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Design of a Knowledge Sharing Platform - The Case of Engineering S.p.a.: TrustEng

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1 INTRODUCTION

The objective of this thesis is to show the ideation and the design process of the tool **TrustEng**. It is a knowledge sharing platform built for the company *Engineering - Ingegneria Informatica S.p.a.*, Italian leader in digitization and business process automation services. The platform wants gathering all tacit knowledge of the employees. The company's goal is to make the platform the primary asset for tacit knowledge transfer between workers to enable cost reductions for learning activities and to gain a competitive advantage over competitors.

In its chapters, the thesis illustrates the logical process and the activities which allowed the creation of the initial TrustEng prototype.

“*Chapter 2 – Definition of theoretical pillars*” illustrated and explained the theoretical models used to formulate the empirical research question that TrustEng aims to answer. Starting with an overview of the modern labor market, the thesis explains the difference between explicit and implicit knowledge and the advantages of sharing implicit knowledge. Since knowledge-sharing platforms are based on “*Social learning theory*”, the chapter define the theory and how it is evolving thanks to new and increasingly advanced technologies.

The theoretical pillar on which the platform is based is the “*ABCD Trust Model*” by Ken Blanchard. This model and its element are explained in chapter 2. “*ABCD Trust Model*” intended to differentiate the nascent platform from the others on the market: the research question asks how to translate the dynamics illustrated in the model into platform operations and features to make it **reliable**.

Subsequently, the chapter 2 illustrates what biases are and explains which ones are most prevalent in business contexts and why they are dangerous for communication and trust between workers. The thesis explains how presence of biases can damage contents so they must be eliminated from platform dynamics. At the end of the chapter the resource question is updated: it asks how to translate the dynamics illustrated in the “*ABCD Trust Model*” into platform operations and features to make it **reliable** and **how to eliminate biases** between users.

“*Chapter 3 – Context Presentation*” briefly presents *Engineering - Ingegneria Informatica S.p.a.*, its main features, its vision and how it is structured. The chapter focuses on how employees training is carried out and what services are provided in the learning area.

“*Chapter 4 – Methodology*” explains how the theoretical models are used to perform the analysis of the requirements. It is divided into two phases. The first consists of a market research to understand the new trends and the best features of the platforms already on the market. The second phase consists of an interview with the company's learning director, which enabled the definition of priorities among the requirements found. The chapter ends with a requirements matrix which summarizes the main requirements that the product must satisfy.

“*Chapter 5 – Results Presentation*” shows how the platform works and describes the characteristics that satisfy the requirements defined in chapter 4.

In the end, “*Chapter 6 – Next steps and Conclusions*” describes what will be the future developments and the future technologies that can be integrated to improve the features of the prototype. In particular, it illustrates how portable implementations and artificial intelligence implementations could upgrade user experience.

At the end of the chapter 6 the thesis reports how TrustEng and its features answer to the resource question and how it becomes part of the company culture.

2 DEFINITION OF THEORETICAL PILLARS

2.1 GENERAL OVERVIEW OF THE MODERN LABOR MARKET

The new global digital economy changes fast and wide leaving no place for certainty due to factors such as:

- **global Hypercompetition**, a term first coined in business strategy by Richard D’Aveni in 1990s, describes a dynamic competitive world in which no action or advantage can be sustained for long. Strategic planning becomes more dynamic, with a focus on continuous improvement and the ability to quickly adapt to emerging opportunities and threats. Success in hypercompetition often requires a combination of technological process, market insight, and the ability to execute rapid and effective strategic moves.
- Supply chain delocalization and globalization that allow companies from different parts of the world to enter in new markets rapidly, intensifying competition on a global scale.
- Fast changing of post-industrial technology that creating opportunities for new entrants and threatening established players.

Organizations are required to face and manage these different aspects and many others to gain competitive advantage towards competitors and to generate profit.

The rapid change in the global market has also a huge impact on the **labour market and the skills required by people**.

According to “*Rapporto Annuale Istat 2023*”, conduct by Istat, Italy is one of the oldest countries in Europe and the one with the highest number of NEETs (“*young people who do not study and do not work*”): approximately 1.7 million young people are discouraged by the pessimistic outlook and not incentivised by inadequate policies for their integration into the world of work. This problem is due in part to Globalization: increased global connectivity and the ease of doing business across borders contribute to **labour hypercompetition** because companies from different

parts of the world could rapidly enter in new markets intensifying the leaking of adapt training and new skills requirements to labour market.

In addition, the “*Future of Jobs Report 2023*”, conduct by World Economic Forum highlights that:

- Technology adoption will remain a key driver of business transformation in the next five years.
- It estimate that 34% of all business-related activities are made by machines, while the remaining 66% are performed by people.
- Artificial intelligence is expected to be adopted by almost 75 per cent of the companies surveyed, of which 50 per cent expect it to lead to job creation and 25 per cent expect it to create job losses.
- It estimates that 44% of workers' skills will be disrupted in the next five years.
- Six out of ten workers will need training before 2027, but today only half have access to adequate training opportunities. The top priority for vocational training in the period 2023-2027 is **analytical thinking**, which is expected to account for an average of 10 per cent of training initiatives. The second priority for workforce development is to promote **creative thinking**, which will be the subject of 8 per cent of competence improvement initiatives.

Training employees in the use of artificial intelligence and big data ranks third among corporate priorities in terms of skills training over the next five years and will be a priority for 42% of the companies surveyed. Employers also intend to focus on developing employees' skills in terms of leadership and social influence (40% of companies); resilience, **flexibility and agility** (32%); **curiosity and lifelong learning** (30%). Two-thirds of companies expect to see a return on their investment in vocational training within one year of the investment, in the form of increased cross-role mobility, higher worker satisfaction or higher worker productivity.

This factor increases the gap between the **Book Value** of companies, defined as the monetary value of the company that we can read from Balance Sheets, and the **Market Value** of companies, so the potential financial value of the company itself. Between these two values can exist a huge mismatch because exist a huge list of resources that companies own but which cannot be registered in Balance Sheets. This resources are those who bring competitive advantage.

2.1.1 ESPLICIT KNOWLEDGE

Explicit knowledge in firms refers to the type of knowledge that is codified, documented, and easily transferred in a formal and systematic manner and so its keys characteristic are tangibility, accessibility and standardization. So, the value of this type of knowledge can be transferred from one individual or group to another easily for example through training sessions, written documentation, or electronic sharing platforms.

In recent times, the spreading of explicit knowledge has been facilitated by the large-scale development and commercialization of artificial intelligence and the launch of products such as **ChatGPT** defined by Jianyang Deng, Yijia Lin in “*The Benefits and Challenges of ChatGPT: An Overview*” as:

“ChatGPT is a natural language processing (NLP) system 82 developed by OpenAI. It is designed to generate human-like conversations by understanding the context of a conversation and generating appropriate responses. ChatGPT is based on a deep learning model called GPT-3, which is trained on a large dataset of conversations.”

To sum, explicit knowledge is becoming more and more rapidly available to all and less and less crucial to corporate competitive advantage.

2.1.2 TACIT KNOWLEDGE

On the other hand, there is another type of knowledge called **tacit knowledge**, which is more subjective, difficult to codify, and is based on personal experience, intuition, and context. The economist Karl Paul Polanyi introduce this concept describing it as follow:

“I shall reconsider human knowledge by starting from the fact that we can know more than we can tell”,

And Japanese scholar Kujiro Nonaka define it **context specific**:

“..is specific rooted in action and in individual’s commitment to a specific context – a craft or a profession, a particular technology or product market or the activities of work team”.

In firms knowledge refers to practical actions. So organizations can rely on resources that are rare, difficult to imitate and to migrate and non-substitutable that are based on tacit knowledge. This practical actions are defined “tacit skills” that could bring:

- **Innovation and Creativity:** individuals with tacit knowledge are able to think more creatively coming up with innovative solutions to problems. They can draw on their deep understanding of a matter to propose new ideas and approaches that competitors may not have considered.
- **Problem-Solving:** tacit knowledge can benefit to problem-solving. Employees with tacit knowledge often can identify and address issues, adapt to unexpected challenges, and make decisions based on their intuition and experience.

- **Efficiency and Expertise:** individuals with tacit knowledge in specific areas can perform tasks more efficiently and at a higher level of expertise. This can lead to cost savings and superior quality in products or services.
- **Adaptability:** tacit knowledge often helps firms adapt more rapidly to changing market conditions or unexpected disruptions. Employees with deep knowledge and experience can make quick, informed decisions and adjustments.
- **Customer Understanding:** tacit knowledge can lead to a better understanding of customer needs and preferences. This can result in the development of products, services, and marketing strategies that face more effectively with the target audience.
- **Organizational Culture:** tacit knowledge can shape and gathering a positive organizational culture. Employees who possess this knowledge can set the tone for collaboration, innovation, and customer focus, which can be a significant competitive advantage.
- **Customization and Personalization:** tacit knowledge allows companies to offer customization and personalization of products and services, providing to individual customer needs more effectively.

For all this reason tacit skills like **analytical thinking** and **creative thinking** are becoming more and more priority for employees training into companies, and for this reason companies needs to train their employees to develop as much as possible tacit knowledge to gain competitive advantage establishing a unique position in the market and attract new customer segments.

Moreover, as described in the article “*Tacit knowledge management*” by Rodrigo Ribeiro recognizing and valuing employees tacit knowledge can lead to higher job satisfaction and better employee retention and this can save recruitment and training costs and maintain a skilled workforce.

2.1.3 GOAL OF THE THESIS

The aim of this thesis is to describe and illustrate the process that has led to the design of the implementation of a software social learning platform that wants to help firms to develop tacit skills in employees and answer to **research question** formulated in the section 2.4.2.

This thesis is divided in 4 main parts:

- the first one present the theoretical theme which are used to submit the research question on which the final result is based;
- the second one present the empiric context in which the project is carry on;
- the third one present the methodology and the analyses conducted to ideate the product design of the product;
- the fourth describes the final results obtained, conclusions and how the project go forward into the future.

First of all, the thesis presents the theoretical principles that are the base the basis of the formulation of the research question and which are presented in the next pages of Chapter 2.

2.2 SOCIAL LEARNING

In this subchapter the thesis shows the concept at the base of a social learning platform: **social learning**.

The definition of social learning was provided in 1977 by the Canadian psychologist Albert Bandura in his essay "*Social learning theory*":

"Human learning and development through the importance of observational learning, imitation, and experience."

In his theory, Bandura introduces seven key principles that are defined as source of learning:

- **Observational Learning:** individuals learn not only through direct experience but also by observing others. Observational learning involves paying attention to the behavior of others, remembering what was observed, and reproducing the observed behavior.
- **Modeling:** individuals, learn by imitating the behaviors they observe in others, particularly role models or individuals they perceive as competent or influential.
- **Reinforcement and Punishment:** Bandura acknowledged the role of reinforcement and punishment in the learning process.
- **Reciprocal Determinism:** Bandura introduced the concept of reciprocal determinism, suggesting that behavior, the environment, and personal factors all influence and are influenced by each other in a dynamic and interactive process where these factors continuously shape and affect one another.
- **Self-Efficacy:** Bandura emphasized the role of self-efficacy, which refers to an individual's belief in their ability to successfully perform a particular behavior. Higher self-efficacy is associated with increased motivation, effort, and persistence in learning and behavior.
- **Cognitive Processes:** Bandura's theory highlights the importance of cognitive processes in learning that includes attention, memory, and thinking. Individuals not only imitate behaviors but also engage in cognitive processes to understand and make sense of what they observe.
- **Vicarious Reinforcement and Punishment:** individuals can learn from the consequences of others' actions. If a person observes someone else being rewarded or punished for a particular behavior, it can influence their engagement in that behavior.

To summarize, Bandura's social learning theory provides a comprehensive framework for understanding how individuals **learning** new behaviors and information through



social interactions, observation, and modeling. It has been influential in fields such as psychology, education, and communication.

2.2.1 SOCIETAL LEARNING

Bandura's theory is evolving and changing with new technologies: in according with the journal article "*Social Learning Analytics*" by Simon Buckingham Shum and-by Rebecca Ferguson:

*"Social learning has been conceptualized as **societal learning** in general, as processes of interaction leading to concerted action for change, as group learning and as the learning of individuals within a social context"... introducing a particular interest in the non-academic contexts including home, social network, and workplace and the use of free, ready-to-hand **online tools**, of various type."*

An example of this changing is provided by the "*Paper—Online Learning Communities in the COVID-19 Pandemic*": Twitter allow to join social conversations with an audience spread all over the World. On Twitter, conversations are discovered through a tagging system using the commonplace hashtag (#) to enable keyword filtering of conversational threads. Thus, to search out threads about online teaching and learning, you might simply search for *#onlinelearning* or *#onlineteaching* and this trend become very popular during covid season. So, Twitter becomes an effective **social learning platform** for each type of subject (for example cooking, home exercise, software developing). But at the end covid season findings support the idea that instructive conversational exchanges decrease critically because the entire world context changes.

From the previous example is observable that the structure of learning platform and its performances are influenced by:

- context in which it is embedded;
- the type of subjects on what it focused on;
- the target customer segment and who big is the cluster of it.

2.2.2 MODERN LEARNING AND TECNOLOGY

The implementation and the design of the platform need to be flexible and adaptable to evolving context: for this reason the future of learning platform is highly dependent on technology evolution and open to exciting possibilities as technology continues to advance and new trends emerge.

In according one of the more important forum on education and eLearning, *eLearningIndustry.com* more specifically in the article “*The Future Of eLearning: How Technology Is Transforming Education*”, the most emerging and most important technology in education field are:

- **Personalization And Adaptive Learning**, at first place of the podium: online learning platforms will become increasingly adept at personalizing the learning experience based on individual learners' needs, preferences, and learning styles. Adaptive learning technologies (for example like generative AI) will dynamically adjust the content, pace, and levels of enjoyment to optimize learning outcomes for each user.
- **Microlearning And Bite-Sized Content**, at fourth place of the podium: the popularity of microlearning will continue to rise and shorter, bite-sized learning modules becoming the norm.

These two principles will be two of the core pillars for building the platform design because they lead to two main advantages:

- first goal is to bring a type of knowledge on specific real-world issues and situations to spread to all ranks of the companies and so for all employees; for reach this goal the content needs to be personalization ad hoc for a specific role, situation and position.
- Microlearning allows learners to access and consume targeted content quickly, making learning more efficient and fitting into busy schedules.

As result of micro learning principle another important core pillar is **simplicity**: simplified structure and graphics ensure better end-user experience and focus the

attention on what is really matter. In the article “*The Quest for Simplicity in Human Learning*” by Matthew Galdo, Vladimir M. Sloutsky, Brandon and M. Turner of the Ohio State University, the writers define

“Learning as an attention-optimization problem.”

Means that peoples have a finite attentional capacity, limited memory and human learning is a precious resource that can’t be wasted trying to understand the layout of a platform and how it works.

2.3 THE PROBLEM OF THE TRUST

In the modern global market, companies often have problems collecting information from a large number of workers, due to the presence of a multitude of teams, locations, and relocated departments.

Moreover, in the last years smart working policies create delocalized teams in various parts of the world which needs to work together daily. In the last 2 years smart working practices increase and the **issue of collecting information** is becoming more important: members of the same team who deal together daily belong to different organizations departments, that belongs to different cultural contexts. According to *Eurostat*, in Italy in 2022 the percentage of employed people aged 15 to 64 who do their work occasionally or habitually from home is 12.2 percent (corresponding to 2.734 million workers), ranked last among the 27 EU countries and lower than the European average of 22.4 % as it showed in *Figure 1*.

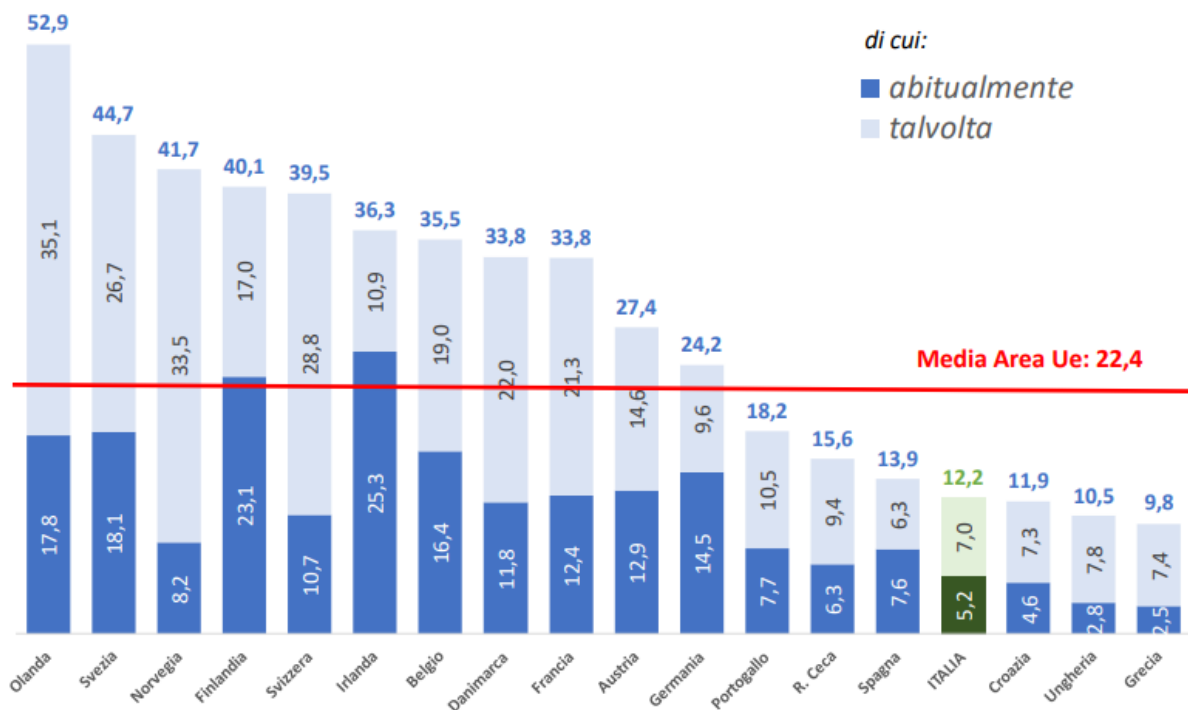


FIGURE 1- EUROPEAN AVERAGE SMART WORKING UTILIZATION

Source: Eurostat site



The *Politecnico di Milano's Smart Working Observatory* estimates a diffusion rate of smart working practices (referred to the percentage of companies that have introduced smart working) is of 48 percent in SMEs (10-250 employees). This percentage reaches 91 percent in Large Enterprises (over 250 employees) and stands at 67 percent in Public Administration.

According to the study “*Lo smart working in numeri - Rapporto n° 05/2023*” of the observatory, the most popular negative impact seems to be the **lack of communication** between employees, reported in 6 out of 10 cases. Next in importance (45.2%) is the perception of a reduced sense of belonging in cultural organization in those who working remotely, while one in 3 (32.3%) report both negative effects on innovation resulting from reduced staff interaction.

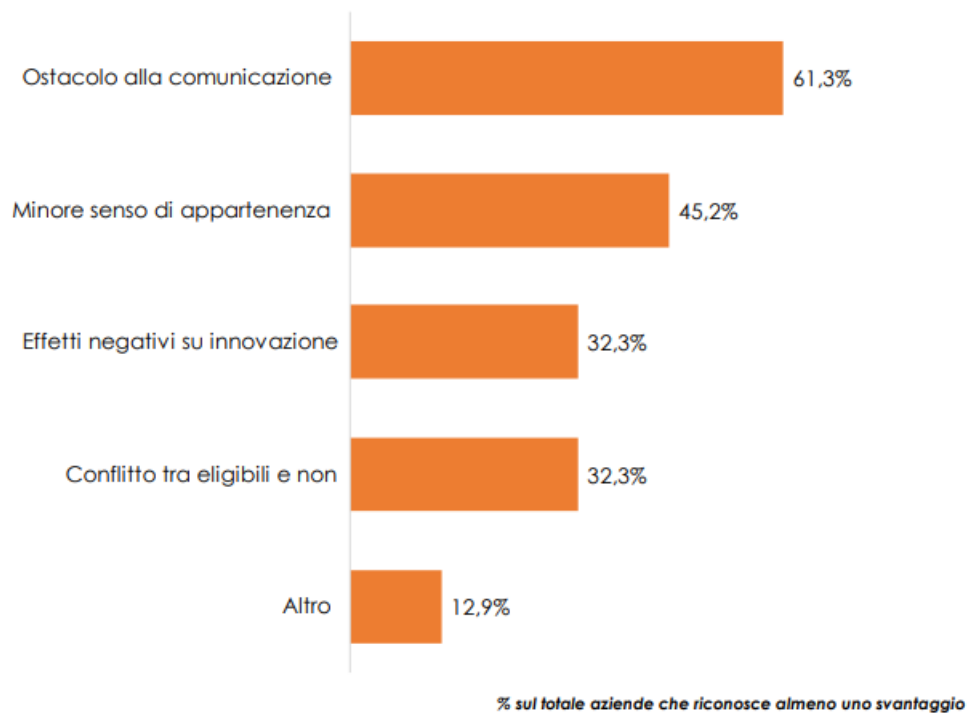


FIGURE 2- NEGATIVE CONSEQUENCE OF SMART WORKING

Source: Indagine Confindustria sul lavoro, 2023

These disadvantages are due are caused by weaker interpersonal relationship building and **lack of trust** between individuals.

From this data it is easy to understand that in the modern world of work, trust is more crucial than ever. For this reason, to develop a high-performance knowledge sharing platform, is important to understand how trust is defined and because it is the basis of interpersonal relations into companies.

2.3.1 BLANCHARD TRUST MODEL

In this section to define trust in organizations the thesis illustrates the **Blanchard Trust ABCD Model** from the book "*Trust Works!: Four Keys to Building Lasting Relationships*" by Ken Blanchard, Cynthia Olmstead and Martha Lawrence, published by William Morrow, in 2013.

This model shows and describes four types of trust and by developing each of these, the authors believe that an individual could build reliability. Trust is defined as:

"one of our most basic evolutionary survival mechanisms."

Chances of survival are increased when individuals act as a group but, in order to work together, they have to trust one another. If suspicion, blame and fear don't arise individuals are linked by collaboration, connection and bonding.

The model introduced four type of trust that can be constructed, set in a matrix defined by two axes:

- **Operational trust** defined in the theory as:

"Believing that another person will do what is expected".

- **Relational trust** defined as:

“Level of trust is achieved as a result of interactions between people.”

These two types of trust could be combined for identify four different dials, which correspond to four different types of trust:

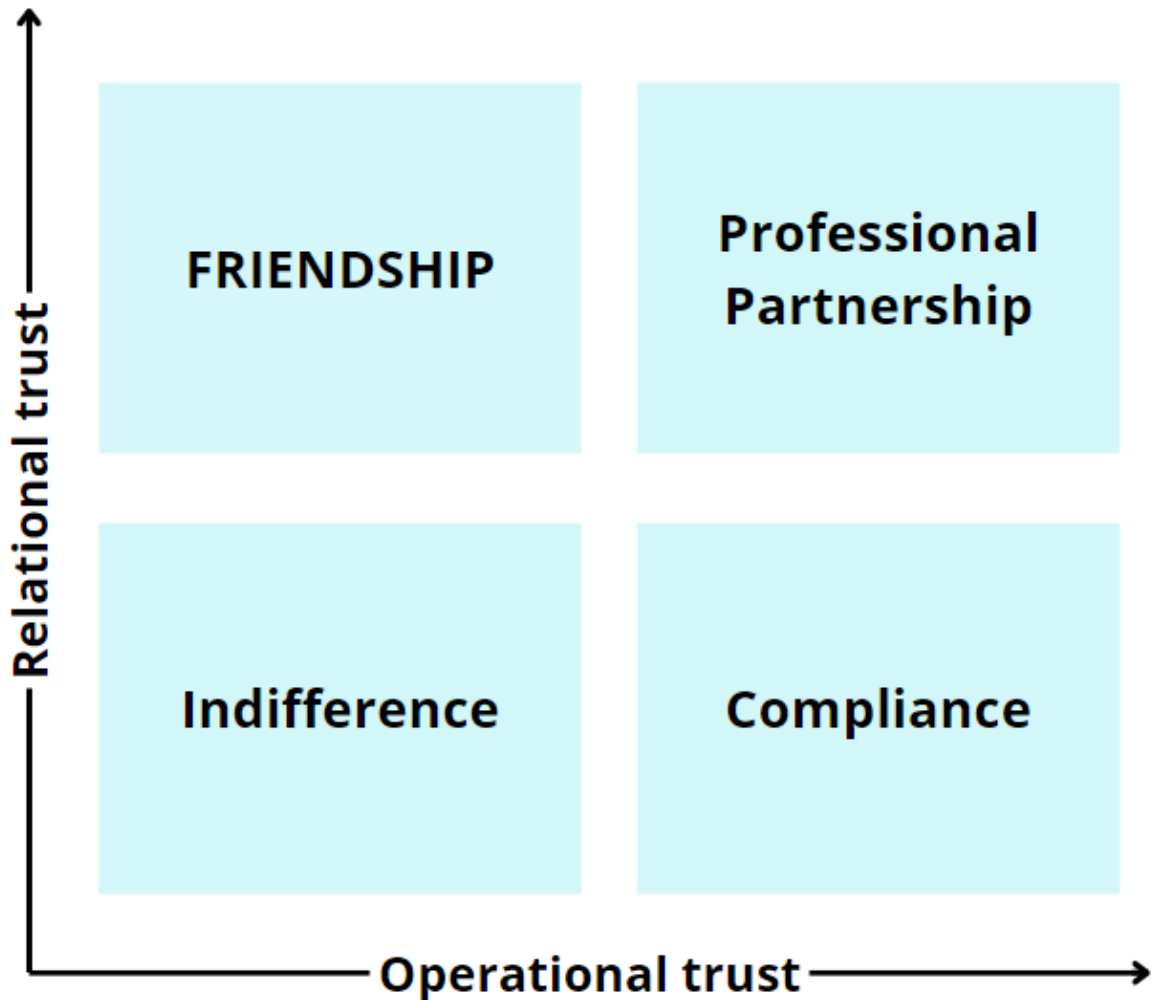


FIGURE 3 - TRUST MATRIX

- Indifference/Conflict: type of trust defined by low level of relational and operative trust.
- Friendship: type of trust defined by high level of relational trust and low level of operative trust.

- **Compliance:** type of trust defined by low level of relational trust and high level of operative trust.
- **Professional Partnership:** type of trust defined by high level of both.

The second step of the model is to highlights the four behaviors needed to foster trust, that can be learned and/or improved. These behaviors are:



FIGURE 4 - TRUST BEHAVIORS

A, Able: when an individual is able, demonstrating competence to others. Individual's work is of a consistently high standard, showing initiative to solve problems, and can be called to help others, always striving to be his best. Able individuals:

- like to work to achieve levels of excellence;
- succeed well at what they does;
- are able to solve problems through good training and experience;
- use their qualities to help colleagues.

B, Believable: credible individuals with integrity, always ready to admit when they are wrong, always honest with colleagues, they don't care about "gossip" and spread rumors. Believable individuals:

- keep confidences for their self;
- respect colleagues, avoiding biases;
- admits when they make mistakes and apologize.

C, Connected: people who are connected and care deeply about others. They have good relationships, show interest in their peers, are empathetic, and are willing to share personal information about themselves to help establish significant relationships. Connected individuals:

- show empathy toward others, feeling other’s emotions;
- work well with others by bringing his own contribution.

D, Dependable: when individuals are reliable, they keep your word and do exactly what they say. Individuals are organized, responsible and consistent with their work and their words. Dependable individuals:

- take responsibility for their own actions;
- their actions are based on **consistency**: meet deadlines and follow directions very precisely.

By making an effort to bring these four qualities into relationships, an individual could inspire others to behave more honorably and show that he/she is someone reliable. So, these four characteristics allow to reach the different type of trust, based on the follow graph.

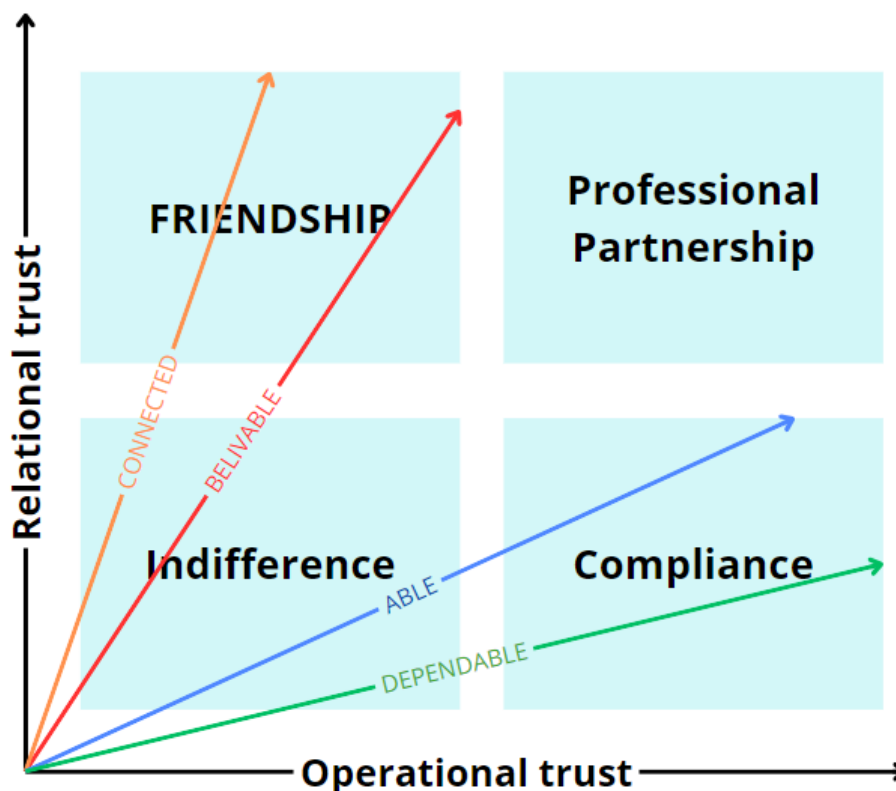


FIGURE 5 - MATRIX TRUST (DYNAMICS)

Theory explains that behaviors Connected and Believable lead to Friendship trust, meanwhile Dependable and Able behaviors lead to **Compliance** trust, that is the most common in workplaces.

2.3.2 FIRST FORMULATION OF RESEARCH QUESTION

In this sub-chapter 2.3, the thesis has shown the concept of trust according to the Blanchards' model and the issues that business develops when trust between employees is lost. In the following pages, the thesis will attempt to answer the following research question:

Assuming that compliance and professional partnership are the most spread types of trust that grow up in companies between individuals, how can translate A and D behaviors into some characteristics of a knowledge sharing platform with the final aim to push employees to “trust the platform” for becoming it the primal asset of knowledge sharing in a firm?

Keeping this question in mind, in the next subchapter 2.4 the thesis shows another of the key elements that decrease trust in dynamics within firms: cognitive biases which are a main topic in organizational behavior.

2.4 BIAS AND PRIVACY

In the early 1970s, psychologists Amos Tversky and Daniel Kahneman in the book “*Judgment under Uncertainty: Heuristics and Biases*” define cognitive bias as an innate and involuntary psychological phenomenon that intervenes in the way people perceive, interpret and remember information. Such biases have a significant influence on all aspects of our lives, from making personal and professional decisions to how we **interact with others**. Individuals tend to omit certain parameters if in their home culture such aspects are seen as taboo, while they will tend to exalt the role of what are considered positive values.

As illustrated in the essay “*Thinking, Fast and Slow*”, winner of the Nobel Prize in economics, published in 2011 by psychologists Daniel Kahneman and Amos Tversky, individual’s brain is able to produce two basic modes of thinking:

- 1) “System 1”, **intuitive thinking** that is fast, automatic and emotional, based on simple mental rules of thumb, that are called heuristics, and thinking biases, called cognitive biases, that result in impressions, feelings and inclinations.
- 2) “System 2”, **rational thinking** that is slow, deliberate and systematic, based on considered evaluation that result in logical conclusions.



	SISTEMA 1 Fast thinking	SISTEMA 2 Slow thinking	
	Inconsapevole, istintivo, automatico	Consapevole, logico, ponderato	
	Sintetico	Analitico	
	Emozionale	Logico	
	Rapido	Lento	
	Immagini concrete	Concetti astratti	
	Procede per approssimazioni e generalizzazioni	È in grado di fare distinzioni	
	Senza sforzo	Faticoso	
	Incline a errori	Affidabile	

FIGURE 6 - FAST THINKING VS SLOW THINKING

Source: Engineering S.p.a Internal Lecture

So biases are not something negative but are products of fast thinking that is synthetic instinctive, emotional and related to the concept of survival. To develop a relationship of trust, particularly compliance, the goal of corporate culture and company procedures is to **eliminate or minimize biases between colleagues**. The most common that are detrimental to businesses are:

- **Representative Bias** defined as tendency to make predictions or draw conclusions based on stereotypes or mental models rather than data and objective information. An example of the representativeness heuristic in culture can be seen in the way people make judgments about individuals or groups based on how closely they look like a particular stereotype. For instance, if someone fits the stereotype of a certain cultural or social group, people may assume that individual possesses all the characteristics associated with that group. This can lead to biased judgments and perceptions based on superficial similarities.
- **Confirmation bias** state of mind in which people unconsciously looking to confirm their preexisting beliefs, ignoring or underestimating contrary information.

This bias is particularly to be considered in an IT company such as Engineering S.p.a particularly when developing software like that discussed in this thesis. Why? As is explained in the book *“The Bubble of confirmation bias”* wrote in 2018 by Alex Acks, the use of algorithms affects everything we do on a net. (for example Internet): algorithms track the search terms we enter and what post we select to read. Over time, an algorithm can build a surprisingly detailed profile of our personality characteristics and views. And this profile then influences the type of information we are exposed to, and algorithms will give us a particular type of posts. Our profile data could be subjected to the description made and the user could not realize it.

In according with the article, algorithms are creating a kind of "self-confirmation bias bubble" by sending content that is already consistent with our profile, our preferences and opinions are reinforced. This is an example of a passive form of confirmation bias that Internet users are completely unaware of.

- **Hindsight bias** defined as tendency of people to believe, erroneously, that they have been able to predict an event correctly, once the event is now known.

Quoting the article "*Personality differences in hindsight bias*" published in 2010 by University of Mannheim, Germany and written by Jochen Much,

This hindsight bias has the effect of making the past seem less uncertain than it was. It has been demonstrated across a range of predictions, subjects, and methodologies, in both laboratory and field settings. The phenomenon has been observed in domains as diverse as general knowledge, football results election outcomes ...

In according with the article individual differences contributed significantly to the strength of the hindsight bias effect that is can be affected by four factors:

- rigidity and dogmatism of individual;
- self-Presentation motive that insight social desirability, impression management, and self-deceptive enhancement of individual;
- field independence defined as the capacity to construct their pre-outcome knowledge;
- suggestibility of individual.

So, this bias could be is affected by individual personality and people has to minimize in particular in experience sharing platforms where **comments and observations are allowed in posts**.

- **Affinity bias** defined as the tendency to prefer or choose people who are similar to us.

This bias is the most common and dangerous and it is spread throughout all business processes. The article "*Less than a third of HR managers are*

unprejudiced when hiring”, published in 2017 into the online magazine HRnewsUK.com, conducted a survey through the digital recruitment platform SomeoneWho, reporting that less than a third of HR managers (32%) can confidently say that they are unprejudiced during the recruitment process. Almost half (48%) admit bias impacts their candidate choice, while a further fifth (20%) said they couldn’t be sure. Commenting on the findings, Andrew Saffron, founder of SomeoneWho said:

We all have personal preferences and bugbears – so it’s no surprise that bias creeps into the interview room to some extent. But our research shows that an alarming number of HR managers are actively ruling out candidates based on factors that are discriminatory – education, accent or gender – which is clearly unacceptable.

In according with the article, affinity bias doesn’t stop at the hiring stage. It can still progress and manifest in the workplace and cause even bigger problems: for example, decision-makers might favor people with whom they share interests, beliefs, and backgrounds at the expense of other employees, promoting employees only because they share the same hobbies. Managers who operate under affinity bias spend more time raises employees they feel most connected to, even when the employee is not the most deserving in the workforce.

Examples of affinity bias in hiring and the workplace could be:

- Racial bias happens when a decision-maker decides to support a candidate because of his race or ethnicity.
- Education bias happens when a manager favors a candidate who attended the same school believing that attending the same school signifies similar beliefs, interests, and experiences.
- Social class bias, manager preferring someone from a similar social-economic background, believing the candidate will fit better into the company culture.

- Age bias, managers may choose candidates within their age range, believing they likely have the same work styles and life perspectives. These employees may also receive promotions or important projects since they are closer to managers age and life experience.
- Beauty bias, it leads manager to decide based on the candidate's physical appearance.
- Cultural fit bias, companies often encourage recruiters to hire candidates more likely to assimilate or adapt well to the company's culture.

Affinity bias provokes the following negative consequences listed in the following scheme:



FIGURE 7 - AFFINITY BIAS

Source: <https://www.aihr.com>

- **Out-group homogeneity effect** defined as the perception that everyone outside one's group has similar characteristics. This bias is strongly impacted by affinity bias and they could share the previous observations and definitions: managers or recruiters can have a stereotyped belief about a candidate based on their out-group because they perceives the candidate has very similar to another individual they know who belongs to the same out-group.

- **Social desirability bias**, the tendency to provide a response that is desirable from a social point of view.

This bias lead users to modify how they respond to questions or write a post to appear more favorable or acceptable to others, no matter what input are provided.

The article “*Social desirability bias and the validity of indirect*” by Robert J Fished published in 1993, report:

This phenomenon is called social desirability bias and has been found to occur in virtually all types of self-report measures across nearly all social sciences literatures. Not only this bias in pervasive, but it can lead to the reporting of spurious or misleading research results.

These words suggest to us that this bias **distorts measurements and experiences** and therefore the user may report distorted experiences and knowledge in knowledge sharing platform.

To test the influence of this bias in the world of work, a small survey has been conducted into the company Engineering S.p.a, that the thesis presents in chapter 3. About ten employees were asked the question:

How much does social desirability bias influence the way you work and in what situations do you think it shows up?

From the participants answers it emerged that the moments in which the social desirability bias emerge is the request and the yield of **feedback** to other colleagues.

Given at the right time, the feedback aimed at helping the development of the person and it needs to be based on objective behaviors, but in according to the answer of the survey social desirability bias affect this process in two main ways:

- 1) people request feedback from colleagues or managers they know and they have worked well so, a positive feedback is expected. This happens because Engineering SpA bases its annual individual performance evaluation on the feedback received from managers or colleagues during the year, so the tendency is to ask for "safe" feedback.
- 2) People tend to give socially correct feedback so as not to negatively affect their everyday work with the colleague who requested the feedback.

2.4.1 BIASES ECONOMIC IMPACT

One of the key challenges of companies worldwide is to minimize employee biases, because it not only harms the company climate and culture but also causes large economic losses.

The article *“New Data Reveals The Hard Costs Of Bias And How To Disrupt It”* by Kathy Caprino, Forbes Journal reports that when employees feel the burn of biases, they downsize their contributions at work accumulating to a hard hit on company profits. The paper reports a study of *Harvard Business Review* by Sylvia Ann Hewlett,

“Employees at large companies who perceive bias are nearly three times as likely (20% vs 7%) to be disengaged at work. That kind of clock-punching is costly, and the article estimates that active disengagement costs U.S. companies \$450 billion to \$550 billion per year. Those who perceive bias are more than three times as likely (31% to 10%) to say that they’re planning to leave their current jobs within the year. Finally, bias appears to sap innovation. Those who perceive bias are 2.6 times more likely (34% to 13%) to say that they’ve withheld ideas and market solutions over the previous six months.”

Then for companies become fundamental to manage biases negative effects through organizational procedures that encourage inclusion and trust.

2.4.2 FINAL FORMULATION OF RESEARCH QUESTION

As this thesis shows in the subchapter 2.4 biases are something very dangerous for company culture and profits, and something that are destructive for firms dynamics.

So, the thesis reformulates the research question adding this topic as follow:

Assuming that compliance and professional partnership are the most spread types of trust that grow up in companies between individuals, how can translate A and D behaviors into some characteristics of a knowledge sharing platform with the aims:

- to push employees to “trust the platform” and
- to eliminate cognitive biases

for becoming it the primal asset of knowledge sharing in a firm?

3 CONTEXT PRESENTATION

3.1 ENGINEERING S.P.A.

The realization of this project was possible thanks to the company Engineering Spa. Engineering Spa, founded in 1980 by Michele Cinaglia, is a business process digitization and information technology company, viewed from the market as Italian consulting leader in many fields of business such as energy distribution, services for government and banking institutions, health care services and process manufacturing. The global headquarters is located in Rome and it has more than 1500 associates all over the world: 70 groups belong to Engineering, most of them are located in Italy but there are also more than 70 offices in Europe and in United States.

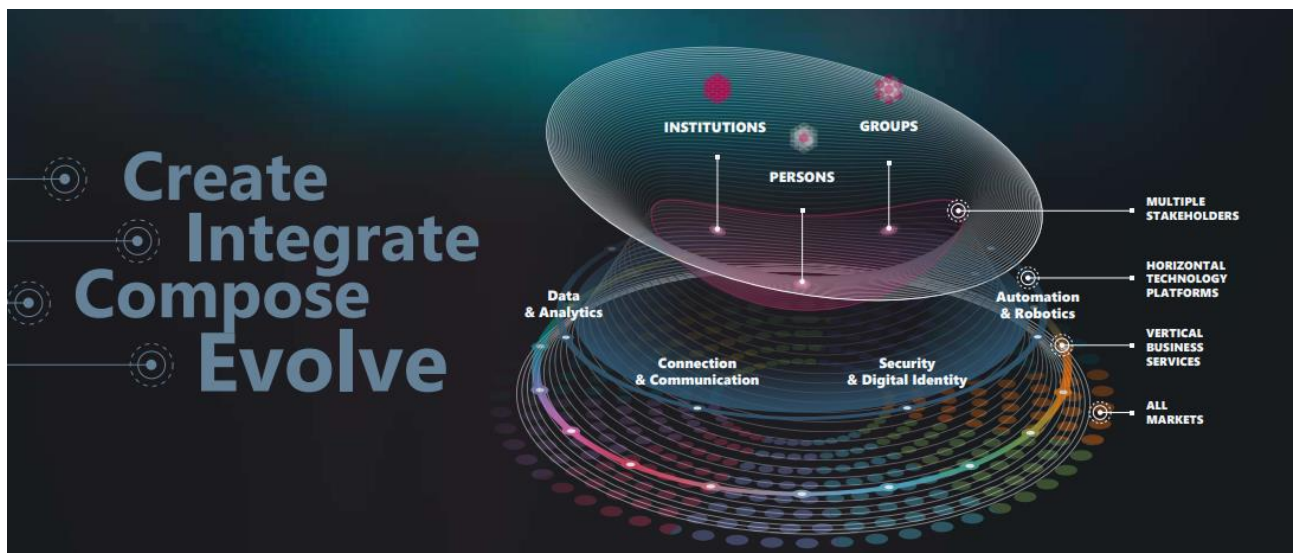


FIGURE 8 - TABLE OF CONTENTS ENGINEERING S.P.A

Source: <https://engineering.dyndevicelcms.com/it/>

The vision of the company is expressed by the worlds of the CEO Maximo Ibarra:

“Our ambition is to use technology not only to evolve businesses and organizations, but also as a social driver to perfectly balance economic and sustainability objectives.”

To reach this vision Engineering relies on 4 main pillars for a complete digital transformation strategy, they are:

1. **Explore & Upskill** to allow research and innovation;
2. **Strategy & Design** of the internal process to foster the activities of business consulting;
3. **Implement & integrate** traditional and new technology and proprietary and partner solutions;
4. **Manage & Maintenance** and upgrade of solution applications and services.

The following are the highlights of the main budget indicators, referred to Balance Sheet of 2021:

- production value stands at €1.321 million, up 6.5% to that of the previous year and 5.5 percent higher than the average growth of the digital market;
- EBITDA stands at €1.321 million, up 11.7% to that of the previous year;
- Net profit stands at €47,5 million, linear with positive trend of the past year;

The previous data reflect the follow observation:

- Growth is widespread in all major areas of the group.
- Ability to manage the most advanced technologies and customize them, has allowed the company to develop proprietary platforms.
- Continued commitment and investment on the ReD unit allow Engineering S.p.a to be involved in European research projects.

The “*Engineering 2022 Sustainability Report*” reports that Engineering has reach 15.000 employees and it underlines that the **HR 2022 strategic plan** has led to an increase in employees under 30 years old and in 2022 so it has been awarded by LinkedIn as one of the TOP 25 best companies in Italy to develop career path.

The main strategic effort to reach the vision of the company is continuously exploring and learning about resource and innovation. To prove this effort the strategic plan highlights the following data:

- € 40m in investments for innovation;
- 130 live resource projects;
- 450 data scientists and researchers employee;
- more than 500 research projects carried out.

In this innovation-oriented approach Engineering S.p.a. continuously update and strengthen people learning with the objective to prepare young recruits to face innovative challenges efficiently and proactively helping them to develop unique skills that are difficult to imitate by competitors for bringing competitive advantage to the individual and to the company as whole.

3.1.1 IT & MANAGEMENT ACADEMY "ENRICO DELLA VALLE"

The formation of employees is managed by the **IT & MANAGEMENT ACADEMY "ENRICO DELLA VALLE"** that is a fundamental asset of the group. Year after year, the Academy develops and updates specific training courses for each of the IT professions, paying great attention to the skills that are required for live projects and those that will be required in the future.

For Engineering the concept of professional skills must be constantly maintained, optimised, and developed, at the same speed of the context in which employees find themselves. This mindset is highlighted by the following data which contain the services offered by the It & Management Academy.



FIGURE 9 - ACCADEMY HIGHLIGHTS

Source: <https://engineering.dyndevicelcms.com/it/>

The academy organises training courses with the aim to defining opportunities for growth and specialisation for every different job position: from Software Programmer to Cloud Architect, from Project Manager to Data Scientist, from Analyst to Solution

Consultant. Every year each employee must choose a total amount of hours to spend in courses that are of three types:

- focused on technology;
- focused on soft skills;
- focused on methodology.

3.1.2 ENGINEERING NEED

The choice of courses is not taken by the individual but it is side by the supervisor so this moment become an opportunity to share feedback and **tacit knowledge** because the supervisor could share experiences and practise that can support the choice.

In addition, the courses are led by experts of the area in which the course focus on so the theoretical part is integrated by a practical part composed by real case study and experiences having the aim to push up discussion and comparison between students.

To spread and encourage this process of sharing, Engineering S.p.a's managers have shown the necessity to a software platform, seen as **knowledge-sharing tool** that aims to promote the horizontal sharing of experiences and best practices on specific topics; the value of each discussion need to be explicit and thus providing an effective learning opportunity **for all members and audience**. The objective of the platform is to launch this kind of service on a large scale that must become the know-how asset that the company possesses for personal development and growth.

This thesis aims to illustrate my participation in the implementation of this platform and how it works trying to describe the core features that spread tacit knowledge between users.

3.1.3 MY EXPERIENCE IN THE GROUP

I was hired in Engineering SPA in February 2021 into the Energy and Utilities Division and currently I play the role of Solution Consultant within the company. I am in charge of optimizing implementation development processes for the Engineering Group's energy management software; in particular I am in contact with customers and

developers trying to optimize the production process in terms of cost and time. For these reason daily I realize how knowledge sharing between colleagues is important for gain customer satisfaction, avoid waste of time and take consciousness that different situations required different behaviors.

During one of the courses offered by Engineering at the Enrico Dalla Valle Academy, **Dr. Ferdinando Lo Re**, the Group Learning & Corporate Academy Director, challenged the class to think about a system that in a simple way spread knowledge reachable for every employee of the company. During the following days I decided to deeply develop this theme and use it as core issue to elaborate my thesis: in my opinion and in my experiences as solution advisor, practices of sharing experiences and tacit knowledge could help young people entering in new work position and in general help to face certain critical situations that collogues in the past have already faced increasing self-confidence and **trust** in colleagues and in the organization itself.

After expressing interest in the project, I joined the knowledge sharing platform developing team and I'm in charge to provide the following activities divided in 3 steps:

- 1) Survey on market: analyse the learning community platforms that are available in the market, to answer the questions:
 - a. What are the main platforms used?
 - b. What are the advantages and disadvantages of the platforms?
 - c. Who are they aimed at?
 - d. How are they constituted?
- 2) Proprietary platform design: starting from the relevant elements found in the previous step think about how to build the platform for sharing knowledge within the group, trying to answer the question:
 - a. How can we translate the vision and the strategic objective (in terms of knowledge sharing) of the firm into a platform software?
 - b. How to develop an immediate and simple platform in which the structure and graphics ensure better end-user experience.
- 3) Experimentation phase of the pilot project and conclusions.

In the next pages the thesis illustrates step by step what are the process that bring to the ideation of the design of the platform and how the features implemented answer to the challenges described in chapter 2.

In the next chapter 4 the thesis reports the methodology part to understand the major requirements that the platform must have while in chapter 5 is described the product.

4 METHODOLOGY

4.1 METHODOLOGY OVERVIEW

This chapter explains the methodology that bring to the definition of a **requirement matrix** which is the starting point to build the platform and answer to the research question reported in section 2.4.2.

In the first part, subchapter 4.2 the thesis reported the market survey with the final goal to identify existing platforms in the knowledge sharing field considering their market presence, how they are rated by daily users and what are their integration with the latest technology.

In the second part, subchapter 4.3, the thesis shows the interview made with the learning director of Engineering S.p.a.

4.2 MARKET SURVEY

The market survey is conducted looking at the best rated knowledge sharing platform that are present in the rankings of the most popular online forums and sites like Stack Exchange, LinkedIn, Quora, and others.

Focusing on a specific platform, the thesis pulls out strengths and weaknesses of the platform itself in according to **ABCD trust model**, trying to answer the following questions:

- Why employees could “trust” the platform?
- In which way the platform encourages users to share knowledge and experience?

In the next pages are summed up the following emerging sharing platform tools that are a benchmark for the developing team because they pull together simply procedures for sharing knowledge and experiences but at the same time they integrate effective technologies in an innovative way.

These are:

- BloomFire by BloomFire Company described in section 4.2.1;
- Tetra by Tetra Company described in section 4.2.2;
- Notion by Notion Company described in section 4.2.3;
- Padlet by Padlet Company described in section 4.2.4.

4.2.1 BLOOMFIRE

Bloomfire is a knowledge sharing platform that helps teams engage, collaborate, and drive results: information are added to *Bloomfire* by creating a new post that could be generated by any user profile and could contain documents, attachments and videos. Posts can be published to multiple access groups that can be easily configured for different teams or departments.

In *Figure 10* and in *Figure 11* are shown some of Bloomfire features that focus on assist the author to write posts thanks to generative AI.

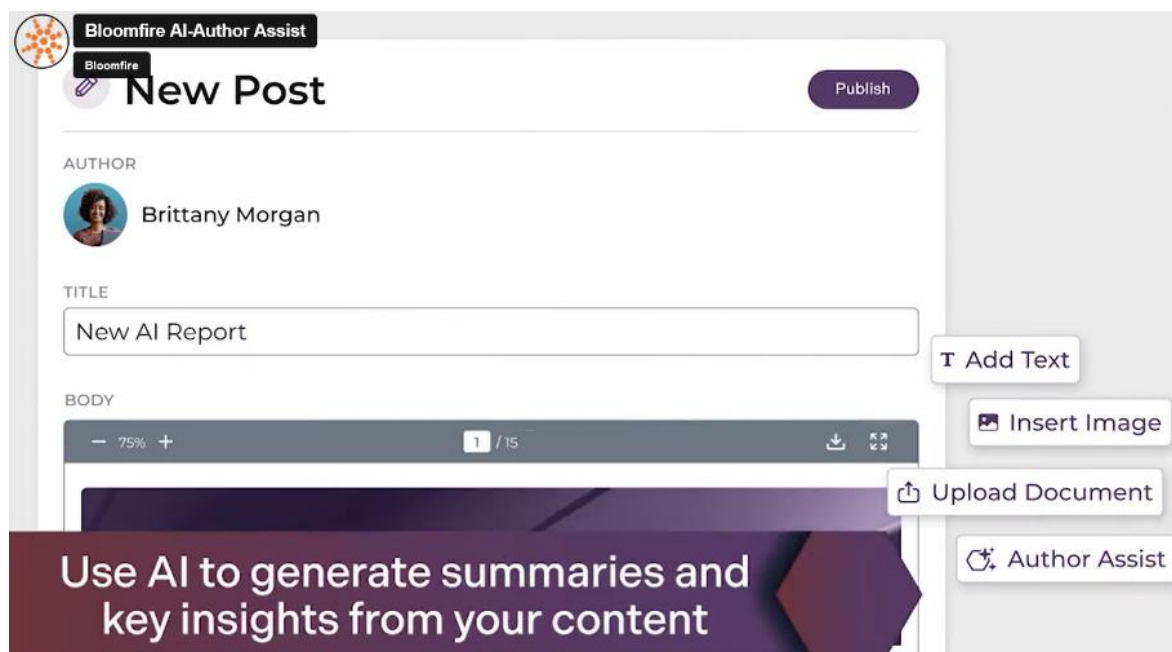


FIGURE 10 - BLOOMFIRE FEATURES

Source: <https://bloomfire.com/platform/ai-authoring-tools/>

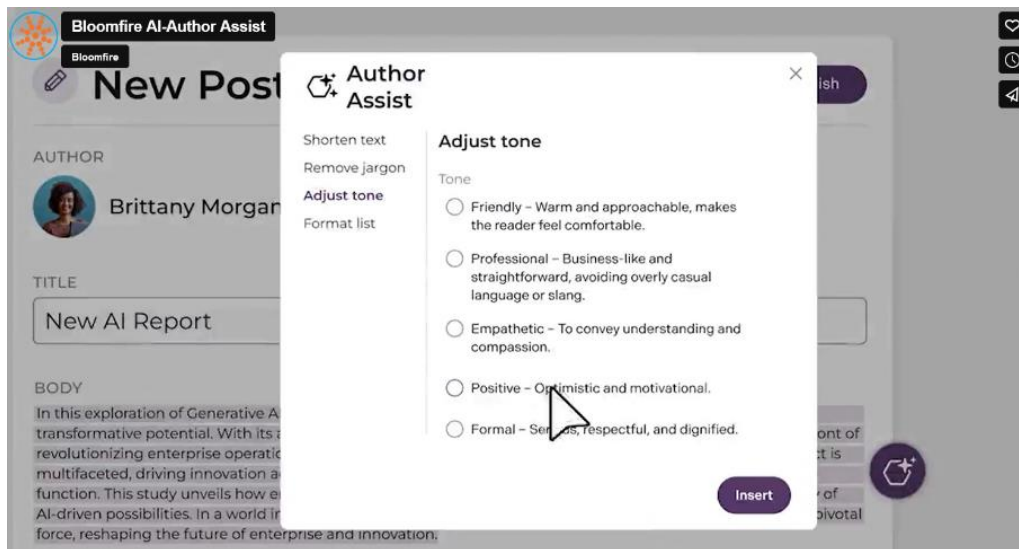


FIGURE 11 - BLOOMFIRE AUTHOR ASSIST

Source: <https://bloomfire.com/platform/ai-authoring-tools/>

The big advantage of this social learning platform is that authors could access to an entire suite of generative tools that help them provide context to attached documents, or even clarify or rewrite complex technical content at the most salient parts.

“*Bloomfire AI Author Assist*” has the final aim to help to write quality content and extracts **summaries**, takeaways, key insights of the content and set the tone of the post.

In according to ABCD Blanchard trust model, Engineering developing team identifies *Bloomfire* as a perfect example of “**Able platform**”: it used high innovation technology to push users to create high quality posts that are attractive for the audience. In this sense users are encouraged to publish post and share experiences and knowledge because they perceive sense of security.

On the other hand, this way of sharing through post could be not very “Dependable” because comments of the other users could shift the focus of the original post in something else as happen into online forum. Another disadvantage of this tool is the **lack of filters** within groups when using the search function and so this can create a lack of accuracy for the user.

However, in the Bloom Fire site there are a lot of case studies that prove the utility of the tool. The thesis reports the example of *Aite Group* in the following case study.

4.2.1.1 CASE STUDY

Aite Group is an independent research and consulting firm based in Boston that focuses on business, technology and regulatory issues and their impact on the financial services industry. *Aite Group*'s analysts work remotely in the United States, Europe, and Asia to provide comprehensive, usable advice that helps its financial services clients stay abreast of critical industry trends.

Aite Group has created hundreds of pieces of content on *Bloomfire* platform that are a huge source of learning for new and existing employees. In fact, reporting the worlds of the CEO and co-founder of the *Aite Group*, Gwenn Bezar:

"the company's knowledge base is extremely popular with new employees who can learn about their time by searching and accessing information without the assistance of their managers or human resources. In many cases, Bloomfire exposes them to content they would not normally encounter for weeks or months of work".

4.2.2 TETTRA

Tetra is a knowledge sharing platform based on “*Kai*” the artificial intelligence avatar assistant. It helps teams better manage, curate, and circulate business knowledge to streamline operations and increase communication between members. When a team member has a question, writes a post and Kai searches existing business documents to provide the answer. With the newly found information, team members can work uninterrupted, and they can consult the answer in every moment.

If Kai cannot find the answer, or it does not exist, Kai assigns the question to the appropriate subject matter expert user to answer it.

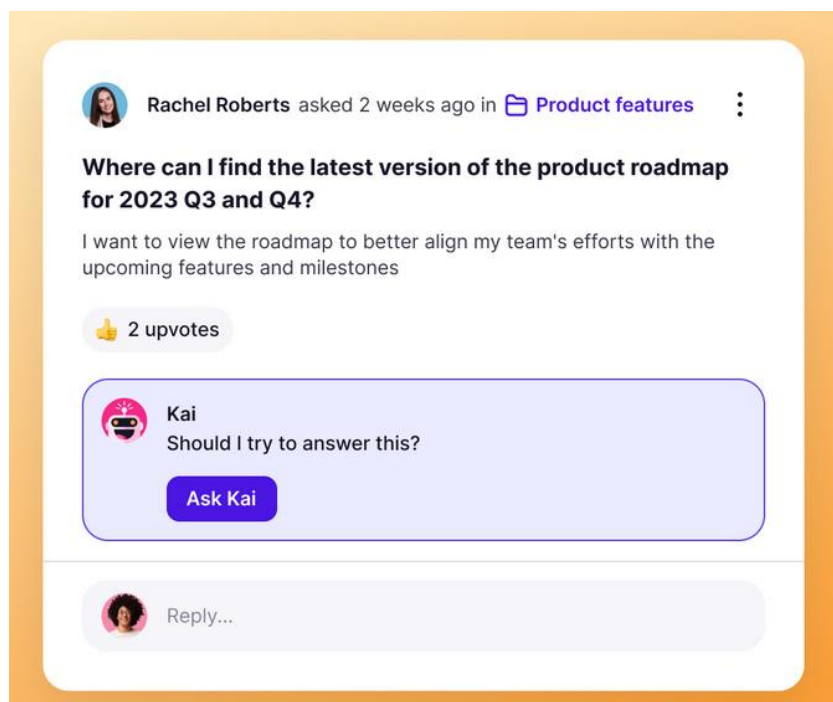


FIGURE 12 - TETTRA CREATION POST

Source: <https://tetra.com/kai-ai-tetra/>

So, in Engineering market survey based on ABCD trust model the team identify *Tetra* as a perfect example of “**Dependable platform**” because generate very precise and consistency information suitable for immediate needs.

On the other hand, it is not a stock of experience and real situations and for these Engineering development team do not consider it an “Able Platform”.

In *Tetra*'s site there are a lot of case studies that prove the utility and the efficiency of the tool. The thesis reports the case of *Raquet*, described in the following case study.

4.2.2.1 CASE STUDY

Raquet is an e-commerce firm that sells lifestyle products including grills, coolers, tumblers, condiments, and apparel. *Recteq* partnered with *Tetra* with the final aim to digitize its knowledge management and speed-up the spreading of information between employees. Aaron Stone, *Recteq*'s Customer Service Training Supervisor report:

"We really use it as a bible, if you will. Our mantra is, 'if you have questions, check Tetra... "

"Tetra has become business critical for Recteq, and consulting the platform has become an integral part of company culture."

So, the software has facilitated the *Recteq* team's ability to find and utilize important information, which are for company competitive advantage.

Tetra's motto underlines the link between sharing platform and trust because, as demonstrated by the case study, the software tries to become a "real" team member who takes part at groups dynamics.



FIGURE 13 - TETRA MOTTO

Source: <https://tetra.com/kai-ai-tetra/>

4.2.3 NOTION

Notion is a knowledge-sharing platform that combines internal suggestions, projects, and notes in one tool. It allows to create pages, lists, databases, tables and link them to help colleagues to understand the company wide information creating transparency by centralizing all knowledge and work and making it highly customizable.

Posts are **grouped by topic** so every employee could source content related to every issues precisely without lack of time.



Engineering wiki

All things engineering: processes, best practices, setup guides, and more!

Guides & Processes

- 🚗 Getting started
- 📖 Engineering guidelines
- 🔄 Development lifecycle
- 📖 Getting started

Codebase

- ✅ Code reviews
- 🔗 React
- 💻 Backend
- 📖 Engineering directory

FIGURE 14 - NOTION FUNZIONALITY

Source: <https://www.notion.so/product>

Thanks to AI Notion could extract insights into “wikis” that all employees could take away from users posts, from action items workflow and from call summaries.

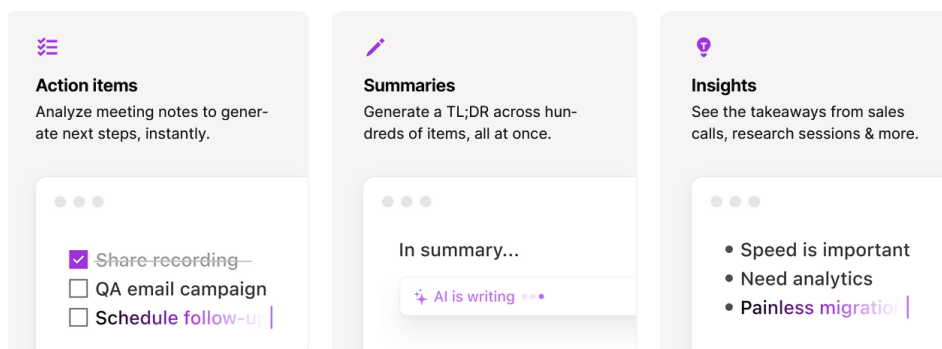


FIGURE 15 - NOTION FUNCTION

Source: <https://www.notion.so/product>

Notion is considered both an “Able tool” thanks to its AI function that abstracts the contents both a “Dependable tool” because posts are gathered according to topics.

In Notion site are present a lot of positive review. The thesis reports the story of *Deel*.

4.2.3.1 CASE STUDY

Deel is a private payroll and compliance provider based in San Francisco, California, that uses Notion to align its global remote team “on the same page” thanks to technical wikies.

Meltem Kuran, Head of Growth of *Deel*, report that thanks to wikis is easy to find specialized knowledge: every time a new money and anti-money laundering policies are enacted employee traced it as wikis. He says:

"By keeping this in Notion, we can provide a consistent experience with information that's up to date."

Each employee can learn at their own rate without having information withheld from them. These resources give everyone the information they need to do their job confidently and knowledgeably.

4.2.4 PADLET

The platform *Padlet* is based on visual bulletin boards, called “*padlet*” for organizing and sharing content between users. All the “*padlet*” start from a white sheet in which the user could create a post by inserting text or video images and sharing it with the other users.

In this way people will be able to use gifs, images, photos, or simply words to be able to contribute and enrich the chat/community bulletin board with reflections. A way to disseminate reflections and do knowledge sharing of what has been learned along the way with the final aim to:

- increase the spread of learning and teamwork skills learned in the classroom or in experience;
- create and strengthen interpersonal relationships among colleagues belonging to the same issue;
- stimulate engagement and participation in organizational culture.

In questo spazio, a voi dedicato, potete creare una vera e propria community, un luogo per scambiarsi le vostre riflessioni interagendo sullo spazio sottostante. Arricchitelo di pensieri e contenuti interattivi!

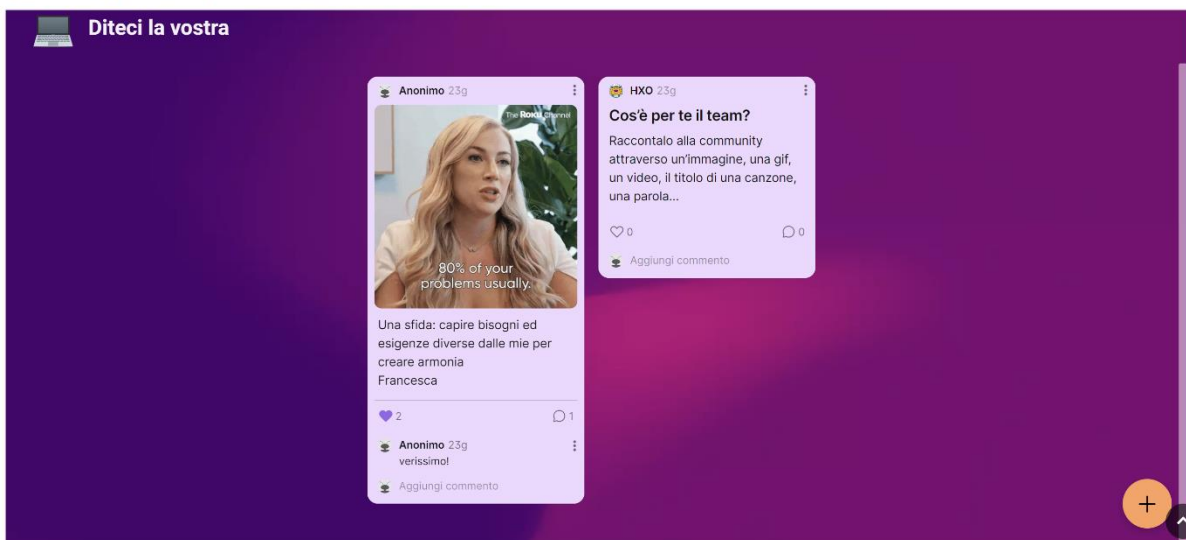


FIGURE 16 - PADLET CREATION POST

Source: <https://padlet.com/>

Padlet is not a perfect example of Able and Dependable platform because it doesn't use features for improving quality of the post, like Bloomfire, and its posts are not focused on a specific matter, like Tetra.

However, it is considered by the Engineering development team as a benchmark for designing the knowledge sharing platform because it has a very important feature: the **privacy option**. Differently from the previous cases, in Padlet every profile could chose to create a private, password-protected “*padlet*” or totally public deciding who can see it and who can contribute to it.

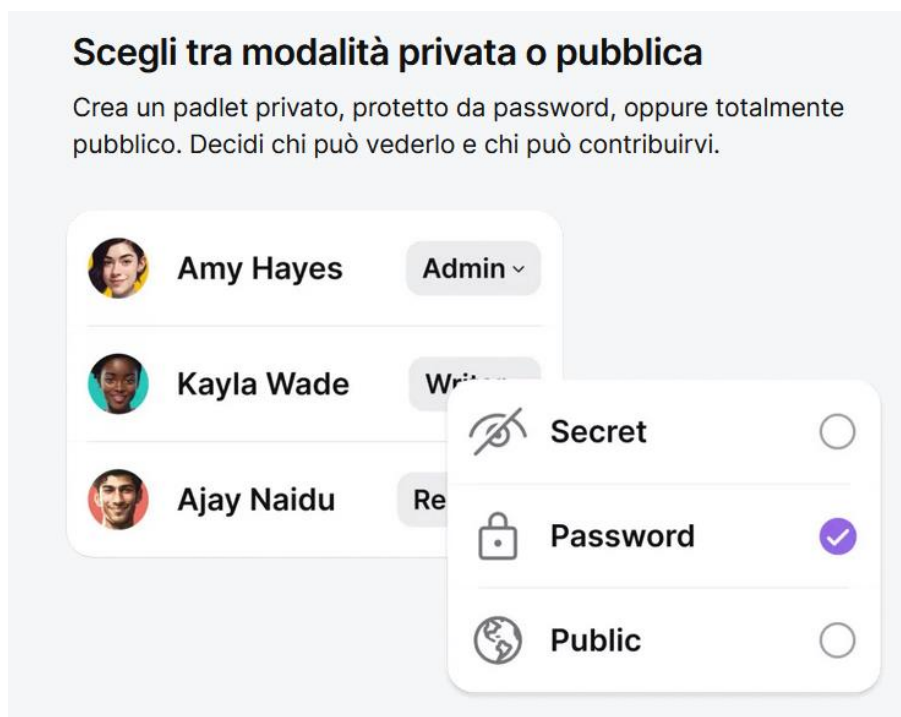


FIGURE 17 - PADLET PRIVACY FUNCTION

Source: <https://padlet.com/>

Engineering developing teams think that privacy option is a very important feature because could help to minimize and eliminate cognitive biases, described in subchapter 2.4.

4.3 LEARNING DIRECTOR INTERVIEW

In this subchapter of the methodological part, the thesis reports the interview carried out with IT School Director Ferdinando Lo Re, which has the purpose of identifying Engineering's needs and comparing the requests made by the director with the characteristics that emerged from the market analysis. The interview is based on a structured approach to gather relevant information; the following approach is taken from the article "*Experiences from Conducting Semi-Structured Interviews in Empirical Software Engineering Research* (Siv Elisabeth Hove, 2005)" by Siv Elisabeth Hove and Bende Anda and it present three main step:

- *Preparation at the interview;*
- *selection of the key question topic;*
- *conclusion and final suggestions*

4.3.1 PRE INTERVIEW PREPARATION

In the article are shown the pre-interview preparation elements such as define objectives and clearly outline the goals of the interview to understand what specific information are seeking from the learning director regarding the new software. The thesis has already presented the organization's learning programs, what product are present into the market and the learning director figure in chapter 3.

4.3.2 SELECTION OF THE KEY QUESTION TOPIC

This section of the thesis shows how to build the structured interview and key questions to ensure to cover all relevant topics during the interview. These are:

- 1) **Challenges and Pain Points:** these are challenges or bottlenecks the learning director currently faces in managing learning programs.
- 2) **Desired features and functionality of the software:** discuss the learning director's vision for the new software. Inquire about specific features he believes would enhance the learning experience or address current challenges.

- 3) **Integration with Existing Systems:** explore how the new software should integrate with existing learning management systems or other organizational tools. Discuss compatibility and interoperability.
- 4) **User Experience and Interface Preferences:** inquire about preferences for the user interface design, ease of use, and any specific requirements for a positive user experience.
- 5) **Technical Considerations:** discuss scalability requirements and whether the software needs to accommodate future growth in the number of users or learning content. Inquire about the flexibility of the software to adapt to changing learning needs and whether customization options are essential. Discuss security requirements and compliance considerations. Ensure that the software aligns with data protection standards and organizational policies. Inquire about the learning director's expectations regarding feedback mechanisms within the software. Discuss how they would like to collect and analyze data for continuous improvement.

Starting from these five key points the interviewer could prepare the questions.

4.3.3 CONCLUSION AND FINAL SUGGESTIONS

After discussing the key points regarding these topics, the interview suggests to the director additional insights and concerns the learning director to share any additional thoughts or ideas he may have. This process could be helped briefly summarizing key points discussed during the interview. The final step is to discuss any follow-up actions, timelines, or update in the software development process.

4.3.4 INTERVIEW

Based on the previous model the interviewer selected and prepared a series of questions that are proposed to the learning director of Engineering S.p.a Accademy, Ferdinando lo Re, with the aim of identifying the company's needs and understanding how the platform will meet them.

The director's questions and answers can be found on the following pages.

4.3.4.1 QUESTION 1:

The first focus on the difficulties and main challenges that the learning group faces daily in the learning field, ask to specify those that Engineering aims to address in the short to medium term and which of these the platform will help to faces.

Ferdinando responds that being *Enrico dalla Valle*, the corporate academy of a very large company and dealing with topics with a high rate of obsolescence (like digital transformation), the main challenge is to find the **right balance** between the transfer of knowledge that needs to be spread to all employees, who have different job profiles, and an organizational and economic sustainability.

He emphasizes how the huge volume of content to be transferred, the huge size of the employee's population and the huge volume of content require a greater organizational effort and set of economic choices. In this view the **predictive ability** become essential because when a training need become important for the market, it is already late and it can't help to gain competitive advantage. So, another main challenge is being able to predict innovation topics and contents before the market does.

Reporting Ferdinando words:

"In this scenario, the project related to is an important tool with a high sustainability impact by eliminating the need to create a training classroom in which there is a paid professor and it activates a horizontal transfer of skills and experiences among the participants of the platform"

From these words it is easy to understand that another challenge is to distribute knowledge while trying to **contain related costs**. Currently, corporate courses are too expensive because they involve outside professors and suspend the work of the employees involved so it is necessary to economize the process.

4.3.4.2 QUESTION 2:

The second question focus on how the new platform could become part of corporate culture and how could be integrated with existing systems and practices.

First of all, Ferdinando defines and distinguishes between two levels of integration of a platform among those that already exist. These levels of use are:

- technological level,
- cultural level.

Ferdinando explains how Engineering has a learning management system (platform that allows hr to manage the training processes) as all big companies at the technological level. Learning management system contains Engineering HCM software which is the platform that manages people and their master data that are all the hr information. A knowledge sharing platform must necessarily be embedded within this ecosystem and talk to other ecosystems. An internal platform with access only to group employees, it is necessary to tie the platform's log-in process with the company's registry. This is the **system integration part**.

The other part is about **usefulness** so what concerns how the platform is positioned within the training and information resources made available. If you create a useful platform, it naturally positions itself in the business practices. Ferdinando suggests the following example:

For example, if the platform consists in a forum, why the Engineering user should use it? He prefers an online forum with much more outreach capability rather than a small panel of users who consist of corporate employees.

These words suggests that the platform through its features should provide a user experience that **allows it to be adopted** by all employees. If this happens it automatically becomes part of business processes and automatically the platform will integrate with business procedures.

4.3.4.3 QUESTION 3:

The third question focus on feedback and how they could be managed on a knowledge sharing platform to avoid the forum effect, and how they could bring value to content that is already present.

Ferdinando emphasizes how in a **horizontal context**, where all users have the same role and weight, the way to enrich the shared discourse is through interaction based on **dialogue** between users includes feedback, addition, and divergent opinion. From this point of view, it becomes a matter of how users interact and have opinions about the topic.

He suggests that the key to solve this matter is the ability to turn the discussion into value so take the whole discourse and put it in a situation of **logical coherence**, and logical **synthesis** to create a single, integrated, coherent and convergent contribution of value coming out of all that has been told. Otherwise, the whole discussion blurs into "noise".

Reporting the director's words:

The wish effect is this: if two users with the same role and different experiences have a discussion and debate on a topic and a third party takes both contributions and puts them together into a single discourse automatically that one is more effective than the sum of the parts. That's what doesn't happen in forums: the valuing of common discourse.

4.3.4.4 QUESTION 4:

The fourth question tries to extrapolate what should be the factors that determine the flexibility and scalability of the platform.

In according to Ferdinando, the important aspect to build future flexibility and scalability on the platform is that it always must ensure to being able to cover all the people who may be interested to the contents. Quoting his words:

I would see it more in reverse: how to make sure that each topic reaches the right people. I would do that by keeping a strong focus on the topics and the quality of the discussion.

Ferdinando underlines that we all live in a situation of limited time and plurality of learning channels. The problem is knowing how to find the knowledge we need in very limited time. If you know how to look for it, you will always find information: the problem is knowing what is reliable and consequently knowing where to look for it. So, the platform become worthless when:

- users start filling platform with untrustworthy information,
- the features don't highlight values contribution without gathering it;
- the layout starts to broad topics without a focus.

In conclusion, platform's flexibility and scalability need to focus on trying to manage this optimization problem between limited time and abundance of information that need to be selected and summarized.

4.3.4.5 QUESTION 5:

The final question has been asked to understand how much the platform center on the collection of tacit experiences.

With the answer to this question, he revealed the fundamental goal that the platform needs to have and in general the objective that the learning academy has. Reporting Ferdinando's words:

“Certainly, tacit knowledge is important in value creation. The moment you describe experiences, the knowledge no longer becomes tacit. If we found a way in which all tacit knowledge is founded into one common container available to everyone, there would probably be no need for training. And so, this translation is exactly the goal.”

From this answer it is possible to see how the collection of tacit knowledge is critical to succeeding in managing the world market problems described in Chapter 2.1, that also Engineering S.p.a needs to face daily.

4.4 REQUIREMENTS MATRIX

In this sub-chapter the thesis shows a summary matrix that lists the requirements that the knowledge sharing platform must have into the first column, the reason why these are essential into the second column and in the third column is reported the section in which the requirement is presented into the thesis.

Requirement	Motivation	Sec.
Simplicity	Limited time	1.2
	Usefulness	
	Economic	
Personalization to the specific role	Usefulness	1.2
	Innovation	
	Economic	
Dependable Trust	Usefulness	1.3
	Limited time	
	Quality of information	
Able Trust	Usefulness	1.3
	Limited time	
	Quality of information	
Privacy Option	Eliminate Bias	1.4
Objectivity of posts	Eliminate Bias	1.4
	Quality of information	
Integrated with <i>HCM</i>	Usefulness	3.2
	Economic	
Horizontal	Encourage Dialogue	3.2

Logical Coherence of Discussion	Usefulness	3.2
	Quality of information	
Abstracting content	Quality of information	3.2
	Innovation	
	Limited time	
	Usefulness	

Starting from the indicated matrix, the development team aims to build **the first prototype** designed to implement the knowledge sharing platform.

Keeping the requirements in mind, the thesis concludes *Chapter 4 - Methodology* which outlined the processes and methodologies that led to the design of the main elements that the platform must have.

In the next *Chapter 5 – Results Presentation*, the thesis explains the specific features designed to satisfy each requirement listed and it presents the description **of the first platform prototype and every feature that satisfy a specific requirement.**

5 RESULTS PRESENTATION

5.1 INTRODUCTION TO BLUEPRINT

This chapter of the thesis presents the final result that attempts to meet the requirements found through market research and interview with learning director presented in Chapter 4. Moreover, the product shown in this chapter wants to be the possible answer to the resource question reported in section 2.4.2.

The tool used to present the result is the *blueprint* that, in economy field, is defined as a complete plan that explains how to do or develop something. The academic article “*Managing Successful Programmes: setting the blueprint for a better future*” published by the project management forum Axelos describes various types of blueprints and shows the following advantage of the tool:

- express visually the future state’s processes/business models;
- helps to understand changes that are needed for organization IT environment;
- helps to understand what information/resources are needed to manage future developments;
- helps to involves the right resources and staff;
- initiates an iterative process among involved staff: graphical visualization helps generate and share new ideas and integrations among development team members.

The first part of this chapter shows the *software process Blueprint* that consist in a graphic tool that explicitly defining a software process operativity. It enables visual evaluation of different perspectives of a software process, each being relevant for a particular stakeholder. Subchapter 5.2 illustrate the proposed operativity by applying it to the Engineering S.p.a reality and its IT infrastructure.

The subchapter 5.3 proposes the *software interface Blueprint* that consist in an initial graphic implementation of the software features and explains the documentation of interface. Each public function is explained in its behavior, with necessary interactions with user.

The creation of these blueprints is requested directly by the Learning Director, and it is submitted to the human resources development office that deals with innovation and new ideas in the HR field at Engineering S.p.a.

5.2 SOFTWARE PROCESS BLUEPRINT

The model that this thesis proposes is inspired by the model propose in the academic article “*Software Process Model Blueprints*” by Julio Ariel Hurtado, Alejandro Lagos, Alexandre Bergel and Maria Cecilia Bastarrica published by Computer Science Department, Universidad de Chile which proposes a **polymetric view** as a lightweight software visualization technique that provides the metrics information and help comprehension.

This type of blueprint presents the following elements:

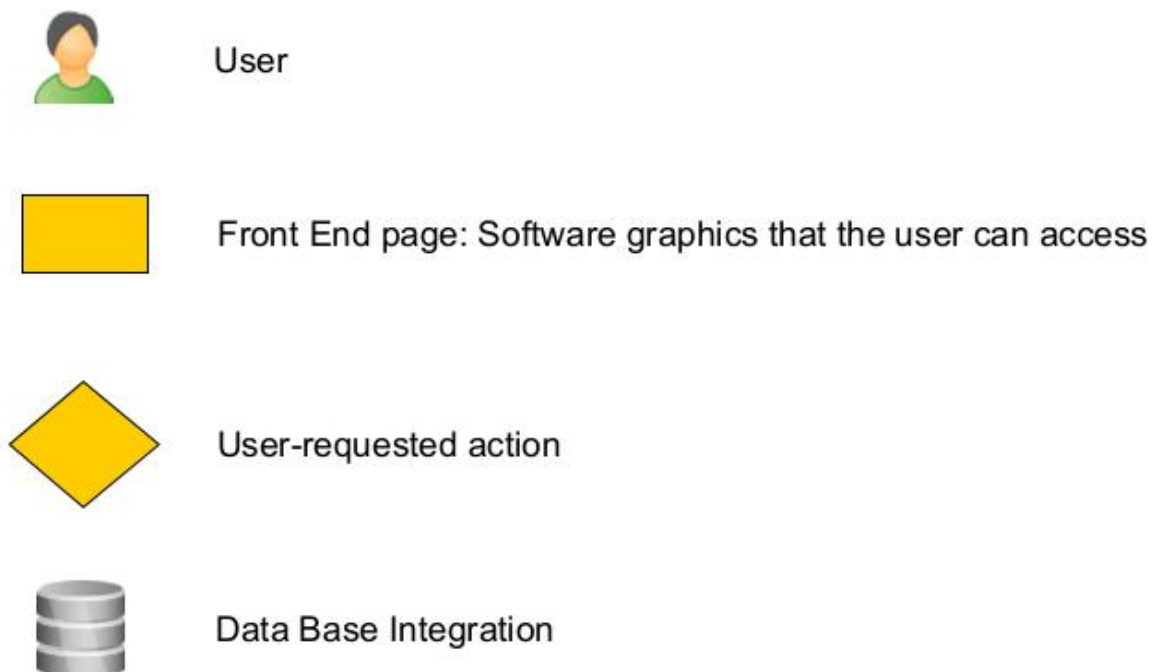


FIGURE 18 - BLUEPRINT LEGEND INDICATOR

The Blueprint graphic is made with “*yEd*,” a generic diagramming program with a multi-document interface in which the operator could create graphic relation between icon and nodes.

5.2.1 GRAPHIC RAPPRESENTATION

The graphical diagram presented in this section is intended to represent the linear path that the user faces inside the platform, so the point of view adopted is that of the **user**.

The software operational path meets one of the key requirements identified by the project team: **simplicity**. In fact, as emphasized in the interview by Dr. Ferdinando Lo Re:

"We all live in a situation of limited time and plurality of learning channels."

It is essential for an Engineering S.p.a. employee to update his/her knowledge but this must be done in the shortest time possible and for this reason the platform shows only four main simple steps:

- User Log In;
- Interaction with the home page;
- Interaction with posts;
- Log-Out.

Moreover, the user can access the platform using the company credentials:

- company username
- personal password

if the credentials are the same that are registered in HCM database, the user access to the **personalized homepage**.

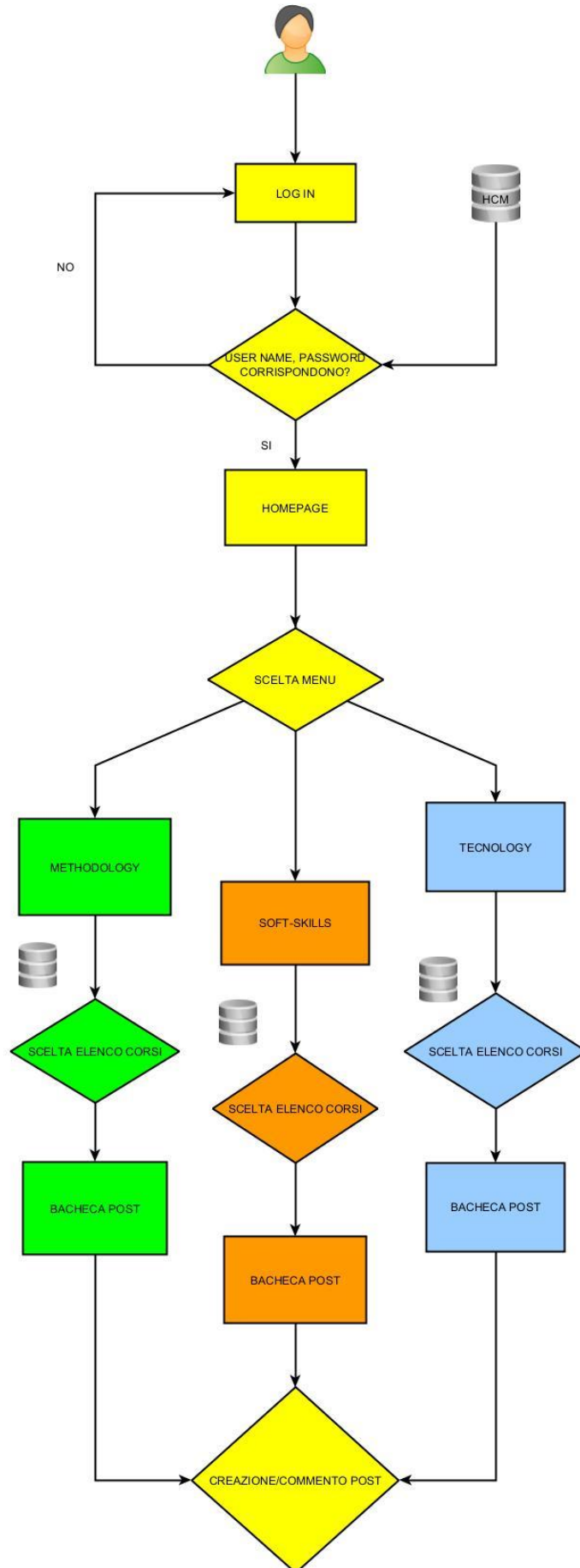
The homepage presents three sections, which represents the 3 main learning areas that Engineering S.p.a want to train its employees. These are:

- methodology;

- soft-skill;
- technology.

The user could select one of these and at the selection lead to a catalogue of topics that concerns with the learning area. Choosing one of the topics leads to a specific board that contains all the posts related to that topic. Into the board the user could create a new post or select, read and comments contents posted by other users.

The *Figure 19* shows the software process blueprints that shows the main activities that are required to the user for platform usability. The steps illustrated are explained in the following sections of the chapter.



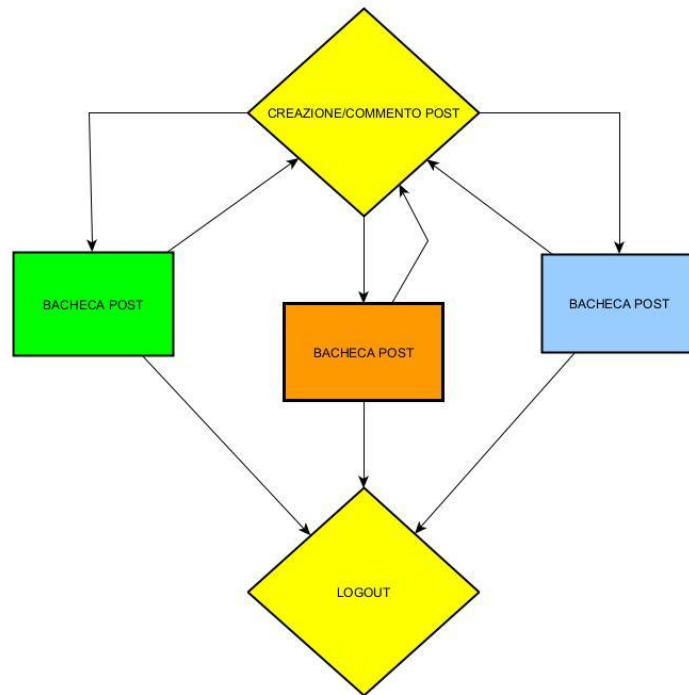
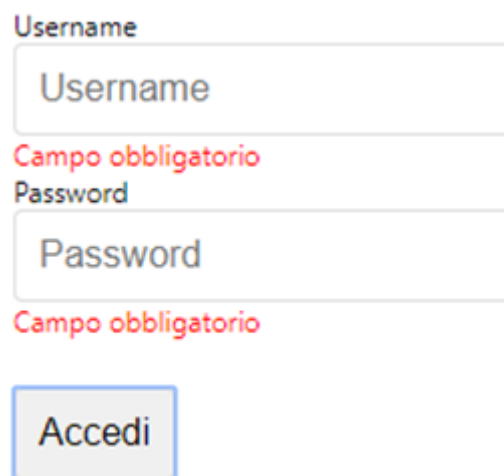


FIGURE 19 - PROCESS BLUEPRINT

5.3 LOG IN PROCEDURE

From the functional point of view, *the login form* is characterized by three simple elements: username field, password field and the submit button through which the user precisely sends the data to the Engineering HCM that verifies them in real time. Username and password are the corporate ones that allow access to all the organization services dedicated to the employee. When the user clicks on the submit button he enters in the personal profile. The log in form is showed in *Figure 20*.



The image shows a login form with two input fields and one button. The first field is labeled 'Username' and contains the text 'Username'. Below it is the red text 'Campo obbligatorio'. The second field is labeled 'Password' and contains the text 'Password'. Below it is also the red text 'Campo obbligatorio'. At the bottom is a button labeled 'Accedi'.

FIGURE 20 - LOGIN-IN FORM

The platform has access to Engineering HCM database so it could read all the **professional information** of the logged employee, such as:

- Serial number;
- Name, surname and age;
- Cost center;
- Company chief;
- Mentor;
- **Corporate role.**

This information are useless to the platform because allow the **personalization** of the contents and the posts that each user will be able to view. In the view of horizontal platform, so where all users have the same role, each employee can only access and

interact with assigned content and this avoids that the wrong professional role interact with the content that is not assigned to him.

In the following section 5.4, the thesis illustrates how specific contents **are assigned** to various job profiles.

5.4 INTEGRATION WITH “FORENG”

To meet the requirement of personalization to the specific role, the knowledge sharing platform must be integrated with the enterprise platform *ForEng*.

Foreng is the platform that contains courses catalog that the company delivers to its employees and the relative data, for example:

- Description of the course,
- topics covered,
- lecturer teaching the course,
- course schedule.

The platform lists all the courses the company delivers, and these are divided by color, orange, green and blue. Each color represents one *macro area of learning*, that the thesis has already presents in section 5.2.1:

- Orange corresponds to the “Soft Skill” area,
- Blue corresponds to the “Technology” area,
- Green corresponds to the “Methodologies” area.

Each color so each macro area of learning is dedicated to specific business roles. Employees can choose which courses include to enhance their skills by agreeing with company mentors. Once chosen the course, if the individual's goals are aligned with the company's the participation is approved by the Academy.

In *Figure 21* is shown the layout of the platform *ForEng* which served as the starting point for the design of the layout of the knowledge sharing platform.

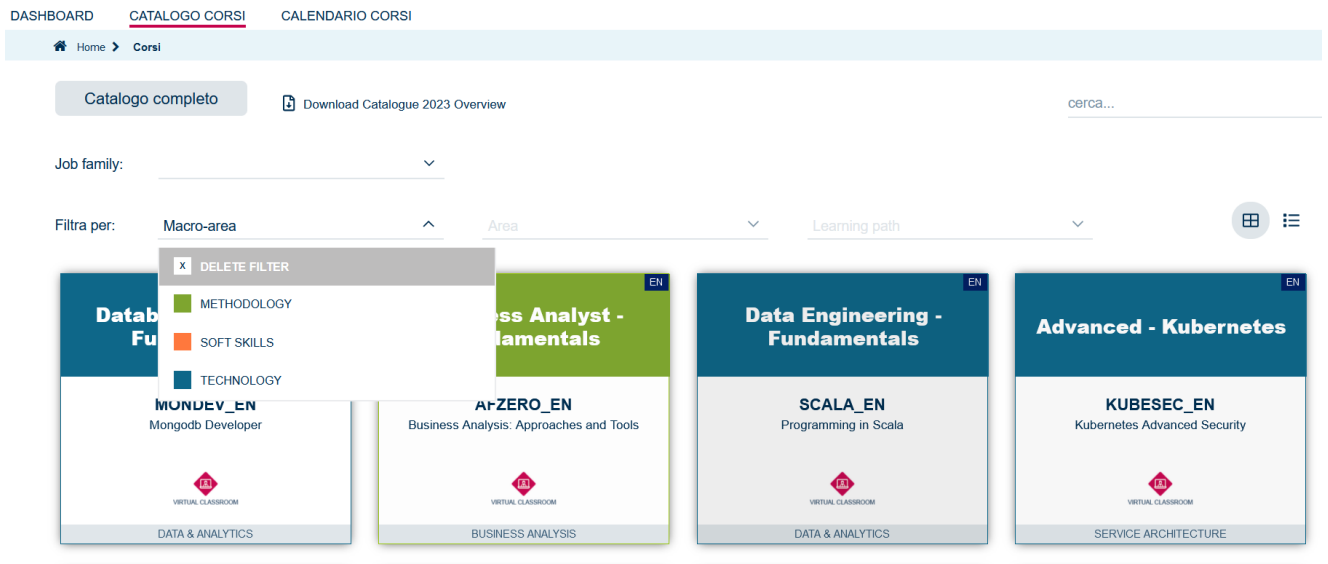


FIGURE 21 – FORENG

As showed in *Figure 21*, *ForEng* presents three filters:

- “*Learning Macro – Area*” in which the user could choose three learning area;
- “*Area*” general topic that belong to “*Macro Area*”.
- “*Job Family*” contains the major professional roles working in Engineering S.p.a.

selecting them to the user are shown the corresponding courses offered by the Academy.

The following paragraphs present and describes the macro areas, and the specific roles to which it is directed.

5.4.1 SOFT – SKILL AREA

This area covering training dedicated to the development of managerial and analytical skills, with a focus in the ongoing changes of *NWOW (New Ways of Working)* and delving into each of its managerial, relational and operational dimensions through vertical learning proposals, of short duration and innovative content. Examples of topics covered in the area are leadership and membership, team building and teamworking in the hybrid context, not forgetting the enhancement of communication

and interpersonal skills, feedback management and storytelling, self-empowerment and sales techniques.

The courses belonging to this area are aimed at all business figures since they have the purpose of improving individual skills in communication and approach to work. For example, the “*Write Lab course*”(Figure 22) has the aim to teach to design and structure an effective text, capable of achieving objectives, to make the individual able to recognize different communicative situations and adapt one's text to them, taking care of the formal and substantive aspects of a text.



FIGURE 22 - SOFT SKILL AREA TOPIC

5.4.2 TECHNOLOGY AREA

This area covering is dedicated to exploring and experimenting with programming languages, software development, cybersecurity, big data and other technical topics essential to the preparation of the staff of an IT company.

The courses belonging to this area are aimed at figure like Data Engineering/Data Analysis/Data Science, Product Specialist and Developer. For example, the course “*Oracle/SQL PLSQL Fundamentals*” (Figure 23) that has the main training objective is to give all needed competencies to write correct and efficient PL/SQL procedures, functions and triggers.



FIGURE 23 - TECNOLOGY AREA TOPIC

5.4.3 METHODOLOGIES AREA

This area includes training topics that covering individual and teamwork methodologies and philosophies such as Project and Service Management, IT Governance, Demand management and on agile, Scrum, and other methods. To these is added the Innovation Management and the activation of Digital Transformation processes.

The courses belonging to this area are aimed at figure like Business Analyst, Information System Analyst, Solution Consultant, Process & Business Consultant and Project Manager. For example, the course *"Business Analyst Vertical"* (Figure 24) has the aim to transfer to the participants the knowledge and skills for: criteria and analysis techniques useful for a rapid reading of the Client's expectations and for an effective identification of the main business/functional requirements, as well as for the corresponding identification of the main ICT-Based functionalities suitable to meet them.

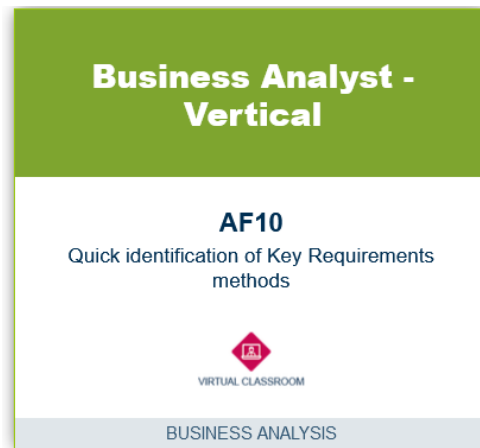


FIGURE 24 - TOPIC METHODOLOGY AREA

Having shown the three knowledge areas that allow the platform to be integrated with *ForEneg* and understood the operations that the user can perform in the platform, the thesis starts to describe the platform interfaces.

5.5 HOME PAGE LAYOUT

In the following sub-chapter 5.5, the thesis shows the first part of **interface Blueprint** which shows the **home page and how it** has been organized to integrate the three “macro area” of *ForEng* with the aim to customize content by business role.

5.5.1 FIRST PAGE

After the user has logged in, as described in sub-chapter 5.3, the platform displays the main home page contains the two sections:

- Resume of personal information.
- Macro Area selected thanks to the business area.

The following *Figure 25* presents the layout of the initial homepage.

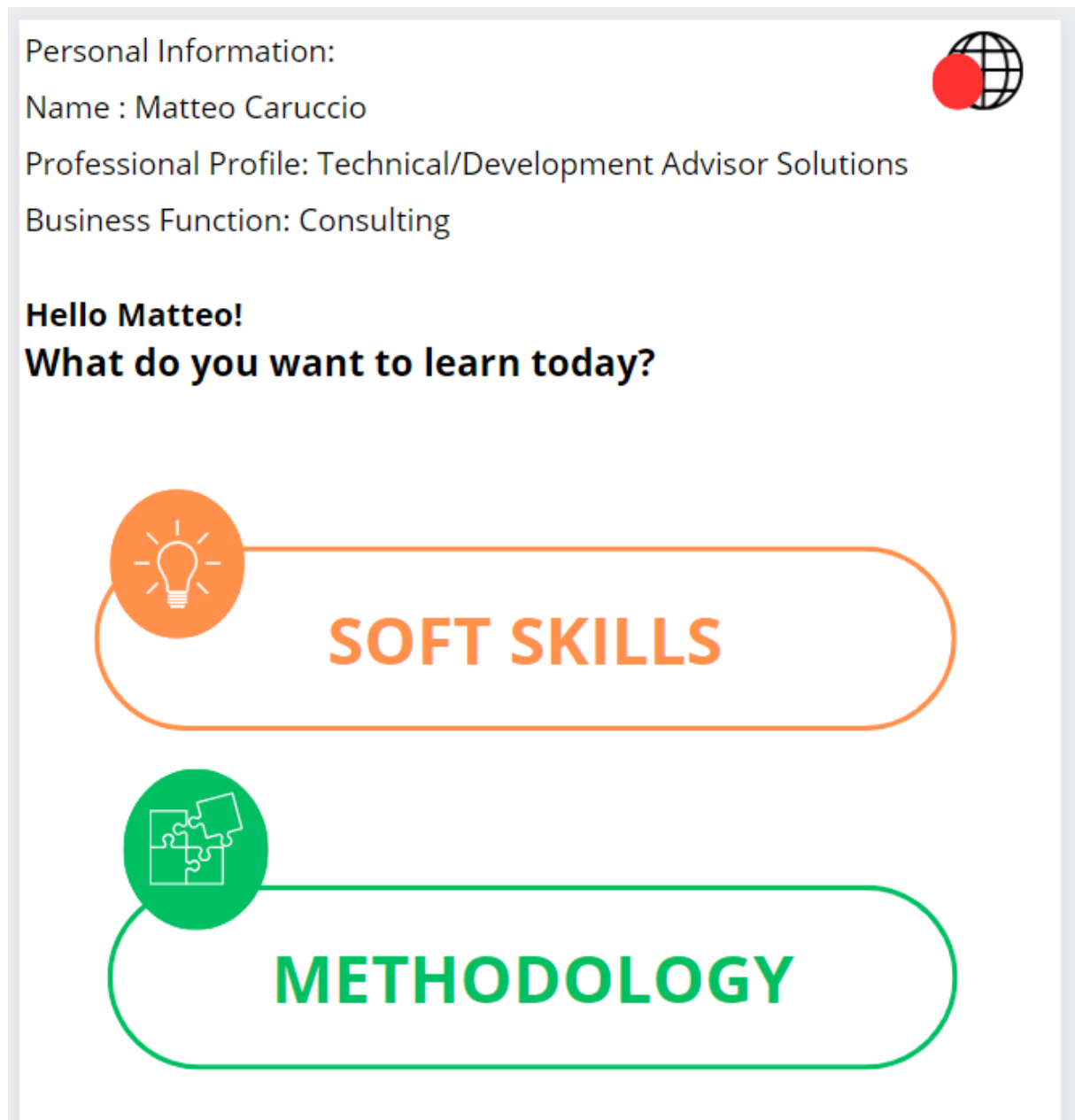


FIGURE 25 - HOME PAGE

5.5.1.1 PERSONAL INFORMATIONS

The *Figure 25* present in the first section of the front end are showed the **personal information** of the user “*Matteo Caruccio*” who holds the role of “*Technical Development Advisor Solution*” that belong to the business function “*Consulting*”.

5.5.1.2 NOTIFICATION BUTTON

Referring to *Figure 25* at the right of the personal information there is the “*Notifications button*” through which Matteo can receive the notice of a feedback from other users. The dynamics dialogue between users will be detailed in the sub chapter 5.7.1. The button is showed in the *Figure 26* below:



FIGURE 26 - NOTIFICATION BUTTON

5.5.1.3 AREA BUTTONS

In the second section on the homepage (*Figure 25*) there are two buttons that are named “*Soft skills*” and “*Methodology*” that represent the business soft skills and methodology areas, described in chapter 5.4.1 and 4.4.3. They are assigned for the **specific role** figure, in the example Matteo’s role is “Technical/Development Advisor Solutions”.

The Technology area, described in sub-chapter 5.4.2, is not assigned to Matteo’s role because his function is to develop both technical and commercial proposals or solutions. His role is required to have skills set of product knowledge along with process and market knowledge that requires interpreting latent customer needs with creativity. So, for the role is required to have excellent organizational skills but not a deep knowledge of the technical details of products.

To sum up, the macro areas "Soft skill" and "Methodology" are developed at the front end as two interactive buttons. The user can click on one of them to be able to access the list of topics belonging to the specific selected area.

5.5.2 TOPICS PAGE

When the user selects the macro area button, he/she accesses the page that allows to select the specific topic of interest.

As it is showed in *Figure 27*, the page presents the name of the user and a screen print of the string “*what topic do you want to upgrade today?*” in the first section.

Referring to *Figure 27*, in the second section of the page it showed the list of the main topic of the area that are taken by the platform *Foreng* described in subchapter 5.4. Returning to the example in the previous subchapter 5.5.1., if Matteo selects the “*Soft Skill*” button, he accesses to the page presented in *Figure 27* in which is showed the list of the topics that belongs to soft skill area. These are:

- “*Communication Excellence*” to improve communicational skills;
- “*Lenguage*” to improve the approach in writing and understanding foreign languages;
- “*Leadership Excellence*” to improve the approach in leadership and interaction with colleagues;
- “*Teamworking*” to better understand the dynamics of a group and how to approach it;
- “*Organizational Skills*” to improve to manage work tasks;
- “*Sales Excellence*” to improve sales skills.

These topics are developed on the home page as interactive buttons that the user could select and if the user clicks on one of them, the platform presents the bulletin board. The bulletin board and its elements are showed in subchapter 5.6.

Matteo, what topic do you want to improve on today?

COMMUNICATION EXCELLENCE

LEADERSHIP EXCELLENCE

TEAMWORKING

ORGANIZATIONAL SKILLS

SALES EXCELLENCE

FIGURE 27 - HOME PAGE LIST

5.6 BULLETIN BOARD

In this subchapter of the thesis is showed the core functionality of the platform, meaning how posts are made, how they are displayed by users, and how they allow interaction between users.

First, to reach the bulletin board, the user is forced to first choose the button macro area (described in section 5.5.1) and then the topic button (described in section 5.5.2): this path allows the platform to be **Dependable reliable** because in this way the user knows that he/she will consult specific topics and will not find worthless topics.

The bulletin board, which is shown in *Figure 28*, presents three elements on the screen:

- search bar;
- button for creating a new post;
- list of pop-ups that contains the title of the post in bold and the "**best take-aways**" of the post. The quality of the take-away is built based on the post content and feedback received.

The pop up are developed to sum up post and feedback with **logical coherence**, and logical **synthesis** to create a single, integrated, coherent and convergent contribution of value coming out of all that has been told. This element satisfies the willing to have an **Able reliable platform**.

For example, assuming that the user Matteo wants to learn in public speaking. He could read the best take -aways of the pup up "*Public speaking*" that reads "*here are some tips*:"

- *Understand who you'll be speaking;*
- *Consider their interests, knowledge level, and expectations;*
- *Structure your speech logically with a clear introduction, body, and conclusion;*
- *Capture your audience's attention with story, a surprising fact, a quote, or a thought-provoking question;*
- *Pay attention to your body language;*

- *Be open to feedback and learn from each speaking opportunity. Adjust your approach based on the reactions and responses you receive.”*

In the following Figure 28 are shown the bulletin board elements.

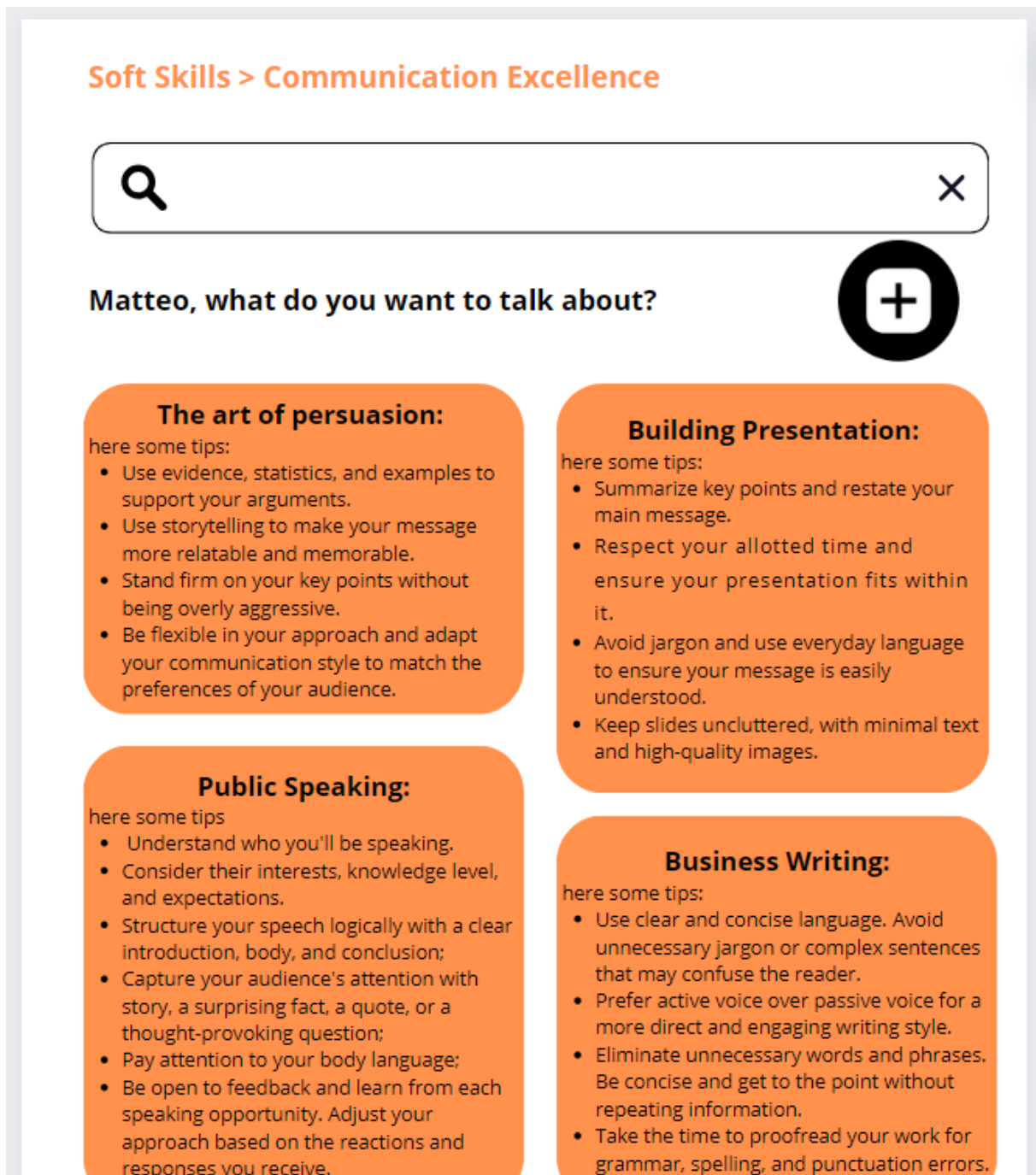


FIGURE 28 - BULLETIN BOARD LAYOUT

5.6.1 SEARCH BAR

The search bar allows the user to search for pop - ups that contain within the title the word or words typed.

How is showed in *Figure 29*, if the user Matteo types the string "Speaking" and the platform proposes the pop up that contains in its title the word "Speaking".

Although the function is very simple it allows the platform to be more **Dependable reliable** because it saves time and makes it easier to access specific content.

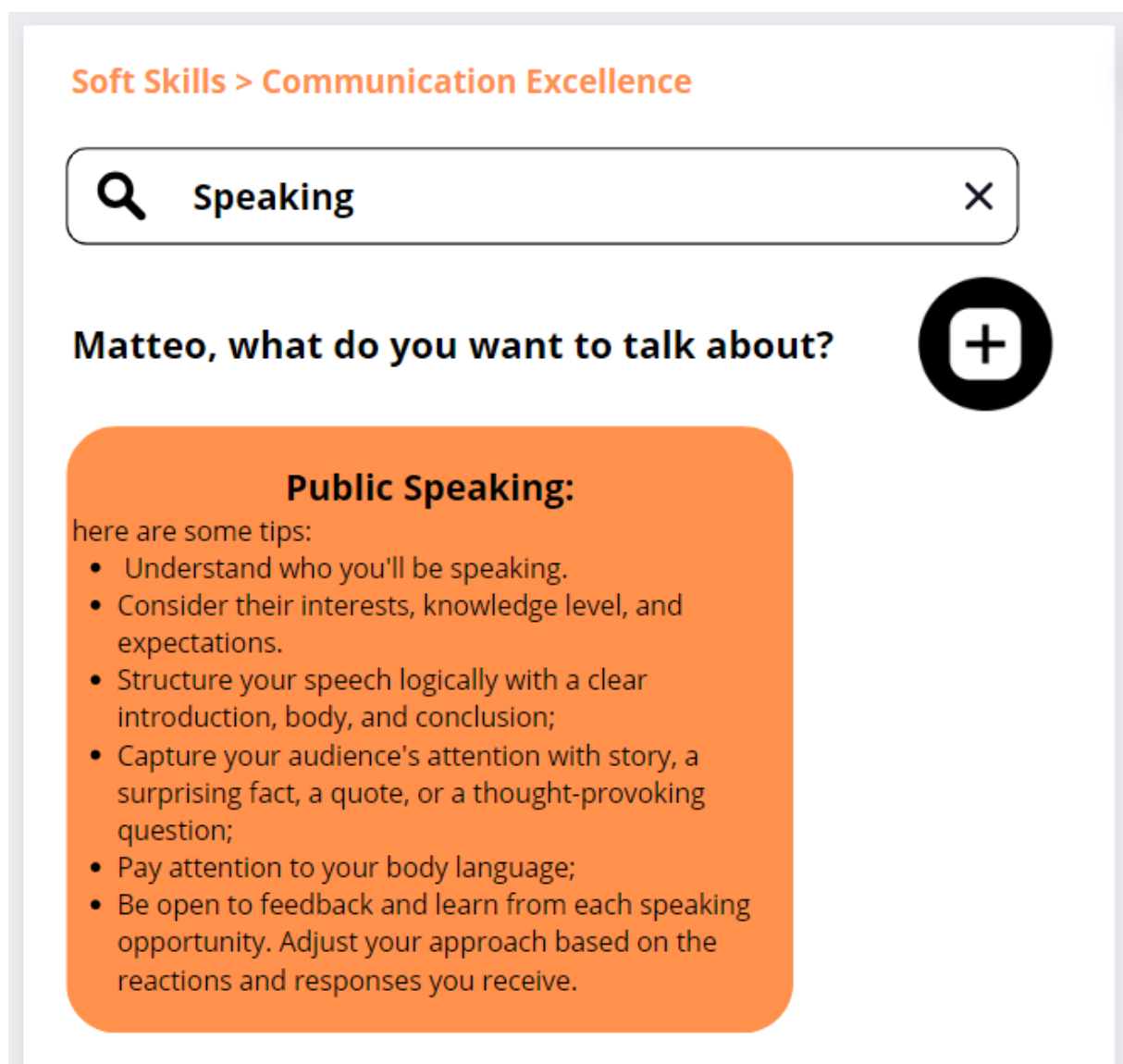


FIGURE 29 - SEARCH BAR

5.6.2 CREATE NEW POST

If the user wants to introduce a new topic of conversation through the button in the *Figure 30*, he/she can select on the button “*new post creation page*”.



FIGURE 30 - NEW POST BUTTON

Clicking on the create button the user access to the page that presents the box for the creation of the new post, that is presented in *Figure 31*. The box presents the following sections:

- in the header the user could types the title of the post;
- in the footer the user could write his/her knowledge, experience or formulate a question. This section also contains three important buttons:
 - *Privacy button*: if it is selected if the button allows to open a post in private mode. **Private mode** enables the platform to minimize and eliminate the bias described in the subchapter 2.4.
 - *Support button*: its functionality is described in section 5.6.3.
 - *Save button*: if it is selected allows the user to save the transcribed content and creates the pop up that summarizes the content of the post itself.
 - *Take Away*: is the section dedicated to entering a brief summary of what the user has written, and that will be reported in the pop-up present in the bulletin board.

The box for the creation of a new post is illustrated in *Figure 31*:

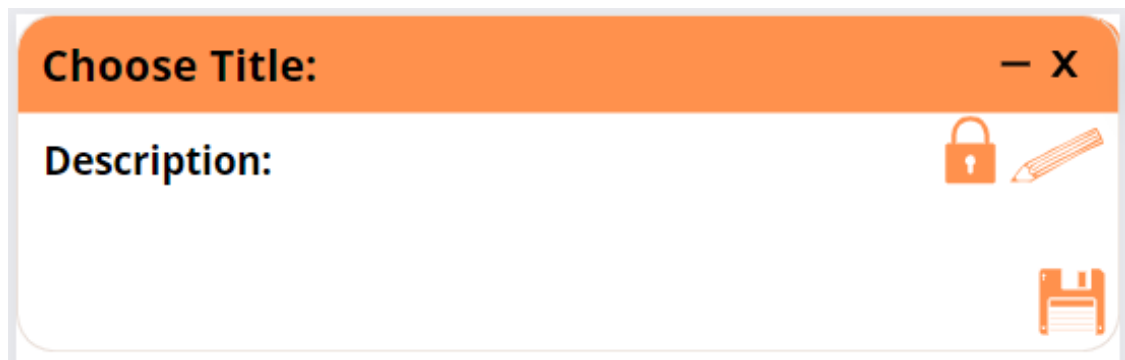




FIGURE 31 - CREATION POST BOX


5.6.2.1 HELP BOX

The button “*Help Box*” supports the user in writing a post helping to articulate experiences and knowledge in a structured and comprehensive manner, making it easier to read and consult. As is represented in *Figure 32*, at the click of the *Support Button* the platform displays a box that help the user to structure the post in a logical way. It contains **driving questions**. Taking inspiration from the lecture of the Forbe’s article “*3 Questions to Help You Discover Your Share-Worthy Stories*” by John Hall, the box of the first platform prototype contains the following driving questions:

- *Could you define the topic or the problem?*
- *Could you define your goal?*
- *What is your thought or usual behavior?*
- *Is there a takeaway that could be helpful for the audience?*

Choose Title: — X

Description:  

Take Away: 

Matteo, I suggest you to use this map for write the post:

- Could you define the topic or the problem?
- Could you define your goal?
- What is your thought or usual behavior?
- Is there a takeaway that could be helpful for the audience?

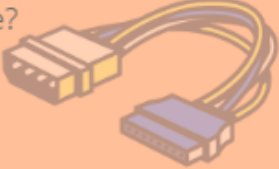


FIGURE 32 - HELP BOX

This *Help box* is a feature that makes the platform more **Able Trusty** and help the user to put the initial content in a logical coherence, satisfying the requirement of **objectivity**.

The use of this sequential map discourages the use of information and personal thoughts that go beyond the characteristics of the topics and can collapse into noise.

5.6.2.2 POST EXAMPLE

Resuming the previous example, assuming that the user Matteo do not find a topic that satisfy his research.

He pushes the button “*Create a new post*”, *Figure 30*, and consequently he accesses to the “*Creation Post box*”, *Figure 31*.

Matteo starts to type.

- In the section “*Choose Title*” he writes: “*Capacità previsionale*”.
- In the section “*Description*” he presses the button “*Help Box*” (Figure 32) and he starts to write following the **driving questions**.

Once finished the post Matteo is obliged to insert a short summary in the “*Take Away Section*”.

In addition, Matteo presses the privacy button, which hides his name when the post is shown to other users.

All Matteo’s actions are represented in the Figure 33.

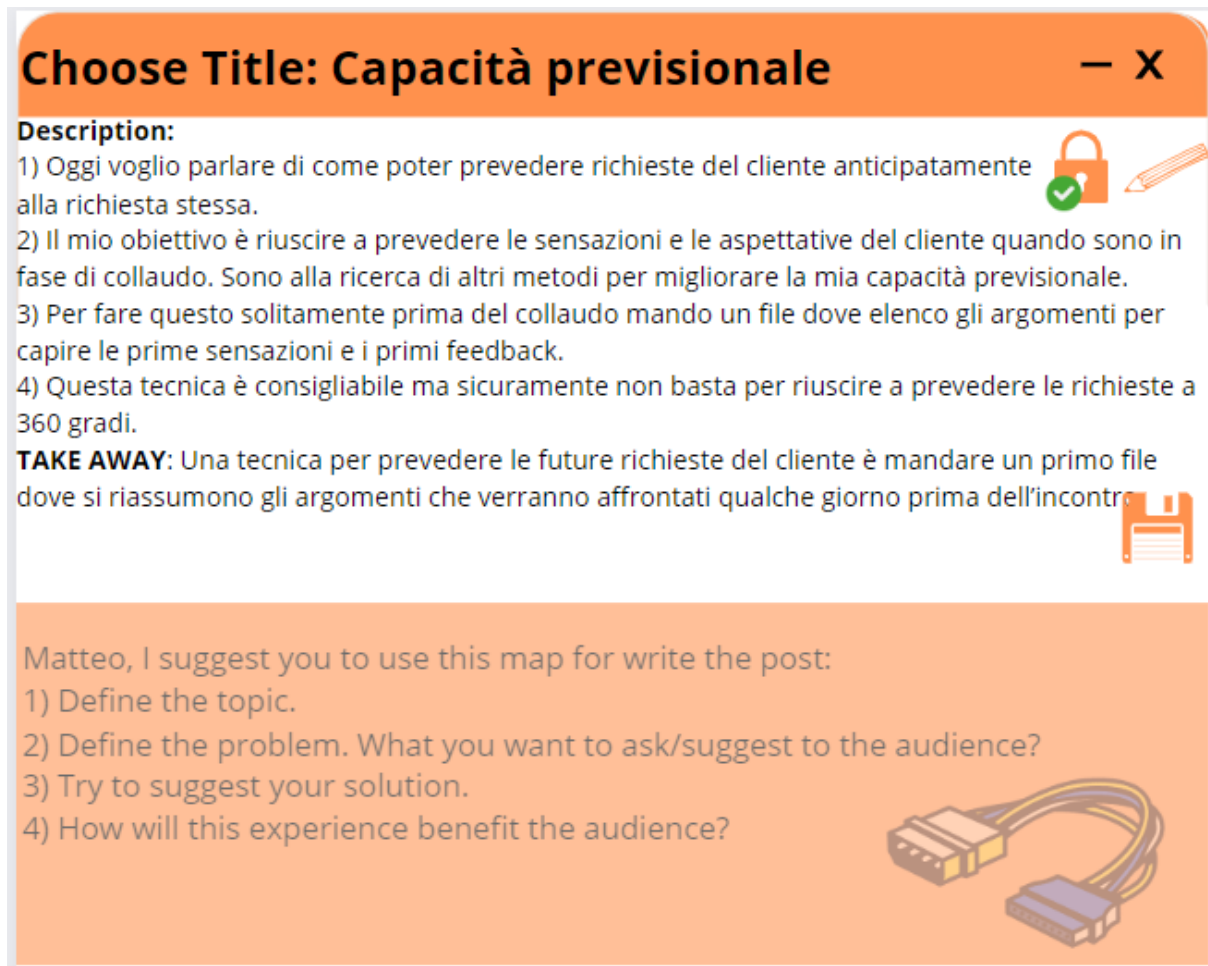
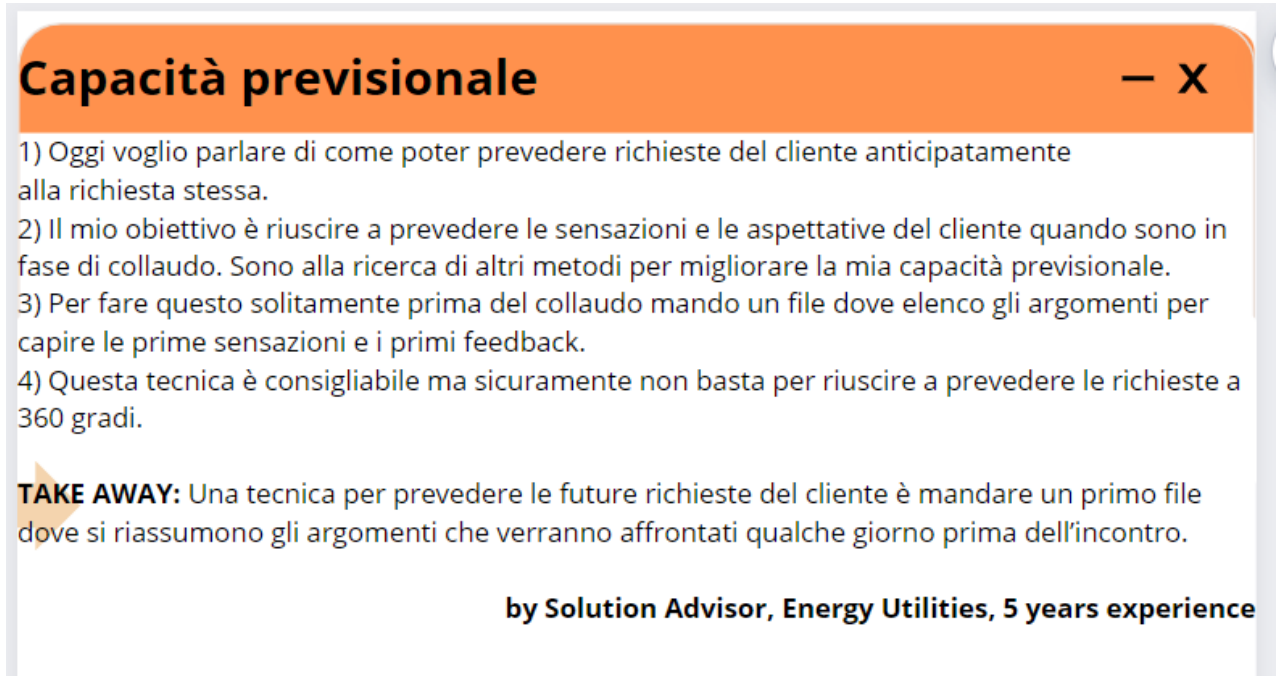


FIGURE 33 - NEW POST

When Matteo finishes creating the post, he presses the “save button” (Figure 33).

Immediately after pressing the save button the post evolves as it is illustrated in *Figure 34*: the title and description of the post are saved, and the characteristics of Matteo's professional profile are transcribed in the footer of the post.



Capacità previsionale — X

- 1) Oggi voglio parlare di come poter prevedere richieste del cliente anticipatamente alla richiesta stessa.
- 2) Il mio obiettivo è riuscire a prevedere le sensazioni e le aspettative del cliente quando sono in fase di collaudo. Sono alla ricerca di altri metodi per migliorare la mia capacità previsionale.
- 3) Per fare questo solitamente prima del collaudo mando un file dove elenco gli argomenti per capire le prime sensazioni e i primi feedback.
- 4) Questa tecnica è consigliabile ma sicuramente non basta per riuscire a prevedere le richieste a 360 gradi.

TAKE AWAY: Una tecnica per prevedere le future richieste del cliente è mandare un primo file dove si riassumono gli argomenti che verranno affrontati qualche giorno prima dell'incontro.

by Solution Advisor, Energy Utilities, 5 years experience

FIGURE 34 - SAVED POST

Further on saving the post, the blackboard update itself adding the **pop - up** “*Forecasting ability*” from which it will be possible to consult the post itself and whose content is populated with the takeaway section written by Matteo as it showed in *Figure 35*.

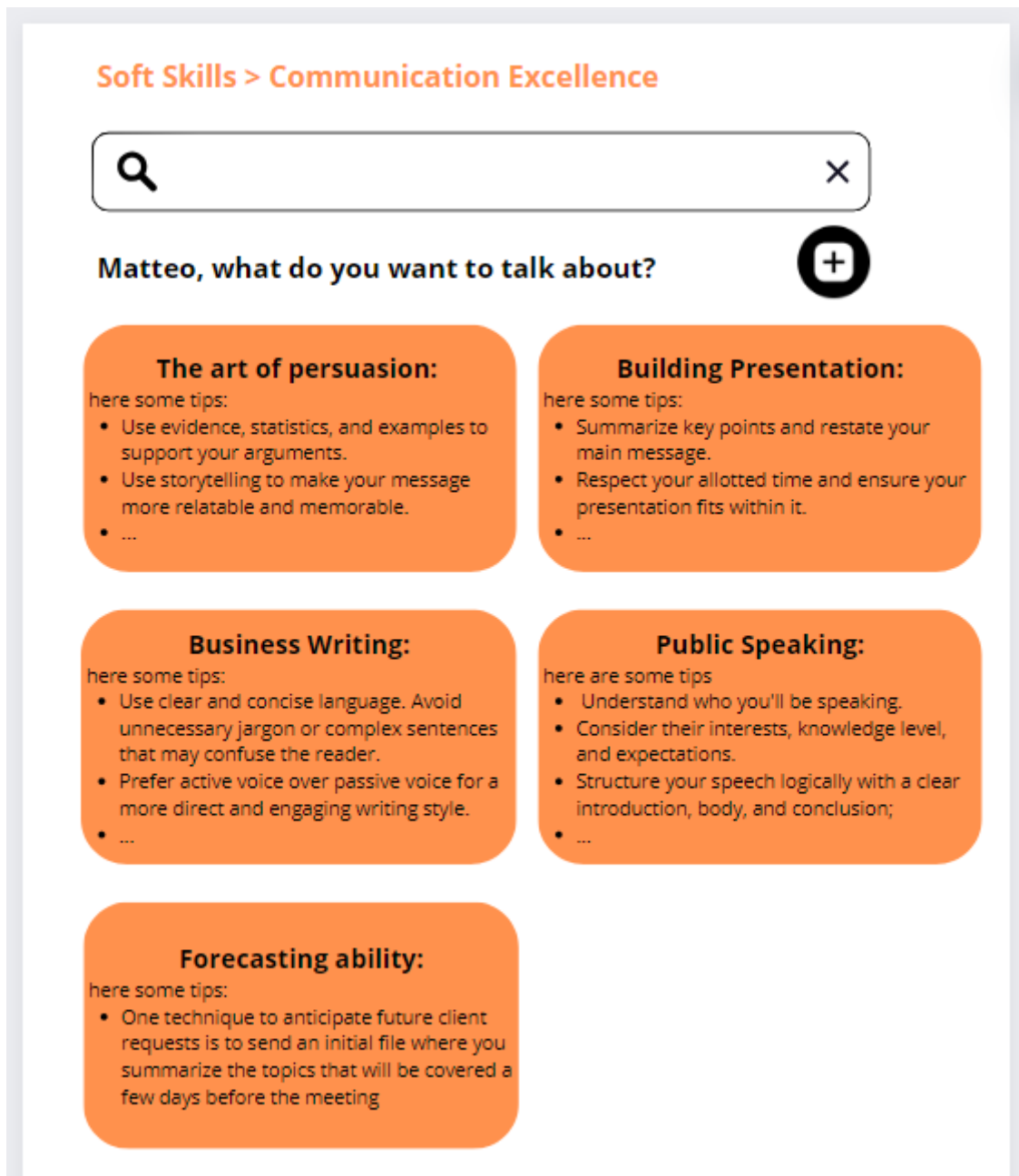


FIGURE 35 - NEW POP -UP

With this final example the thesis closes the presentation of interaction between user and platform: this subchapter has explained how to consult and search pop - ups and relative posts and how to create a new post through the interactive buttons described previously.

5.7 USER INTERACTION

In section 4.2.4.3, the learning director Dr. Ferdinando Lo Re underlines the importance of interactions based on dialogue between users which leads to effective and useful knowledge sharing only when all contributions have a logical coherence each other.

Thus, the challenge is to be able to link all users contributions through a sequential logical synthesis without leaving room for bias and personal opinions with the final aim to build objective information and suggestions. In this way the platform could become an instrument that is **“Able Reliable” because every post contains objective information and at the same time “Dependable Reliable” because every post focus on a single matter.** This sub-chapter 5.7 describes the way that try to achieve this goal, and the interactive functions that allows users to connect and interact with posts.

5.7.1 CREATE A COMMENT

A user could add a comment to an existing post thanks to the button *“Add a tip-take away”* present below each existing post, as it shown in *Figure 36*.



FIGURE 36 - ADD A TAKE AWAY

As is explained in section 5.6.2.1 the user that write the post is pushed to ask for a request or for a suggestion to the audience thanks to the question reported in the “*Help box*” (Figure 32); to continue then this logical flow, just like in a conversation the reader is invited to the platform to join the discussion with the function “*Add a tip – take away suggestion*”. With this technique, the reader is suggested to include advice that needs to be:

- useful,
- clear,
- simple,
- focus on the topic.

If the comment respects these 4 characteristics, it could enjoy the conversation in a logical way and it becomes a take-away.

If the user pushes the button “*Add a tip – take away suggestion*”, the platform displays a box in which the user could insert his/her take away advice, as it show in Figure 37.



FIGURE 37 - TAKE AWAY BOX

In this box the user could insert the suggestion required in the post and moreover he/she could use the following buttons:

- *Privacy button*, its function is showed section 5.6.2
- *Attach button* that allows to insert pdf files and jpg images.
- *Save button* that allows to fix the comment under the post.

Moreover, the *save button* sends a notification to the user that writes the post, who will find the notification in the button “*Notification*” (showed in *Figure 26*).

5.7.2 POST EXAMPLE

Assuming that the user Lorenzo, who is a solution advisor who has 10 years of experiences and works in healthcare, entered in the pop up “*Forecasting ability*”, created by the user Matteo in the previous example described in 4.6.2.2. and reads the post.

Lorenzo decides to suggest to Matteo that one technique that could help him to forecasts client’s requirements. Lorenzo digits:

“Hello, try conducting small market research to better understand the general needs, wants, and challenges of the industry. You can use surveys, focus groups, interviews. I can recommend EnergyMarketReport.com and recommend the attached requirements matrix provided by the company for their collection.”

Moreover, Lorenzo leaves a file pdf thanks to the “*Attach button*” to support his suggestion.

He doesn’t push the “*Privacy button*” so that his name will appear into the box.

When Lorenzo pushes the “*Save Button*” the post appears as showed in *Figure 39* and to Matteo is send the notification that say:

A user leaves a suggestion to your post “Forecasting ability”!

Matteo could check the notification in his homepage thanks to the “*notification button*” located in the home page as showed in *Figure 38*:



FIGURE 38 - NOTIFICATION

Capacità previsionale — X

1) Oggi voglio parlare di come poter prevedere richieste del cliente anticipatamente alla richiesta stessa.
2) Il mio obiettivo è riuscire a prevedere le sensazioni e le aspettative del cliente quando sono in fase di collaudo. Sono alla ricerca di altri metodi per migliorare la mia capacità previsionale.
3) Per fare questo solitamente prima del collaudo mando un file dove elenco gli argomenti per capire le prime sensazioni e i primi feedback.
4) Questa tecnica è consigliabile ma sicuramente non basta per riuscire a prevedere le richieste a 360 gradi.

TAKE AWAY: Una tecnica per prevedere le future richieste del cliente è mandare un primo file dove si riassumono gli argomenti che verranno affrontati qualche giorno prima dell'incontro.

by Solution Advisor, Energy Utilities, 5 years experience

+ Add a tip - take away 1

Ciao, prova a condurre piccole ricerche di mercato per comprendere meglio le esigenze, i desideri e le sfide generali del settore. Puoi utilizzare sondaggi, focus group, interviste. Posso consigliarti il sito EnergyMarketReport.com, e consigliarti la matrice dei requisiti allegata fornita dalla società per la loro raccolta raccolta.

By Lorenzo C., Solution Advisor, Healthcare, 10 years experieces




FIGURE 39 - COMPLETE COMMENT BOX

When the suggestion is saved, the box is fixed below the post description (*Figure 39*). Inside this frame there are two buttons. These are detailed in the following sections.

5.7.2.1.1 FILE BUTTON

At the top right there is a button from which every user could reach and download the attachments entered. The number inside the button indicates the number of file that the Lorenzo has inserted. This button is showed below in *Figure 40*.



FIGURE 40 - FILE BUTTON

5.7.2.1.2 LIKE - DISLIKE BUTTON

The bottom left of the comment box (*Figure 39*) presents the “like or dislike button”, so that any user reading the suggestion can decide if the suggestion is helpful or not; this logic allows the suggestion to be placed within the “*best tips pop-up*” if it is appreciated by the audience. The logic is the following.

- If the number of likes is greater than the number of dislikes then the suggestion is inserted into the “*best tips pup up*”.
- If the number of likes is lesser or equal than the number of dislikes then the suggestion is **not** inserted into the “*best tips pup up*”.

Is important to underline that the action to put like or dislike is completely **anonymous**, so that the person who writes the suggestion does not know the identity of the person who marks like/dislike. In this way, the biases described in Chapter 2.4 are prevented.

This button is showed below in *Figure 41*:



FIGURE 41 - LIKE - DISLIKE BUTTON

Resuming the previous example if Lorenzo’s comment obtains more like than dislikes, his suggestions is putted in the “*Take Away Pop-Up*”, as shown in *Figure 42*.

Forecasting ability:

1

here some tips:

- One technique to anticipate future client requests is to send an initial file where you summarize the topics that will be covered a few days before the meeting.
- try conducting small market research to better understand your , needs, wants, and general industry challenges. You can use surveys, focus groups, interviews. I can recommend [EnergyMarketReport.com](https://www.energy-market-report.com) and the matrix attached .

FIGURE 42 - COMMENT BECOMES TAKE-AWAY

5.7.3 DYNAMICS DEVELOPED

In conclusion, through the dynamics described in the sub chapter 5.7, the platform allows to build a logic dialogue is established between the following users.

- The creator of the post that ask for a suggestion and wants to open a topic on which he/she will upgrade his/her professional skills. At the same time the creator could leave a takeaway for the crowd.
- The commentator that leaves the tip to help the creator, but at the same time could learn something new thanks to the post takeaway.
- The audience that could interact anonymously with the creator and the commentator, deciding if the comment could bring competitive advantage to the individual.

6 NEXT STEPS AND CONCLUSION

6.1 FUTURE DEVELOPMENTS

This subchapter describes the developments that could be integrated on the first prototype described in chapter 5 through the blueprint tool.

These developments will integrate technologies such as:

- internal Engineering S.p.a artificial intelligence;
- mobile applications;

to offer users a better experience increasing flexibility, simplicity and personalization with the final goal to face the daily optimization problem between limited time and abundance of information reported into section 4.3.4.4.

6.1.1 ENGGPT: ENGINEERING GENERATIVE AI

“*EngGpt*” is the internal generative artificial intelligence developed by Engineering S.p.A. The model not only enables a similar quality of conversation as ChatGPT, but also offers the advantage of incorporating proprietary and domain-specific data while safeguarding sensitive information.

The adaptability of “*EngGPT*” extends to a wide range of tasks that can relate to natural language processing: text generation, classification, summarization and translation. So, it is possible to integrate “*EngGPT*” into business processes and applications to bring to life a powerful and customizable AI solution.

As it reported in Engineering S.p.a official site the expected results that this model wants to bring are:

- empowering organizations to achieve the benefits of advanced NLP (natural language processing);
- addressing privacy concerns to ensure confidentiality;
- customization of generative AI on specific business domain.

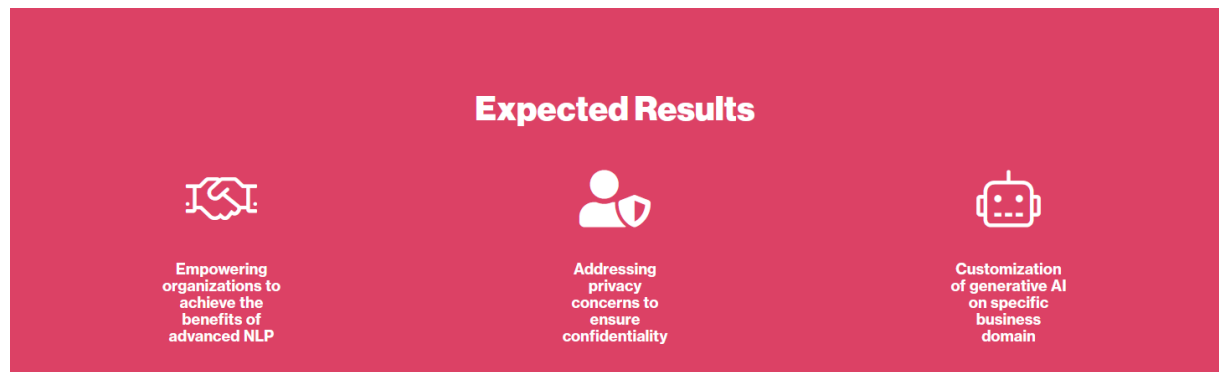


FIGURE 43 - EXPECTED RESULTS ENGGPT

Source: <https://www.eng.it/en/use-case/eng-gpt>

This type of tool can add some functionality that this thesis has already encountered in market research description, in the subchapter 4.2. Examples of these functionality are the following.

- Author assist: EngGpt could help the author of a post to create a shortest text, to adjust and find the best jargon, to adjust the tone of the post.
- Integrate the help box, showed in Figure 27: EngGpt could propose interactive questions to the author developing them as the text increases.
- Answer direct question: users could ask question to specific topic of the areas and EngGpt could answer them basing on previous post or on business internal documentation.
- Create better “Takes aways”: EngGpt could summarize automatically post and suggestions, integrate them with internal documentation with the aim to build take away more usable and comprehensive.

Implementing these and other functions requires AI needs to be able to synchronize and to have complete access to three elements, as it is showed in *Figure 44*:

- *business databases* that contain the data of each user, and the data that allow Ai to perform statistics regarding the topics requested by users.
- *historical records* of the posts entered the platform.
- *corporate clouds* where manuals, rules and procedures are placed.

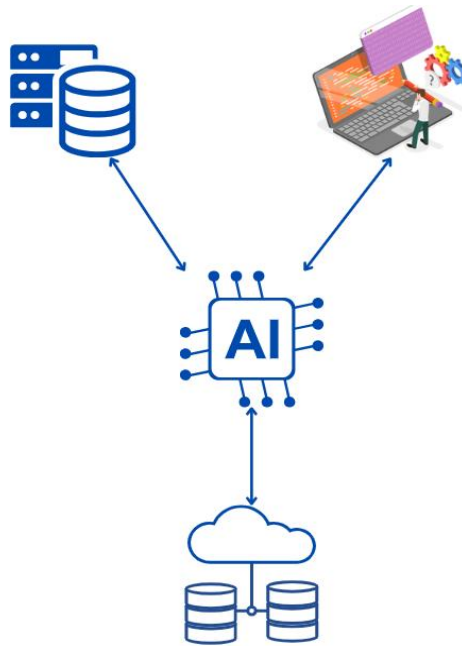


FIGURE 44 – AI CONNECTIONS

6.1.2 MOBILE APPLICATION

Another possible future implementation is the development of a **mobile learning** application dedicated for the Engineering S.p.a employs based on the platform described in this thesis.

A lot of academic learning science articles describe and analyze how knowledge emerge from mobile devices, focus particularly on scholastic education. The definition suggested by John Traxler, in the article “*Defining Mobile Learning*” is:

“Mobile learning can perhaps be defined as ‘any educational provision where the sole or dominant technologies are handheld or palmtop devices’.”

In the article “*Guest Editorial – Innovations in Designing Mobile Learning Applications*”, written by Yueh-Min Huang, Wu-Yuin Hwang and Kuo-En report that

the great power of mobile learning is that the personal development and the availability of information is **strongly disconnected from the work context** and so the learning activity becomes more spontaneous, portable, and informal thanks to mobile technologies.

In practice, the technology, the learner, and the actual learning process operate in an **uninterrupted continuum** within the social context of education. Technologies changes, audience change, and cultural context change, and the mobile learning will be more and more **pervasive** in everyday life, as it showed in *Figure 45* and this could be a great opportunity for firms in order to decrease learning costs.

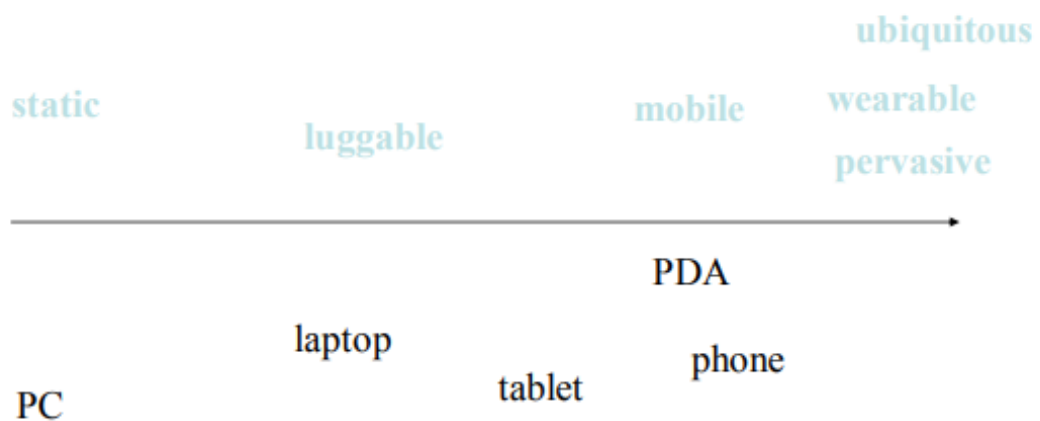


FIGURE 45 - LEARNING TECNOLOGY

Resource: "Guest Editorial – Innovations in Designing Mobile Learning Applications"

In addition, as it is explained in section 2.2.2. the firms need to mind that the emerging technologies in education field are adaptive and focus bite-sized content for this reason will be fundamental the implementation of mobile applications that allow to access social learning platform.

6.2 CONCLUSIONS

Starting from a general overview of the challenges and the issues that the firms must face in the modern and globalized labor market this thesis has been illustrated what are the main theoretical element that bring to the resource question, presented in section 2.4.2: *assuming that compliance and professional partnership are the most spread types of trust that grow up in companies between individuals, how could a company translate A and D behaviors into some characteristics of a knowledge sharing platform with the following aims: pushing employees to “trust the platform” and eliminating cognitive bias?*

This thesis describes the process of developing an initial prototype of a knowledge sharing platform that aims to answer the research question and is intended to be a horizontal tool for individual professional growth and increase the communication during the smart working practices.

Chapter 4 shows the activities that lead to the collection of the requirements that the platform need to have. These requirements are gathered into the *requirements matrix*, presented in subchapter 4.4.

The activities that have allow the definition of the matrix are:

- market resource, shows in subchapter 4.2, which allowed to understand the characteristics of platforms already in the market and their feasibility of use through “*ABCD Blanchard trust model*”.
- Learning director interview, shows in subchapter 4.3, which allow to identify company's needs and understanding how the platform will meet them.

Chapter 5 shows the result that attempts to meet the requirements, through two graphical tools a “software process Blueprint”, “and software interface Blueprint”. Every feature of the platform wants to satisfy a specific requirement.

- The platform is *Dependable* because:

- every topic is dedicated to a specific Macro Area of learning that is assigned to the specific job role of the profile;
- user has a search bar to search for a specific content.
- The platform is *Able* because:
 - User could consult the help box that support him to write posts.
 - Post, suggestion, and comment are synthesized in a logical way thanks to pop ups take-aways.
- Bias are minimized thanks to privacy option.

The platform allows to describe experiences, and tacit knowledge that no longer becomes tacit. The platform wants to be a way in which all tacit knowledge is founded into one common container available to every employee. If this goal is achieved the company could cut the cost of training consistently.

If the platform ensures to being able to cover all the people who may be interested to the contents, it could integrate itself into corporate culture and becoming a valid source of competitive advantage. The platform wants to be unique and bases its efficiency and usefulness in **reliability**, and so the name of the platform will be “**TrustEng**”.

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