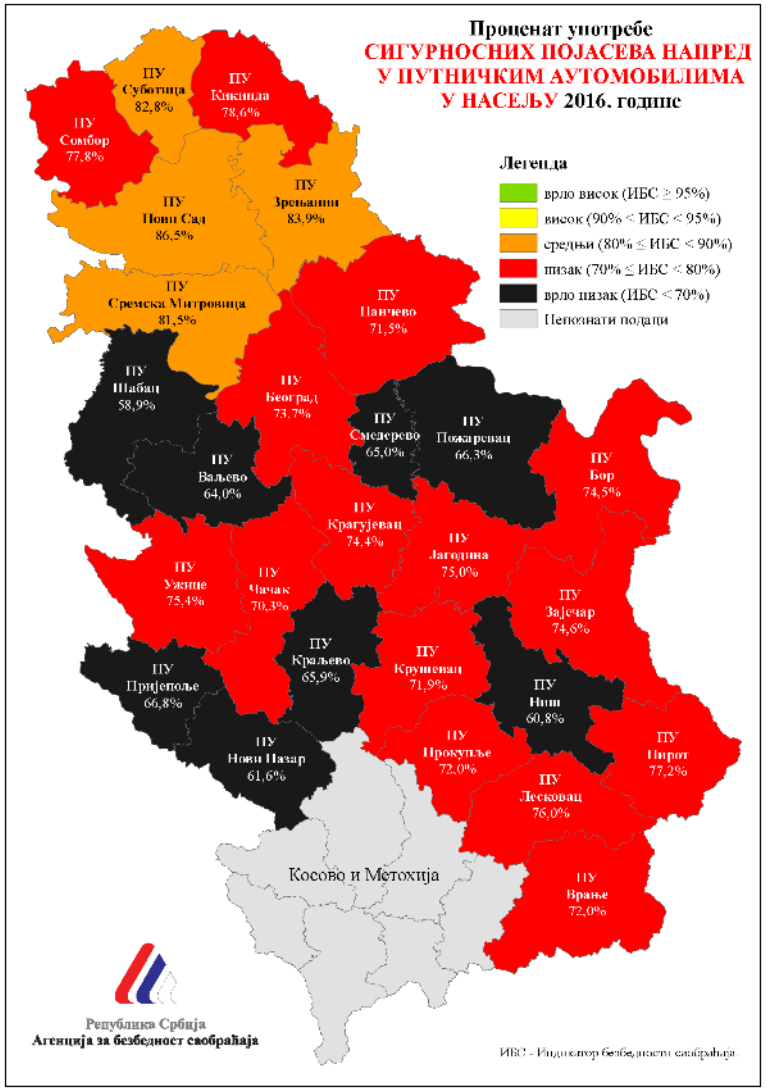
- AUTUMN 2013 – FIRST COMPREHENSIVE MEASUREMENT
- AFTER THAT EVERY YEAR TWICE PER YEAR
- IN 2017 – REVISION OF THE METHODOLOGY

WE HAVE DEVELOPED OUR ADDITIONAL RSI

WE HAVE STARTED TO MONITOR RSI

WE HAVE STARTED TO USE RESULTS OF SUCH RESULTS

Basic characteristics of the methodology…



Measurement per Police Districts (27)

3 road categories

5 vehicle categories

Basic characteristics of the methodology…

Sample size

Location of field research

Form for registering data

Weather conditions

Value aggregation

SPRING

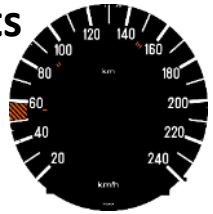
Twice a year…

AUTUMN

There is exactly time of the day for measurement!

Different RSIs (mostly **ROAD USER BEHAVIOR**)

drivers
passengers
rear seats



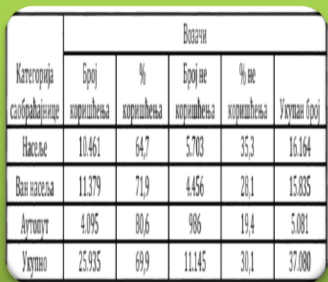
mopeds
motorcycles
bicycles (2013)

Other …

Dynamics of measurements For the period 2013-2016.

2013	2014	2015	2016
• Protective systems • Alcohol • Day-time running lights	• Protective systems • Alcohol • Day-time running lights • **Speeding**	• Protective systems • Alcohol • Day-time running lights • Speeding • **Health care**	• Protective systems • Alcohol • Speeding • **Pedestrian bahavior**

PRESENTING RESULTS



Категорија саобраћајнице	Возачи				
	Број коришћења	% коришћења	Број не коришћења	% не коришћења	Укупан број
Насеље	10.461	64,7	5.703	35,3	16.164
Ван насеља	11.379	71,9	4.456	28,1	15.835
Аутопут	4.095	80,6	986	19,4	5.081
Укупно	25.935	69,9	11.145	30,1	37.080

TABLES

GRAPHS

MAPS !!!

SPI VALUES (2016, Total)

Passenger cars & Light trucks (seatbelt)

Drivers -> 77,0%

Front > 75,1% (Germany, France -> 98%)*

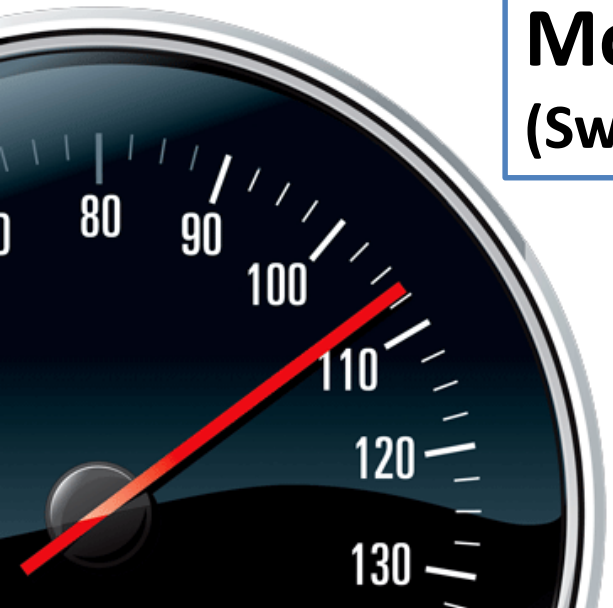
Rear -> 10,1% (Germany -> 98%)*

Helmets (Riders)

Mopeds -> 80,2%

Motorcycles -> 90,6%

(Swiss -> 100%)**



Passenger cars & Light trucks

Over 10 km/h -> 18,3%

Over 10 km/h -> 11,5%

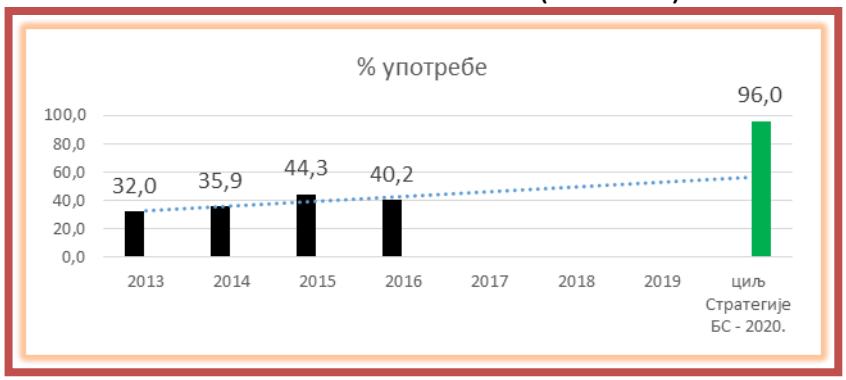
*IRTAD, 2013; ** WHO, 2013

Trend of SPIs, for the period 2013-2016

SEATBELT - FRONT (DRIVER AND PASSENGER) **IN CARS**

SEATBELT - REAR SEATS IN CARS

CHILD PROTECTIVE SYSTEM (0-3 AGE)



CHILD PROTECTIVE SYSTEM (4-12 AGE)

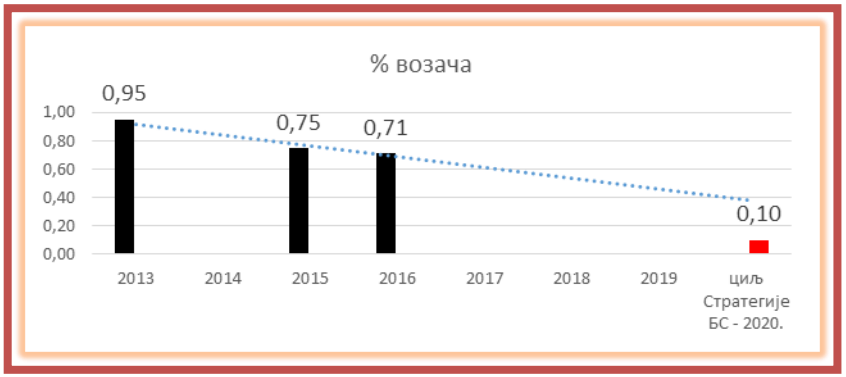
Trend of SPIs, for the period 2013-2016

HELMETS - MOTORCYCLES

HELMETS - MOPEDS

SPEEDING - CARS

% OF DRIVERS IN TRAFFIC FLOW WHO DUI OF ALCOHOL



RSI VALUES - OVERALL

INDICATOR VALUES REGARDING THE USE OF SAFETY SEATBELTS, CHILDREN SAFETY SYSTEMS, SAFETY HELMETS AND EXCESS SPEED

- INDICATOR VALUES IN YEARS 2013, 2014, 2015 AND 2016 -




Indicator		Residential area				Non-residential area				Highway				Total			
		2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016
	Seatbelt **driver** PV (%)	64.7	66.2	69.7	74.3	71.9	73.4	77.9	76.9	80.6	83.8	83.3	85.4	69.9	71.6	74.4	77.0
	Seatbelt **passenger** PV (%)	61.0	60.6	64.6	69.5	67.8	71.1	72.9	73.4	74.6	79.8	78.1	79.8	65.8	68.1	69.9	72.7
	Seatbelt (front – driver and passenger) PV (%)	63.1	64.3	68.2	72.3	70.1	72.6	76.3	75.3	77.9	82.2	81.5	83.1	68.1	70.3	73.0	75.1
	Seatbelt **back seat** PV (%)	2.2	2.8	5.7	8.8	2.0	3.1	7.6	8.8	7.7	8.3	13.6	16.7	3.1	4.0	7.4	10.1
	Child protection systems 0-3 (%)	31.2	34.1	43.7	38.1	28.8	33.5	39.2	36.9	45.9	47.1	58.8	56.3	32.0	35.9	44.3	40.2
	Child protection systems 4-12 (%)	7.2	8.4	12.4	15.8	4.9	7.6	13.6	15.3	13.6	16.9	28.8	27.6	7.0	9.2	14.7	17.2
	Child protection systems 0-12 **TOTAL** (%)	17.8	17.2	25.8	25.6	15.6	16.1	23.0	24.9	28.4	28.2	43.6	41.0	18.1	18.4	26.8	27.5
	Average speed PV (%)		53.4	51.4	52.0		78.3	76.3	75.9		119.1	119.4	116.1				
	85th percentile PV (%)		64.0	62.0	62.0		92.0	89.0	88.0		137.0	139.0	133.0				
	Percentage of excess speed PV (%)		57.6	51.0	53.8		39.5	34.5	34.2		44.8	46.6	36.9				
	Seatbelt **driver** FV (%)	16.1	32.5	35.0	20.0	25.7	34.5	43.0	25.2	33.4	43.6	44.9	28.4	23.6	35.9	40.6	23.4
	Seatbelt **passenger** FV (%)	9.4	15.9	22.0	7.5	11.7	20.0	30.7	9.5	12.9	25.3	31.3	12.7	10.9	19.6	27.6	9.1
	Seatbelt **TOTAL** FV (%)	14.3	28.8	32.0	14.0	22.5	31.4	40.6	17.7	29.4	40.3	42.1	20.8	20.6	32.4	37.8	16.5
	Average speed FV (%)		47.7	46.6	46.8		67.4	66.8	67.6		83.7	83.7	83.7				
	85th percentile FV (%)		57.0	56.0	55.0		78.0	78.0	78.0		90.0	90.0	90.0				
	Percentage of excess speed FV (%)		35.7	32.0	30.9		37.7	35.9	39.6		11.1	12.3	12.9				
	Seatbelt **driver** BUS (%)		4.2	50.1	4.7		6.7	12.9	5.6		11.5	18.3	7.0		6.1	9.0	5.4
	Seatbelt **passenger** BUS (%)		6.2	9.4	1.1		5.4	13.4	1.2		3.7	11.1	1.9		5.2	11.8	1.3
	Seatbelt **TOTAL** (front) BUS (%)		4.4	5.3	3.0		6.5	13.0	3.4		9.5	16.6	4.5		5.9	9.3	3.4
	Average speed BUS (%)		48.9	47.1	47.6		72	70.9	71.6		96.1	95.7	88.6				
	85th percentile BUS (%)		58.0	57.0	55.0		84.0	83.0	80.0		104.0	103.0	98.0				
	Percentage of excess speed BUS (%)		40.3	34.7	31.5		26.5	21.5	13.7		26.2	27.0	8.2				
	Helmet **driver** MOPED (%)	85.0	71.3	75.8	79.2	83.3	74.8	70.8	81.2					84.2	72.4	73.9	80.2
	Helmet **passenger** MOPED (%)		64.8	58.2	73.8		63.6	48.3	74.8						62.9	54.4	74.3
	Average speed MOPED (%)		41.5	41.8	43.3		43.9	45.9	44.4								
	85th percentile MOPED (%)		52.0	51.0	50.0		52.0	55.0	51.0								
	Percentage of excess speed MOPED (%)		18.3	17.4	14.4		18.9	29.4	16.7								
	Helmet **driver** MOTORCYCLE (%)	91.7	87.8	87.5	88.3	94.1	94.4	88.9	90.0	99.6	99.4	100	99.8	93.7	91.5	89.3	90.6
	Helmet **passenger** MOTORCYCLE (%)		82.7	63.6	83.7		83.8	75.5	84.8		96.3	100	99.8		85.0	74.2	86.5
	Average speed MOTORCYCLE (%)		59.5	57.4	60.0		87.5	86.5	87.7		114.1	114.4	127.9				
	85th percentile MOTORCYCLE (%)		75.0	73.0	72.0		106.0	104.0	100.0		135.0	136.0	147.0				
	Percentage of excess speed MOTORCYCLE (%)		69.6	65.3	76.7		66.3	61.1	65.3		38.6	40.4	65.6				
	Helmet drivers of two-wheelers (%)	88.1	77.4	80.2	83.6	83.4	84.3	77.9	85.6	99.6	99.4	100	99.8	87.2	80.7	80.2	85.7

- Data for years 2013, 2014, 2015 and 2016 represent the final annual indicator values for the Republic of Serbia, obtained on the basis of aggregation of data from spring and autumn research.
- Green fields mark that the observed indicator in year 2016 has the best value in comparison with the previous years of measuring.
- Hatched fields in the column for year 2013 indicate that a specific indicator was not investigated in 2013.
- As mopeds are not allowed on the highway, the determination of indicator values for that category of vehicles on the highway was not conducted (hatched fields moped-highway).
- For indicators relating to speeding aggregation was not performed (hatched fields in the Total column).

DUI of ALCOHOL

Indicator value of % of drivers in the traffic flow under the influence of alcohol in the Republic of Serbia

Year	% of drivers under the influence of alcohol over 0.3 mg/ml **TOTAL**	In residential area	In non-residential area	Day	Night	Workdays	Weekend
2013	0.95%	1.08%	0.84%			0.88%	1.08%
2015	0.75%	0.75%	0.75%	0.43%	1.24%	0.78%	0.69%
2016	**0.71%**	**0.67%**	**0.75%**	**0.46%**	**1.05%**	**0.72%**	**0.69%**

*Note: Green fields show that the indicator observed in year 2016 has the best value when compared to the previous years when measuring was conducted.

PEDESTRIANS

Indicator related to pedestrian behaviour in traffic

INDICATORS RELATED TO PEDESTRIAN BEHAVIOUR IN TRAFFIC		RESULT (%)
	Percentage of pedestrians who cross pedestrian crossing with traffic light on "red light"	22.2%
	Percentage of pedestrians who irregularly cross the road outside the marked pedestrian crossing	30.3%
	Percentage of pedestrians whose attention is distracted by using devices when crossing the pedestrian crossing	5.5%
	Percentage of children – pedestrians of primary school age who irregularly cross the road outside the marked pedestrian crossing in the school zone	31.4%

in residential area, autumn, year 2016

Publishing results of RSPI monitoring

Results are usually published

- at different national and international conferences,
- through different reports,
- Via fact sheets,
- as well at official web site of Road Traffic Safety Agency (http://bazabs.abs.gov.rs/)

Using RSPI data in Serbia

Monitoring and assessing of success (reaching targets) of national road safety strategy, action plan and effects of applied road safety measures.

According to the results of monitoring RSPIs data in the Republic of Serbia, several policy documents were adopted. I.e. National Road Safety Strategy for the Republic of Serbia for the period 2016-2020 includes data about current state, trends and intermediate and final targets for RSPIs

Using RSPI data in Serbia

In the meantime, many Serbian municipalities have started to use RSPIs data to plan their road safety activities and to allocate funds

Other stakeholders – i.e. police start to prepare their police action regard RSPI

…

THANKS FOR YOUR ATTENTION!!!

ANY QUESTIONS?