



DTU Research Analytics Platform: University Analytics Based on VIVO and Web of Science Data

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Agenda

1. Motivation and Background
2. Technical Setup
3. Department Name Mapping
4. Live demo: DTU RAP Collaboration Module
5. Next Step: Research Assessment
6. Clarivate APIs



Motivation and Background



Developed within the OPERA project –in two work packages:

WP1: Open university research analytics system
– Research collaboration

WP4: Open university research analytics system
– Research assessment

Motivation and Background



Developed within the OPERA project –in two work packages:

WP1: Open university research analytics system

– **Research collaboration**

WP4: Open university research analytics system

– Research assessment

Increased research collaboration is key to improving not only research outcomes and impacts but also research openness, transparency and integrity.

WP1 aims at developing Open metrics and Open systems for the analysis of research collaboration across institutional, national and disciplinary boundaries.

While the data will be traditional licensed bibliographic and bibliometric data, the concepts, metrics and system software will all be open, documented and freely available for reuse – including the adaptation to other data sets.

Motivation and Background



Developed within the OPERA project –in two work packages:

WP1: Open university research analytics system

– Research collaboration

WP4: Open university research analytics system

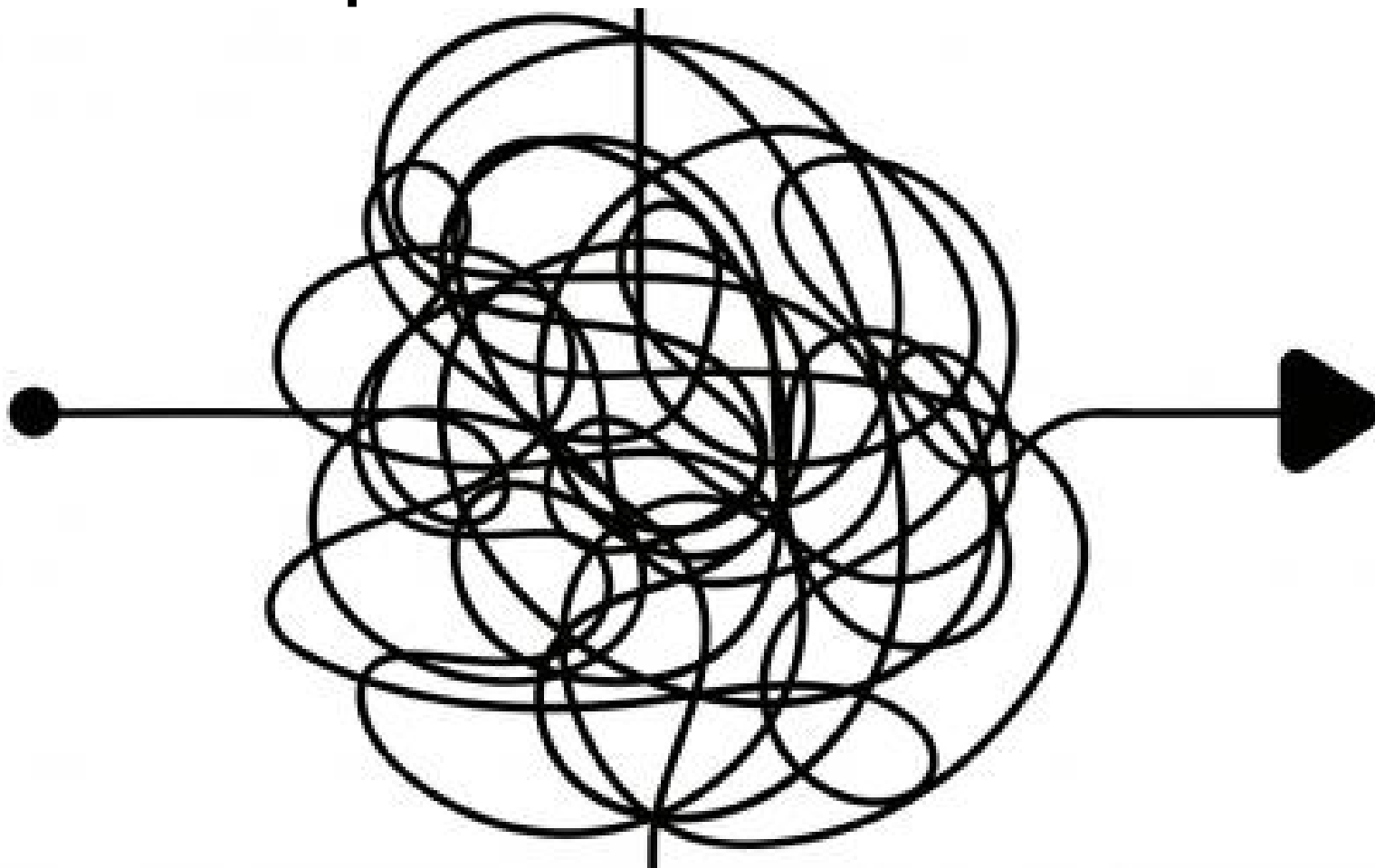
– **Research assessment**

The assessment of research outputs and impacts is a core contribution to many planning and decision processes in universities. The quality of this contribution rests on the quality of the data and the quality of the analytical concepts, metrics and software applied, where openness and transparency must be key attributes.

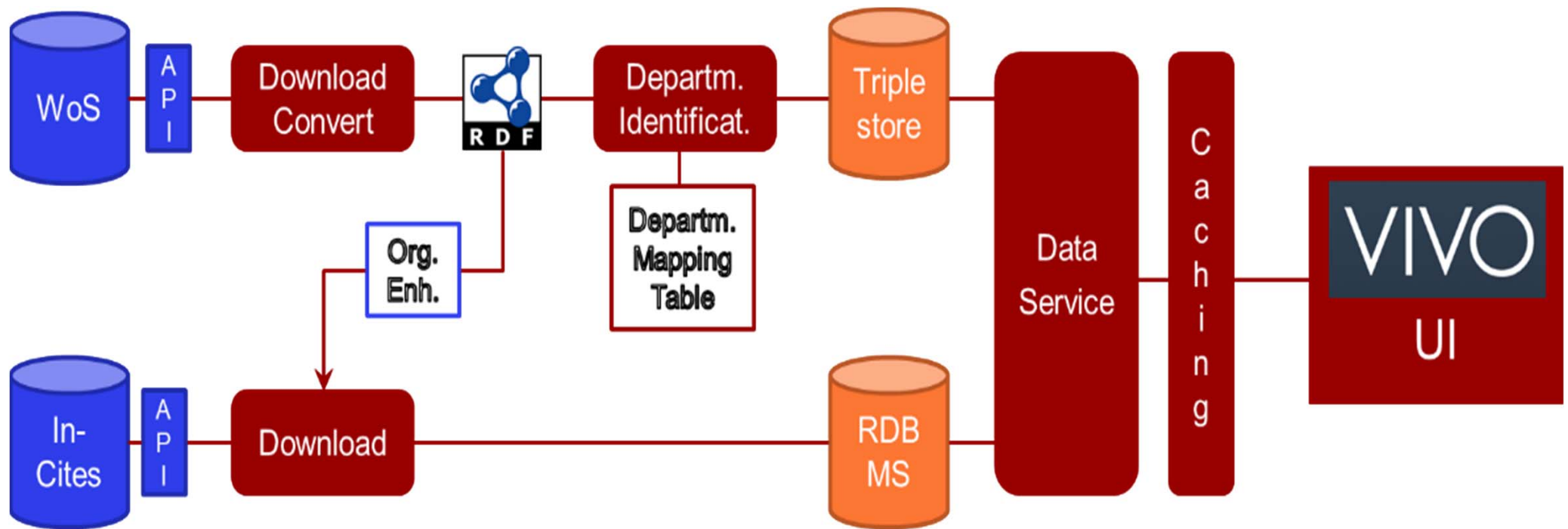
WP4 aims at developing Open metrics and Open systems for a university's research assessment.

While the data will be traditional licensed bibliographic and bibliometric data, the concepts, metrics and system software will all be open, documented and freely available for reuse

Technical Setup



Technical Setup



Department Name Mapping

6. Collaboration by DTU department

DTU department	Co-pubs
DTU Systems Biology	342
DTU Compute	286
DTU Food	277
DTU Vet	265
DTU Electrical Engineering	226
DTU Nanotech	196
DTU Space	179
DTU Physics	139
DTU Bioengineering	135
DTU department unknown	121

- Starting point is “DTU Organization-Enhanced” in WoS.
- Manual mapping of WoS department names to official DTU department names resulting in “department enhanced”.
- Also mapping to former departments and “department unknown”.
- At the beginning of the project: More than 2,500 DTU department name variants mapped to 30 official department names.
- At monthly updates: Approximately 20 new department name variants to map.

Lift-Factor Analysis of Multifilamentary Coated Conductor Produced Using Two Level Undercut-Profile Substrates

By: [Insinga, A](#) ([Insinga, Andrea](#))^[1]; [Solovyov, M](#) ([Solovyov, Mykola](#))^[2]; [Usoskin, A](#) ([Usoskin, Alexander](#))^[3]; [Rutt, A](#) ([Rutt, Alexander](#))^[3]; [Betz, U](#) ([Betz, Ulrich](#))^[3]; [Lundeman, JH](#) ([Lundeman, Jesper H.](#))^[4]; [Abrahamsen, AB](#) ([Abrahamsen, Asger B.](#))^[5]; [Grivel, JC](#) ([Grivel, Jean-Claude](#))^[1]; [Gomory, F](#) ([Gomory, Fedor](#))^[2]; [Wulff, AC](#) ([Wulff, Anders C.](#))^[1]

[View Web of Science ResearcherID and ORCID](#)

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY
Volume: 29 Issue: 5
Article Number: 8200704
DOI: 10.1109/TASC.2019.2896463
Published: AUG 2019
Document Type: Article
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Abstract

Here, we present a detailed characterization of the critical current density of YBa2Cu3O7 - x two level undercut- profile substrate (2LUPS)-based samples made at the Technical University of Denmark using Hastelloy substrate. The CC architecture was produced at Bruker HTS by means of alternating beam assisted deposition and pulsed laser deposition. The magnetization of different samples having all the same size, but with various numbers of filaments, including a non-filamentary reference sample have been measured in applied magnetic fields up to 16 T and at temperatures ranging from T = 2 K to 77 K. A simple multiple rooftop model is proposed to estimate the critical current density of the filaments and it has been observed that filaments of 0.25 mm and 0.5 mm width are providing similar critical current densities in the order of J(c) approximate to 2.3 MA/cm(2) at T = 4.2 K and B = 10 T as well as the reference samples without filaments. This result indicates that the filaments have been fabricated with no degradation of the superconductor and that the filaments are decoupled with non-superconducting material. Finally, the lift factor of the critical current I-c with respect to T = 77 K and self field of the 2LUPS samples is estimated. This is reaching 10 at T = 4.2 K and B = 10 T.

Keywords

Author Keywords: Critical current density; high-temperature superconductors; multifilamentary superconductors; magnetometers


KeyWords Plus: [MAGNETIZATION](#)


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WoS Department	DTU Department	#
dept technol management econ	DTU Management	5
res grp gut microbes hlth	DTU Food	4
software proc engn	DTU Compute	3
dept wind energy	DTU Wind Energy	3
dept energy convers & storage	DTU Energy	2
dept phys	DTU Physics	1
ctr electron nanoscopy	DTU Nanolab	1
dept biomed biotechnol	DTU Bioengineering	1
div energy climate	department unknown	1
sustainabil assessment	DTU Management	1
natl ctr micro nanofabricat nanolab	DTU Nanolab	1

Live Demo: DTU RAP Collaboration Module



Next Step: Research Assessment

- Research assessment at universities is often a combination of quantitative analytical metrics and qualitative judgement by scientific peers.
- To generate and communicate such metrics well is quite a task – very human resource intensive.

For example

- At DTU, we only generate certain in-depth metrics for researchers, their groups and departments, every five years – when a department is up for research assessment by international expert peers of its field.
 - For navigators, it is not ideal to have to rely on an instrument which only updates its measurement every five years.
- In general, we see a growing appetite for analytical reports with metrics
 - with varying frequencies – from monthly to yearly
 - with varying organizational scope – from single individual to entire university

A big appetite for analytics

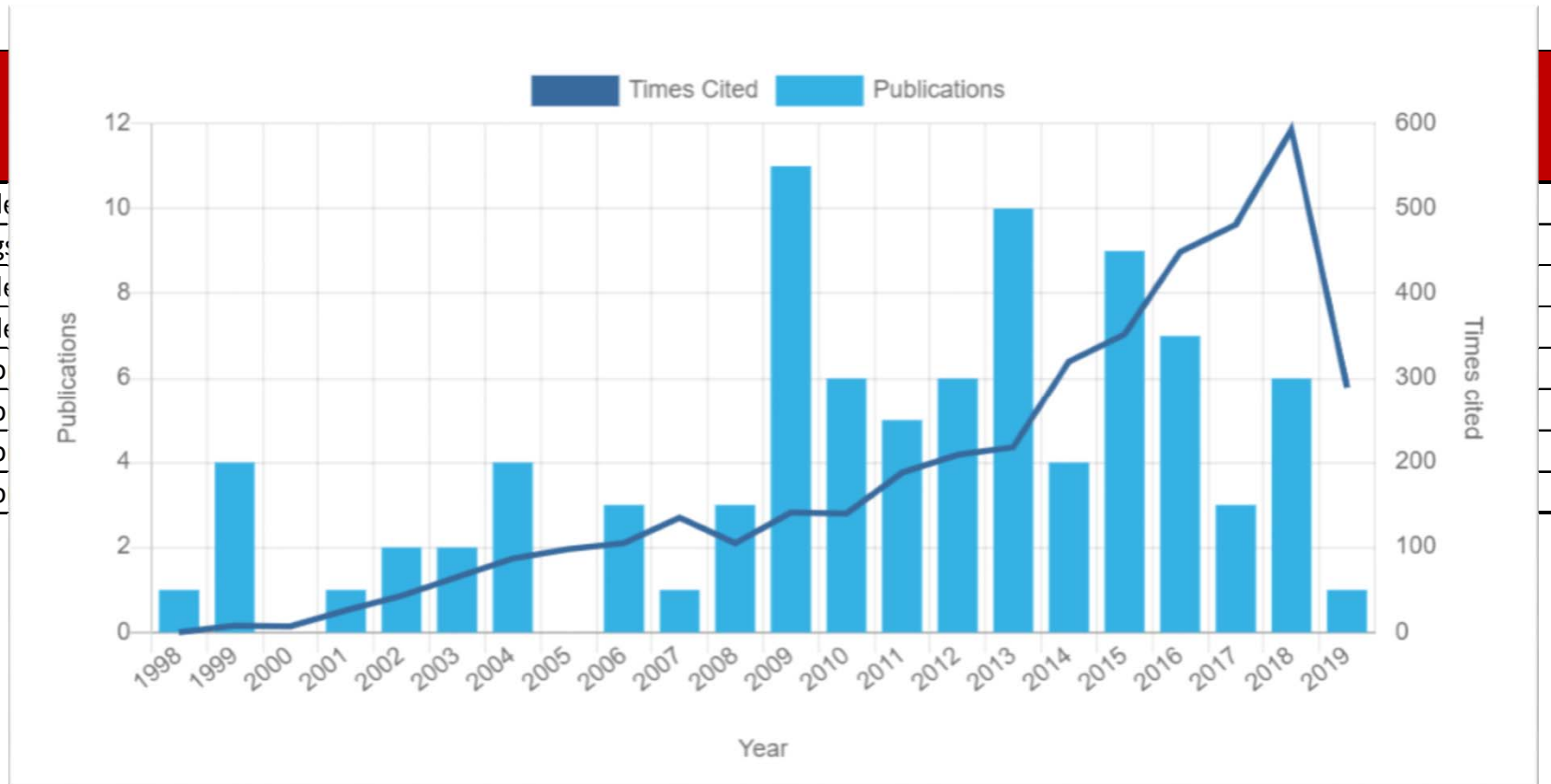
→ Looking at researchers

Name	Position	First publication in WoS	No. of publications in WoS	No. of citations in WoS	Average citations per publication	Average citations per year	H-index
Researcher name 1	Gruppenleder, Professor	1986	162	5.888	36,3	184,0	35
Researcher name 2	Afdelingsleder, Docent	1992	66	862	13,1	33,2	19
Researcher name 3	Gruppenleder, Seniorforsker	1992	89	1.684	18,9	64,8	23
Researcher name 4	Gruppenleder, Professor	1998	49	3.784	77,2	189,2	22
Researcher name 5	Seniorforsker						
Researcher name 6	Seniorforsker						
Researcher name 7	Seniorforsker						
Researcher name 8	Seniorforsker						

A big appetite for analytics

→ Looking at researchers

Name	
Researcher name 1	Gruppele
Researcher name 2	Afdelings
Researcher name 3	Gruppele
Researcher name 4	Gruppele
Researcher name 5	Seniorfo
Researcher name 6	Seniorfo
Researcher name 7	Seniorfo
Researcher name 8	Seniorfo



A big appetite for analytics

→ Looking at research groups or sections

Department/Section	Scientific Staff included	Publications 2014-2018	Citations 2014-[date]	Simple Citation Impact	Normalised Citation Impact	Publications in Top 10%		Publications in Top 1%	
						Number	Proportion	Number	Proportion
DTU Department X	93	1.237	8.445	6,8	1,33	178	14,4%	14	1,1%
Section 1	16	305	2.310	7,6	1,48	55	18,1%	N/A	N/A
Section 2	9	89	364	4,1	2,15	14	15,7%	N/A	N/A
Section 3	12	139	1.009	7,3	1,35	26	18,7%	N/A	N/A
Section 4	16	157	1.828	11,6	1,34	28	17,8%	N/A	N/A
Section 5	15	280	1.536	5,5	0,94	25	8,9%	N/A	N/A
Section 6	23	332	1.670	5,0	1,31	39	11,8%	N/A	N/A

Timespan & publication types:	Period:	2014-2018	Articles & reviews:	✓	Proceedings papers:	✓	Corrections:		Letters:	
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A big appetite for analytics

→ Looking at research departments, individually

Department X	2009*	2010*	2011*	2012*	2013*	2014*	2015*	2016*	2017*	2018*
Publications	834	845	859	867	870	878	901	904	912	937
Citations										
Simple impact										
Normalized impact										
In Top 10%										
In Top 1%										

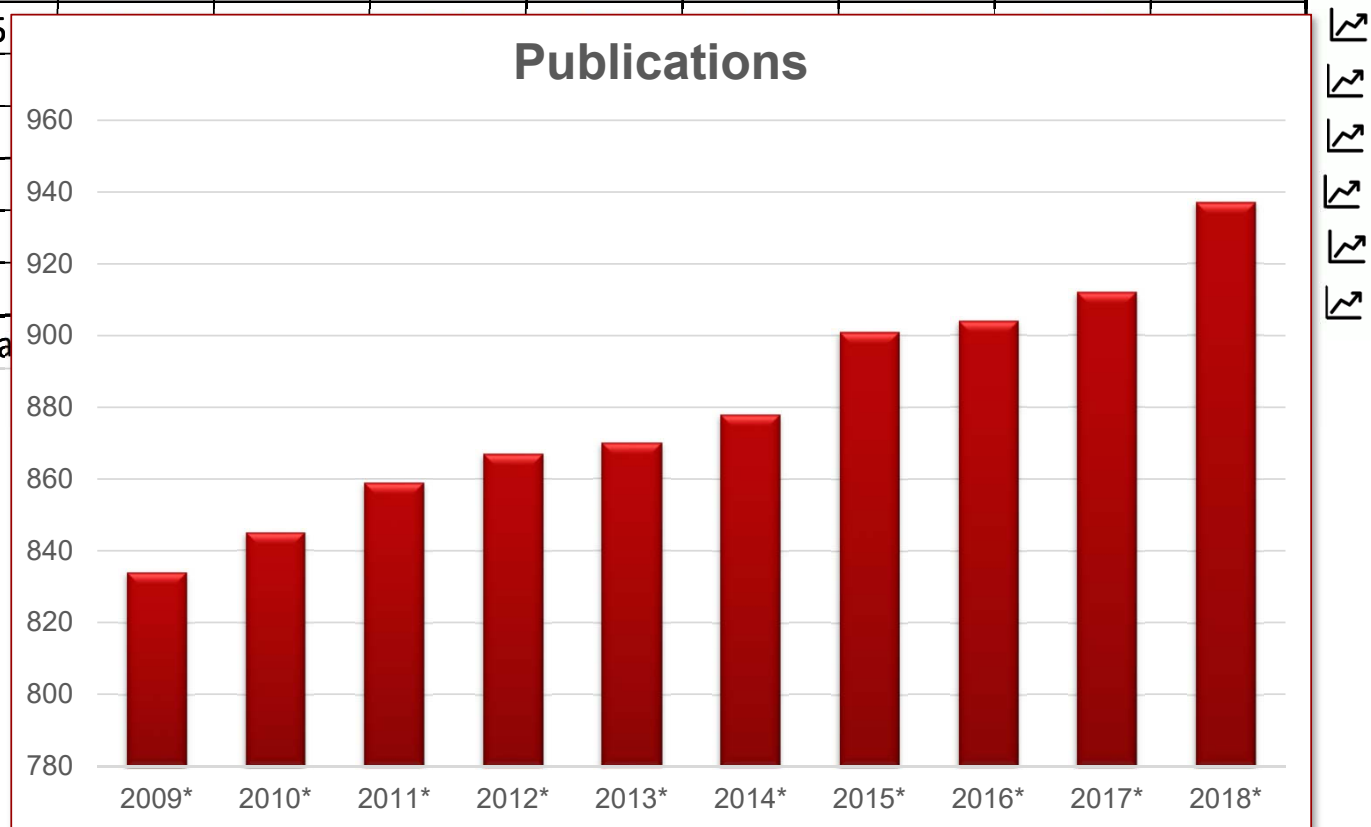
* Years indicate the last year of a 5-year publication window. E.g. '2009' is based on the publication years 2005-2009

A big appetite for analytics

→ Looking at research departments, individually

Department X	2009*	2010*	2011*	2012*	2013*	2014*	2015*	2016*	2017*	2018*
Publications	834	845								
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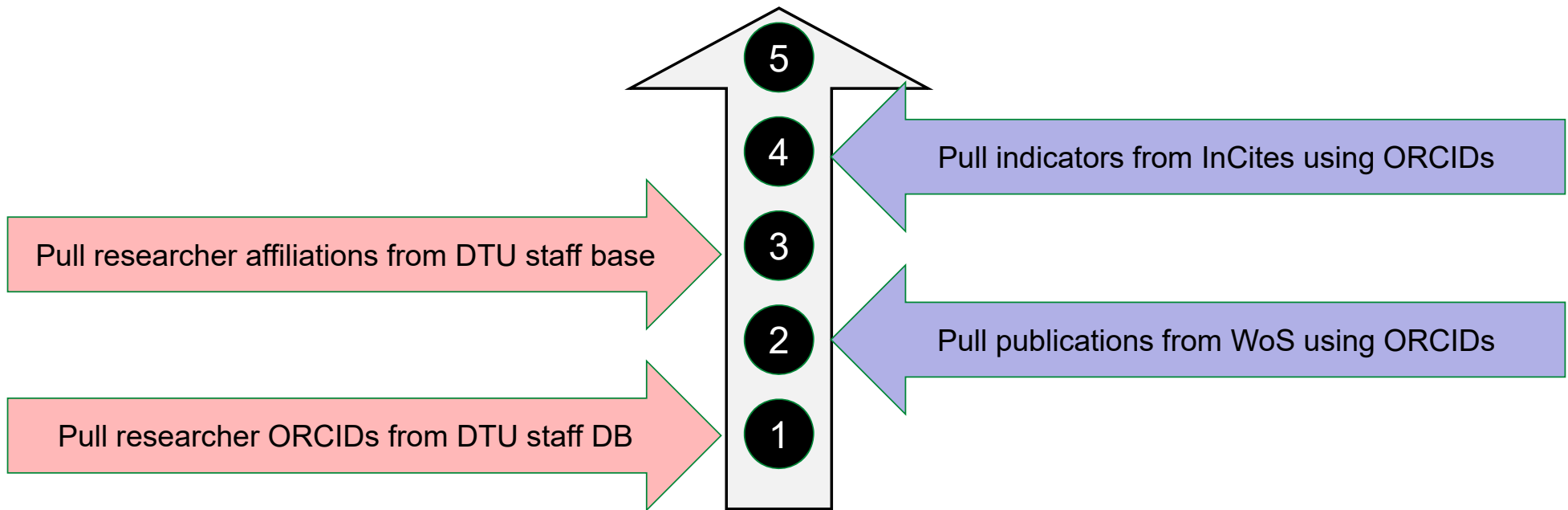
→ Looking across research departments

Department	No. of WoS publications 2013-2017	Simple citation impact	Normalized citation impact	In top 10% most cited	In top 1% most cited
Entire DTU (Baseline)	15.159	14,9	1,70	19,5	2,8
DTU Department B	708	13,1	1,72	19,7	3,1
DTU Department C	534	39,9	3,92	32,5	8,8
DTU Department D	618	23,7	2,57	28,9	5,2
DTU Department E	506	11,3	1,48	21,3	2,8
DTU Department F	27	6,9	2,05	29,6	3,7
DTU Department G	979	8,4	1,35	15,3	1,8
DTU Department H	255	16,4	1,27	18,4	1,2
DTU Department I	775	11,4	1,48	19,3	2,3
DTU Department J	966	16,2	1,30	16,8	1,8
DTU Department K	998	15,3	1,79	22,9	3,7
DTU Department L	868	18,6	1,86	24,9	3,1

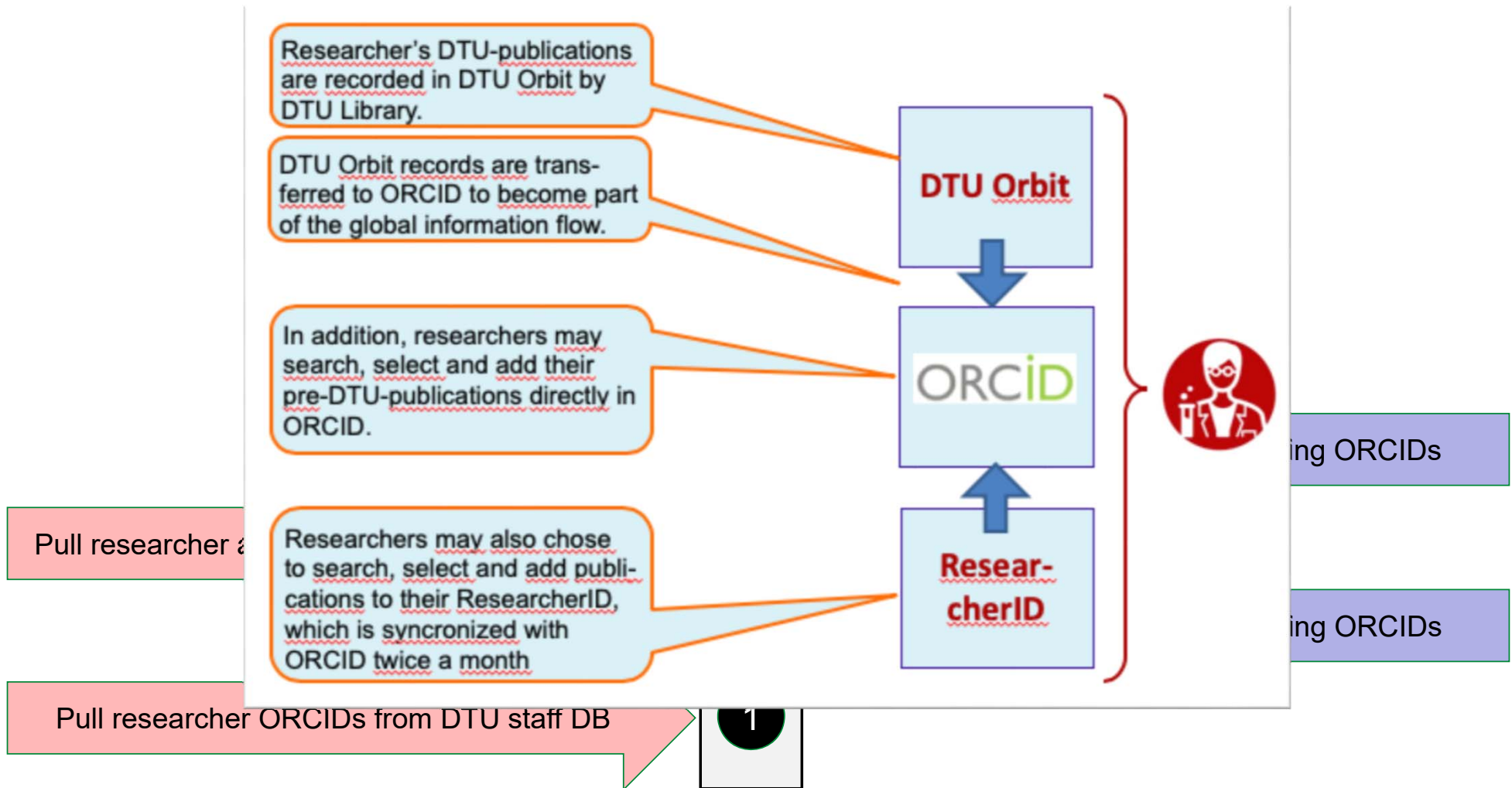
Next Step: Research Assessment

- To do such metrics well, you must build them bottom-up
 - From publication lists of individual researchers
 - Author name challenge
 - Adding knowledge of the university's research organization
 - Challenge of organizational dynamics
 - To do such metrics with integrity, you must comply with the Leiden Manifesto
 - Principle 5: *Allow those evaluated to verify data and analysis*
- ➔ Here's our plan A

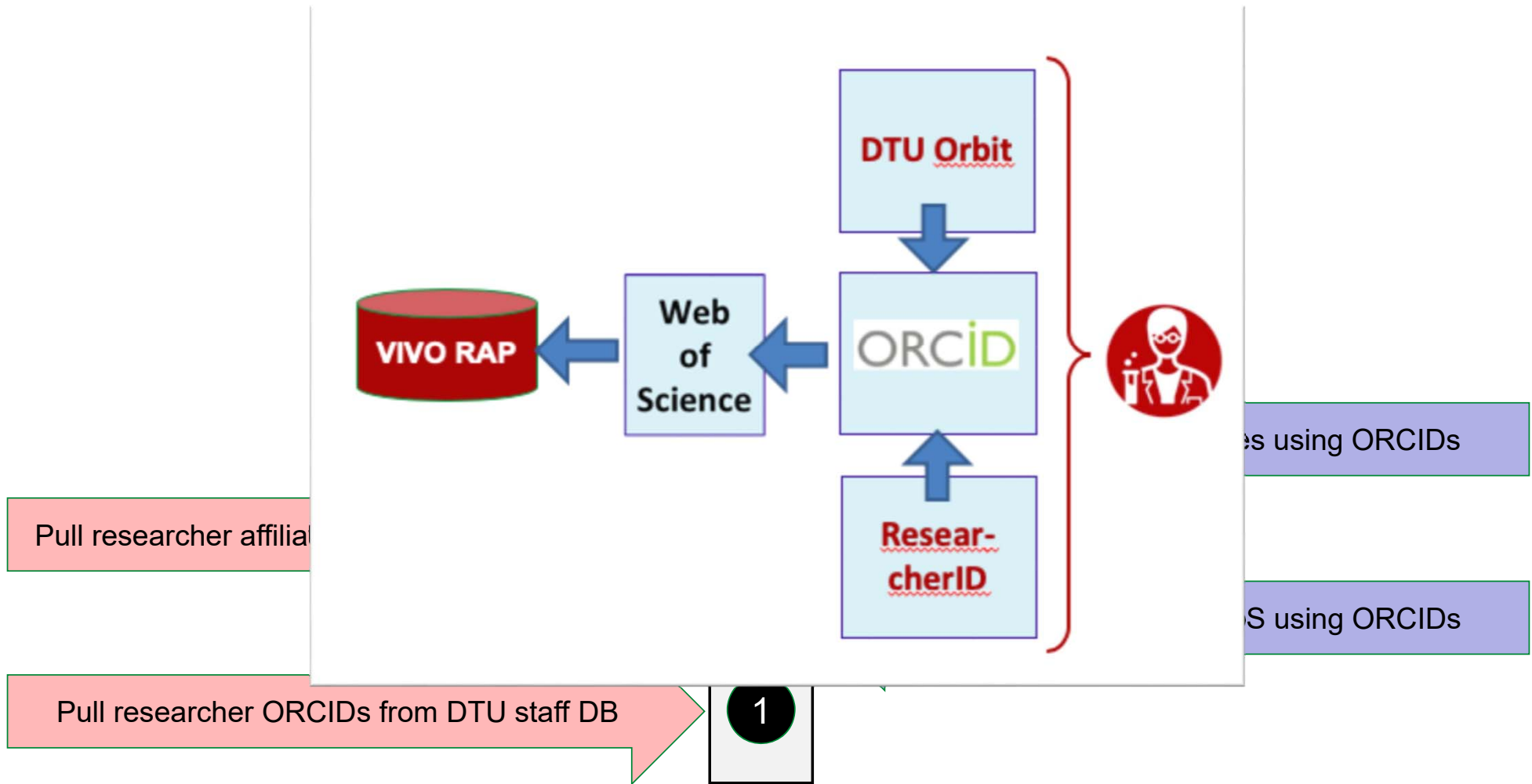
Next Step: Research Assessment



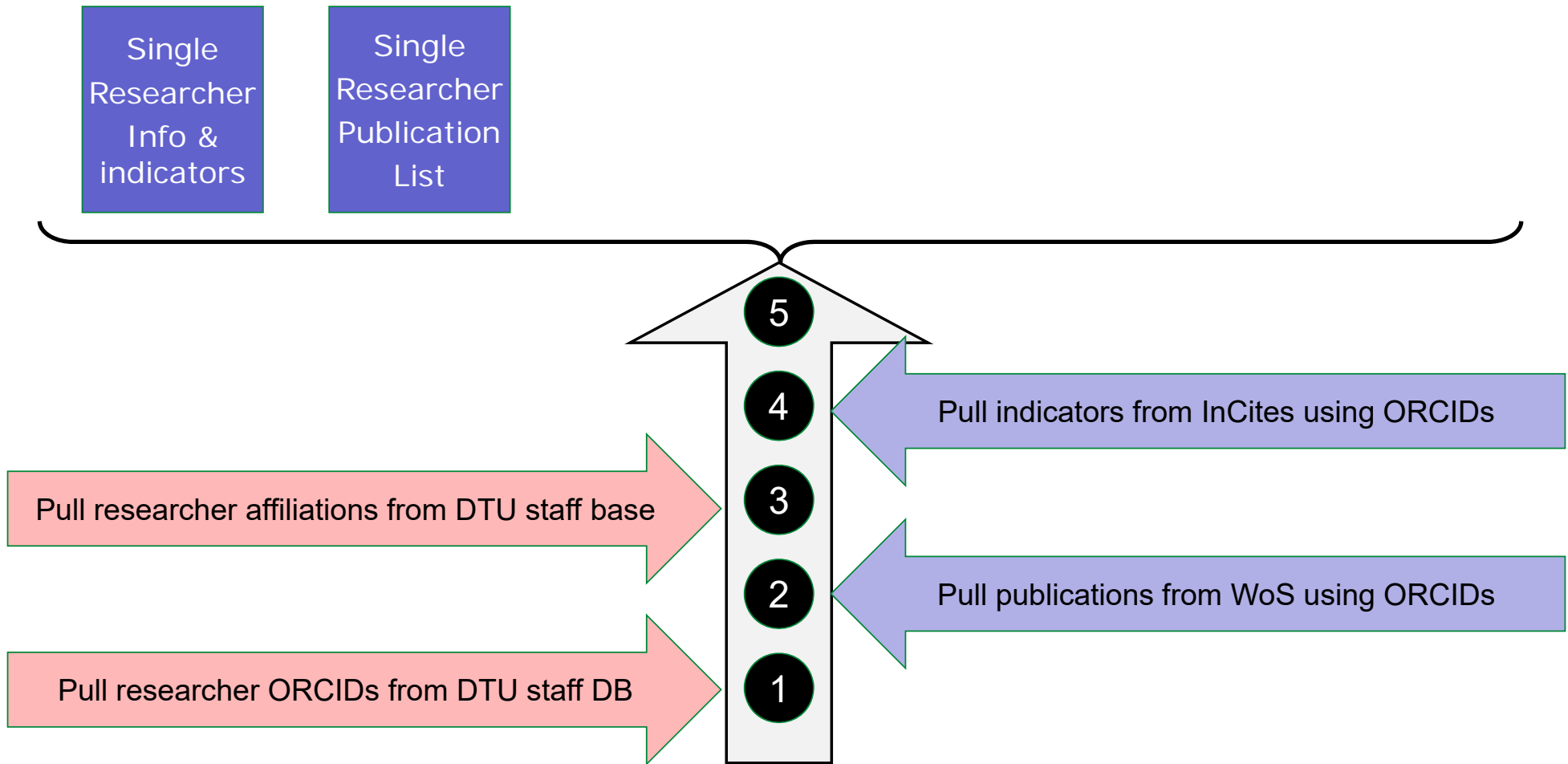
Next Step: Research Assessment



Next Step: Research Assessment



Next Step: Research Assessment



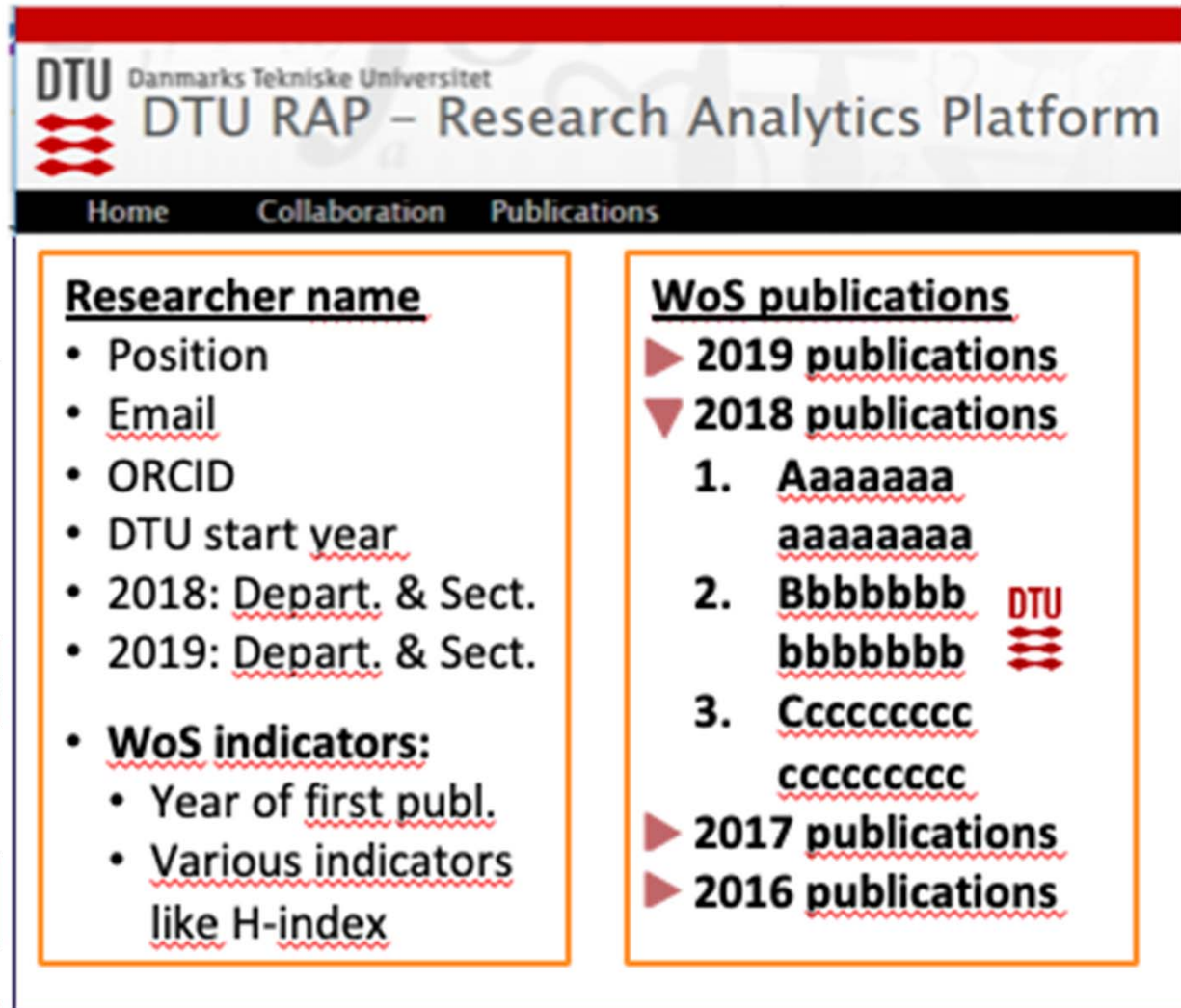
Next Step: Research Assessment

Single
Researcher
Info &
indicators

Single
Researcher
Publication
List

Pull researcher affiliations from DTU

Pull researcher ORCIDs from DTU



The screenshot shows the DTU RAP - Research Analytics Platform interface. The header includes the DTU logo and the text 'Danmarks Tekniske Universitet' and 'DTU RAP - Research Analytics Platform'. Below the header is a navigation bar with 'Home', 'Collaboration', and 'Publications' links. The main content area is divided into two columns. The left column, titled 'Researcher name', lists fields: Position, Email, ORCID, DTU start year, 2018: Depart. & Sect., 2019: Depart. & Sect., and WoS indicators (Year of first publ., Various indicators like H-index). The right column, titled 'WoS publications', lists publication counts for 2019, 2018, 2017, and 2016, with sample data for each year. A DTU logo is also visible next to the 2018 data.

DTU Danmarks Tekniske Universitet
DTU RAP – Research Analytics Platform

Home Collaboration Publications

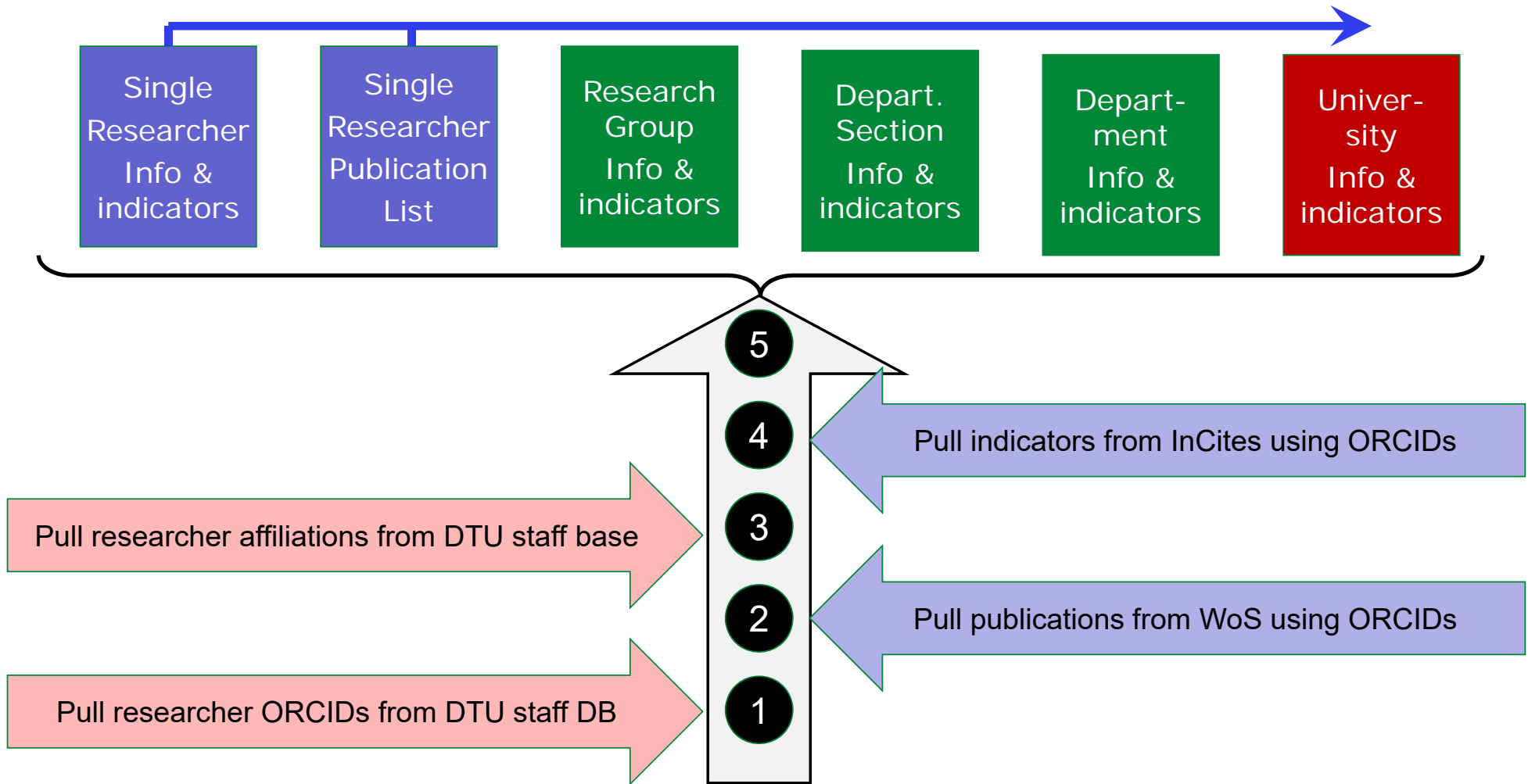
Researcher name

- Position
- Email
- ORCID
- DTU start year
- 2018: Depart. & Sect.
- 2019: Depart. & Sect.
- **WoS indicators:**
 - Year of first publ.
 - Various indicators like H-index

WoS publications

- ▶ 2019 publications
- ▼ 2018 publications
 1. Aaaaaaaa
aaaaaaaaa
 2. Bbbbbbbb
bbbbbbb DTU
 3. Ccccccccc
cccccccc
- ▶ 2017 publications
- ▶ 2016 publications

Next Step: Research Assessment



Web of Science Group APIs



	WoS Lite	WoS Expanded	AMR	InCites
Description	This Web service supports rich searching across the fields of Web of Science and retrieving core article level metadata.	All capabilities and fields of Web Services Lite plus additional metadata, such as times cited, author addresses, and author affiliations.	Enables real-time lookup of bibliographic metadata including identifiers against WoS to build article links to Web of Science from external systems	The InCites API provides document level metrics to support integration in Research Management Systems or Current Research Information Systems (CRIS).
Technical	SOAP + XML 2019 update: RESTful and JSON (or XML),		HTTPS POST + XML	RESTful
Entitlement/Auth	API key auth u/p			API key
Data Scope	WoS Platform (depending on subscription)		Core Collection	InCites dataset
Use Case	Discovery/Aggregation		Real-time data supplement	Discovery/Aggregation
Documentation	https://developer.clarivate.com/			

Thank you for your attention



Check out the OPERA project poster!

Acknowledgements:

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