

# Kako poboljšati upravljanje istraživačkim podacima tijekom istraživanja?

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**Matijević, Marta**

**Conference presentation / Izlaganje na skupu**

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*Download date / Datum preuzimanja:* **2024-11-22**



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*Repository / Repozitorij:*

[National and University Library in Zagreb Repository](#)



# Kako poboljšati upravljanje istraživačkim podacima tijekom istraživanja?

Marta Matijević,

*Nacionalna i sveučilišna knjižnica u Zagrebu*

Istraživački podaci – što s njima?, Rijeka, 27. veljače 2020.

Istraživački podaci – što s njima?, Split, 13. ožujka 2020.

Istraživački podaci – što s njima?, Osijek, 1. travnja 2020.

Dani e-infrastrukture – Srce DEI 2020, Zagreb, 7. i 8. travnja 2020.



## Ciljevi

Kako se **lakše snalaziti** u svojim istraživačkim podacima?

Kako odabrati **standard metapodataka** za svoje istraživačke podatke?

Koje **formate** koristiti?

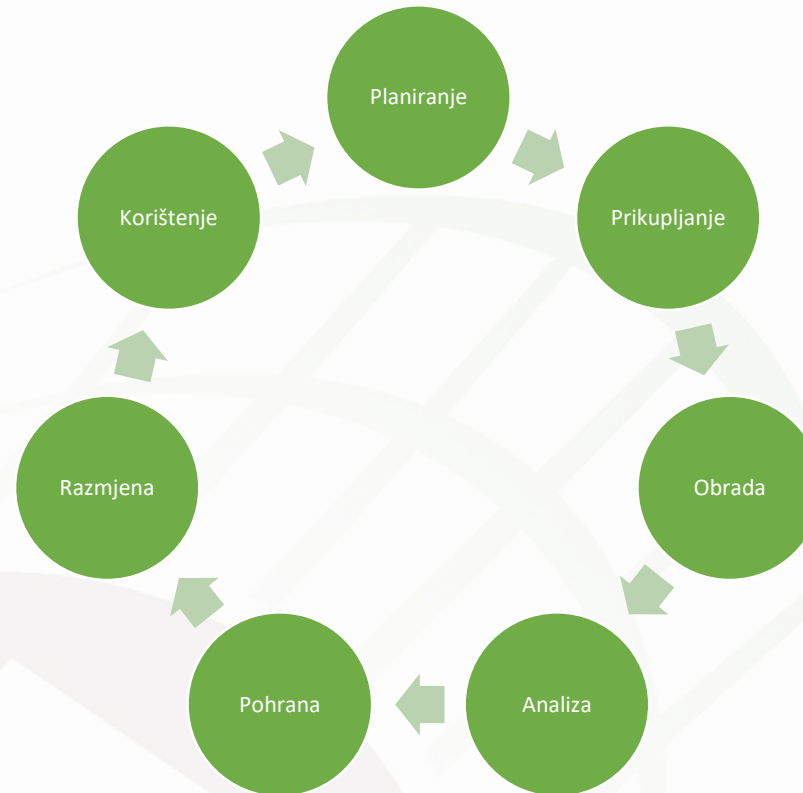
Kako **pohraniti** istraživačke podatke?

Kako **citirati** istraživačke podatke?

Kako raditi s **osjetljivim podacima**?

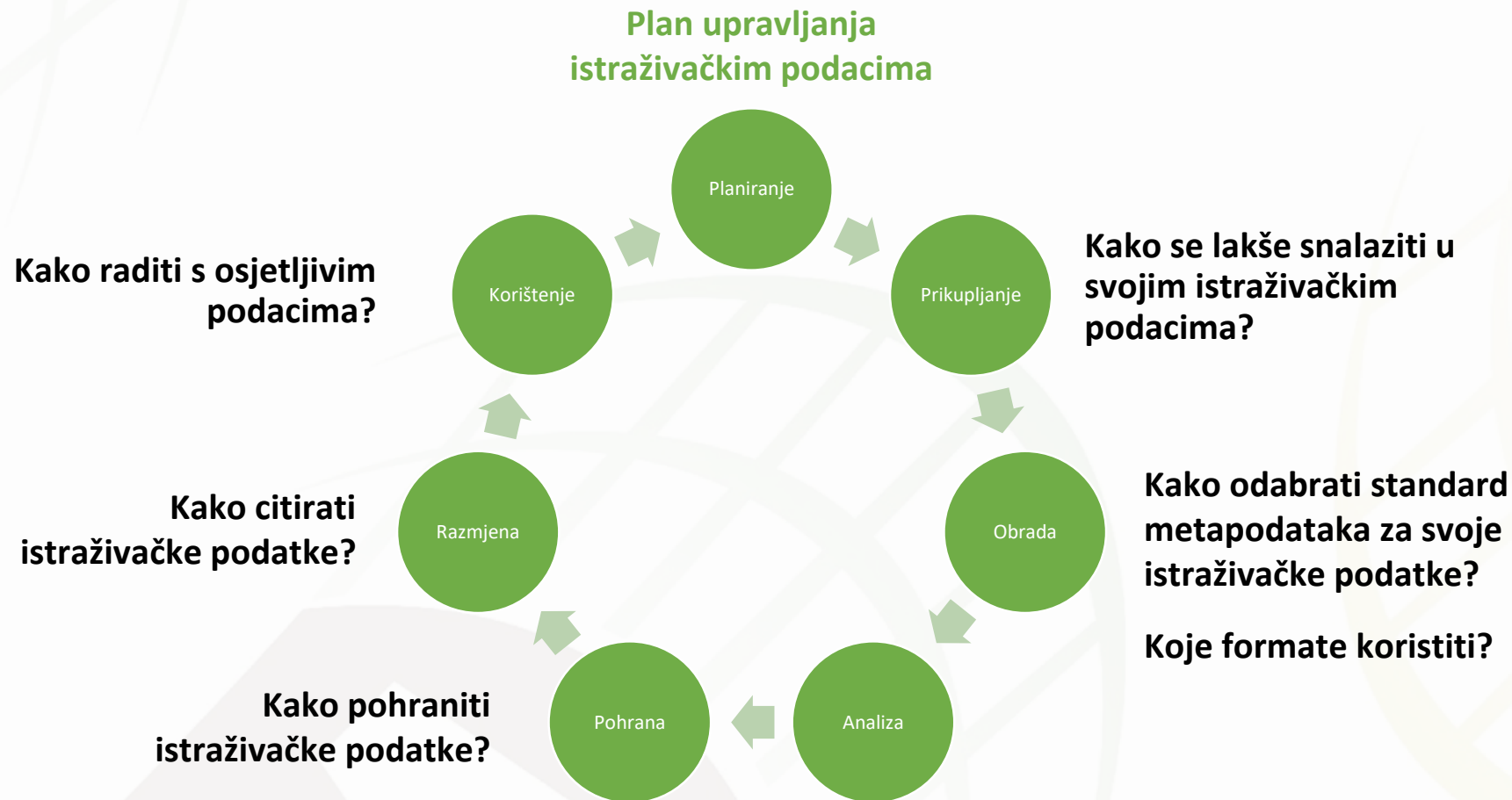


# Životni ciklus istraživačkih podataka

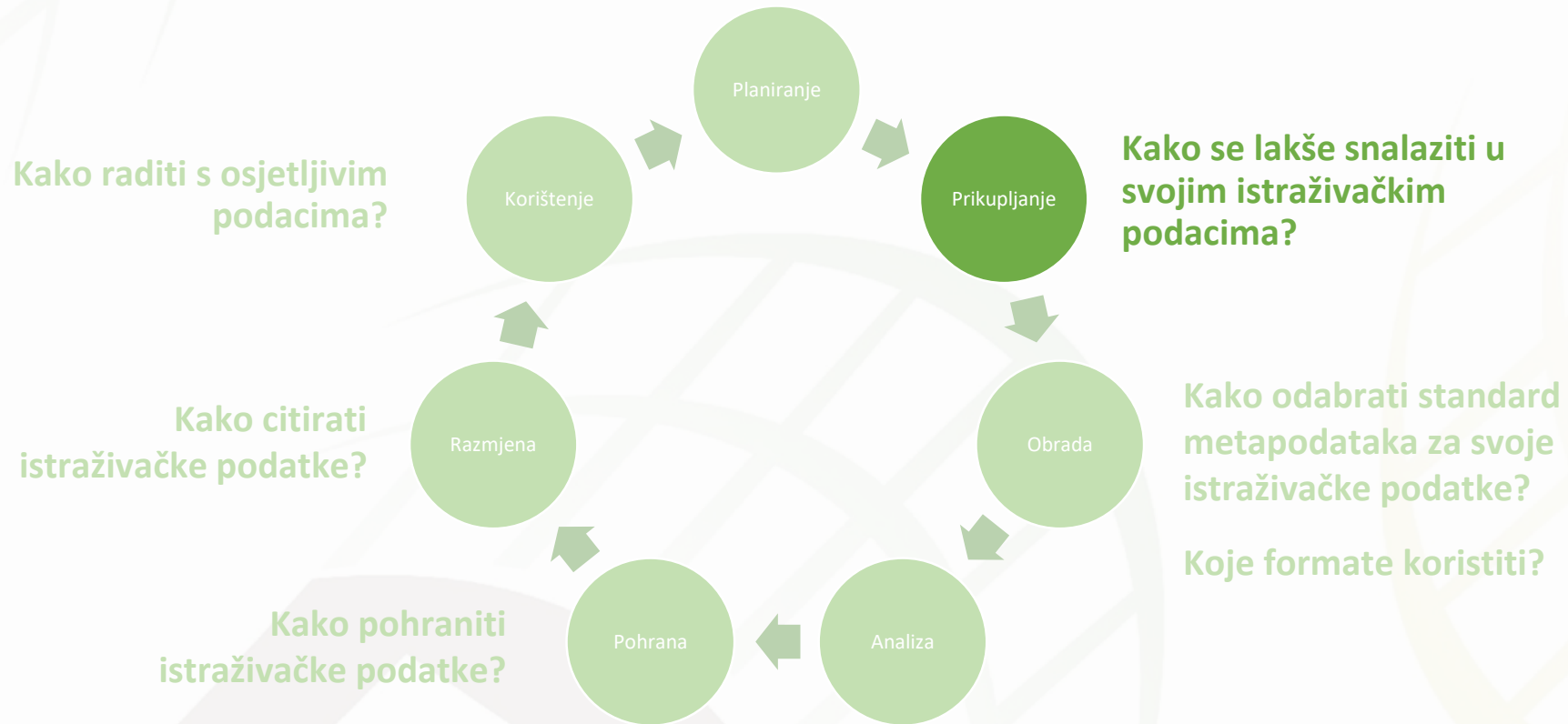


Izvor: <http://darhiv.ffzg.unizg.hr/id/eprint/10542/>

# Životni ciklus istraživačkih podataka



## Plan upravljanja istraživačkim podacima





# Kako se lakše snaći u svojim istraživačkim podacima?



Izvor: <https://twitter.com/overlyhonestly>



# Dosljedno koristiti informativne i deskriptivne nazive datoteka

- Učinkovito organiziranje i imenovanje datoteka značajno će utjecati na pronalaženje datoteke i razumijevanje sadržaja
- Relevantne informacije:
  - Naziv projekta/akronim
  - Lokacija
  - Ime autora/inicijali
  - Datum
  - Tip podataka
  - Broj verzije datoteke

Ri\_climate\_data\_v1.csv

RiClimateData20190201.csv





# Dosljedno koristiti informativne i deskriptivne nazive datoteka

- Preporuke:

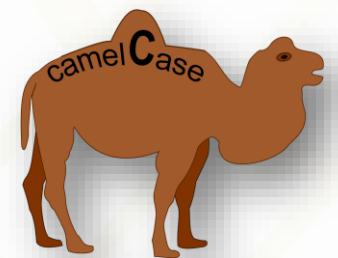
- Normirani oblik naziva datoteke
- Koristiti manje od 25 znakova
- Izbjegavati korištenje posebnih znakova poput @, #, &
- Ne koristiti razmak, već donju crtu ili [camel case](#)  
*Primjeri: Ri\_climate\_data.csv ili RiClimateData.csv*
- Datum u [ISO 8601 format](#): YYYYMMDD

- Alati za imenovanje datoteka (npr. [Bulk Rename Utility](#))

- Imenovanje velike količine datoteka u kratko vrijeme

# pound	< left angle bracket	\$ dollar sign	+ plus sign
% percent	> right angle bracket	! exclamation point	` backtick
& ampersand	* asterisk	' single quotes	pipe
{ left curly bracket	? question mark	" double quotes	= equal sign
} right curly bracket	/ forward slash	: colon	
\ back slash	blank spaces	@ at sign	

Izvor: <https://www.mtu.edu/umc/services/digital/writing/characters-avoid/>



Izvor: Wiki



# Verzioranje istraživačkih podataka

- Postupak upravljanja promjenama
- Ručna kontrola verzija
  - Dodavanje broja verzije ili datuma (YYYYMMDD) na kraju naziva datoteke

Ime datoteke	Verzija
InterviewSchedule_1.0	Originalni dokument
InterviewSchedule_1.1	Manja promjena
InterviewSchedule_2.0	Važna promjena

Ime datoteke	Verzija
InterviewSchedule_20200216	Promjena na datum 16.2.2020.
InterviewSchedule_20200229	Promjena na datum 29.2.2020.
InterviewSchedule_20200301	Promjena na datum 1.3.2020.

- Automatska kontrola verzija: [Github](#), [Subversion](#)
  - Verzije su vidljive kod svih sudonika na projektu
  - Automatsko grananje i spajanje verzija
  - Uz novu verziju moguće je priložiti kratak sažetak promjena





# Primjer

Background	Folder
20190216152721.pdf	PDF Document
Download.pdf	PDF Document
Initial_scan.bib	BibTeX bibliography
InterestingArticle.pdf	PDF Document
pdf_5302_5302JFP...dEvidence1(1).pdf	PDF Document
Data	Folder
datacleaner.py	Python source
example_datacleaner.py	Python source
Twitterdata	Comma Separated Spreadsheet (.csv)
Twitterdata_without.xlsx	Microsoft Excel Workbook (.xlsx)
Twitterdata.tsv	Tab separated values
Twitterdata.xlsx	Microsoft Excel Workbook (.xlsx)
TwitterdataReadme.txt	Plain Text Document
Meetings	Folder
011918.doc	Microsoft Word 97 - 2004 document (.doc)
022218.doc	Microsoft Word 97 - 2004 document (.doc)
032718.docx	Microsoft Word document (.docx)
040218.doc	Microsoft Word 97 - 2004 document (.doc)
042218.doc	Microsoft Word 97 - 2004 document (.doc)
051518.doc	Microsoft Word 97 - 2004 document (.doc)
222018.doc	Microsoft Word 97 - 2004 document (.doc)
322018.doc	Microsoft Word 97 - 2004 document (.doc)
ProjectKickoff.docx	Microsoft Word document (.docx)
Submissions	Folder
Image1.jpg	JPEG image
Image2.png	PNG image
Image3.png	PNG image
JOSS_alt_revision.docx	Microsoft Word document (.docx)
JOSS_reveiwercomments.pdf	PDF Document



# Primjer

Folder	Folder
20190216152721.pdf	PDF Document
Download.pdf	PDF Document
Initial_scan.bib	BibTeX bibliography
InterestingArticle.pdf	PDF Document
pdf_5302_5302JFP...dEvidence1(1).pdf	PDF Document
Data	Folder
datacleaner.py	Python source
example_datacleaner.py	Python source
Twitterdata	Comma Separated Spreadsheet (.csv)
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032718.docx	Microsoft Word document (.docx)
040218.doc	Microsoft Word 97 - 2004 document (.doc)
042218.doc	Microsoft Word 97 - 2004 document (.doc)
051518.doc	Microsoft Word 97 - 2004 document (.doc)
222018.doc	Microsoft Word 97 - 2004 document (.doc)
322018.doc	Microsoft Word 97 - 2004 document (.doc)
ProjectKickoff.docx	Microsoft Word document (.docx)
Submissions	Folder
Image1.jpg	JPEG image
Image2.png	PNG image
Image3.png	PNG image
JOSS_alt_revision.docx	Microsoft Word document (.docx)
JOSS_reveiwercomments.pdf	PDF Document

## Dobro

- Sustav mapa i nazivi datoteka su jednostavni
- Datoteke su u odgovarajućim mapama
- Postoji README datoteka
- Nazivi datoteka i mapa ne sadrže posebne znakove ili razmake



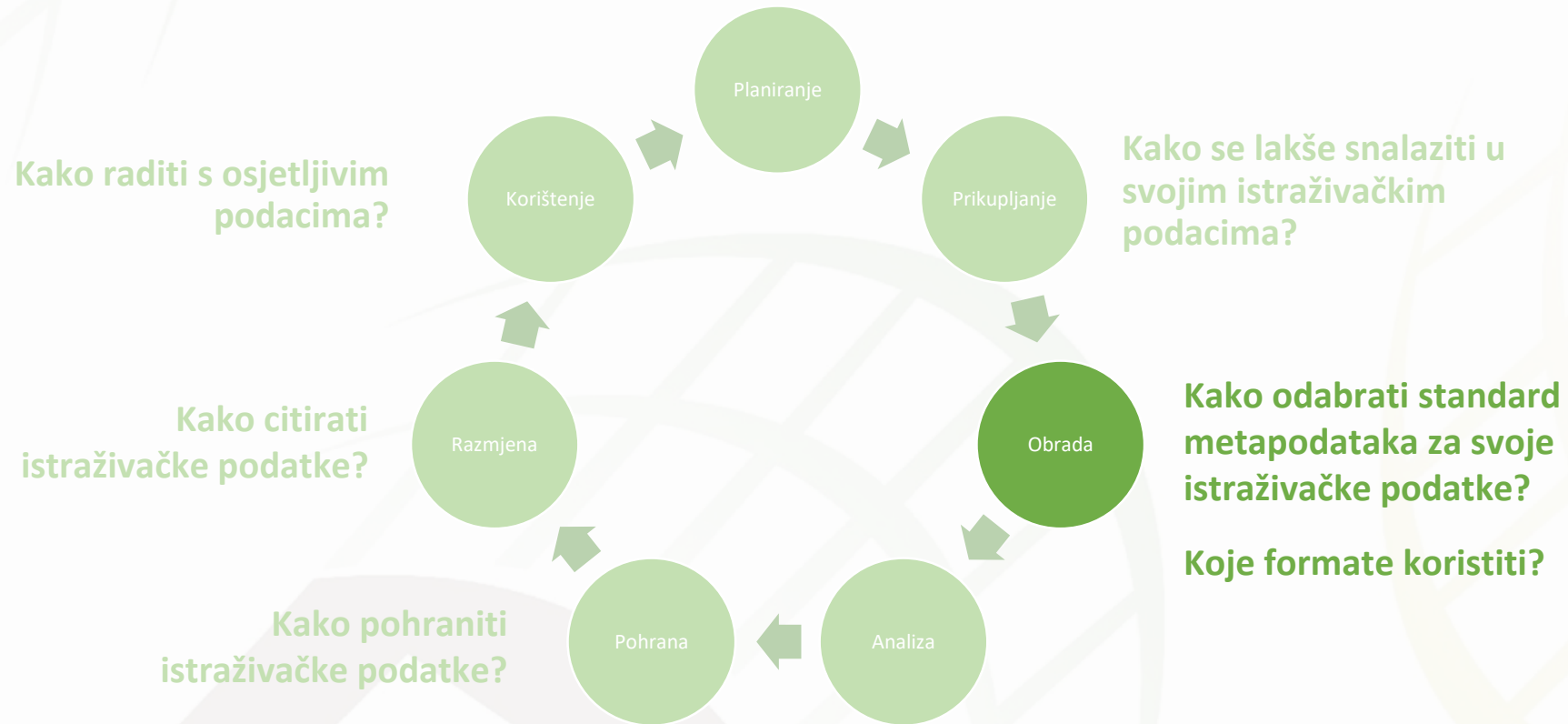
# Primjer

Background	Folder
20190216152721.pdf	PDF Document
Download.pdf	PDF Document
Initial_scan.bib	BibTeX bibliography
InterestingArticle.pdf	PDF Document
pdf_5302_5302JFP...dEvidence1(1).pdf	PDF Document
Data	Folder
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040218.doc	Microsoft Word 97 - 2004 document (.doc)
042218.doc	Microsoft Word 97 - 2004 document (.doc)
051518.doc	Microsoft Word 97 - 2004 document (.doc)
222018.doc	Microsoft Word 97 - 2004 document (.doc)
322018.doc	Microsoft Word 97 - 2004 document (.doc)
ProjectKickoff.docx	Microsoft Word document (.docx)
Submissions	Folder
Image1.jpg	JPEG image
Image2.png	PNG image
Image3.png	PNG image
JOSS_alt_revision.docx	Microsoft Word document (.docx)
JOSS_reveiwercomments.pdf	PDF Document

## Ispraviti

- Normizacija oblika naziva datoteke
- Neki nazivi su nejasni i nekonzistentni
- Uvesti kontrolu verzije naziva datoteka
- Datum u YYYYMMDD formatu
- Stvaranje README datoteke za cijeli projekt

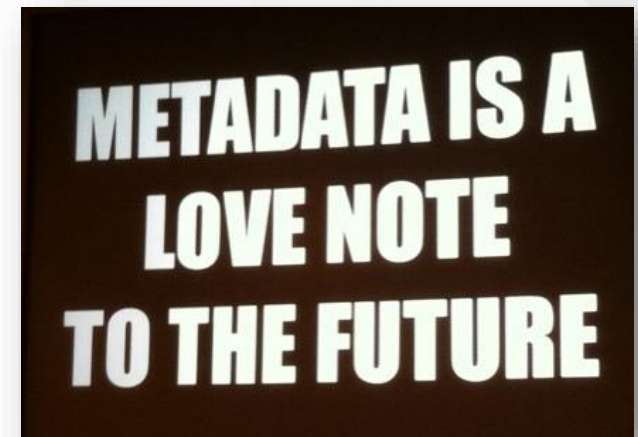
## Plan upravljanja istraživačkim podacima





# Stvarati metapodatke za svaki dio istraživanja

- Zašto?
  - Omogućuju ispravnu identifikaciju i ponovnu upotrebu podataka u budućnosti
  - Strojno čitljivi
  - Metapodaci daju kontekst i opisuju osnovne karakteristike podataka – odgovaraju na pitanja *tko, što, kada, gdje, kako, zašto*
- Metapodaci se mogu formatirati koristeći standard metapodataka
  - Standard metapodataka je definirani skup karakteristika za opisivanje podataka



Izvor: [https://commons.wikimedia.org/wiki/File:Metadata\\_is\\_a\\_love\\_note\\_to\\_the\\_future\\_\(8071729256\)\\_cropped.jpg](https://commons.wikimedia.org/wiki/File:Metadata_is_a_love_note_to_the_future_(8071729256)_cropped.jpg)



# Kako odabrati standard metapodataka za svoje istraživačke podatke?

Metadata Standards Directory (RDA): <http://rd-alliance.github.io/metadata-directory/>

### Metadata

RDA | Metadata Directory

- View the standards
- View the extensions
- View the tools
- View the use cases
- Browse by subject areas

---

- Contribute
- Add standards
- Add extensions
- Add tools
- Add use cases

---

- github
- @twitter
- linkedin
- facebook

**Metadata Standards Directory Working Group**

The RDA Metadata Standards Directory Working Group is supported by individuals and organizations involved in the development, implementation, and use of metadata for scientific data. A collaborative, open directory of metadata standards applicable to scientific data can help address infrastructure challenges.





# Kako odabrati standard metapodataka za svoje istraživačke podatke?

Metadata Standards Directory (RDA): <http://rd-alliance.github.io/metadata-directory/>

The screenshot shows the 'MIDAS-Heritage' entry on the RDA Metadata Standards Directory. The page is organized into several sections, each with a red-bordered box around its title:

- Summary**: A red-bordered box around the 'Summary' title. Below it, there are links for 'Standard Website' (<http://www.english-heritage.org.uk/publications/midas-heritage/>) and 'Specification' ([http://www.english-heritage.org.uk/content/publications/publicationsNew/guidelines-standards/midas-heritage/midas-heritage-2012-v1\\_1.pdf](http://www.english-heritage.org.uk/content/publications/publicationsNew/guidelines-standards/midas-heritage/midas-heritage-2012-v1_1.pdf)).
- Related Vocabularies**: A link to 'INSCRIPTION'.
- Subjects**: Links to 'Arts and Humanities' and 'Social and Behavioral Sciences'.
- Disciplines**: Links to 'Archaeology', 'Architecture', 'Building Conservation', 'Heritage Studies', 'Historical and Philosophical Studies', and 'History by Area'.
- Extensions**: A red-bordered box around the 'Extensions' title. Below it, there is a link to 'CARARE metadata schema' with an 'Add' button.
- Tools**: A red-bordered box around the 'Tools' title. Below it, there is a link to 'FISH Interoperability Toolkit' with an 'Add' button.
- Use Cases**: A red-bordered box around the 'Use Cases' title. Below it, there is a link to 'English Heritage Listed Buildings System' with an 'Add' button.

The left sidebar contains navigation options like 'View the standards', 'View the extensions', and 'Browse by subject areas'. The bottom of the page shows social media icons for GitHub, Twitter, LinkedIn, and Facebook.

- Opis standarda
- Otkrivanje primjerenih standarda za istraživačke podatke
- Aplikacijski profili - otkrivanje koje standarde koristi zajednica
- Alati za kreiranje, validiranje i slično
- Primjeri korištenja



# README datoteka

- Osigurava ispravno tumačenje podataka, posebno za sudionike unutar istraživačkog projekta (npr. ako se sudionici mijenjaju) ili prilikom dijeljenja podataka – kako bi se budući „korisnik” istraživačkih podataka bolje snašao
- Kontekstualizacija istraživačkih podataka s idućim informacijama:
  - **Ime autora i kontakt, naziv ustanove**
  - **Bilježenje kodova, akronima, mjernih jedinica**
  - Način **imenovanja i verzioniranja imena** datoteka i mapa
  - Korišteni **standard metapodataka**
  - Bilježenje **rječnika** istraživačkih podataka
  - Korištena licenca
  - Veza na objavljenu publikaciju
  - Veza na javno dostupne istraživačke podatke
  - Način citiranja
- Format .txt
- Može se mijenjati tokom istraživanja

This DATSETNAMEREADME.txt file was generated on YYYYMMDD by NAME

-----  
GENERAL INFORMATION  
-----

Title of Dataset:

Author Information (Name, Institution, Address, Email)

Principal Investigator:

Associate or Co-investigator:

Alternate Contact(s):

Date of data collection (single date, range, approximate date): <suggested format YYYYMMDD>

Geographic location of data collection: <City, State, County, Country and/or GPS Coordinates or bounding boxes>

Information about funding sources or sponsorship that supported the collection of the data:

-----  
SHARING/ACCESS INFORMATION  
-----

Licenses/restrictions placed on the data, or limitations of reuse:

Recommended citation for the data:

Citation for and links to publications that cite or use the data:

Ln 1, Col 1

100%

Windows (CRLF)

UTF-8 sa sastavnic

Izvor: <https://cornell.app.box.com/v/ReadmeTemplate>



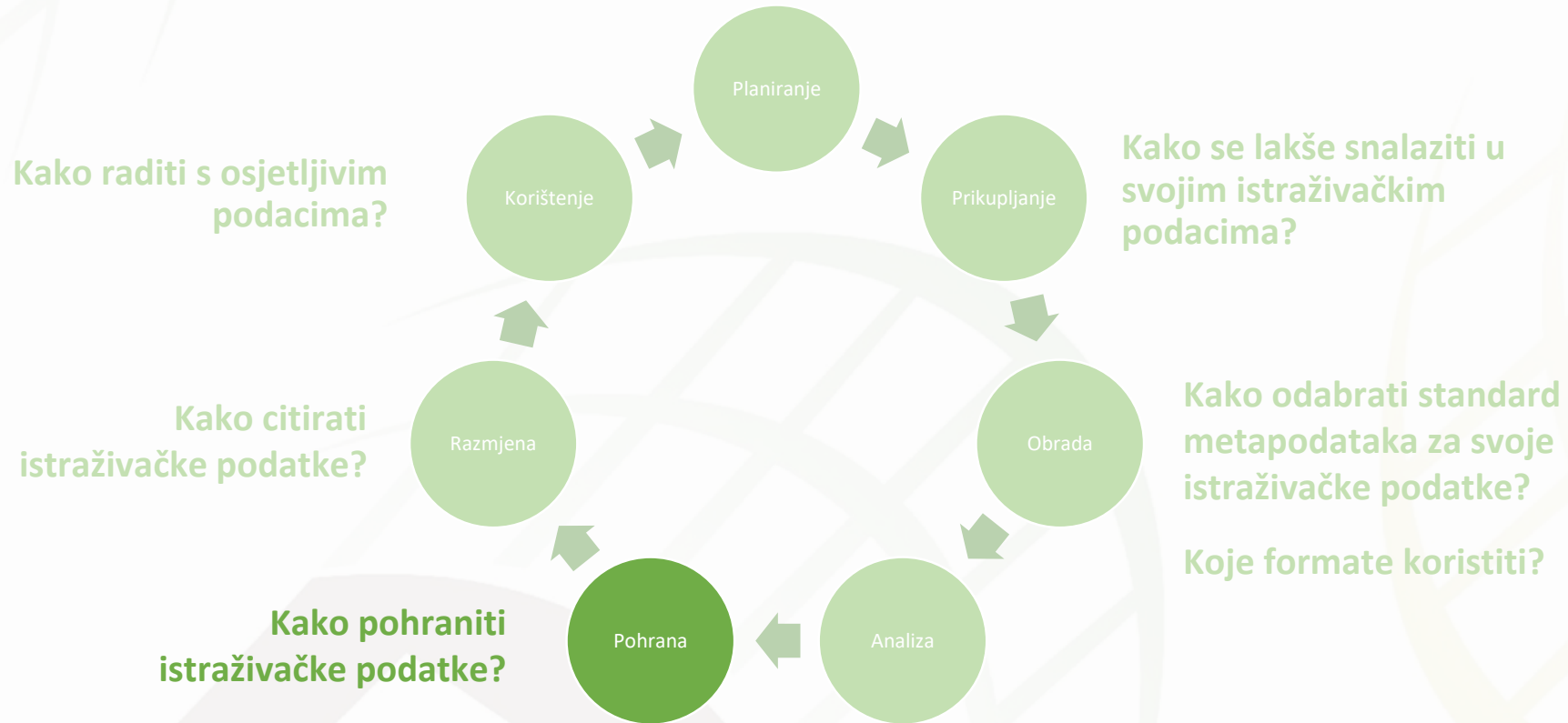
# Koje formate koristiti?

- Veću vjerojatnost dugoročne zaštite imaju formati s idućim karakteristikama:
  - Otvoreni, ne vlasnički formati
  - Formati čija je dokumentacija cjelovita i slobodno dostupna
  - Bez kompresije i gubitka

Slike	Video	Tekst	Dokumentacija	Tablični podaci
TIFF 6.0 uncompressed (.tif)	MPEG-4 (.mp4)	Rich Text Format (.rtf)	Rich Text Format (.rtf)	comma-separated values (.csv)
	OGG video (.ogv, .ogg)	eXtensible Mark-up Language (.xml)	PDF/UA, PDF/A or PDF (.pdf)	tab-delimited file (.tab)
	motion JPEG 2000 (.mj2)	plain text, ASCII (.txt)	XHTML or HTML (.xhtml, .htm) OpenDocument Text (.odt)	SPSS portable format (.por)



## Plan upravljanja istraživačkim podacima





# Pohrana



- Kratkoročna pohrana
- Kako su istraživački podaci pohranjeni tijekom istraživanja?
  - [PUH – pohrana i upravljanje podacima](#) - sustav kojim Srce korisnicima iz sustava znanosti i visokog obrazovanja omogućava pohranjivanje i dijeljenje datoteka na spremišnim sustavima u Srcu
    - Pohrana i/ili dijeljenje podataka tijekom istraživačkog projekta
    - Dostupost, integritet, povjerljivost
    - Registracija korisnika
    - 200 GB prostora

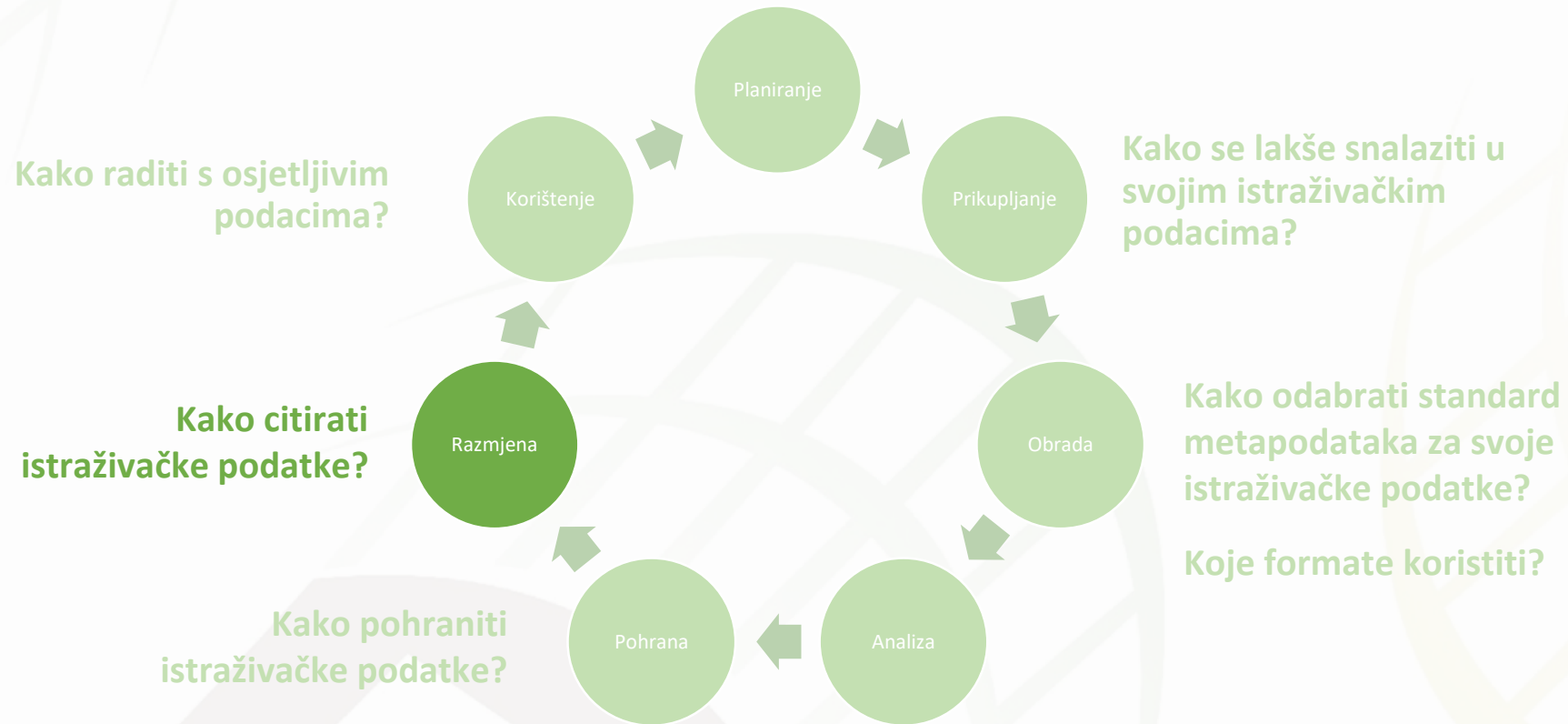


# Pohrana



- Dugoročna pohrana
- Gdje pohraniti istraživačke podatke za buduće korištenje?
  - Digitalni repozitoriji – [Dabar – digitalni akademski arhivi i repozitoriji](#)
    - Osigurava, mrežno povezuje i održava potrebne računalne resurse i diskovne kapacitete
    - Brine o sigurnosti, stabilnosti i visokoj dostupnosti, izradi sigurnosnih kopija, redovitoj nadogradnji programske podrške te kontinuiranom nadzoru rada sustava
    - Preuzima podatke iz postojećih informacijskih sustava (npr. ISVU)
    - Prati globalne trendove iz područja digitalnih repozitorija i nacionalne standarde
    - Nudi podršku za pohranu i opisivanje digitalnih objekata
    - Implementira i promiče standardne protokole za razmjenu podataka
    - Obrazovanje korisnika

## Plan upravljanja istraživačkim podacima







# Kako citirati istraživačke podatke?

- Prednosti citiranja
  - Omogućuje pravilno pripisivanje autorstva
  - Stvara bibliografsku vezu između publikacije i podataka
  - Olakšava pronalaženje skupa podataka
  - Potiče se ponovna upotreba podataka za nova istraživačka pitanja
  - Povećava se transparentnost i ponovljivost
- Ključni elementi:
  - Autor ili suradnik
  - Identifikator autora ili suradnika (npr. ORCID)
  - Datum objave
  - Naslov
  - Vrsta podataka
  - Izdavač
  - Identifikator podataka (npr. DOI, URN:NBN)
  - URL
  - Verzija
  - Izdanje - razina obrade podataka, što pokazuje koliko je skup podataka rafiniran
  - Datum pristupa

Style	Example(s)	More information
APA (6th edition)	Smith, T.W., Marsden, P.V., & Hout, M. (2011). <i>General social survey, 1972-2010 cumulative file</i> (ICPSR31521-v1) [data file and codebook]. Chicago, IL: National Opinion Research Center [producer]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. doi:10.3886/ICPSR31521.v1	IASSIST guidelines
Chicago	Smith, Tom W., Peter V. Marsden, and Michael Hout. 2011. <i>General Social Survey, 1972-2010 Cumulative File</i> . ICPSR31521-v1. Chicago, IL: National Opinion Research Center. Distributed by Ann Arbor, MI: Inter-university Consortium for Political and Social Research. doi:10.3886/ICPSR31521.v1	IASSIST guidelines
DataCite	Barclay, Janet Rice (2013) Stream Discharge from Harford, NY. Cornell University Library eCommons Repository. <a href="http://hdl.handle.net/1813/34425">http://hdl.handle.net/1813/34425</a> Malekjani, Shokoufeh (2012) Microstructural response of nanocrystalline Al to cyclic loading. Deacon Research Online. <a href="http://hdl.handle.net/10536/DRO/DU:30045928">http://hdl.handle.net/10536/DRO/DU:30045928</a>	DataCite guidelines
DRYAD	Yannic G, Pellissier L, Dubey S, Vega R, Basset P, Mazzotti S, Pecchioli E, Vernesi C, Hauffe HC, Searle JB, Hausser J (2012) Data from: Multiple refugia and barriers explain the phylogeography of the Valais shrew, <i>Sorex antinorii</i> (Mammalia: Soricomorpha). Dryad Digital Repository. <a href="http://dx.doi.org/10.5061/dryad.2jj36325">http://dx.doi.org/10.5061/dryad.2jj36325</a>	DRYAD guidelines
ESIP	Cline, D., R. Armstrong, R. Davis, K. Elder, and G. Liston. 2003. CLPX-Ground: ISA snow depth transects and related measurements ver. 2.0. Edited by M. A. Parsons and M. J. Brodzik. NASA National Snow and Ice Data Center Distributed Active Archive Center. <a href="https://doi.org/10.5060/D4MW2F23">https://doi.org/10.5060/D4MW2F23</a> . Accessed 2008-05-14.	ESIP guidelines
ICPSR	Jacob, Philip, and Henry Teune. <i>International Studies of Values in Politics, 1966</i> . ICPSR07006-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 1978. doi:10.3886/ICPSR07006.v1	ICPSR guidelines
Figshare	Rodriguez, Tommy (2013): 17,170 Base Pair Alignment of Thirteen Time-Extended Lineages [data: (complete) mtDNA; format: ClustalW]. figshare. <a href="https://dx.doi.org/10.6084/m9.figshare.815894">https://dx.doi.org/10.6084/m9.figshare.815894</a> Retrieved: 16 26, Jan 04, 2016 (GMT)	Figshare guidelines
MLA (7th edition)	Smith, Tom W., Peter V. Marsden, and Michael Hout. <i>General Social Survey, 1972-2010 Cumulative File</i> . ICPSR31521-v1. Chicago, IL: National Opinion Research Center [producer]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2011. Web. 23 Jan 2012. doi:10.3886/ICPSR31521.v1	IASSIST guidelines

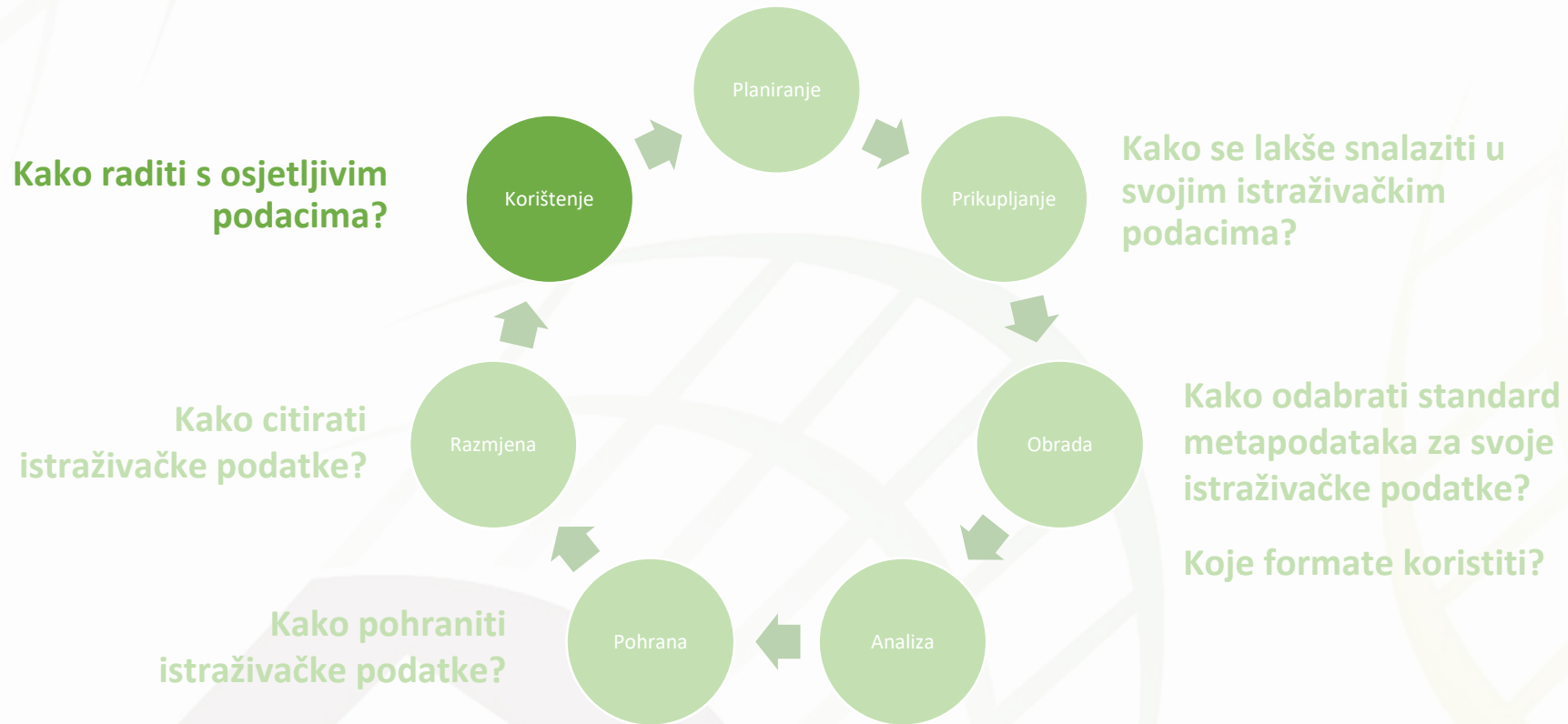


# Kako citirati istraživačke podatke?

## Primjer:

Autor/i	Godina	Naslov
Smith, T.W., Marsden, P.V., & Hout, M. (2011).		<i>General social survey, 1972-2010</i>
Verzija	Vrsta istraživačkih podataka	Mjesto
<i>cumulative file</i> (ICPSR31521-v1)	[data file and codebook].	Chicago, IL: National
Izdavač	Distributer	
Opinion Research Center.	Inter-university Consortium for Political and Social	
Research [distributor].	<a href="https://doi.org/10.3886/ICPSR31521.v1">https://doi.org/10.3886/ICPSR31521.v1</a>	

## Plan upravljanja istraživačkim podacima





# Kako raditi s osjetljivim podacima?

- Važno je osigurati **etičko i pravno dijeljenje informacija**
- Informirani pristanak sudionika u istraživanju
- Anonimizacija osjetljivih podataka
  - Zaštita privatnosti i povjerljivosti sudionika u istraživanju
  - (In)direktni identifikatori:
    - Ime, inicijali, e-mail, slike, datumi, radno mjesto, zanimanje, obrazovanje...
  - Metode anonimizacije:
    - Promjena identifikatora, dodavanje pseudonima, zamagljivanje dijelova slika ili videa, generaliziranje...
- Pravni aspekt
  - Licenciranje – uvjeti korištenja istraživačkih podataka

# BALANCE BETWEEN PROVIDING RICH INFORMATION THAT IS USEFUL IN A RANGE OF CONTEXTS WITH PROTECTING THE PRIVACY OF INDIVIDUALS

Name: Enda Kenny

Date of birth: 24 April 1951

Education: B.A. Education,  
University College Galway

Place of birth: Derrywash,  
Islandeedy, County Mayo

Current employment: An Taoiseach  
and Minister for Defence

Family status: Married to  
Fionnuala O'Kelly, three children

Anonymisation  
process

Name: @@Pat Keegan##

Age group: 50 - 65

Highest education: Degree

Place of birth: West region of  
Ireland

Current employment: Politician

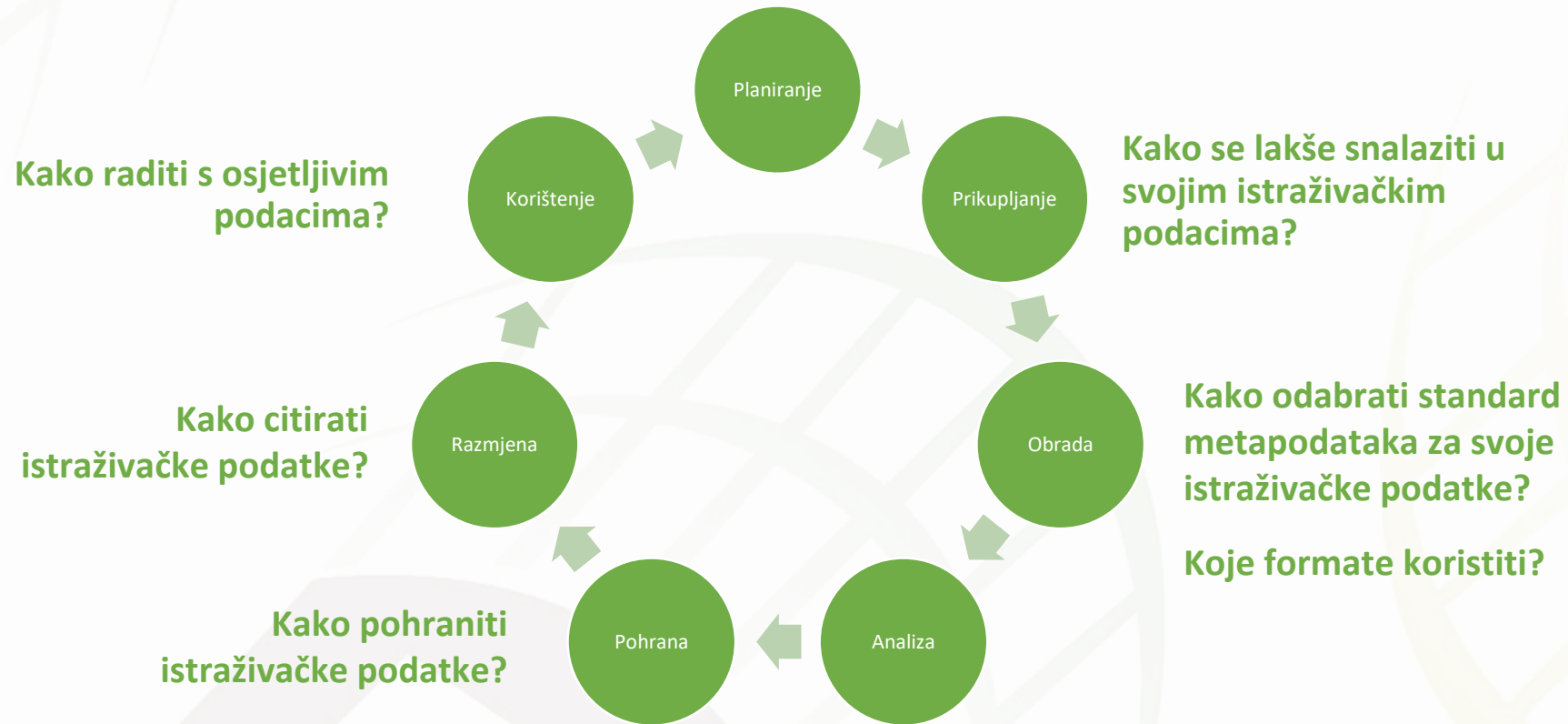
Family status: Married, <5  
children

Combination of pseudonym, aggregation and redaction results in data that indicates characteristics of participant but is not specific enough to disclose identity

Source: Geraathy, R. (2016) Anonymisation and Social Research. [<http://www.slideshare.net/ISSDA/anonymisation-and-social-research>]



## Plan upravljanja istraživačkim podacima

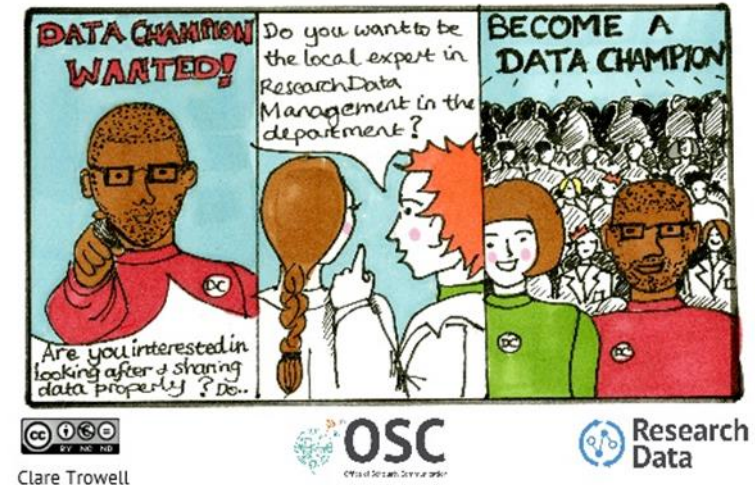




# Zaključak: Kako poboljšati upravljanje istraživačkim podacima tijekom istraživanja?

- Dosljedno koristiti informativne i deskriptivne **nazive** datoteka
- Pratiti različite **verzije** naziva datoteke
- Stvarati **metapodatke** za svaki dio istraživanja
- Odabrati **formate** koji će omogućiti dugoročan pristup
- **Pohraniti** istraživačke podatke
- **Citirati** istraživačke podatke, kao i istraživačke radove
- Rukovati **osjetljivim podacima** na odgovarajući način

Become a Data Champion!







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# Hvala na pažnji!

## Pitanja?

[rda@srce.hr](mailto:rda@srce.hr)

<https://www.srce.unizg.hr/rda>

