



State University – Higher School of Economics



Institute for Statistical Studies and Economics of Knowledge

# Performance of Research Teams in Russia: Results of an Empirical Study

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# Assumptions

- ◆ This study is based on epy analysis of **sociological factors** of performance of research teams. **Economic indicators** of performance weren't considered in this project.
- ◆ Performance of research team (from a sociological point of view) is **directly related to social management efficiency**.
- ◆ Performance depends on the **efficiency of human capital management** research team.
- ◆ "Human capital of research group" is understood as the **configuration of the active properties** of individual team's members and the distribution of differences of their active properties.
- ◆ The distribution of scientists' active properties is a structural characteristic of the scientific field. These distributions show how holistic properties of the field develop, how they relate to individual agents' properties and how individual researchers "fit" into science.

# Indicators of individual human capital of a researcher

## ◆ **Educational properties:**

basic education, higher and postgraduate education, a scientific degree, further professional training, etc.

## ◆ **Scientific properties:**

affiliation with a scientific movement, a number of publications, publications translated into other languages, participation in scientific life (conferences, seminars, etc.), scientific awards and other tokens of recognition from the colleagues

## ◆ **Administrative properties:**

positions held in scientific, educational and state institutes; membership in editorial, academic and scientific boards; participation in expert examinations, work groups and commissions, etc.

## ◆ **Media properties:**

media publications of an agent or about him/her, including reviews, public lectures, participation in TV- and radio shows, personal blogs and web-sites

# Indicators of scientific activities' efficiency

## ◆ Indicators of scientific activities' efficiency:

- publications in peer-review journals,
- monographs,
- patents,
- conference reports,
- elaboration of teaching courses,
- Presentation / supervision of dissertations,
- ... etc.

## ◆ Equipment and facilities:

- Engineering, design, R&D and technologic departments and organisations;
- Experimental base (R&D production);
- Auxiliary departments (workshops, repair and maintenance services);
- Scientific equipment and experimental machinery multi-access centre;
- Centre for technology transfer;
- Centre for innovation and technology;
- Industrial park;
- Business incubator

# Methodology and sample layout

**Purposive sampling** – 13 research teams (all staff)

In total – 233 individual researchers were interrogated

## Criteria:

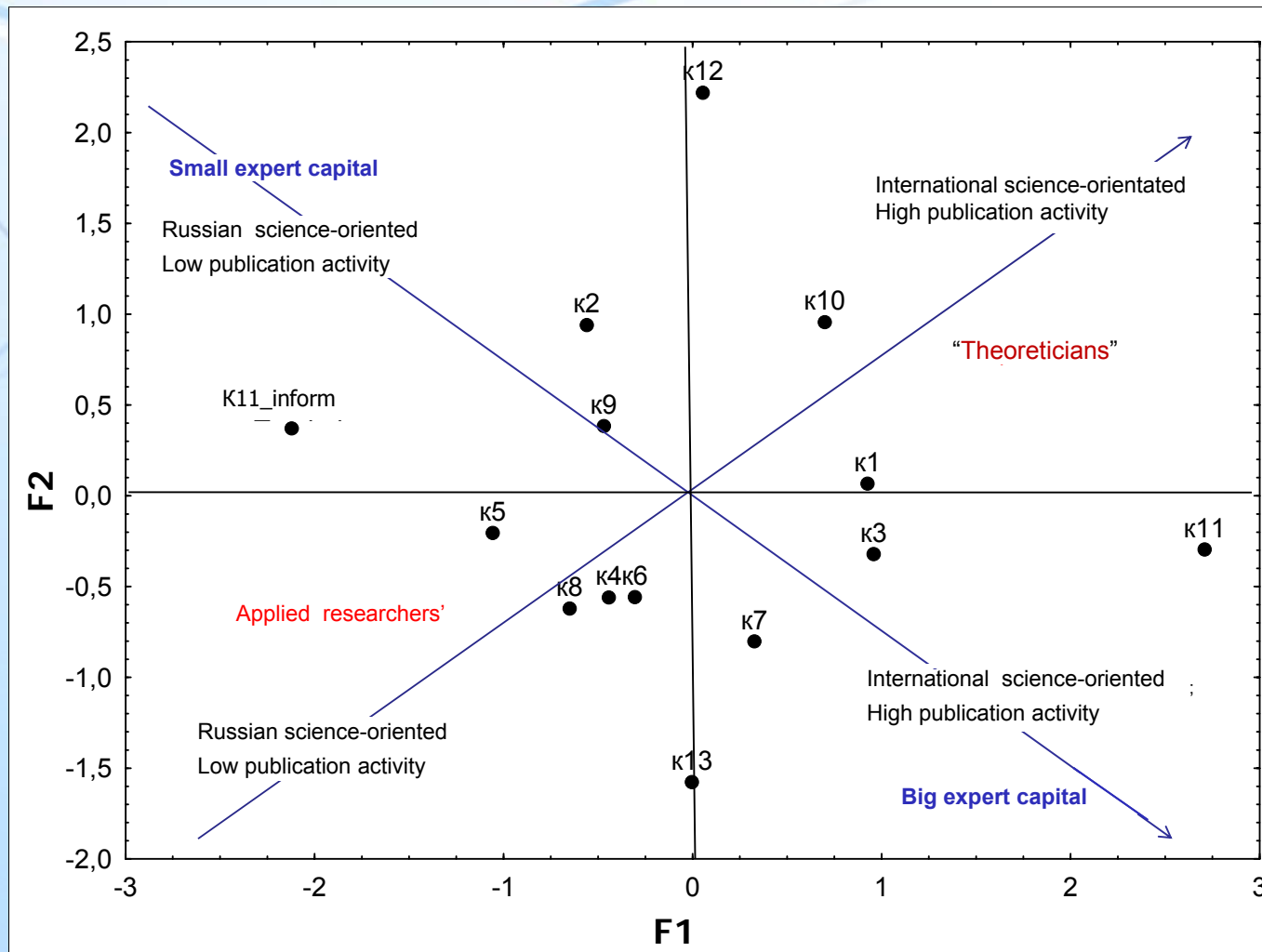
- ◆ Experimental (rather than purely theoretical) research
- ◆ Research area: chemistry, biochemistry, biology, biomedicine, bioinformatics
- ◆ Group size: from 12 to 25 researchers

## Organisations:

Russian Academy of Sciences, Russian Academy of Medical Sciences (RAMN), the biggest Russian universities, such as Lomonosov Moscow State University (MGU) and Mendeleev University of Chemical Technology of Russia (MHTI), etc.



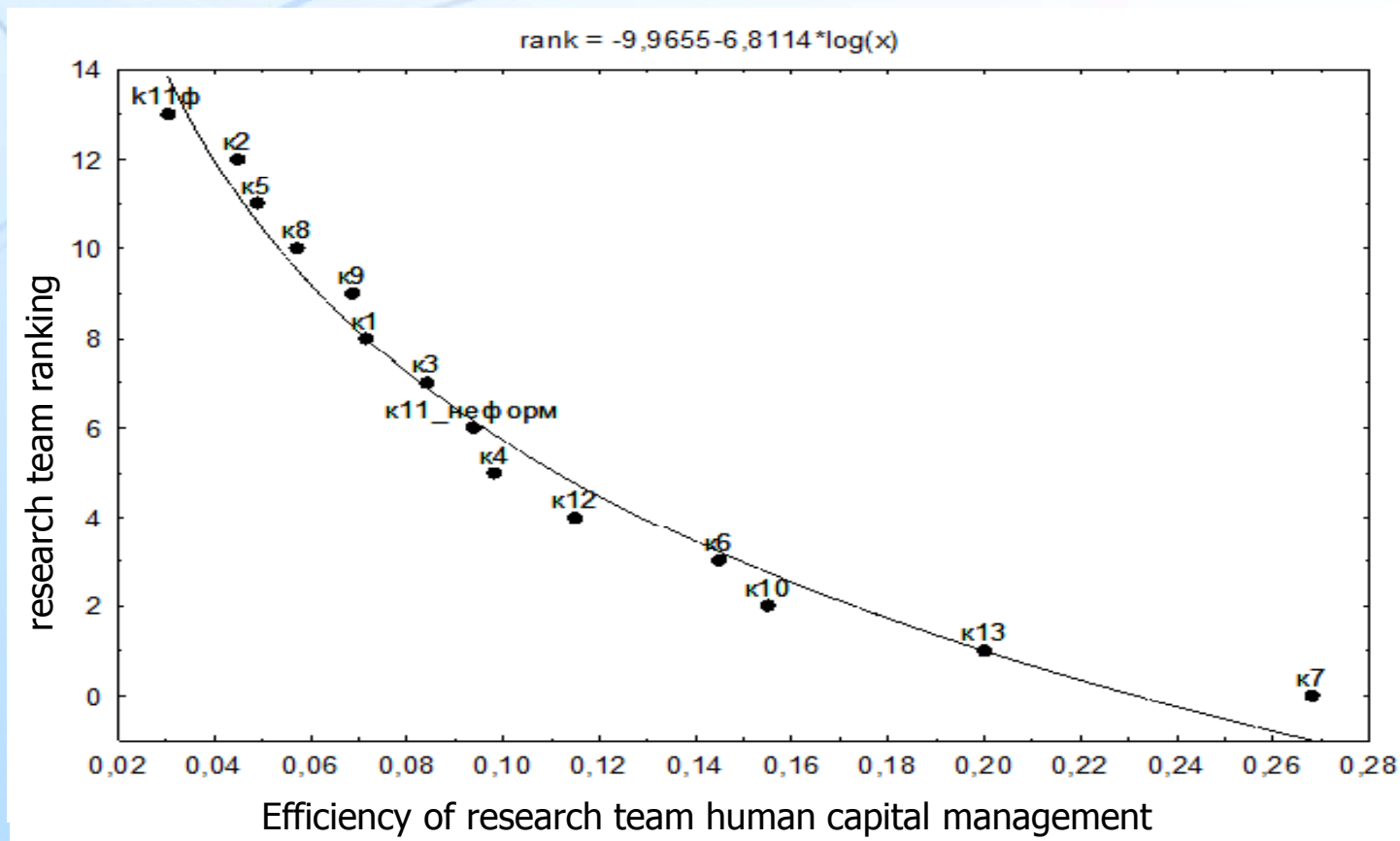
# Space of the research teams



F1 – aggregate scientific capital  
F2 – aggregate administrative capital

# Efficiency management of collective human capital

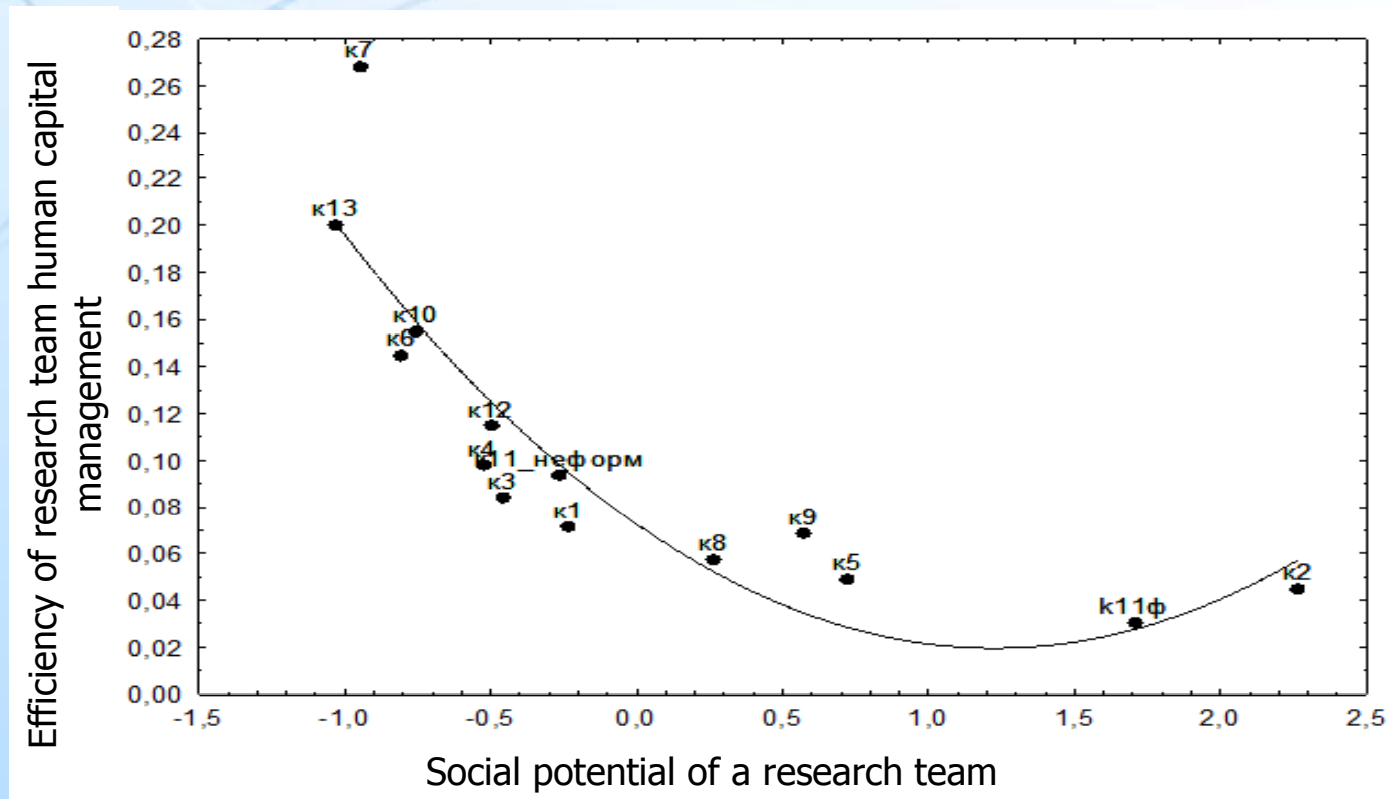
## Ranking under efficiency of management





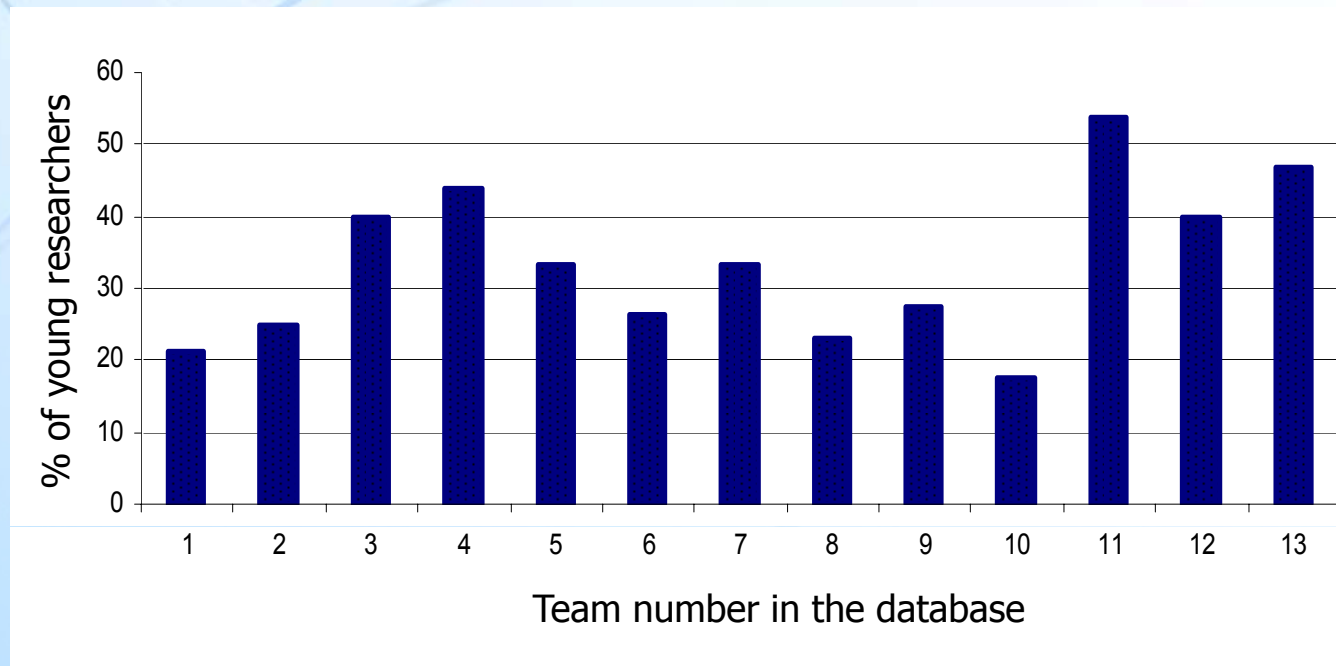
# Efficient management of collective human capital

## Ranking under social potential



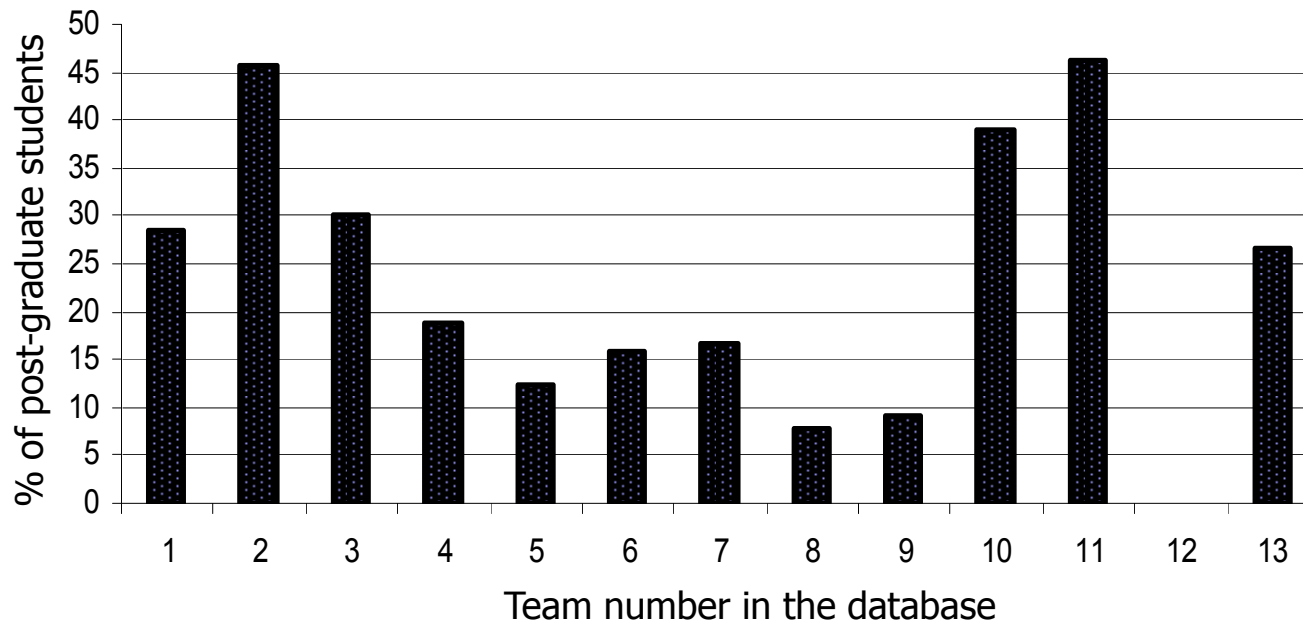
# The most effective parameters with which efficiency correlates

- ◆ Young (under 35) employees' share in the research teams



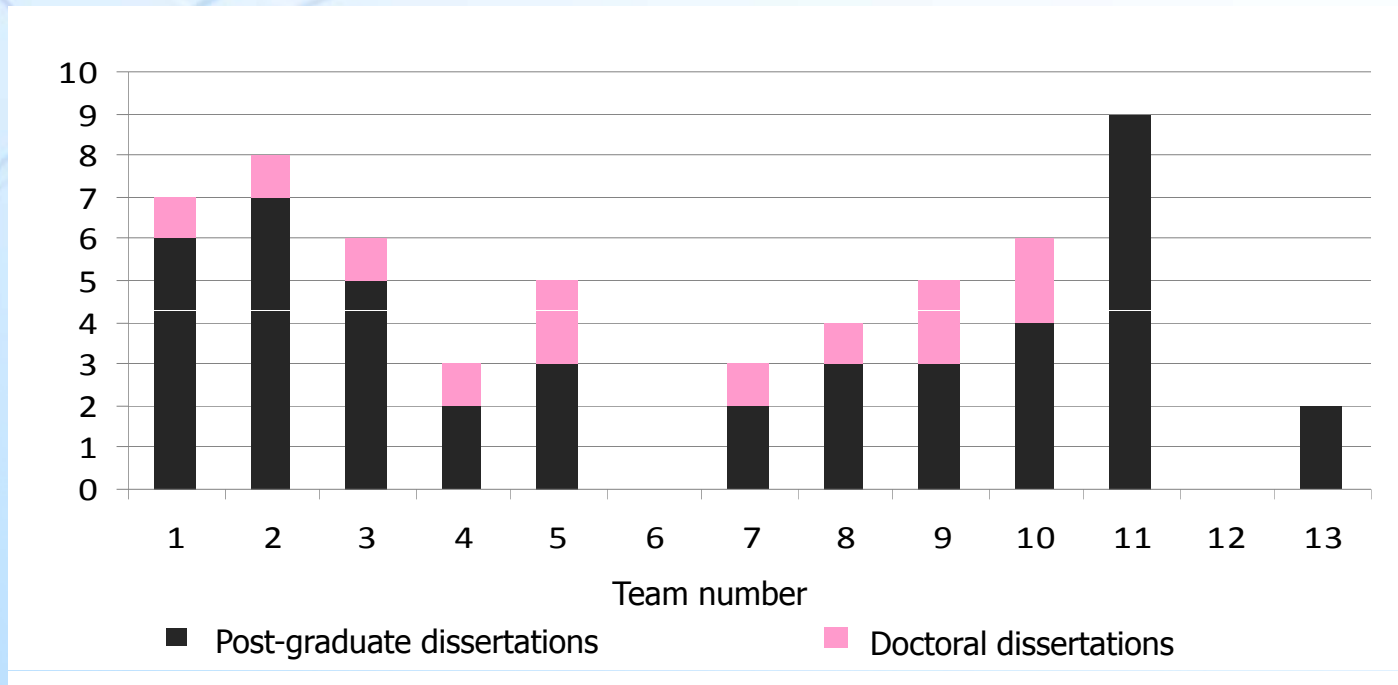
# The most effective parameters with which efficiency correlates

## ◆ Post-graduate students' share in the research teams



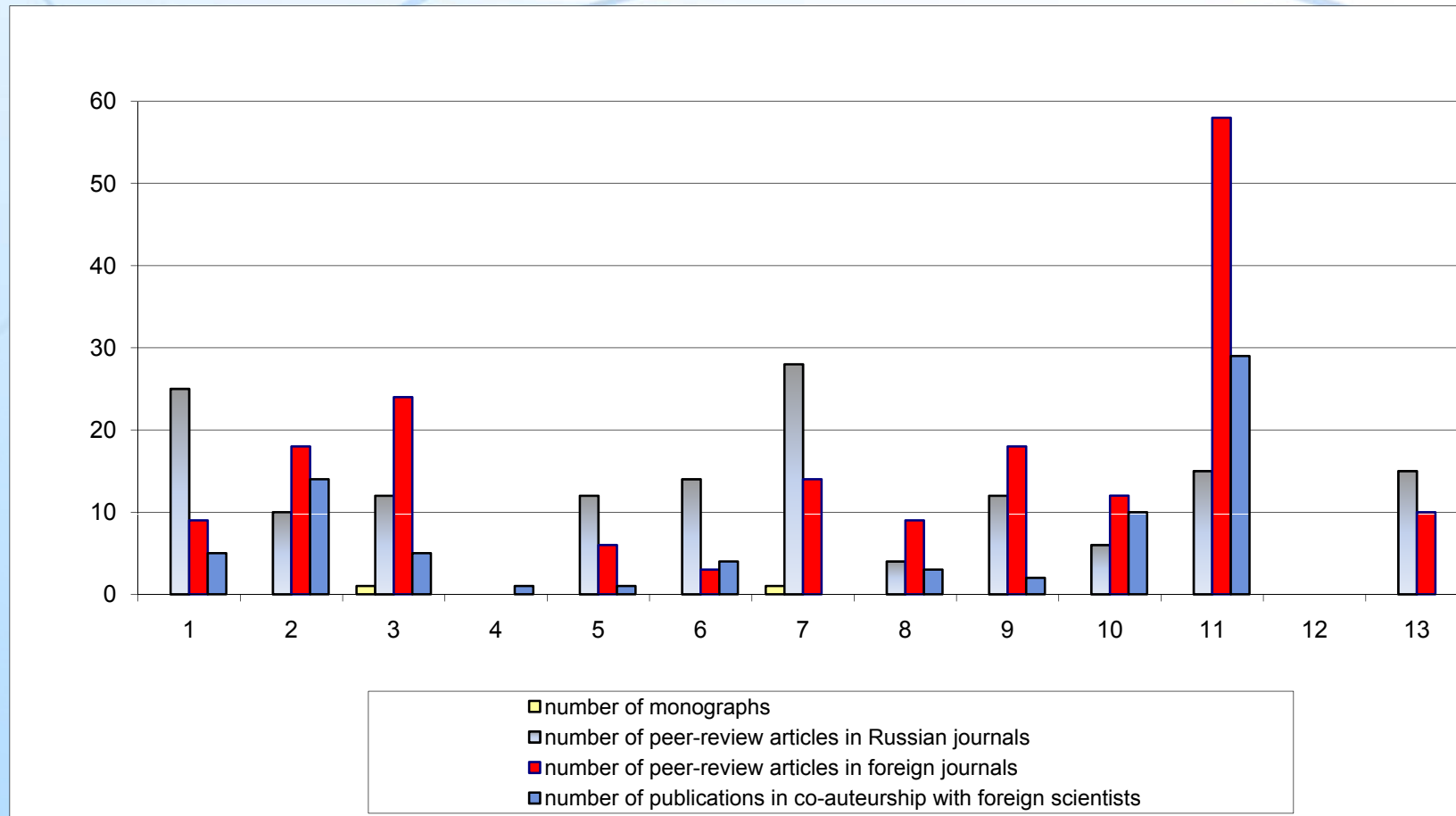
# The most effective parameters with which efficiency correlates

- ◆ Number of post-graduate and doctoral dissertations presented in the research teams



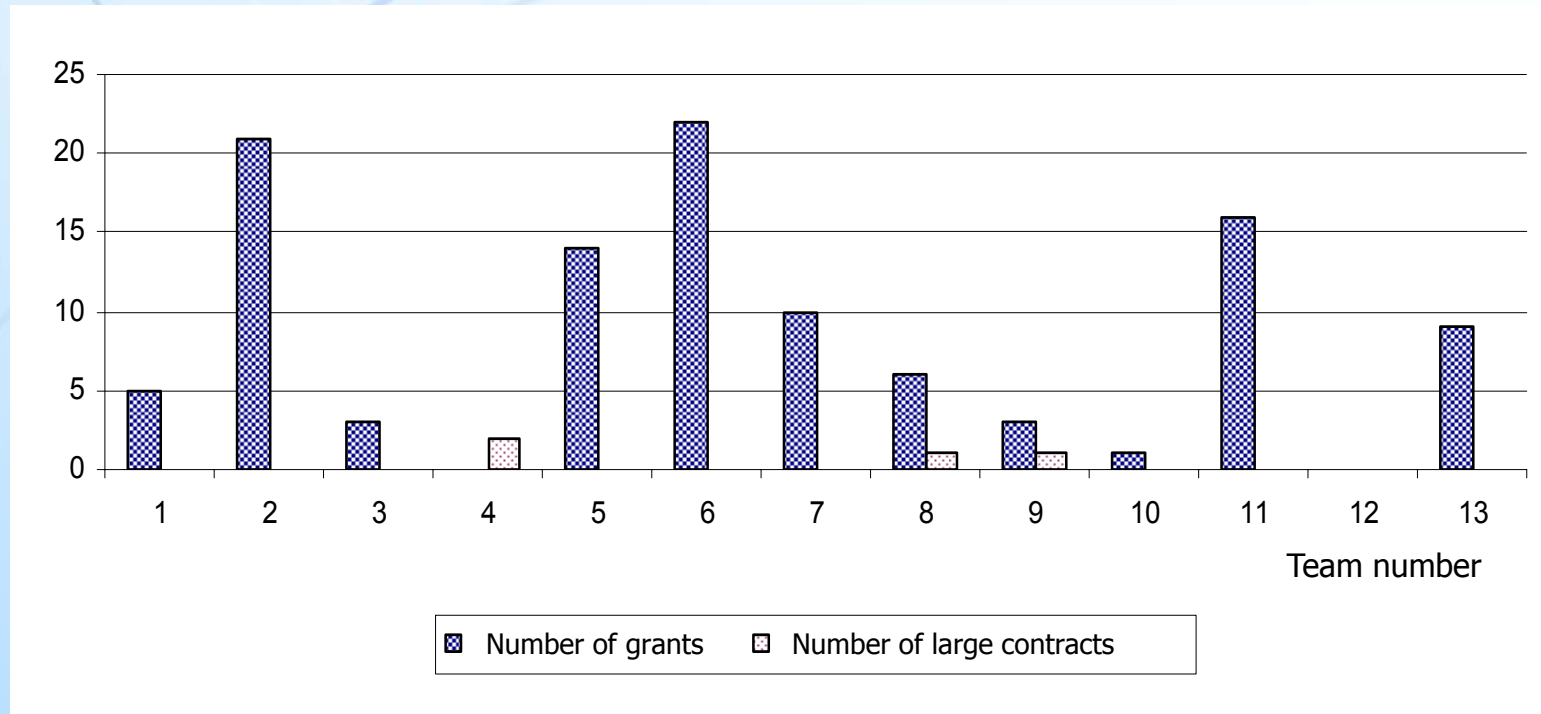
# The most effective parameters with which efficiency correlates

## ◆ Publication activity structure of the research teams, 2006-2008



# The most effective parameters with which efficiency correlates

- ◆ Grants and contracts: R&D, engineering, scientific design and technological projects





# Conclusion

- ◆ Current human capital management practices in Russia make use of methods of centralized external action on a research team. However, Russian experience proves that scientific achievements are relatively inefficiently regulated if exposed only to external administrative and financial measures. Thus there appeared a need to focus the effort on the innovative ways with would let research teams develop their own structures independently, besides external political or economic factors.
- ◆ It shall not only fully take into consideration immanent properties of a research team, but, further on, base our analysis on the following indisputable fact: a research team enjoys a directed self-organization.
- ◆ The scientific policy doesn't aim to construct any innovative scientific organizations from the scratch. Instead, it should aim at activation of 'hidden opportunities' of a scientific organization, to enforce its own structures and development path.

**Thank you for your attention!**