

#017



System Analysis of Educational Digital Ecosystems in the Agro-industrial Complex of Russia.

Vladimir Budzko¹, Victor Medennikov². vbudzko@ipiran.ru



Vladimir Budzko



Victor Medennikov

SUMMARY

- The classification of digital ecosystems (DES) is considered.
- The results of the classification are demonstrated on the example of the most underdetermined educational ecosystem in the literature using mathematical modeling.

INTRODUCTION

The greatest confusion with the conceptual apparatus reigns in the studies of educational ES. We will give a systematic, scientific definition of educational digital ecosystems (EDES) in this paper based on the scientific classification of DES with the construction of mathematical models. Since the agro-industrial complex is one of the most striking ecosystems that meets the classical definition, which is characterized by a huge variety of natural factors and biological species, we will consider the problem using the example of agricultural universities. The possibilities of information and communication technologies, progress in the practical application of digital technologies in science and production have increased significantly and have a great impact on the development of ES.

APPROACH

ES is a classical system consisting of living and non-living elements interacting both with each other and with environmental factors, the set of which depends on the objectives of the study. Thus, strategic management is the basis of ES

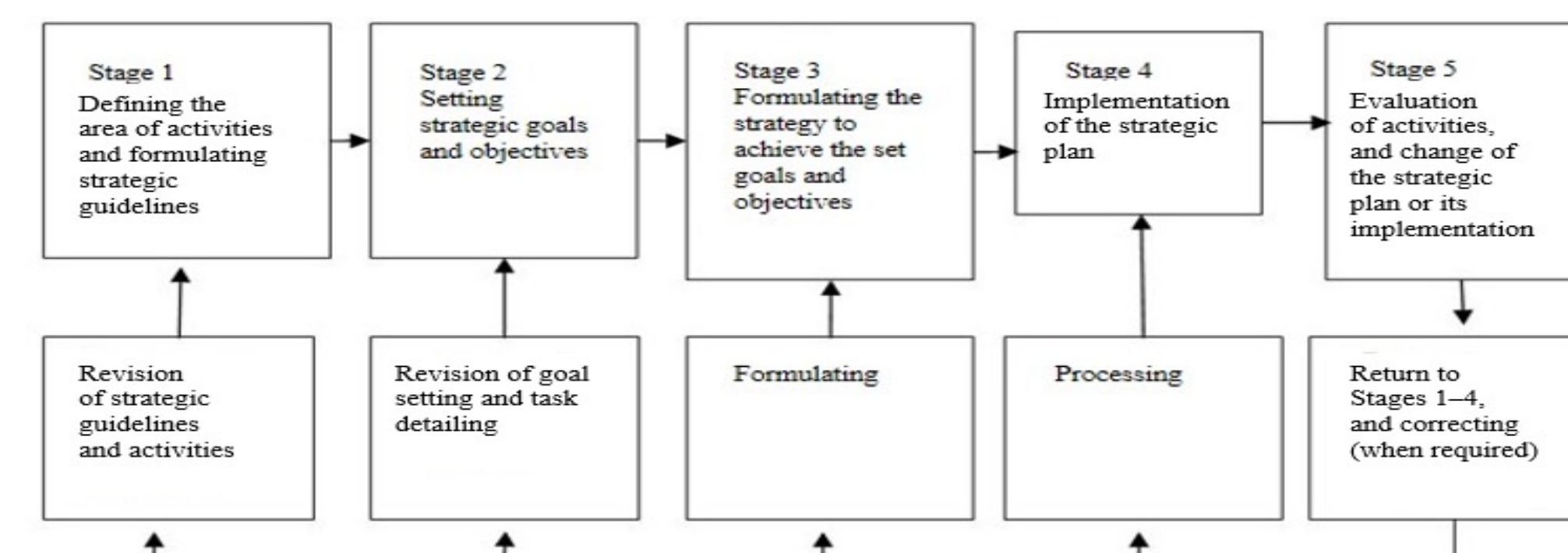


Fig. 1. Strategic management model

METHODS

The role of science is increasing at the present stage of the digital transformation of developed countries. This led to the rapid development of scientific research specifically in terms of biologization of production. The need for their accelerated implementation in practice forces us to actively engage in the integration of scientific and industrial information systems.

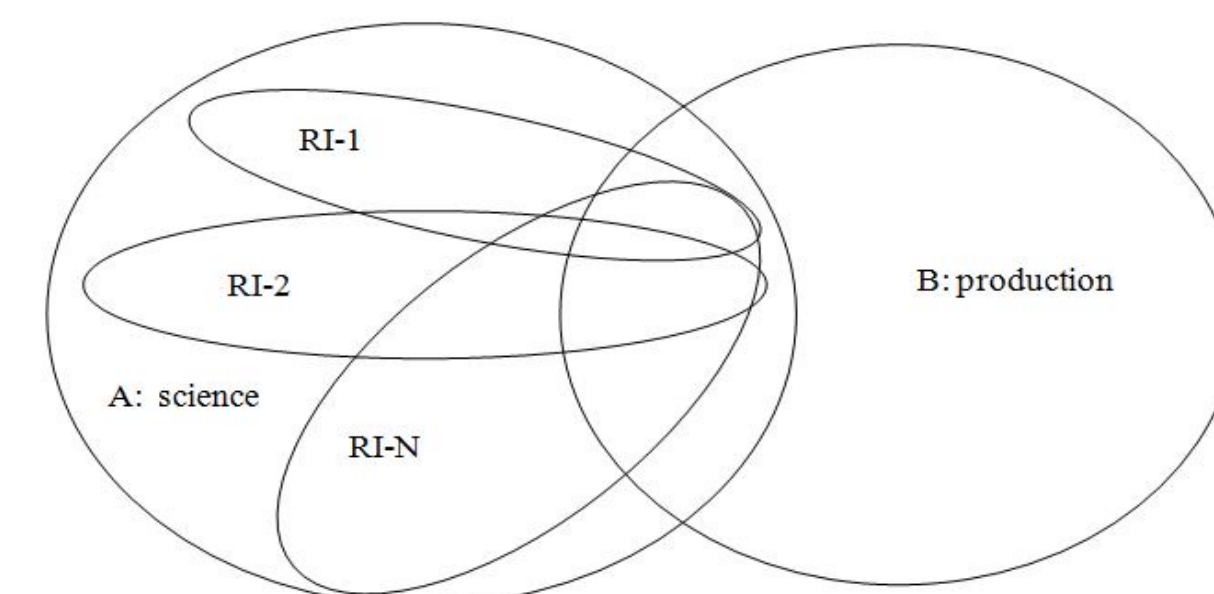


Fig. 2. The diagram illustrating the need for ontological integration of IRs and ISs.

RESULTS

The fundamental possibility of forming a single educational digital ecosystem of the agro-industrial complex is shown (Fig. 3)

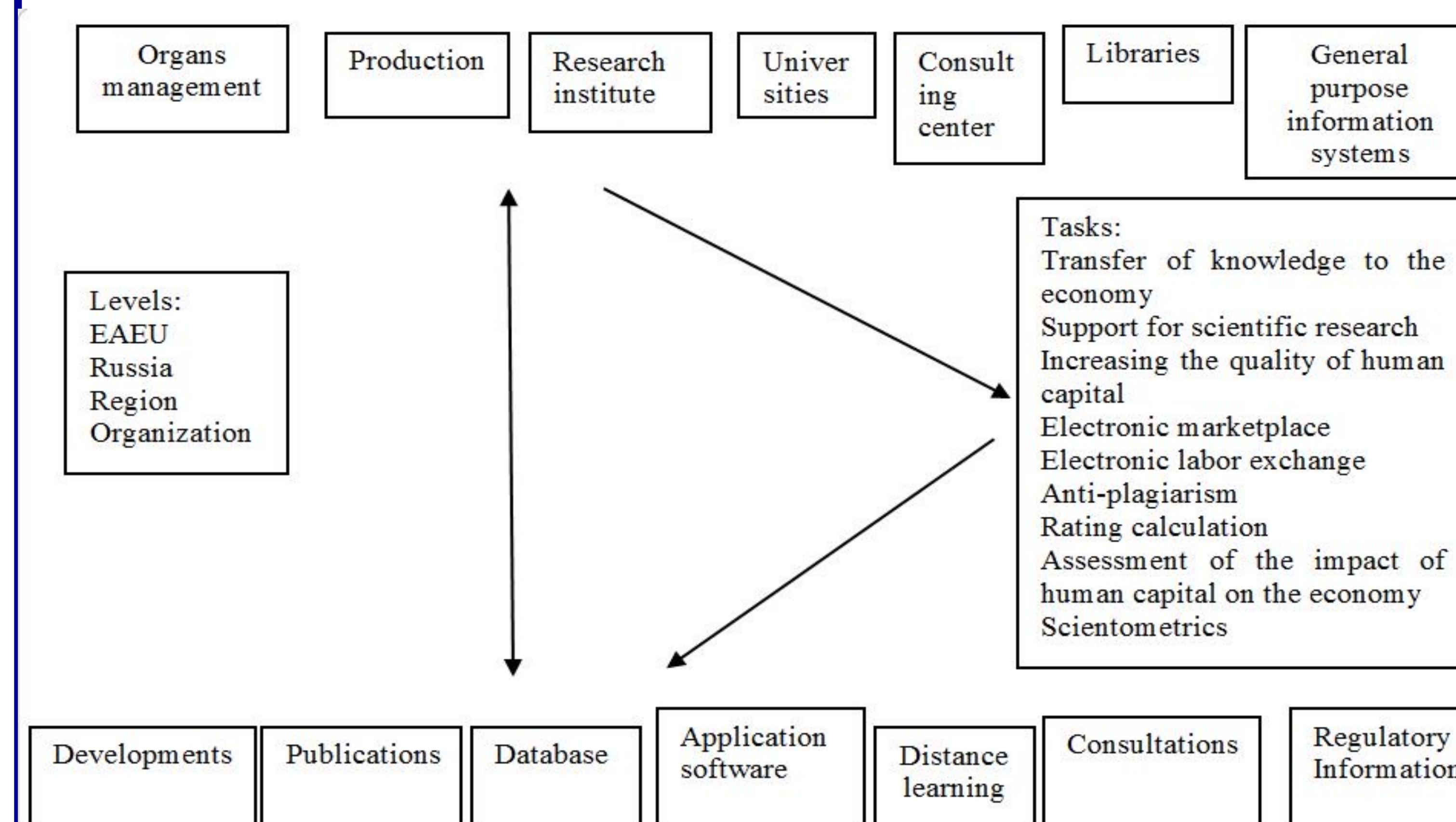
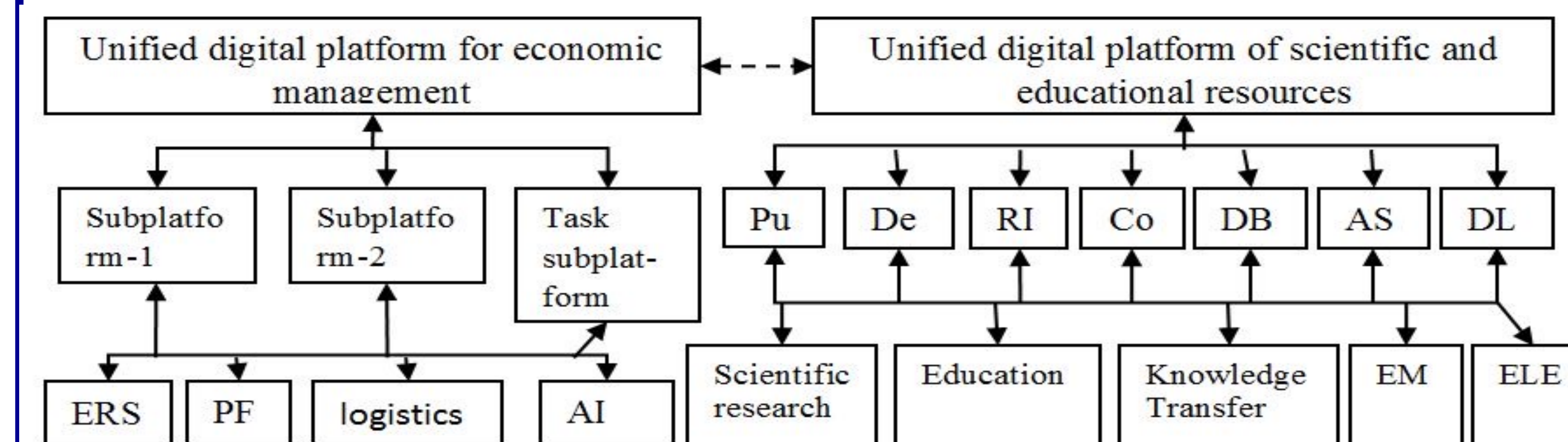


Fig. 3. Single. EDES

ANALYSIS

Agriculture will receive a single DES of the industry as a result of the integration of EDES and DPM



DISCUSSION

The performed classification of ES makes it possible to focus the attention of scientists on solving urgent problems facing humanity in the field of ecology, conservation of biodiversity on Earth, the optimal combination of pesticide use and the capabilities of the biosphere.



CONCLUSIONS

1. EDES is a digital tool for collecting, accumulating, and using scientific knowledge
2. EDES will allow for the first time in the world to realize the triune role of science and education from a systemic, unified position with the ability to more effectively and promptly respond to the scientific community to constantly emerging challenges in the world
3. EDES provides measurement of the state of the most important ES in nature - in agriculture

ACKNOWLEDGMENTS

This work was supported by the grant from the Ministry of Science and Higher Education of the Russian Federation, internal number 00600/2020/51896, Agreement dated 21.04.2022 No. 075-15-2022-319.