

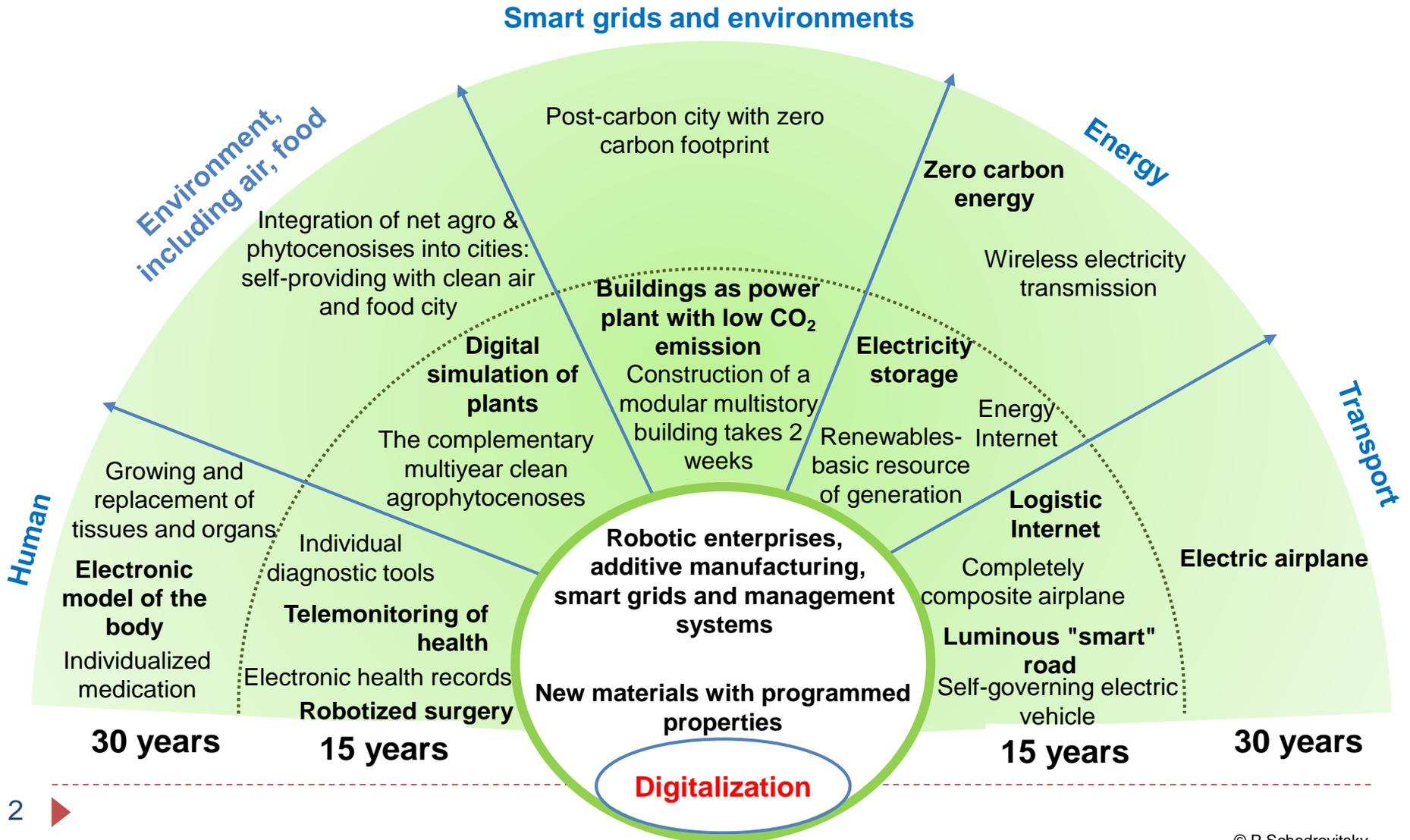
Kazan  
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# Education and training transformation in the context of labor division extension and deepening

Petr G. Schedrovitsky  
President

Non-profit Research Foundation "The Schedrovitsky Institute for development"

# New technology platform of the Third Industrial Revolution is developing today

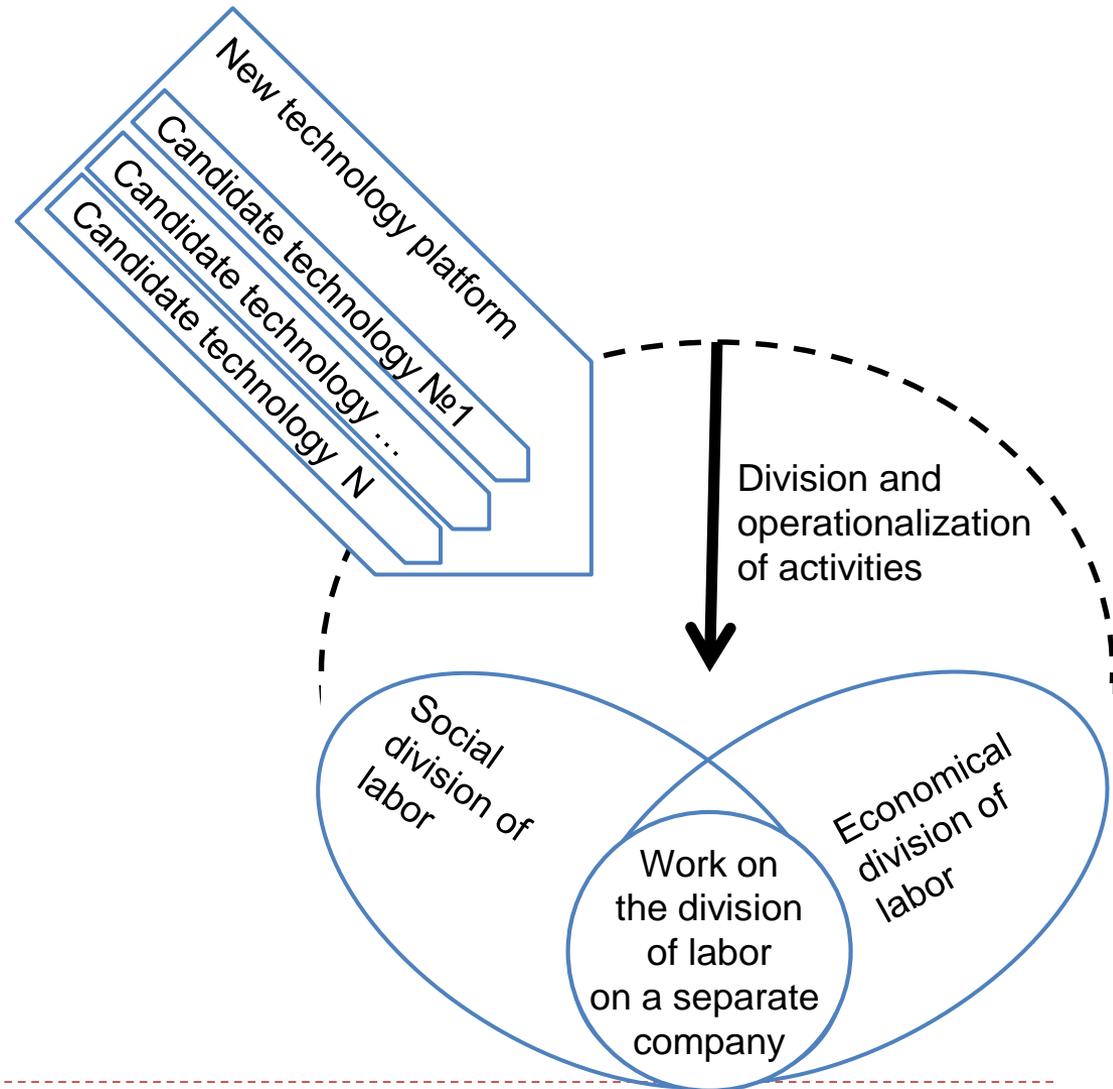


# New technology platform transforms the labor division system

New technology platform transforms the the system of labor division at the level of:

- separate companies;
- global and regional economy;
- division of activities (social division of labor).

Implementation of new technology platform technologies changes requirements to functional and morphological structure of labor division system

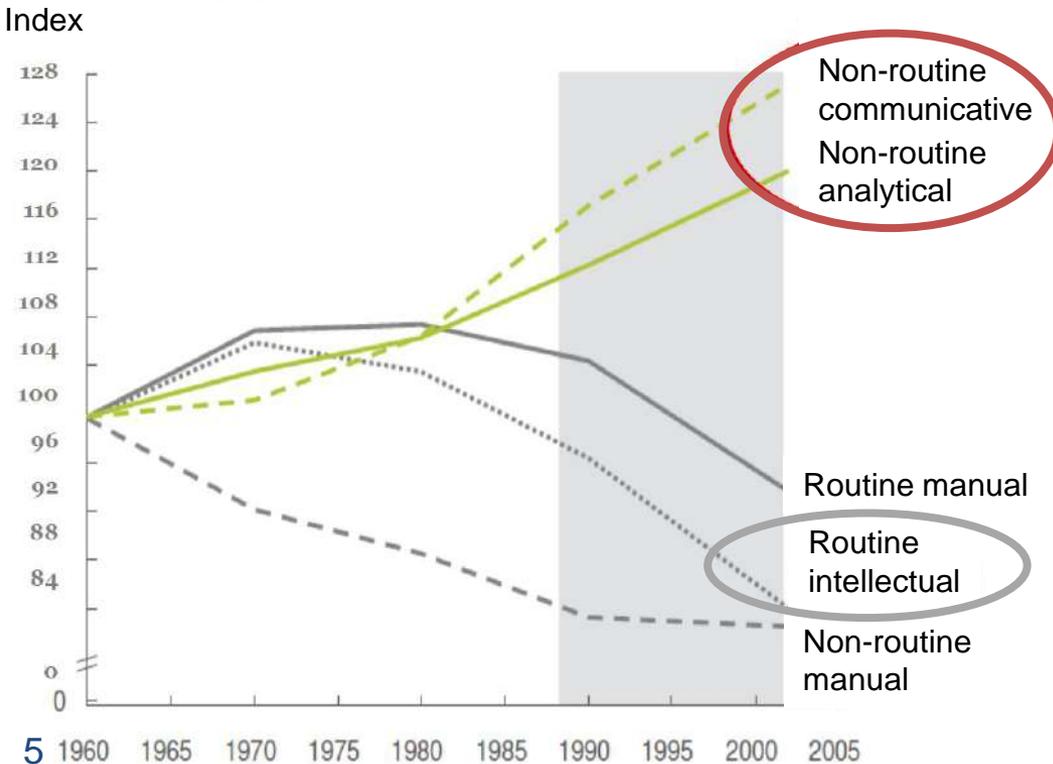




# ... and "old" jobs profile is changing

- ❑ "Commoditization" and automation of some engineering traditional functions, automation of routine intellectual operations.
- ❑ Professionals with a deep understanding of the problems at the system level.

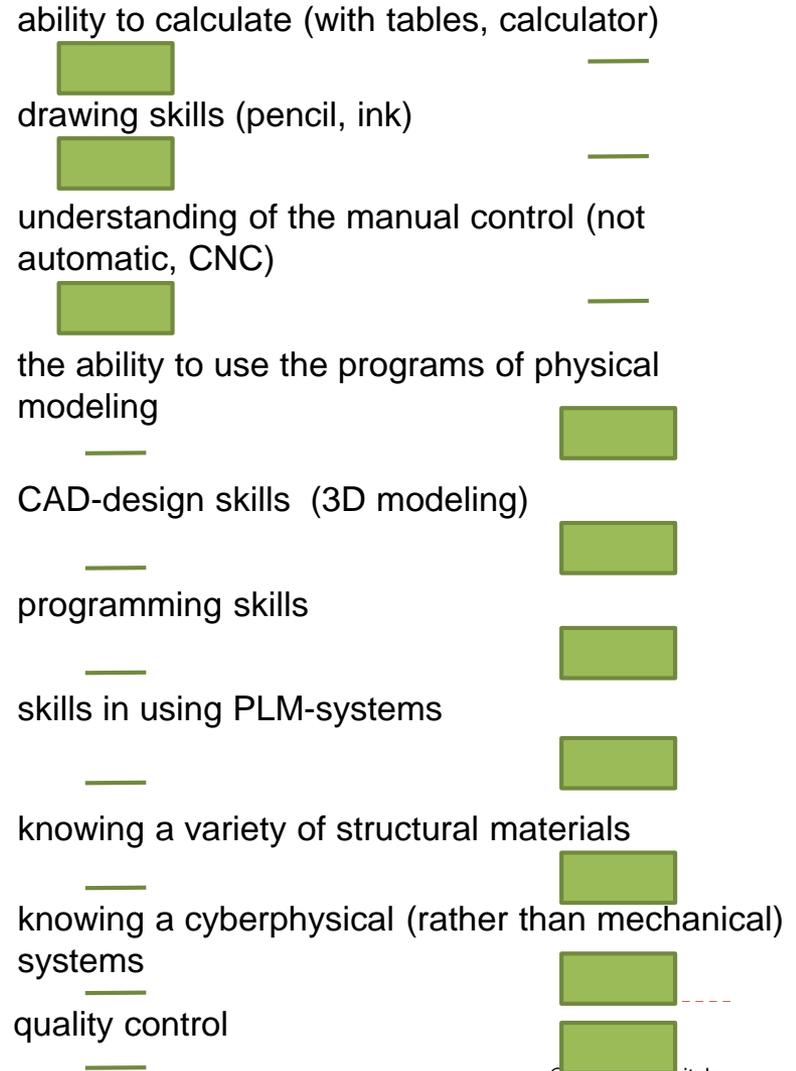
Skills in-demand<sup>1</sup>



## Profile of Engineer competences

1980

2015



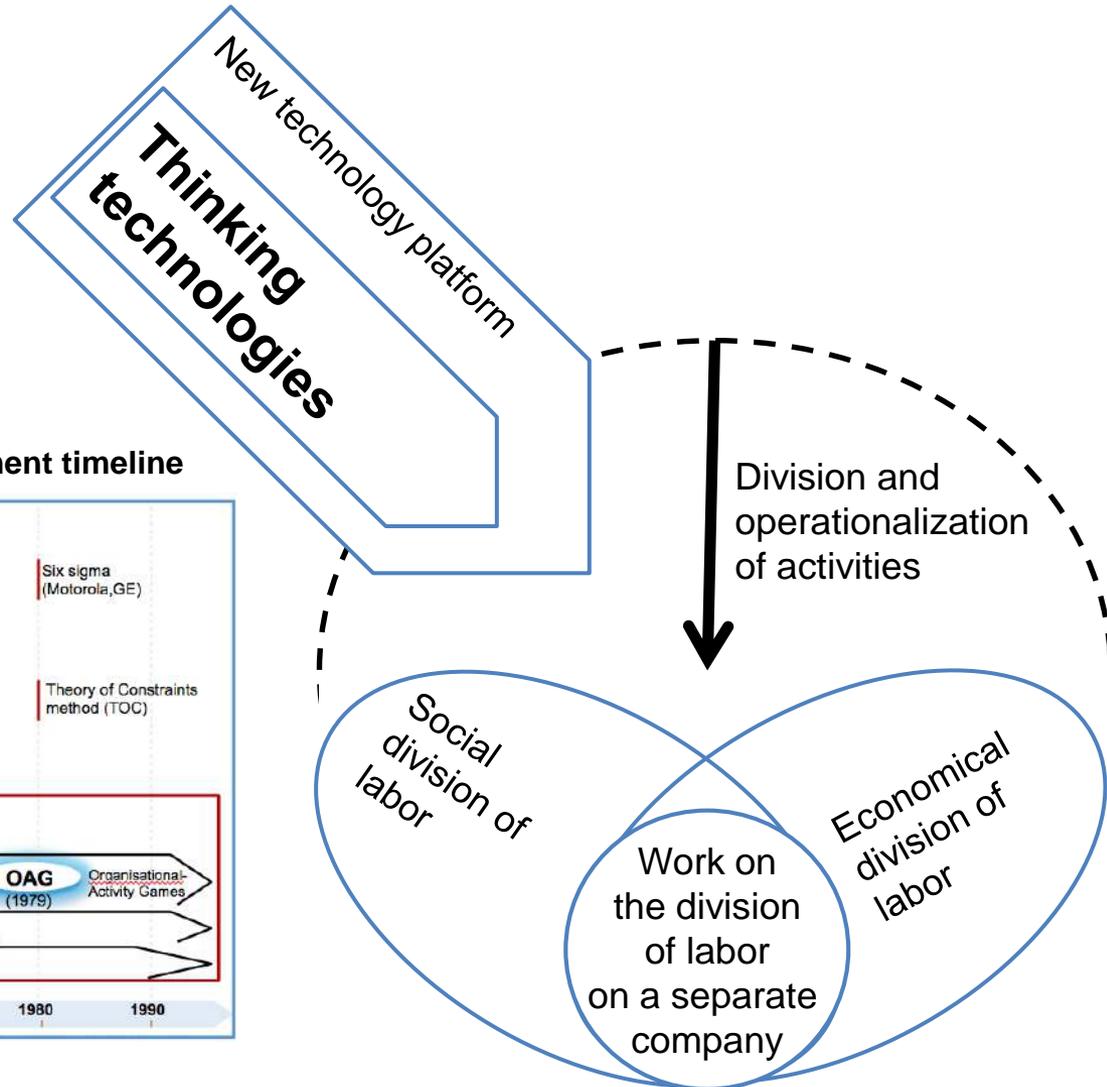
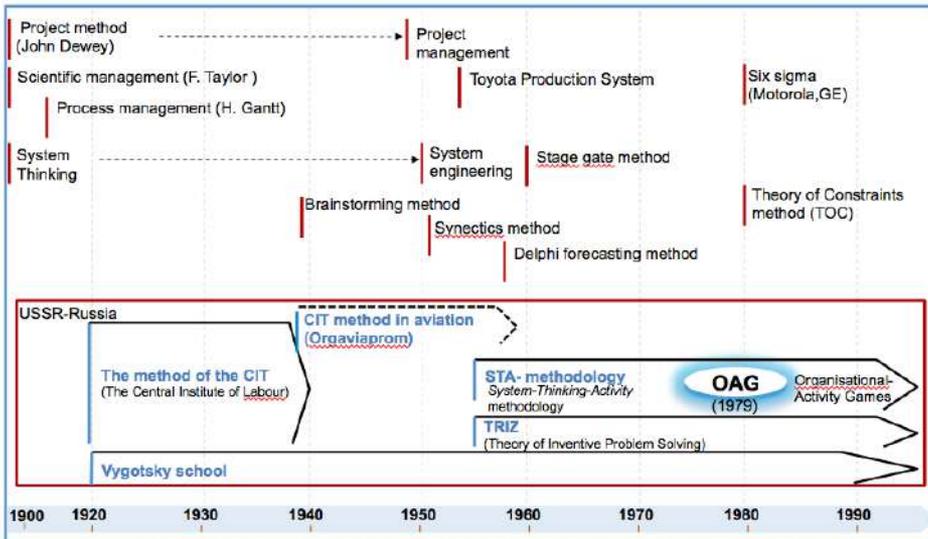
<sup>1</sup> Source.: OECD; A. Volkov, D. Konanchuk

# Thinking technologies are the major component of the new technology platform

Thinking technologies are essential base of emerging technology platform.

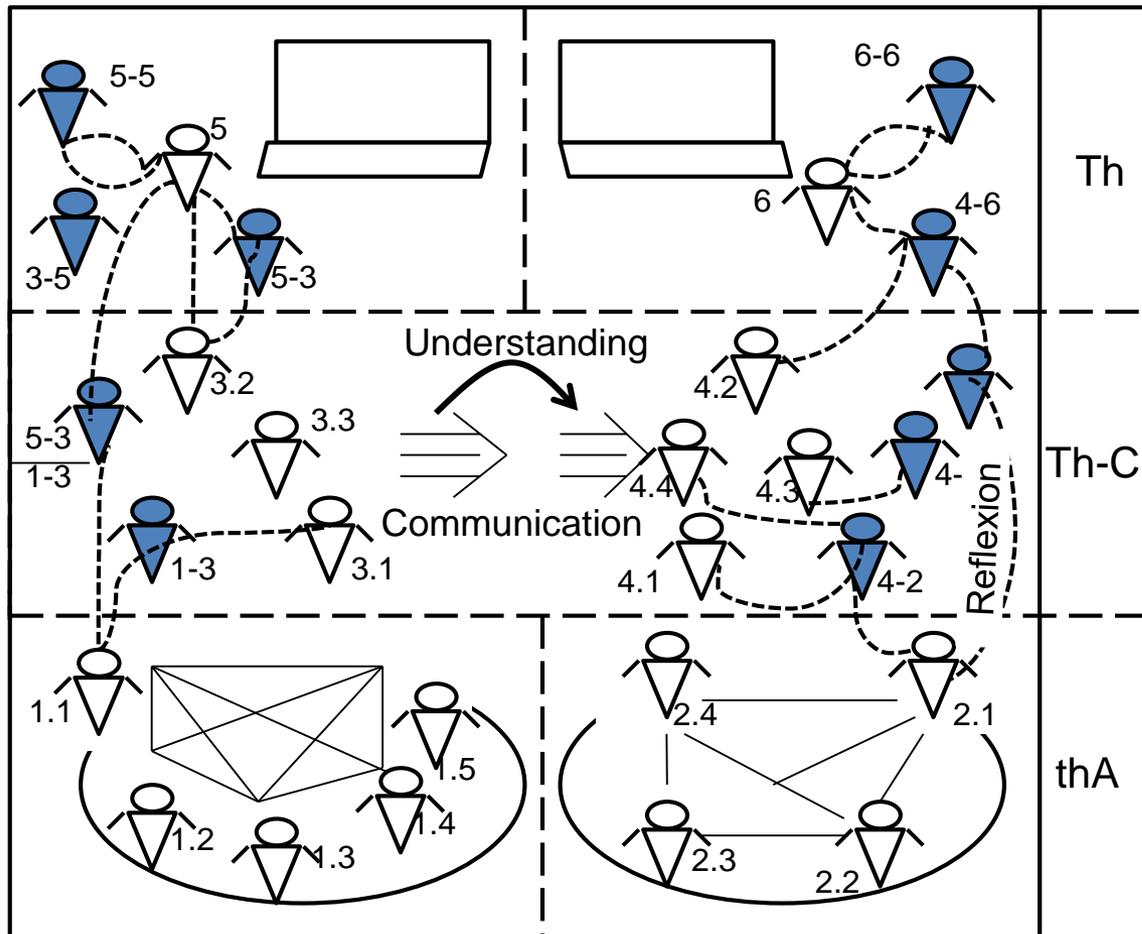
Technologies required for the “professional” have expanded during the past 30 years: systems thinking, projective types of thinking, including the project-method, analytical thinking, scenario thinking, schematization, TRIZ.

XX century thinking technologies development timeline



# During 1979-1989 Moscow Methodological Circle had developed general conception of Thinking-Activity<sup>1</sup>

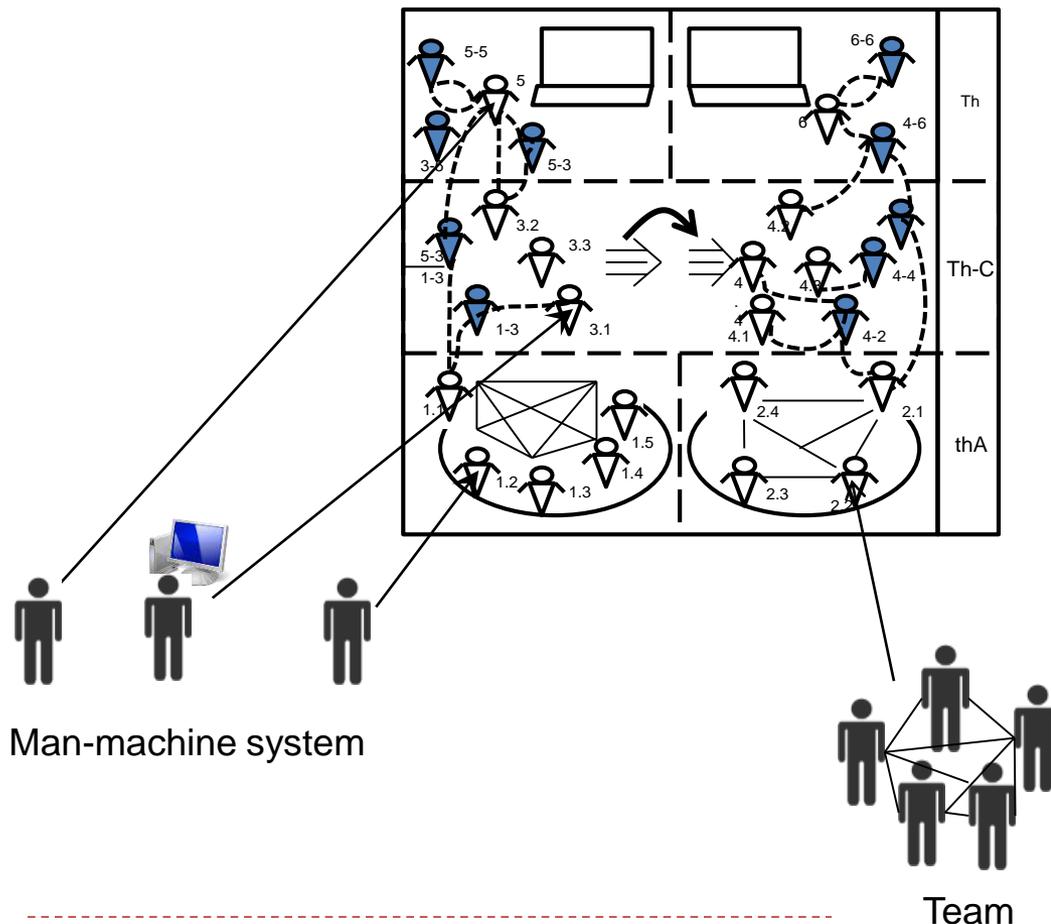
## Thinking-Activity Scheme



During 1979-1989 Activity concept had been put into the broader context of Thinking-Activity.

Thinking Activity Scheme is not only principal scheme of Thinking Activity organization, but also an assembly scheme which defines structure of "machines" of collective problem solving, or co-creation

# During 1979-1989 Moscow Methodological Circle had developed general conception of Thinking-Activity (2)

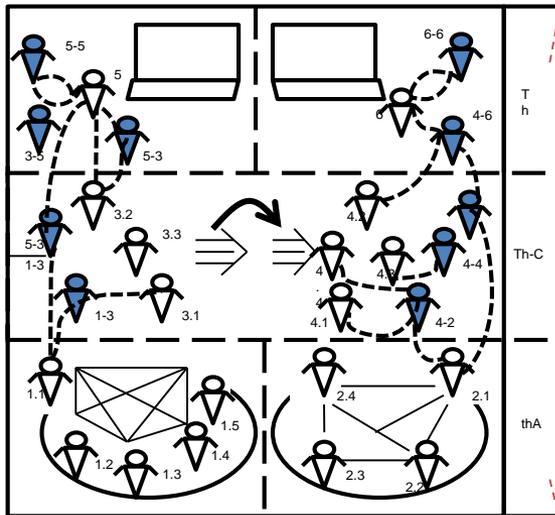


The transition to the competency-based approach means that the core competencies of individuals and teams are the abilities of:

- 1) self-determination
- 2) engagement to the process of co-creation
- 3) productive work in various positions and
- 4) “ecological exit” from the situations and systems of collective thinking activity



# Labor division system demands new competencies



## Thinking

- transdisciplinarity;
- the ability to see the whole;
- the ability to allocate general system connections and patterns

## Communication

- the ability to participate in and organize communication between different positions and cultures;
- digital literacy

## Understanding

- the ability to identify the meaning of complex texts;
- ability to schematizing

## Reflection

- the ability to self-assessment;
- the ability of adequate and appropriate self-determination in the situation

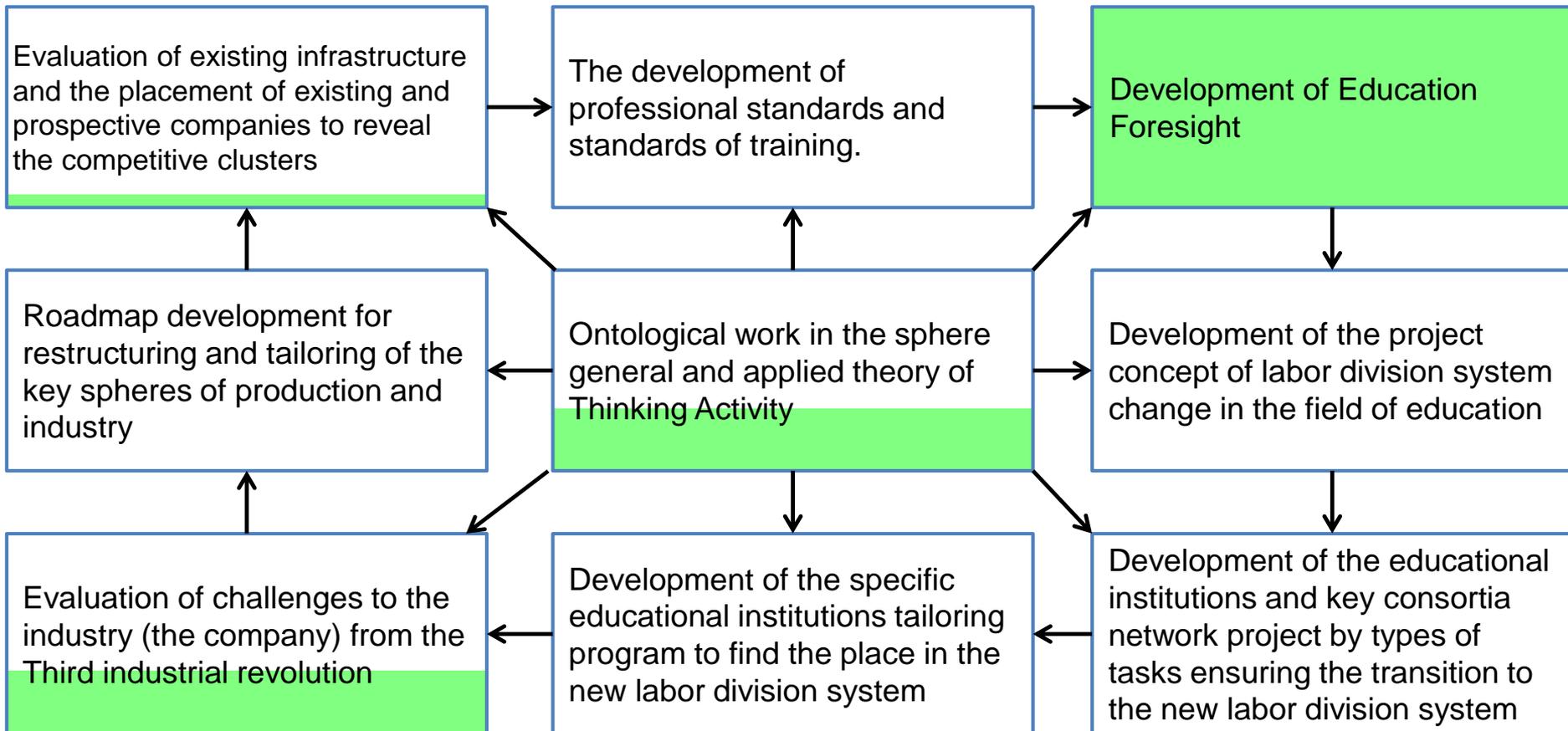
## Activity

- ability to goal-setting;
- ability to distribute tasks and organize the process of achieving the goal;
- ability to self-organize to solve local problems



# Requirements to labor division system change in learning, training and education

These changes also demand radical labor division system change in learning, training and education



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P. G. Schedrovitsky is the President of Non-profit Research Foundation “The Schedrovitsky Institute for development”

Head of a National Research Nuclear University department of Strategic Planning and Management Methodology

Advisor of Director General of ROSATOM State Atomic Energy Corporation

Member of the board of Foundation «Center for Strategic Research «North-West»

Councillor of International Research Project FAIR – Center for Antiproton and Ion Research



In 1980 graduated from the Faculty of Pedagogics and Psychology of Moscow Pedagogical Institute.

From 1979 participated in ODI specializing in organizing collective method of problem solving and human resources development

PhD

Founder of School of Culture Politics

In 1990-2005 worked in Culturology Institute. One of the founders and organizers of research programs of the Center of Strategic Research of Volga federal district (200-2005). In 2005-2011 worked in ROSATOM State Atomic Energy Corporation.

From 2011 till 2013 was a Deputy Head on Strategic Development in Institute of Philosophy of Russian Academy of Science.

During many years is expert and consultant on the question of spatial development, regional and industrial politics, innovation activity and personnel training.

Till recent time – Advisor of Minister of Education and Science of Russian Federation, member of council of “Gheleznogorsk” cluster, member of expert Government Council of Russian Federation