Use of Information Tools for Evaluation of Research Activities

The Case of Slovenian Research Agency

Bibliometric Event,
Budapest, 2nd November 2009

Stojan Pečlin, M.Sc.

Some basic facts about the SRA
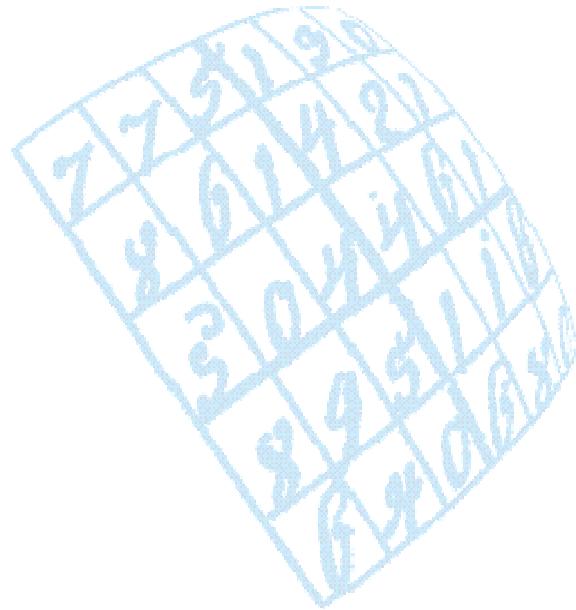
SLOVENIAN RESEARCH AGENCY
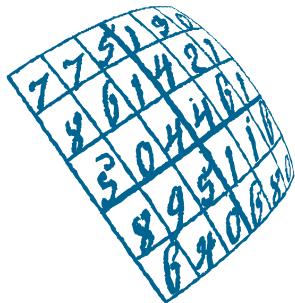
SLOVENIAN RESEARCH AGENCY

- **Establishing**: November <u>2004</u>, Government of the Republic of Slovenia

- **Status**: a legal person of public law; indirect user of the budget of the Republic of Slovenia

- **Mission**: performing professional tasks relating to <u>implementation</u> of the adopted *National Research and Development Programme*

- **Budget**: <u>164 million €</u>per year (2008)

SRA main areas of operation

Promotion of **excellent** and **aplicative** research

Monitoring and **analysing**

Objective **evaluation**

Funding of research
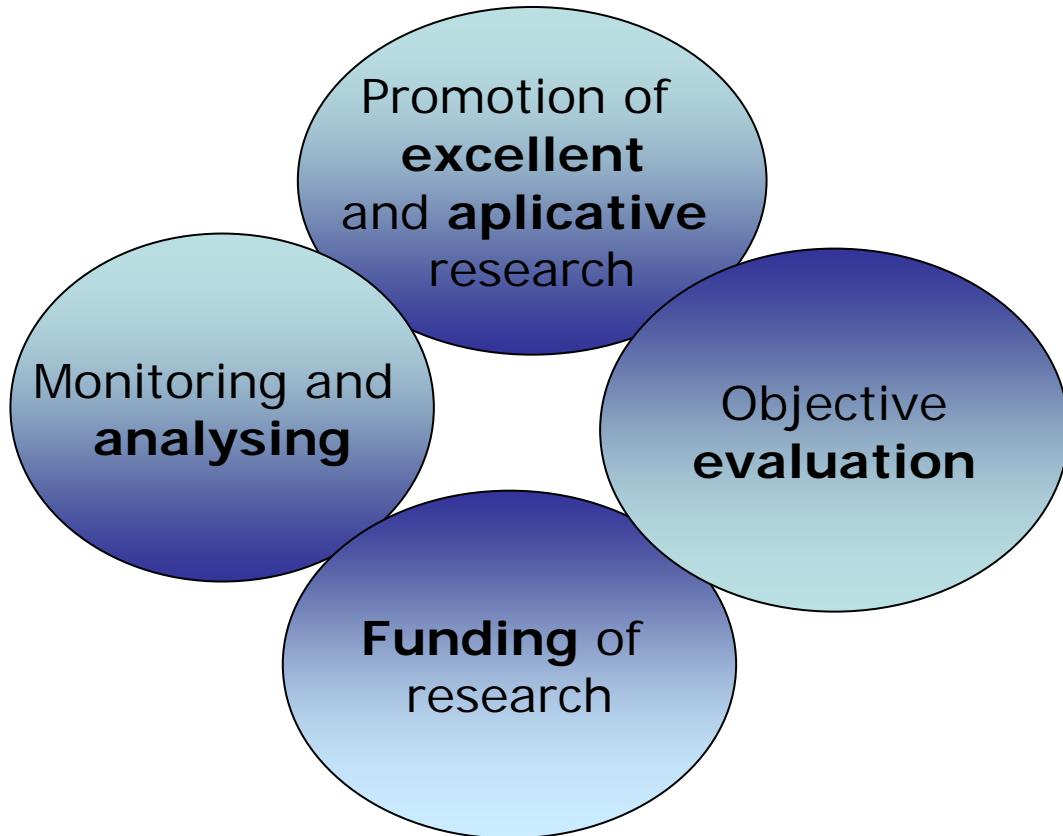
Organisation chart of the SRA

Management Board

Scientific Council	Director

| Expert bodies	Scientific Fields	Finance	Working bodies
Temporary expert bodies	Research Infrastructure	General Affairs	
Peers	Young Researchers	Information Technology	
	Monitoring		
	International Cooperaration		

SLOVENIAN RESEARCH AGENCY
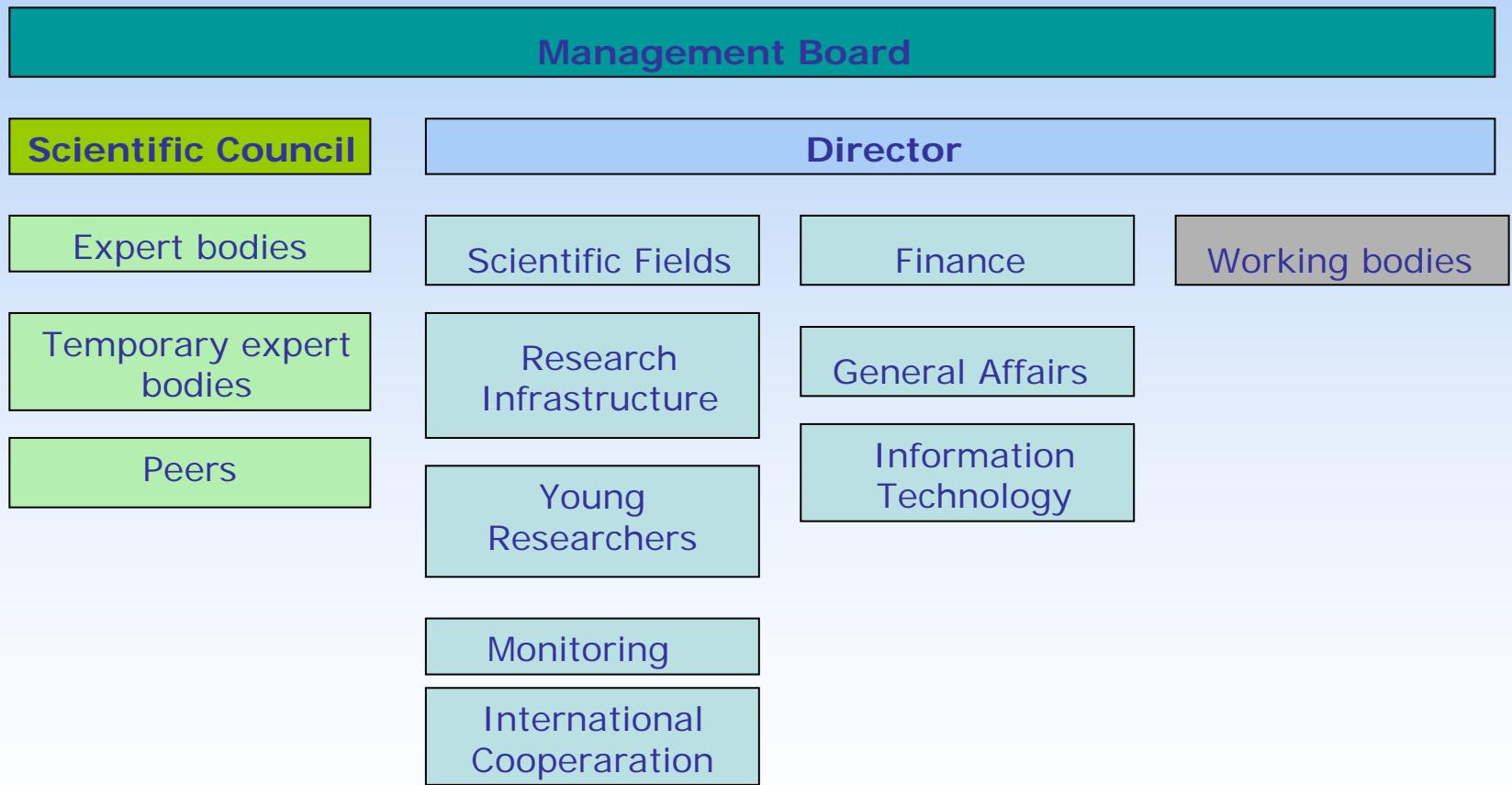
Policy instruments of SRA

- Research programmes
- Basic and applied research projects
- Targeted research programmes
- Young researchers
- International scientific cooperation
- Research infrastructure

Total research funding by budget categories, 2008
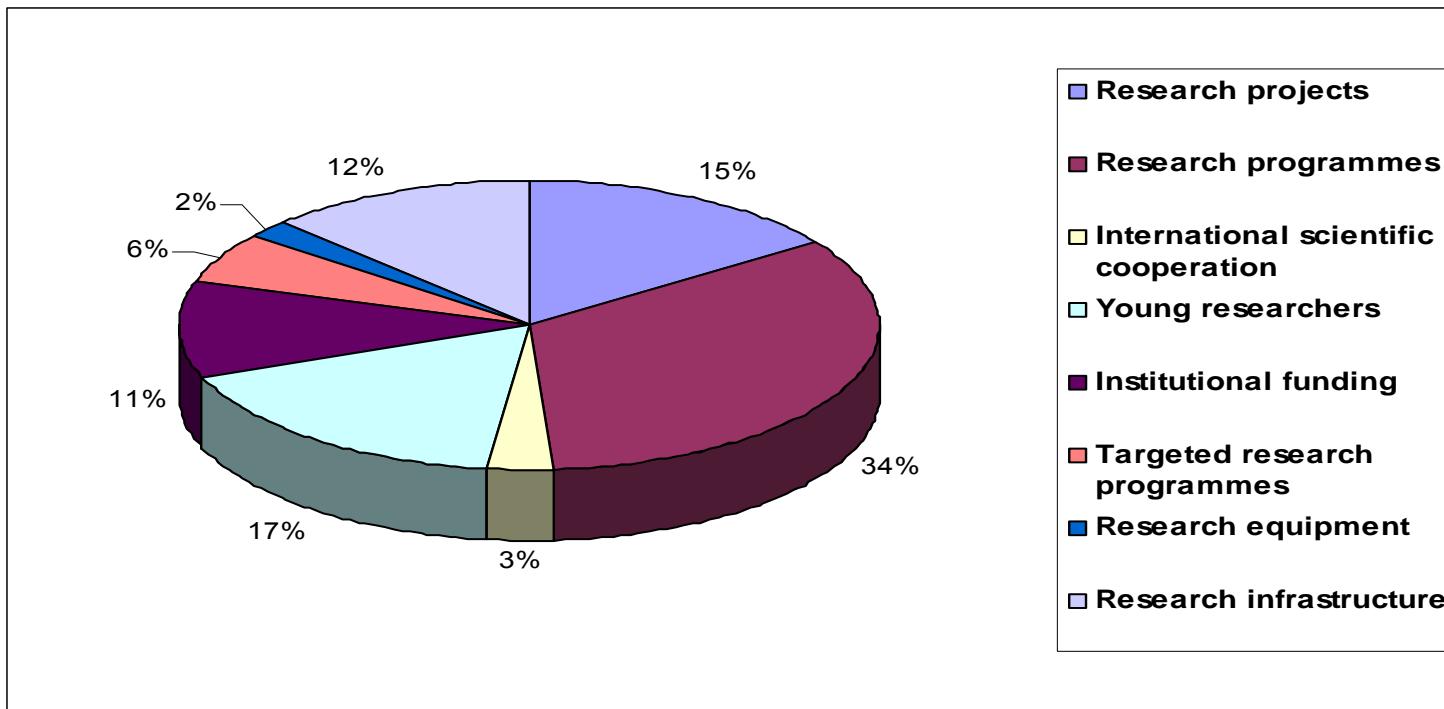
163,7 mio €

Funding of research by fields of science

Total research funding by fields of science, 2008

- Interdisciplinary sciences 1%
- Humanities 12%
- Social sciences 9%
- Biotechnical sciences 10%
- Medical sciences 9%
- Natural sciences 28%
- Engineering 31%
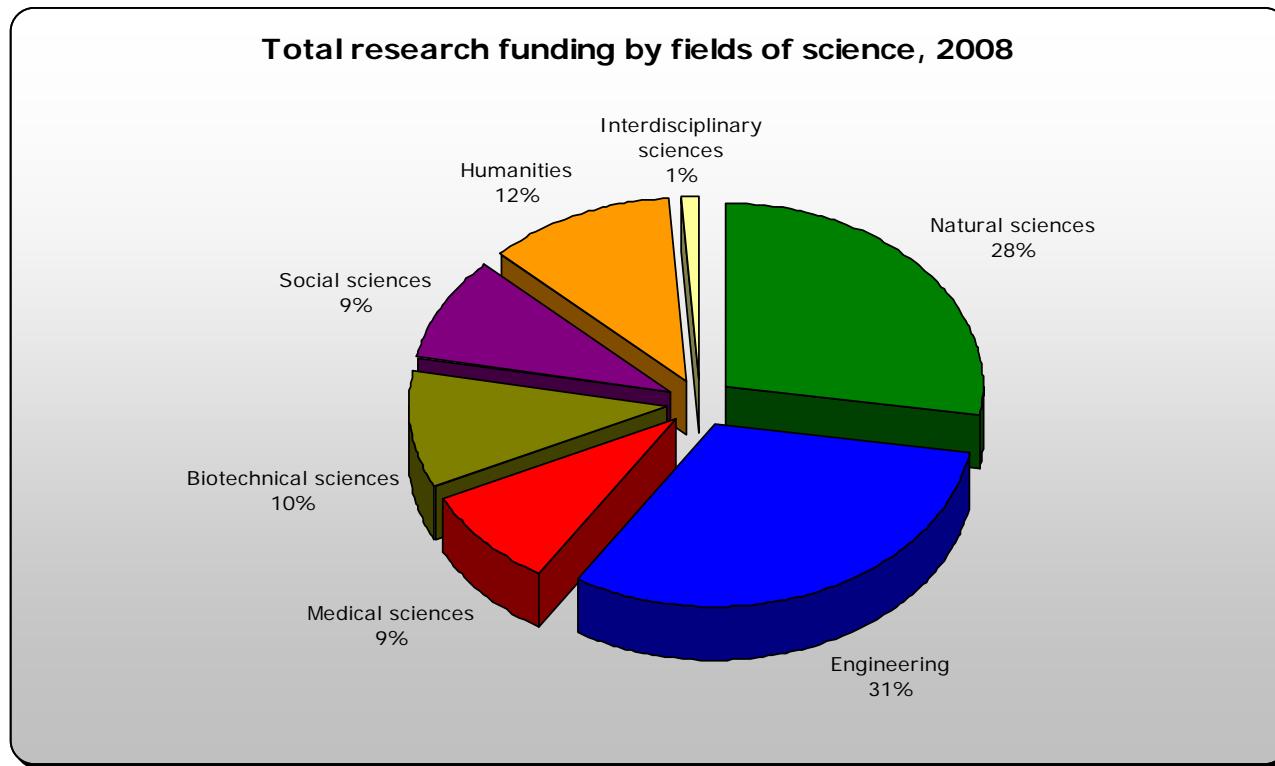
Main principles of the evaluation process

• evaluation processes and procedures in the agency
• use of information tools in these activities

Two ways how to evaluate scientific research

- Review by colleagues "equals" or "peers« is applied to judge research proposals, evaluation of research groups, appointments and promotion of research staff. Peer review is regarded as a qualitative assessment

- Bibliometric indicators – quantitative assesment

Peer review and bibliometrics

- Peer assessment undoubtedly has to remain the principal procedure of quality judgment.
- Bibliometric indicators can hardly substitute the peer review system as the ultimate decision making system, but they can reveal its weaknesses on the one hand and on the other can verify peer-review marks.
- For a substantial improvement in decision-making the bibliometric method must be used in parallel with a peer-based evaluation procedure.
- An argument for the use of citation indicators and other bibliometric indicators is that they can counteract shortcomings and mistakes in a peer review.

Research evaluation system

- two stage evaluation procedure (for projects);
- combination of qualitative and quantitative criteria;
- assessment of scientific and socio-economic relevance;
- inclusion of peer review (mostly foreign) and international   panel groups;
- inclusion of users into the evaluation process;
- priority list (proposed by panels)

Call for research projects proposals I.phase

- Combination of **qualitative** and **quantitative** criteria
  - **<u>Marks A</u>** – bibliometric data - quality of research team
  - **<u>Marks B</u>** – peer reviewers – quality of research proposal

Main principles of the evaluation - 1

Quality of research proposal – qualitative criteria

- **Mark B$_1$** – excellence of research results of a principal investigator (foreign reviewer)

- **Mark B$_2$** – substance of project proposal (Foreign reviewer)
  - **B$^a_2$** – quality of the proposed project
  - **B$^b_2$** – relevance and potential impact of the project
  - **B$^c_2$** – feasibility of the study (realistic goals)

- **Mark B$_3$** – results of exceptional socio-economic relevance (domestic reviewer)

Quantitative criteria

- Quality of scientific records
  - **Mark A_1** – publications in last 5 years COBISS
  - **Mark A_2** – number of citations (WoS)

- Socio-economic relevance
  - **Mark A_3** – money from sources other that SRA

Call for research projects proposals II.phase

• detailed project proposals for further peer review,
• evaluation of two foreign reviewers,
• the mean score of both reviews is the basis for final decision about funding,
• final priority list of projects is done by temporary expert body and international peers on a panel session.

Funding instrument

Research programmes - Evaluation procedure

Research programme

- an area of research expected to be relevant for a longer period of time and important for Slovenia

- implemented by programme groups in public research institutes, universities, higher education institutions and private and/or public legal entities with research activities

- minimum 3 researchers (Ph.D.), plus professional and technical staff, doctoral students from one or different institutions

Call for reports/proposals

- report on the results of the research programme in the previous period
- programme proposal (2009 – 2014)

Evaluation elements

- scientific results
- results important for socio-economic and cultural development
- scientific importance of programme proposal
- potential impact of proposed programme for socio-economic and culture development
- evalvacdoma2

Bibliometric and other quantitative indicators

- Papers
- Citations
- H-index
- Funds from other users

Ocenjevalni doma

Bibliometric indicators

- **A1 - number of publications**
- **A2 - number of citations,**
- **A1' – articles in journals in the top 25% of SCI categories/fields, in social sciences articles in SSCI journals, editing a book for an international publisher**
- **A1" – book published by an international publisher; articles in the first or second ranked journal in SCI fields, or a journal with IF>5 or in a journal in the upper half of SSCI for social sciences**
- **A2 – number of pure citations in the last 10 years from Web of Science**
- **Best known work of researchers in a programme team/number of pure citations of the most cited work of members of a programme team**
- **H - index**

Sources of Quantitative Data - COBISS

Sources of Quantitative Data - SICRIS
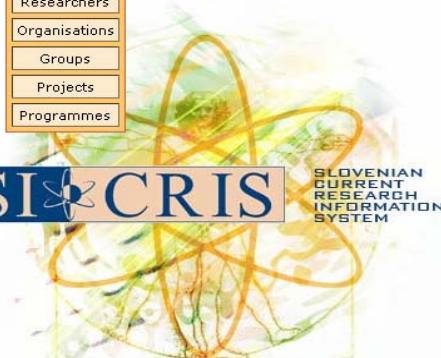
On-line **bibliographic** data: COBISS

COBISS.SI

Tadej Bajd [02813]

Representative bibliographic units

ARTICLES AND OTHER COMPONENT PARTS

1.01 Original Scientific Article

1. BAJD, Tadej, KRALJ, Alojz, ŽEFRAN, Miloš. Unstable states in four-point walking. *J. biomed. eng.*, 1993, vol. 15, march, str. 159-162. [COBISS.SI-ID 400980]

2. BAJD, Tadej, KRALJ, Alojz, KARČNIK, Tomaž, ŠAVRIN, Rajmond, OBREZA, Pavla. Significance of FES-assisted plantarflexion during walking of incomplete SCI subjects. *Gait posture*. [Print ed.], 1994, vol. 2, no. 1, str. 5-10. [COBISS.SI-ID 402260]

3. BALORDA, Zdravko, BAJD, Tadej. Reducing positioning of objects by robot pushing. *IEEE trans. robot. autom.*, 1994, vol. 10, no. 4, str. 535-541. [COBISS.SI-ID 403284]

4. BAJD, Tadej, MUNIH, Marko, KRALJ, Alojz, ŠAVRIN, Rajmond, BENKO, Helena. Voluntary commands for FES-assisted walking in incomplete SCI subjects. *Med. biol. eng. comput.*. [Print ed.], 1995, vol. 33, no. 3, str. 334-337. [COBISS.SI-ID 401492]

5. ŽEFRAN, Miloš, BAJD, Tadej, KRALJ, Alojz. Kinematic modeling of four-point walking patterns in paraplegic subjects. *IEEE trans. syst. man cybern., Part A, Syst. humans*, 1996, vol. 26, no. 6, str. 760-770. [COBISS.SI-ID 403028]

6. BAJD, Tadej, KRALJ, Alojz, KARČNIK, Tomaž, ŠAVRIN, Rajmond, BENKO, Helena, OBREZA, Pavla. Influence of electrically stimulated ankle plantar flexors on the swinging leg. *Artif. organs*, 1997, vol. 21, no. 3, str. 176-179. [COBISS.SI-ID 394068]

7. BAJD, Tadej, ŠTEFANČIČ, Martin, MATJAČIĆ, Zlatko, KRALJ, Alojz, ŠAVRIN, Rajmond, BENKO, Helena, KARČNIK, Tomaž, OBREZA, Pavla. Improvement in step clearance via calf muscle stimulation. *Med. biol. eng. comput.*. [Print ed.], 1997, vol. 35, no. 2, str. 113-116. [COBISS.SI-ID 394836]

8. MATJAČIĆ, Zlatko, BAJD, Tadej. Arm-free paraplegic standing. Part 1, Control model synthesis and simulation. *IEEE trans. rehabil. eng.*, 1998, vol. 6, no. 2, str. 125-138, ilustr. [COBISS.SI-ID 1056084]

9. MATJAČIĆ, Zlatko, BAJD, Tadej. Arm-free paraplegic standing. Part 2, Experimental results. *IEEE trans. rehabil. eng.*, 1998, vol. 6, no. 2, str. 139-150, ilustr. [COBISS.SI-ID 1056340]

Dr. Peter Dovč [05098]

Bibliografski kazalci raziskovalne uspešnosti (2004-2009)

Kategorizacija po metodologiji ARRS - biotehnika

(1)	A1	A2	A3	A4	B1	B2	C		D1	D2	E	$\sum Z1$	$\sum Z2$	NK	TC	CI	NC
1.01	16	5	6	0	0	0	0		4	0	0	27	4	0	121	106	79
1.02	0	1	0	0	0	0	0		2	0	0	1	2	0	0	0	0
1.03	0	0	0	0	0	0	0		1	0	0	0	1	0	0	0	0
(2)	A1	A2			B1	B2	C		D		E						
2.01	0	0			0	0	0					0	0	0			
2.13									0			0	0	0			
2.24										0		0	0	0			
(3)	A				B		C1	C2	D		E						
1.16	0				2		0	0	0			2	0	0			
2.20											0	0	0	0			
(4)										D		E					
1.06									0	1	0	1	1	0	0	0	
1.08									4	0	0	4	8	0	0	0	
														SU			
Str.d.														116			
TC - število citatov v WoS, CI - čistih citatov, NC - normiranih citatov:															121	106	79

Točke

Točke

(1)	A1	A2	A3	A4	B1	B2	C		D1	D2	E	$\sum Z1$	$\sum Z2$	$\sum S$
1.01	294.47	75.09	50.14	0	0	0	0		26.67	0	0	419.70	26.67	0
1.02	0	33.35	0	0	0	0	0		20.00	0	0	33.35	20.00	0
1.03	0	0	0	0	0	0	0		4.00	0	0	0	4.00	0
(2)	**A1**	**A2**			**B1**	**B2**	**C**		**D**		**E**			
2.01	0	0			0	0	0					0	0	0
2.18									0			0	0	0
2.24											0	0	0	0
(3)	**A**				**B**		**C1**	**C2**	**D**		**E**			
1.16	0				13.50		0	0	0			13.50	0	0
2.20											0	0	0	0
(4)									**D**		**E**			
1.06									0	2.00		0	2.00	0.71
1.08									17.38	0		0	17.38	11.96
														SU
Str.d.														143.73
SKUPAJ												466.55	70.05	156.40
Vodenje projekta ($\sum Z1 + \sum Z2$): 536.60												466.55	70.05	
Upoštevano število točk (biotehnika): 583.18												466.55	70.05	46.59

Število čistih citatov v zadnjih 5 letih (2004 - 2009): 292

Normirano število čistih citatov v zadnjih 10 letih (1999 - 2009): 412

Legenda:

Metodologija ARRS: Pravilnik o kazalcih in merilih znanstvene in strokovne uspešnosti

Vir bibliografskih podatkov: Vzajemna baza podatkov COBISS.SI/COBIB.SI

1A1-4   - znanstveni članki v revijah, ki jih indeksira SCI Expanded (glede na faktor vpliva)

Raziskovalec: Dr. Peter Dovč [05098]

Število citatov po letih (za znanstvena dela):

Leto	Vseh citatov	Avtocitatov	Čistih citatov	Normiranih citatov
2004	60	27	33	37
2005	57	15	42	40
2006	57	12	45	41
2007	65	12	53	52
2008	76	13	63	60
2009	65	9	56	47
Skupaj	380	88	292	277

After selection – on-line access to data about financial transactions…

Thank you for your attention!

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