

SOLUTION PROPOSALS

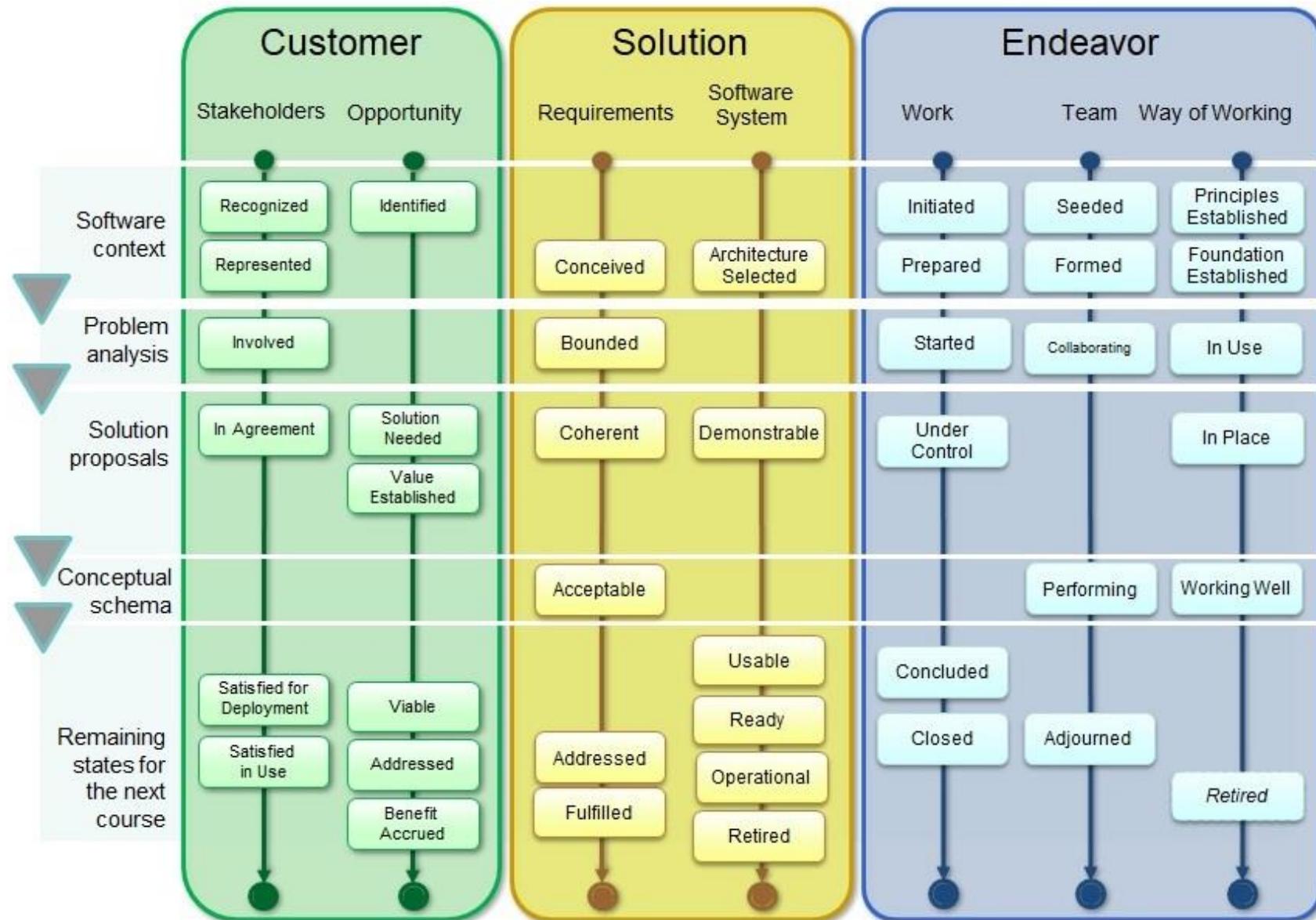
Carlos Mario Zapata J.

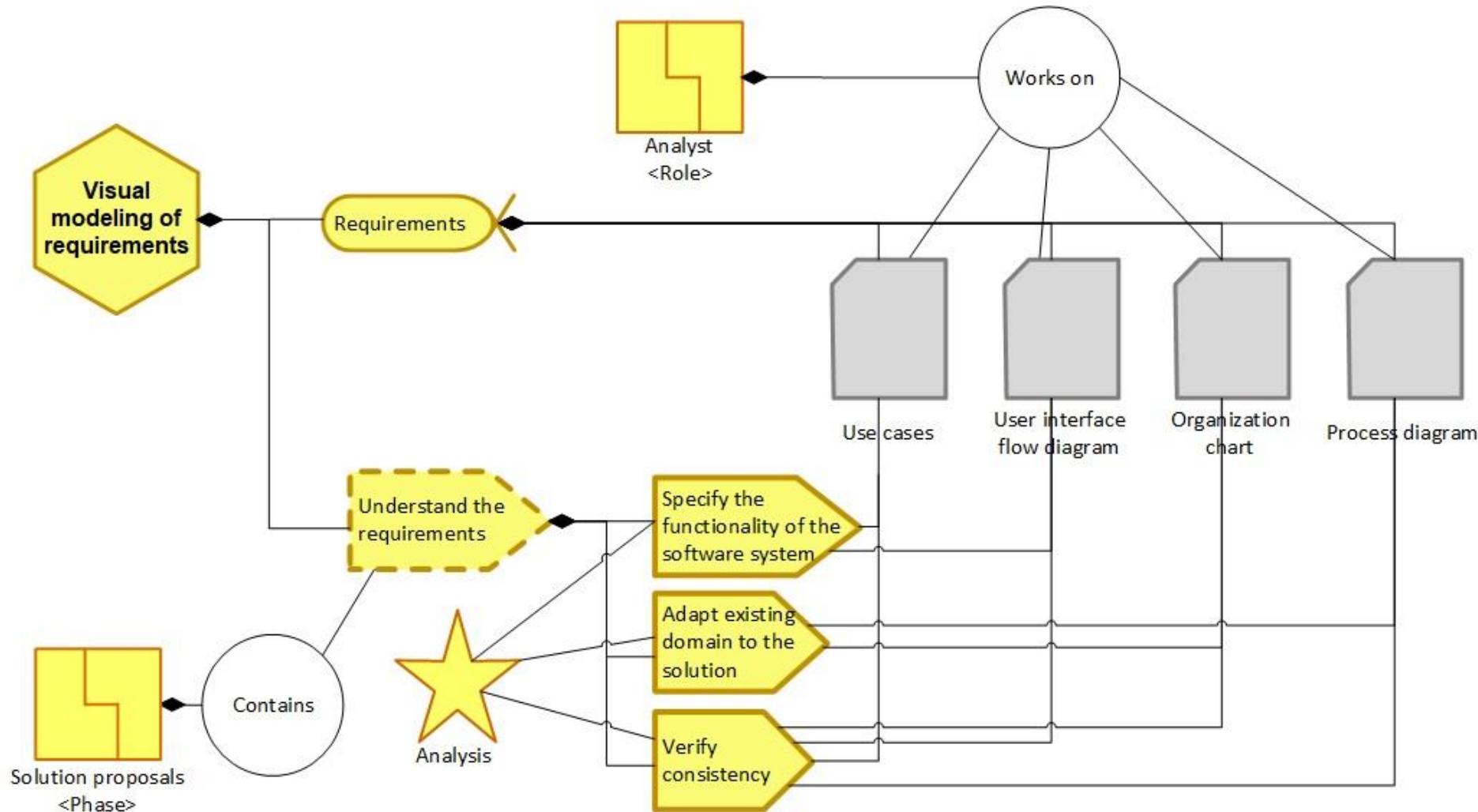
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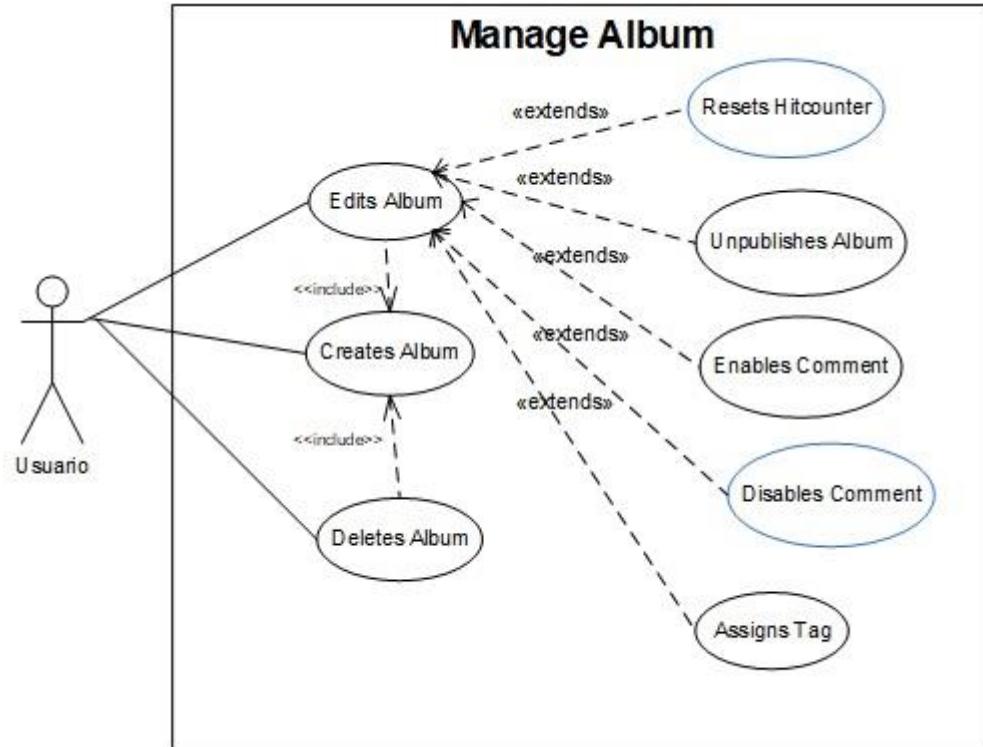
**“My team has created a very innovative solution,
but we’re still looking for a problem to go with it.”**

UNC-METHOD IN THE ESSENCE

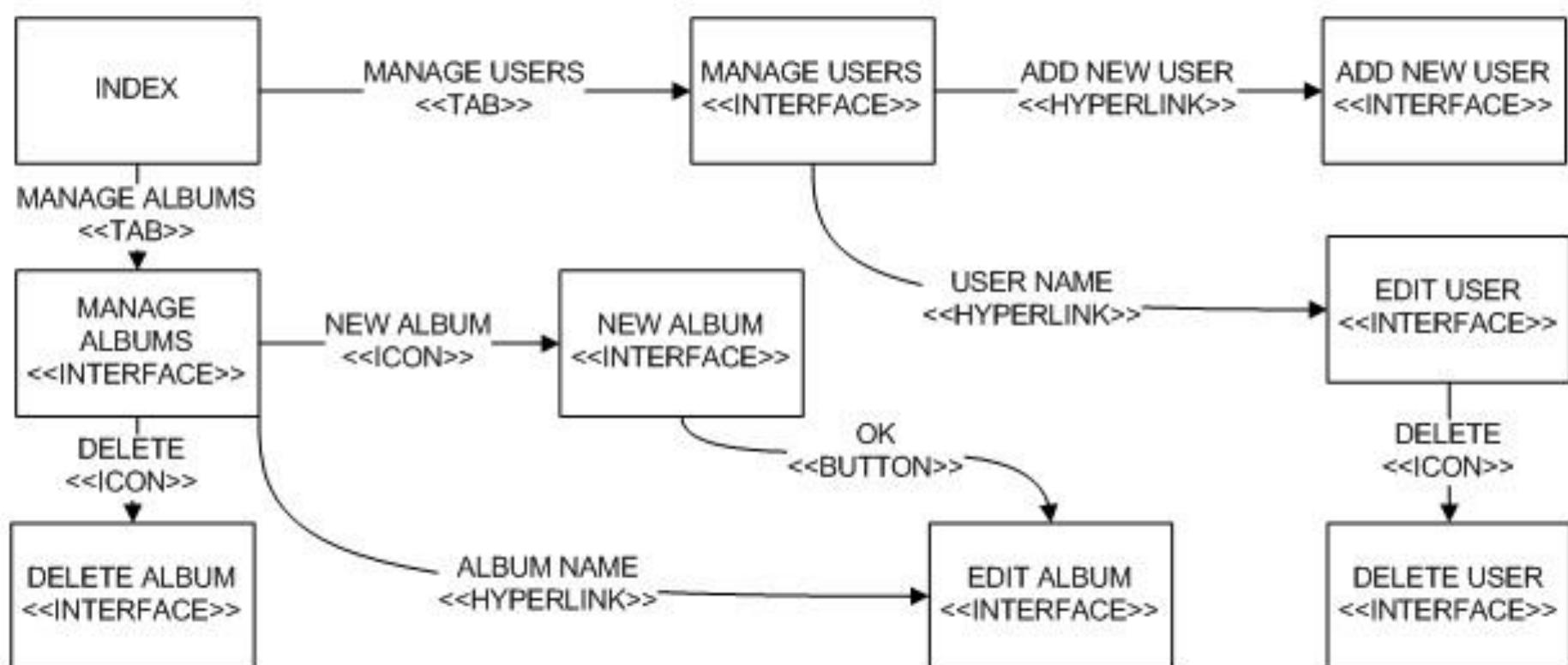


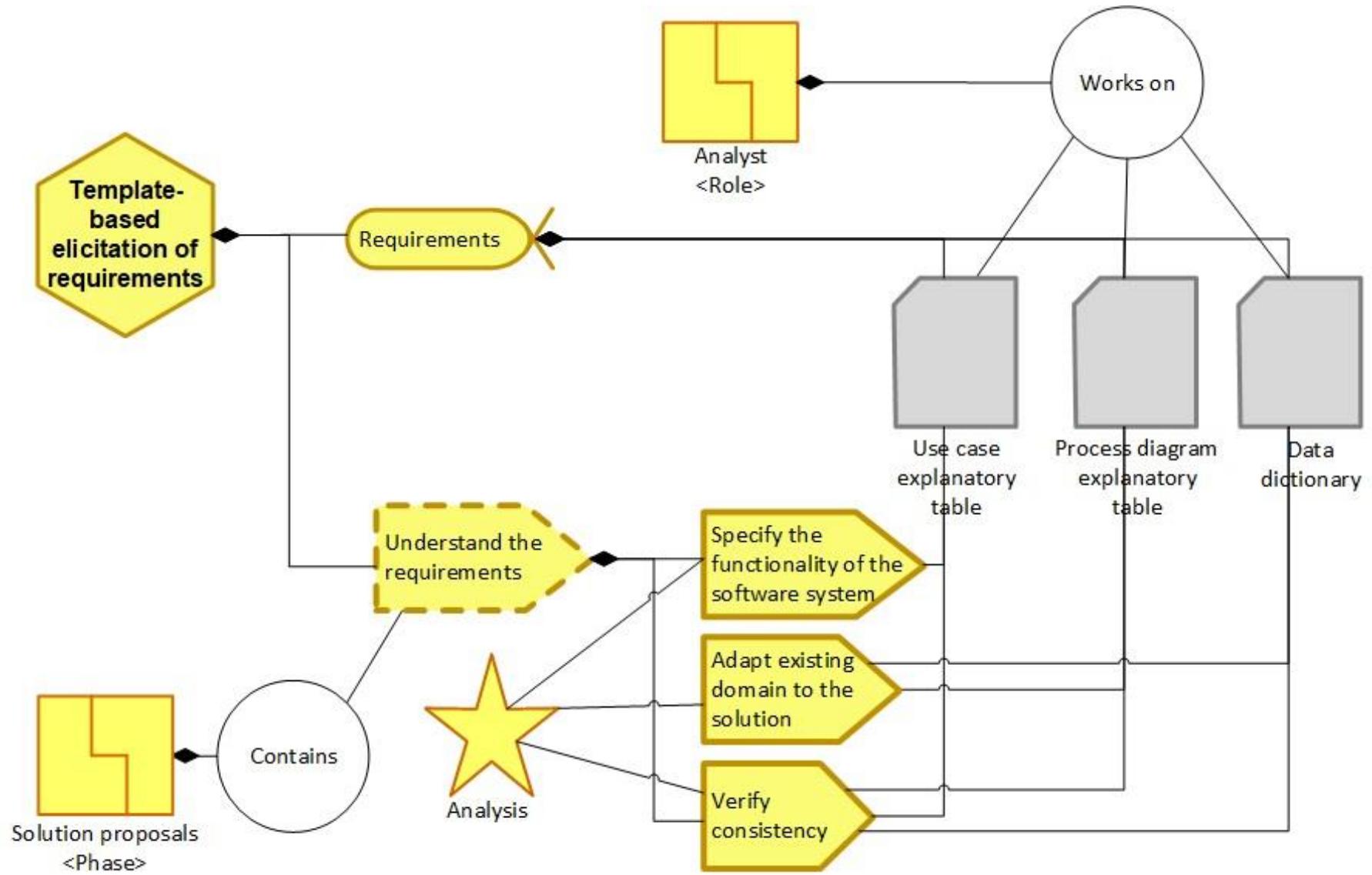


USE CASES



USER INTERFACE FLOW DIAGRAM

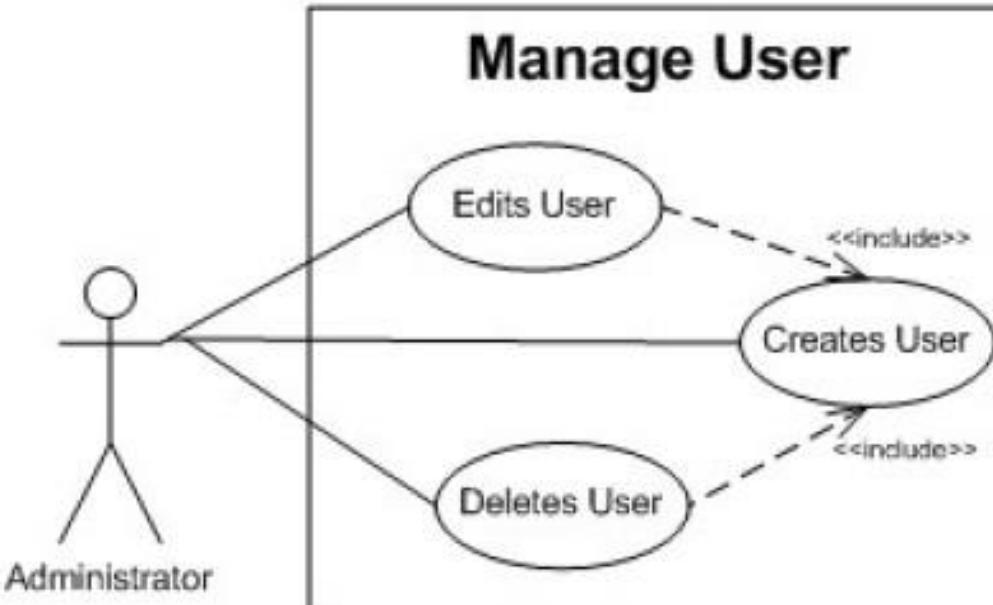




USE CASE EXPLANATORY TABLE

Use Case	<i>UC01 Creates User</i>		
Version	<i>1.3.09</i>	Fecha	<i>20/01/2012</i>
Author	<i>Carlos Mario Zapata and Mónica Pérez</i>		
Source	<i>ZenPhoto™ procedure manual</i>		
Purpose	<i>Registering the basic information of the users in the database.</i>		
Goals	<p><i>G1: Increasing the Users; G4: Fostering the permits; G6: Assuring the accesses have albums; R3: Making the users be created</i></p> <p><i>This use case is intended to deal with the following problems: C5 Access has many restrictions for new users; C6 Rights are difficult to be granted after a user is created.</i></p>		
Summary	<i>The system provides the interface to enter data for each user—e.g., user name and password. You can select the permits for assigning to the user.</i>		
Actors	<i>A0:Administrator</i>		
Precondition	<i>The administrator must be logged on to the system</i>		
Interaction Sequence	<i>Administrator</i>	<i>System</i>	
1	<i>Click on the tab "Manage Users"</i>	<i>Displays the tab "Manage Users"</i>	
2	<i>Click on "add new user"</i>	<i>Displays the section "Add New User"</i>	
3	<i>He/she enters the user name, password, full name and email. He/she chooses the user permits, and clicks on "Save".</i>	<i>Saves the new user and Displays the tab "Manage Users" with the new user</i>	

USE CASE EXPLANATORY TABLE

Use Case	<i>UC01 Creates User</i>	
Alternative Sequence	<i>Administrator</i>	<i>System</i>
1-3	<i>Click on the “reset” button.</i>	<i>Clears the fields to enter a new user.</i>
Duration	<i>Optimum:3 minutes Average: 4 minutes Maximum:5 minutes</i>	
Frequency	<i>20 times a month</i>	
Type	Primary	
Postconditions	<i>The user has been created</i>	
Chart	 <p>The diagram shows a Use Case Diagram titled "Manage User". A participant named "Administrator" is shown as a stick figure and is associated with three use cases: "Edits User", "Creates User", and "Deletes User". Solid lines connect the administrator to "Edits User" and "Creates User". Dashed lines with the label "<<include>>" connect "Edits User" to "Creates User" and "Creates User" to "Deletes User".</p>	
Interface	<i>See Fig. 45 and 46.</i>	

USE CASE EXPLANATORY TABLE

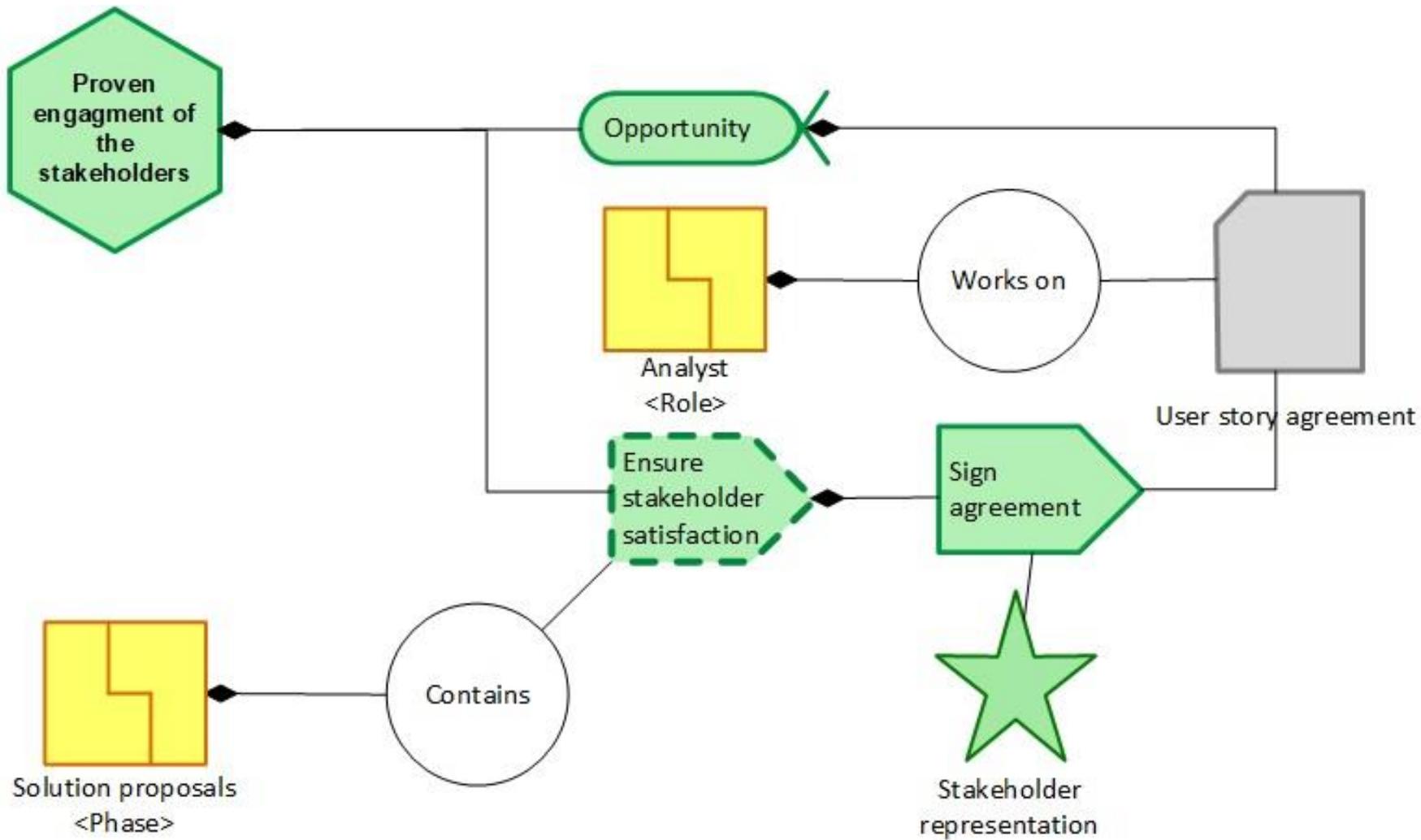
- Type of the use case:
- <Primary if the use case is intended to generate information for solving problems, so it has a direct benefit for the organization.>
- <Secondary if the use case is needed for entering information the primary use cases need, so it is a cost for the organization.>

USE CASE EXPLANATORY TABLE

The screenshot shows the Zenphoto admin interface with the following details:

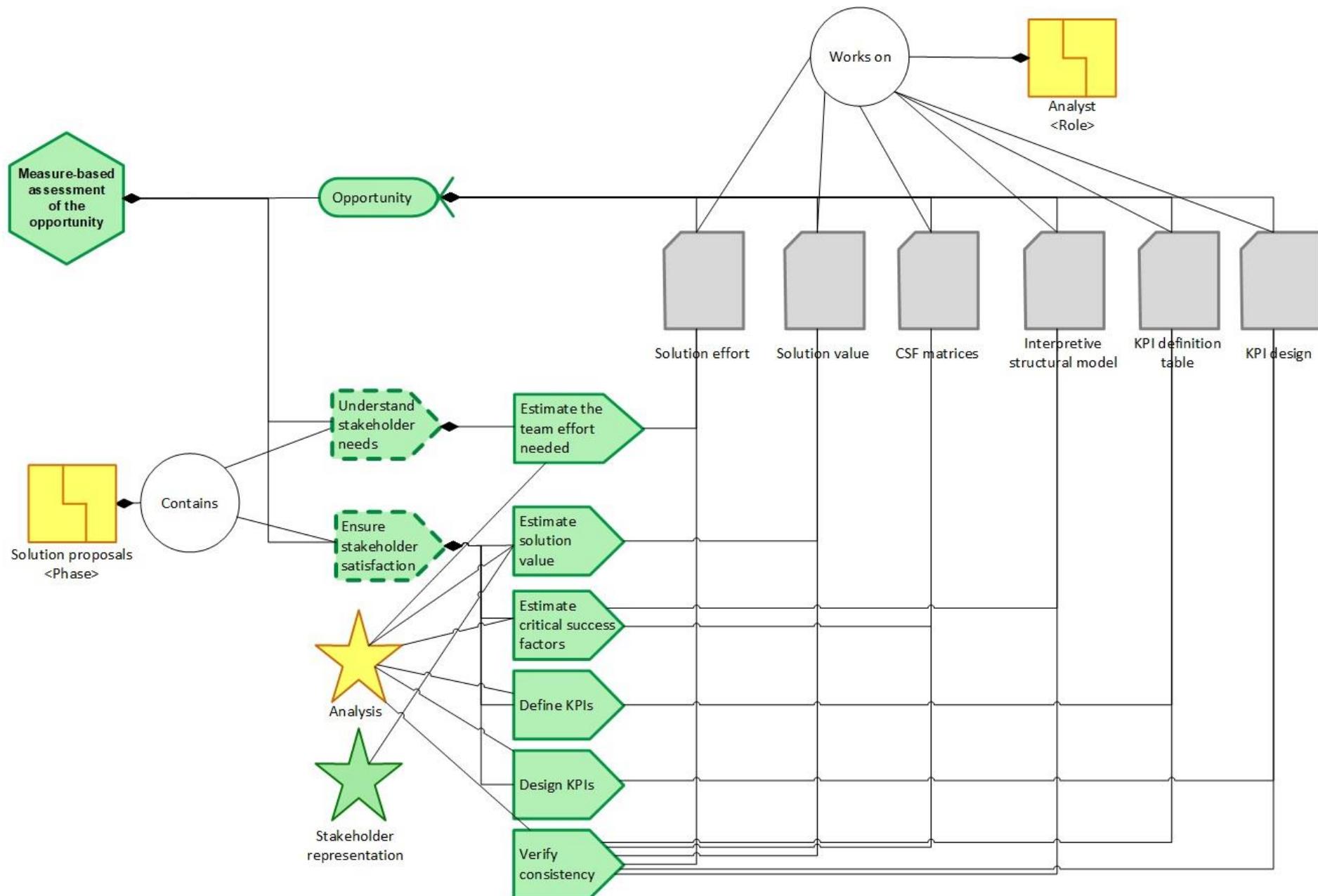
- Header:** ZenPHOTO. On the right, it says "Logged in as admin | Log Out | View Gallery".
- Top Navigation:** Overview, Upload, Manage Albums, Manage Tags, Manage Comments, **Manage Users**, Options, Themes, Plugins, Logs.
- User Management Form:**
 - Buttons:** Save (checked), Reset.
 - Section:** admin (Master).
 - Password:** (repeat) [REDACTED]
 - Rights:** A grid of checkboxes for various permissions:

Admin	Options	Tags
Themes	Manage all albums	Manage all news
Manage all pages	Files	News
Pages	Albums	Comments
Post comments	Upload	View all
Overview		
 - Fields:** Full name: administrador, email: sebas212@gmail.com
 - A note: "The *master* account has full rights to all albums."
 - Other Accounts:** monica, user1.
 - Add New User:** A text input field.
 - Buttons:** Save (checked), Reset.



USER STORY AGREEMENT

Project name					
Date	Prepared by	Authorized by			
User story description			Acceptance criteria		
As a...	I want...	So that...	Given...	When...	Then...
User	To upload files	We can foster the files	The users are created	I click on the Upload tab	The software system displays the interface for uploading files

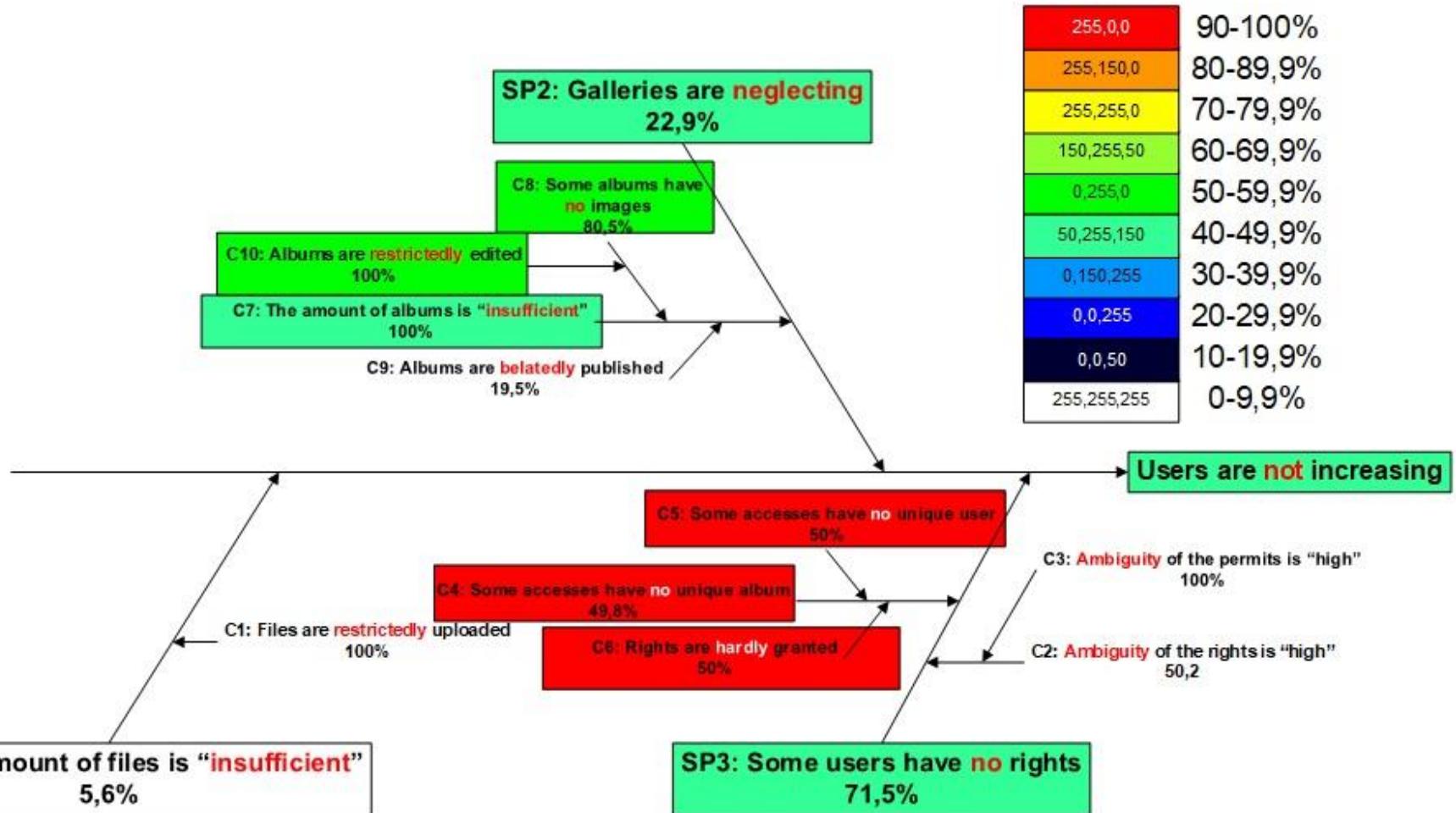


SOLUTION VALUE

Process	Goals/Requirements	Problems	Use cases
P1 Creates user	G1, G4, G6, R3	C5, C6	UC01
P2 Deletes user	G4, R4	C5, C6	UC03
P3 Edits user	G4, G6, R4	C5, C6	UC02
P7 Deletes album	G4, R7	C10	UC06
P8 Creates album	G2, G5, R7	C10	UC05
P9 Edits album	G2, G5, R7	C10	UC04

Use case	Cause	P_{i,j}	Q_{i,j}	C_i	%
UC01, UC02, UC03	C6, C5	49,8	71,5	100	35,6
UC04, UC05, UC06	C10	80,5	22,9	57,1	10,5
TOTAL COVERAGE					46,1

SOLUTION VALUE



SOLUTION EFFORT

Karner, G.: Metrics for Objectory, Degree thesis, University of Linkoping, Sweden, 1993

Actor Summary		Multiplier	Number of Actors	Description
1	Simple	1	1	Simple actors are other systems that communicate with your software via a pre-defined API. An API could be exposed through a dll, or as a REST, SOAP, or any web-service API or remote procedure call (RPC). The key element is that you are exposing interaction with your software through a specific, well-defined mechanism.
2	Average	2	0	Average actors can either be human beings interacting in a well defined protocol, or they could be systems that interact through a more complex or flexible API.
3	Complex	3	1	The original definition of complex actors specifies that users who interact with the software through a graphical user interface are complex actors. While that is true, the same classification should apply to users who interact with the system in unpredictable ways. An AJAX interface that exposes more of the underlying application (and data stores) than would be available through a rigid protocol might introduce similar complexity.
Calculated AW			4	
Individual Actors	Multiplier	Actor Name		
1	Simple	1	Administrator	
2	Complex	3	User	

SOLUTION EFFORT

Unadjusted Use Case Points		Multiplier	Number of Use Cases	Description
1	Simple	5	3	Simple Use Case - up to 3 transactions.
2	Average	10	3	Average Use Case - 4 to 7 transactions.
3	Complex	15	0	Complex Use Case - more than 7 transactions.
Calculated UUCP			45	
Individual Use Cases		Multiplier	Use Case Name	
1	Simple	5	Creates user	
2	Simple	5	Edits user	
3	Simple	5	Deletes user	
4	average	10	Edits album	
5	average	10	Creates album	
6	average	10	Deletes album	

SOLUTION EFFORT

Environmental Factor	Multiplier	Relative Magnitude (Enter 0-5)	Description
1 Familiarity With The Project	1,5	5	How much experience does your team have working in this domain? The domain of the project will be a reflection of what the software is intended to accomplish, not the implementation language. In other words, for an insurance compensation system written in java, you care about the team's experience in the insurance compensation space - not how much java they've written. Higher levels of experience get a higher number.
2 Application Experience	0,5	4	How much experience does your team have with the application. This will only be relevant when making changes to an existing application. Higher numbers represent more experience. For a new application, everyone's experience will be 0.
3 OO Programming Experience	1	5	How much experience does your team have at OO? It can be easy to forget that many people have no object oriented programming experience if you are used to having it. A user-centric or use-case-driven project will have an inherently OO structure in the implementation. Higher numbers represent more OO experience.

SOLUTION EFFORT

Environmental Factor		Multiplier	Relative Magnitude (Enter 0-5)	Description
4	Lead Analyst Capability	0,5	5	How knowledgeable and capable is the person responsible for the requirements? Bad requirements are the number one killer of projects - the Standish Group reports that 40% to 60% of defects come from bad requirements. Higher numbers represent increased skill and knowledge.
5	Motivation	1	5	How motivated is your team? Higher numbers represent more motivation.
6	Stable Requirements	2	5	Changes in requirements can cause increases in work. The way to avoid this is by planning for change and instituting a timing system for managing those changes. Most people don't do this, and some rework will be unavoidable. Higher numbers represent more change (or a less effective system for managing change).
7	Part Time Staff	-1	2	Note, the multiplier for this number is negative. Higher numbers reflect team members that are part time, outside consultants, and developers who are splitting their time across projects. Context switching and other intangible factors make these team members less efficient.
8	Difficult Programming Language	-1	4	This multiplier is also negative. Harder languages represent higher numbers. We believe that difficulty is in the eye of the be-coder (groan). Java might be difficult for a fortran programmer. Think of it in terms of difficulty for your team, not abstract difficulty.
Calculated EF			0,62	

SOLUTION EFFORT

Technical Factor		Multiplier	Relative Magnitude (Enter 0-5)	Description
1	Distributed System Required	2	5	The architecture of the solution may be centralized or single-tenant , or it may be distributed (like an n-tier solution) or multi-tenant. Higher numbers represent a more complex architecture.
2	Response Time Is Important	1	4	The quickness of response for users is an important (and non-trivial) factor. For example, if the server load is expected to be very low, this may be a trivial factor. Higher numbers represent increasing importance of response time (a search engine would have a high number, a daily news aggregator would have a low number).
3	End User Efficiency	1	2	Is the application being developed to optimize on user efficiency, or just capability? Higher numbers represent projects that rely more heavily on the application to improve user efficiency.
4	Complex Internal Processing Required	1	0	Is there a lot of difficult algorithmic work to do and test? Complex algorithms (resource leveling, time-domain systems analysis, OLAP cubes) have higher numbers. Simple database queries would have low numbers.
5	Reusable Code Must Be A Focus	1	2	Is heavy code reuse an objective or goal? Code reuse reduces the amount of effort required to deploy a project. It also reduces the amount of time required to debug a project. A shared library function can be re-used multiple times, and fixing the code in one place can resolve multiple bugs. The higher the level of re-use, the lower the number.

SOLUTION EFFORT

Technical Factor		Multiplier	Relative Magnitude (Enter 0-5)	Description
6	Installation Ease	0,5	3	Is ease of installation for end users a key factor? The higher the level of competence of the users, the lower the number.
7	Usability	0,5	3	Is ease of use a primary criteria for acceptance? The greater the importance of usability, the higher the number.
8	Cross-Platform Support	2	0	Is multi-platform support required? The more platforms that have to be supported (this could be browser versions, mobile devices, etc. or Windows/OSX/Unix), the higher the value.
9	Easy To Change	1	0	Does the customer require the ability to change or customize the application in the future? The more change / customization that is required in the future, the higher the value.
10	Highly Concurrent	1	5	Will you have to address database locking and other concurrency issues? The more attention you have to spend to resolving conflicts in the data or application, the higher the value.
11	Custom Security	1	4	Can existing security solutions be leveraged, or must custom code be developed? The more custom security work you have to do (field level, page level, or role based security, for example), the higher the value.
12	Dependence On Third-Party Code	1	0	Will the application require the use of third party controls or libraries? Like re-usable code, third party code can reduce the effort required to deploy a solution. The more third party code (and the more reliable the third party code), the lower the number.
13	User Training	1	2	How much user training is required? Is the application complex, or supporting complex activities? The longer it takes users to cross the suck threshold (achieve a level of mastery of the product), the higher the value.
Calculated TCF			0,92	

SOLUTION EFFORT

Total UUCP = Total UAW + Total UUCW : Unadjusted Use Case Points

TCF = 0.6 + (0.01 * Tfactor) : Technical Complexity factor

EF = 1.4 + (-0.03 * Efactor) : Environmental Factor

AUCP = UUCP * TCF * EF: Adjusted Use Case Points

ESFUERZO = AUCP * Hombre/hora/AUCP

Calculations From Other Tabs		
TCF	Technical Complexity Factor	0,92
EF	Environmental Factor	0,62
UUCP	Unadjusted Use Case Points	45
AW	Actor Weighting	4
Calculation of Use Case Points		
UCP	Use Case Points	27,9
Calculation of Estimated Effort		
Ratio	Hours of Effort per Use Case Point	28
	Hours of Effort	783

CRITICAL SUCCESS FACTOR MATRICES

Self interaction matrix

Hughes, D.L., Rana, N.P. & Dwivedi, Y.K. Elucidation of IS project success factors: an interpretive structural modelling approach. *Ann Oper Res* **285**, 35–66 (2020)

CSF	10	9	8	7	6	5	4	3	2	1
1. User recruitment	O	O	V	A	X	A	A	O	X	
2. File and image availability	X	X	A	A	X	A	A	O		
3. File and image security	X	X	A	A	O	A	A			
4. Gallery and album sharing	X	O	A	X	X	X				
5. Permit granting	O	V	A	V	X					
6. Hitcounter management	O	O	V	A						
7. Gallery organization	X	X	X							
8. Tag assignation	V	A								
9. File tracking	O									
10. Image categorization										

V: CSF i will help to achieve CSF j;

A: CSF j will be achieved by CSF i;

X: CSFs i and j will help to achieve each other; and

O: CSFs i and j are unrelated.

CRITICAL SUCCESS FACTOR MATRICES

Reachability matrix

CSF	1	2	3	4	5	6	7	8	9	10	Driving power
1. User recruitment	1	1	0	0	0	1	0	1	0	0	4
2. File and image availability	1	1	0	0	0	1	0	0	1	1	5
3. File and image security	0	0	1	0	0	0	0	0	1	1	3
4. Gallery and album sharing	1	1	1	1	1	1	1	0	0	1	8
5. Permit granting	1	1	1	1	1	1	1	0	1	0	8
6. Hitcounter management	1	1	0	1	1	1	0	1	0	0	6
7. Gallery organization	1	1	1	1	0	1	1	1	1	1	9
8. Tag assignation	0	1	1	1	1	0	1	1	0	1	7
9. File tracking	0	1	1	0	0	0	1	1	1	0	5
10. Image categorization	0	1	1	1	0	0	1	0	0	1	5
Dependence	6	9	7	6	4	6	6	5	5	6	

If the (i, j) entry in the SSIM is V, then the (i, j) entry in the reachability matrix becomes 1 and the (j, i) entry becomes 0.

If the (i, j) entry in the SSIM is A, then the (i, j) entry in the reachability matrix becomes 0 and the (j, i) entry becomes 1.

If the (i, j) entry in the SSIM is X, then the (i, j) entry in the reachability matrix becomes 1 and the (j, i) entry also becomes 1.

If the (i, j) entry in the SSIM is O, then the (i, j) entry in the reachability matrix becomes 0 and the (j, i) entry also becomes 0.

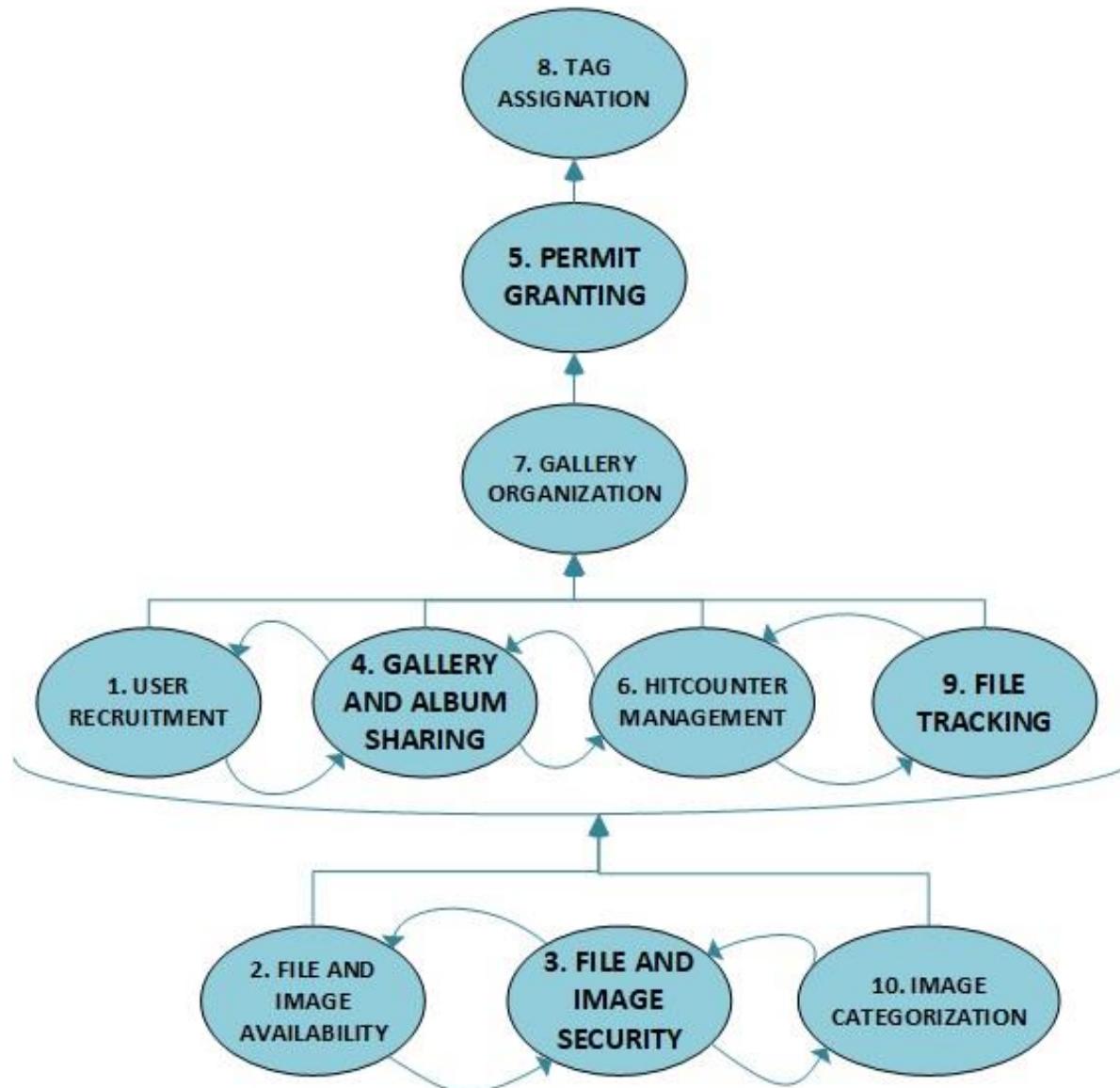
CRITICAL SUCCESS FACTOR MATRICES

CSF	Reachability set	Antecedent set	Intersection set	Level
1	1, 2, 6, 8	1, 2, 4, 5, 6, 7	1, 2, 6	
2	1, 2, 6, 9, 10	1, 2, 4, 5, 6, 7, 8, 9, 10	1, 2, 6, 9, 10	I
3	3, 9, 10	3, 4, 5, 7, 8, 9, 10	3, 9, 10	I
4	1, 2, 3, 4, 5, 6, 7, 10	4, 5, 6, 7, 8, 10	4, 5, 6, 7, 10	
5	1, 2, 3, 4, 5, 6, 7, 9	4, 5, 6, 8	4, 5, 6	
6	1, 2, 4, 5, 6, 8	1, 2, 4, 5, 6, 7	1, 2, 4, 5, 6	
7	1, 2, 3, 4, 6, 7, 8, 9, 10	4, 5, 7, 8, 9, 10	4, 7, 8, 9, 10	
8	2, 3, 4, 5, 7, 8, 10	1, 6, 7, 8, 9	7, 8	
9	2, 3, 7, 8, 9	2, 3, 5, 7, 9	2, 3, 7, 9	
10	2, 3, 4, 7, 10	2, 3, 4, 7, 8, 10	2, 3, 4, 7, 10	I

CRITICAL SUCCESS FACTOR MATRICES

CSF	Reachability set	Antecedent set	Intersection set	Level
1	1, 6, 8	1, 4, 5, 6, 7	1, 6	II
4	1, 4, 5, 6, 7	4, 5, 6, 7, 8	4, 5, 6, 7	II
5	1, 4, 5, 6, 7, 9	4, 5, 6, 8	4, 5, 6	
6	1, 4, 5, 6, 8	1, 4, 5, 6, 7	1, 4, 5, 6	II
7	1, 4, 6, 7, 8, 9	4, 5, 7, 8, 9	4, 7, 8, 9	
8	4, 5, 7, 8	1, 6, 7, 8, 9	7, 8	
9	7, 8, 9	5, 7, 9	7, 9	II
CSF	Reachability set	Antecedent set	Intersection set	Level
5	5, 7	5, 8	5	
7	7, 8	5, 7, 8	7, 8	III
8	5, 7, 8	7, 8	7, 8	
CSF	Reachability set	Antecedent set	Intersection set	Level
5	5	5, 8	5	IV
8	5, 8	8	8	
CSF	Reachability set	Antecedent set	Intersection set	Level
8	8	8	8	V

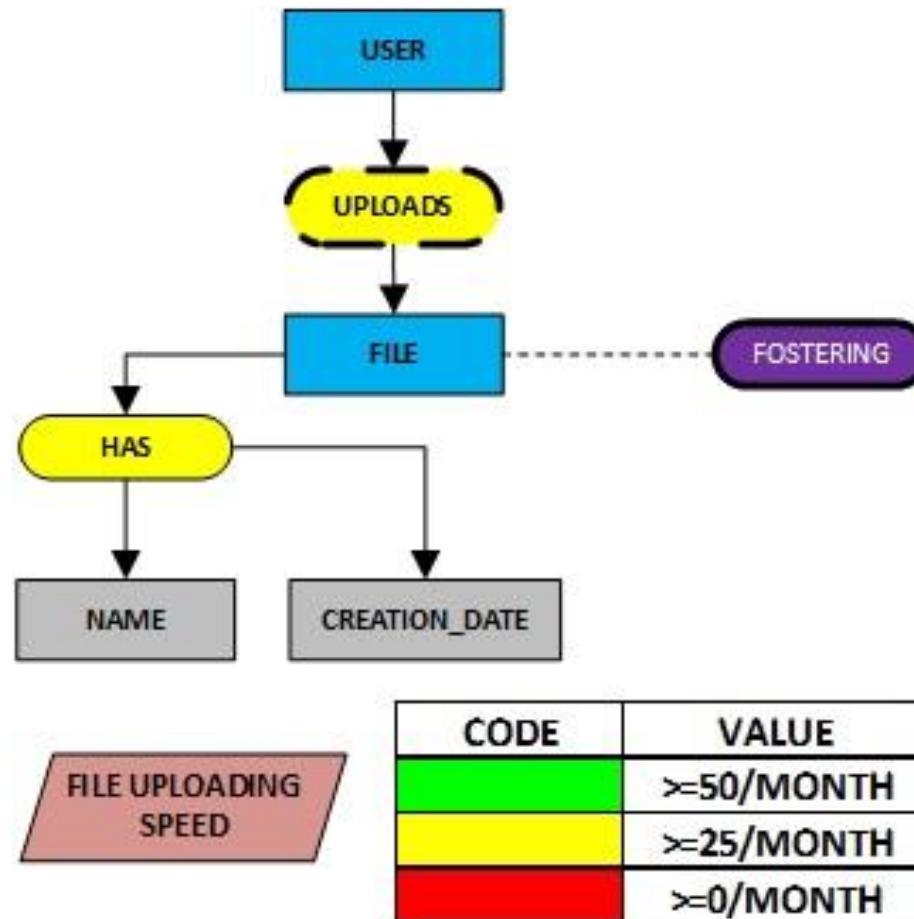
INTERPRETIVE STRUCTURAL MODEL

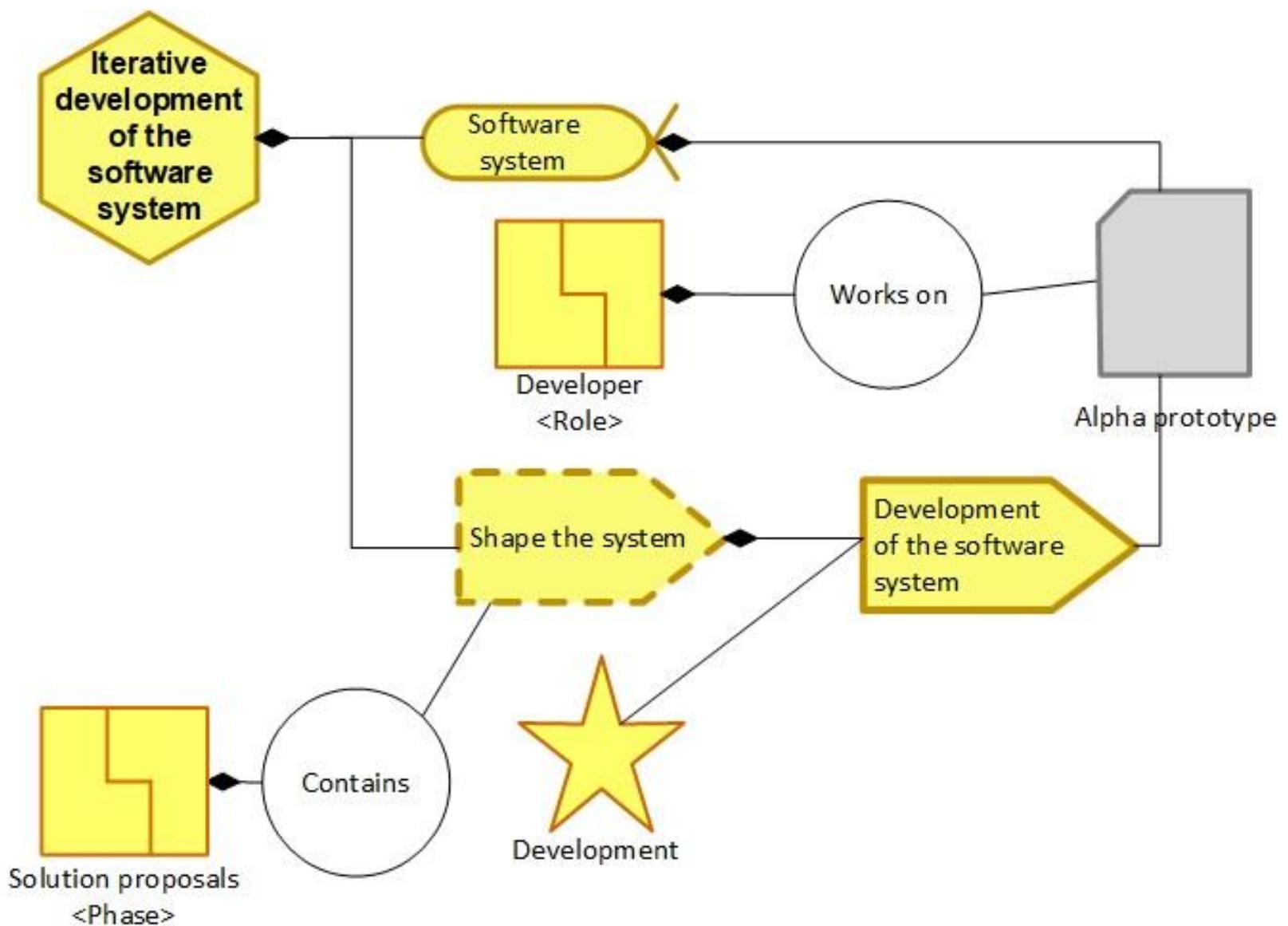


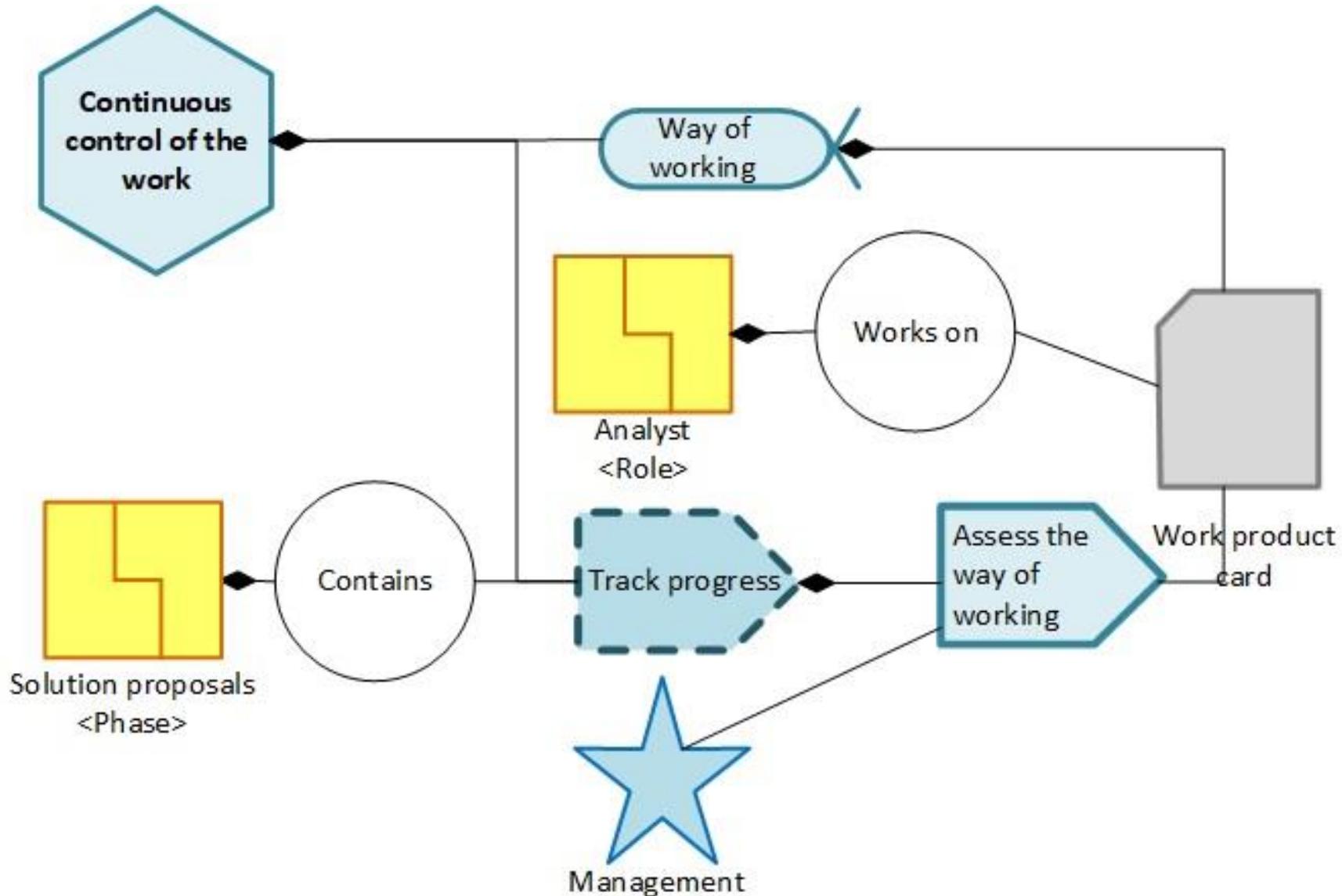
KPI DEFINITION TABLE

CSF	GOAL	KPI	FORMULA
3. File and image security	G3. Fostering the files	File uploading speed	Number of new files/time unit
10. Image categorization	G7. Assuring the albums have images	Tag addition ratio	Number of new tags/number of images
2. File and image availability	G3. Fostering the files	User perception	Survey about the file availability
6. Hitcounter management	G2. Fostering the galleries	Hitcounter assignation speed	Number of new hitcounters/time unit
9. File tracking	G3. Fostering the files	File-album ratio	Number of new files/number of albums
4. Gallery and album sharing	G5. Assuring the galleries have albums	Album-gallery ratio	Number of albums/number of galleries
1. User recruitment	G1. Increasing the users	User creation speed	Number of new users/time unit
7. Gallery organization	G5. Assuring the galleries have albums	Album-gallery ratio	Number of albums/number of galleries
5. Permit granting	G4. Fostering the permits	User creation speed	Number of new users/time unit
8. Tag assignation	G2. Fostering the galleries	Gallery creation speed	Number of new galleries/time unit

KPI DESIGN







WORK PRODUCT CARDS (MINIMUM 3)

Practice name

Work product name

<< Brief description >>

<< Sketch >>

<< Essentials >>

<< Enhanced >>

<< Expanded >>

Essential Content:
• << >>

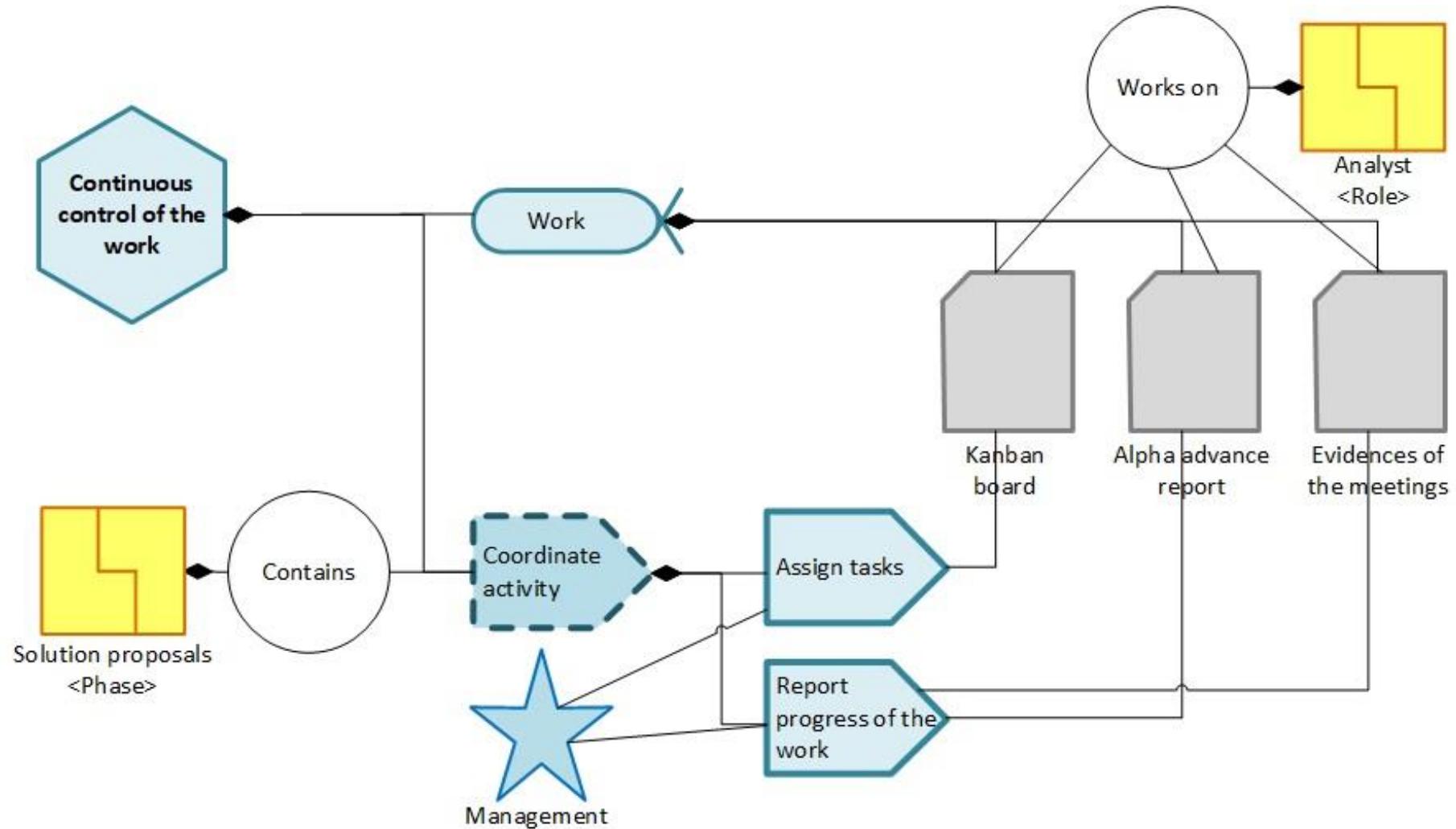
Describes:
• << >>

Input to:
• << >>

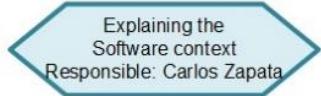
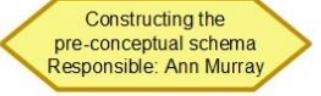
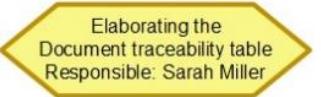
Output from:
• << >>

Patterns:
• << >>

Resources:
• << >>



KANBAN BOARD

GOAL	TO DO	DOING	DONE
<p> Way of Working</p> <p> Foundation Established</p> <ul style="list-style-type: none"> • Key practices and tools ready • Gaps that exist between practices and tools analyzed and understood • Capability gaps analyzed and understood • Selected practices, and tools integrated <p>2 / 6</p> <p> Requirements</p> <p> Conceived</p> <ul style="list-style-type: none"> • The need for a new system is clear • Users are identified • Initial sponsors are identified <p>1 / 6</p>		<p> Explaining the Software context Responsible: Carlos Zapata</p> <p> Constructing the pre-conceptual schema Responsible: Ann Murray</p> <p> Elaborating the Document traceability table Responsible: Sarah Miller</p>	<p> Team</p> <p> Seeded</p> <ul style="list-style-type: none"> • Team's mission is clear • Team knows how to grow to achieve mission • Required competencies are identified • Team size is determined <p>1 / 5</p>

ALPHA ADVANCE REPORT

ALPHA ADVANCE REPORT

STATE	SUMMARY OF THE ACHIEVEMENT	TASK	DATE/DURATION	CONTENTS/OBSERVATIONS
 Team <div style="background-color: #e0f2ff; padding: 5px; border-radius: 10px; margin-top: 10px;"> Seeded <ul style="list-style-type: none"> ▪ Team's mission is clear ▪ Team knows how to grow to achieve mission ▪ Required competencies are identified ▪ Team size is determined </div> <div style="background-color: #e0f2ff; padding: 5px; border-radius: 10px; margin-top: 10px;"> 1 / 5 </div>	<p>We select our team members from a list of candidates provided by our project manager. Then, we assign responsibilities by studying their curricula vitae.</p>	Recruiting team members Responsible: John Smith	02/23/2021 6 hours	Team: John Smith, Ann Murray, Sarah Miller, George Vincent
 Requirements <div style="background-color: #ffffcc; padding: 5px; border-radius: 10px; margin-top: 10px;"> Conceived <ul style="list-style-type: none"> ▪ The need for a new system is clear ▪ Users are identified ▪ Initial sponsors are identified </div> <div style="background-color: #ffffcc; padding: 5px; border-radius: 10px; margin-top: 10px;"> 1 / 6 </div>		Defining roles of the team members Responsible: John Smith	02/24/2021 8 hours	John Smith: Developer/Tester Ann Murray: Analyst Sarah Miller: Analyst/Architect George Vincnt: Developer/Tester
	We design some work products in order to clarify the requirements. The final work product we completed is the pre-conceptual schema, since it includes all the information we gather from the stakeholder.	Constructing the pre-conceptual schema Responsible: Ann Murray	03/15/2021 8 hours	Elements of the preliminary version of the pre-conceptual schema: 100 concepts 25 structural relationships 23 dynamic relationships 5 events 3 conditionals 18 achievement relationships 9 implications

DELIVERABLE 3: Solution proposals

- Corrections to deliverables 1 and 2
- New organization chart (if applied)
- New process diagram including new data dictionary and new process diagram explanatory table
- Use cases with explanatory tables
- User interface flow diagram
- Proposal value (including new cause-and-effect diagram)
- Solution effort
- Critical success factor matrices, structural interpretive model, KPI definition table, and KPI designs
- User story agreement and work product cards (mínimum 3)
- Kanban board and alpha advance report
- Alpha prototype with video of performance
- Evidences of the meetings (minutes of the meetings, photos, chat, etc.)