

Altai State University
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FUNDAMENTALS OF THE THEORY OF CORPORATE INFORMATION SYSTEMS

XIII International conference on high-performance computing systems
and technologies in scientific research, automation of control and production
(HPCST-2023)

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Theoretical and Practical Conference
19-20 May 2023

1. Differences between programs, IS and CIS

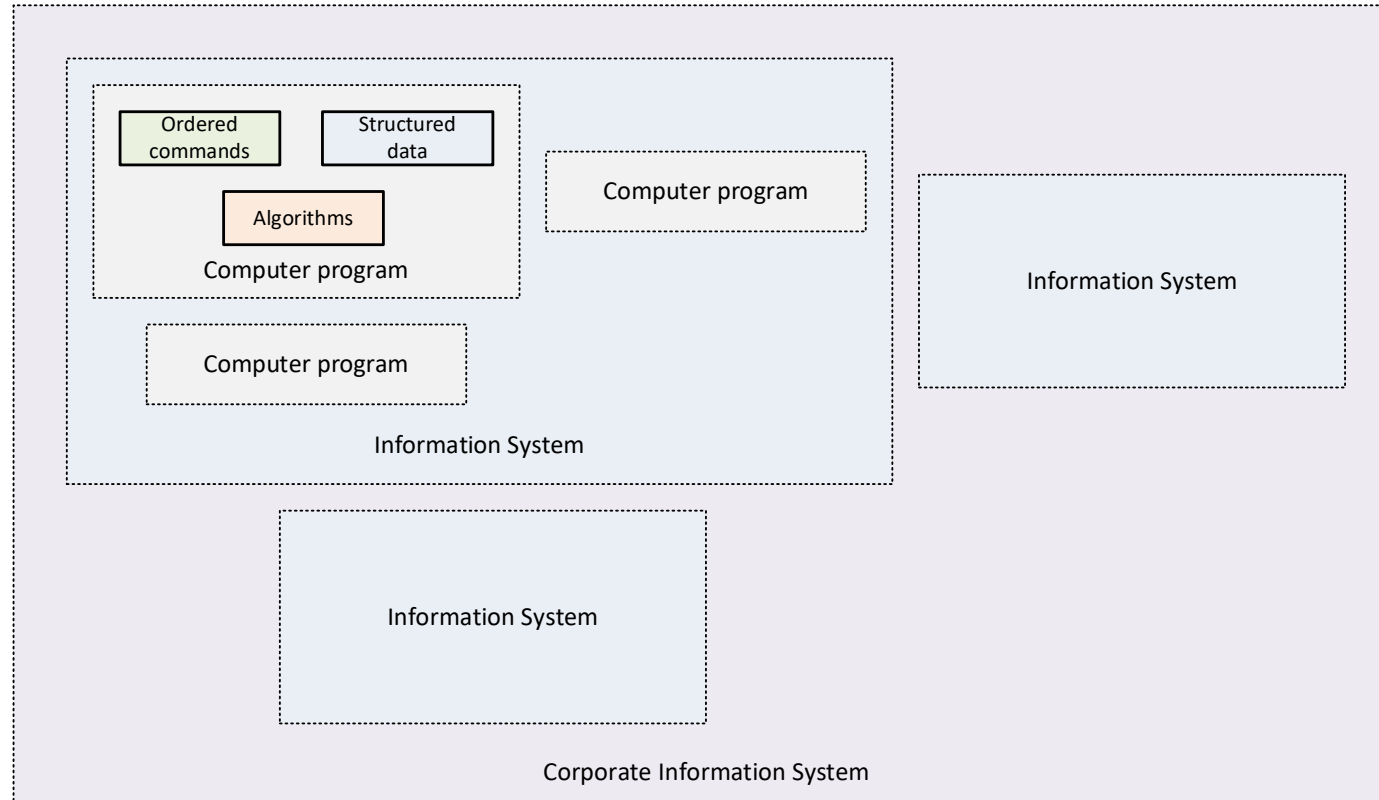


Fig. 1. Differences between computer programs, information systems and corporate informationa systems

2. Implementation levels of IS and CIS

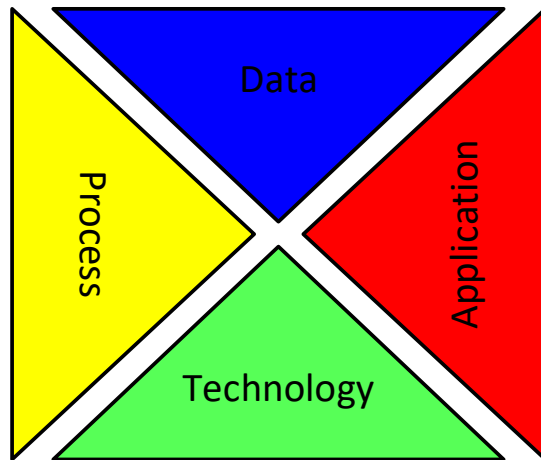


Fig. 2. Implementation levels of information systems

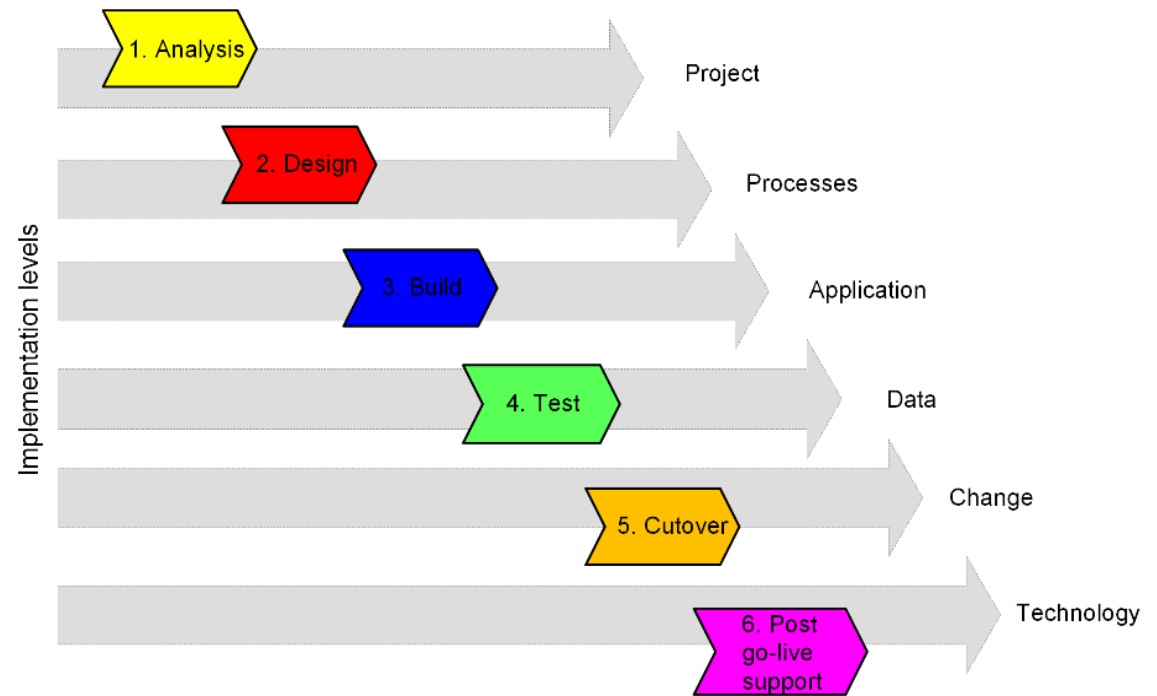


Fig. 3. Implementation levels of corporate information systems

3. Problem statement

The purpose of this paper is to refine the theory of corporate information systems to adapt it and make closer to real ERP-system implementation projects. Refinement of the theory will allow us to approach the implementation of corporate information systems more rationally and ensure a more likely success of the project.

4. Definition of the theory of corporate information systems

Definition 1. *The theory of corporate information systems* is an interdisciplinary field of knowledge describing deployment of corporate information systems based on implementation levels presented by processes, applications, data, technology, as well as project and changes, which in turn are characterized by strategies for analyzing requirements, designing processes and organizational structures, maintaining roles and authorizations, building programs, technical and business cutover, data migration, user training, software testing and post go-live support, as well as change management.

5. Implementation strategies

Table 1. Implementation strategies per level

Level	Strategy	Parameter	Possible values
Processes, Application	Analysis	A way to identify requirements	Prototyping, demonstration of the system
		Requirements assessment method	Expert assessment, Estimator
Processes, Application	Design	The need to create a business process map	Yes, no
		Top-level design notation	ARIS VACD, IDEF0
		Low-level design notation	ARIS eEPC, BPMN SLD
		Depth of low-level description	3-5 levels
Application	Roles and authorization	The number of roles to be assigned to user	1 or more
Technology	Technical cutover	Type of sandbox system	Independent subsystem, dependent environment
		Number of copies of the quality control environment	1-3
		Number of test technical cutover	1-3
Change	Change	The need to assess of changes in technologies, processes and people	Yes, no
Application	Build	The need to use naming convention for technical objects	Yes, no
		Use of program quality control procedures	Yes, no

Level	Strategy	Parameter	Possible values
Data	Migration	Organizational structure of the migration team	Functional, matrix
		Number of test migrations	1-3
		%-data uploads for test migration waves	Meaning %-uploads
		The need for early migration of master data	Yes, no
Change	Training	Type of training materials	Operational or process, technical or business
		Type of listeners	Key users, end users
		Training method	By the project team, by the key users
Application	Testing	Types of testing	Unit, integration, acceptance, stress, regression
		Criteria for successful completion of testing	%-passed test scenarios, the number of open critical defects
		The need for a company blackout rehearsal	Yes, no
Change	Post go-live support	The level of support at which the project team will work	1-3
		Criteria for the completion of productive support	Number of open critical defects

6. Risk based approach to refine the theory

Table 2. Implementation strategies and risks

Nº	Level	Strategy	Risk to mitigate
1	Processes, Application	Requirements analysis	All requirements for critical business processes have not been identified
2	Processes, Application	Design	The designed solution may not work as required once built
3	Application	Roles and authorizations	Users have been granted too much permissions in the ERP-system
4	Technology	Technical cutover	Poor quality, untimely technical preparation of the ERP-system
5	Application	Build	Built solution differs too much from the one designed and also does not cover the original requirement
6	Data	Data migration	Poor quality of migrated data, as well as untimely productive migration
7	Change	Training	Users are trained very bad to work with an ERP-system and are also not ready to work with it
8	Application	Testing	Superficial or incomplete testing of the developed software product
9	Change	Business cutover	Too long blackout period as well as low consistency of tasks for launching ERP-system with regular business processes of the company
10	Change	Deployment	A large number of user mistakes while working with a new ERP-system, as well as an excessively high number of software defects
11	Change	Post go-live support	The parties involved and end users do not understand how to manage issues and defects of the ERP-system being launched
12	Change	Change	The implemented software system is not fully used by users or is ignored by them
13	Project	Project	The project is not delivered in the contracted dates, scope and costs

7. Analysis strategy

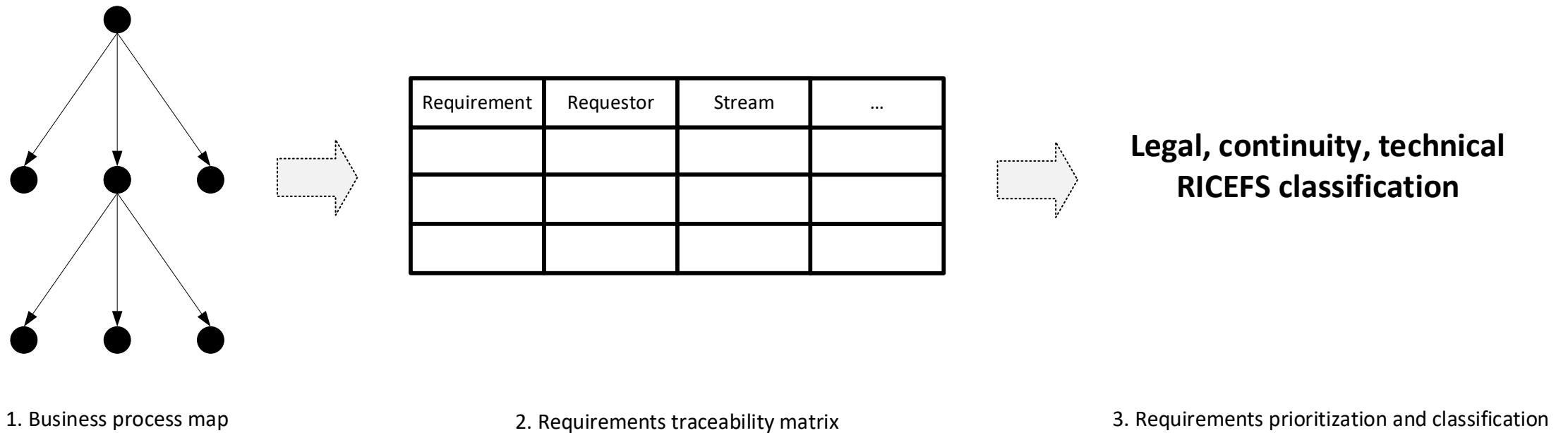


Fig. 4. Steps to identify, analyze, prioritize and estimate requirements

8. Data migration strategy

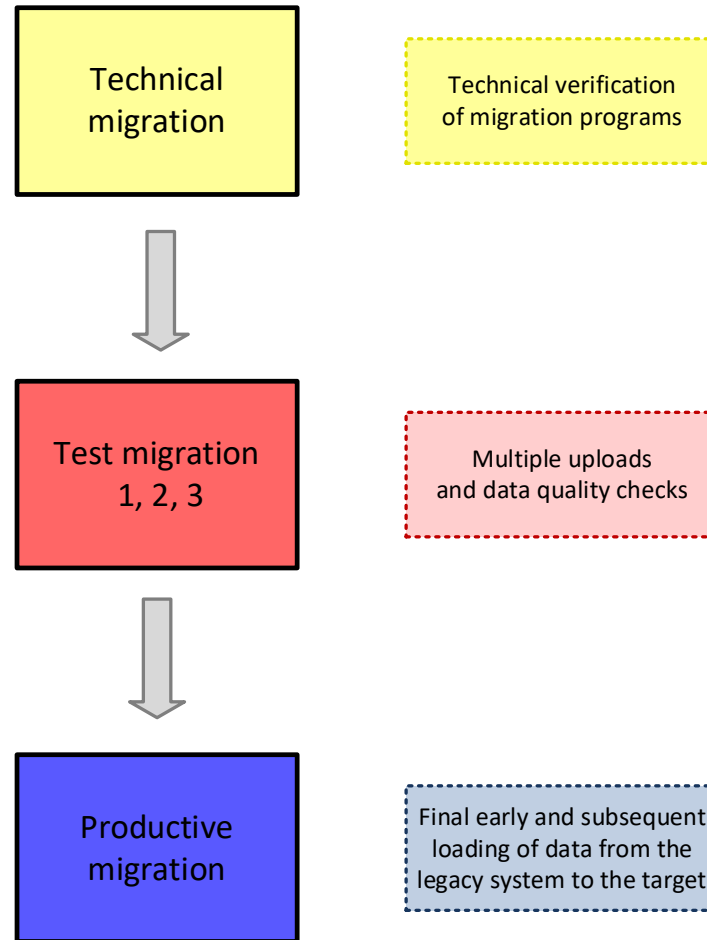


Fig. 5. Approach to migrate data from legacy to target system

9. Project management strategy

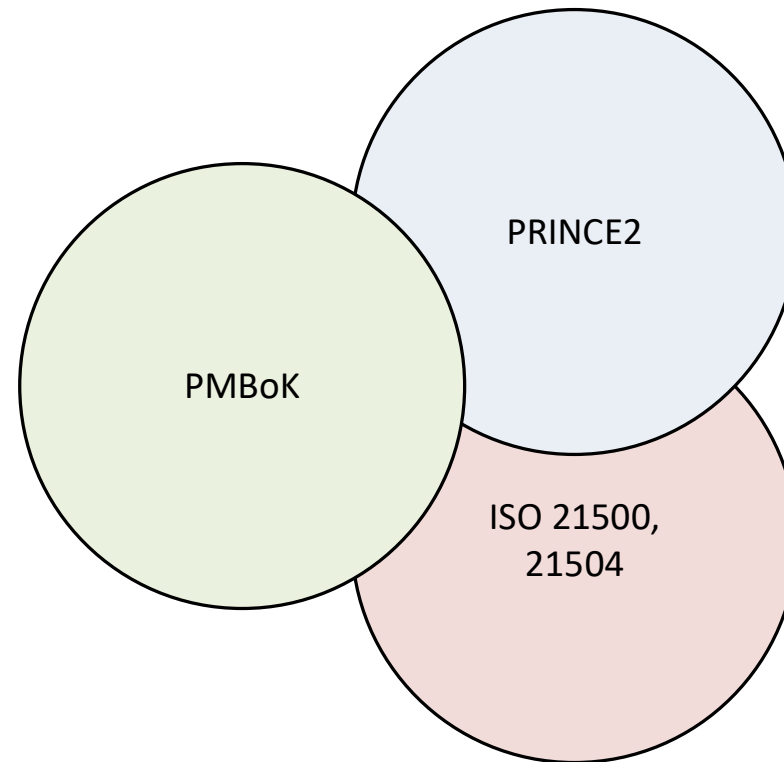


Fig. 6. Ways to govern ERP-system implementation projects

10. Refined definition of the theory

Definition 2 (refined). *The theory of corporate information systems is an interdisciplinary field of knowledge describing deployment of corporate information systems based on implementation levels presented by processes, applications, data, technology, as well as project and changes, which in turn are characterized by strategies for analyzing requirements, designing processes and organizational structures, maintaining roles and authorizations, building programs, technical and business cutovers, data migration, user training, software testing, **deployment** and post go-live support, as well as change and **project management to mitigate project risks.***

11. Conclusion

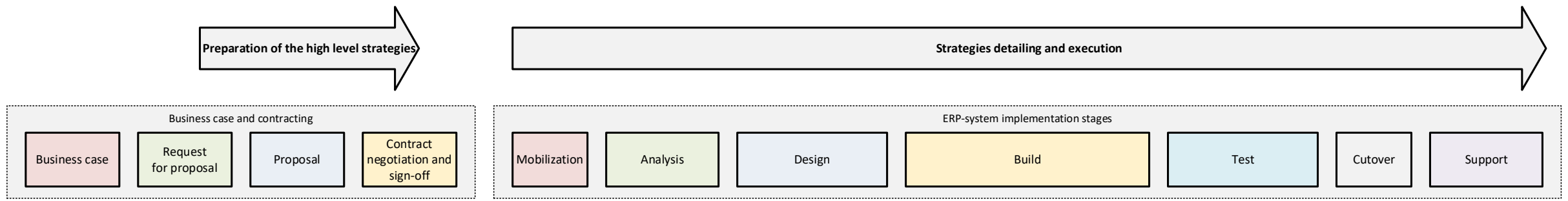


Fig. 7. Differences between computer programs, information systems and corporate information systems

Thank you!

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