



L.M. Geoinformatics Engineering

AA 2021/21

HYPERMEDIA APPLICATIONS

Design Document

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Link: <https://toptech-polimi.herokuapp.com/>

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1. Abstract

This document contains the decisions made regarding the design specification of the project of the Hypermedia Application (Web and Multimedia) course for the academic year 2020/2021.

The project consists in designing and implementing a website for an ICT company.

The document is composed by the IDM models (interactive dialogue model) that define which are the main concept of the website (C-IDM) also providing a logical description of the pages structure (P-IDM), the scenarios to better understand the main idea behind the navigation and the contents provided by the website the content tables with their mapping with the pages, then the low and high fidelity wireframes of our website and how it will look like after the development and at the end the Entity Relationship diagram that describe the structure of the database.

Every decision has been made in order to optimize the content of the website, making it simple and attractive.

Diagrams and Wireframes are created using *draw.io* and *Figma*.

2. Graphical Representation

2.1 C-IDM

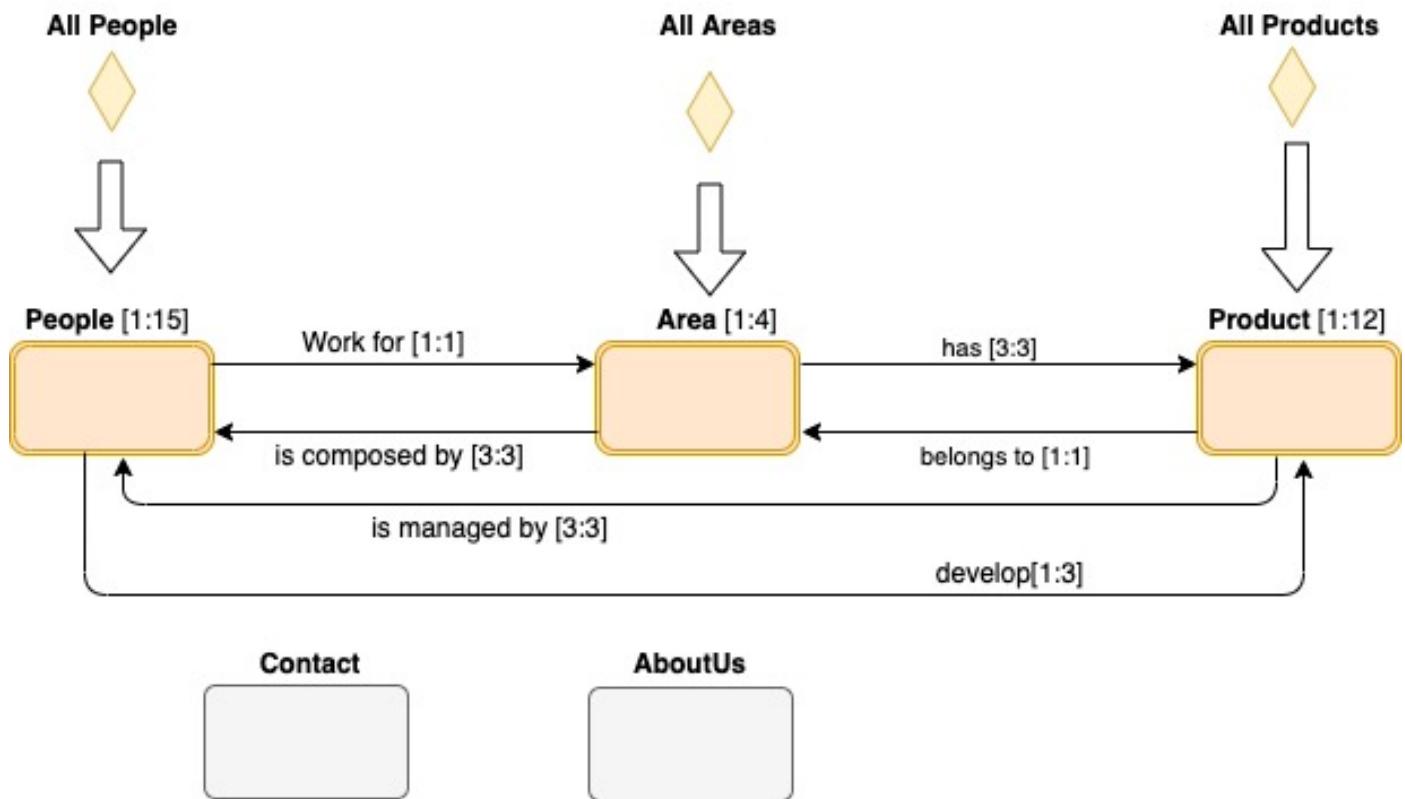


Figure 1. C-IDM describes the content of the web site in the large

2.1.1 C-IDM Notes

The diagram is composed by

Topics:

- **Contacts:** information regarding the different company's locations, include a form to fill with information to get in contact with the company.
- **About us:** general information about the company.

Kind of topics:

- **Area:** working fields of the company.
- **Product:** services offered by the company.
- **People:** all people working in the company, related to each area.

Groups:

- *All areas*
- *All products*
- *All people*

2.2 P-IDM

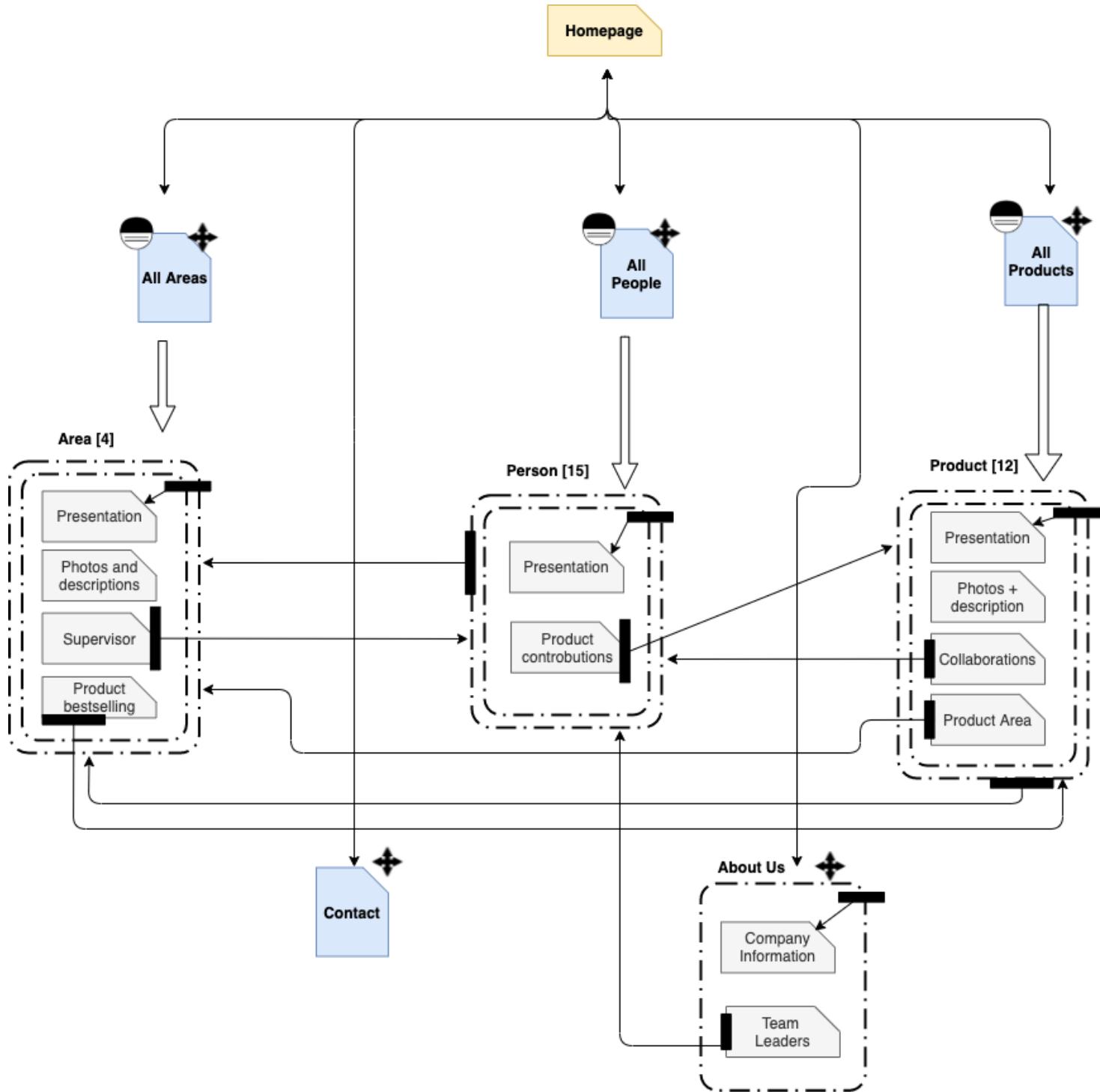


Figure 2. Page Interactive Dialogue Model

2.2.1 P-IDM Notes

P-IDM Diagram is an Interactive Dialogue Model, and it is based on C-IDM. It describes the navigational architecture of the website.

We can notice that for each page aggregation (dashed lines in the diagram), the content spans a single physical page in the website. This means that there are no more internal relations we need to highlight: all the links are visible in this main P-IDM Diagram.

3. Content tables

Content tables describe the content of our website in the small.

Each component of the C-IDM Diagram corresponds to a table (see Chapter 2.1 C-IDM Diagram).

In our case, each table corresponds to a single page of the website.

GROUP OF TOPICS: All areas
Title: Text (max 20 char)
Subtitle: Text (max 20 words)
Items Preview: LIST OF [Area image; Area name; Area description]
Page description: Text (max 100 words)

GROUP OF TOPICS: All people
Title: Text (max 20 char)
Subtitle: Text (max 20 words)
Page presentation: <Image, Text (max 100 words)>
Items Preview: LIST OF [Area name, LIST OF (Person image; Person name; Person role)]

GROUP OF TOPICS: All products
Title: Text (max 20 char)
Subtitle: Text (max 20 words)
Items Preview: LIST OF [Product image; Product name; Brief Description]
Development strategies: [<Image1, Text>, <Image2, Text>, <Image3, Text>]

KIND OF TOPIC: Areas
Area Name: Text (max 30 char)
Area brief description: [<Image1, Text>, <Image2, Text>, <Image3, Text>]
Area long description: [Image1, Text1 (max 300 words), Image2, Text2 (max 300 words), Image3, Text3 (max 300 words)]
Bestselling: “Bestselling”
Bestselling product: [Image, Name, Text (max 50 char)]
Supervisor: “Supervisor”
Area manager: [Person image; Person name, Person role]

KIND OF TOPIC: Products
Product Name: Text (max 30 char)
Product image: Image
Product long description: Text (max 300 words)
Functionalities section: “Functionalities”
Product functionalities: [Text1 (max 50 words), Text2 (max 50 words), Text3 (max 50 words)]
Collaborations section: “Collaborations”
Related Team: [Area image; Text (max 100 char)]
Related Area manager: [Person image; Person name, Person role]

KIND OF TOPIC: People
Person anagraphic/image/citation/contribution: [Text1 (max 50 char), image, Text2 (max 50 words), Text3 (max 50 words)]
Contributions title: “Contributions”
Managed Products: LIST OF [Product image; Product name; Text (max 50 char)]
Form title: “Send a message!”
Contact us /form: multipart/ form-data

TOPIC: Contacts
Title: Contact
Contact us/Image: Image
Practical info/addresses/contacts: [Text1 (max 50 words), Text2 (max 50 words), Text3 (max 50 words), Text4 (max 50 words)]
Form title: “Contact us!”
Contact us /form: multipart/ form-data

TOPIC: About Us
Title: “About Us”
Overview: [3 images, Text1 (max 300 words), Text2 (max 300 words), Text3 (max 300 words)]
Leadership team title: “Leadership team”
Leadership team overview: [3 images, Name1 (max 50 char), Name2 (max 50 char), Name3 (max 50 char), Role1 (max 20 char), Role2 (max 20 char), Role3 (max 20 char)]

4. Mapping Content Tables into Pages

The mapping of the content tables is useful if the content of one or more tables is divided over several pages.

This chapter would be a repetition of the previous one.

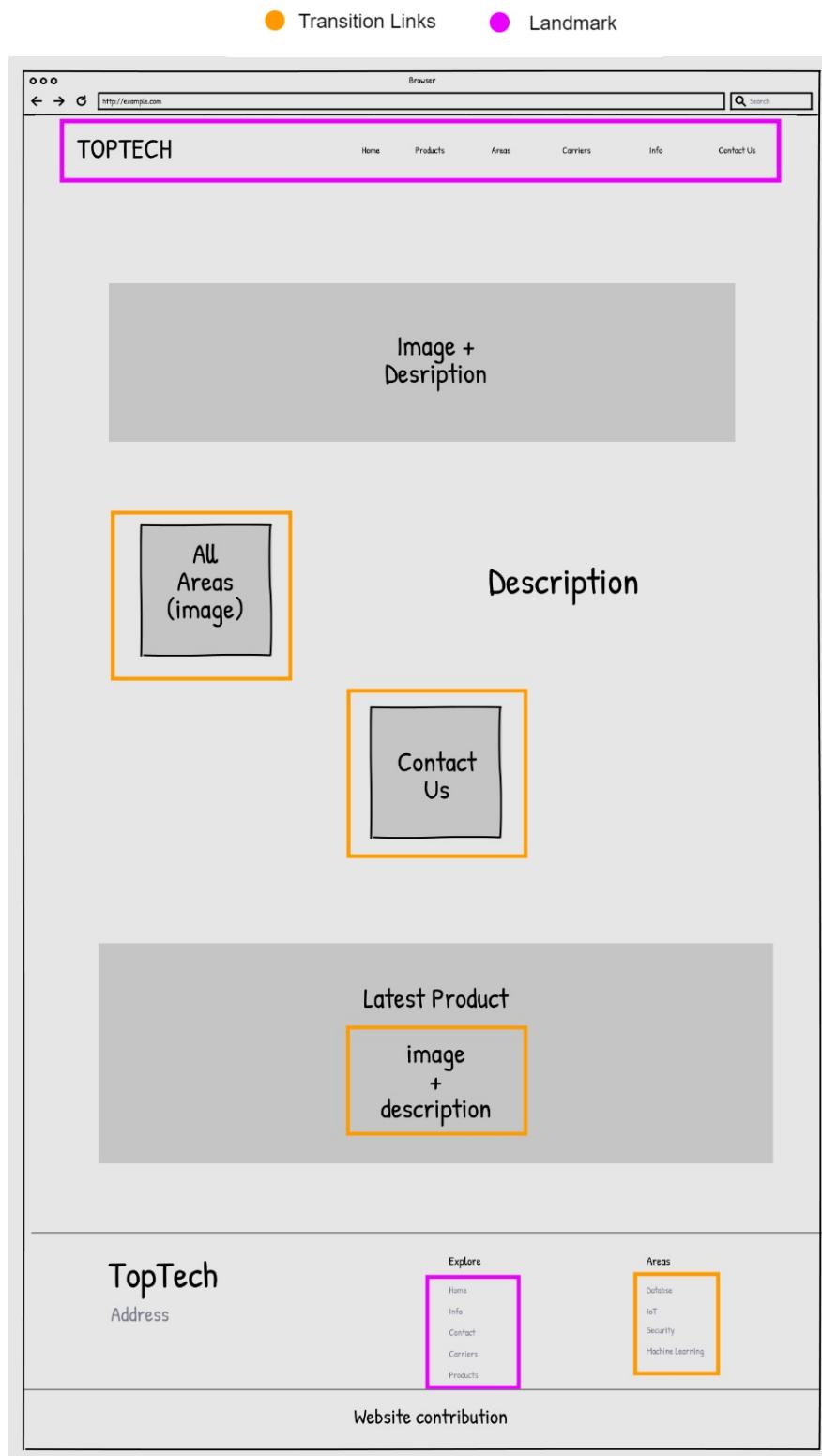
See chapter 3. Content tables.

5. Visual Design (Wireframes and Screenshots)

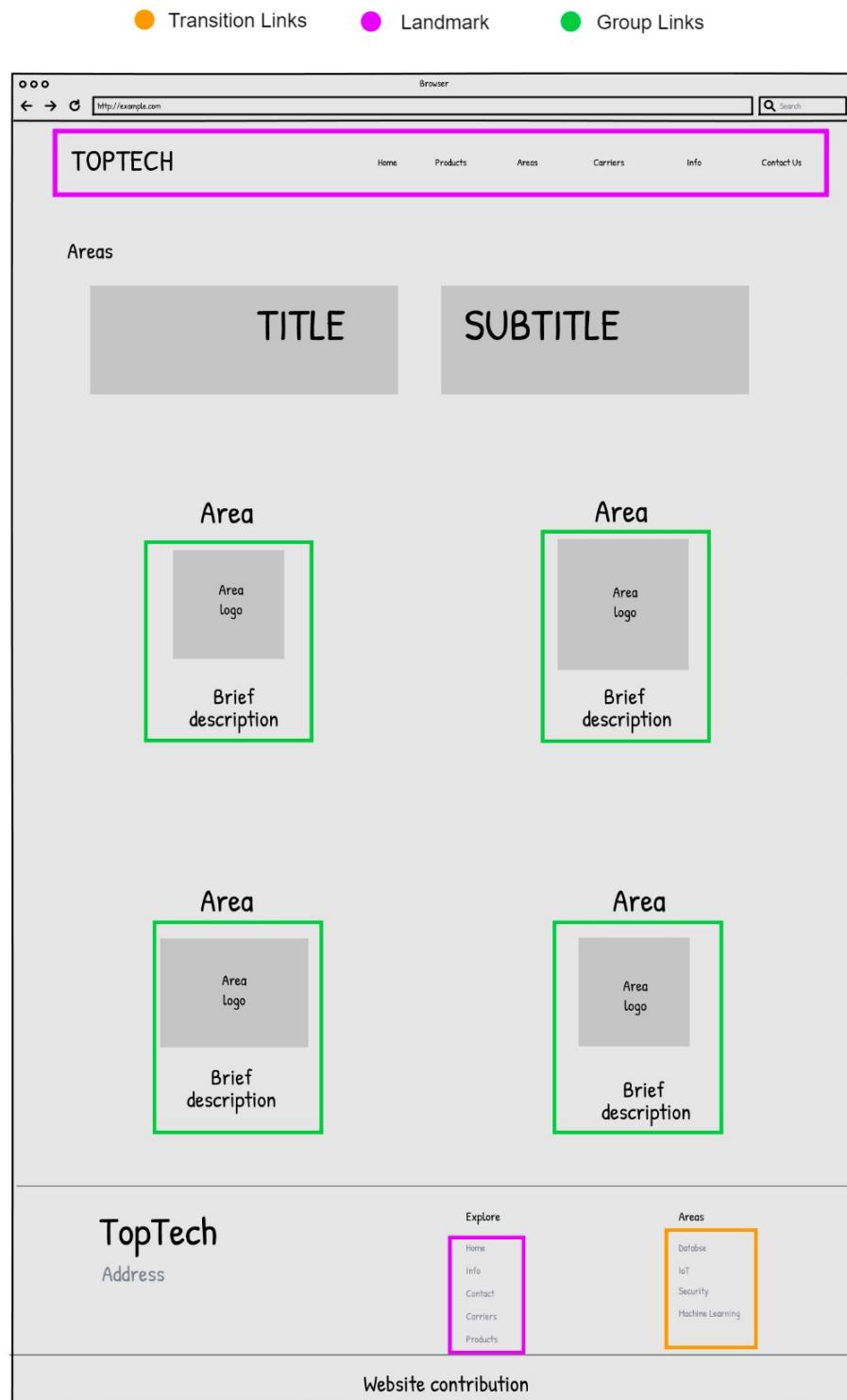
Visual Design is divided in two parts: Low fidelity design and High fidelity design. In Low fidelity design, the initial model of pages is presented and all links are highlighted. In High fidelity design, the final design of pages is showed by screenshot.

5.1 Commented low fidelity wireframes

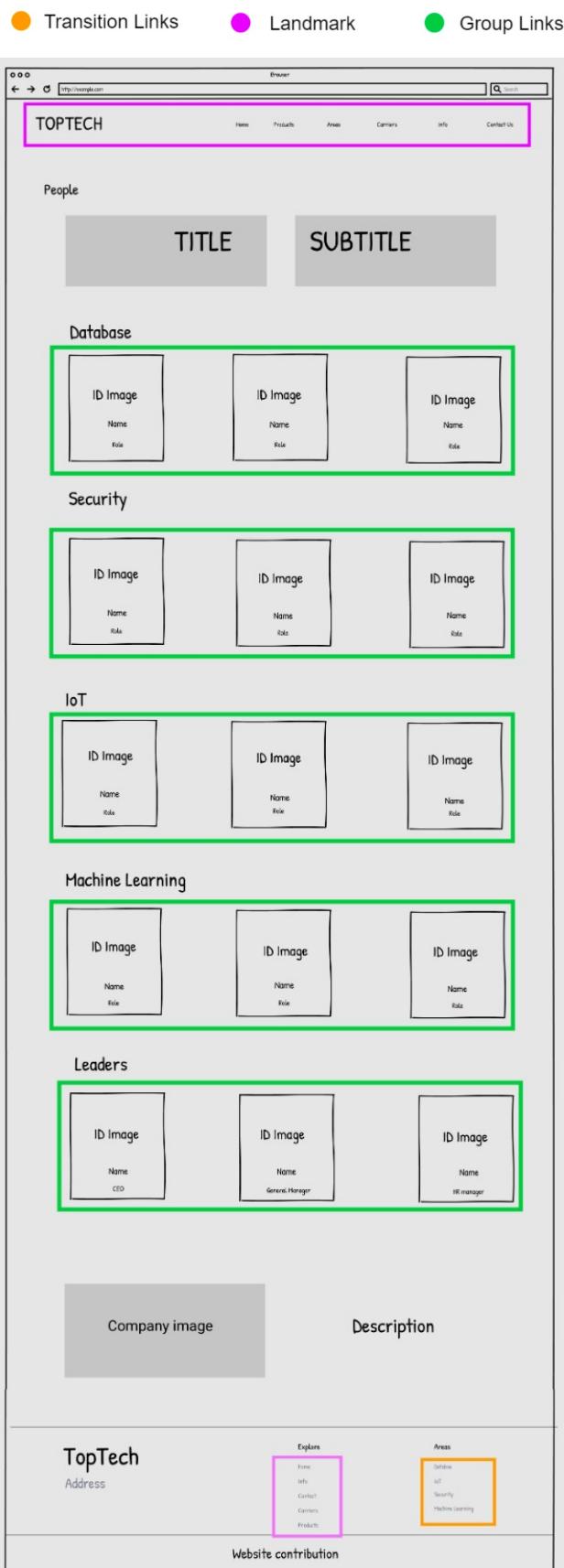
Low fidelity wireframes show the base structure of pages: fixed Header on the top, fixed Footer on the bottom and variable content in the middle. They also highlight links (where links are and which is their category) and the orientation information (in order to understand where user is in the website).



Wireframe 1. Homepage

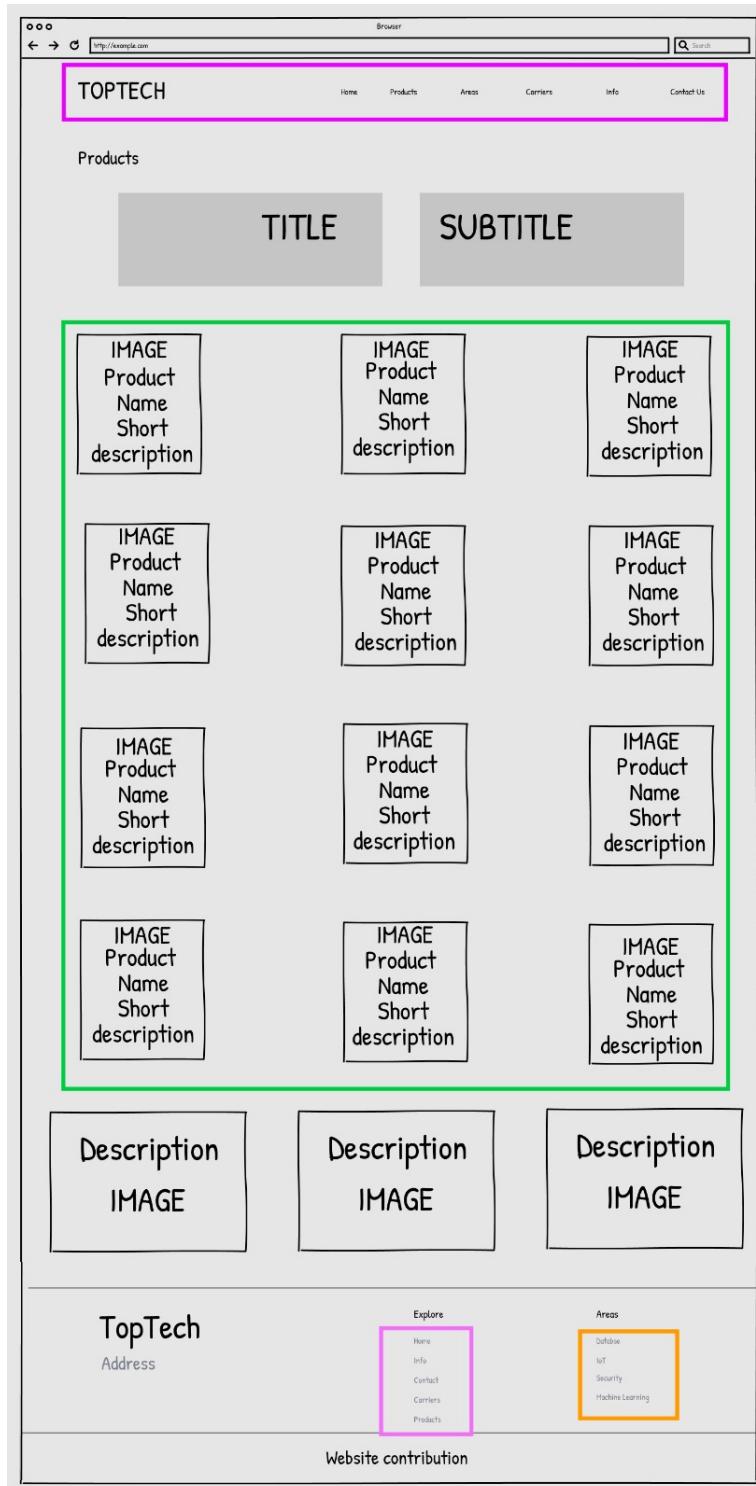


Wireframe 2. All Areas



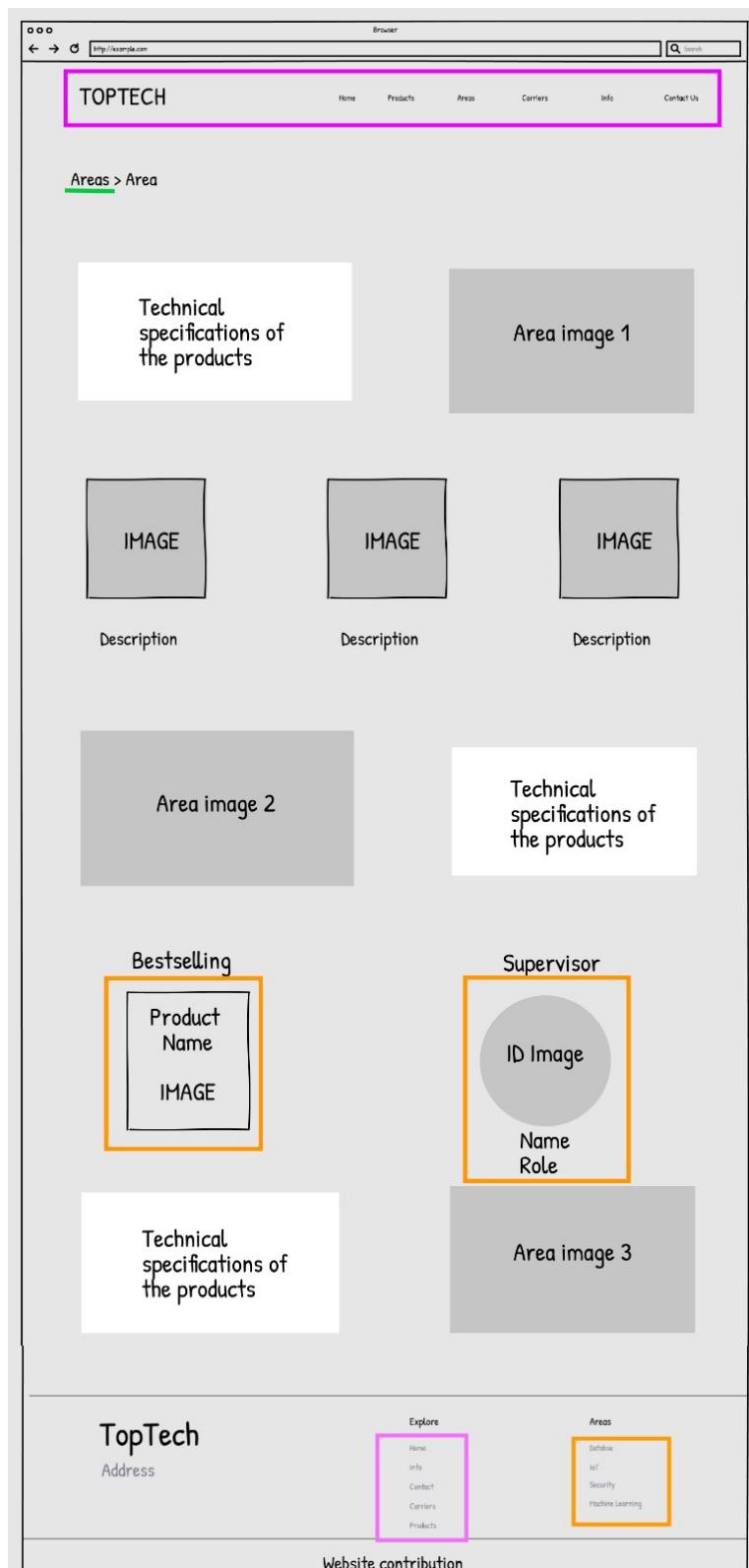
Wireframe 3. All People

● Transition Links ● Landmark ● Group Links



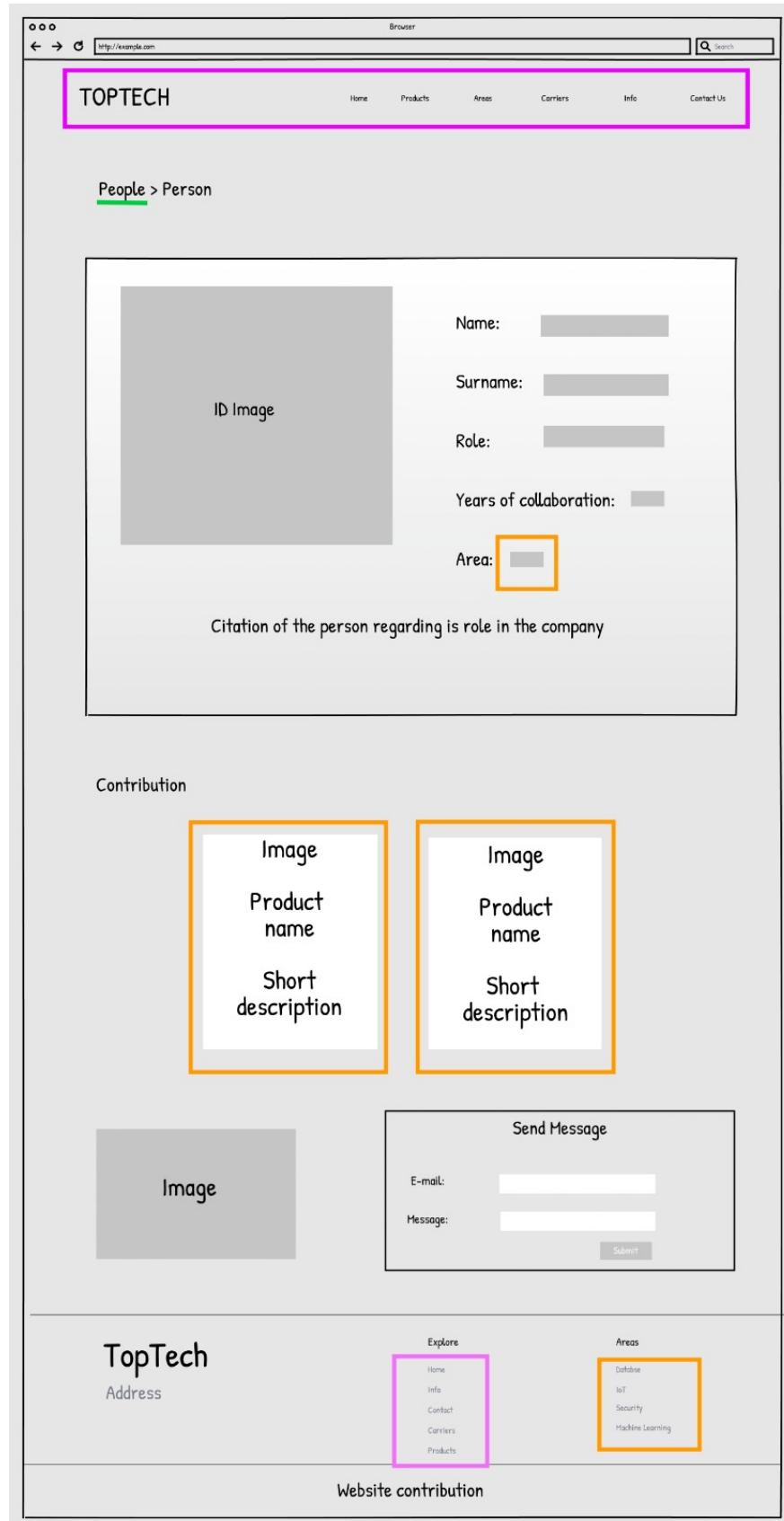
Wireframe 4. All Products

● Landmark ● Group Links



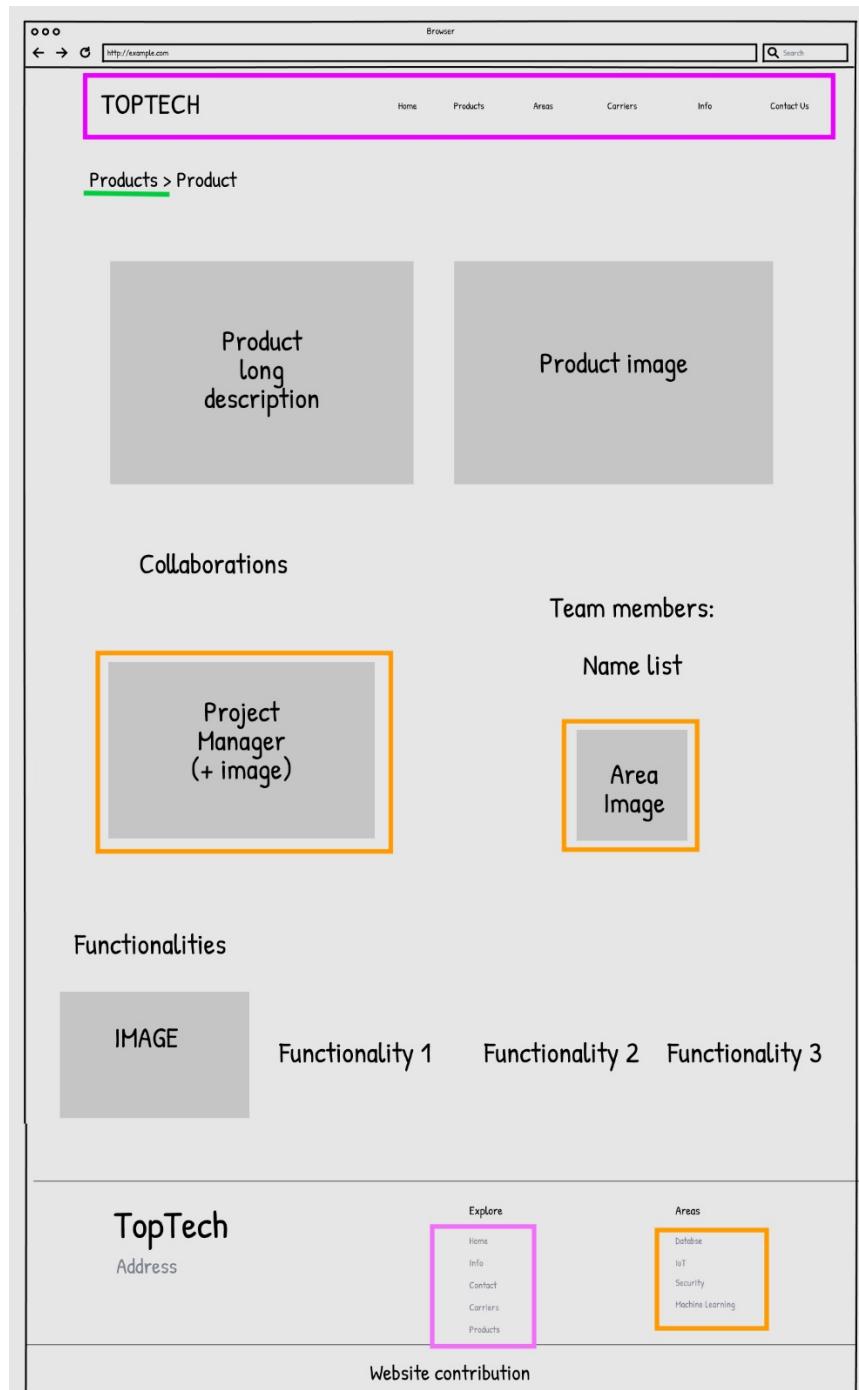
Wireframe 5. Kind of Topic Area

● Transition Links ● Landmark ● Group Links



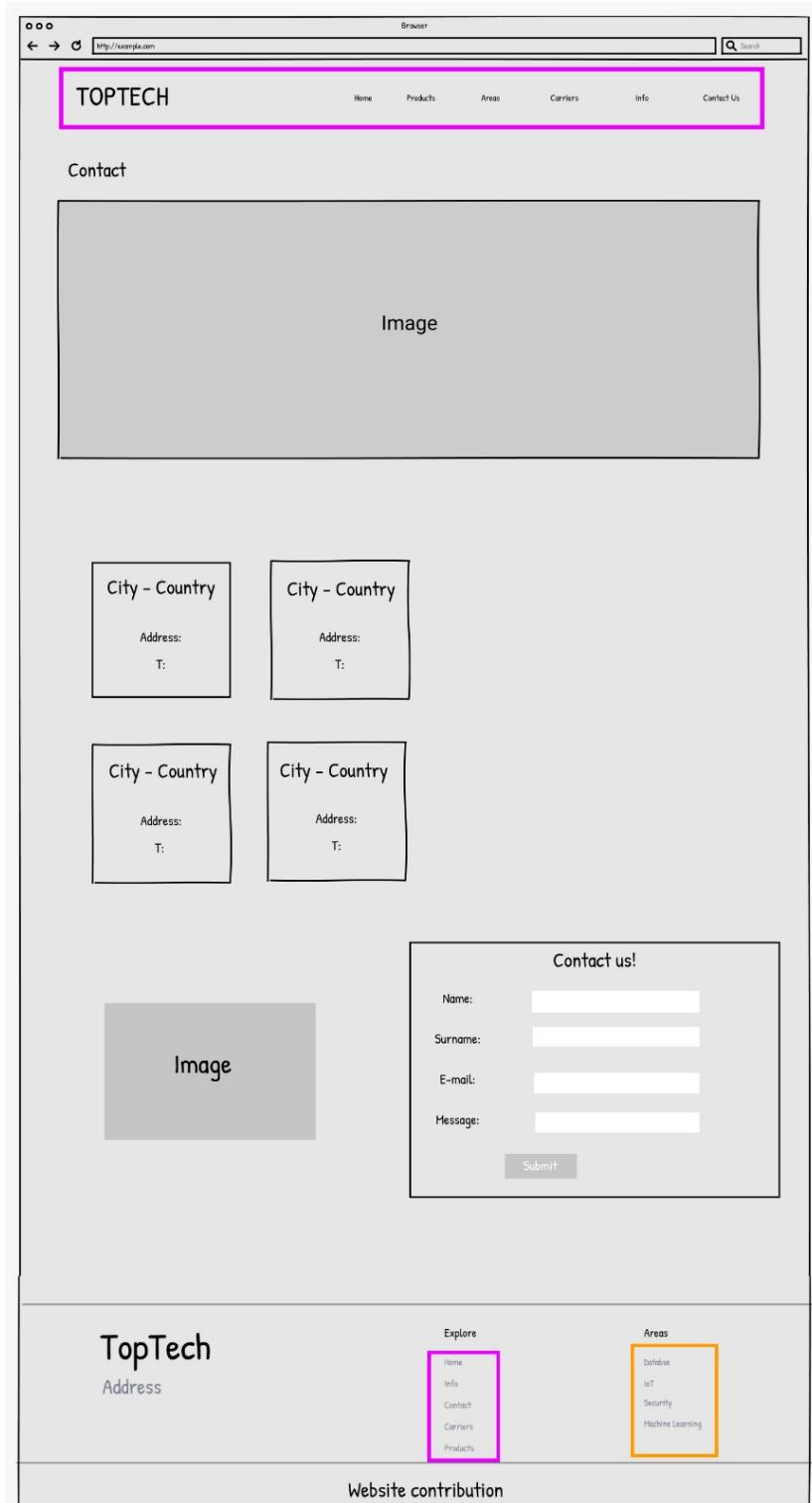
Wireframe 6. Kind of Topic Person

● Transition Links ● Landmark ● Group Links



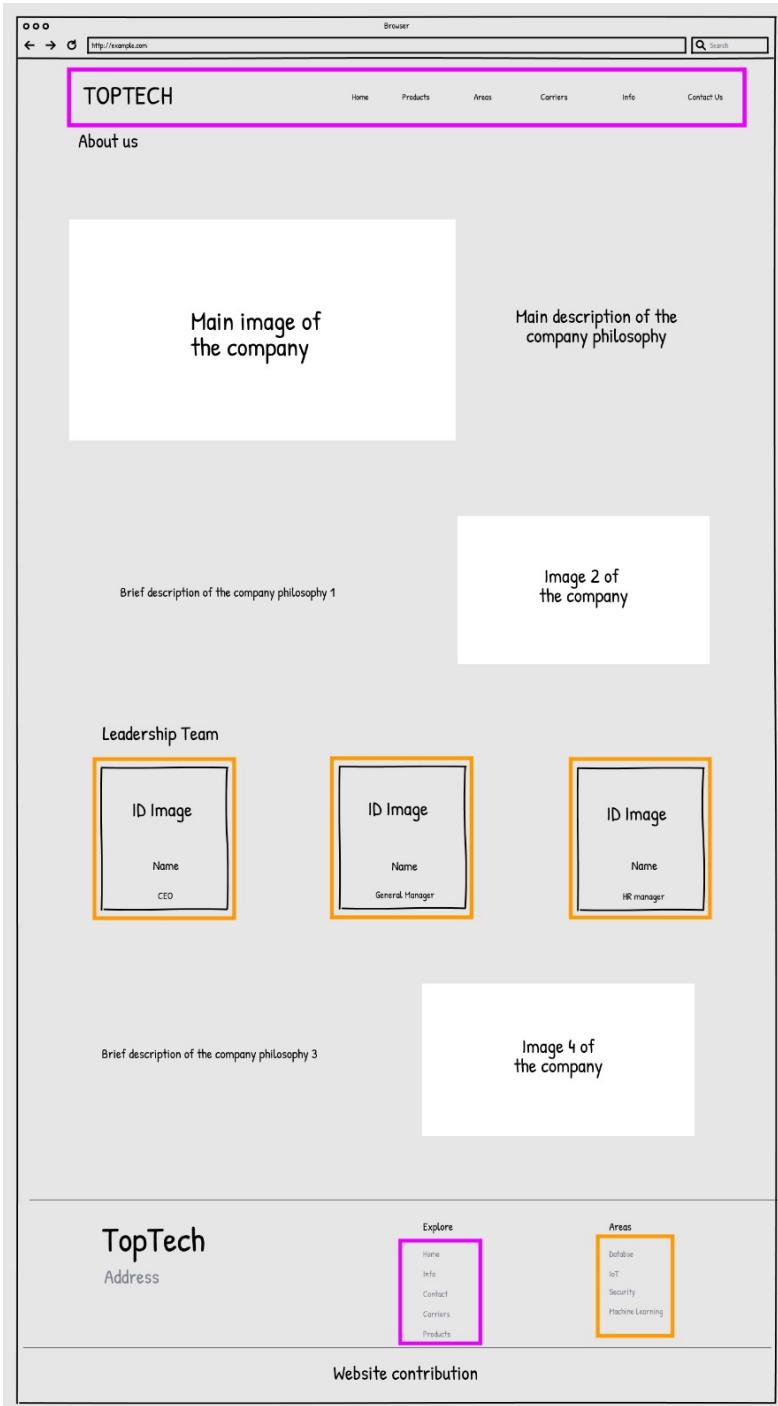
Wireframe 7. Kind of Topic Product

● Transition Links ● Landmark ● Group Links



Wireframe 8. Topic Contact

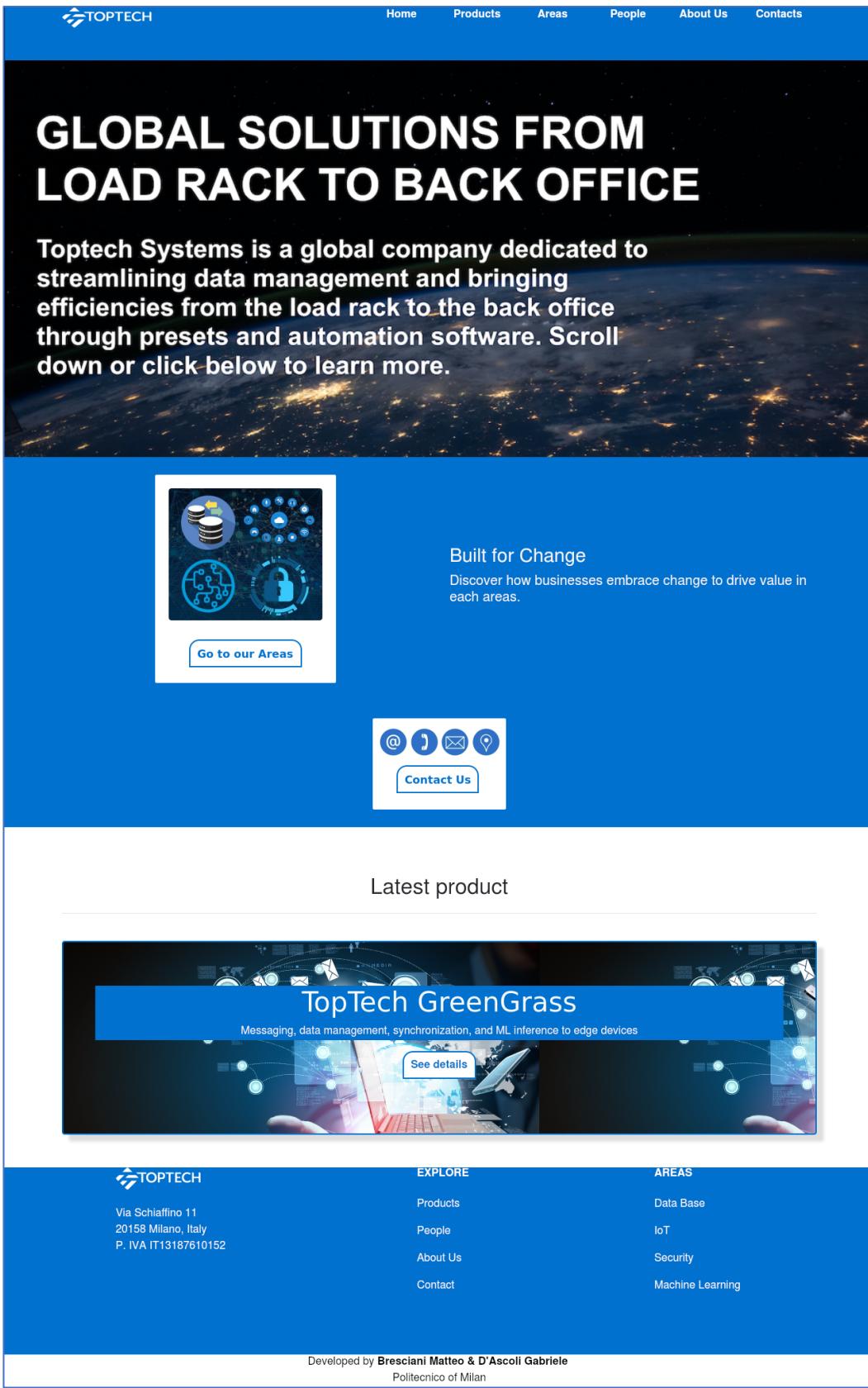
● Transition Links ● Landmark



Wireframe 9. Topic AboutUs

5.2 Commented high fidelity wireframes

While the wireframes allowed an approximate visualization of the design, screenshots show the final version of the main pages of our website. Screenshots refer to the same pages as the wireframes with the addition of the Homepage one.



The wireframe for the Home page is a vertical layout. At the top is a blue header bar with the company logo 'TOPTECH' on the left and navigation links 'Home', 'Products', 'Areas', 'People', 'About Us', and 'Contacts' on the right. Below the header is a large black section containing a title and a descriptive paragraph. The title 'GLOBAL SOLUTIONS FROM LOAD RACK TO BACK OFFICE' is in large white capital letters. The descriptive paragraph is in bold black text. Below this is a background image of a city at night from space. The main content area has a blue background. It features a circular icon grid with four icons: two blue circles with data symbols, one blue circle with a gear, and one blue circle with a lock. Below the grid is a blue button labeled 'Go to our Areas'. To the right of the grid is a section titled 'Built for Change' with a subtext 'Discover how businesses embrace change to drive value in each areas.' Below this is a contact form with icons for email, phone, and location, and a 'Contact Us' button. The footer section is white and contains the company address 'Via Schiaffino 11, 20158 Milano, Italy, P. IVA IT13187610152', a 'See details' button, and a 'TopTech GreenGrass' banner. The footer also includes a navigation menu with 'EXPLORE' and 'AREAS' sections, and a note at the bottom stating 'Developed by Bresciani Matteo & D’Ascoli Gabriele Politecnico of Milan'.

GLOBAL SOLUTIONS FROM LOAD RACK TO BACK OFFICE

Toptech Systems is a global company dedicated to streamlining data management and bringing efficiencies from the load rack to the back office through presets and automation software. Scroll down or click below to learn more.

Built for Change
Discover how businesses embrace change to drive value in each areas.

Go to our Areas

Contact Us

Latest product

TopTech GreenGrass
Messaging, data management, synchronization, and ML inference to edge devices
[See details](#)

TOPTECH
Via Schiaffino 11
20158 Milano, Italy
P. IVA IT13187610152

EXPLORE

- Products
- People
- About Us
- Contact

AREAS

- Data Base
- IoT
- Security
- Machine Learning

Developed by **Bresciani Matteo & D’Ascoli Gabriele**
Politecnico of Milan

Wireframe HF 1. Home page

The wireframe shows the 'Areas' section of the TopTech website. At the top, there's a blue header bar with the 'TOPTECH' logo and navigation links for Home, Products, Areas, People, About Us, and Contacts. Below the header, a breadcrumb trail shows 'Areas /'. The main title 'OUR AREAS OF INTEREST' is centered above four cards, each representing a different area of interest:

- Database**: Shows a stack of three cylinders. Description: "With Toptech databases, you don't need to worry about database management tasks such as server provisioning, patching, configuration, or backups."
- Security**: Shows a padlock icon. Description: "Security concerns dominate how we outsource computation. Emerging security technology will fundamentally change future IT systems."
- IoT**: Shows a circular network of nodes. Description: "With the proliferation of devices, you increasingly need solutions to connect them, and collect, store, and analyze device data."
- Machine Learning**: Shows a brain-like circuit board icon. Description: "Explore machine learning services that fit your business needs, and learn how to get started."

Below these cards is a dark callout box containing the text: "TopTech was built by performance experts to redefine what organizations can achieve with AI-driven optimization."

At the bottom, there's a footer section with the 'TOPTECH' logo, address details (Via Schiaffino 11, 20158 Milano, Italy, P. IVA IT13187610152), and links for Explore (Products, People, About Us, Contact) and Areas (Data Base, IoT, Security, Machine Learning). A note at the bottom states: "Developed by Bresciani Matteo & D’Ascoli Gabriele Politecnico of Milan".

Wireframe HF 2. All Areas

GROP OF TOPICS: ALL PRODUCTS This is the introductory page for products and it contains the list of them. Every image is a GROUP LINK that allows user to open and read specific information about it or to go to related areas.

TOPTech

Home Products Areas People About Us Contacts

Products /

POWERFUL TECHNOLOGY PRODUCTS

Comprehensive suite of terminal solutions for increased efficiency, better information visibility, and improved service for your customers.



TopTech Cloudant
Data layer for hyperscale, resilient and globally available applications



TopTech ElastiCache
Memcached-compatible managed in-memory store with sub-millisecond latencies



TopTech db2-warehouse
A highly flexible, client-managed operational data warehouse



TopTech DataRiskManager
Detect, analyze and visualize data related business risks



TopTech Macie
Discover and protect your sensitive data at scale



TopTech Cognito
Simple and secure access, registration and access control tools



TopTech Maximo
Intelligent asset management, monitoring, predictive maintenance and reliability



TopTech GreenGrass
Messaging, data management, synchronization, and ML inference to edge devices



TopTech IoT-analytics
Analysis for IoT devices



TopTech Watson-Knowledge Catalog
Catalog, interpret, regulate, analyze and distribute business-ready data to your data citizens



TopTech SageMaker-Debugger
Optimize ML models with real-time monitoring of training metrics and system resources



TopTech Pipelines
First purpose-built CI/CD service for machine learning

Agile transformation



Drive disruption by applying Lean principles to achieve substantial performance improvements, accelerating business change.

DevOps



Streamline IT by bringing business, development and operations teams together and applying automated processes.

Application modernization



Transform your legacy applications to become more agile and efficient through the power of New IT.

TOPTech

Via Schiaffino 11
20158 Milano, Italy
P. IVA IT13187610152

EXPLORE

- [Products](#)
- [People](#)
- [About Us](#)
- [Contact](#)

AREAS

- [Data Base](#)
- [IoT](#)
- [Security](#)
- [Machine Learning](#)

Developed by **Bresciani Matteo & D’Ascoli Gabriele**
Politecnico di Milano

Wireframe HF 3. All Products

The wireframe displays a grid of employee profiles categorized by department:

- Database:** Dario Fracassetti (Data Scientist), Martin Attoche (Project Manager), Jonathan Mancilla (Senior Software Engineer)
- Security:** Osmani Martinez (Project Manager), Camilla Stefani (IT Security Specialist), Ilenia Panicucci (Senior Software Engineer)
- IoT:** Paolo Bozzola (Project Manager), Luca Valentini (Computer Scientist), Giancarlo Vitali (Senior Software Engineer)
- Machine Learning:** Roberto Clemente (Project Manager), Luisa Bianchi (Support Specialist), Bruno De Luca (Senior Software Engineer)
- Leaders:** Fabrizio Venditti (CEO), Paola Falcone (General Manager), Antonella Barberis (HR Manager)

A large image at the bottom shows a group of employees working together in an office setting.

TopTech Footer Information:

- Address:** Via Solfatara, 11 - 20158 Milano, Italy
P. IVA IT13187610152
- Explore:** Products, People, About Us, Contact
- Areas:** Data Base, IoT, Security, Machine Learning
- Developed by:** Bresciani Matteo & D’Ascoli Gabriele
Politecnico di Milano

Wireframe HF 4. All People

TOPTech

- Home
- Products
- Areas
- People
- About Us
- Contacts

Areas / IoT

The technological evolution of the Internet of Things can be declined in very transversal areas. Companies in any sector, for example, can now collect a lot of information on the functioning of devices and on the people who use them through the multiplication and evolution of connected devices. But how to enhance this great information "child" of connected objects? The definition of appropriate strategies to enhance the data collected by IoT devices, both in the consumer and business sectors, is an increasingly important issue for companies. Let's talk about Big Data, a real value commodity



 TopTech IoT is built on a reliable, secure, and scalable cloud infrastructure for billions of different devices and trillions of messages

 TopTech IoT is the only vendor that can bring together data management and rich analytics into services that are easy to use and specifically designed for disturbed IoT data

 TopTech IoT customers build industrial IoT applications for quality and preventive maintenance and to monitor operations remotely

The intersection between the Internet of Things and the Blockchain world is characterized by great potential. The Blockchain can act as a guarantor of the identity of the different nodes of the network (for example through the use of certificates or digital keys) and as a certifier of the origin and integrity of the data collected by the connected objects thanks to the affixing of a digital stamp and to the recording of the temporal instance. While it is true that the Blockchain can make significant contributions in terms of security and data integrity of smart objects, it is also true that it can only be managed externally with respect to such devices

Bestselling


TopTech Maximo
Intelligent asset management, monitoring, predictive maintenance and reliability

Supervisor


Paolo Bozzola
PROJECT MANAGER

The interest on the part of companies in Internet of Things startups is growing exponentially, helping to fuel a virtuous cycle of collaborations and innovation. Worldwide, funding for new business initiatives is increasing in the various application areas (Smart Car, Smart Home, Smart City and Smart Agriculture in particular) and there is great excitement in Italy as well. Particularly fertile, in this IoT-startup binomial, is the terrain of Smart Energy with many innovative solutions that promise to improve the energy efficiency of homes, buildings and industrial plants



TOPTech
Via Schiaffino 11
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EXPLORE

- Products
- People
- About Us
- Contact

AREAS

- Data Base
- IoT
- Security
- Machine Learning

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Politecnico di Milan

Wireframe HF 5. Kind of topic Area

TOPTECH

Home Products Areas People About Us Contacts

Products / TopTech Watson-Konwledge Catalog

TopTech Watson Knowledge Catalog enables business users to locate, manage, categorize and share data assets, datasets, analytical models and their relationships with other members of the organization. It serves as a single source of truth for data engineers, data stewards, data scientists and business analysts to gain self-service access to data they can trust



Collaborations

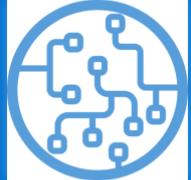


Roberto Clemente
PROJECT MANAGER

Team Members

Luisa Bianchi
Bruno De Luca

Area



Functionalities



Discover the most relevant assets faster with intelligent suggestions provided by Watson™ technology and colleagues within your organization

Protect data from misuse and securely share assets through automated dynamic masking of sensitive data items, then proactively manage policies

Seamless integration with Watson Studio helps data citizens quickly drive productive use of data in a powerful suite of data science

TOPTECH

Via Schiaffino 11
20158 Milano, Italy
P. IVA IT13187610152

EXPLORE

- [Products](#)
- [People](#)
- [About Us](#)
- [Contact](#)

AREAS

- [Data Base](#)
- [IoT](#)
- [Security](#)
- [Machine Learning](#)

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Wireframe HF 6. Kind of Topic Product

 [Home](#) [Products](#) [Areas](#) [People](#) [About Us](#) [Contacts](#)

People / Camilla Stefani



Name: Camilla Stefani
Role: IT Security specialist
Years of collaboration: 8
Area: Security

“As you navigate through the rest of your life, be open to collaboration. Other people and other people’s ideas are often better than your own. Find a group of people who challenge and inspire you, spend a lot of time with them, and it will change your life.”

Contribution



TopTech Cognito
Simple and secure access, registration and access control tools



TopTech Macie
Discover and protect your sensitive data at scale



Send a Message!

E-mail:

Message:

Submit



Via Schiaffino 11
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P. IVA IT13187610152

EXPLORE

[Products](#)
[People](#)
[About Us](#)
[Contact](#)

AREAS

[Data Base](#)
[IoT](#)
[Security](#)
[Machine Learning](#)

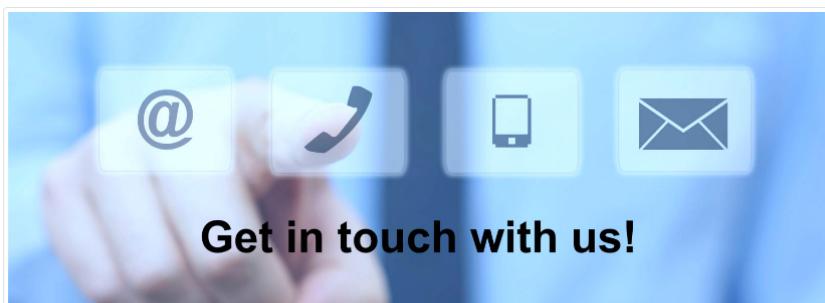
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Politecnico of Milan

Wireframe HF 7. Kind of Topic: Person

TOPTech

Home Products Areas People About Us Contacts

Contact /



Get in touch with us!

Italy - Milan Via Schiaffino, 11 20158 MILANO T: +39 02 4951 7001	USA - Boston 211 Congress Street Boston, MA 02110 T: +1 617 936 0212
USA - Los Angeles 12130 Millennium Drive Los Angeles, CA 90094 T: +1 323 524 0524	Singapore 5 Temasek Blvd, Singapore 03898

TOPTech SYSTEMS

Via Schiaffino 11
20158 Milano, Italy
P. IVA IT13187610152

EXPLORE

Products
People
About Us
Contact

AREAS

Data Base
IoT
Security
Machine Learning

Contact Us!

Name: name

Surname: surname

E-mail: e-mail

Message: message

Submit

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Politecnico of Milan

Wireframe HF 8. Topic: Contact

 [Home](#) [Products](#) [Areas](#) [People](#) [About Us](#) [Contacts](#)

About Us /



Founded in Italy in 2000, today TopTech is a multinational group that focuses its consulting offering on hard technology challenges with large-scale business impact in data bases, security, IoT and machine learning.



TopTech started as a research spinoff at Politecnico of Milan and was incubated at its startup accelerator. Data and experimentation are part of our DNA.

Leadership Team



Fabrizio Venditti
CEO



Paola Falcone
GENERAL MANAGER



Antonella Barberis
HR MANAGER

In all we do, our goal is to build trusted relationships through client proximity, providing industry and technology expertise to help you meet the needs of your customers and citizens.



 [Via Schiaffino 11](#)
[20158 Milano, Italy](#)
[P. IVA IT13187610152](#)

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[AREAS](#)

[Data Base](#)
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[Security](#)
[Machine Learning](#)

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Wireframe HF 9. Topic About us

6. Scenarios

The following chapter will focus on the presentation of general scenarios, which are “a narrative description of what people do and experience as they try to make use of computer systems and applications” (M. Carroll, “Scenario-based Design”, Wiley, 1995); each scenario describes a possible usage of the web site by the users in real life and presented in order of complexity.

6.1 Case 1

6.1.1 Textual narrative

User profile: a graduating computer engineer is looking for a company that will give him the opportunity to do an internship in the software development sector after graduation.

Goals: the user wants to contact the company to get information on vacant positions and to give his availability.

Context: the user visits the TopTech company website during a study break, looking for a way to submit his application.

Tasks: the user navigates through the sections of the website, accesses the Contacts section and fills out the appropriate form to communicate with the company by entering his data.

6.1.2 Sequence

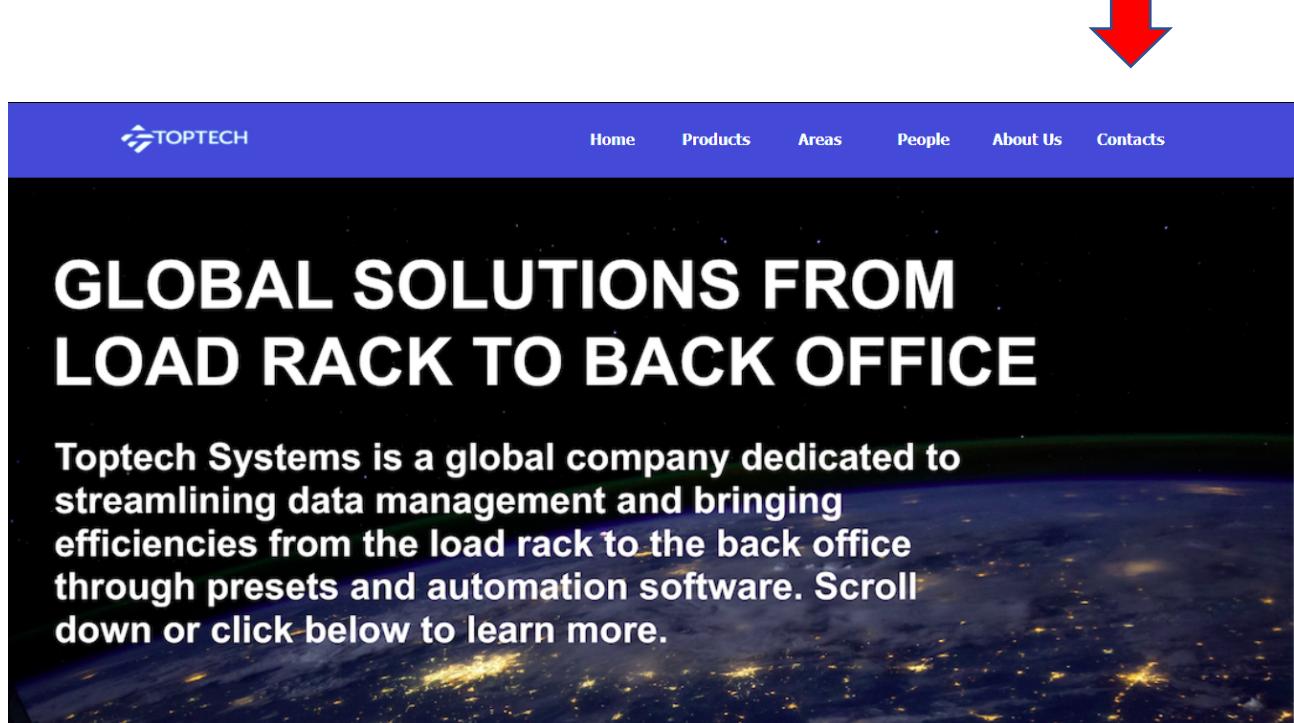


Figure 3. User visits the TopTech website and selects Contact

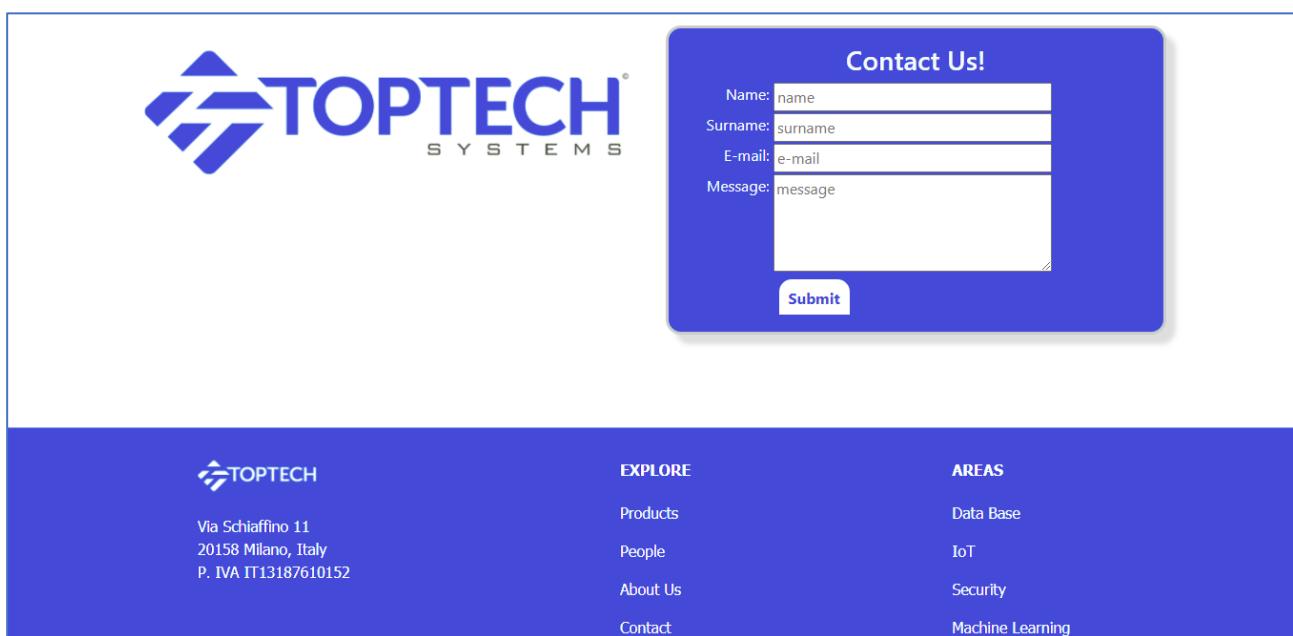


Figure 4. User visualize the Contact page and find the Contact form

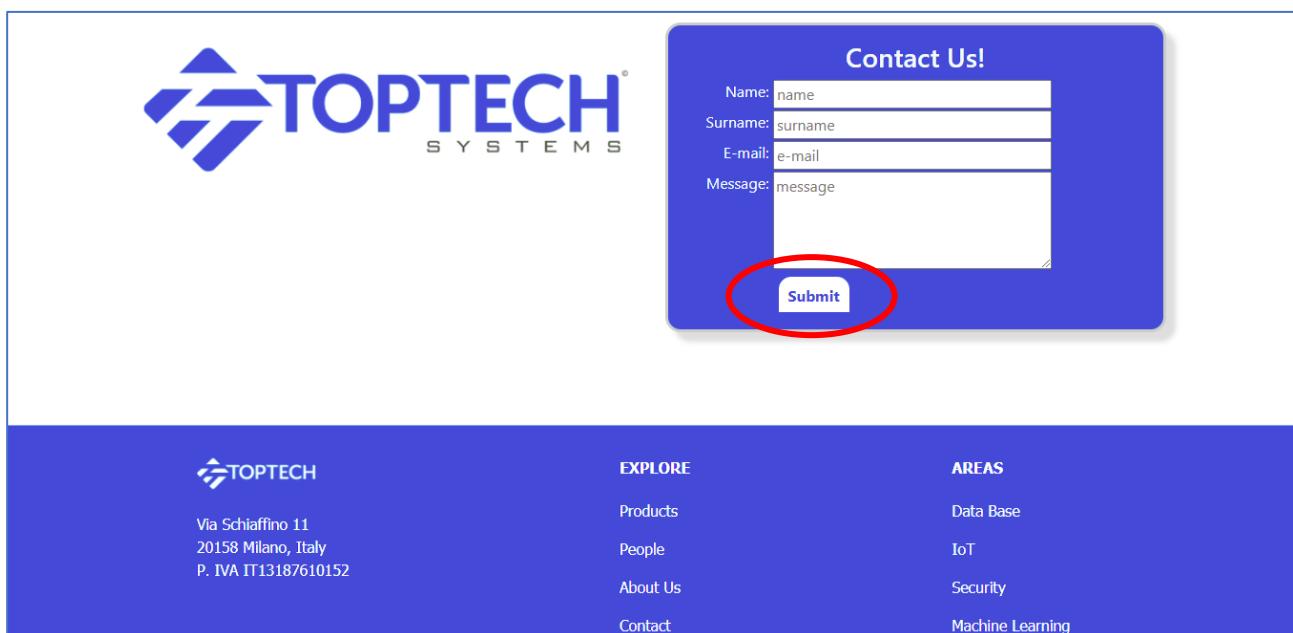


Figure 5. User fills the form with the required information and clicks Submit to send the request

6.2 Case 2

6.2.1 Textual narrative

User profile: a scientific informant in the IT sector is carrying out an IT company monitoring campaign on behalf of a company that deals with market analysis.

Goals: the user acquires information from the company's website about the best-selling product in the IoT sector among those proposed by the TopTech company.

Context: the expert within the monitoring campaign for which he is collaborating visits the TopTech website in search of the data he needs for his market analysis.

Tasks: the user visits the website of the TopTech company, navigates between the various sections and accesses the one relating to the treated areas; once you have chosen the IoT area you are interested in, you can view the bestselling product in that area and the page relating to it with all its technical specifications and functionalities.

6.2.2 Sequence

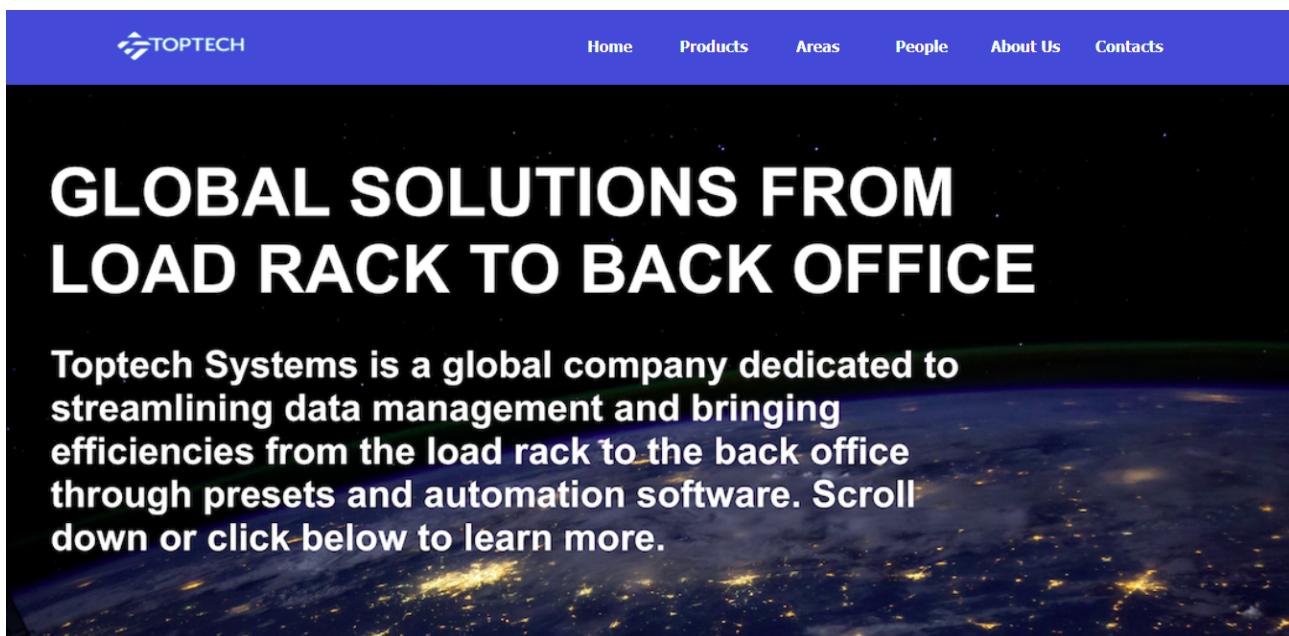


Figure 6. The expert visits the TopTech Company website and select Areas to access to the interested area

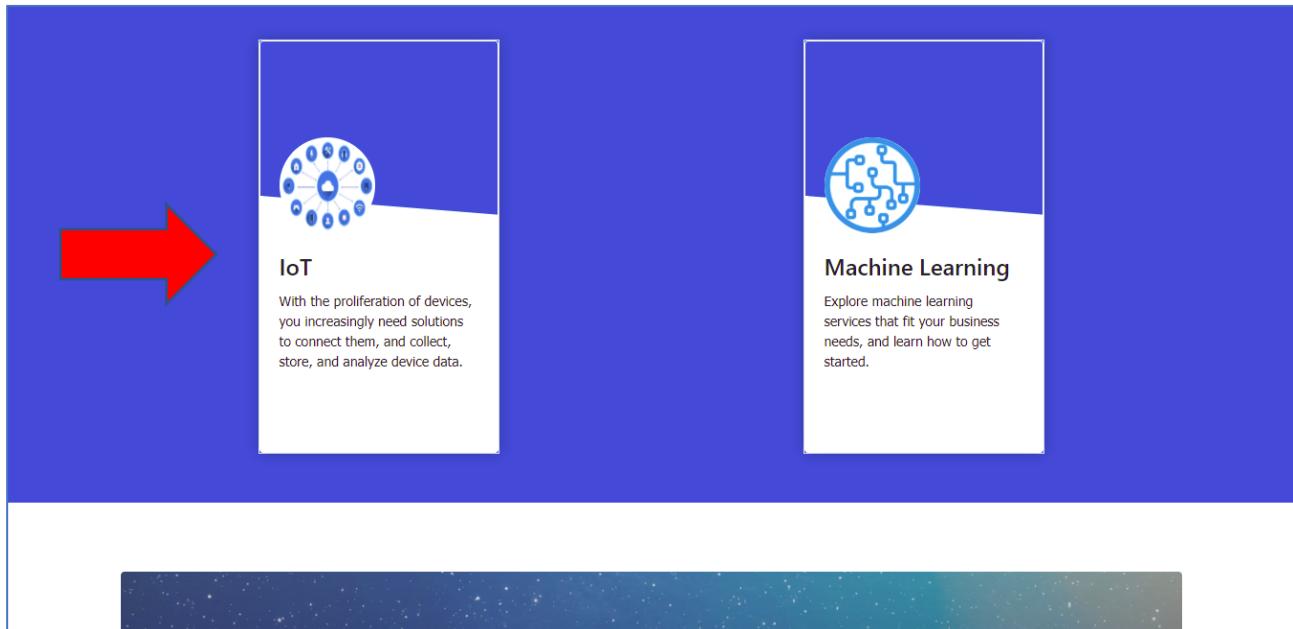


Figure 7. Once accessed to Areas section the user search and clicks on the IoT area

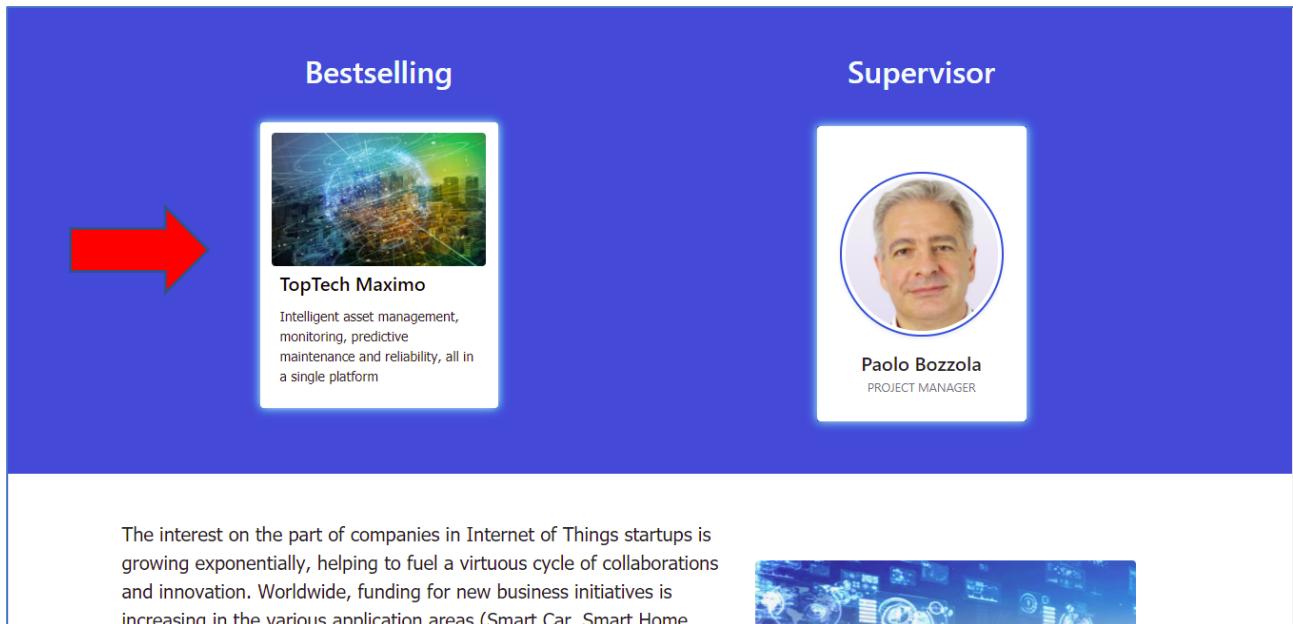


Figure 8. Scrolling down in the relative page the user visualize the Bestselling of the Area and click on it

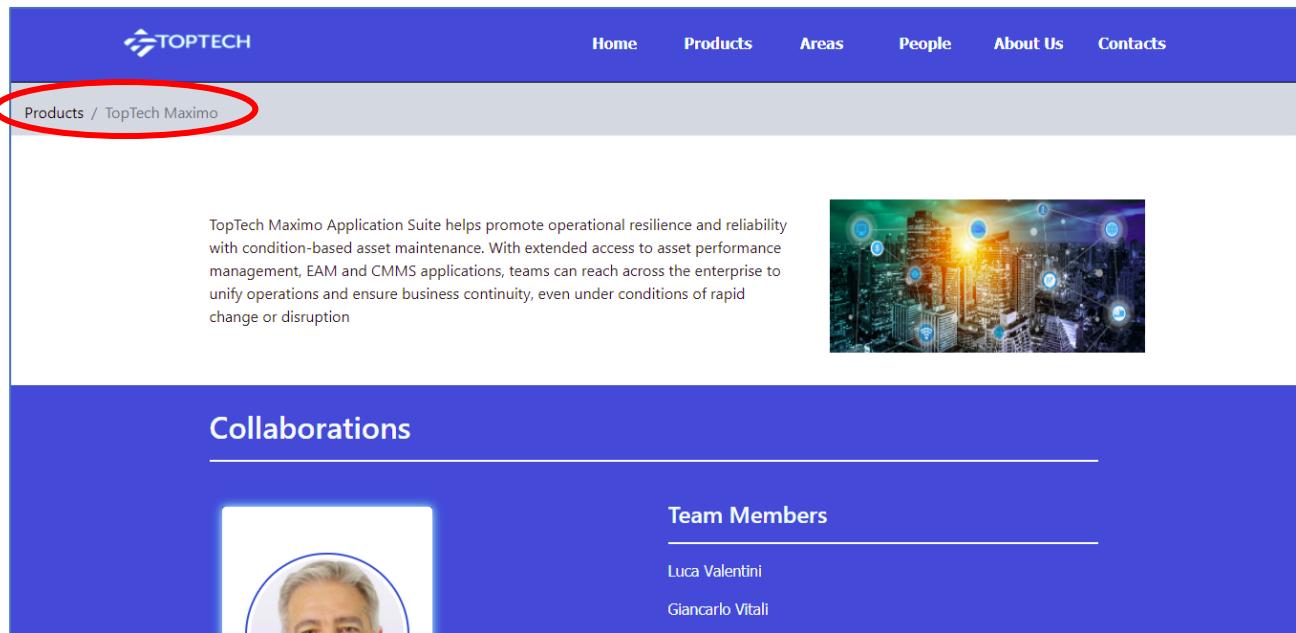


Figure 9. The user so access to the page of the Product and find all the related information

6.3 Case 3

6.3.1 Textual narrative

User profile: the data processing manager of a bank branch is testing a new TopTech Security IT sector product and is unable to fully utilize a particular feature.

Goals: the customer wants to contact the TopTech project manager responsible for product development to ask him for clarification on the use of the purchased product.

Context: the data processing manager, approaching the use of the new product at his workplace with data relating to the bank's customers, visits the TopTech website in search of information regarding the development team of the purchased product and a way to contact the project manager directly.

Tasks: the customer visits the website of the TopTech company, navigates between the sections of the site and accesses the Products section; at this point he searches for the purchased product among those offered by the company, accesses its relative page within which he will find the person at the head of the research team. At this point, the customer accesses the project manager's card and, by entering their data, uses the appropriate contact form to interact directly with the manager and expose the matter to him.

6.3.2 Sequence

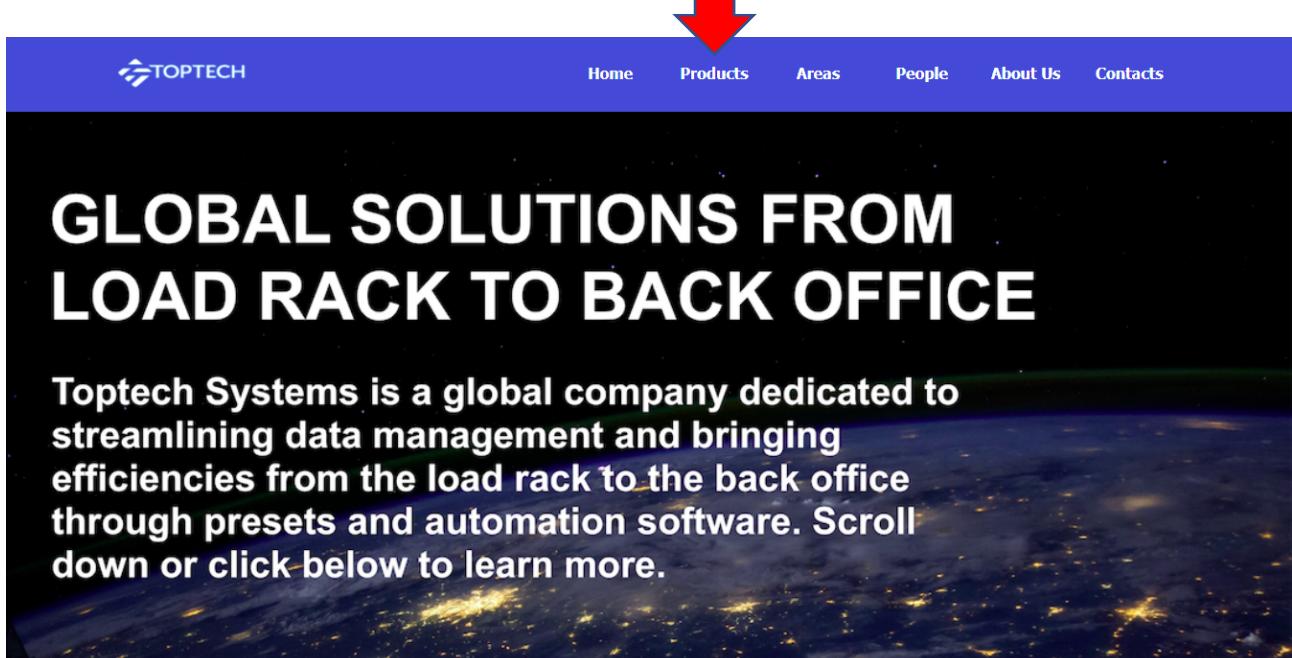


Figure 10. The customer visits the Website of the TopTech company and select the Products section

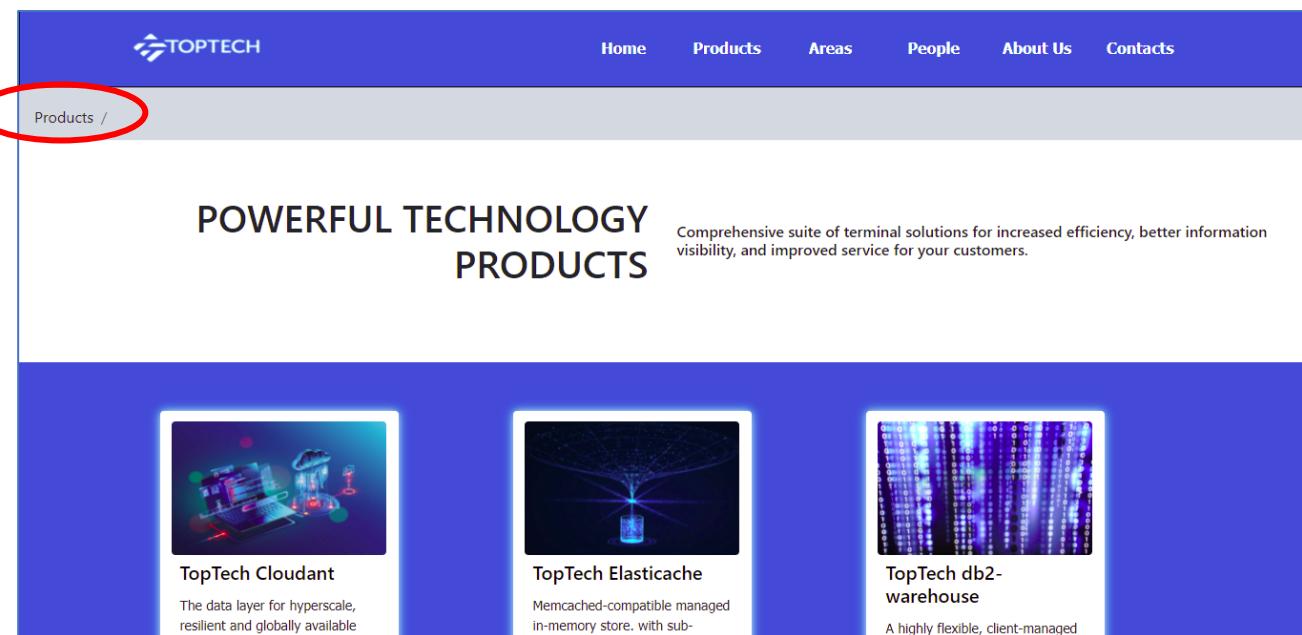


Figure 11. The user access to the page containing all the TopTech products

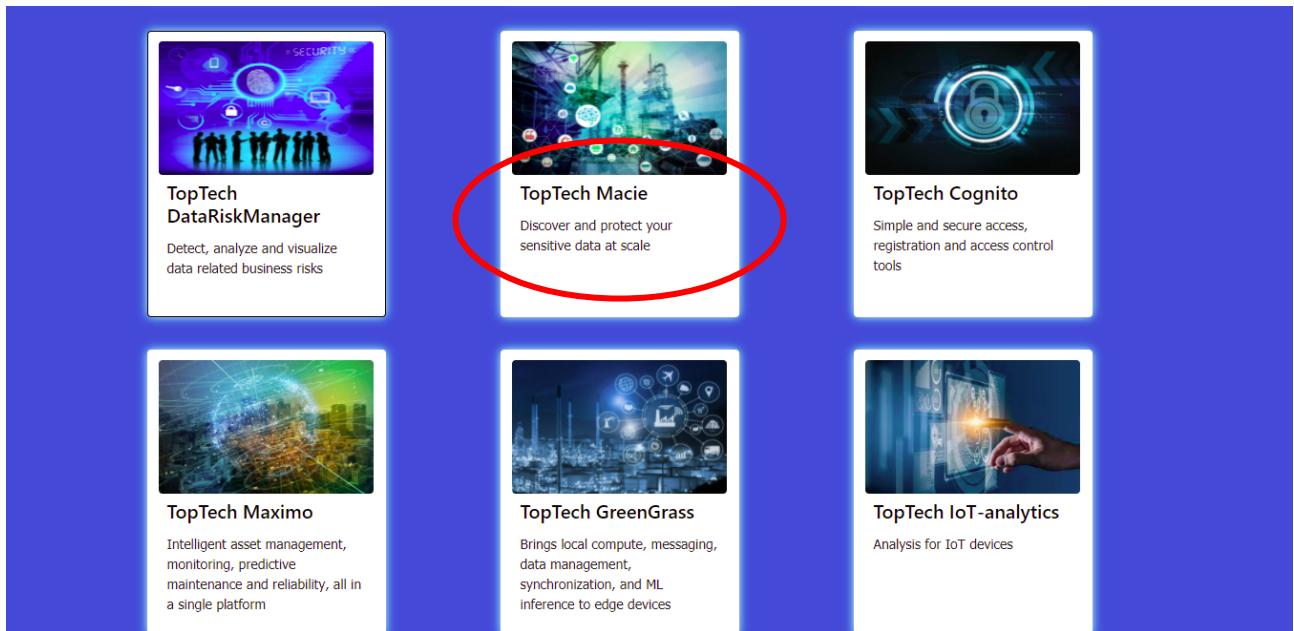


Figure 12. Scrolling down in the page the customer finds and clicks on the purchased product

The image shows a user profile page with a blue header. On the left, there is a large red arrow pointing towards the profile picture of a woman named Osmani Martinez. The profile card includes her name, title (PROJECT MANAGER), and a small circular photo.

Collaborations

Team Members

Camilla Stefani
Ilenia Panicucci

Area

Figure 13. Once accessed to the relative page the user visualize and clicks on the person leading the team

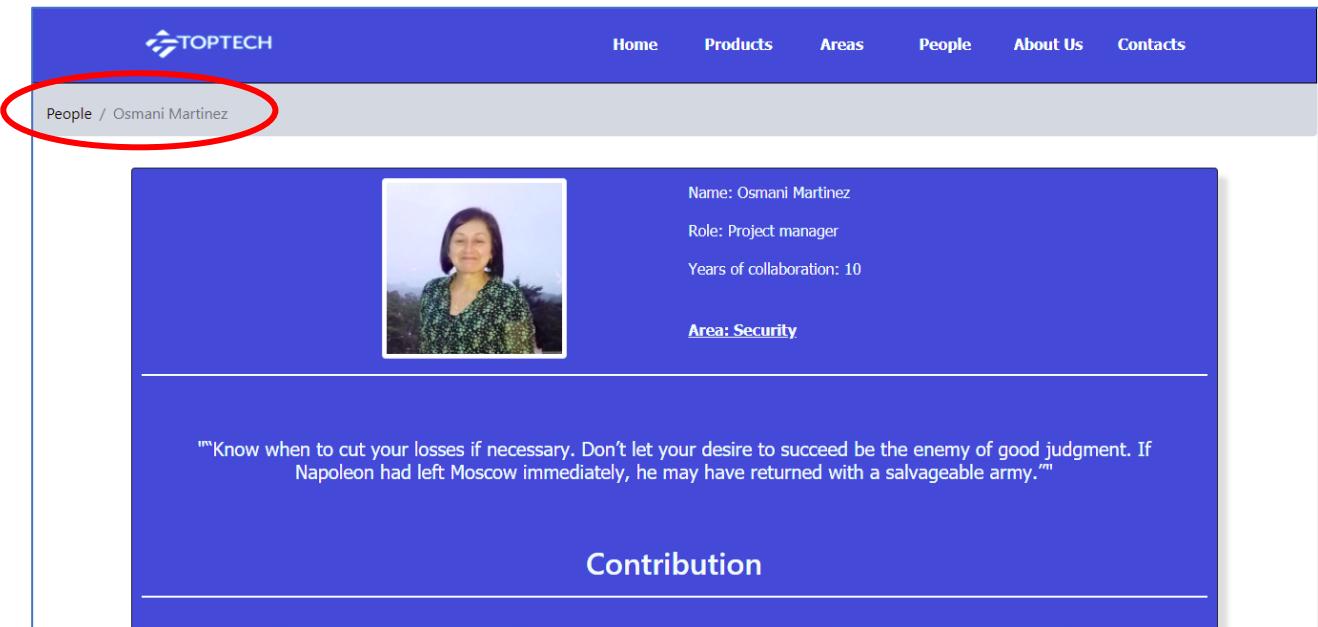


Figure 14. The customer enters into the personal page of the Project Manager

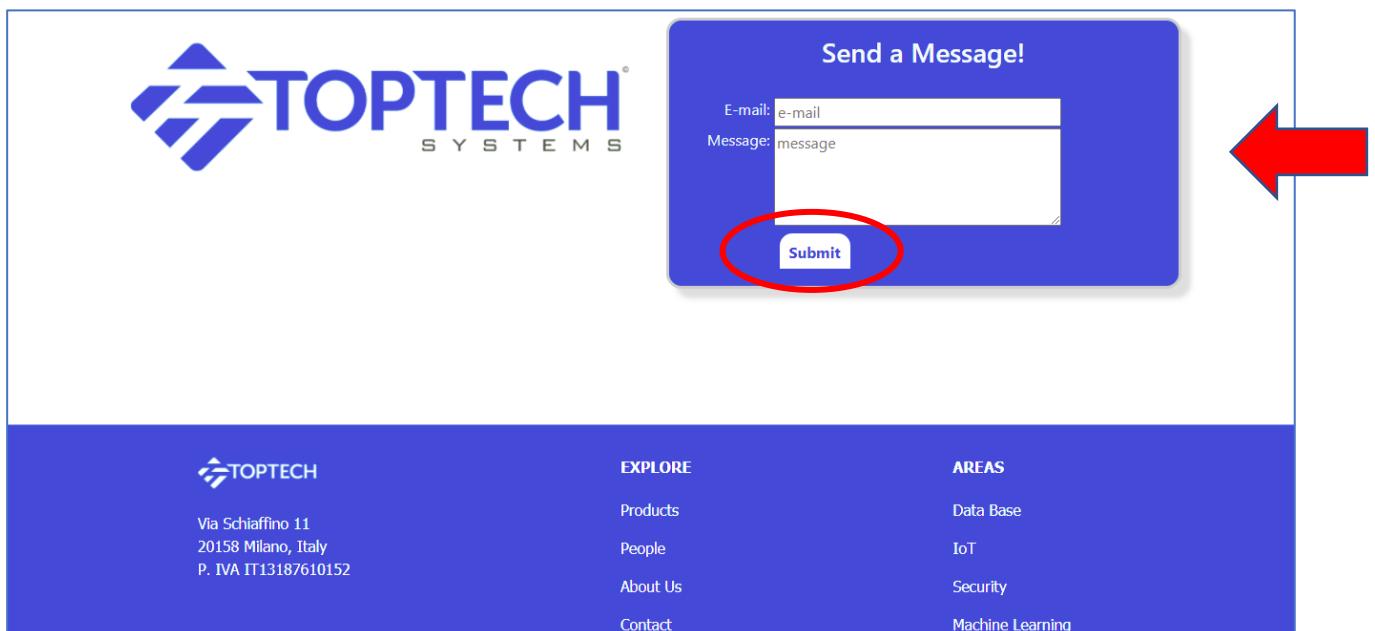
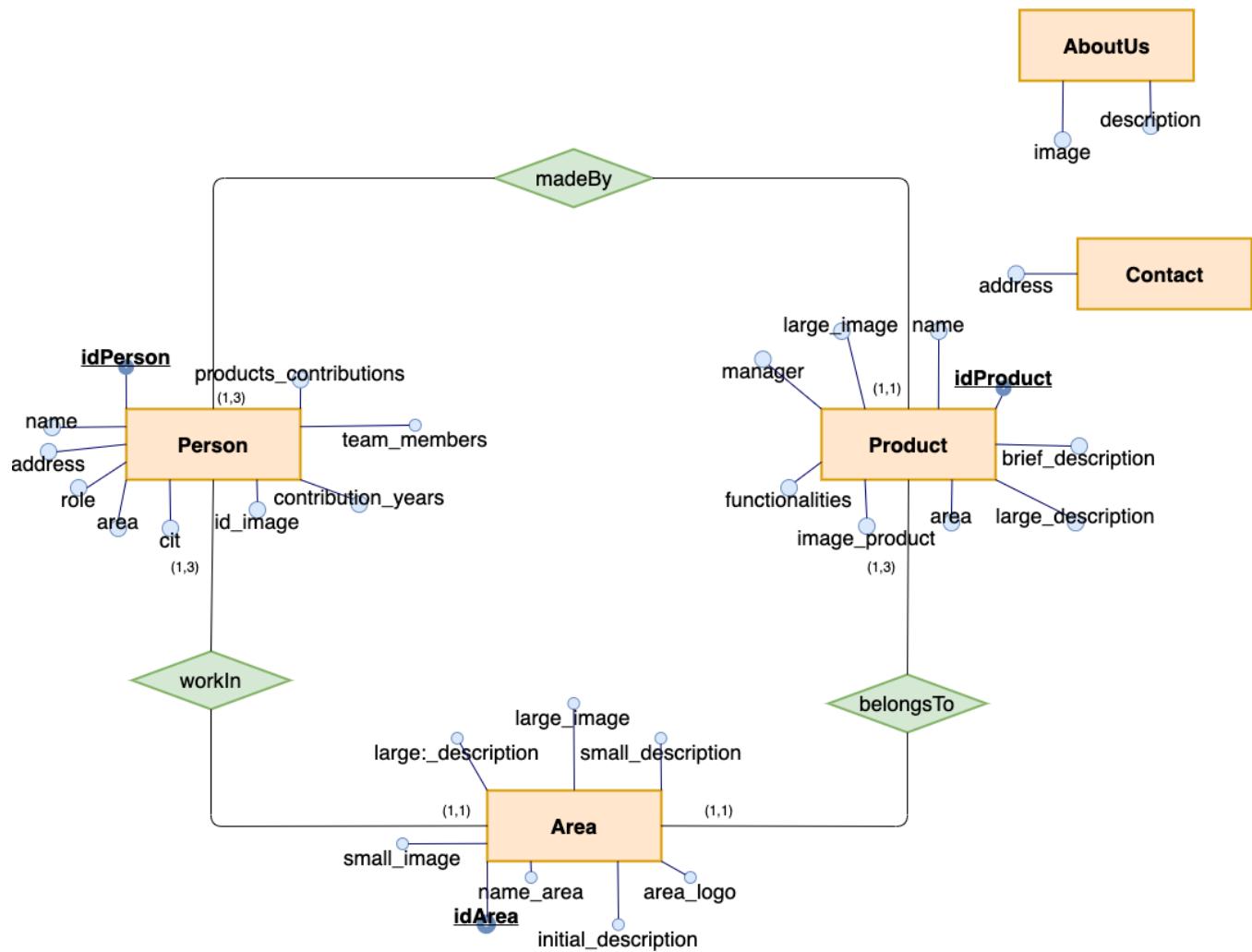


Figure 15. In this page the customer uses the form to keep in contact directly with the person in charge

7. DB Design

7.1 ER



The Area, Person and Product databases are closely related:

- Each Product belongs to at most one Area and can be made by more People (at most 3)
- Each Person works at most in one Area and can contribute for more Products (at most 3)
- Each Area is associated to more People and more Products (at most 3)

Contact and About Us entities don't have a relationship.

7.2 Relational tables

For our WebApp we saved informations into Databases to keep them stored in an organized way and we have used PostgreSQL as DBMS.

We created a DB for: the service Area (tab 8.1), Product (tab 8.2), Person for the people working in ICTea (tab 8.3) and AboutUs (tab 8.4). We have also initialized databases which will then be filled in by the user for the ContactUs (tab 8.5) sections.

Area
PK idArea: int
name_area: string
initial_description: varchar
area_logo: string
small_description: string[]
small_image: string[]
large_description: varchar[]
large_image: varchar[]

Table 1

Person
PK idPerson: int
name: string
role: string
area: string
id_image: string
contribution_years: int
cit: varchar
product_contribution: string[]
team_members: string[]

Table 2

Product
PK idProduct: int
name: string
brief_description: varchar
large_description: varchar
functionalities: varchar[]
area: string
image_product: string
large_image: string
manager: string

Table 4

AboutUs
description: varchar[]
image: string[]

Table 3

Contacts
address: String[]

Table 5