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The theory of corporate information systems

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1. Introduction

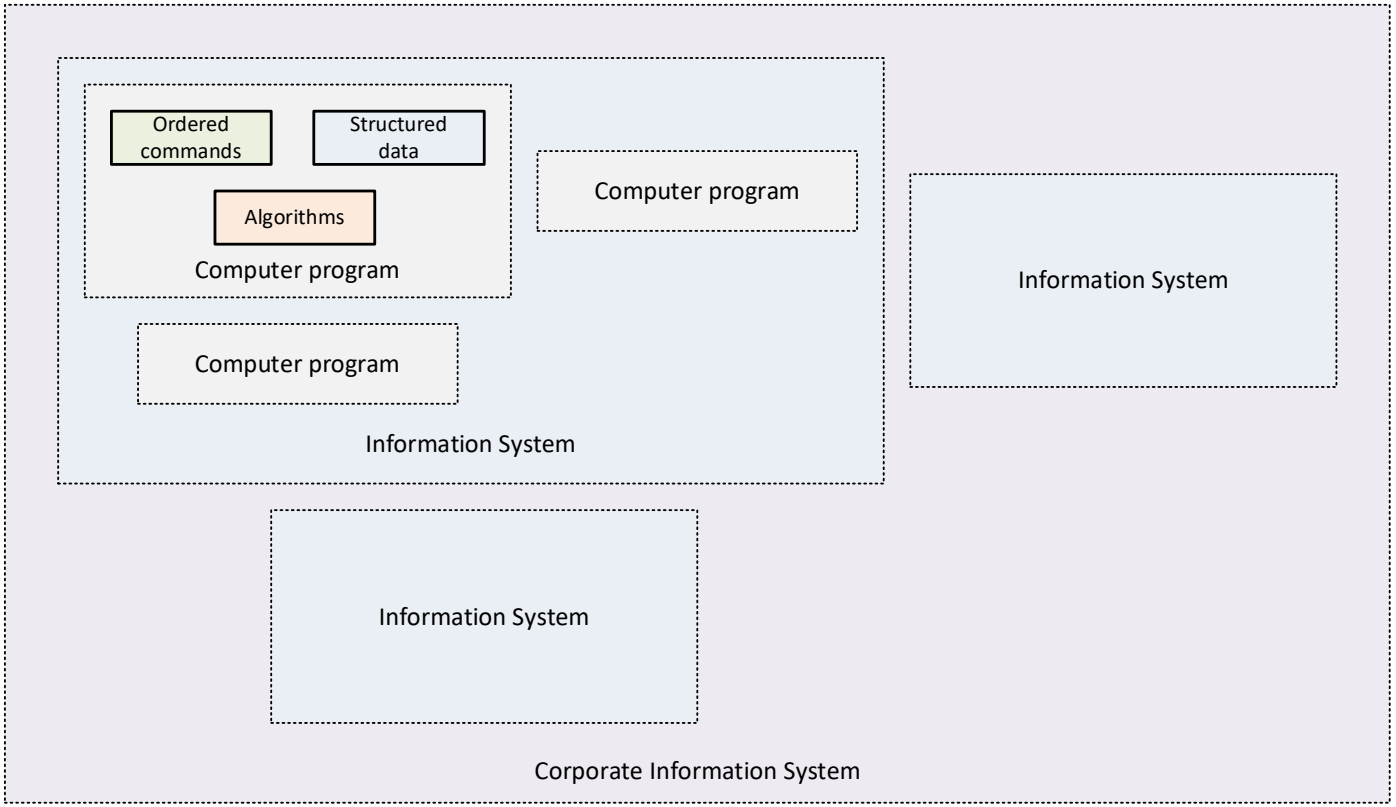

Fig. 1. Differences between computer programs, information systems and corporate informationa systems

2. Problem statement

The purpose of this paper is to propose a theory of corporate information systems that demonstrates the distinctive features of the analysis, development and deployment of corporate systems as opposed to information systems. Consideration of the differences will allow us to approach the implementation of corporate information systems more rationally and ensure a more likely success of the project.

3. Implementation levels of Information Systems

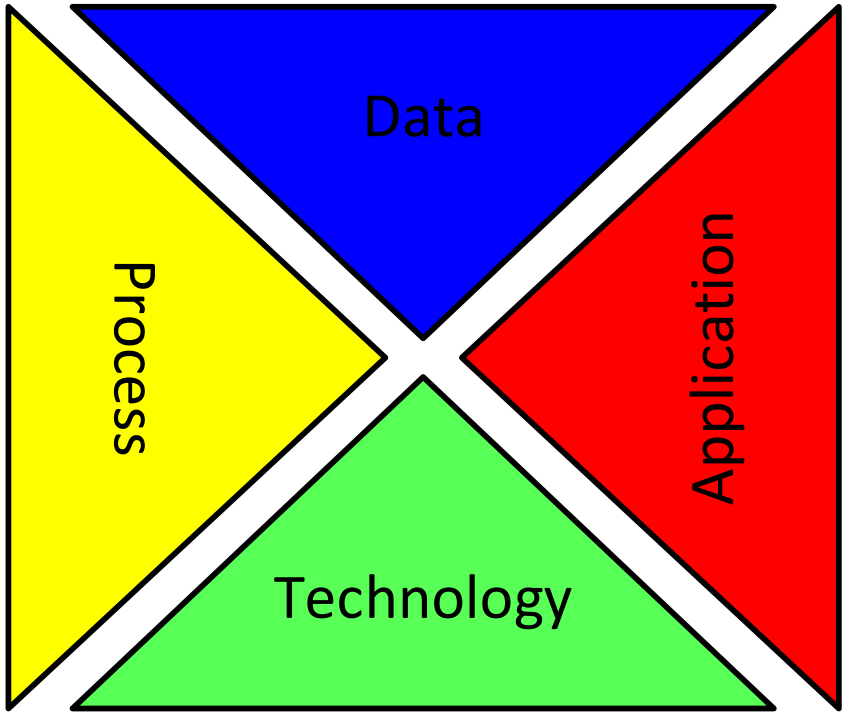

Fig. 2. Implementation levels of information systems

4. Implementation levels of Corporate Information Systems

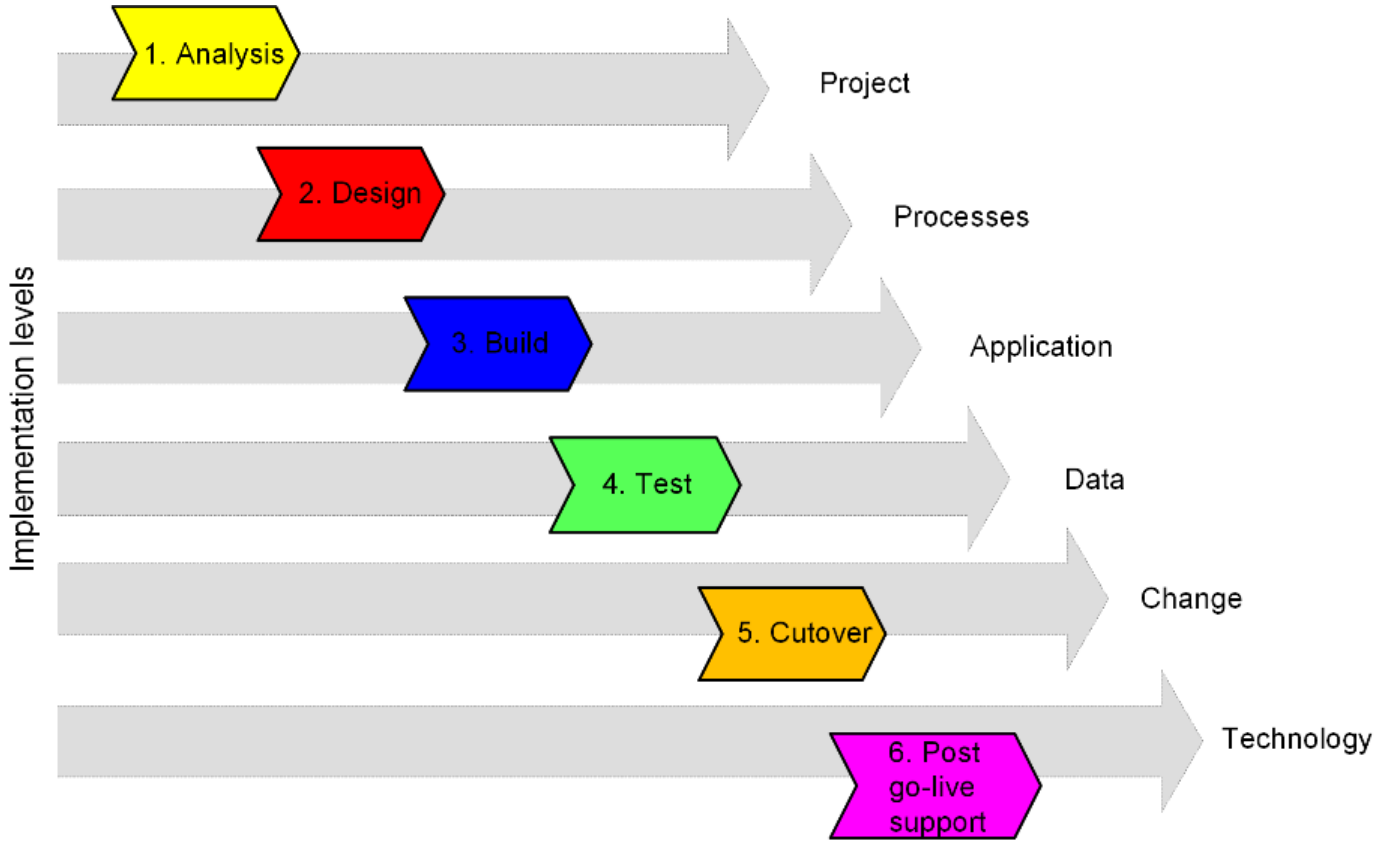

Fig. 3. Implementation levels of corporate information systems

5. Implementation levels of Corporate Information Systems: project level

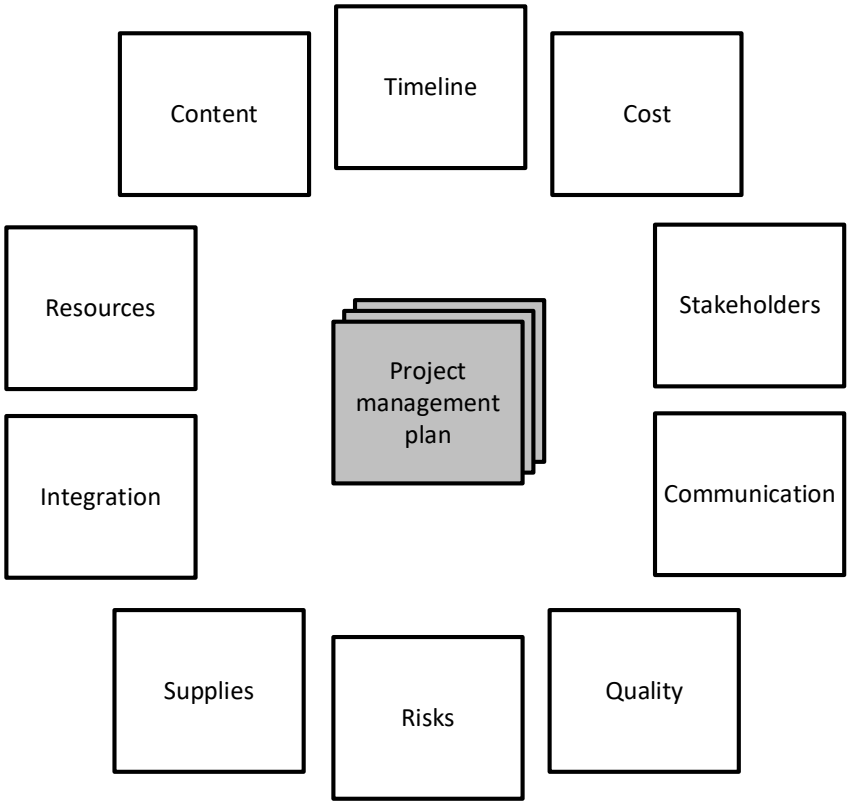

Fig. 4. Parameters of the project level

6. Implementation levels of Corporate Information Systems: process, data, application, change and technology levels

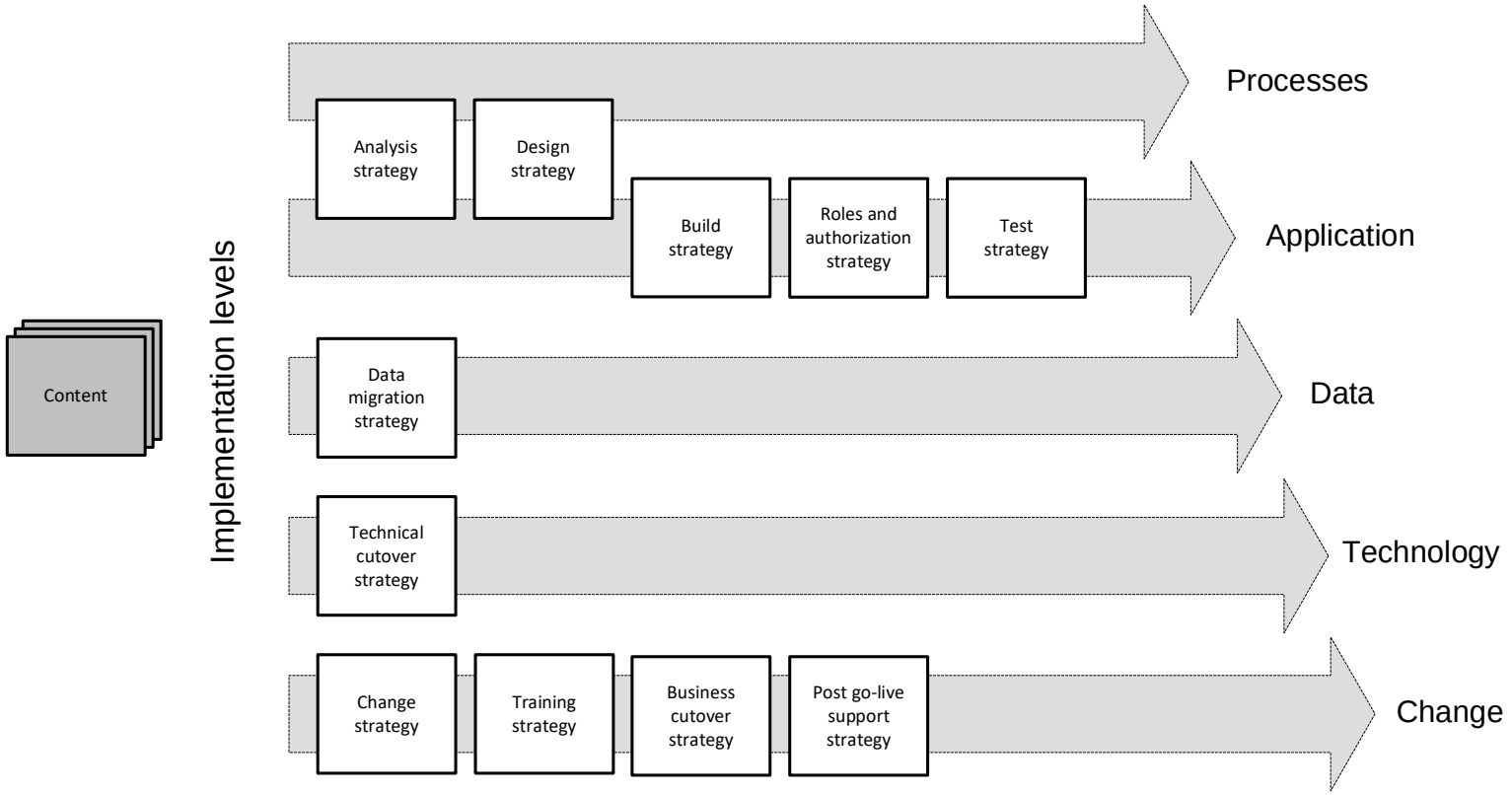

Fig. 5. Strategies per implementation levels

7. 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.

8. Application of the theory in Corporate Information Systems implementation projects (1 of 2)

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

8. Application of the theory in Corporate Information Systems implementation projects (2 of 2)

Table 1. Implementation strategies per level (continuation)

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
Change	Business cutover	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

9. Conclusion

Unlike subjects devoted only to the design of information systems and technologies, the theory of corporate systems pays attention to the formalization, planning and consistency of all project tasks performed. In addition, great emphasis is placed on the scale of operations that require user involvement.

All tasks are grouped by implementation levels, represented by processes, data, application and technology, as well as project and changes. Each implementation level is led by a separate dedicated subteams and aligned with all others. The theory assumes formalization of strategies for analysis, design, roles and authorization, technical and business cutover, change management, build, data migration, training, testing and post go-live support, each of which is decomposed into subtasks, consistent with other activities, and then planned for execution.

Planning plays a key role during the implementation of corporate systems, since most of the tasks involve receiving feedback from end users. Thus, the theory of corporate information systems combines the existing technical disciplines and expands their use to larger-scale IT projects.