



POLITECNICO
MILANO 1863

Design Document

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Abstract

The purpose of this document is to show the stages for the design and development of the website for the company Secure Network. In particular, we will focus on the frontend development of the site describing the design in the large and in the small through the diagrams C-IDM and P-IDM. We will report some images of the final graphics of the site and illustrate hypothetical scenarios of interaction with it. Finally, we will present the database structure designed to support the site with the respective E-R diagram.

C-IDM Diagram

In this section we report the C-IDM diagram that we used as a basic structure for the development of the design of our website. It includes all the *Topics*, *Kind of Topics*, *Groups of Topics*, *Multiple Groups of Topics* and *Nested Groups of Topics* regarding the specification. In addition, all relevant relations and their cardinalities have been reported.

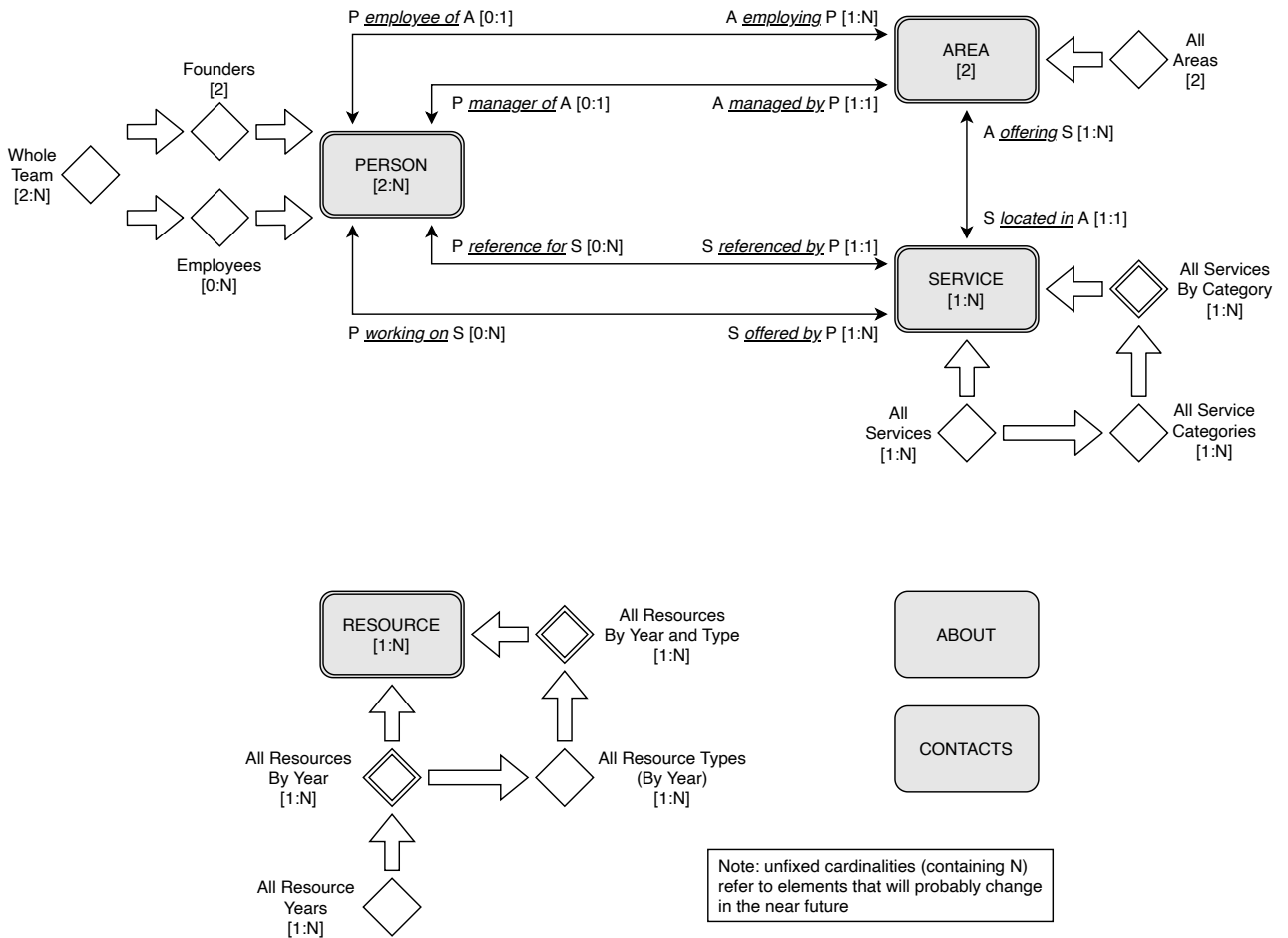


Figure 2.1: C-IDM Diagram

Content tables

Here we illustrate the content tables that expand the C-IDM diagram of the previous chapter.

GROUP: All Resource Years
TITLE: "All Our Resources Year By Year"
COVER: Image (Decorative)
SECTION TITLE: "Select Any Year"
YEARS PREVIEW: List [Year, List [Number of resources for each type, Type of resource]]

MULTIPLE GROUP: All Resources by Year X
TITLE: "All Resources Of" + Year
COVER: Image (Decorative)
RESOURCES PREVIEW: List [Date, Subtitle (max 15 words)]

GROUP: All Resource Types by Year X
SECTION TITLE: "Filter Resources By"
FILTERS: All resources, List [Type of resource]

MULTIPLE GROUP: All Resources by Year X and Type Y
TITLE: "All Resources Of" + Year
COVER: Image (Decorative)
RESOURCES PREVIEW: List [Date, Subtitle (max 15 words)]

KIND OF TOPIC: Resource X
TITLE: Resource Date
SUBTITLE: Resource Title (max 10 words)
COVER: Image (Decorative)
SECTION TITLE: Resource Subtitle (max 15 words)
RESOURCE: Text (max 150 words + external links)

<div> <div>TOPIC: About</div> <div> <div>TITLE: "About Us"</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "Your Protection, Our Mission"</div> <div>MISSION: Text (max 150 words)</div> <div>SECTION TITLE: "It Is Not A Matter Of If, But When And How"</div> <div>THREATS: List [Name, Description (max 50 words)]</div> </div> </div>	<div> <div>GROUP: All Areas</div> <div> <div>TITLE: "Our Fields Of Expertise"</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "Overview"</div> <div>INTRODUCTION: Text (max 150 words)</div> <div>AREAS PREVIEW: List [Image, Name, Abstract of Description (max 25 words)]</div> </div> </div>
<div> <div>TOPIC: Contacts</div> <div> <div>TITLE: "Let's Connect"</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "We Can Guarantee Your Protection Together"</div> <div>EMAIL FORM: Inputs [Name, Email, Subject, Message]</div> <div>SECTION TITLE: "Come And See Us"</div> <div>HOW TO REACH US: Text (max 20 words)</div> <div>CONTACT INFO: Phone Number, Email Address</div> <div>HEADQUARTERS: List [Address, Map]</div> </div> </div>	<div> <div>KIND OF TOPIC: Area X</div> <div> <div>TITLE: Area Name</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "About This Area"</div> <div>AREA DESCRIPTION: Text (max 150 words)</div> </div> </div>
	<div> <div>GROUP: All Services</div> <div> <div>TITLE: "All Available Services"</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "Full Coverage To Meet Specific Demands"</div> <div>INTRODUCTION: Text (max 150 words)</div> <div>SERVICES PREVIEW: List [Image, Name, Abstract of Description (max 15 words)]</div> </div> </div>
<div> <div>GROUP: Whole Team</div> <div> <div>TITLE: "A Cutting-Edge Team Of Researchers"</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "Who We Are"</div> <div>TEAM DESCRIPTION: Text (max 150 words)</div> </div> </div>	<div> <div>GROUP: All Service Categories</div> <div> <div>TITLE: "All Service Categories"</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "Full Coverage To Meet Specific Demands"</div> <div>INTRODUCTION: Text (max 150 words)</div> <div>CATEGORIES PREVIEW: List [Name, Abstract of Description (max 15 words)]</div> </div> </div>
<div> <div>GROUP: Founders</div> <div> <div>SECTION TITLE: "Our Founders"</div> <div>FOUNDERS PREVIEW: List [Portrait, Name, Abstract of the biography (max 25 words)]</div> </div> </div>	
<div> <div>GROUP: Employees</div> <div> <div>SECTION TITLE: "Our Employees"</div> <div>EMPLOYEES PREVIEW: List [Portrait, Name]</div> </div> </div>	
<div> <div>KIND OF TOPIC: Person X</div> <div> <div>TITLE: Person Full Name</div> <div>COVER: Image (Person Portrait)</div> <div>SECTION TITLE: "About" + Person Name</div> <div>BIOGRAPHY: Text (max 150 words)</div> </div> </div>	<div> <div>MULTIPLE GROUP: All Services by Category X</div> <div> <div>TITLE: Category Name</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "About This Category"</div> <div>INTRODUCTION: Text (max 150 words)</div> <div>SERVICES PREVIEW: List [Image, Name, Abstract of Description (max 15 words)]</div> </div> </div>
	<div> <div>KIND OF TOPIC: Service X</div> <div> <div>TITLE: Service Name</div> <div>COVER: Image (Decorative)</div> <div>SECTION TITLE: "Service Overview"</div> <div>DESCRIPTION: Text (max 150 words)</div> </div> </div>

Figure 3.1: Content tables (C-IDM in the small)

Mapping Content Tables into Pages

Continuing, we present the result of the application of the process of page mapping to the content tables reported in the last chapter. Each table has been divided into a series of pages, in order to increase the degree of granularity.

<div>TOPIC: About</div> <div>PAGE: About - Welcome</div> <div>TITLE: "About Us"</div> <div>COVER: Image (Decorative)</div> <div>PAGE: About - Mission</div> <div>SECTION TITLE: "Your Protection, Our Mission"</div> <div>MISSION: Text (max 150 words)</div> <div>PAGE: About - Threats</div> <div>SECTION TITLE: "It Is Not A Matter Of If, But When And How"</div> <div>THREATS: List [Name, Description (max 50 words)]</div>	<div>GROUP: Whole Team</div> <div>PAGE: Team - Welcome</div> <div>TITLE: "A Cutting-Edge Team Of Researchers"</div> <div>COVER: Image (Decorative)</div> <div>PAGE: Team - Info</div> <div>SECTION TITLE: "Who We Are"</div> <div>TEAM DESCRIPTION: Text (max 150 words)</div> <div>GROUP: Founders</div> <div>PAGE: Team - Founders</div> <div>SECTION TITLE: "Our Founders"</div> <div>FOUNDERS PREVIEW: List [Portrait, Name, Abstract of the biography (max 25 words)]</div> <div>GROUP: Employees</div> <div>PAGE: Team - Employees</div> <div>SECTION TITLE: "Our Employees"</div> <div>EMPLOYEES PREVIEW: List [Portrait, Name]</div>
<div>TOPIC: Contacts</div> <div>PAGE: Contacts - Welcome</div> <div>TITLE: "Let's Connect"</div> <div>COVER: Image (Decorative)</div> <div>PAGE: Contacts - Email Form</div> <div>SECTION TITLE: "We Can Guarantee Your Protection Together"</div> <div>EMAIL FORM: Inputs [Name, Email, Subject, Message]</div> <div>PAGE: Contacts - Practical Info</div> <div>SECTION TITLE: "Come And See Us"</div> <div>HOW TO REACH US: Text (max 20 words)</div> <div>CONTACT INFO: Phone Number, Email Address</div> <div>HEADQUARTERS: List [Address, Map]</div>	<div>KIND OF TOPIC: Person X</div> <div>PAGE: Person X - Welcome</div> <div>TITLE: Person Full Name</div> <div>COVER: Image (Person Portrait)</div> <div>PAGE: Person X - Personal Info</div> <div>SECTION TITLE: "About" + Person Name</div> <div>BIOGRAPHY: Text (max 150 words)</div>

GROUP: All Areas
PAGE: Areas - Welcome
TITLE: "Our Fields Of Expertise"
COVER: Image (Decorative)
PAGE: Areas - Introduction
AREAS PREVIEW: List [Image, Name, Abstract of Description (max 25 words)]
PAGE: Areas - Previews
AREAS PREVIEW: List [Image, Name, Abstract of Description (max 25 words)]

GROUP: All Service Categories
PAGE: Categories - Welcome
TITLE: "All Service Categories"
COVER: Image (Decorative)
PAGE: Categories - Introduction
SECTION TITLE: "Full Coverage To Meet Specific Demands"
INTRODUCTION: Text (max 150 words)
PAGE: Categories - Previews
CATEGORIES PREVIEW: List [Name, Abstract of Description (max 15 words)]

KIND OF TOPIC: Area X
PAGE: Area X - Welcome
TITLE: Area Name
COVER: Image (Decorative)
PAGE: Area X - Info
SECTION TITLE: "About This Area"
AREA DESCRIPTION: Text (max 150 words)

MULTIPLE GROUP: All Services by Category X
PAGE: Category X - Welcome
TITLE: Category Name
COVER: Image (Decorative)
PAGE: Category X - Introduction
SECTION TITLE: "About This Category"
INTRODUCTION: Text (max 150 words)
PAGE: Category X - Previews
SERVICES PREVIEW: List [Image, Name, Abstract of Description (max 15 words)]

GROUP: All Services
PAGE: Services - Welcome
TITLE: "All Available Services"
COVER: Image (Decorative)
PAGE: Services - Introduction
SECTION TITLE: "Full Coverage To Meet Specific Demands"
INTRODUCTION: Text (max 150 words)
PAGE: Services - Previews
SERVICES PREVIEW: List [Image, Name, Abstract of Description (max 15 words)]

KIND OF TOPIC: Service X
PAGE: Service X - Welcome
TITLE: Service Name
COVER: Image (Decorative)
PAGE: Service X - Info
SECTION TITLE: "Service Overview"
DESCRIPTION: Text (max 150 words)

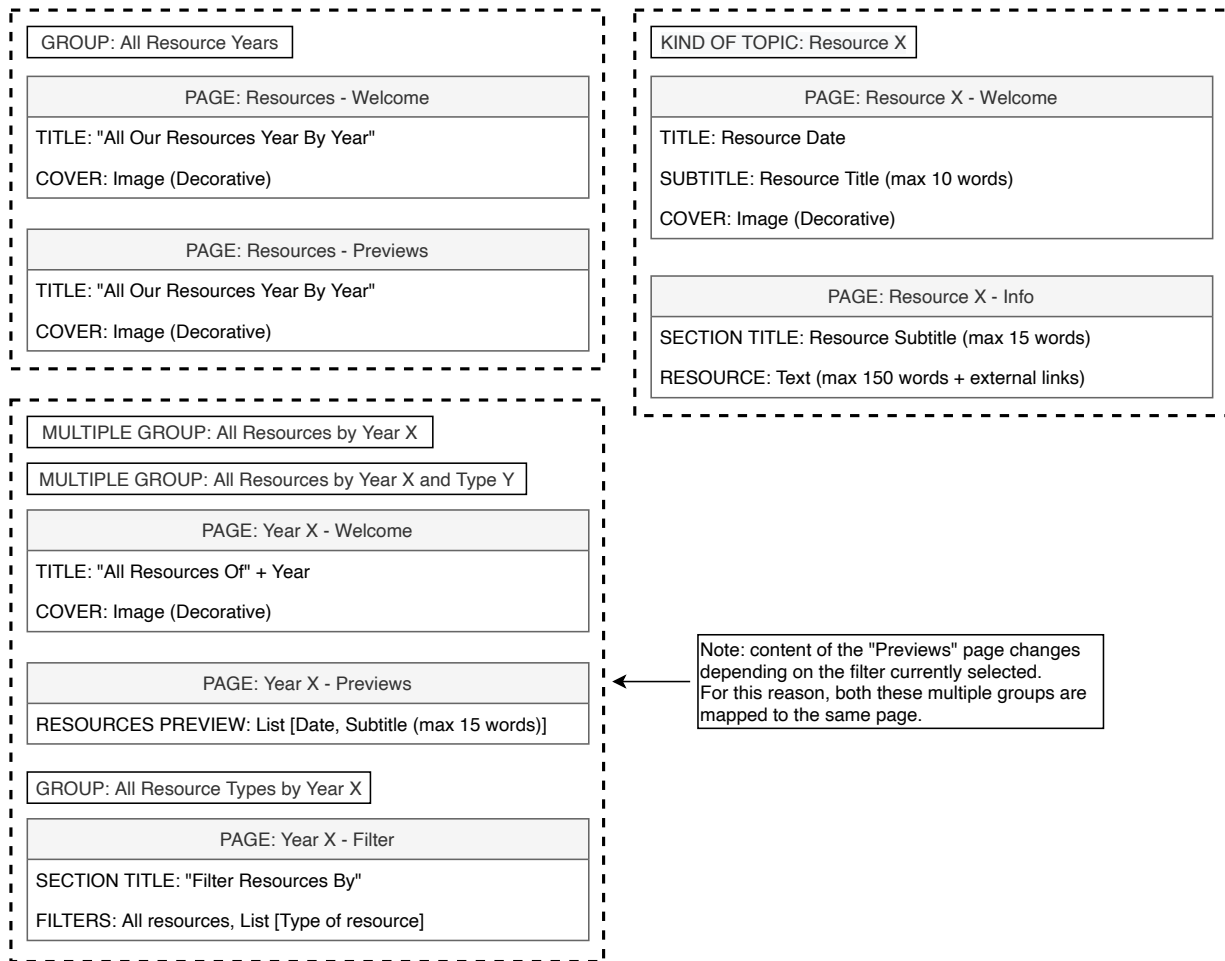


Figure 4.1: Pages mapping

P-IDM diagram

In this section we report the P-IDM diagram which describes the navigation design of our website.

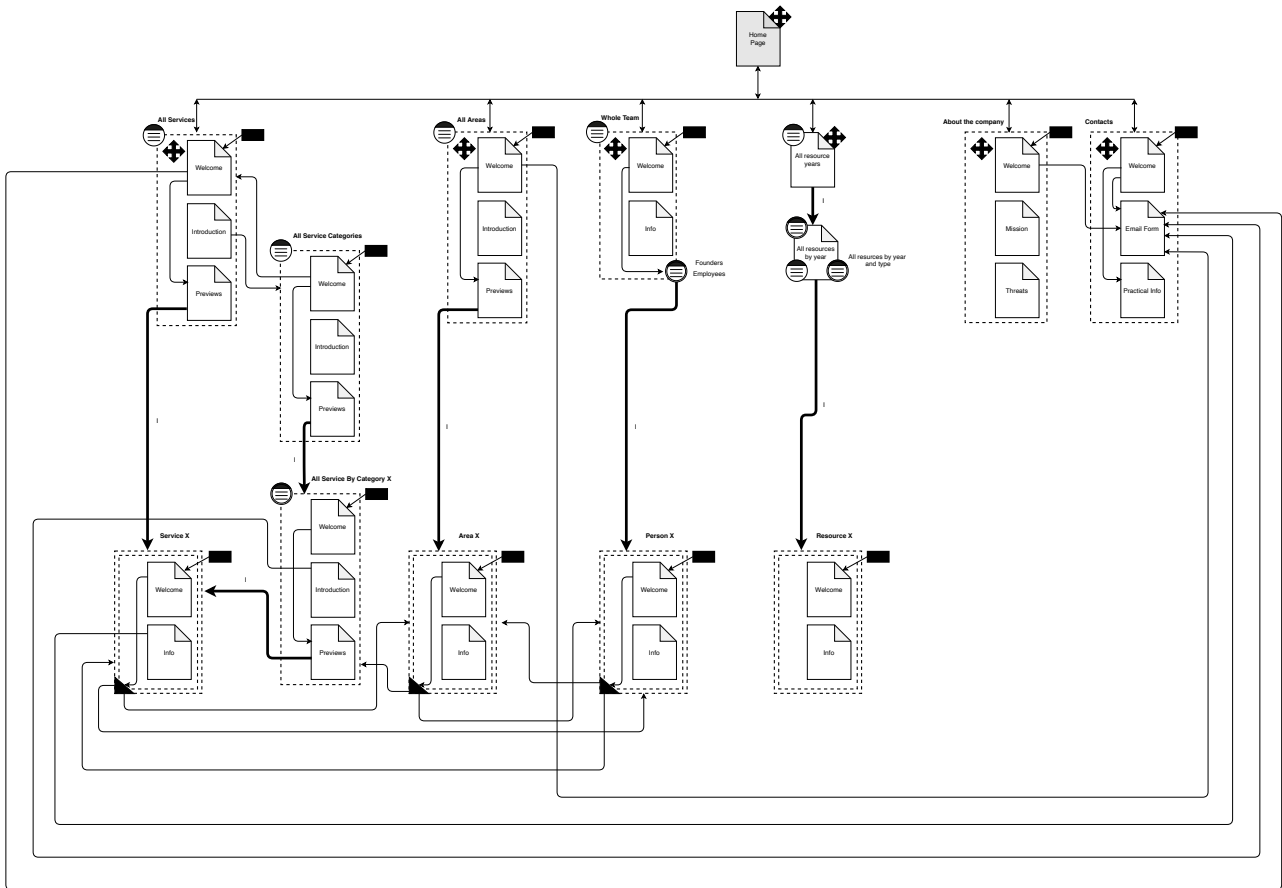


Figure 5.1: P-IDM Diagram

Visual Design

Ciao

Interaction Scenarios

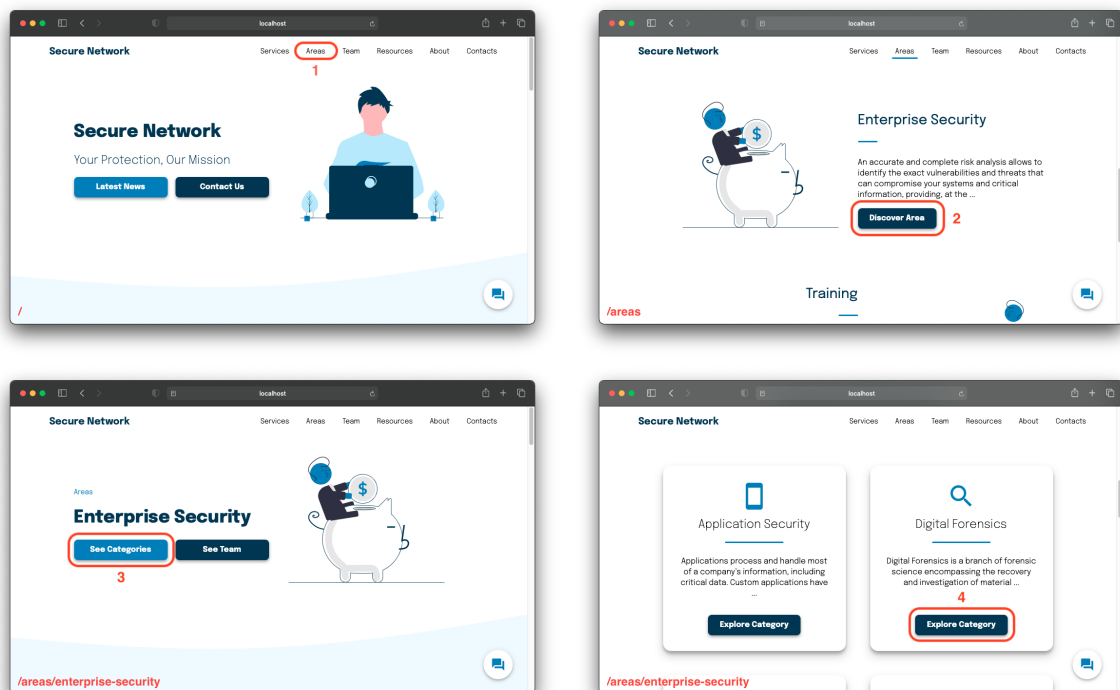
7.1 Scenario 1

An attorney from the Milan prosecutor's office is looking for a company able to retrieve evidence from a device linked to a court case.

She got the name of Secure Network and would like to find out if they can perform the job she is looking for and, in case, get a quote. To do so, she connects to the company website.

She directly goes to the *Areas* page and, after reading the short abstracts, she chooses to visit the page of the *Enterprise Security* area. There, she clicks on *See Categories* and examines the list that is shown to her.

Among the options, she selects the *Digital Forensics* category and, in the page that opens, she finds *Forensics Acquisition* that seems to be exactly the service she needs. After opening the page to confirm her assumptions, she browses to the *Contacts* page to send them an email.



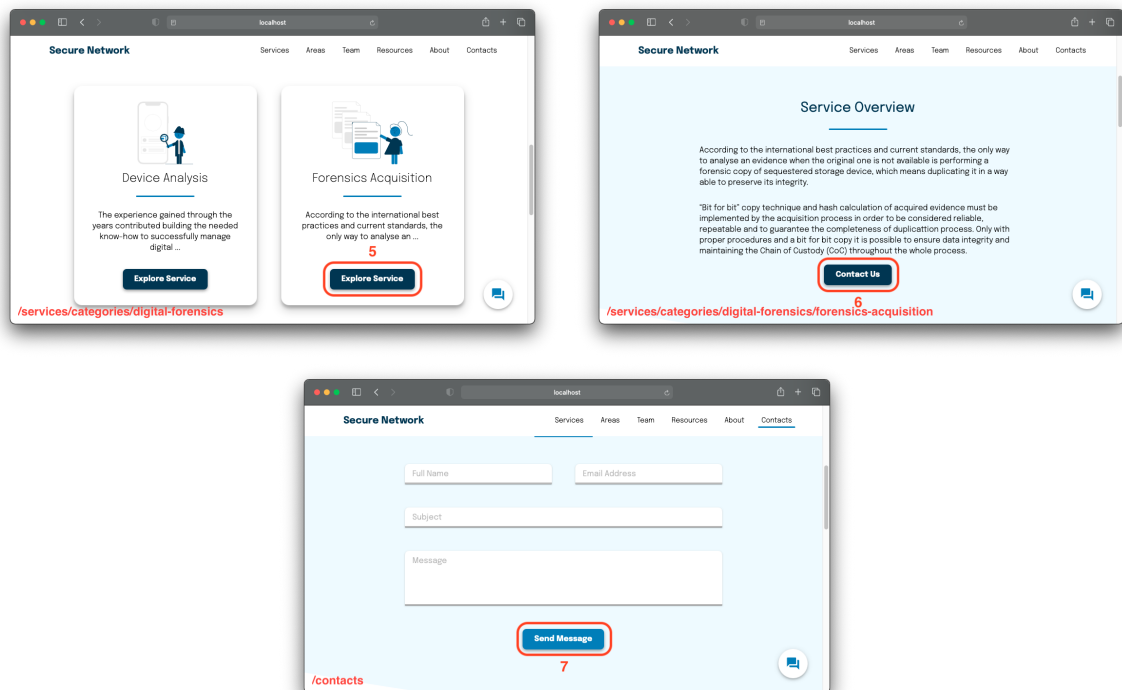


Figure 7.1: Screenshots describing interactive scenario 1.

7.2 Scenario 2

A recent graduate of the Politecnico is looking for his first job in the computer security field. A few days ago, he attended a workshop given by Alvise Biffi in which he mentioned that the company he founded is hiring but unfortunately he does not remember the name. He thinks it is called Secure Network but, to be completely sure, he connects to their website and goes to the *Team* page where he finds *Alvise Biffi*. After reading the founder's biography abstract and decides to visit his page to have a complete reading. After that, he goes back to the *Team* page (using the breadcrumbs on top of the page) to give another look to the employee list and there he finds the *We are hiring* title and clicks on the *Contact Us* button.

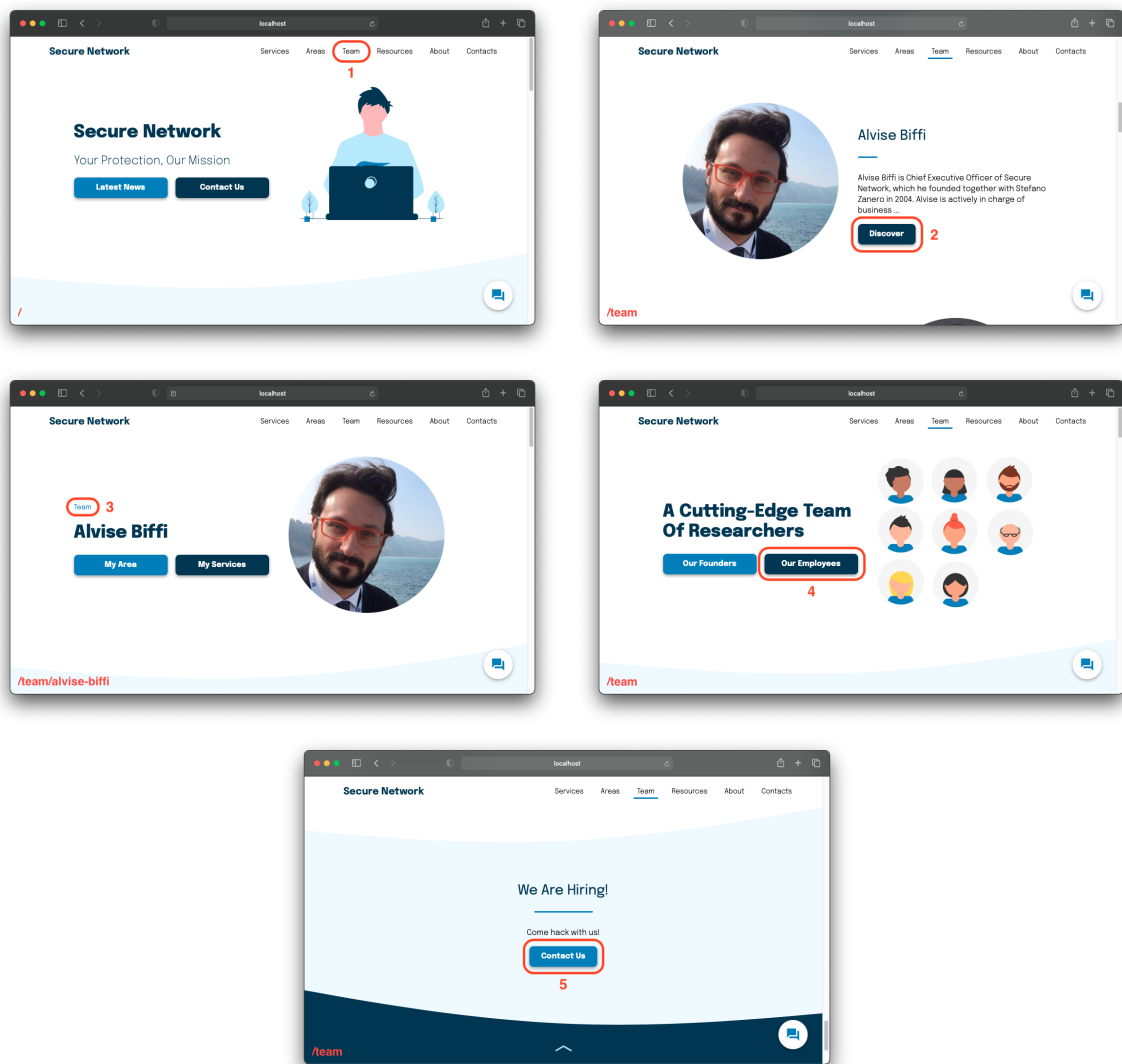


Figure 7.2: Screenshots describing interactive scenario 2.

7.3 Scenario 3

During a conference, an entrepreneur came in contact with this security company from Milan that is called Secure Network. He is impressed with what he heard about them and would like to discover what they do more in depth.

After connecting to the website, he browses the *Home* page and reads the description of the company. He decides to click the *About Us* button and in that page he discovers more about their history.

There, he finds a section where the company gives some reason why cybersecurity matters and decides to give a look to the *Services* they offer. He only wants to have an overview, so he decides to click on the *Group by Category* button in order to have a look at that list.

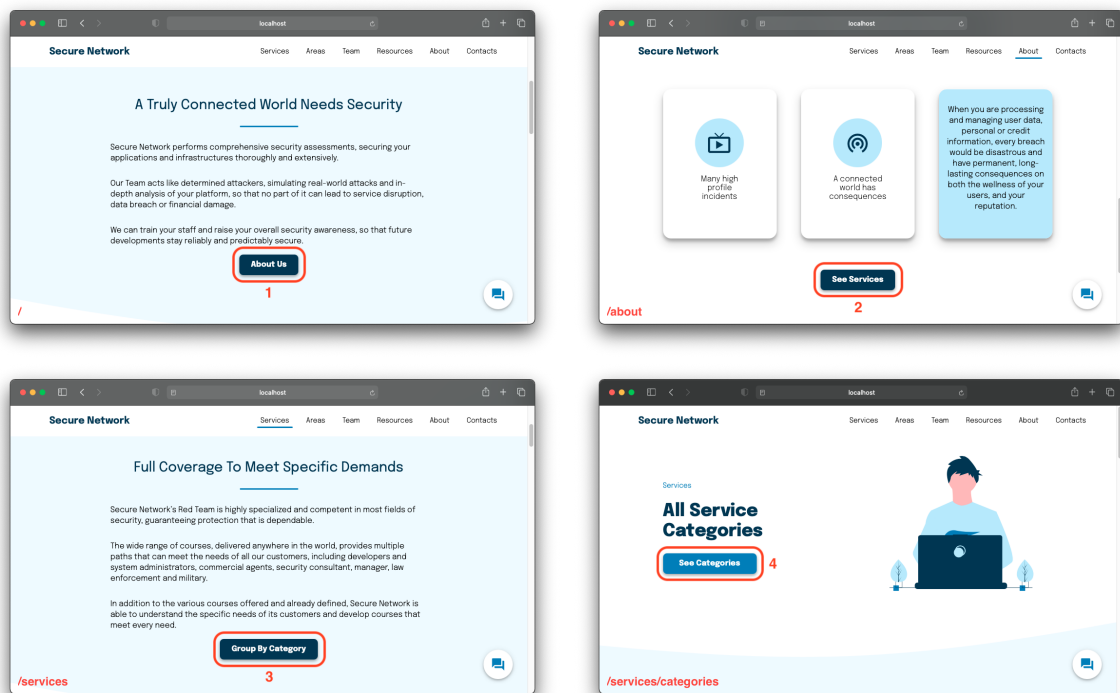


Figure 7.3: Screenshots describing interactive scenario 3.

7.4 Scenario 4

During a lecture of his course of Computer Security at Politecnico, professor Stefano Zanero mentioned an interview with him published in 2017. One of his students would really like to read it so she visits to the website of his company, Secure Network, as he told her to do. Right on the *Home* page, she finds some of the latest news and she spots one about his professor that she wants to read. After reading that article, she goes back to the *Resources* page using the breadcrumbs on top and she selects the year *2017*. Once on the year page, she filters the resources to see only the news and then she finds the interview that she was looking for.

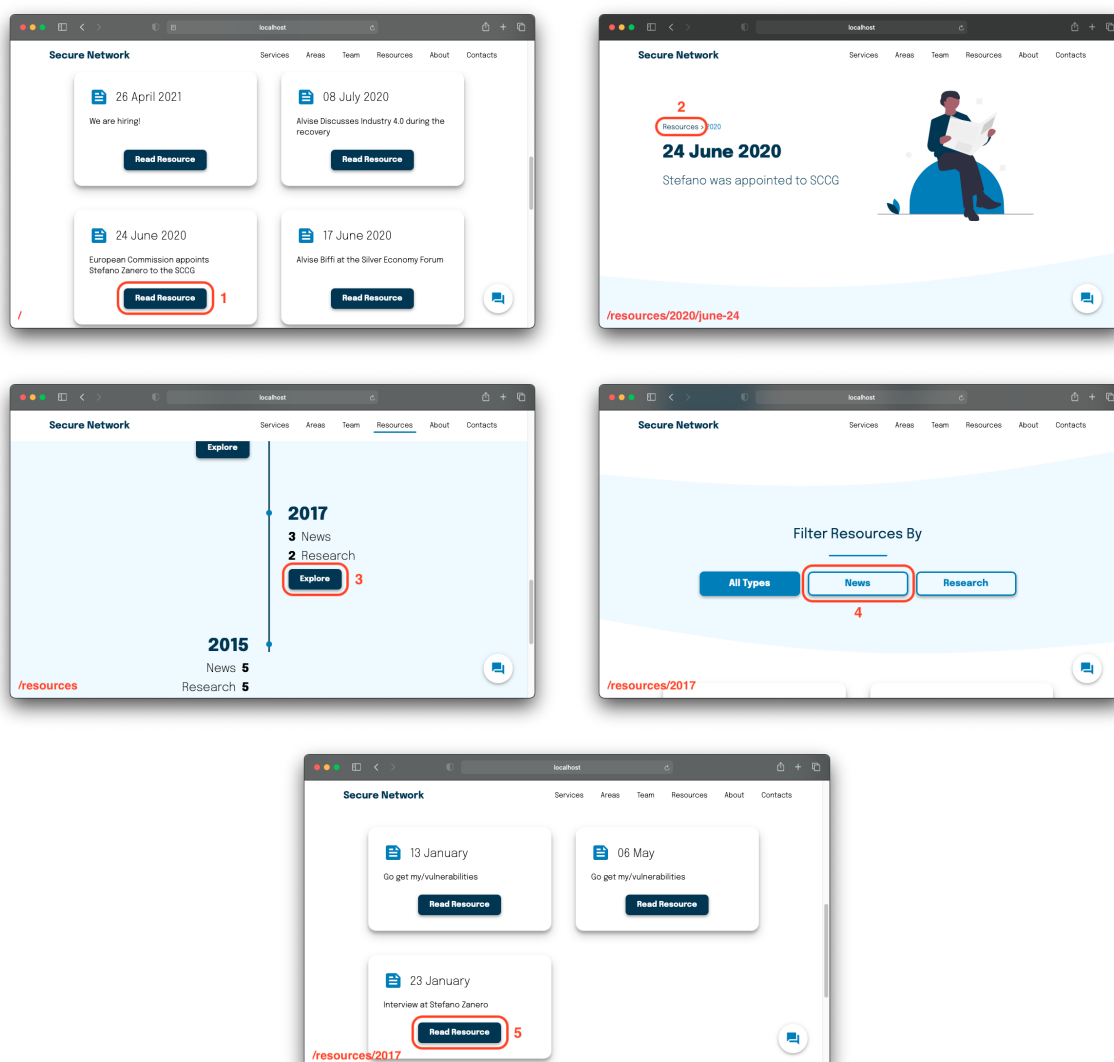


Figure 7.4: Screenshots describing interactive scenario 4.

DB Design

In this last chapter we report the structure of the database designed to support the website and manage the information contained in it. We started with the conceptual design, by which is possible to identify the first layer of abstraction of our data. It has been modeled with the *Entity-Relationship diagram*.

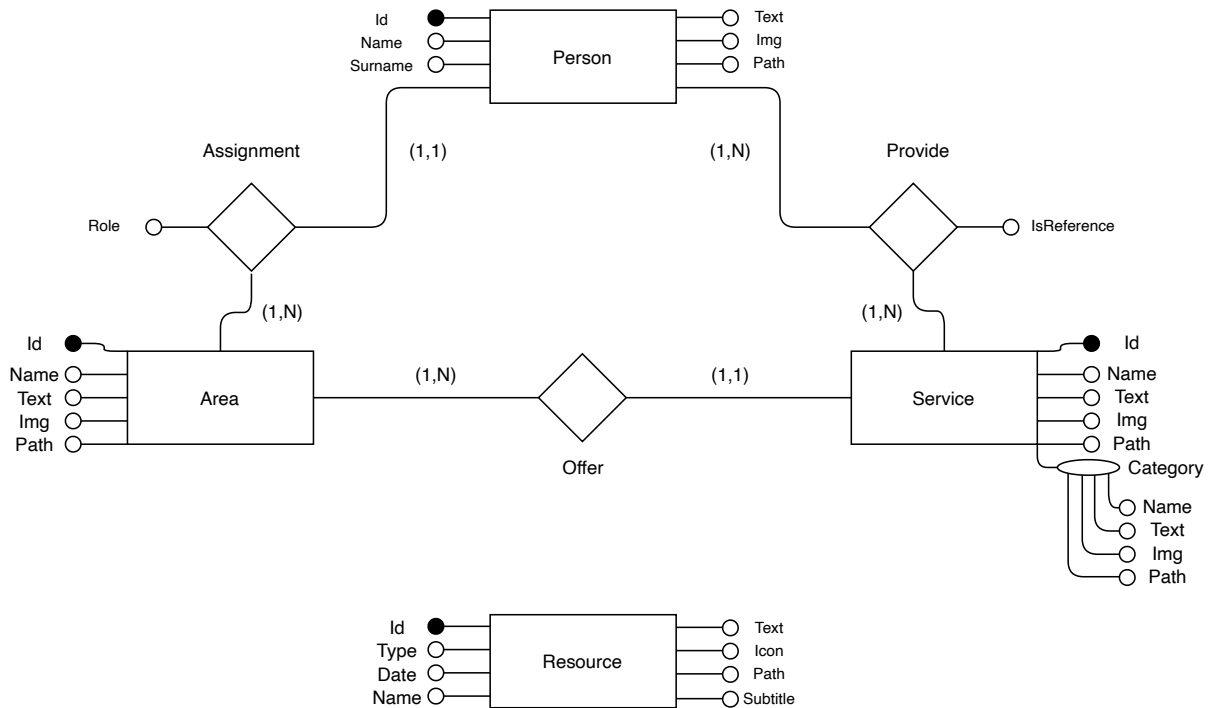


Figure 8.1: ER Diagram

Then we proceed with the logic design, which allow to better describe the *E-R Model*. Some additional tables have been identified to better support the implementation.

- **Area.** An *Area* is identified by an **id**, has a **name**, a **text** description, a string path to the image, **img**, and a **path** to reach the specific page.
- **Person.** A *Person* is identified by an **id**, has a **name**, a **surname**, a **text** description, a string path to the image, **img**, a **path** to reach the specific page. In addition, the relation called *Assignment*, among *Person* and *Area*, has been merged within the first table, resulting in the addition of two fields: the **area_id** as foreign key and the **role** of the person within the area. Each *Person* is assigned to exactly one *Area*, whereas in each *Area* several *People* are assigned.
- **Service_Category.** This table was born due to normalization purposes. It would have been redundant adding for each *Service* information about the complex attribute *Category*. To avoid replication, we decided to perform this normalization procedure. A *Service_Category* is identified by an **id**, has a **name**, a **text** description, a string path to the image, **img**, and a **path** to reach the specific page.
- **Service.** A *Service* is identified by an **id**, has a **name**, a **text** description, a string path to the image, **img**, a **path** to reach the specific page. The **category_id** is the foreign key, used to support the normalization process described in the previous table. Each *Service* is mapped with exactly one *Service_Category*, whereas each *Service_Category* is mapped with several *Services*. In addition, the relation called *Offer*, among *Service* and *Area*, has been merged within the first table, resulting in the addition of the field **area_id** as foreign key. Each *Service* is offered by exactly one *Area*, whereas each *Area* offers several *Services*.
- **Person_Service.** This table was born to support the *N-N* relation, *Provide*, among *Person* and *Service*. A *Person_Service* is identified by an autoincremental **id** and presents a boolean field, **isReference**, which states whether or not the *Person*, identified by the foreign key **person_id**, is the reference for the *Service*, identified by the foreign key **service_id**.
- **Resource.** A *Resource* is identified by an **id**, has a **type**, a **name**, a **date**, a **text** description, a **subtitle**, a string path to the **icon**, and a **path** to reach the specific page.

Area	
PK	<u>Id</u>
	Name
	Text
	Img
	Path

Person	
PK	<u>Id</u>
	Name
	Surname
	Text
	Img
	Path
	Role
FK	Area_id

Reesource	
PK	<u>Id</u>
	Type
	Date
	Name
	Text
	Path
	Icon
	Subtitle

Service	
PK	<u>Id</u>
	Name
	Text
	Img
	Path
FK	Category_id
FK	Area_id

Service_Category	
PK	<u>Id</u>
	Name
	Text
	Img
	Path

Person_Service	
PK	<u>Id</u>
	IsReference
FK	Person_id
FK	Service_id

Figure 8.2: Relational Tables

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