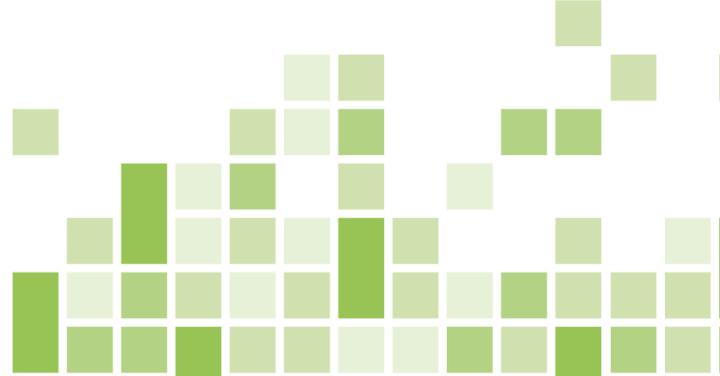




TOMSK
POLYTECHNIC
UNIVERSITY



Methodology to develop unified information space (UIS) for the design of on-board electronic equipment for spacecraft based on technologies for management the lifecycle high-tech products (CALS-technologies)

Report of the PhD Sergey Tsapko

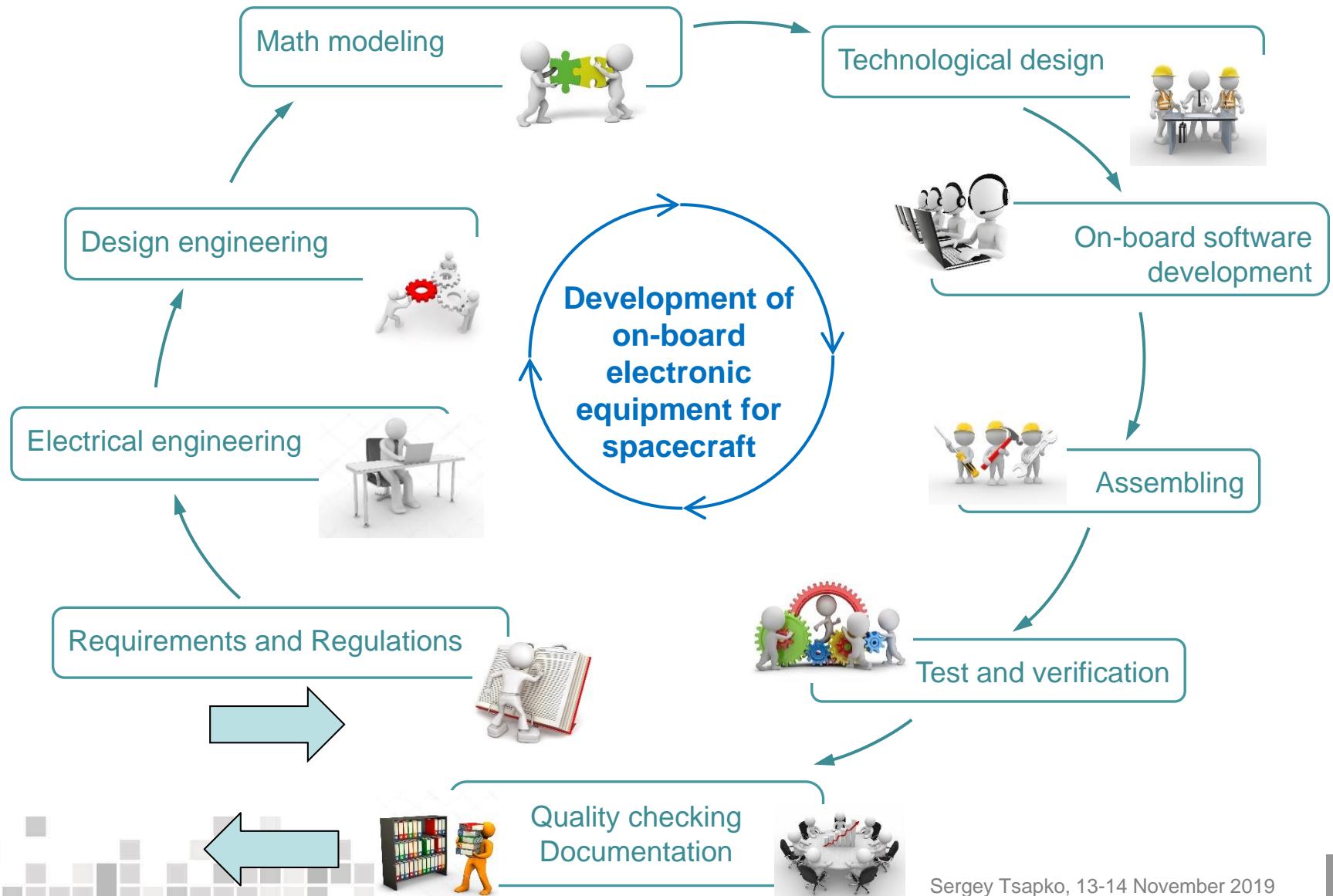
November 13-14
2019

CALS concept

Continuous Acquisition and Life cycle Support



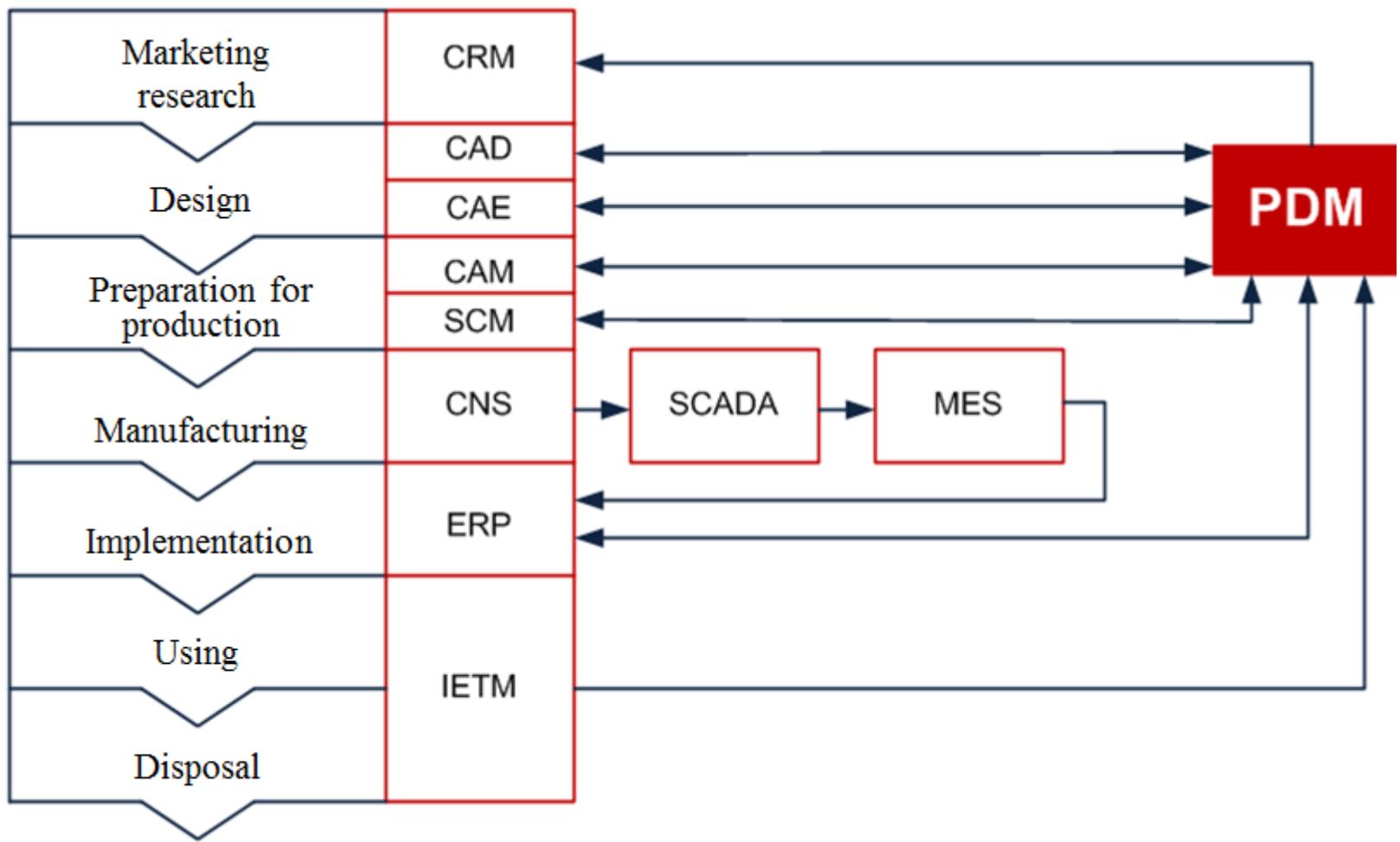
Design of on-board electronic equipment



Unified information space



Technical implementation of the UIS



Stages of building the UIS

Development of a strategy for building the UIS based on the fundamental principles of CALS



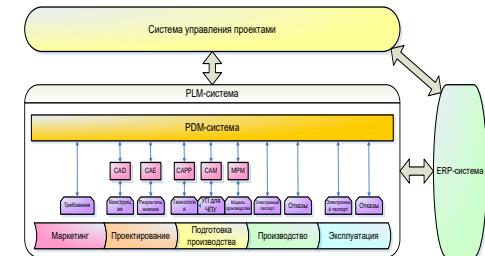
Modeling and analysis of the enterprise



Reorganization of the enterprise



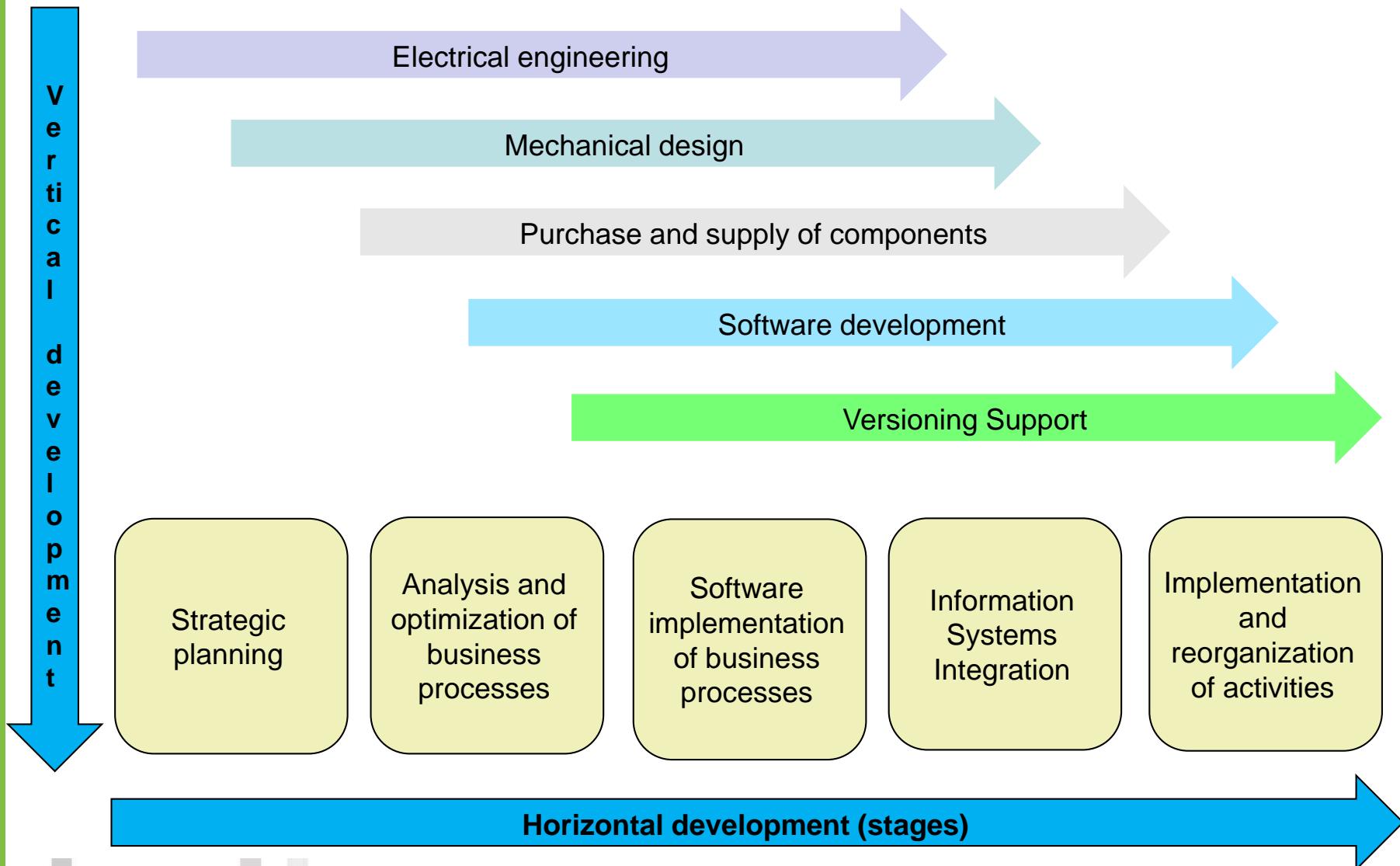
The choice of software and hardware platform for the implementation of the UIS



Implementation of the UIS

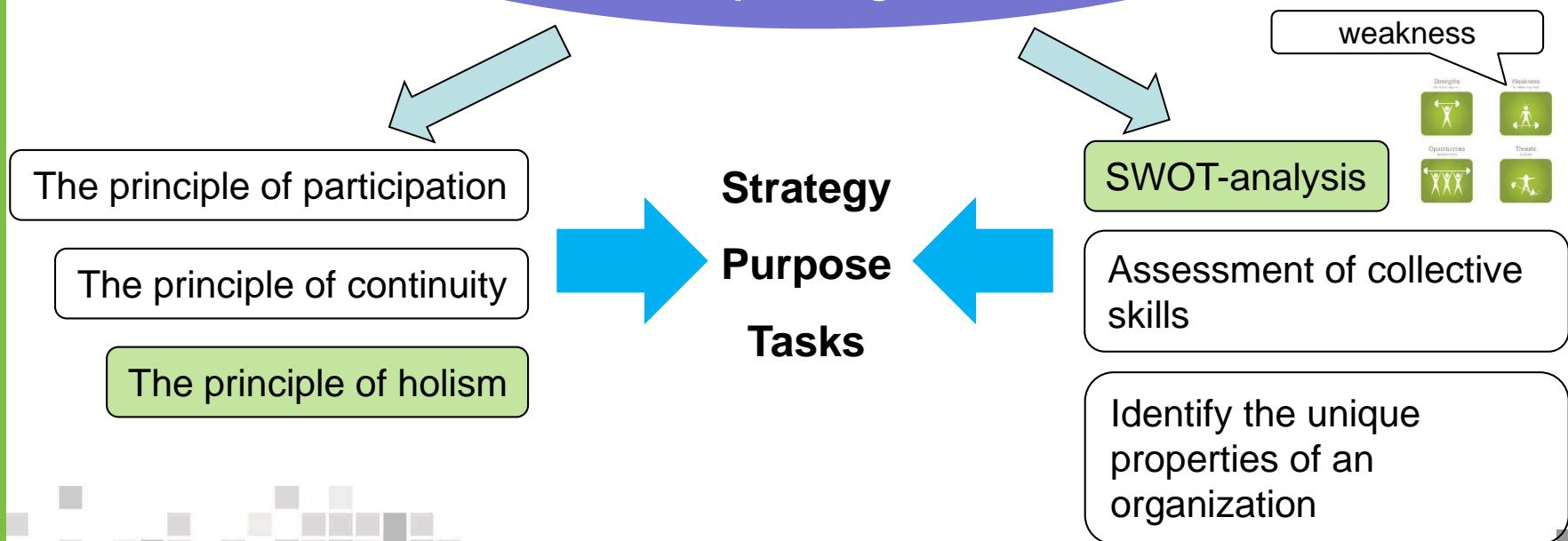
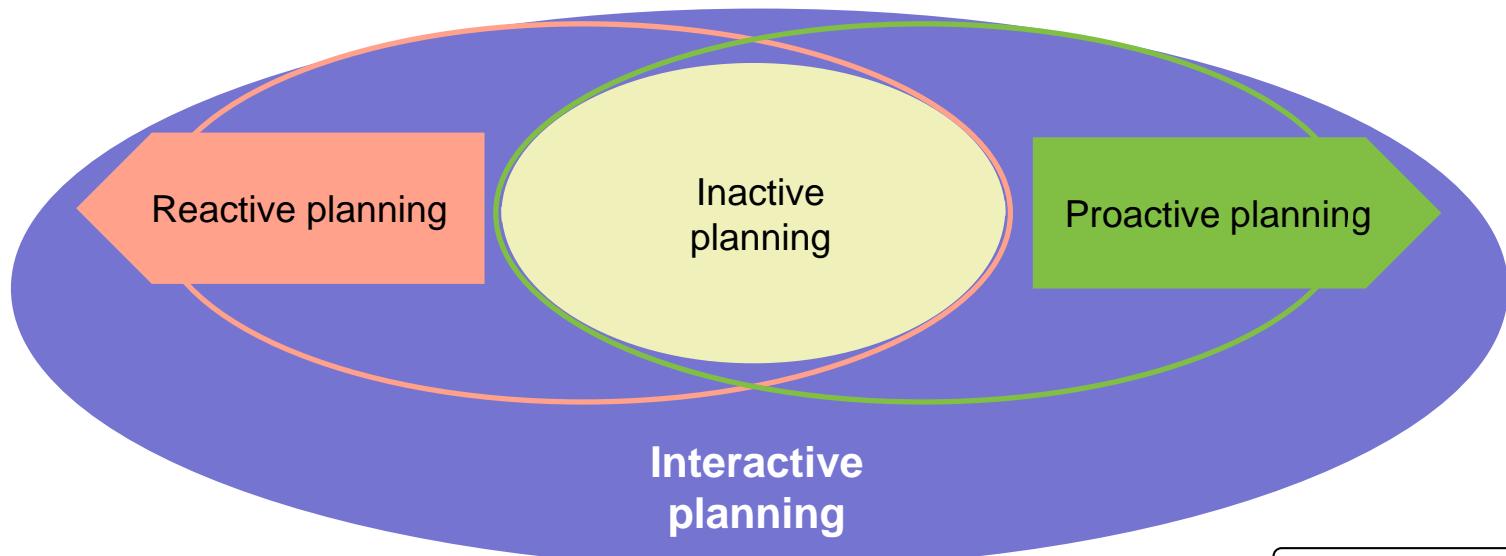
Using

The principles of building the UIS



Methodology Elements

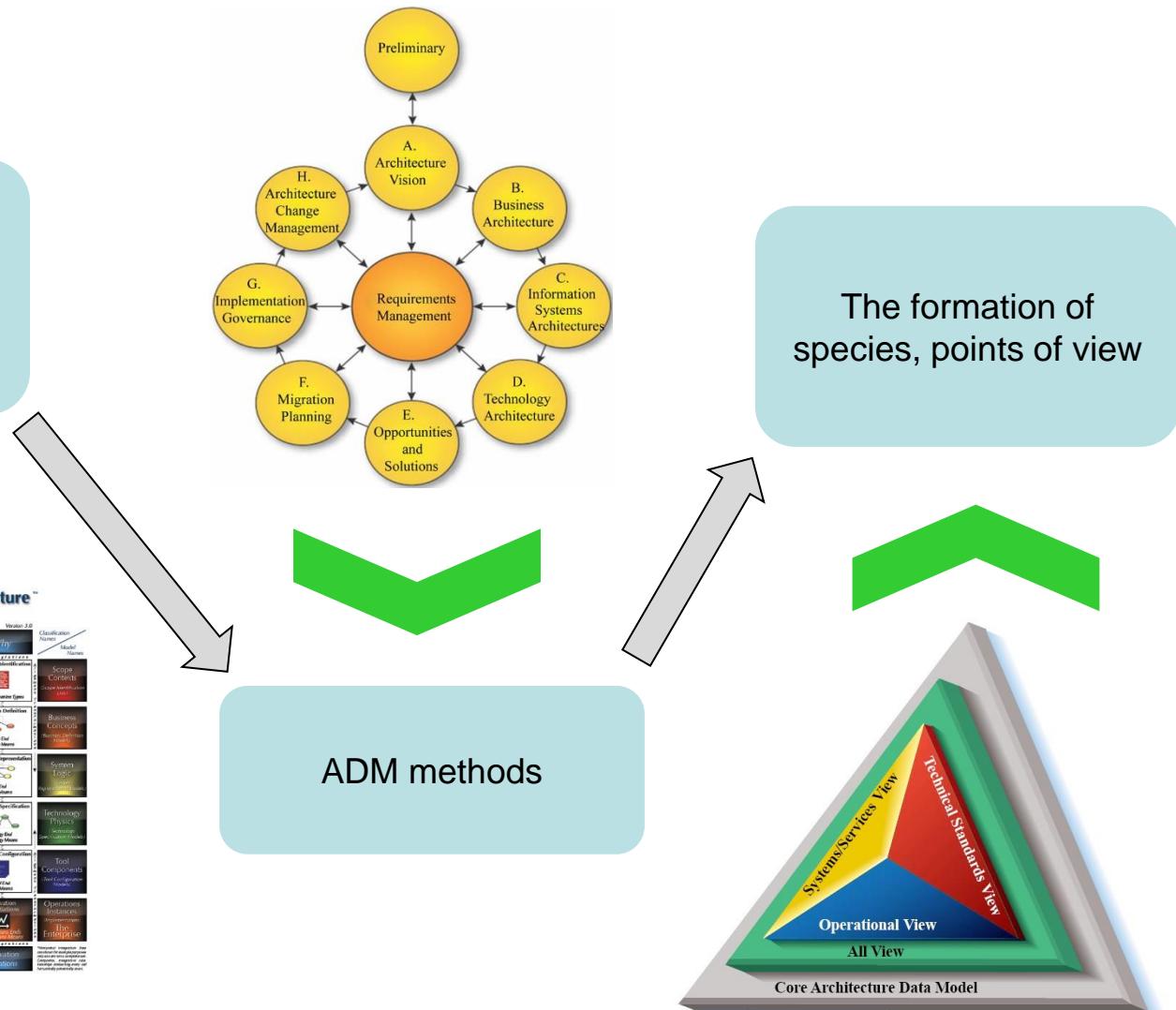
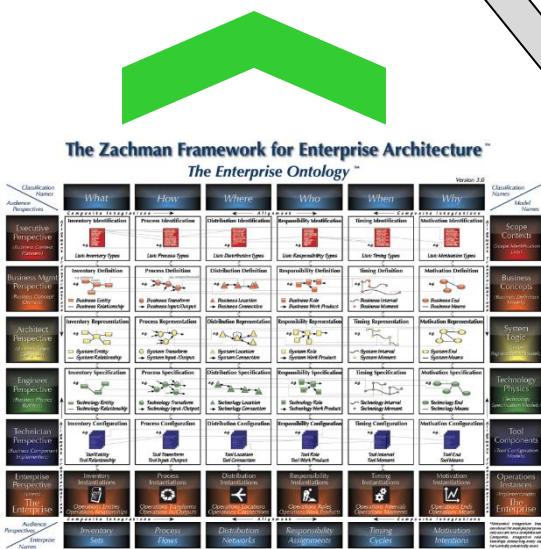
strategic planning



Methodology Elements

analysis of information systems development frameworks

Exploratory survey
Refining Goals
Task adjustment



Methodology Elements

analysis and optimization of business processes

Conducting enterprise diagnostics by building value chains

Definition of processes of structural units

Building responsibility matrices

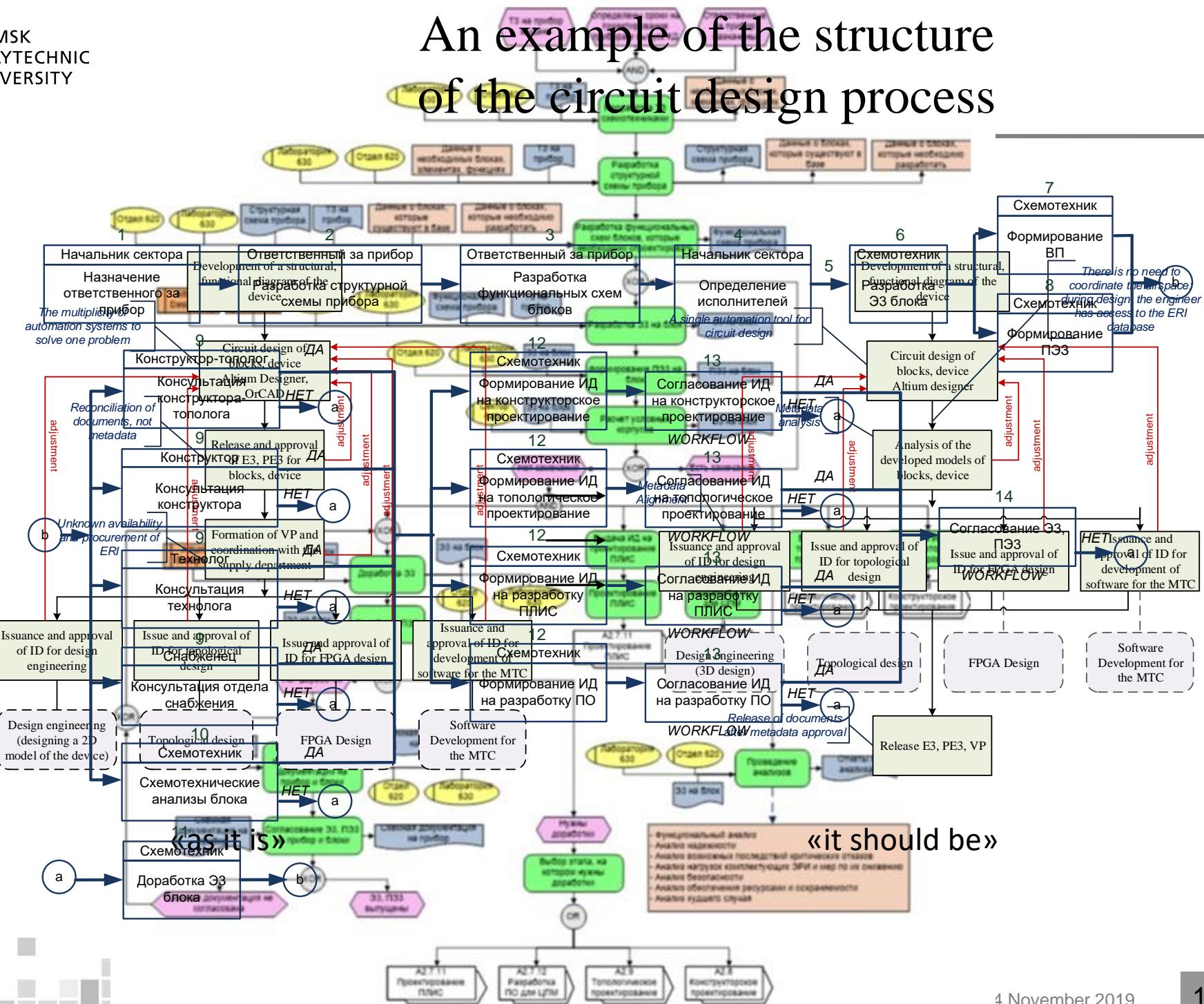
Detailed process details

Analysis and improvement of the described processes

Business Process Regulation

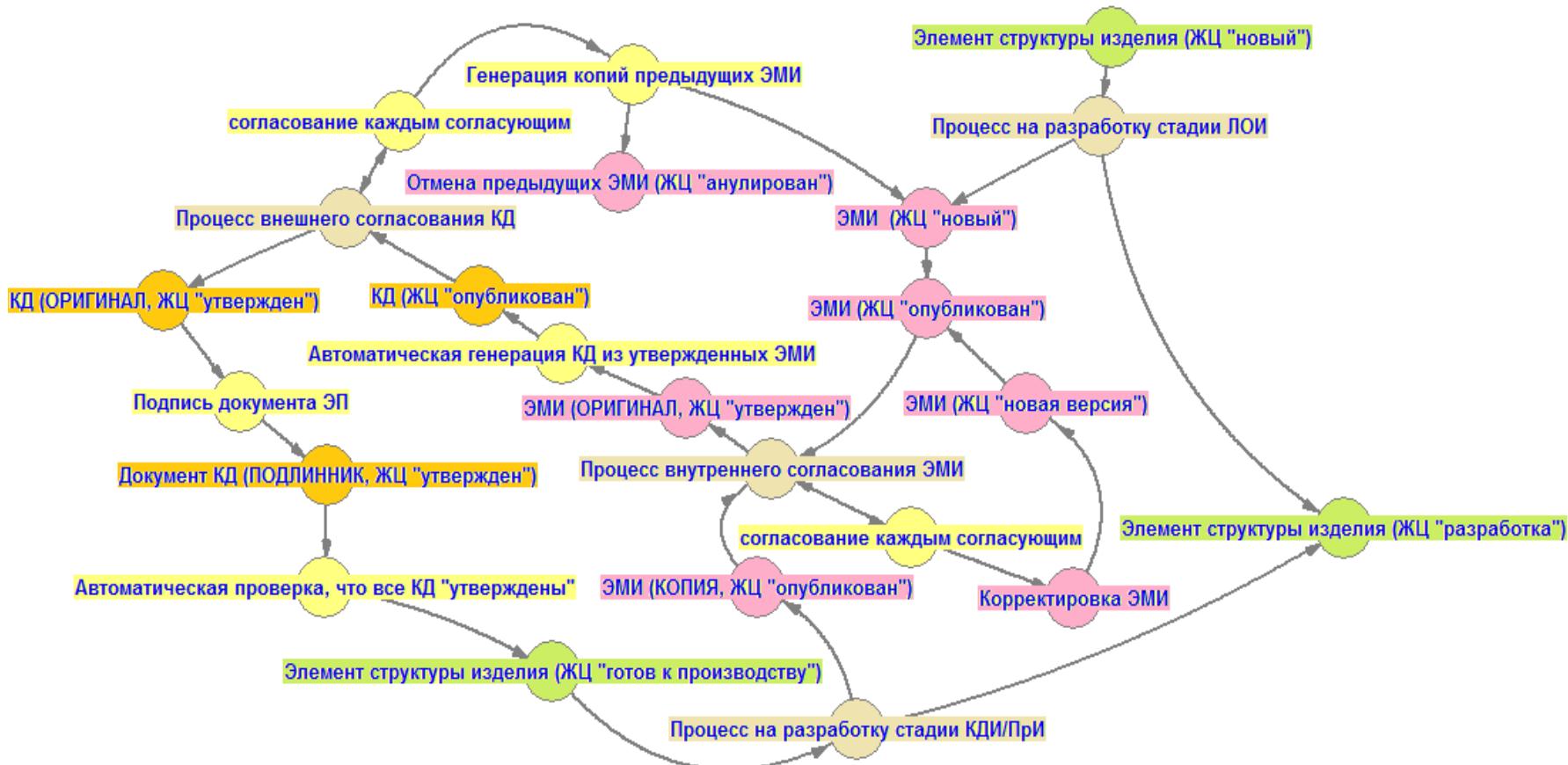
Development of a scorecard for each business process

An example of the structure of the circuit design process



Methodology Elements

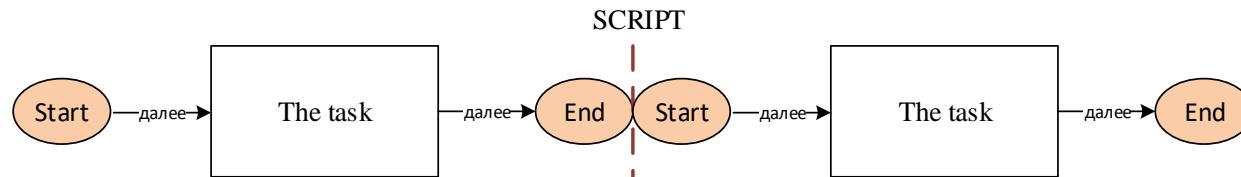
Workflow chart example



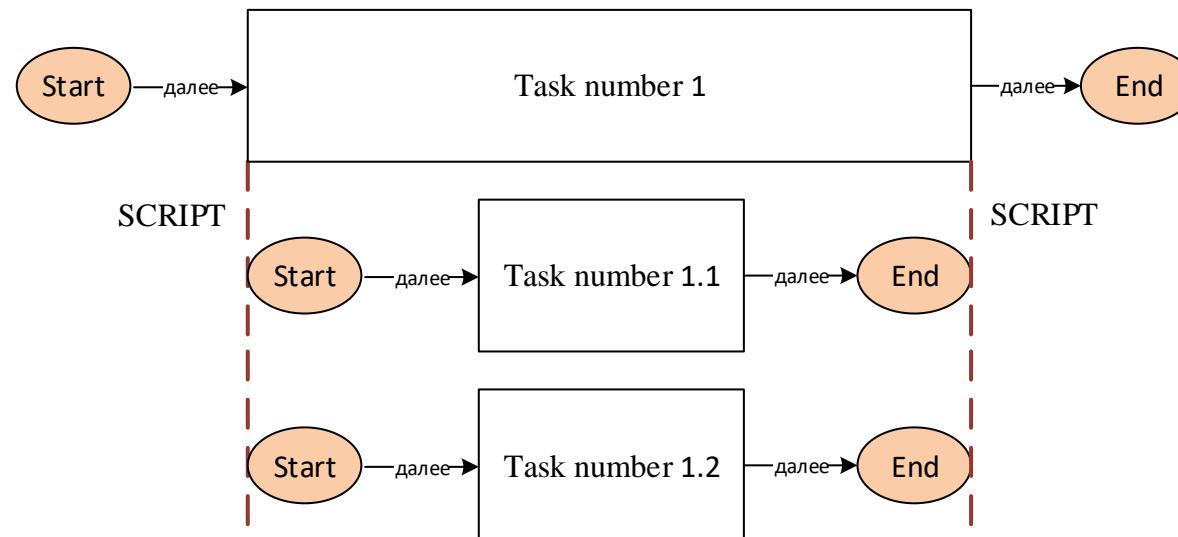
Methodology Elements

dynamic workflow

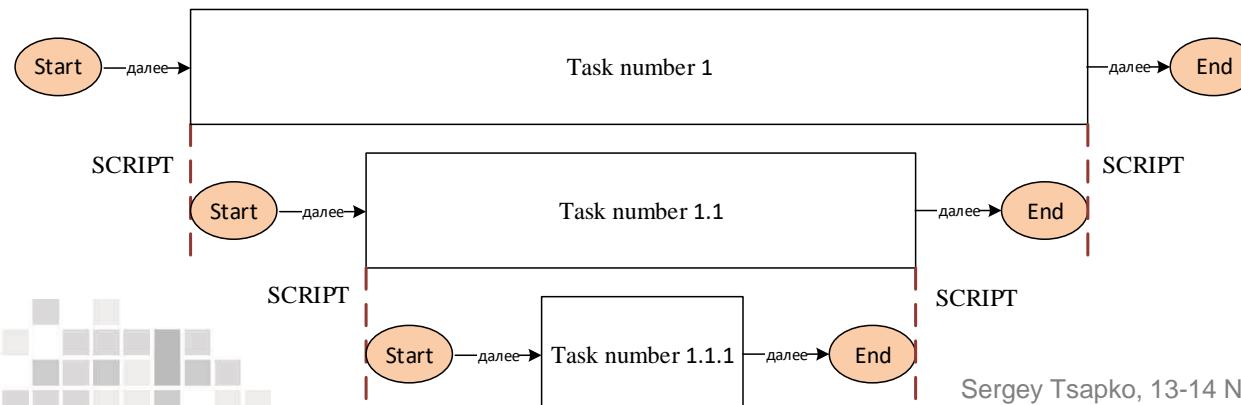
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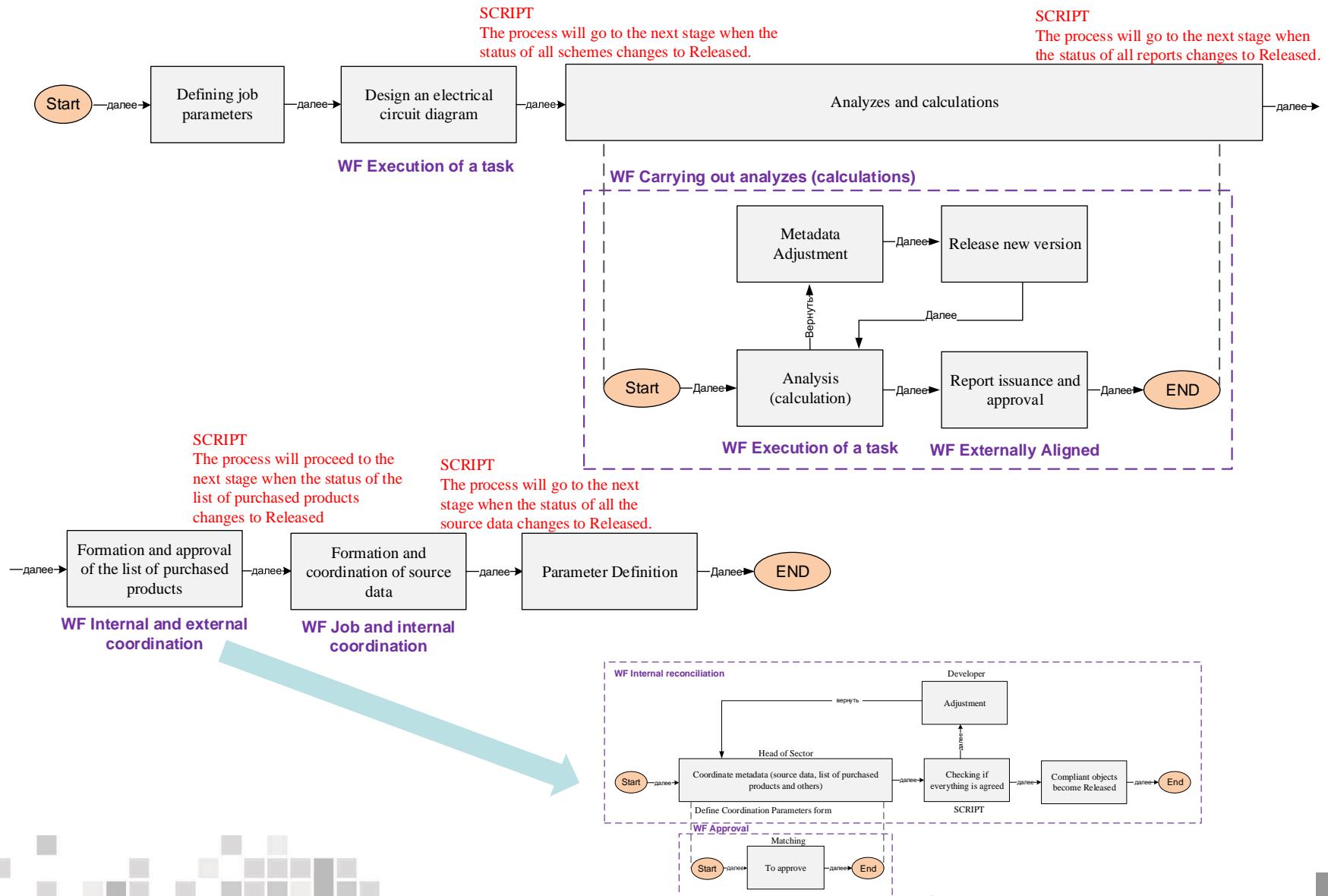
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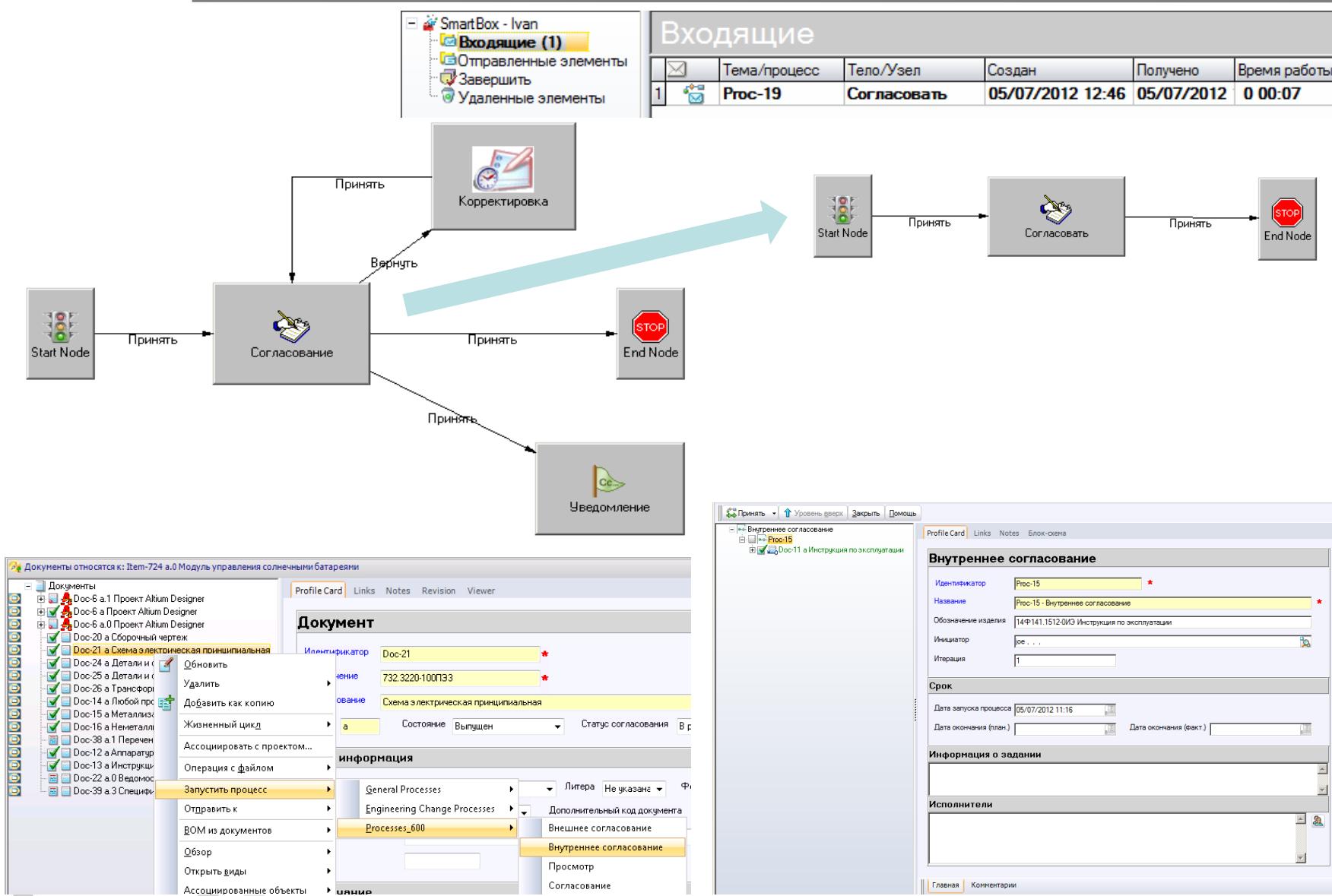
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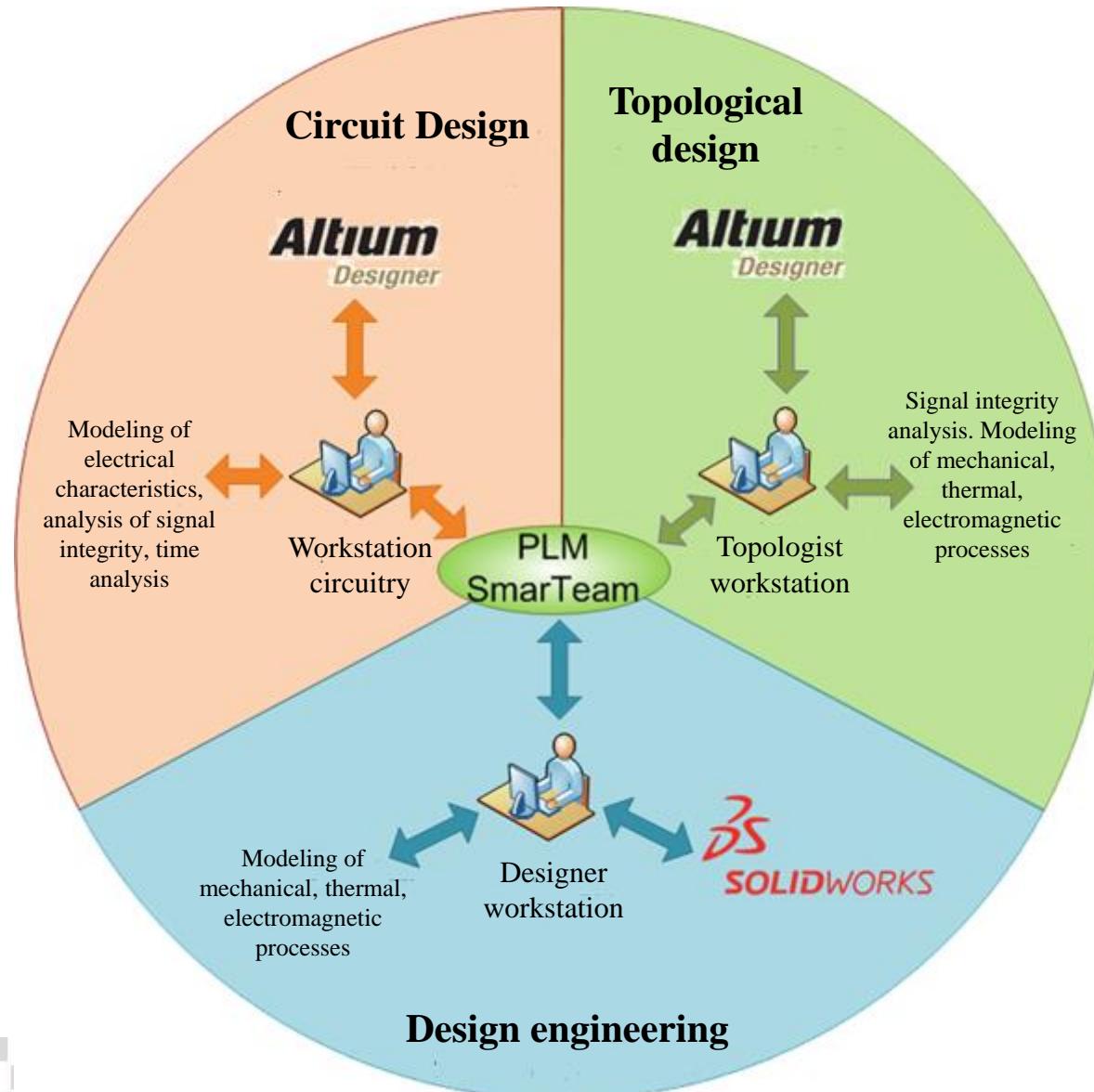
Workflow example for circuit design



Implementation of WorkFlow in the SmarTeam PLM system

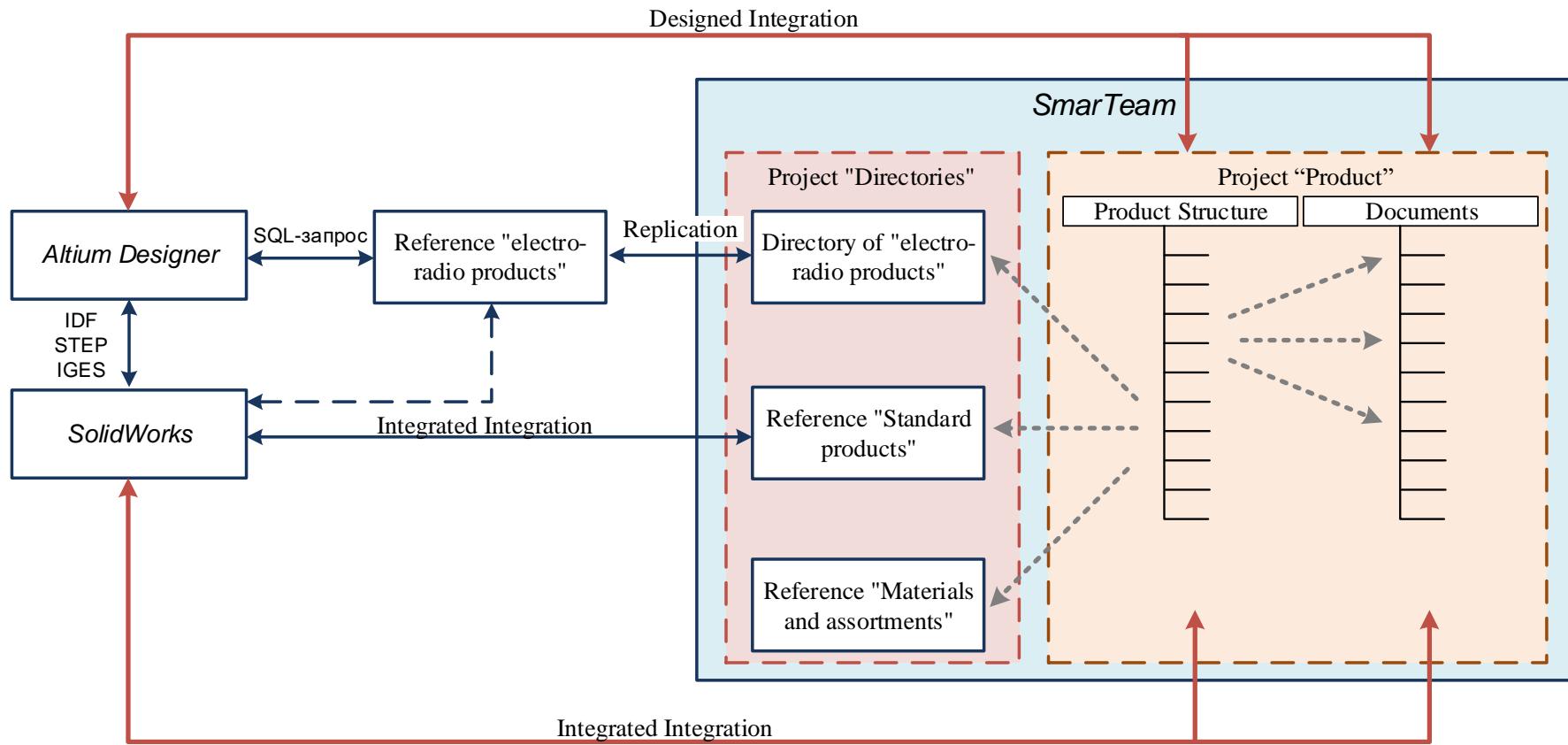


End-to-end design cycle

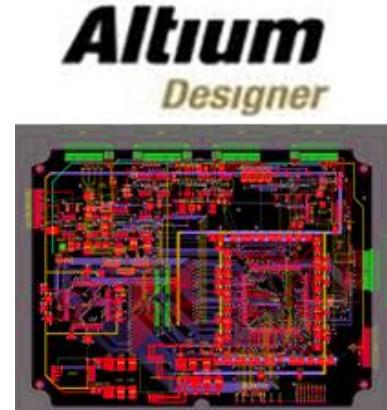


Methodology Elements

integration of applied computer systems



Information Systems Integration



The formation of
the structure of
the product



SmarTeam

**The formation of documentation
for the designer**

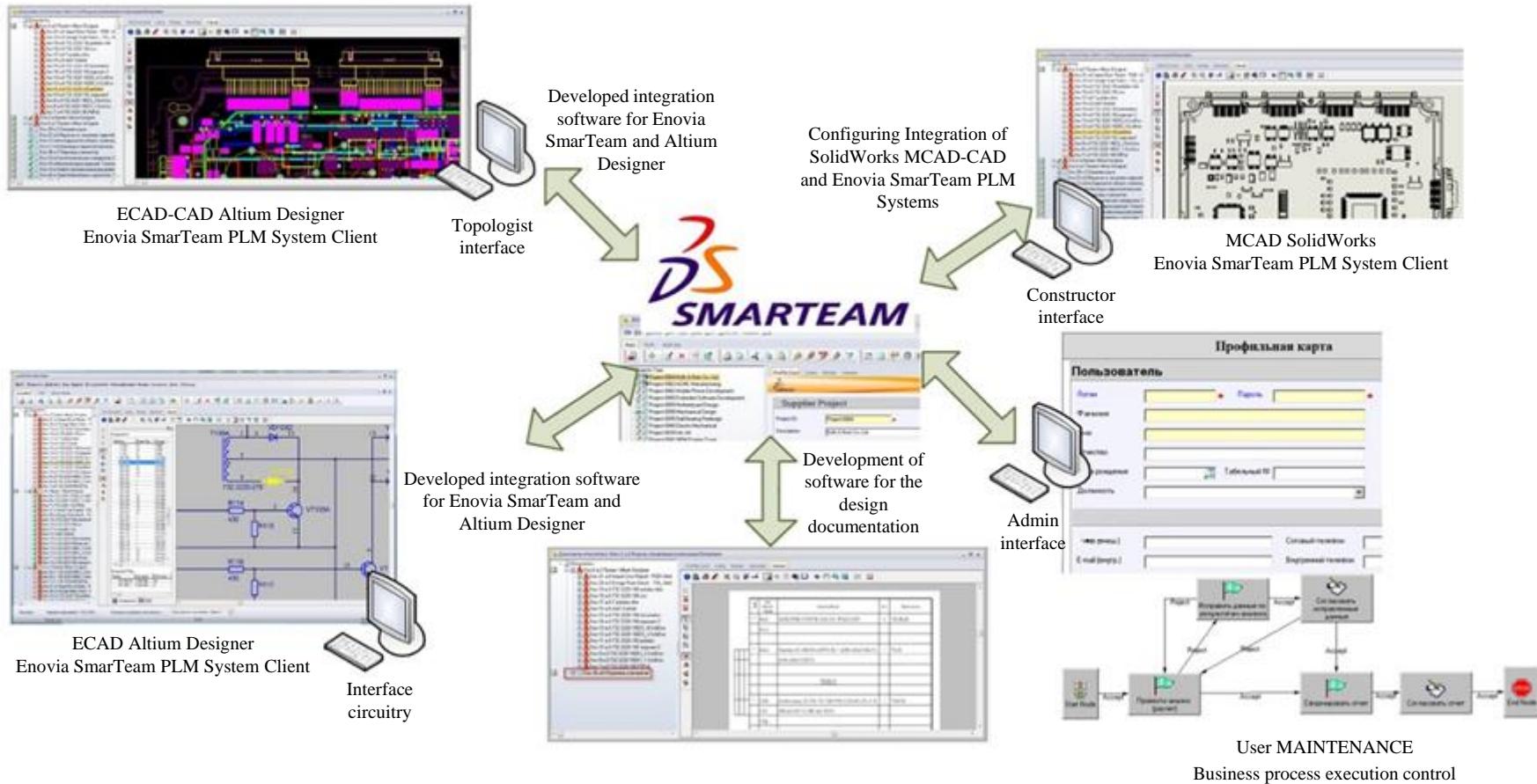
Номер	Наименование	Номер	Наименование
AI	732.3220-1003		Сборочный чертеж
AI	732.3220-1003%		Продажи и нематериальные ресурсы
AI	732.3220-1007%		Продажи и нематериальные источники
AI	732.3220-1007%		Продажи и нематериальные производственные и источники ПЗУ
AI	887.101-12/03		Схема электрическая
AI	887.102/0		Прикладная
AI	887.102/1		Нематериальные материалы
AI	887.102/2		Изменение предложений по
AI	887.102/3		изменениям
AI	887.102/4		Направления изданий Технические
AI	887.102/5		справки

732.3220-100

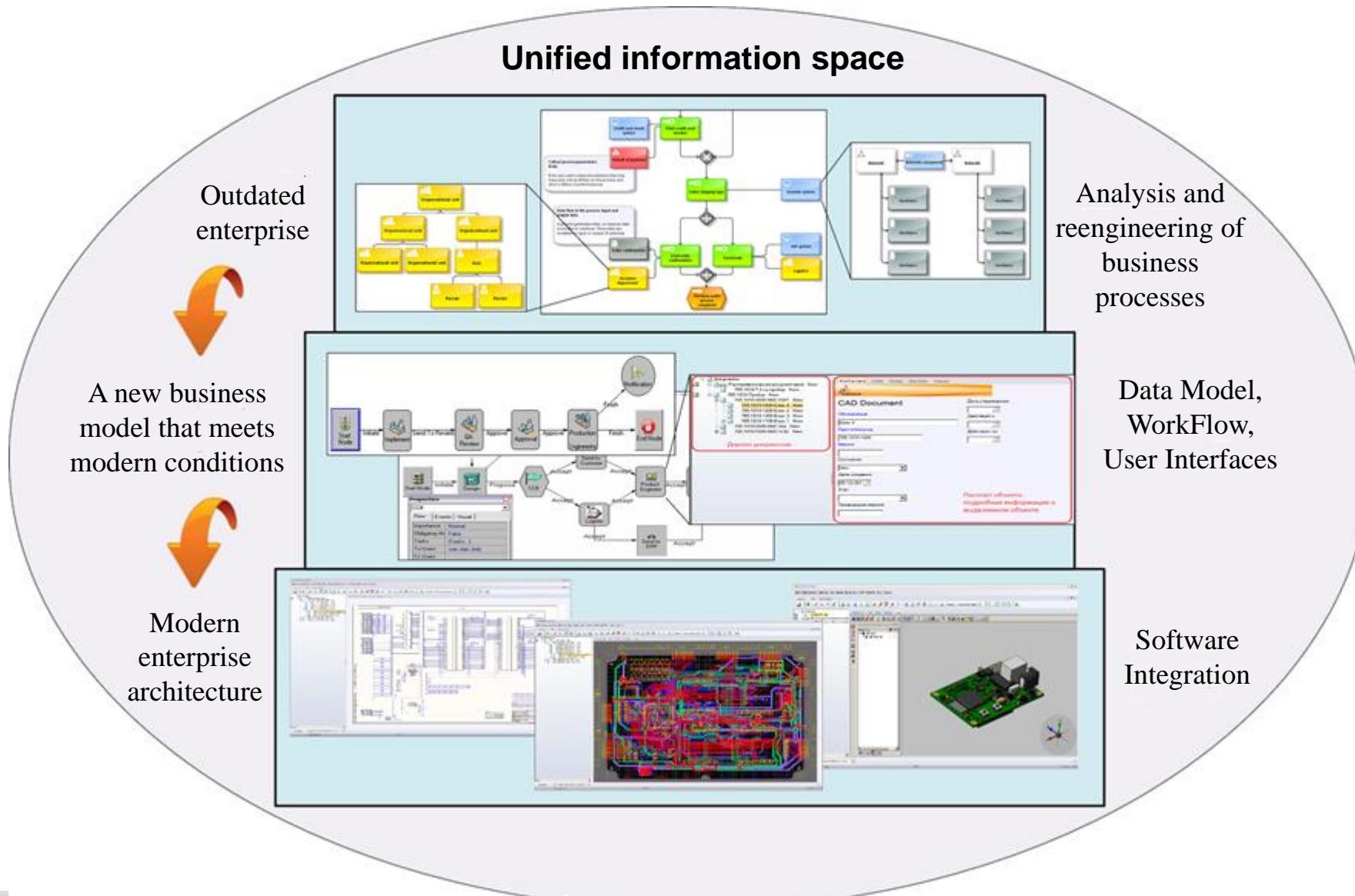
Номер	Наименование	Номер	Наименование
1	Рабочий чертеж (планшет)	1	Чертеж
2	Паспорт	2	Лист
3	Штат	3	Лист
4	Комплект	4	Лист

Methodology Elements

information systems integration



Conclusion



**THANK
FOR YOUR
ATTENTION!**