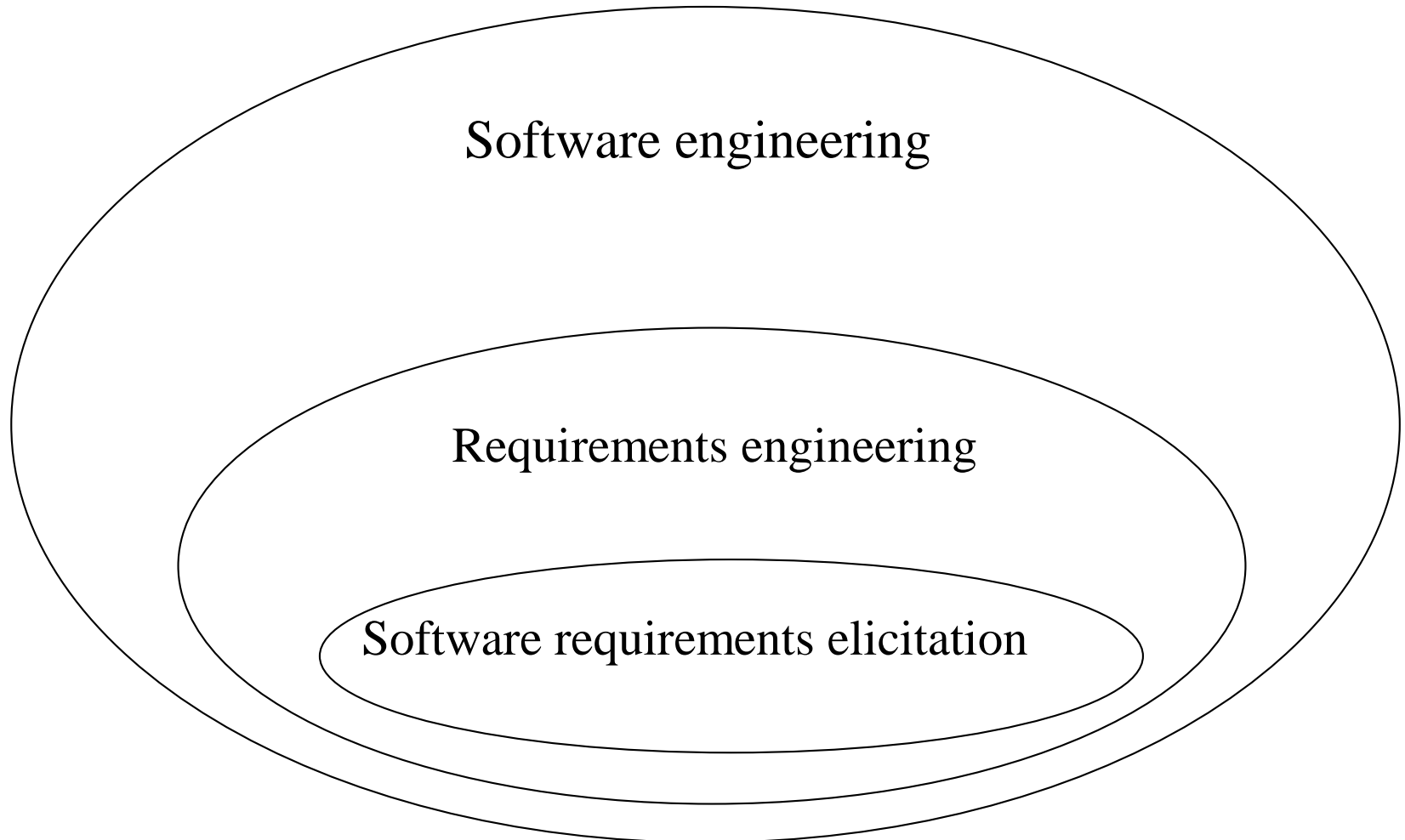


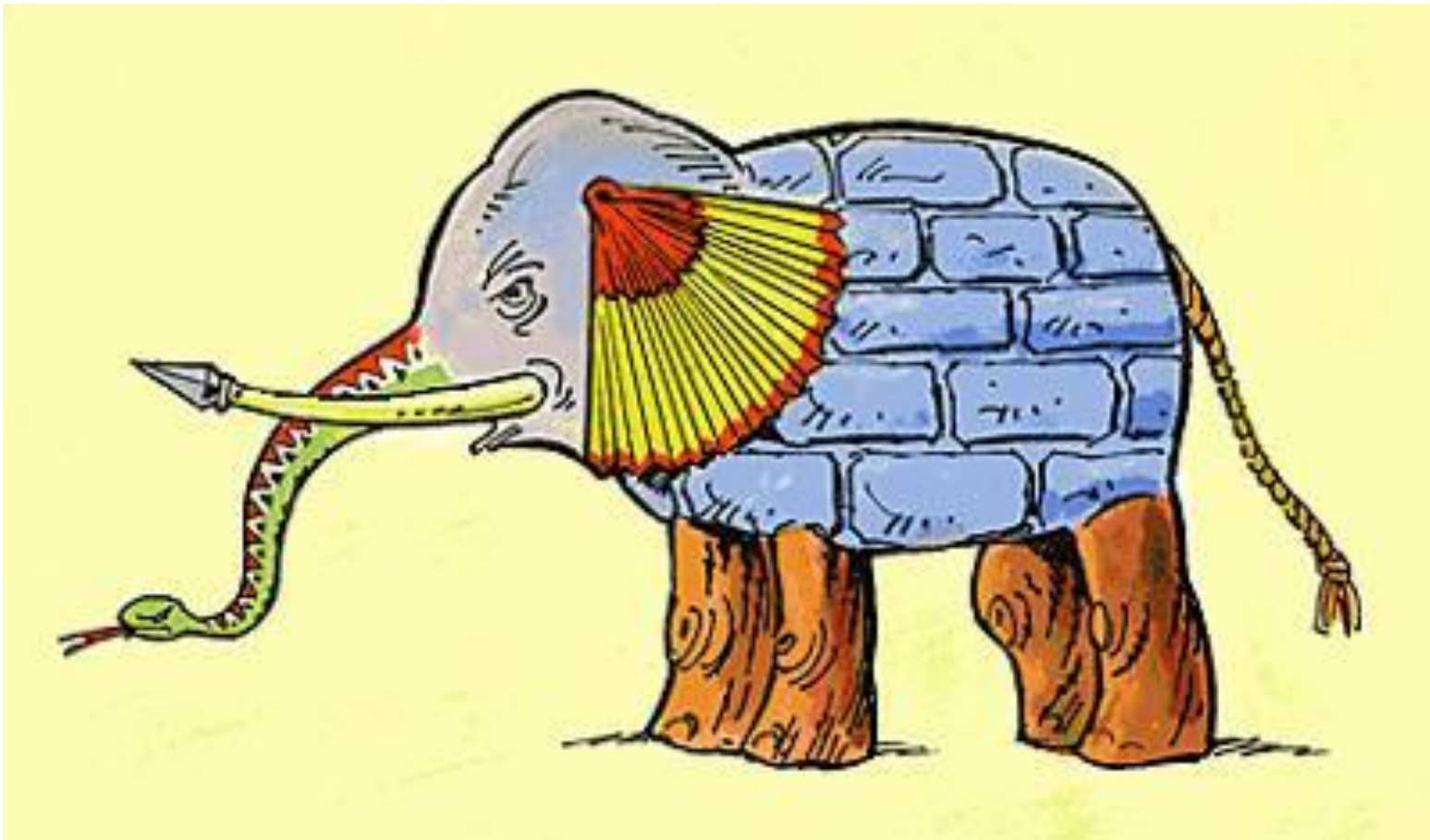
SOFTWARE CONTEXT

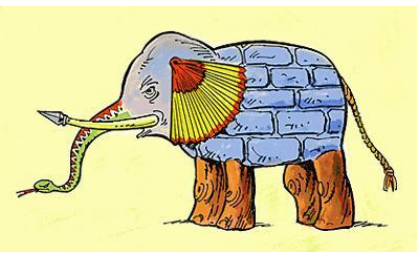
Carlos Mario Zapata J.

Field of knowledge

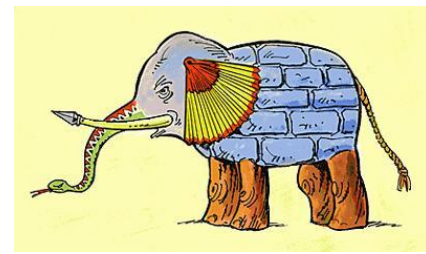


A CONSISTENT PROPOSAL





A CONSISTENT PROPOSAL



It was six men of Indostan
To learning much inclined,
Who went to see the Elephant
(Though all of them were blind),
That each by observation
Might satisfy his mind.

The First approached the Elephant,
And happening to fall
Against his broad and sturdy side,
At once began to bawl:
"God bless me!—but the Elephant
Is very like a wall!"

The Second, feeling of the tusk,
Cried: "Ho!—what have we here
So very round and smooth and sharp?
To me 't is mighty clear
This wonder of an Elephant
Is very like a spear!"

The Third approached the animal,
And happening to take
The squirming trunk within his hands,
Thus boldly up and spake:
"I see," quoth he, "the Elephant
Is very like a snake!"

The Fourth reached out his eager hand,
And felt about the knee.
"What most this wondrous beast is like
Is mighty plain," quoth he;
"It is clear enough the Elephant
Is very like a tree!"

The Fifth, who chanced to touch the ear,
Said: "E'en the blindest man
Can tell what this resembles most;
Deny the fact who can,
This marvel of an Elephant
Is very like a fan!"

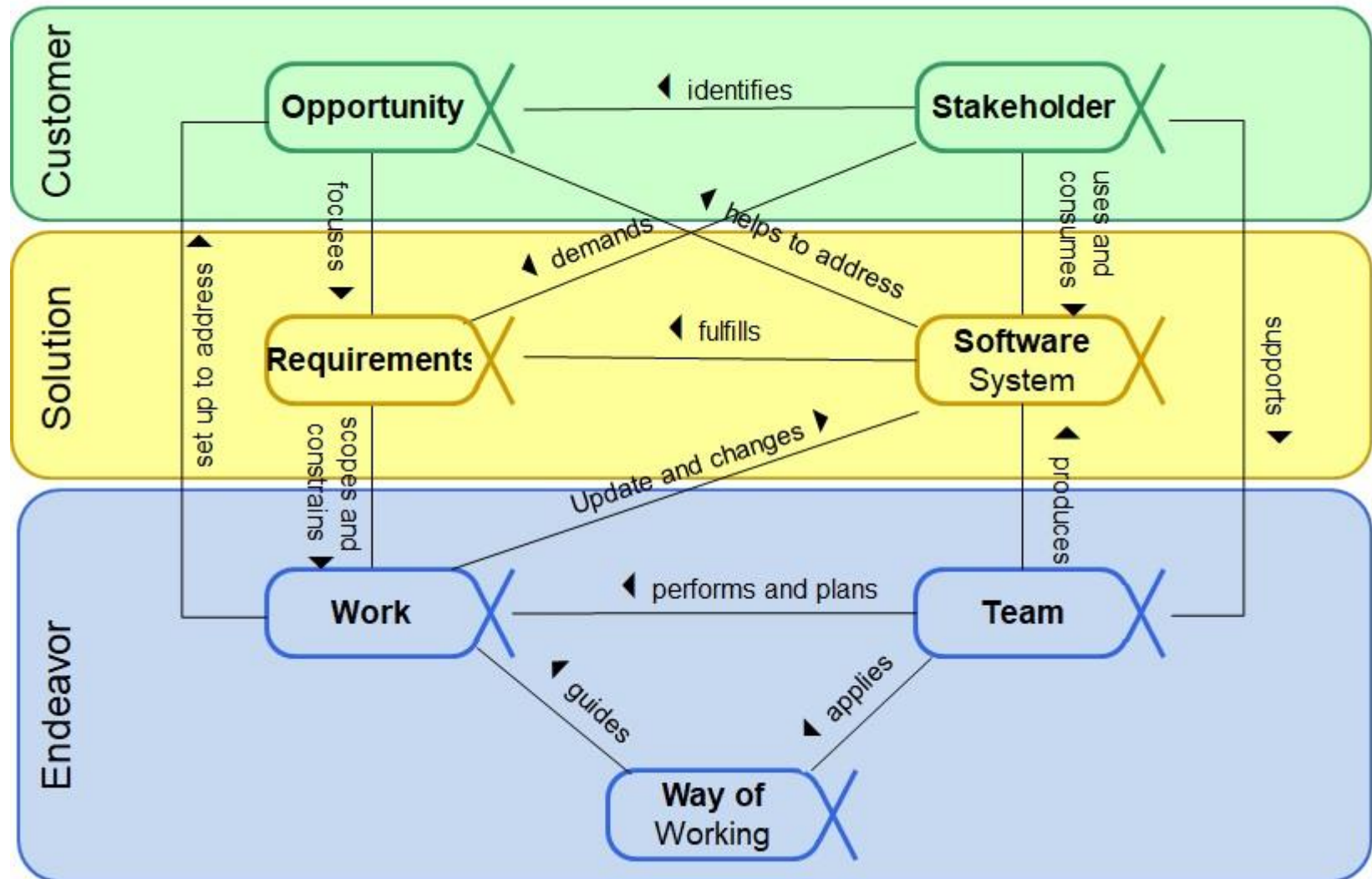
The Sixth no sooner had begun
About the beast to grope,
Than, seizing on the swinging tail
That fell within his scope,
"I see," quoth he, "the Elephant
Is very like a rope!"

And so these men of Indostan
Disputed loud and long,
Each in his own opinion
Exceeding stiff and strong,
Though each was partly in the right,
And all were in the wrong!

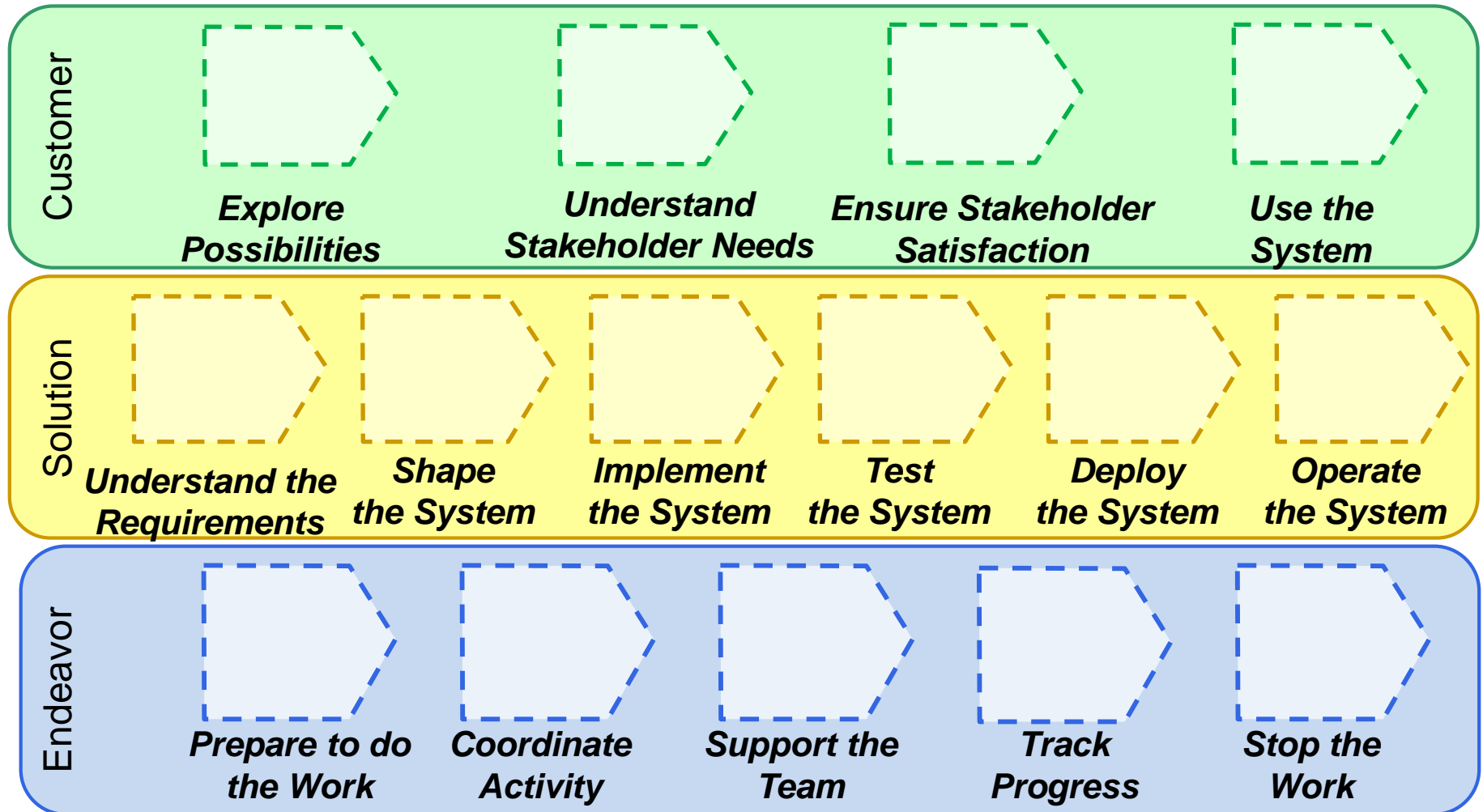
So, oft in theologic wars
The disputants, I ween,
Rail on in utter ignorance
Of what each other mean,
And prate about an Elephant
Not one of them has seen!

John Godfrey Saxe 1816-1887

THE ESSENCE OF SOFTWARE ENGINEERING



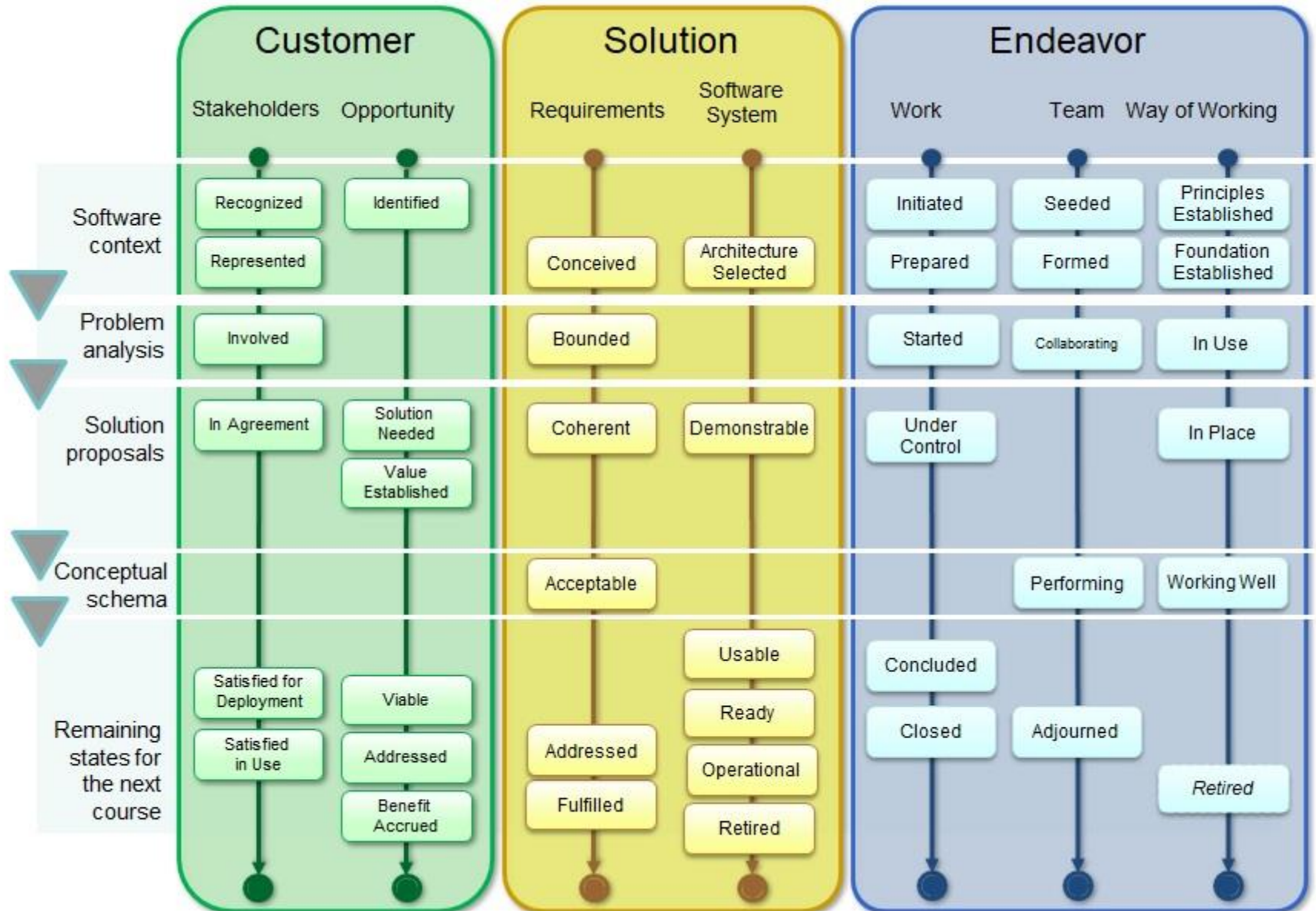
THE ESSENCE OF SOFTWARE ENGINEERING

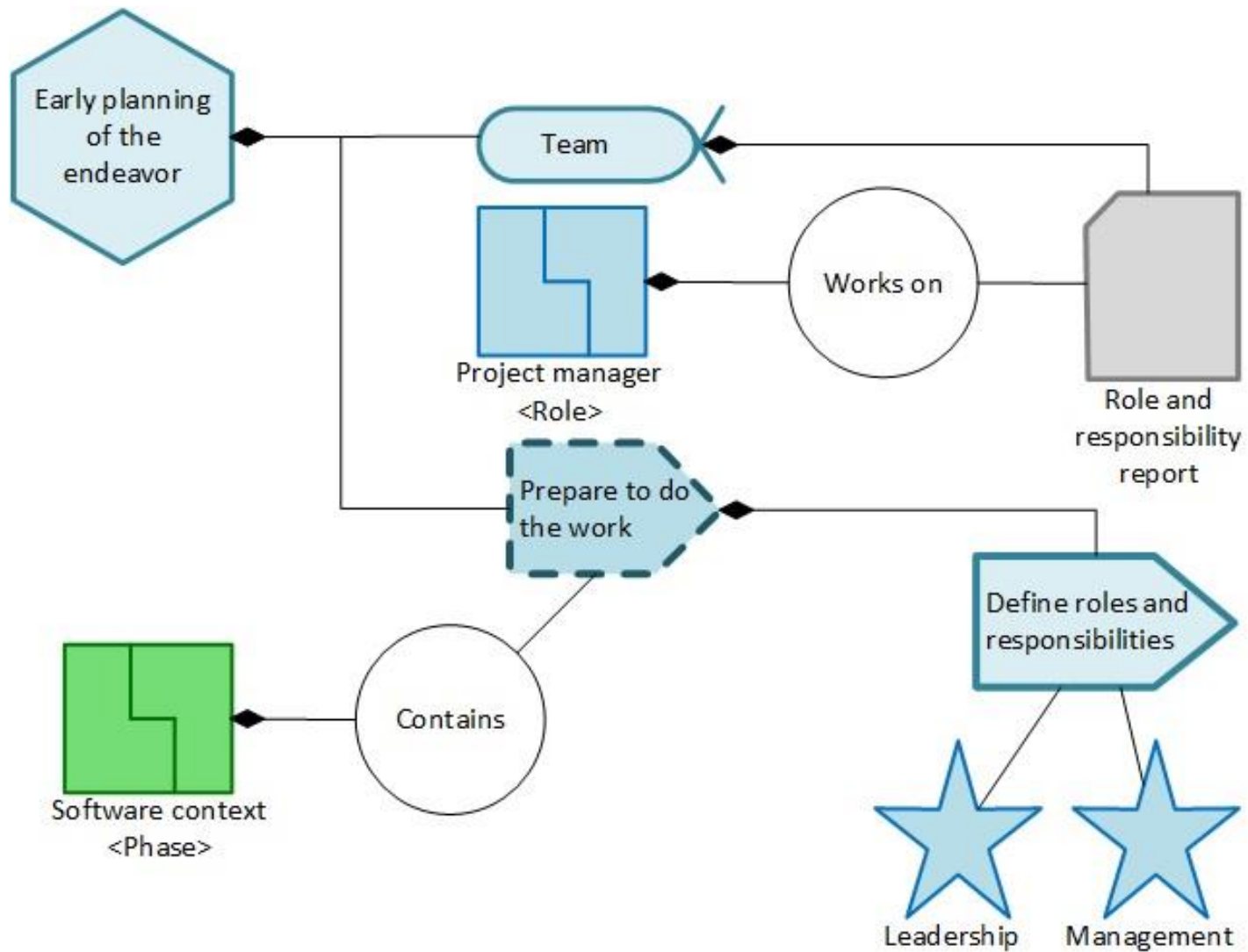


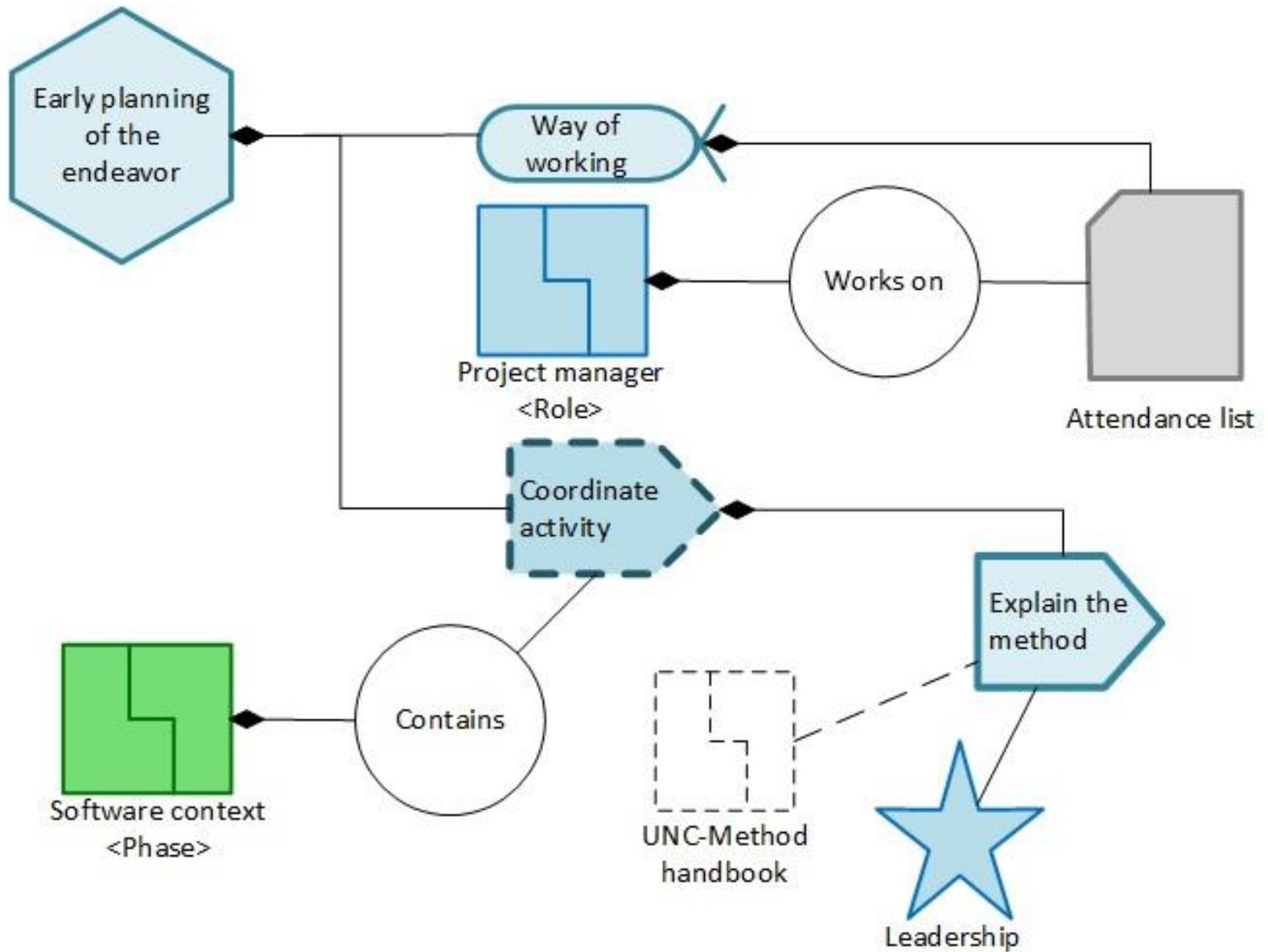
THE ESSENCE OF SOFTWARE ENGINEERING

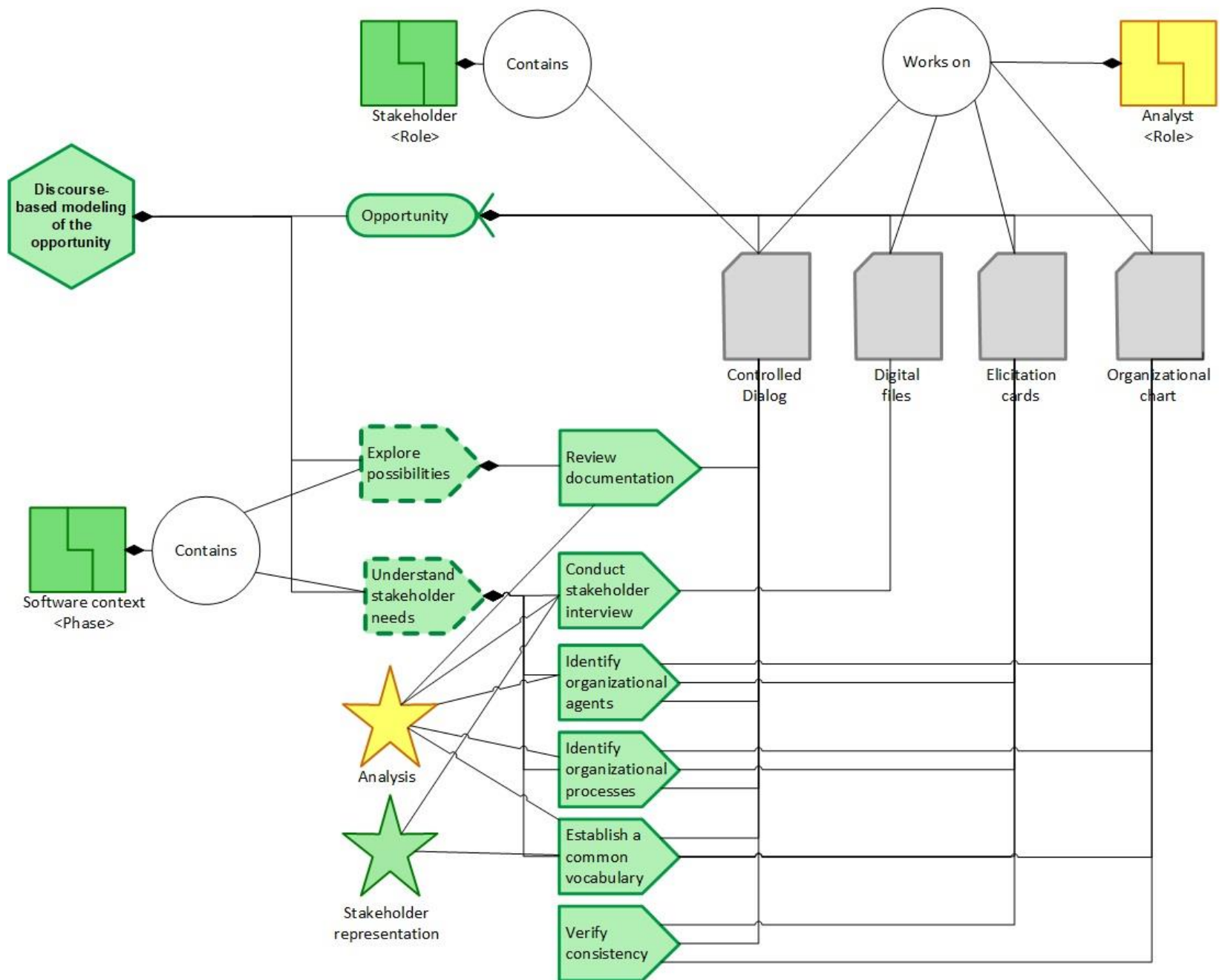


UNC-METHOD IN THE ESSENCE









CONTROLLED DIALOG

Analyst: Good morning. With this interview, we aim to clarify the information concerning the problem domain in which we will work. Please answer the questions in the clearest way possible.

Stakeholder: O.k. Let's start.

Analyst: What is the name of this organization?

Stakeholder: ZenPhoto™.

Analyst: Please, list the internal/external actors linked to the activities of your organization.

Stakeholder: We have administrators and users.

Analyst: Who can play the role of a user?

Stakeholder: An administrator.

Analyst: Would you please mention some characteristics of users?

Stakeholder: They have custom_data, pass, name, e-mail, right, name_user, valid, group, access, and id.

CONTROLLED DIALOG

Analyst: Please list the main functions of the users.

Stakeholder: He/she uploads and deletes files; publishes albums and uploads images; creates, edits, deletes, and unpublishes albums; enables and disables comments; assigns tags; resets hitcounters; adds, renames, and deletes tags; deletes, approves, disapproves, and edits comments; edits and deletes images; adds comments.

Analyst: Are these functions gathered in some sort of responsibility?

Stakeholder: Yes. Uploads and deletes files are gathered as “edits files;” publishes albums and uploads images are gathered as “creates galleries;” creates, edits, deletes, and unpublishes albums, enables and disables comments, assigns tags, and resets hitcounters are gathered as “manages albums;” adds, renames, and deletes tags are gathered as “edits tags;” deletes, approves, disapproves, and edits comments are gathered as “manages comments;” edits and deletes images edits and deletes images, enables and disables comments, assigns tags, and resets hitcounters are gathered as “manages images;” creates, edits, and deletes users are gathered as “manages users.”

CONTROLLED DIALOG

Analyst: Would you please mention some features of the files?

Stakeholder: Each file has a readable_status, a writable_status, a file_type, a creation_date, a modification_date, a name, and a file_size.

Analyst: Which objects can we categorize and what is the name of the category?

Stakeholder: Subalbums can be categorized under albums.

Analyst: Which of the mentioned features have features themselves?

Stakeholder: Each right has a permit, a description right, and an id. Each access has a unique user and a unique album.

Analyst: Which values or instances can be associated to which feature?

Stakeholder: Admin, Manage all albums, Albums, Files, Tags, Comments, and Upload are instances of description right.

Analyst: What does the user need in order to accomplish the file edition?

Stakeholder: He just need to have description right="Admin" and description right="File."

CONTROLLED DIALOG

Analyst: Would you please establish some sort of sequence in the functions and responsibilities you have just described?

Stakeholder: In the file editing, the user first uploads the file and then deletes the file; in the gallery creation, the user first uploads the image and then publishes the album; in the album management, the user first creates the album and then edits and deletes the album; in the tag edition, the user first adds the tag and then renames and deletes the tag; in the user management, the administrator first creates the user and then edits and deletes the user.

Analyst: What are the goals and problems associated with the function “creates users”?

Stakeholder: The goals are “increasing the users”, “assuring the access has albums,” and “fostering the permits.” The problems are “access has many restrictions for new users” and “rights are difficult to be granted after a user is created”.

Analyst: Thank you for your valuable information. We will be in contact in order to clarify any doubts that may arise in this process.

Stakeholder: Thank you. I'll be in touch.

ELICITATION CARDS

ACTOR	
Administrator	
FEATURES	custom_data, pass, name, e-mail, right, name_user, valid, group, access, id

ANNOTATIONS
Administrators can be users

ACTOR	
User	
FEATURES	custom_data, pass, name, e-mail, right, name_user, valid, group, access, id

ANNOTATIONS

ELICITATION CARDS

FUNCTION	
Uploads	
ACTOR	User
OBJECT	File
CONSTRAINT	
1. description right="Admin" and description right="File"	
2. File arises	

GOAL	PROBLEM
1. fostering the files	file uploading is difficult to achieve
2. fostering the permits	

FUNCTION	
Deletes	
ACTOR	User
OBJECT	File
CONSTRAINT	
description right="Admin" and description right="File"	

GOAL	PROBLEM
fostering the permits	

FUNCTION	
Publishes	
ACTOR	User
OBJECT	Album
CONSTRAINT	
description right="Admin" and description right="Manage all albums"	

GOAL	PROBLEM
1. fostering the galleries	album publishing is a time-consuming function
2. assuring the galleries have albums	

FUNCTION	
Uploads	
ACTOR	User
OBJECT	Image
CONSTRAINT	
description right="Admin" and description right="Upload;" Image arises	

GOAL	PROBLEM
1. fostering the galleries	there are few permits for editing images or albums
2. assuring the galleries have images	

FUNCTION	
Creates	
ACTOR	User
OBJECT	Album
CONSTRAINT	
description right="Admin" and description right="Manage all albums"	

GOAL	PROBLEM
1. fostering the galleries	there are few permits for editing images or albums
2. assuring the galleries have albums	

FUNCTION	
Edits	
ACTOR	User
OBJECT	Album
CONSTRAINT	
description right="Admin" and description right="Manage all albums"	

GOAL	PROBLEM
1. fostering the galleries	there are few permits for editing images or albums
2. assuring the galleries have albums	

FUNCTION	
Deletes	
ACTOR	User
OBJECT	Album
CONSTRAINT	
description right="Admin" and description right="Manage all albums"	

GOAL	PROBLEM
fostering the permits	there are few permits for editing images or albums

FUNCTION	
Unpublishes	
ACTOR	User
OBJECT	Album
CONSTRAINT	
description right="Admin" and description right="Manage all albums"	

GOAL	PROBLEM
fostering the permits	there are few permits for editing images or albums

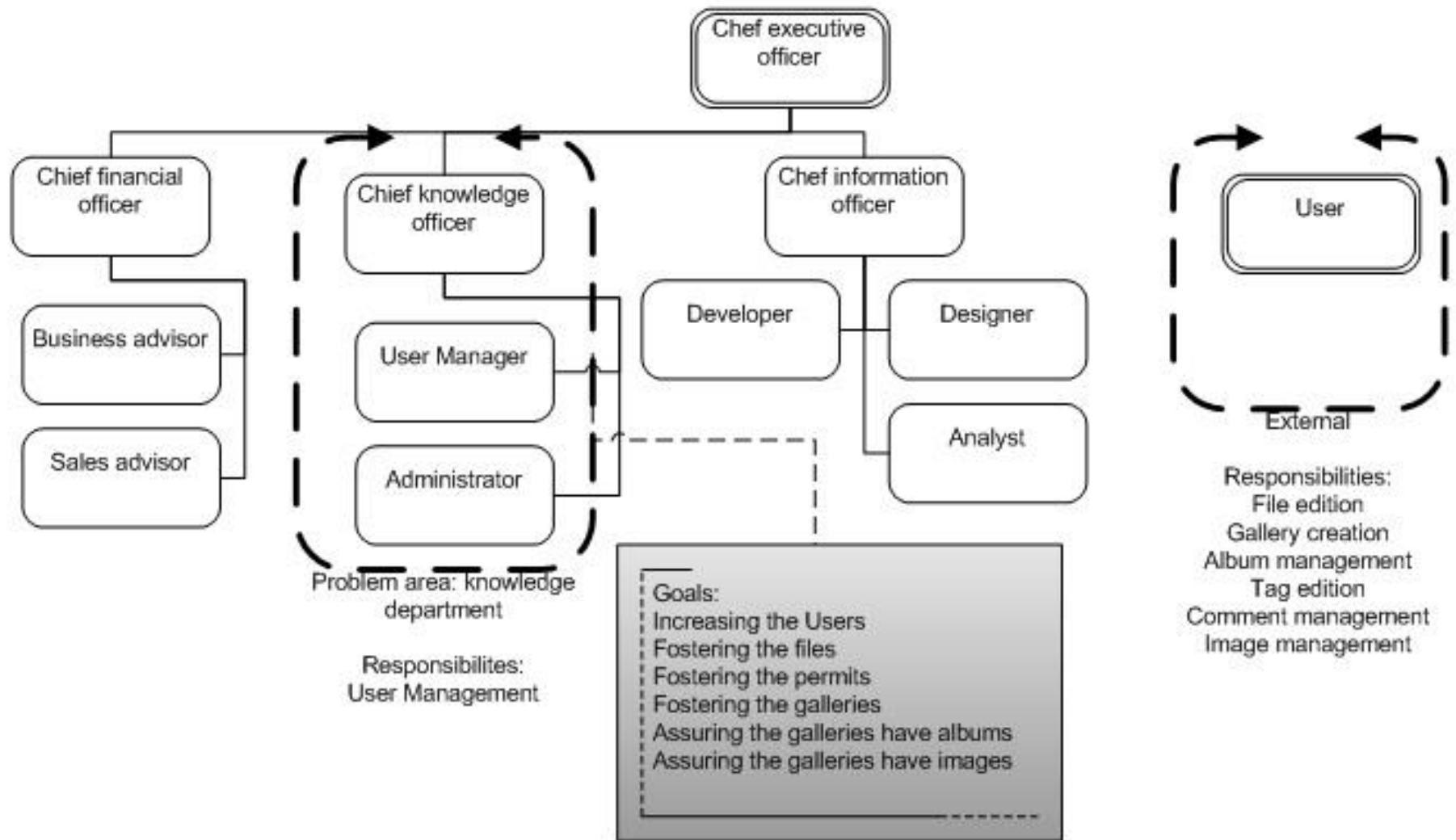
FUNCTION	
Enables	
ACTOR	User
OBJECT	Comment
CONSTRAINT	
description right="Admin" and description right="Manage all albums"	

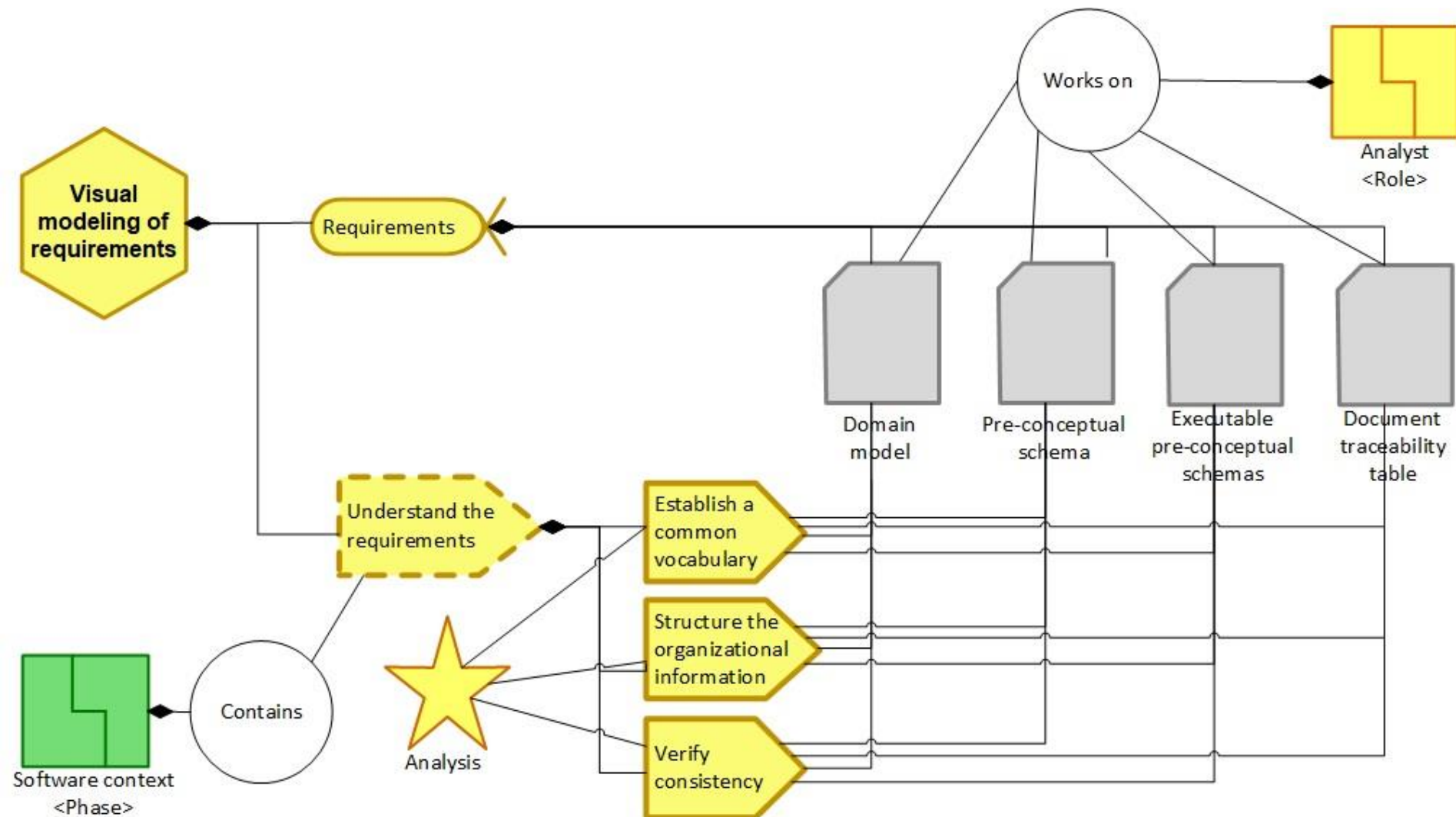
GOAL	PROBLEM
fostering the permits	permits are not clearly defined

ELICITATION CARDS

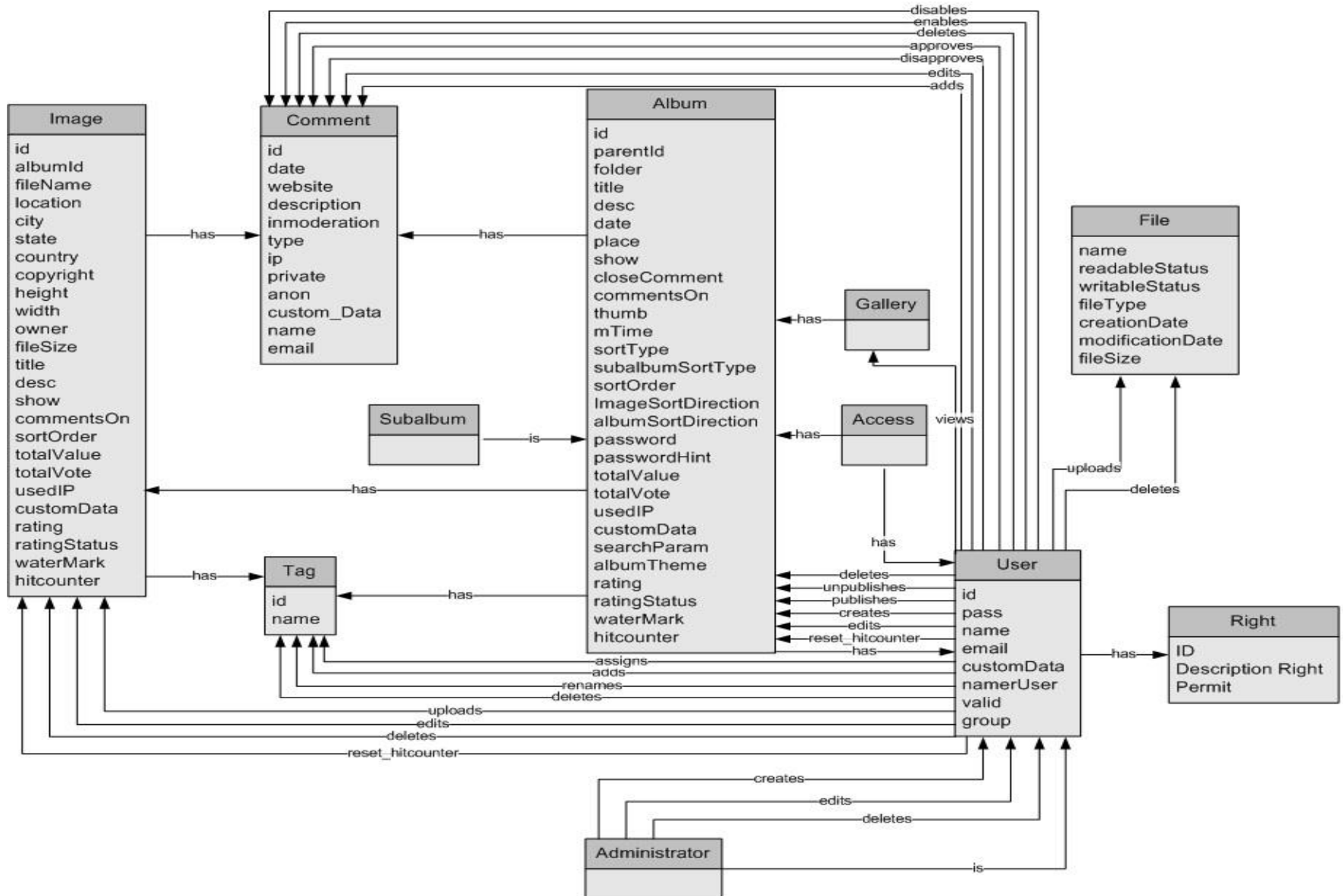
<div>OBJECT</div> <div>File</div>		<div>ANNOTATIONS</div>		<div>OBJECT</div> <div>Album (1)</div>		<div>ANNOTATIONS</div> <div>Album is related to galleries, images, comments, tags, and users. Also, subalbums can be albums</div>		<div>OBJECT</div> <div>Album (2)</div>		<div>ANNOTATIONS</div> <div>Album is related to galleries, images, comments, tags, and users. Also, subalbums can be albums</div>	
FEATURES	readable_status, writable_status, file_type, creation_date, modification_date, name, file_size			FEATURES	id, parentid, folder, title, desc, date, place, show, close_comment, comment_son, thumb, mtime, sort_type, subalbum_sort_type, sort_order, image_sort_direction, album_sort_direction			FEATURES	password, password_hint, total_value, total_vote, used_ip, custom_data, search_param, album_theme, rating, rating_status, watermark, hitcounter		
<div>OBJECT</div> <div>Image (1)</div>		<div>ANNOTATIONS</div> <div>Image is related to comments and tags</div>		<div>OBJECT</div> <div>Image (2)</div>		<div>ANNOTATIONS</div> <div>Image is related to comments and tags</div>		<div>OBJECT</div> <div>Comment</div>		<div>ANNOTATIONS</div>	
FEATURES	albumid, filename, location, city, state, country, copyright, height, width, owner, filesize, hitcounter, id, watermark, rating			FEATURES	custom_data, usedip, total_vote, total_value, sort_order, comment_son, show, desc, title			FEATURES	website, description, inmoderation, type, ip, private, anon, id, date, custom_data, name, e-mail		
				<div>OBJECT</div> <div>Tag</div>		<div>ANNOTATIONS</div>					
				FEATURES	name, id						

ORGANIZATIONAL CHART

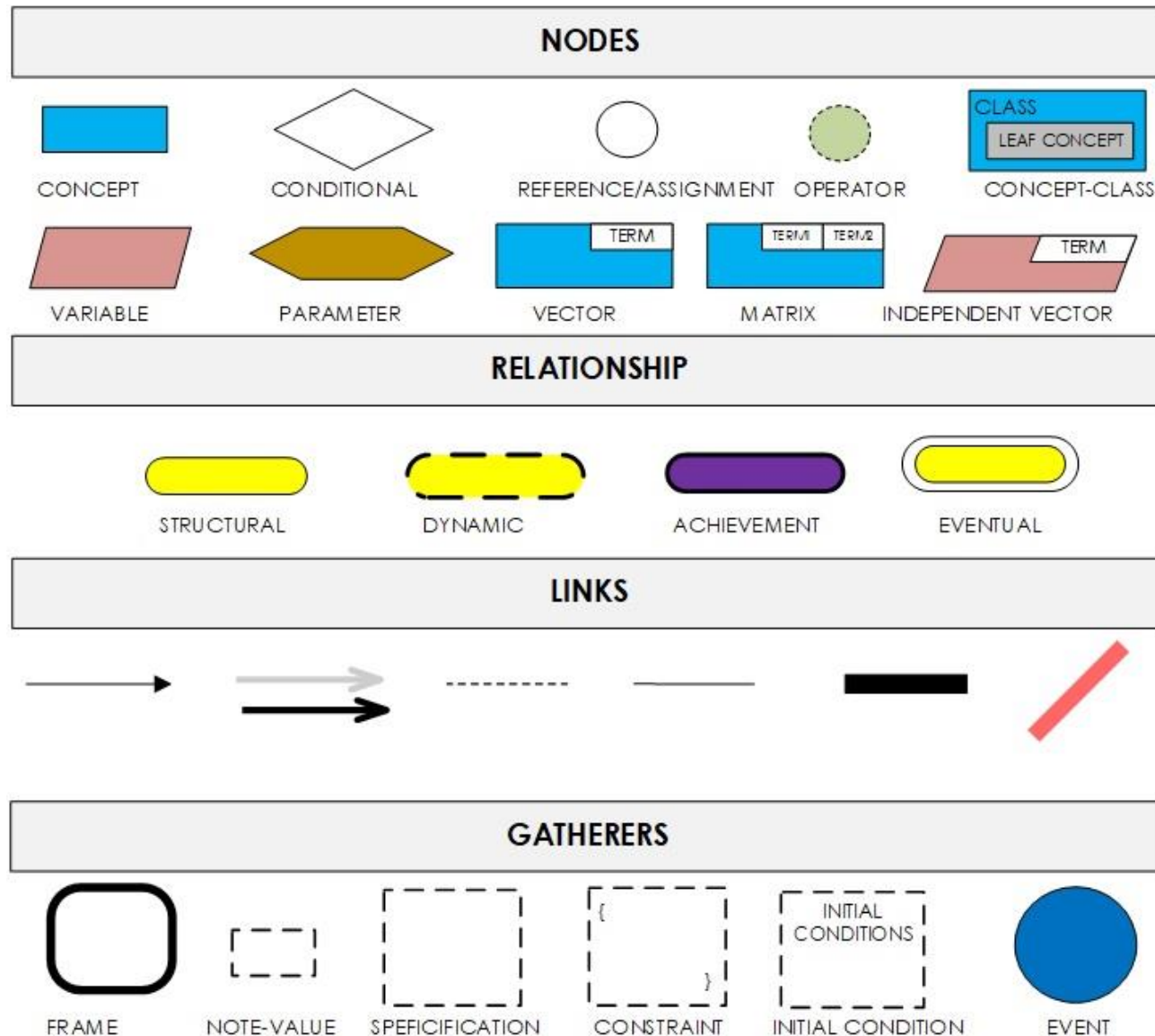




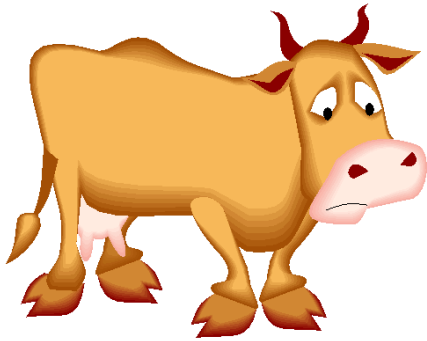
DOMAIN MODEL



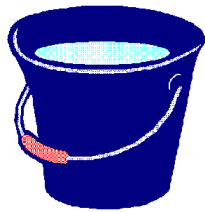
PRE-CONCEPTUAL SCHEMAS



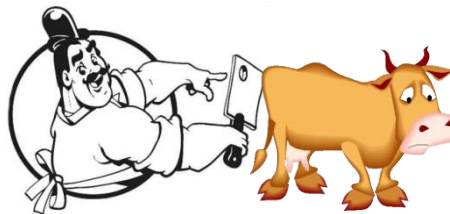
PRE-CONCEPTUAL SCHEMAS



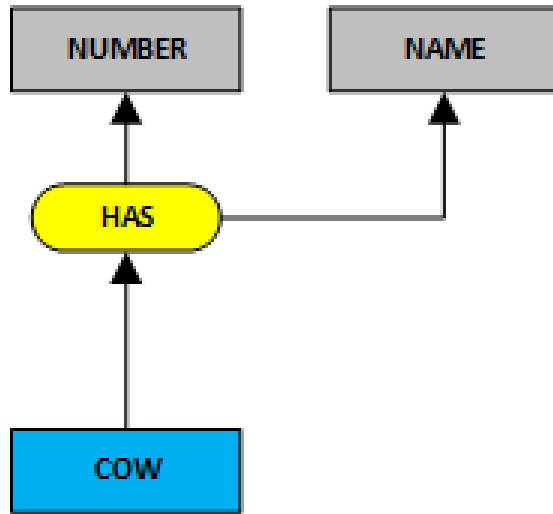
Number 350 - Lola



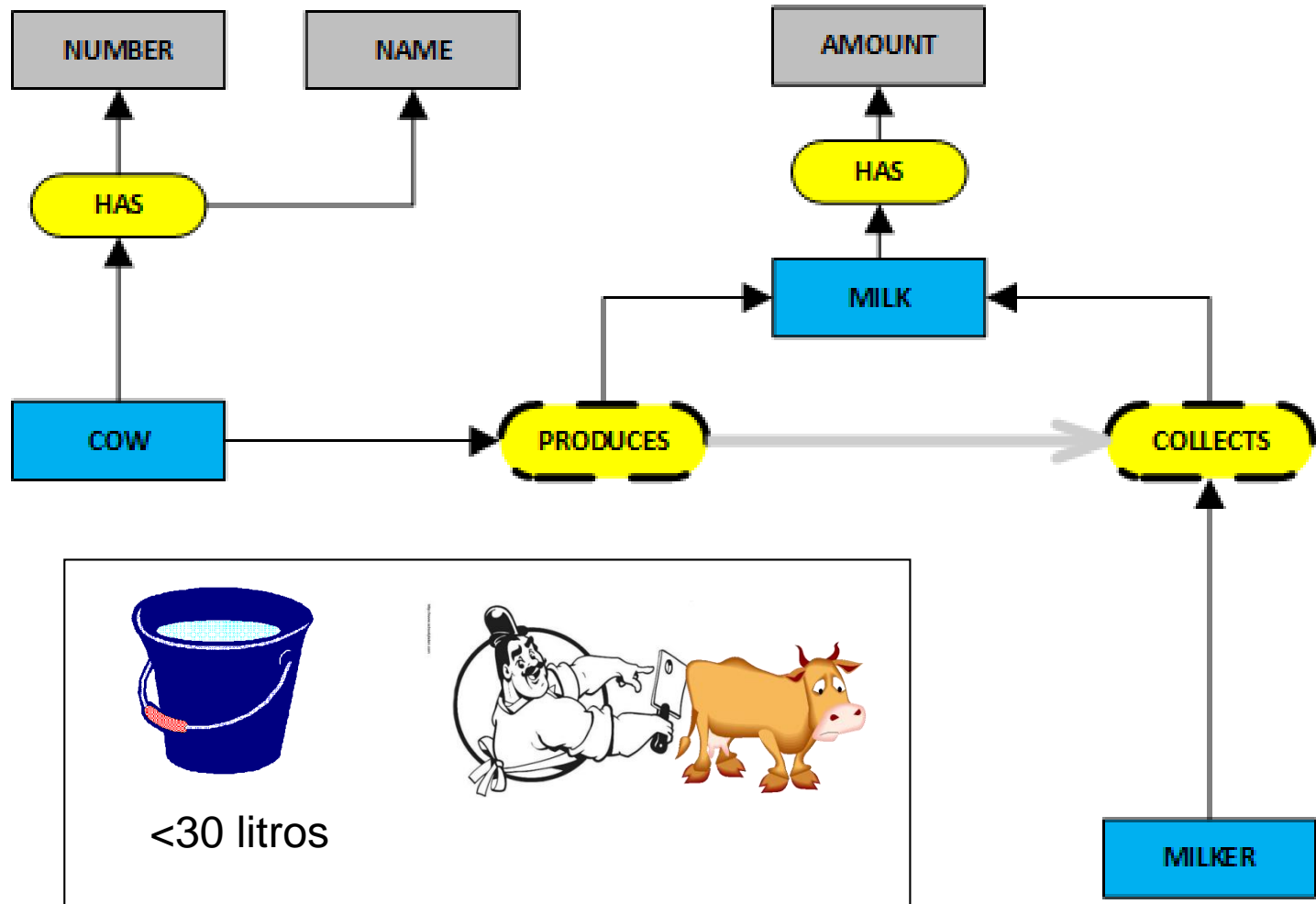
<30 litros



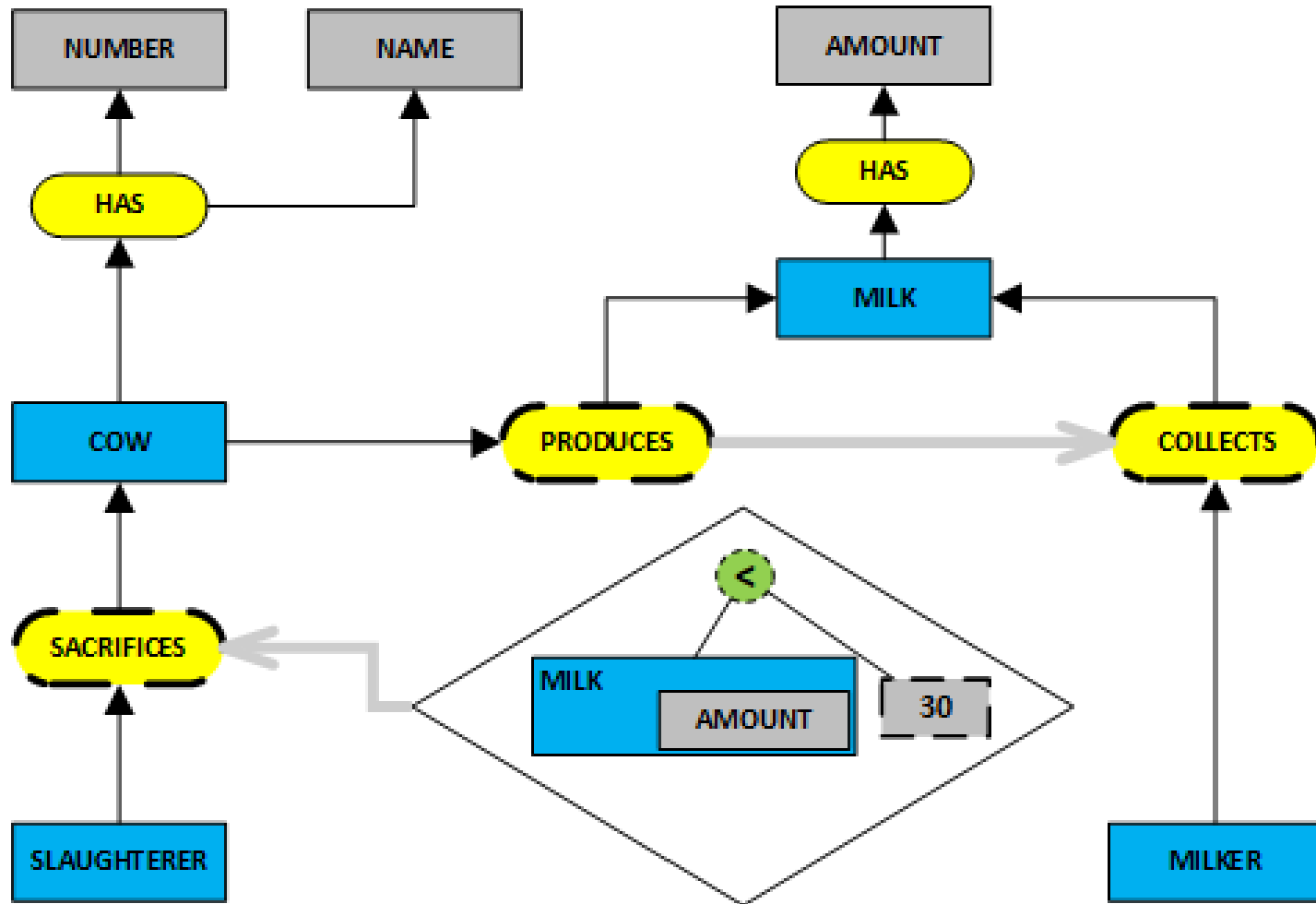
PRE-CONCEPTUAL SCHEMAS



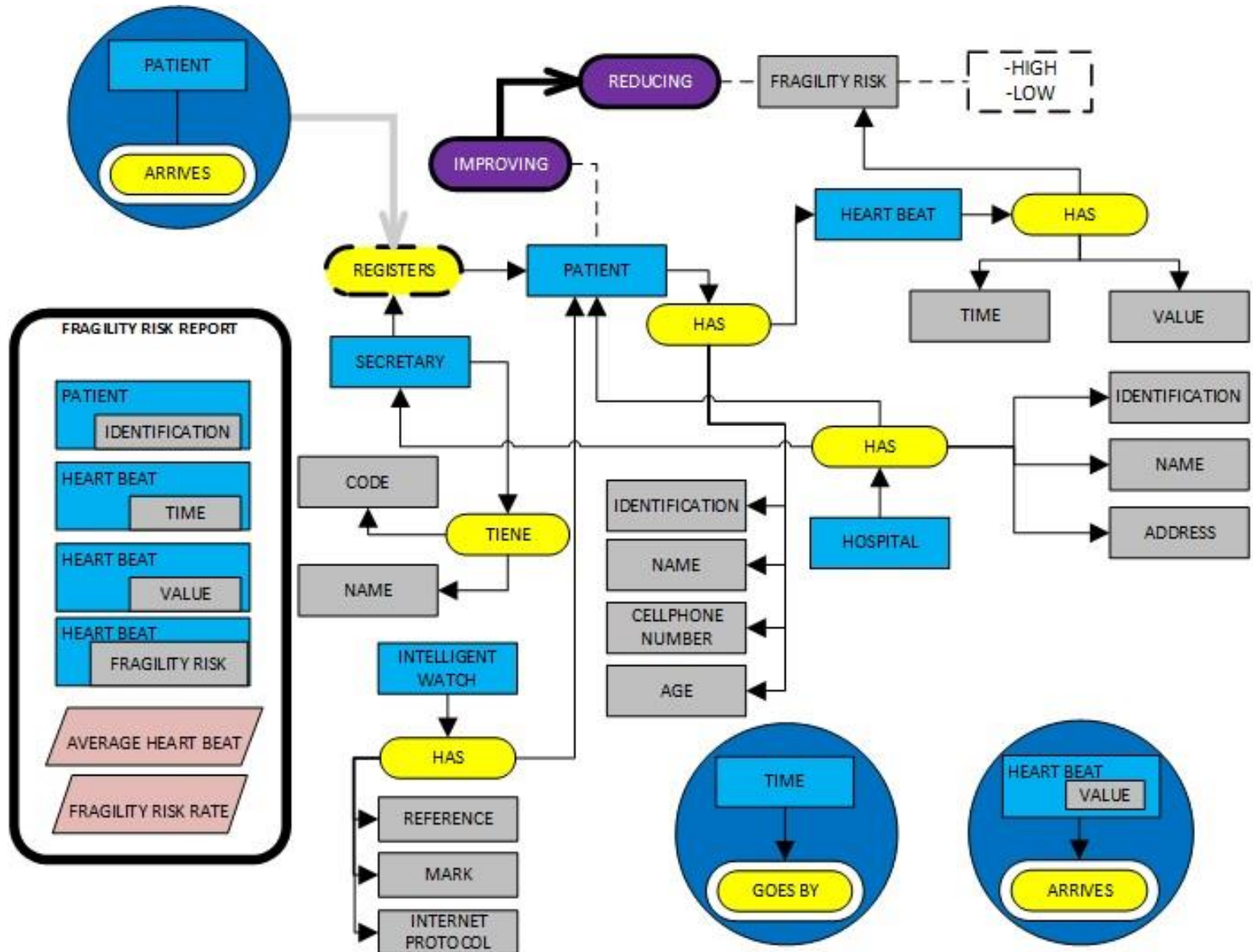
PRE-CONCEPTUAL SCHEMAS



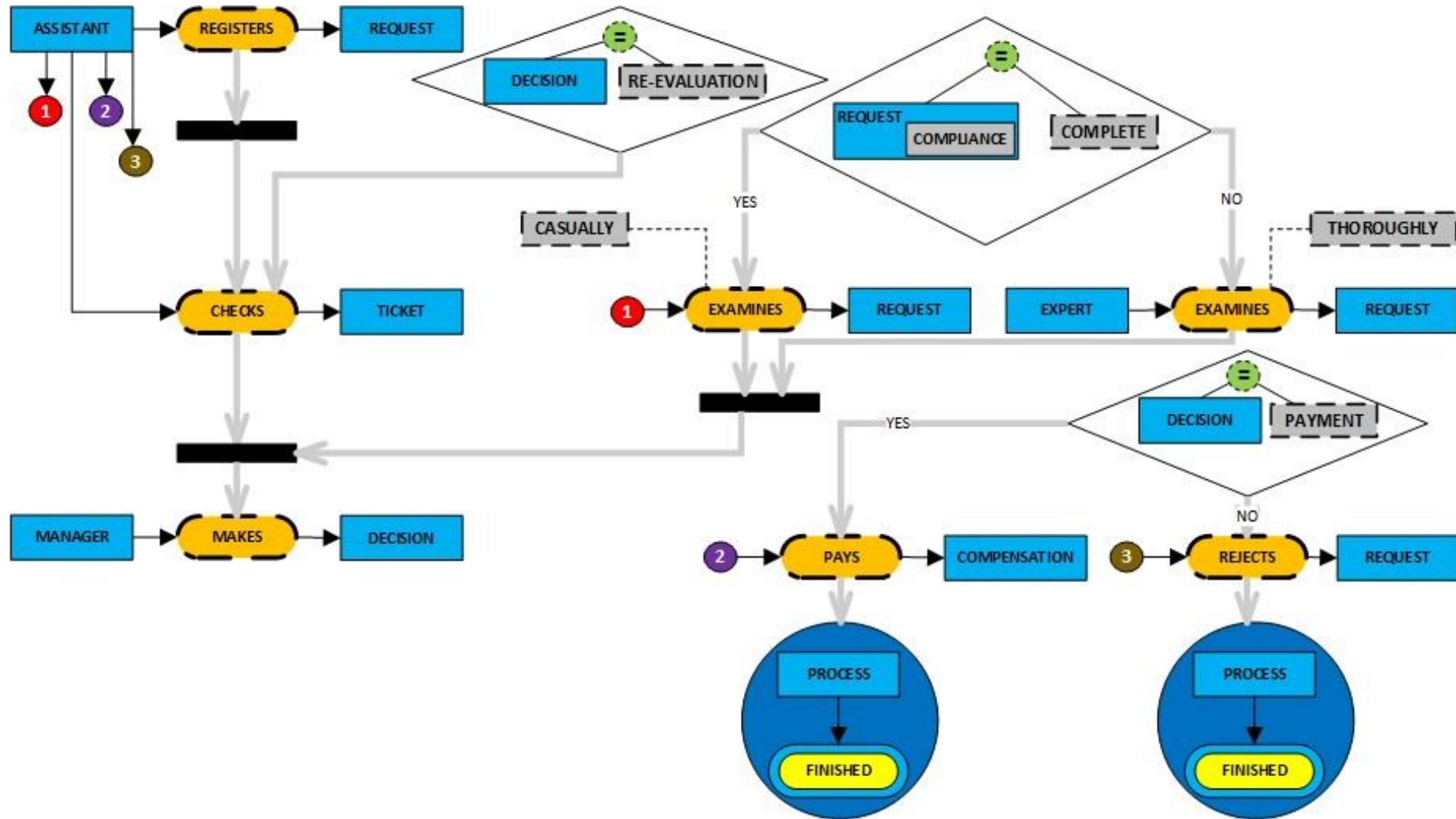
PRE-CONCEPTUAL SCHEMAS



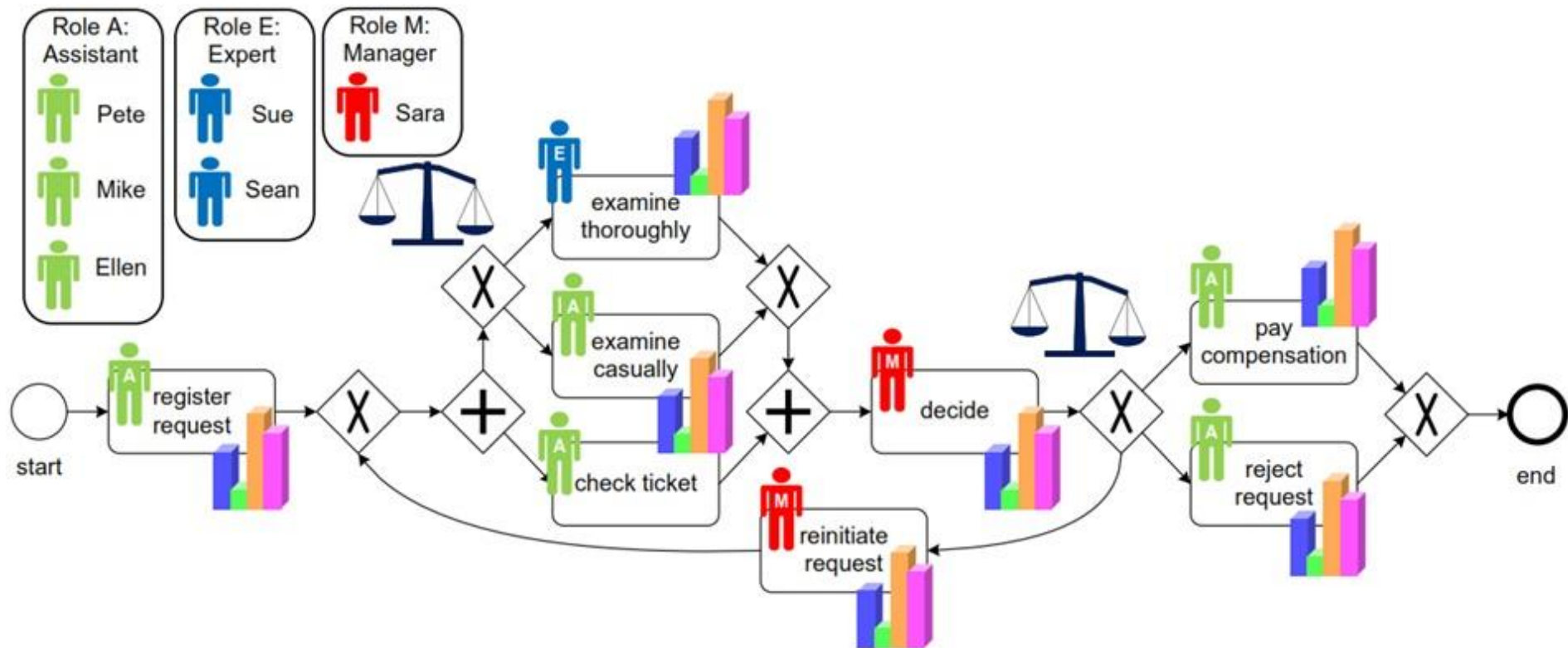
PRE-CONCEPTUAL SCHEMAS



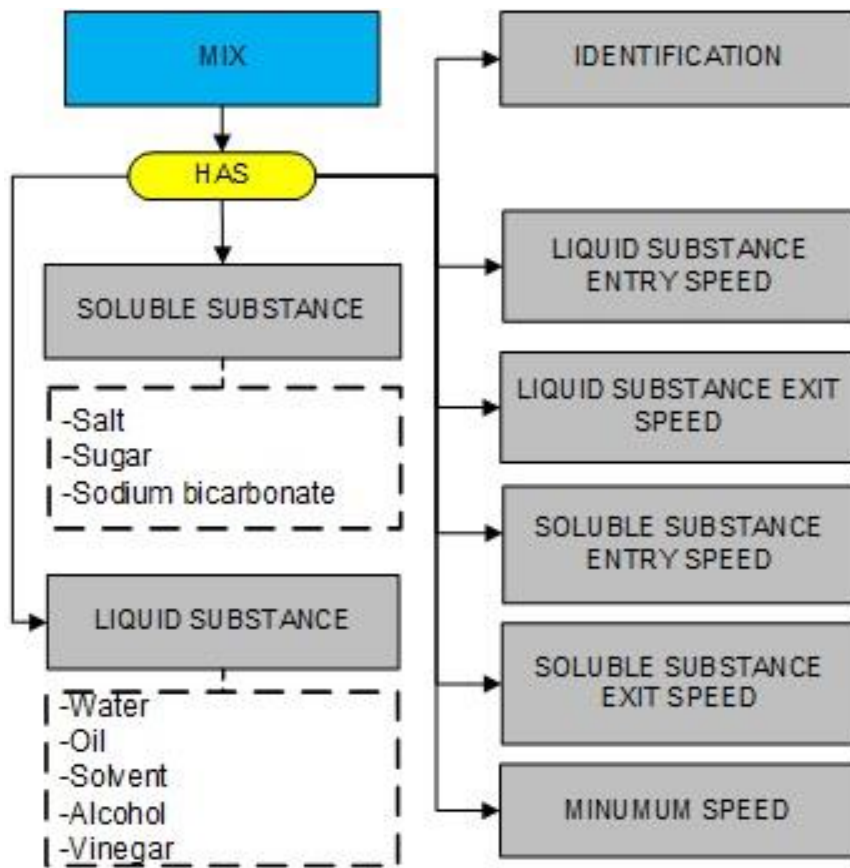
PRE-CONCEPTUAL SCHEMAS



PRE-CONCEPTUAL SCHEMAS



PRE-CONCEPTUAL SCHEMAS

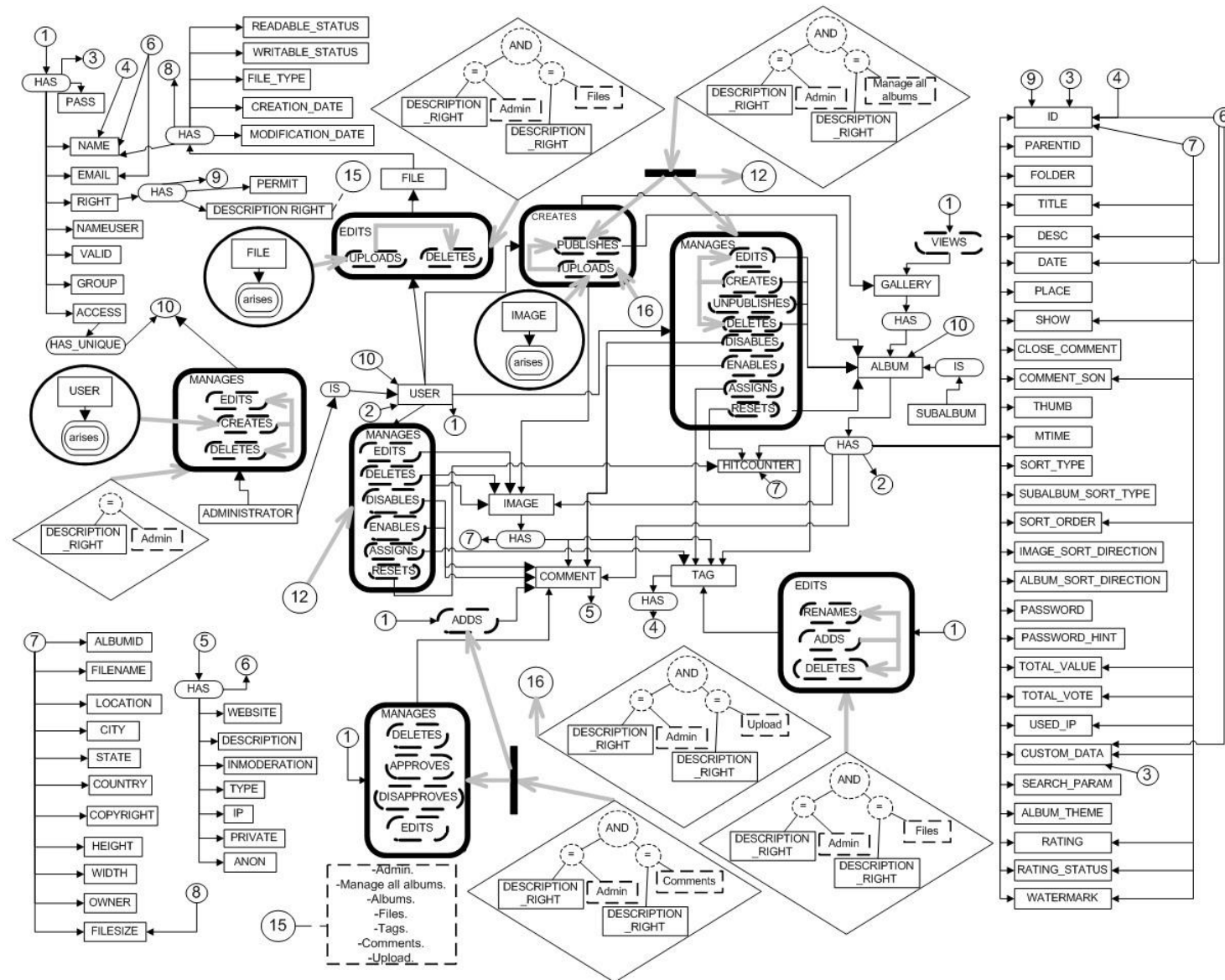


CREATE TABLE "MIX"

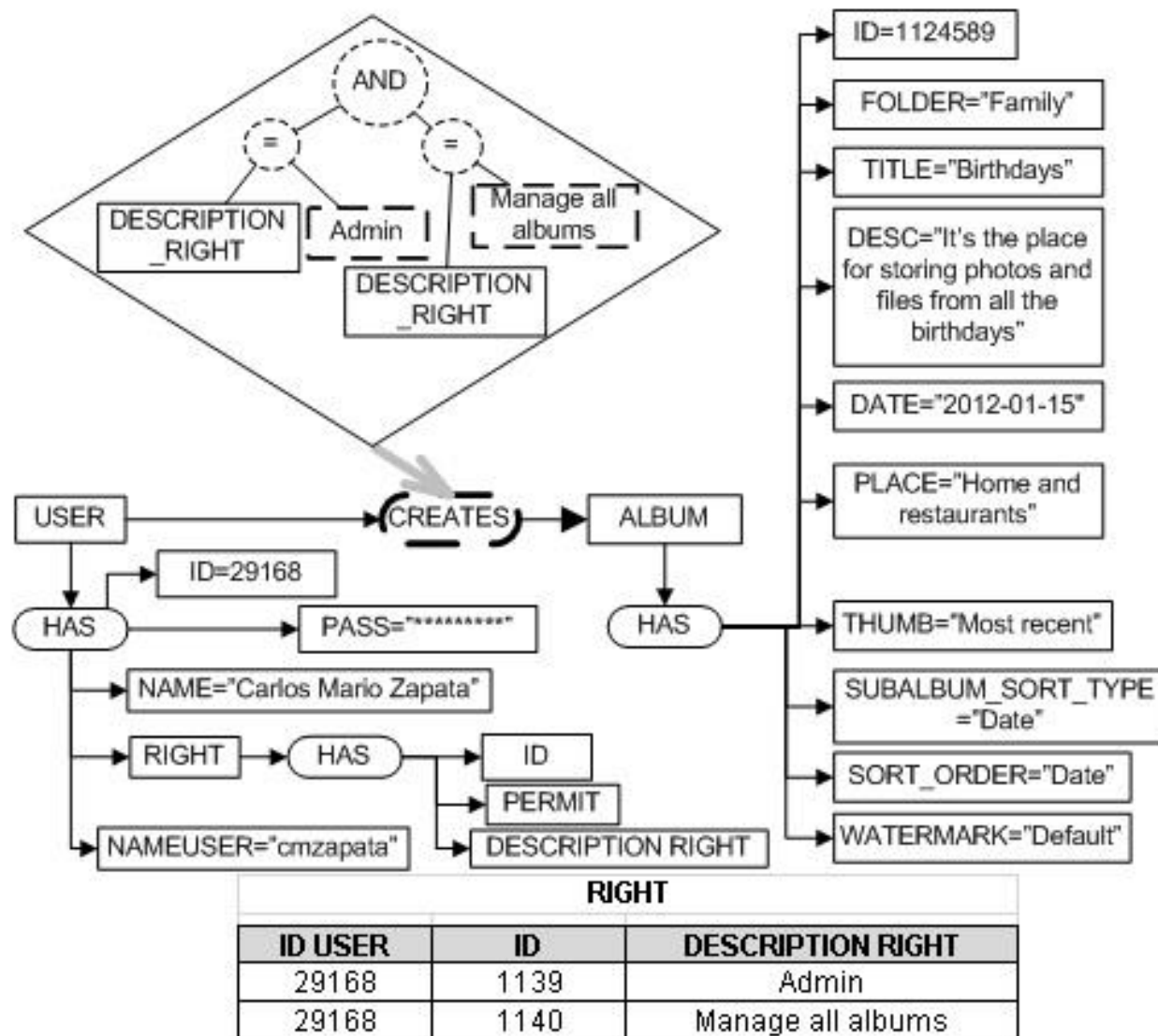
```

(
  "IDENTIFICATION" NUMBER NOT NULL ENABLE,
  "LIQUID_SUBSTANCE" VARCHAR2(50) NOT NULL ENABLE,
  "SOLUBLE_SUBSTANCE" VARCHAR2(50) NOT NULL ENABLE,
  "LIQUID_SUBSTANCE_ENTRY_SPEED" NUMBER NOT NULL
  ENABLE,
  "LIQUID_SUBSTANCE_EXIT_SPEED" NUMBER NOT NULL
  ENABLE,
  "SOLUBLE_SUBSTANCE_ENTRY_SPEED" NUMBER NOT NULL
  ENABLE,
  "SOLUBLE_SUBSTANCE_EXIT_SPEED" NUMBER NOT NULL
  ENABLE,
  "MINIMUM_SPEED" NUMBER NOT NULL ENABLE,
  CONSTRAINT "ALLOWED_LIQUID_SUBSTANCE" CHECK (
    "LIQUID_SUBSTANCE" IN ('WATER', 'OIL', 'SOLVENT',
    'ALCOHOL', 'VINEGAR')) ENABLE,
  CONSTRAINT "ALLOWED_SOLUBLE_SUBSTANCE" CHECK (
    "SOLUBLE_SUBSTANCE" IN ('SALT', 'SUGAR',
    'SODIUM_BICARBONATE')) ENABLE
)
    
```

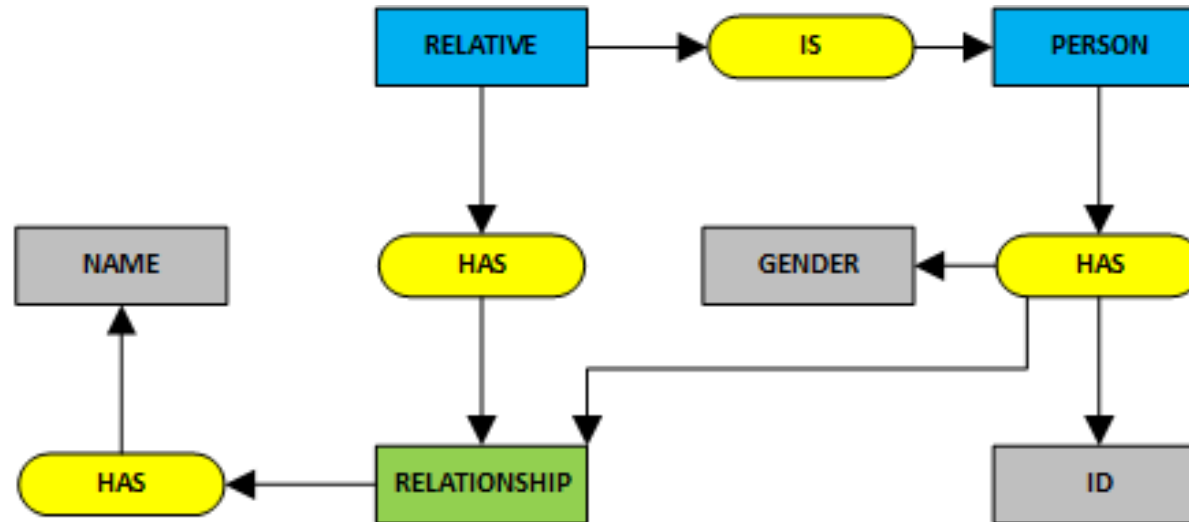
PRE-CONCEPTUAL SCHEMAS



EXECUTABLE PRE-CONCEPTUAL SCHEMAS



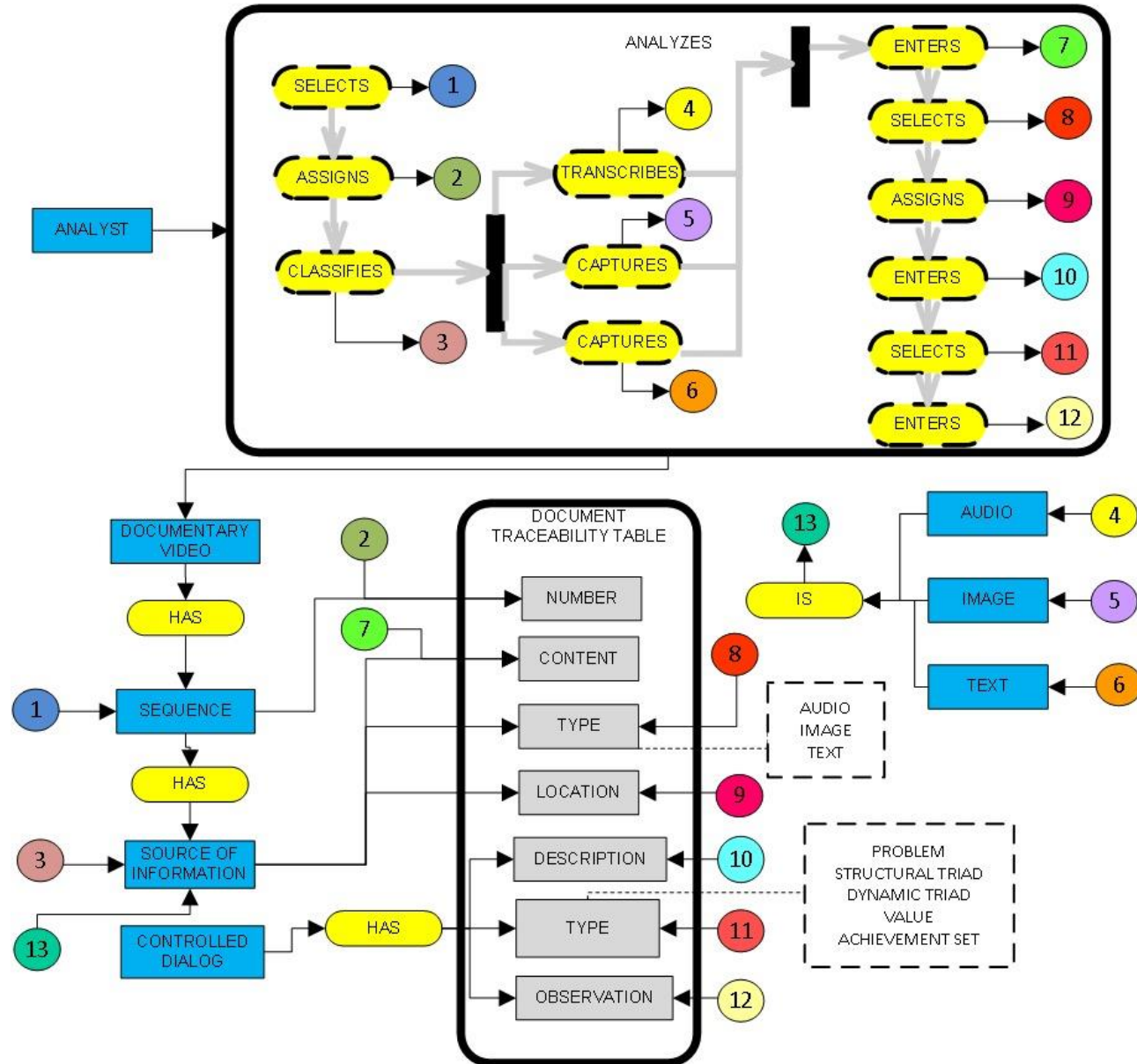
EXECUTABLE PRE-CONCEPTUAL SCHEMAS




RELATIONSHIP		
PERSON.ID	RELATIVE.ID	NAME
A	B	MARRIED-TO
C	D	SON
A	C	BROTHER
D	E	SISTER
F	B	DAUGHTER-IN-LAW
?	F	WIDOW
A	F	?
C	E	?
B	C	?

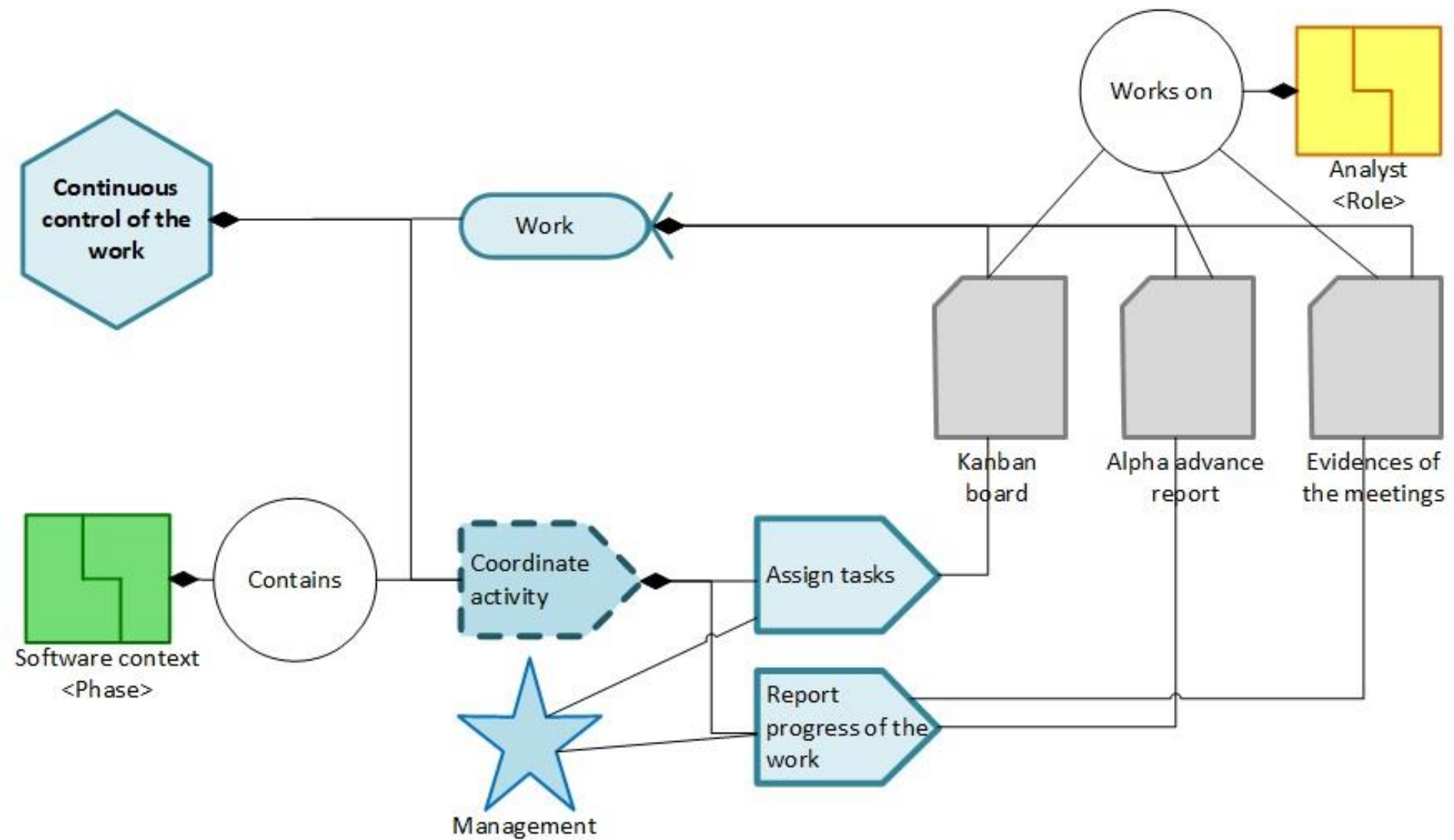
PERSON	
ID	GENDER
A	MALE
B	?
C	?
D	?
E	?
F	?
G	?

DOCUMENT TRACEABILITY TABLE

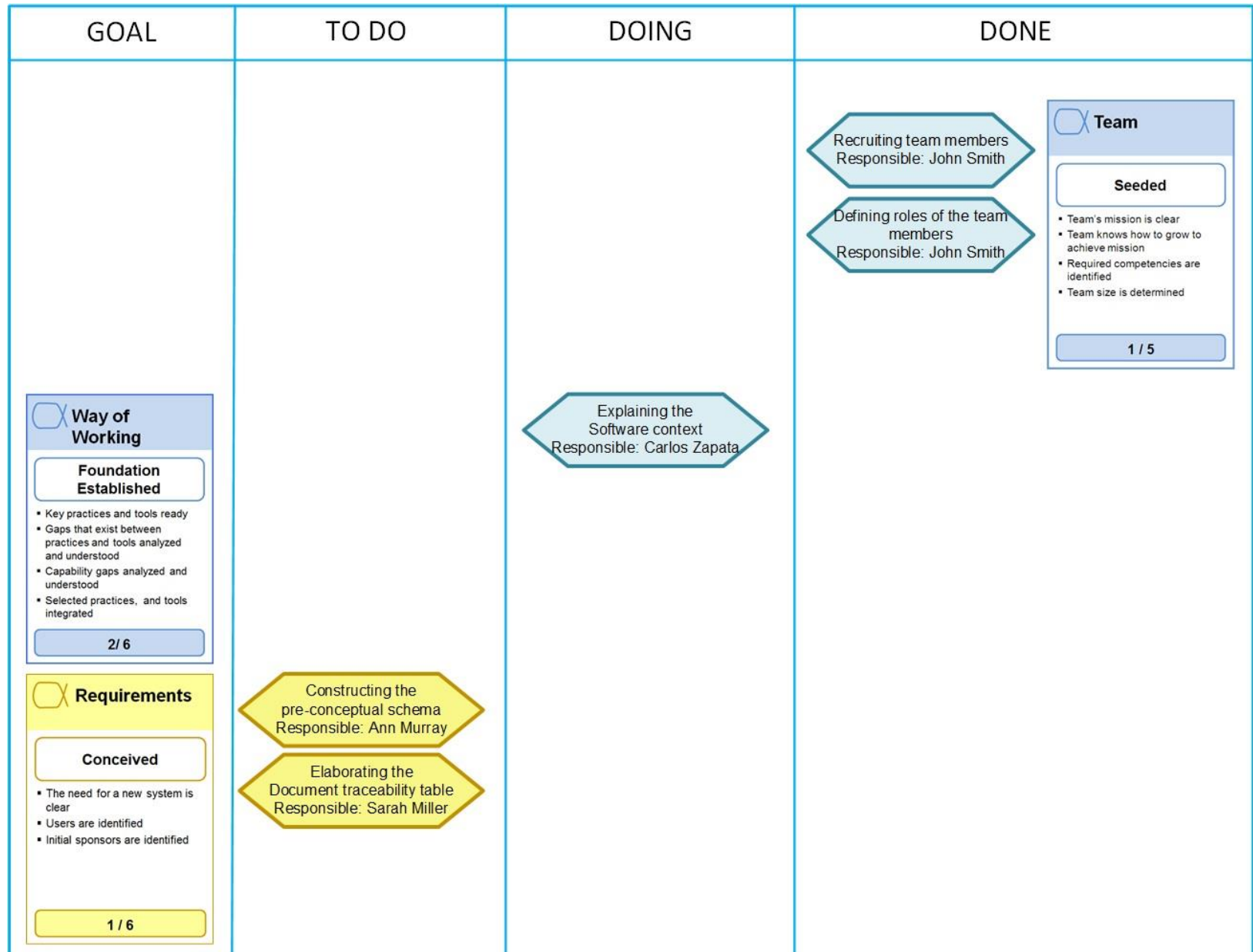


DOCUMENT TRACEABILITY TABLE



Original sound/image/text	Source	Location	Element	Kind of element	Observations
ZenPhoto: The simpler media website content management system Contents are included in albums	Text	www.zenphoto.org	Manages album	Responsibility	Even though the word “management” is a noun, the existence of the system leads to the responsibility “manage.”
The amount of users is one of the challenging situations of modern CMS	Text	CMS and beyond, page 15	There are few users	Problem	The adjective “few” is implicit in the context, since the “amount of users” as a challenging situation is related to few users.
Some information should be gathered for the images: location, height, width, and owner	Text	ZenPhoto user guide	Image has location Image has height Image has owner	Structural triads	
We want to foster the usage of files and permits associated with them	Sound	Interview with the stakeholder, 10:30-10:33	Fostering file	Goal	
	Image	Screenshot # 15 provided by the stakeholder	Album has title Gallery has album Album has comment	Structural triads	Previous interviews with the stakeholder give us the possibility to complement the information based on the image.
	Image	Screenshot # 15 provided by the stakeholder	Image has size (to be agreed)	Structural triad	Even though there is no explicit size associated with the files in the image, we know that the file needs this attribute.



KANBAN BOARD



ALPHA ADVANCE REPORT

ALPHA ADVANCE REPORT				
STATE	SUMMARY OF THE ACHIEVEMENT	TASK	DATE/DURATION	CONTENTS/OBSERVATIONS
<div>  Team </div> <div> 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>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>	<p>Recruiting team members Responsible: John Smith</p>	<p>02/23/2021 6 hours</p>	<p>Team: John Smith, Ann Murray, Sarah Miller, George Vincent</p>
		<p>Defining roles of the team members Responsible: John Smith</p>	<p>02/24/2021 8 hours</p>	<p>John Smith: Developer/Tester Ann Murray: Analyst Sarah Miller: Analyst/Architect George Vincnt: Developer/Tester</p>
<div>  Requirements </div> <div> Conceived <ul style="list-style-type: none"> The need for a new system is clear Users are identified Initial sponsors are identified </div> <div>1 / 6</div>	<p>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.</p>	<p>Constructing the pre-conceptual schema Responsible: Ann Murray</p>	<p>03/15/2021 8 hours</p>	<p>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</p>

DELIVERABLE 1: Software context

- Controlled dialog
- Elicitation cards
- Organizational chart
- Document traceability table
- Pre-conceptual schema
- Executable pre-conceptual schemas (for each dynamic relationship)
- Domain model
- Kanban board
- Alpha advance report
- Evidences of the meetings (minutes, photos, chat, etc.)