Limitations of CRIS in assessing the progress of increasing research output in UrFU

Mark Akoev, Olga Leyba Scimetrics Lab of Ural Federal University
Lev Golitsyn Integrirovannye Sistemy LLC

Mark Akoev
m.a.akoev@urfu.ru

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Challenge: To support the process of the University's evolution we need an instrument which would allow us to notice the emerging scientific practices on the earliest stages of the development (before the first publications), and also give us the ability to track the overall development of scientific groups in the University.
Plan

• Why Ural Federal University needs to change
• The problem of grossindicators
• CRIS – managing the individual research productivity
• Monitoring of the Skills Training for Researchers development in UrFU and the general architecture of the research process in the University
• The instrument for monitoring of changes on the university scale
Ural University was founded in 1920. Later it was divided into several separate institutions including Ural State University (USU) and Ural State Technical University (USTU-UPI).

In 2011, these two institutions were merged again and become The Ural Federal University (UrFU).

UrFU bears the name of Boris Yeltsin, the first President of Russia who graduated from the university in 1955.
FACTS AND FIGURES

• UrFU is recognized as one of the leading Russian Federal University (among 9 other Federal Universities)
• 95-year history, more than 300 000 graduates
• About 2600 faculties
• More than 40 000 students in 18 UrFU Institutes, including 25 000 full-time students
• About 800 PhD students

• UrFU takes part in two federal programs:
  • 5 – year program of development of Federal Universities (2010-2014, 9 Federal Universities), 20 mln Euro per year
  • The Program of Enhancement of Competitiveness of Russian Universities – Project 5-100 (2013 – 2020, 14 Universities), 10 - 15 mln Euro per year
• There are 20 research institutes of Ural Branch of RAS located in Ekaterinburg which are collaborating with Ural Federal University both in the field of higher education and joint research and development activities.

• The Ural Division was established in 1932, with Aleksandr Fersman as its founding chairman. Currently research centers are open in Ekaterinburg, Perm, Chelyabinsk, Izhevsk, Orenburg, Ufa and Syktyvkar. As of 2007, the Division employed 3,600 scientists, 590 full professors, 31 full members, and 58 corresponding members of the Academy.
The Mission of Ural Federal University is to ensure re-industrialization and to enhance competitiveness, to build human, scientific and technical capacity, to upgrade traditional sectors of Russian economy and to develop post-industrial ones in a balanced manner, in particular within the Urals.
Our Dream is to establish a World-Class University in the heart of Eurasia

Today:
- Top 601-650 in QS World University Ranking
- Top 601-800 in THE World University Ranking

Source: Times Higher Education World University Rankings 2015-16
Research output UrFU

Growth in 2015 (to 2014)
SCOPUS +17%
WoS +28%

Growth in 2014 (to 2013)
SCOPUS +24%
WoS +30%

Growth in 2013 (to 2012)
SCOPUS +41%
WoS +35%

Growth in 2012 (to 2011)
SCOPUS +50%
WoS +30%

Source: Web of Science (Thomson Reuters), SCOPUS (Elsevier)
These analyses disaggregate the research output of UrFU and the selected UB RAS Institutes at the level of the 22 Essential Science Indicators (ESI) fields. Those fields in which they have no output are not shown.
Acquisition of CRIS Pure, April 2014

Elsevier and Russia’s Ural Federal University Sign License Agreement for Pure

First Russian university to have access to Elsevier’s research information management system

Moscow, April 22, 2014

Elsevier, a world-leading provider of scientific, technical and medical information products and services, today announced it has reached an agreement with Russia’s Ural Federal University (UrFU) to provide its researchers, faculty members and management with access to Pure, a research information management system to enable evidence-based decisions, promote collaboration, simplify administration and optimize impact. Pure is part of the Elsevier Research Intelligence portfolio of tools and services.

Over the years, UrFU, one of the leading Russian universities, has focused on increasing the quality and quantity of its research output with the aim of increasing its position in the world research rankings. With access to Pure, UrFU researchers, faculty members and management can improve transparency in their research processes, monitor and facilitate collaboration and track the university’s research outcomes, including awarded grants, publications and research output and impact. Furthermore, the customized dashboards and flexible reporting capabilities will help managers make more strategic, evidence-based decisions to improve the university’s performance.

Viktor Koksharov, UrFU’s Rector, said, “Pure will allow us to share our accomplishments with the global scientific community. Centrally collecting research information will give us more insights to enable us to increase the efficiency of research management in the university.”

Igor Osipov, PhD, Regional Director at Elsevier Russia and Belarus, added, “We welcome the innovative approach UrFU is taking for their future development. We are pleased to extend our collaboration with the university and bringing Pure to the Russian market for the first time. We are confident that with access to Pure the university can further optimize their efforts to expand their global reputation.”

About Ural Federal University

Ural Federal University (UrFU) is the oldest higher educational institution in the Ural region. It was founded in Ekaterinburg in 1920. Since 2008 the Ural University has carried the name of Boris Yeltsin, its graduate of 1955, elected by the people in 1991 to be the first President of Russia. UrFU is one of the top ranked scientific centres in Russia, carrying out research in natural, technical, and social sciences, the
Launch, december 2015

Portal http://science.urfu.ru/
Comparison chart of author publication activity

The number of publications in Scopus (2012-2014)

Dynamics of changes in the share of active authors in academic and research staff per department of the university, who wrote papers indexed in WoS Core Collection and Scopus

- Share in 2013
- Share in 2014
- Share in 2015
So, maybe the main reason of the absence of growth in publications is the absence of actual valuable scientific results?

No.

According to Russian Science Citation Index (RSCI) 
http://elibrary.ru

Interface and papers are mostly in Russian. The access to the system is free.

In 2015 in RSCI were 5873 UrFU publications while only 1471 (25%) were in Scopus
UrFU is 11th in RSCI by the number of publication in the last 5 years

<table>
<thead>
<tr>
<th>№</th>
<th>Название организации</th>
<th>Показатель</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Московский государственный университет им. М.В. Ломоносова (Москва)</td>
<td>67321</td>
</tr>
<tr>
<td>2.</td>
<td>Санкт-Петербургский государственный университет (Санкт-Петербург)</td>
<td>50241</td>
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<tr>
<td>3.</td>
<td>Финансовый университет при Правительстве РФ (Москва)</td>
<td>44751</td>
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<td>4.</td>
<td>Российская академия народного хозяйства и государственной службы при Президенте РФ (Москва)</td>
<td>37289</td>
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<td>5.</td>
<td>Российский экономический университет им. Г.В. Плеханова (Москва)</td>
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<td>6.</td>
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<td>7.</td>
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<td>8.</td>
<td>Первый Московский государственный медицинский университет им. И.М. Сеченова (Москва)</td>
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<td>Казанский (Приволжский) федеральный университет (Казань)</td>
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<td>10.</td>
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<td>11.</td>
<td>Уральский федеральный университет им. первого Президента России Б.Н. Ельцина (Екатеринбург)</td>
<td>25757</td>
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<td>12.</td>
<td>Национальный исследовательский Томский политехнический университет (Томск)</td>
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# Transferable Skills Training for Researchers

<table>
<thead>
<tr>
<th>Transferable skill category</th>
<th>Skills included:</th>
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<tbody>
<tr>
<td>Interpersonal skills</td>
<td>* Working with others/teamwork</td>
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<td></td>
<td>* Mentoring and supervisory skills</td>
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<td></td>
<td>* Negotiating skills</td>
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<td>* Networking skills</td>
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<tr>
<td>Organisational skills</td>
<td>* Project and time-management skills</td>
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<tr>
<td></td>
<td>* Career planning skills</td>
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<tr>
<td>Research competencies</td>
<td>* Grant application writing skills</td>
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<tr>
<td></td>
<td>* Research management and leadership</td>
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<td></td>
<td>* Knowledge of research methods and technologies beyond the PhD project</td>
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<td></td>
<td>* Research ethics and integrity</td>
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<tr>
<td>Cognitive abilities</td>
<td>* Creativity and the ability for abstract thought</td>
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<td></td>
<td>* Problem solving</td>
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<tr>
<td>Communication skills</td>
<td>* Communication/presentation skills, written and oral</td>
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<td></td>
<td>* Communication/dialogue with non-technical audiences (public engagement)</td>
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<td></td>
<td>* Teaching skills</td>
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<td></td>
<td>* Use of science in policy making</td>
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<tr>
<td>Enterprise skills</td>
<td>* Entrepreneurship</td>
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<td></td>
<td>* Innovation</td>
</tr>
<tr>
<td></td>
<td>* Commercialisation, patenting and knowledge transfer</td>
</tr>
</tbody>
</table>
Which skills should be trained and what should be done on the organizational level to be able to train them?

- To model the skills and their connections with organisational changes we used the Archimate language
  The Open Group Standard
  http://www.opengroup.org/subjectareas.enterprise/archimate

- Results were discussed during a regular meeting of INCOSE RUS
  February 17 2016 (available in Russian)
  http://incose-ru.livejournal.com/54648.html
Architecture of the Academic and Engineering Work at the University

Strategizing

Education

Innovations

Scientific process

About the model: [http://incose-ru.livejournal.com/54648.html](http://incose-ru.livejournal.com/54648.html) (only in Russian, sorry)
Why do we need a model for the scientific process of a university?

• The ability to confirm the presence of the skills required to conduct the whole research cycle for university employees
• Model of maturity of a scientific group
• Ability to determine which information about a business function implementation cannot be found in CRIS.
• Ability to design the process of information collection about business functions acknowledging the limitations of CRIS.
Motivation for the usage of Cohort Analysis

• Allows us to build indicators for measuring the progress of whole organization, and not only some processes within it
• Is used to detect the differences in behavior of employees by grouping them by the cohort. For example, grouping them by the year of the first publication.
• Allows us to track the results for both the information which can and cannot be displayed in CRIS.
• Allows to compare the results with other benchmark universities.
## Cohort structure and dynamics

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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</thead>
<tbody>
<tr>
<td><strong>Authors of cohort 2012</strong></td>
<td></td>
<td></td>
<td>New authors who published in 2012:</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• 15 (PhD students 2012)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• 20 (New Researchers, may be with history)</td>
</tr>
<tr>
<td><strong>Authors of cohort 2011</strong></td>
<td></td>
<td>New authors who published in 2011:</td>
<td>Authors who published in 2011:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 10 (PhD students 2011)</td>
<td>• 4 (PhD students 2011)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 8 (New Researchers, may be with history)</td>
<td>• 7 (New Researchers, may be with history)</td>
</tr>
<tr>
<td><strong>Authors of cohort 2010</strong></td>
<td>• 10 (PhD students 2010)</td>
<td>Authors who published in 2010:</td>
<td>Authors who published in 2010:</td>
</tr>
<tr>
<td></td>
<td>• 10 (Researchers)</td>
<td>• 5 (Researchers, ex PhD students)</td>
<td>• 4 (Researchers, ex PhD students)</td>
</tr>
<tr>
<td></td>
<td>• 10 (Researchers)</td>
<td>• 7 (Researchers)</td>
<td>• 9 (Researchers)</td>
</tr>
</tbody>
</table>
Cohort analysis of UrFU authors for years 2010-2015

Number of authors:
- 2010: 559
- 2011: 380
- 2012: 371
- 2013: 428
- 2014: 537
- 2015: 579

Authors of cohort:
- 2015: 292
- 2014: 173
- 2013: 152
- 2012: 146
- 2011: 154
- 2010: 251
## Cohort Analysis of publications dynamics

<table>
<thead>
<tr>
<th>Publications of authors from cohort</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>2012-2012</td>
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<td>2011-2011</td>
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<td>2010-2012</td>
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<tr>
<td>2010-2011</td>
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<tr>
<td>2010-2010</td>
<td>10</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>
Cohort analysis by publication types. Authors of 2010, co-authors of 2010-2014. UrFU
Cohort analysis by publication types. Authors of 2012, co-authors of 2012-2014. UrFU
Conclusion

• CRIS allows for assessment of research performance of those of the academic staff who are already working at a level of publishing papers in indexed journals.

• A model of research group maturity was proposed to aid facilitation and monitoring of the development of new research groups. Extending the CRIS capabilities to those of RIMS is needed in order to study the validity of the model and to employ it for action planning.

• A cohort analysis method based on CRIS Pure data is proposed to validate the long-lasting effect of actions taken to increase the university’s research output.
Thank you for attention

Mark Akoev
m.a.akoev@urfu.ru

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