

ComSuite Agile Process (CSAP) project management methodology

version 1.0

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Revision history

Version	Date	Author	Description
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Tasks and problems

Methodology is focused on a rather narrow range of tasks:

Development and implementation of: video conferencing, audio and video processing including image recognition, workflow, and related mechanisms on the basis of ComSuite platform.

Since that for most of customers the system is not primary, but complementing CRM, ERP, MRP & etc. functions, tasks of integration with existing systems, integration into automated business process chain are coming to the fore.

Also on the background of contemporary trends support of wide range of platforms including mobile, is becoming significant.

From project standpoint proposed methodology minimizes development time and cost while maintaining high quality of solution, effectiveness of technical support, ease of code disposal.

Methodology purpose

Actors of CSAP process:

1. ComSuite platform developers
2. Customers of solutions, based on ComSuite platform
3. Third-party developers, assuming to license ComSuite platform for their objectives

Thus, methodology describes interaction between two actors: Customer and Developer.

Internal processes of Developers are not considered in CSAP.

We recommend to use any of the popular Agile methodologies for software development.

CSAP methodology assumes utilization of the experience, gained during its use, for further internal process improvement.

Outlines

The basis of the methodology - ideas and practices of Agile.

This is especially:

1. Close interaction with the Customer
2. Frequent versions delivery
3. Prototyping
4. Continuous testing
5. Iterative process
6. Incremental process
7. A small volume of documentation

CSAP methodology developed on the basis of practical experience assumes continuous improvement like any other Agile practice.

CSAP Features

The main difference between CSAP and other Agile methodologies - possibility to work in "fixed price" contract.

This is due to ComSuite projects niche and Customers requirements.

Restrictions and risks

Restrictions

1. The process is focused on highly qualified development team. Entry to the team for members without professional knowledge in these technologies and skills to use them or without experience of using relevant tools is not applicable.
2. It is assumed that Customer team members are interested in project result. Process becomes unstable in case of sabotage within Customer team.

Risks

Technological

- Poor communication channels and misunderstanding of distributed real-time systems peculiarities by project members;
- Overestimated expectations for the technical capabilities of video and audio transfer via internet;
- Underestimated requirements for necessary computational power;
- Unlicensed software usage;
- Lack of understanding of required network infrastructure. May cause to deployment on inappropriate landscape and performance loss of industrial system version;
- Usage of freely distributed RTMP servers (instead of the rather expensive FMS or WMS), that requires highly qualified engineers support. May cause unpredictable increase of the cost of ownership;
- Low qualification of engineers that may cause to non-optimal choice of solutions.

Organizational

- Poor involvement of Customer team members in the development process. It is strongly recommended to deliver versions at least once a week with mandatory testing by Customer team. Otherwise would lead to failure to meet a dates or a project failure with high probability;
- Customer technical manager change in the development process. Technologies used in the ComSuite platform, assumes that infrastructure engineers have specific knowledge, that usually not so. During presale manager can acquire necessary knowledge, but with fast entrance into the project, he finds himself in a situation of insufficient information, which may lead to unpredictable consequences;
- Refusal of Customer team to use project management system. Result is loss of documents, requirements, knowledge, and chances of successful project completion.

Process artifacts

1. Vision, general requirements description, UI design, approximated development plan with scheduled release dates, description of the required network infrastructure including communication channels requirements, commercial documentation;
2. State diagrams (optional);
3. Database scheme;
4. Highly detailed description of integration mechanisms and related protocols;
5. UI elements design;
6. The source code of system modules;
7. Related Documentation, including:
 - Installation and configuration guide;
 - API modules description;
 - required network infrastructure description, including requirements for communication channels and platform software (OS, DBMS, RTMP server, etc.);
 - known issues description;
 - possible directions for further system development.

If necessary, a list of documents can be extended. Please, note that CSAP assumes support of artifacts actual state, that with increasing their number will cause an exponential growth of labor costs and unplanned expenses.

Process description

Process is iterative and incremental. Any part of the system can be modified at any moment of life cycle.

Phases

CSAP process involves following project phases:

Phase	Artifacts	Comments
Presale and contract conclusion	Request for commercial proposal (RFP), Commercial proposal, Vision, general requirements description, UI design, development plan, contract	Duration up to one month. Upon exceeding this time it is not recommended to continue work. Contract signing and plan development are not recommended without: understanding by Customer of requirements for industrial landscape infrastructure, UI design, Vision, general requirements
Prototyping	UI design, database scheme, requirements description, source code of system modules, state diagrams, integration mechanisms description	Key project phase. As a result, client applications that are functionally similar to the required, source code of FMS modules and database schemas should be obtained. In a situation when Customer can not

		<p>assess developed prototype it is recommended to re-iterate this phase with a corresponding revision of the contract, if such risk has not been incorporated into the project budget</p>
Development	<p>UI design, database scheme, requirements description, source code of system modules, state diagrams, integration mechanisms description</p>	<p>It is recommended to divide the phase into three stages:</p> <ul style="list-style-type: none"> - FMS, DB module and web-services development with parallel refinement of the UI prototype and security technology development - Elements design implementation - Further integrated development of system, additional functions implementation. <p>If system does not meet functional expectations of Customer, it is recommended to re-iterate this phase with a corresponding revision of the contract, if such risk has not been incorporated into the project budget</p>
An integral testing	<p>UI design, source code of system modules, database scheme, state diagrams, related documentation</p>	<p>Duration from two weeks to one month. It is not recommended to reduce this time, otherwise there could be serious risks during maintenance. User testing by Customer specialists. If during testing additional requirements are identified, it is recommended to repeat Development phase with a corresponding revision of the contract, if such risk has not been incorporated into the project budget. Related documentation development.</p>
Project completion	<p>Related documentation</p>	<p>System installation on Customer landscape, finalization of related documentation following consultation with Customer technical</p>
Maintenance	<p>Source code of system modules, database scheme, integration mechanisms description, related documentation</p>	<p>Allowed only detected errors fixing. If there appear requirements to change system functions, UI design, etc., it is recommended to start new project from Presale and contract conclusion phase.</p>

Presale and Prototyping are key phases during which Customer and Contractor should be form most complete picture of system requirements.

Above we wrote that CSAP process allows "fixed price" contracts. This is true. But in "fixed price" contracts it is necessary either to fix scope of work, or to stipulate the possibility of budget increasing in case of requirements, that were not specified on planning project budget phase.

Practices and tools

Recommended tools and libraries

Project management tools

We recommend JIRA as the main management tool. JIRA system functions are sufficient for work, even without the additional modules. Must be set up:

Accounts for Developer and Customer members

E-mail notification about new and fixed tasks, new artifacts.

Development tools

We recommend:

- Adobe Flash Builder 4.6 for development of web, mobile and desktop client applications
- Adobe FMS 4.5 и Adobe FMG 4.5 as RTMP platform and SIP gateway

Additional libraries

We recommend:

- SMAXE - implements RTMP protocol for Java. Allows to use this protocol for Android applications.
- Chilkat - components implement functions, required for web-services development.

Recommended development techniques

FMS and web-services

It is recommended to use HTTP protocol for:

- interaction between the FMS and services that implement business logic
- perhaps, integration functions, saving information into database and etc.

Information returned to FMS it is best to present in XML.

JSON and FMS

Adobe FMS does not support JSON parser. Possible solution is to transfer this task to client with subsequent return of result:

FMS code:

```
p_client.ofJSON = function( jsonRequest )
{
p_clien.call( "onJsonRequest", null, onJsonRequest, "callbackJSON");
```

```
}  
  
p_client.callBackJSON = function(...)  
{  
  
}
```

Client code:

```
public function onJsonRequest(jsonRequest : String, callBack : String ) : void  
{  
// JSON parser call  
nectCon.call( callBack, null,... );  
}
```

Annex

Document templates

CSAP document templates can be downloaded here:

<http://www.comsuite.ru/csap/csaptmpl.zip>