

# OA Repositories and Research e-Infrastructure\*

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If, in the future, all repositories are federated as universal research data and information space (DIS), how can research community exploit the emerged systemic effect to produce maximal benefits?

We can develop research e-infrastructure tools and services to exploit systemic effect of DIS

We can create conditions for maximal usage of research results

We can implement new approaches/tools to generate statistics on research results usage and create online scientometrics

We can count new indexes and indicators about research performance of scientists and organizations

In June 2009 the Socionet system federates 3684 repositories participated in RePEC.org (with 781676 materials) and 332 from Russian research organizations (with 144124 materials). In total – 4016 repositories are federated as DIS with currently about 1 ml materials and with everyday surplus of 300 new materials and 1-2 new repositories in average.

The Socionet project is exploiting the DIS systemic effect to improve at national level research efficiency in Russia, e.g. by creating better: (a) conditions for research results usage, (b) research performance assessment, and (c) motivations to accept a new research practice based on open access to research ideas and e-infrastructure services.

**While designing the research e-infrastructure we are seeking for efficient solutions:**

**(1) How should we construct, in form and function, a system for shaping and sharing research results from local repositories so as to provide maximal usage?**

- Electronic depositing model focused on research results usage (like SKO at LiquidPub project)
- CRIS model for proper and complete information representation of actors in DIS
- CERIF based Information hub (IH) as a mechanism to federate local repositories
- DIS visualization
- Two-way openness of IH through RSS and OAI-PMH protocols
- Ability to create IRs from federated metadata
- Ability to develop networks of linkages (like professional social network)

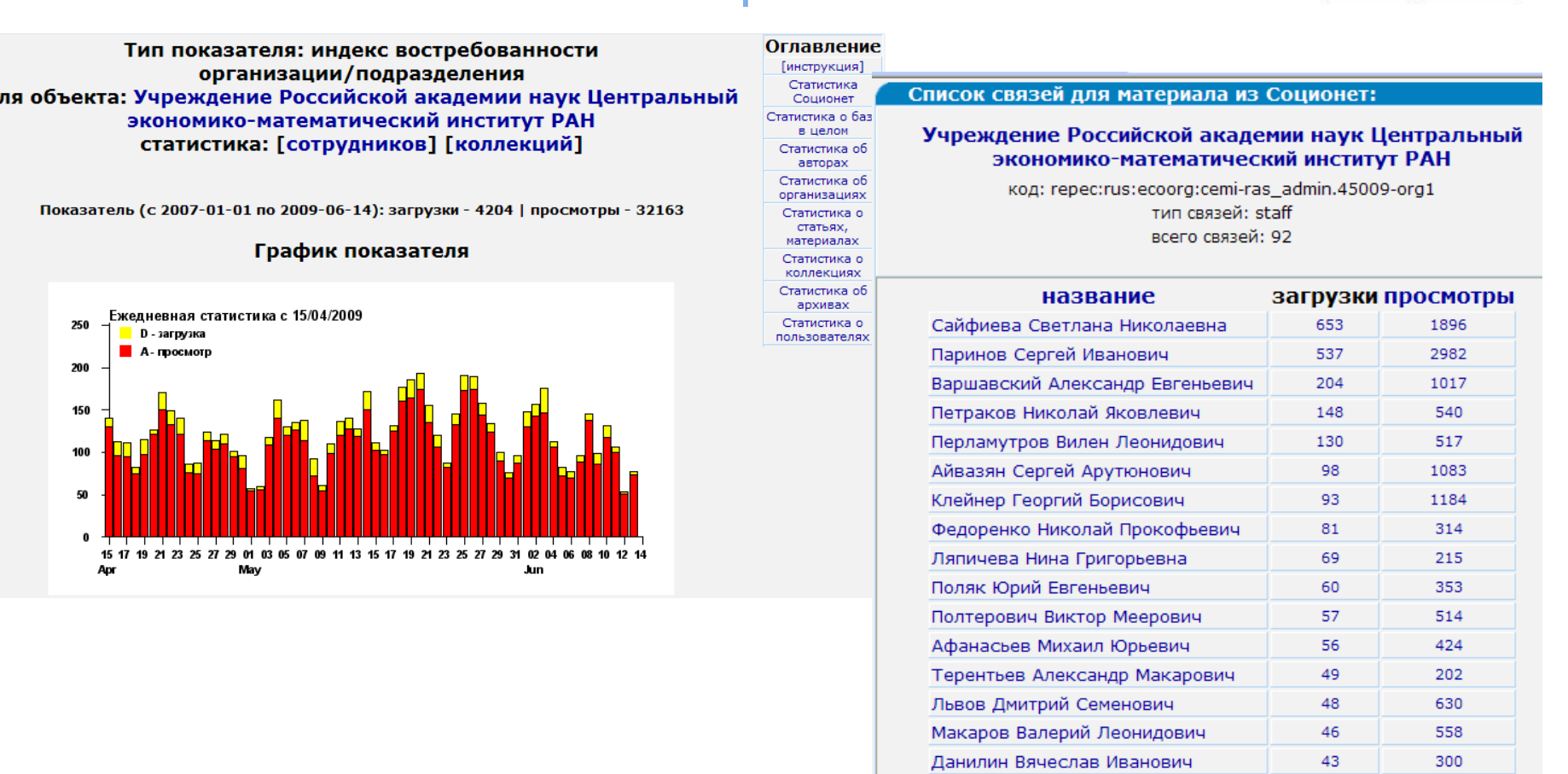
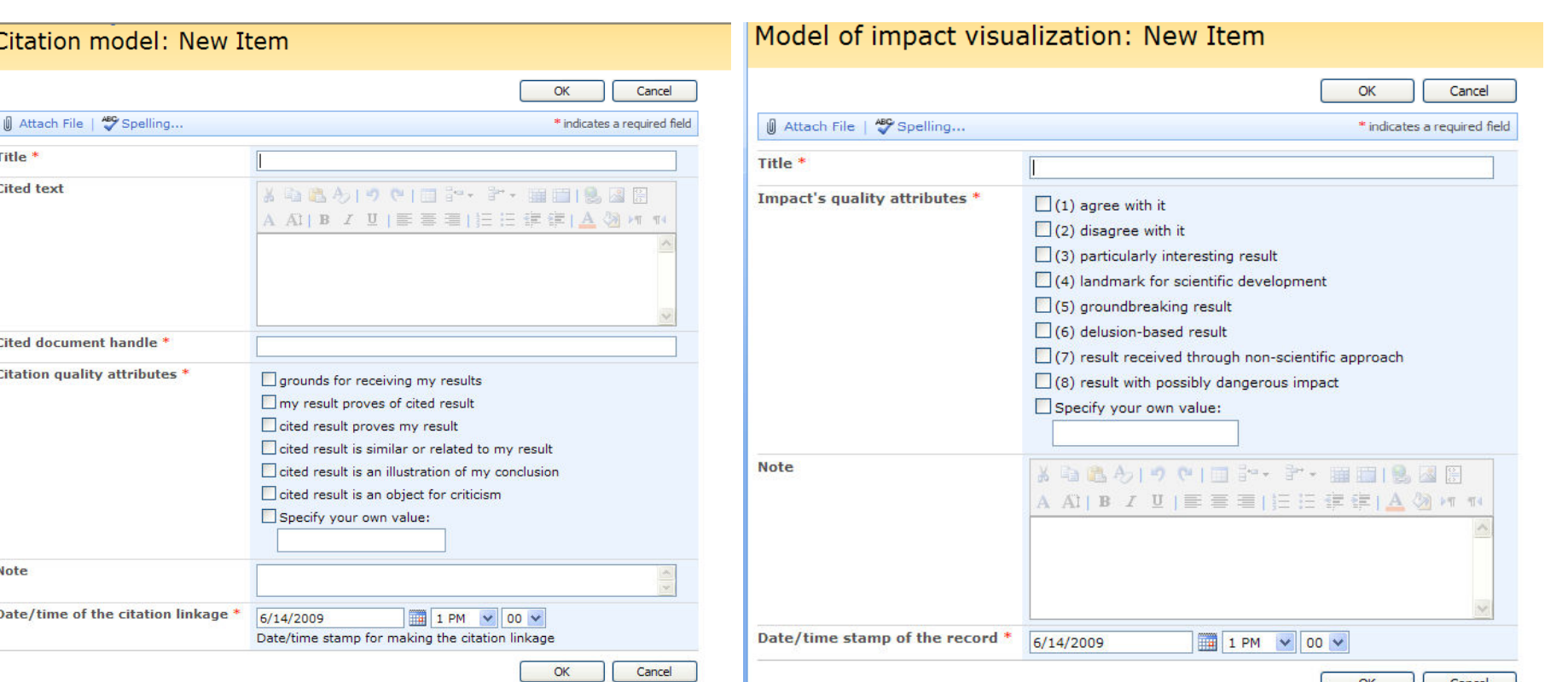
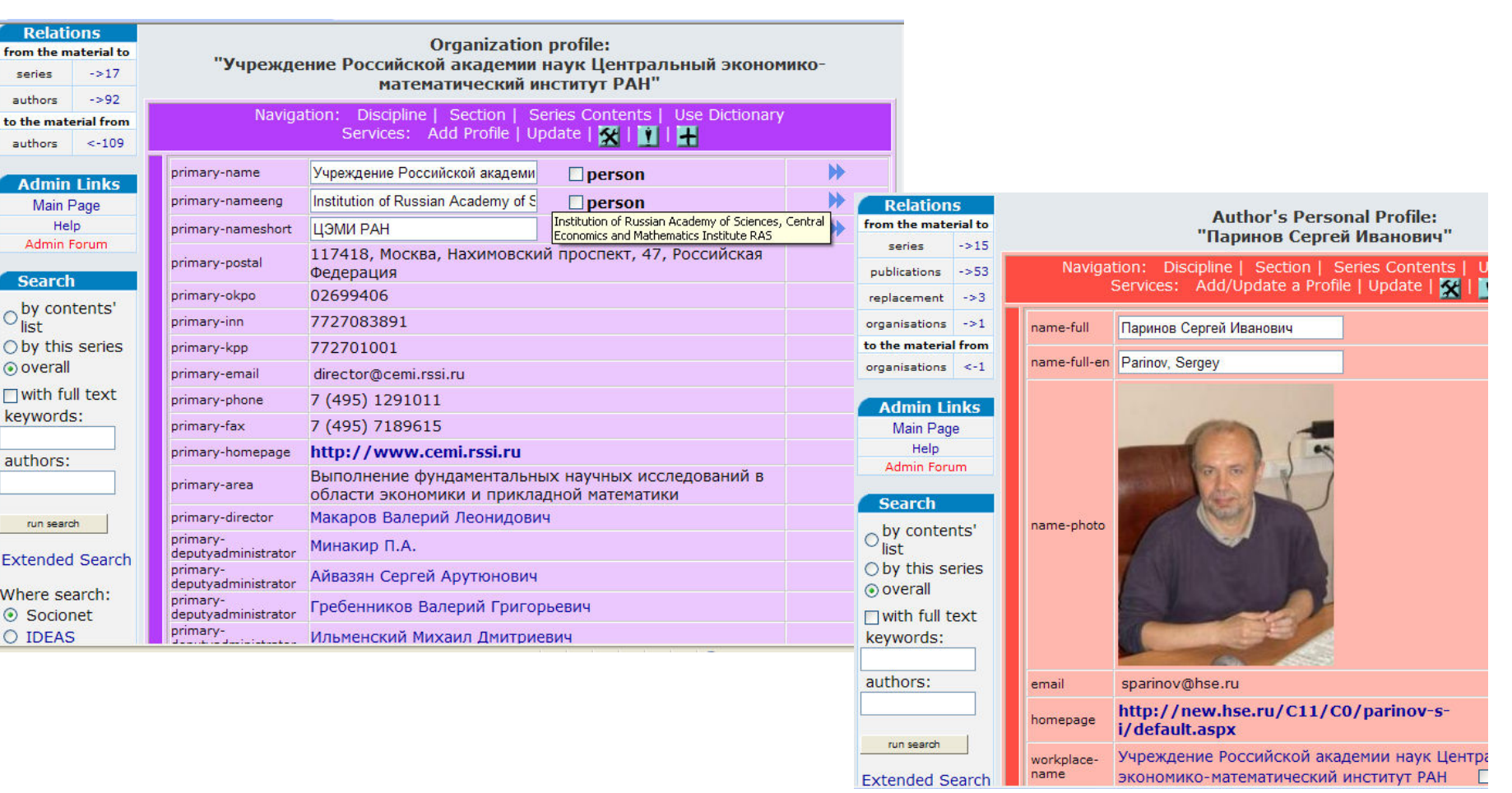
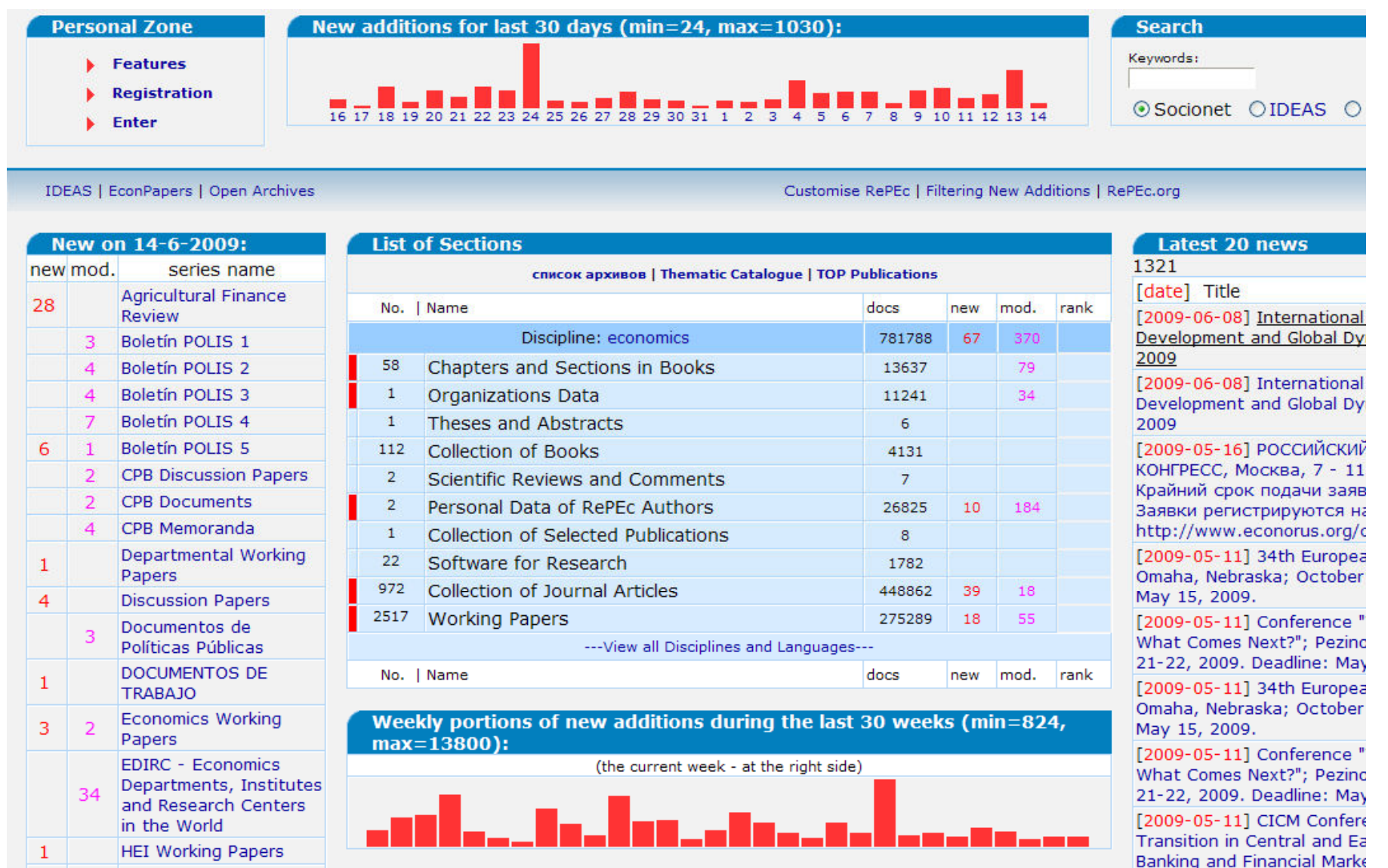
**(2) How should we organize a process of research results usage, and design necessary tools to provide maximally comprehensive and accurate statistics on the uptake, usage and impact of research results?**

- Electronic citation model with quality attributes
- Professional impact evaluation model with quality attributes (similar to some LiquidPub project's ideas)
- Automated monitoring of linkages' validness and notification service

**(3) How should the research e-infrastructure accumulate and process statistics to generate new online metrics sufficient for research assessment of higher quality, sensitivity, breadth, accuracy, reliability, and validity than current metrics?**

- Tracing all changes in DIS both quantity and quality data
- Openness of accumulated raw statistics
- Information Model of DIS, including actors and their activities in DIS
- Professional Signal System
- Research Performance Indexes

We can use online performance indicators in making decisions on financing of research, researchers and research organizations



Complex information portrait of a researcher:

- Personal data/profile and history of changes
- Growth of numbers of papers/articles/results and other materials
- Number of citations to/from researcher's materials and its dynamic
- Distribution of quality attributes for citations to/from researcher's materials
- Number of impact evaluations to researcher's material and from the researcher, its dynamics, distribution of its quality attributes
- Distribution of citations and impact evaluations by researcher's materials

OA repositories + research e-infrastructure + motivations = **Open Science**, as a new universal research practice

\* thanks to eIFL (eifl.net) for ability to participate in OAI6