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CUSTOMER CENTRICITY IN DIGITAL PUBLIC EDUCATION SERVICES: A BEST PRACTICE FOR PUBLIC ADMINISTRATIONS

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ABSTRACT

Introduction:

The accelerating digital transformation presents public administrations with unique opportunities to reform service delivery models. This study answers the research question of: "How can Public Administration improve its management practices to achieve full digitalization and provide customer-centric services in an ever-evolving external environment?"

Literature Review:

The literature review outlines the challenges and opportunities of digital transformation in Italian public administrations, emphasizing the need for digitalization to enhance public sector efficiency and customer centricity. Investments in infrastructure, digital skills and new technologies are necessary to overcome problems such as aging workforce and lack of digital competence.

Methodology:

A case study mixed-methods approach was employed, combining qualitative and quantitative approaches. Key participants involved in both analyses were students, parents and teachers. Qualitative data was collected in 4 Italian schools through focus groups from April 2023 to September 2023 and analyzed trough thematic analysis; quantitative data was collected through the submission of a survey from June 2024 to August 2024 and analyzed in SPSS through a correlation and ANOVA analysis.

Results & Discussions:

Focus groups generated 730 ideas, with 412 deemed useful after qualitative analysis. These ideas identified key areas of intervention across four macro-categories related to the school journey: Orientation, Enrollment & Onboarding, Educational Career, Successes & Achievements, and outlined user-requested features to implement a digital service which solves the detected problem. With these results it was possible to co-create a digital service developed by the Italian Ministry in charge of the education area in collaboration with the consulting firm in which I worked at the time of the research. The quantitative analysis, conducted to evaluate the efficiency of the digital service, showed relevant factors that influenced users' experience and level of satisfaction in using the service. It revealed that improvements in Accessibility, adoption of New Features, and Simplification of Procedures increase overall User Experience & Inclusivity.

Furthermore, significant differences in Accessibility between students and teachers, and in User Experience & Inclusivity between students and parents, were found in the analysis, indicating a need for a different strategy to enhance parents' and teachers' overall User Experience.

Conclusion:

The results offer public administrations valuable insights into how digital transformation strategies can be tailored to improve service delivery for different stakeholder groups. By addressing the unique needs of students, parents, and teachers, public services can achieve higher levels of inclusivity and user satisfaction.

INTRODUCTION

The accelerating pace of digital transformation presents a unique opportunity for public administrations to reinvent their service delivery models. In this context, achieving full digitalization and providing customer-centric services become critical objectives to pursue (AGID, 2023). This shift is particularly crucial in sectors like education, where the ability to provide personalized, efficient, and accessible services can significantly impact the quality of learning and overall societal progress. However, the journey towards fully digitalized public services is complex, requiring not only the adoption of advanced technologies but also the reengineering of traditional management practices to be more agile, user-centric, and data-driven.

In an increasingly digitized and interconnected world, the digitalization of public services must be supported by a robust, quality-assuring delivery model that prioritizes and responds to users' needs. This requires a strategic shift towards a user-centric approach, where the simplification of interactions between citizens and public administrations is crucial. By integrating emerging technologies and adopting a data-driven methodology, public administrations can enhance service efficiency and effectiveness. Strategic management, therefore, becomes a pillar in this transformation, guiding the adaptation of public services to meet the evolving demands of users while navigating the complexities of digital innovation (Downes & Nunes, 2013; Matt et al., 2015).

The objective of this thesis is to explore how public administrations, particularly within the Italian context, can reform their management practices to achieve comprehensive digitalization and provide services that are both customer-centric and adaptable to a constantly evolving external environment. Specifically, the study will answer the research question of: "*How can Public Administration improve its management practices to achieve full digitalization and provide a customer-centric service in an ever-evolving external environment?"*

This investigation begins with a thorough review of the current level of digitalization within Italian public services and continues in outlining how objectives in public administration are translated into operational actions and effective service delivery.

To provide a concrete example of how public administrations can align their strategic initiatives with the goal of digital transformation, this thesis presents a case study of a recent digital service developed by the Italian Ministry in charge of the education sector. Given the complexity and novelty of the topic, the research was conducted during my internship at a leading strategic consulting firm in Italy, which collaborated closely with the Ministry of Education on the creation of a service designed to guide and assist students and their families throughout their educational journey. Due to confidentiality agreements, the firm's identity remains undisclosed. This service exemplifies how a public administration can reorient its service delivery model towards greater customer centricity. A mixed-methods approach that combines qualitative and quantitative methodologies is adopted. Focus group-based qualitative analysis conducted under the structure of the design thinking methodology, is complemented by a quantitative survey, structured around the case study design. The case study not only highlights the challenges and successes encountered in the development of the digital service but also provides insights into how public administrations can effectively adapt to changing environments through iterative design and agile methodologies.

The thesis aims to enrich the literature by providing a detailed examination of how strategic management practices can be reoriented to support the development of customer-centric digital services. The findings from the case study offer valuable insights into the implications of digital transformation within public administrations, with potential applications beyond the education sector. In conclusion, it provides a best practice that answers the research question outlined above.

LITERATURE REVIEW

1. Digital transformation of public administration

1.1 The National Recovery and Resilience Plan (NRRP) as a means to achieve digitalization.

The National Recovery and Resilience Plan (NRRP) is part of the Next Generation EU (NGEU) program, a €750 billion package established by the European Union in response to the Covid pandemic, with approximately half of this amount allocated as subsidies. The Recovery and Resilience Facility (RRF), an instrument that provides grants and loans to support reforms and investments in the EU Member States[1], is the core component of the NGEU initiative, spanning from 2021 to 2026 and with a budget of €672.5 billion. Italy's Plan includes investments and a cohesive package of reforms, stemming from the Supplementary Fund and the Development and Cohesion Fund (*Fondo Sviluppo e Coesione*)[2]. Overall, Italy will be able to allocate approximately €248 billion.

The NRRP highly focuses on digitalization, accordingly the plan is structured around three strategic pillars agreed upon at the European level being: digitalization and innovation, ecological transition, and social inclusion. Additionally, the pillars provide the foundation for six key missions (M.E.F., 2021). This study will focus specifically on Missions 1 and 4 of the NRRP. Mission 1 is dedicated to advancing the country's digital transformation, supporting innovation within the production system, and investing in tourism and culture. Mission 4 targets the enhancement of the education system, the improvement of digital and technical-scientific skills, and the promotion of research and technology transfer. Both missions are further delineated into components that specify distinct objectives. For Mission 1 three are the components outlined:

M1C1: aims to enhance administrative capacity through reforms and investments in human capital, simplification of administrative procedures, and digitalization.

M1C2: supports digital transition and innovation in the production system, including the "*Transizione 4.0*" program with tax incentives for technology investments, digital skills training, and development of digital infrastructure like broadband and 5G. It also promotes microelectronics and industrial property reform.

[1] Recovery and Resilience Facility - European Union (europa.eu)
[2] Ministero dell'Economia e delle Finanze - Ministero dell'Economia e delle Finanze (mef.gov.it)

M1C3: targets the creative and cultural sectors, boosting competitiveness and resilience in tourism through digital and green transitions.

On the other hand, for Mission 4, two are the components outlined:

M4C1: covers the entire education cycle, from early childhood to higher education, including teacher careers. It involves investments in staff retraining, educational infrastructure, and aligning PhD skills with business needs.

M4C2: supports public research, researcher skills and mobility, and business-university cooperation, focusing on scientific improvement, knowledge transfer, and innovation ecosystems. Reforms target research and development, mobility of high-profile figures, fund management simplification, and career paths for non-tenured researchers.

The need of increasing the level of digitalization of the education system, in addition to meet the standards set at the European level, is necessary to overcome problematics arose before and after the COVID-19 pandemic. During the pandemic, the Italian Ministry for University and Research allocated €30 million to support distance learning infrastructure in schools and universities (Rapporto Anitec-Assinform, 2021). While this investment aimed to sustain education during the crisis, it also highlighted and enhanced existing inequalities rather than mitigating them. According to Crescenza and Rossiello (2021), distance learning increased disparities by excluding specific demographic groups, such as immigrants, economically disadvantaged individuals, students in remote areas without reliable internet access or digital devices and those living in overcrowded conditions were particularly disadvantaged.

This situation underscores the broader issue of digital inequality, where the shift to online education has amplified existing social and economic differences (Crescenza & Rossiello, 2021). The challenge of addressing these disparities highlights the need for comprehensive strategies that not only provide technological resources but also ensure equitable access to educational opportunities across different socio-economic groups (Rapporto Anitec-Assinform, 2021).

1.2 Public administration reform to achieve digitalization

To understand the opportunities and challenges of a reform in public administrations, it is firstly essential to outline the fundamental steps for achieving the digital transition. The concept of transition involves moving from one state or condition to a new and different

one (Treccani Online Dictionary). Ideally, this transition should result in a public administration that is fundamentally different (and potentially better) than its previous version.

One important step in this transition involves the significant task of converting traditional paper documents and archives into electronic formats, and moving towards, avoiding the creation of new "paper-native" documents in favor of "digitally-native" documents (Armenia et al., 2008). Dematerialization is a prerequisite for improving efficiency, enhancing document control, facilitating data sharing, and ensuring the preservation and security of information, ultimately leading to time and resource savings (Galetta, 2019).

While this principle holds true, the actual implementation, as demonstrated by the complex process of establishing the National Registry of Resident Population (ANPR)[3] and the Electronic Health Record (FSE)[4], presents significant challenges (Moruzzi, 2009). Even if we assumed that the issues related to dematerialization were resolved and public administration successfully transitions to fully digital documents, new challenges would arise in managing and maintaining digital archives (Guercio, 2002). Unlike analog documents, digital records are vulnerable to technological obsolescence and require ongoing updates to ensure long-term accessibility and integrity (Bearman, 1999; Dwivedi, 2001). The “cloud-first” principle, advocated in the 2021-2023 Triennial Plan for IT in Public Administration, emphasizes the need for public administrations to adopt cloud-based solutions, though this transition also carries risks (AGID, 2021).

Furthermore, the ephemeral nature of digital data, which is not physically attached to its medium, raises concerns about the integrity, authenticity, and reliability of these records over time (Guercio, 2021). Unlike paper documents, which can remain relatively unchanged over time, digital documents are susceptible to alteration, necessitating constant attention to their preservation. The “once-for-all” principle that applied to paper document storage no longer holds true for digital data, which now requires an “all-the-time” approach, demanding continuous financial investment (Boydens, 2004).

[3]The Anagrafe Nazionale della Popolazione Residente (National Register of Resident Population) is the single nationwide registry office that collects the data of citizens resident in Italy and registered with AIRE. In addition to avoiding duplication of information, ANPR allows citizens to view their personal data and use standardized services regardless of their municipality of residence (Italia Digitale 2026).

[4] The set of digital health and socio-medical data and documents generated by present and past clinical events concerning the patient, also referring to services provided outside the National Health Service.

In the context of digital archiving, the financial vulnerabilities are particularly pronounced, especially as Italy is facing budget constraints following the implementation of the NRRP. The shift towards digital archiving, while essential for modernizing public administration, demands continuous financial investment for maintaining and upgrading technological infrastructure. As Bearman (1999) highlights, the preservation of electronic records requires ongoing resources, contrasting sharply with the more static nature of physical archives. This dependency on continuous funding makes digital archiving particularly susceptible to budget cuts, a reality that may undermine the long-term sustainability of digital records management in public administration.

These financial vulnerabilities are amplified by the challenges of an aging public workforce, as highlighted by the Presidenza del Consiglio dei Ministri (2021). The Italian public sector, which has seen a significant reduction in its workforce over the past decade, faces additional strain due to slow generational turnover. With a substantial portion of the workforce close to retirement, the public administration faces the challenges of digital archiving, as fewer younger, digitally native employees are available to manage and innovate within these systems.

Over the last decade, public spending trends and a hiring freeze have significantly reduced the number of public employees in Italy. Currently, Italy has about 3.2 million public employees, which is below the OECD[5] average (13.4% of total employment vs. the OECD average of 17.7% in 2017) (Presidenza del Consiglio dei Ministri, 2021)[6].

Generational turnover has been slow and partial. In central administrations, only one new hire was made for every three layoffs, and in local administrations, one hire for every two layoffs. As of 2019, the average age of public employees is 50, with 16.3% over 60 and only 4.2% under 30 (Presidenza del Consiglio dei Ministri, 2021). This has led to a mismatch between available skills and those needed for a modern, digital, and inclusive economy. A study conducted by McKinsey (2020), identifies a critical skills deficit within Europe's public sector. The report highlights a significant disparity between the technological skills of public sector employees and the growing demands for digital capabilities and underscores the importance of bridging this skills gap to improve public sector efficiency and meet increasing citizen expectations for digital services.

[5] An intergovernmental organization with 38 member countries, founded in 1961 to stimulate economic progress and world trade.

[6] PNRR_0.pdf (governo.it)

Furthermore, it highlights that current training programs are often outdated and misaligned with the evolving needs of the sector, increasing the already significant mismatch between available skills and those required. Furthermore, the analysis conducted by Monti and Pellizzari (2017) highlights significant mismatches in the Italian labor market, focusing on the disparity between formal qualifications and actual skills. The results reveal that the Italian education system often produces qualifications that do not accurately reflect workers' capabilities, especially in STEM[7] fields. This mismatch is additionally emphasized by the traditional sectoral composition and prevalence of small firms in Italy, causing skilled workers to be employed in jobs where their skills are not exploited to their full potential (over-skilling) and eventually leading to skill deterioration (Monti, Pellizzari, 2017). The rigidity of Italy's collective bargaining system further complicates labor market adjustments, hindering improvements in salaries and working conditions to attract better candidates. These systemic issues require urgent reforms to align educational outcomes with labor market demands and to enhance job quality and compensation.

Another contributing factor of this phenomenon is the reduction in spending on education and training for public employees. Over ten years, investment in training nearly halved, dropping from 262 million euros in 2008 to 164 million in 2019, averaging 48 euros per employee. In 2018, only 7.3% of local public administration employees received ICT training, a 0.4% decrease from 2015 (Presidenza del Consiglio dei Ministri, 2021).

These issues are more severe in peripheral administrations, which faced significant budget cuts during the financial economic crisis, losing over 26.6 billion euros in transfers from 2007 to 2015, about a 50% reduction.

With growing numerical, age-related, and training constraints, the Italian public administration struggles with an increasingly complex and uncoordinated set of regulations and procedures at national, regional, and local levels. This reduces the ability to implement both public and private investments, imposing high economic costs on citizens and businesses, and hindering long-term growth. Therefore, public administration reform has long been a key recommendation from the European Commission in the Country Specific Recommendations. The study conducted by McGowan et. al (2015), delves into the link between skill mismatch and various policy frameworks across 22

[7] Science, technology, engineering, and mathematics fields

OECD countries, and suggests strategies to overcome this problematic. Countries with effective labor market policies, including those that facilitate efficient reallocation of workers and do not obstruct residential mobility, tend to have lower cases of skill mismatch. The research underscores the significance of wage flexibility, participation in lifelong learning, and high managerial quality in reducing mismatches. These factors, along with housing policies, contribute to a more adaptable workforce that is better aligned with market needs.

Therefore, a structural reform of the PA which addresses both internal challenges (generational turnover and skill adaptation) and external challenges (delays in regulatory and administrative simplification and digitalization), represents an opportunity for the Italian scenario. The European Commission has emphasized the need for a comprehensive strategy and vision for reform, together with effective and rapid implementation mechanisms, the development of administrative capacity through the selection and training of personnel, and the removal of obstacles that could slow down NRRP investments.

The Senate and the Chamber have stressed the importance of strengthening simplification measures to ensure effective implementation of NRRP investments (MEF, 2021). Parliament has also called for better organizational measures to build stable administrative capacity within public administrations. This would enable the efficient realization of reform and investment projects and the provision of adequate public services. Based on these premises, the implementation of the reform and investment program is structured along four main pillars.

- **Access**: to streamline and enhance the effectiveness of selection procedures and promote generational turnover.
- **Good Administration**: to simplify rules and procedures.
- **Skills**: to align knowledge and organizational capabilities with the new demands of the labor market and a modern administration.
- **Digitalization**: as a cross-sectional tool to better implement these reforms.

Access

The goal of the Access pillar includes redefining competencies to include more technical profiles and soft skills and integrating future professions such as those in digital and big data.

For these reforms to be achieved quickly, adequately, and effectively, the NRRP calls for introducing public recruitment systems that overcome the complexity and length of current procedures. To better align recruitment with the actual professional needs of the administrations, the Plan suggests revising tools for analyzing competency needs and implementing a digital recruitment platform. This platform will allow administrations to plan and manage their recruitment processes efficiently. Public employees will be able to update their profiles to reflect their skills and competencies, and potential external candidates will find information on open positions and assess their eligibility.

The NRRP also foresees other recruitment paths for highly specialized and professionally qualified individuals. This includes the quick integration of high-profile young individuals with specific qualifications through targeted training and recruitment processes, as well as agreements with universities, high-level training centers, and professional orders to select and quickly integrate the best specialist profiles into the administrations.

Good administration

The first and fundamental objective of simplification is to reduce the processing times of procedures, particularly those involving multiple stakeholders, which are more prone to delays, stagnation, or even blockage of decision-making processes. To speed up administrative action and limit burdens on citizens and businesses, it is necessary to liberalize, simplify (including eliminating unnecessary procedures), reengineer, and standardize processes.

Digitalization plays a crucial role in this context. On one hand, to digitalize procedures, it is essential to rationalize, simplify, and standardize them. On the other hand, digitalization itself can significantly contribute to the acceleration and standardization of the operational mechanisms of administrations.

The NRRP also calls for monitoring the interventions to measure the reduction of times and burdens and adequately communicating these interventions. This is crucial to ensure rapid implementation at all administrative levels and to properly inform citizens.

Another relevant point is the creation of a technical assistance tool for implementing these activities at the local administration level. This tool involves a pool of 1,000 experts, coordinated by regional administrations and deployed to local entities. These experts will support the management of complex procedures, address backlogs, provide technical

assistance to project proponents, and support the measurement of actual procedure completion times.

Finally, the NRRP foresees the activation of benchmarking initiatives in central, regional, and large municipal administrations to promote performance measurements oriented towards outcomes.

Skills

The success of the NRRP and any public policy aimed at citizens and businesses, relies heavily on the people involved. As presented above, improving selection and recruitment processes is essential for acquiring top skills and training and valuing human capital. A lack of skill-based management often reduces workforce planning to mere staff replacement. Furthermore, the absence of a common taxonomy for professional descriptors hinder comparison across different administrations and limits mobility. Additionally, administrations often struggle to project their future needs in terms of necessary skills to effectively address the demands of citizens and the productive sector. Moreover, human resource management systems frequently fail to maintain the motivation and effectively leverage the contributions of highly capable and motivated employees.

To address these issues, there is a need to equip administrations with strategic human resource planning tools. This process should begin with defining a set of competency descriptors, including soft skills, for various professional profiles, integrated into a unified recruitment platform. The main objectives include defining professional profiles as a reference parameter for hiring policies, improving alignment between skills and career paths, and establishing differentiated training pathways for target groups. These pathways should be highly qualified and certified within an accreditation system, based on identified skill gaps in common strategic areas or specific professional domains, including training on public ethics. Another objective is to enhance the technical and managerial culture of administrators with measures promoting a proactive approach to digital transition, focusing on achieving results, and leveraging the ethics and mission spirit of civil servants.

To achieve these objectives, investments will focus on two main intervention areas. First, a revision of PA career paths will introduce greater mobility. Innovative mobility models will also facilitate access for highly qualified individuals from the private sector,

international organizations, foreign universities, or public and private entities abroad. Central to this action is improving PA's training capacity, articulated along three axes: enhancing the National School of Administration (SNA) through strategic partnerships with other universities and national research institutions; reorganizing and rationalizing the training offer by creating specific online courses (MOOCs) available to PA staff on new competencies addressed in the NRRP, with certified quality standards, and integrating these with rigorous short and medium-term impact assessments; and establishing thematic Learning Communities for managerial roles to share best practices and solve real administrative cases.

Digitalization

Digitalization serves as a cross-sectional enabler for a wide range of activities, including recruitment, training, administrative procedures, and their monitoring. The main objectives are to consolidate high-level competencies for the rationalization of administrative actions through technological and organizational innovation, facilitate and accelerate digitalization investments, ensure the transition from the planning phase to the operational phase of new infrastructures and applications, and enhance, expand, and strengthen existing digital skills within the administration.

Given the nature of these interventions, clear and efficient governance among all involved administrations is required. Specifically, the Department of Public Administration is responsible for the strategic supervision of reengineering processes according to common standards, implementation at peripheral administrations, regions, and local entities, and managing the recruitment and training of personnel with adequate technical skills. The Ministry for Digital Transition oversees defining and building the necessary technologies and interoperable digital infrastructures on which reengineered procedures will be implemented.

1.3 The digital transition in the Italian scenario

Public administration digitalization, as already examined in previous paragraphs, is one of the main challenges identified by the recovery strategies outlined in the National Recovery and Resilience Plan (A. Baldassarre, 2023). According to the Regulation (EU) 2021/24, which establishes the Recovery and Resilience Facility, one of the six pillars of initiatives to revitalize European economy, is the digital transition. In compliance with the Regulation, the Italian NRRP devotes approximately 25% of the funds to this

objective, specifically for investments in digital technology, infrastructure, and procedures in order to promote the competitiveness of the national system (A. Baldassarre, 2023). The year 2023 has been marked by significant activity in the digitalization of public administration, with the implementation of numerous digital transformation projects. These projects have primarily been developed under the framework of the NRRP, and the substantial availability of funding has launched a series of initiatives at both the central public administration level and, most notably, within local authorities. The initiatives related to the NRRP have focused on enhancing infrastructures and activating more modern operational methods, in compliance with the relevant regulations. Italy has implemented a series of legislative and strategic initiatives to address digital transformation and promote technological innovation, recognizing the need to modernize Public Administration and to align with European standards. More specifically, the Italian government's digital transformation strategy, as embodied in the Legislative Decree 7 March 2005, No. 82 ("Code of Digital Administration"), aimed to consolidate and streamline regulations governing the public administration's digitalization efforts. Despite these intentions, it has been argued that the decree fails to fully address the deep-rooted inefficiencies within Italy's bureaucratic system, raising concerns about its real impact (AgID, 2023; Ministero per l'Innovazione Tecnologica e la Digitalizzazione, 2020).

Italy has actively adopted and adapted the European Digital Agenda, aiming to enhance its competitiveness within the global digital economy by aligning with key European priorities such as digital skills, infrastructure development, and the modernization of public services (European Commission, 2021). This alignment is evident in measures like the Decree-Law 16 July 2020, No. 76, known as the "Decreto Semplificazione," which targets the reduction of bureaucracy and the promotion of digital innovation (Ministero dello Sviluppo Economico, 2020). According to Piattoni (2016), the Italian administrative system has been plagued by excessive red tape, which not only hinders public service delivery but also stifles economic growth and innovation. The inefficiencies of the bureaucratic system are seen as a significant barrier to the country's competitiveness on a global scale (Piattoni, S., 2016). Additionally, Italy’s commitment to ethical and innovative AI development is underscored by the AI Act and the Italian Strategy for AI 2024-2026, which prioritize the creation of a safe and accountable AI environment

(European Commission, 2021; Knowledge4Policy, 2023). Furthermore, the Three-Year AgID Plan for IT in Public Administration 2024-2026 lays out specific steps to accelerate digital transformation within Italy's public sector, reflecting a broader commitment to modernizing government operations (AgID, 2023).

However, this strong alignment with European frameworks, while beneficial in many respects, raises questions about Italy's ability to independently foster innovation and address its unique socio-economic challenges (European Commission, 2021). Some critics argue that initiatives like the "Decreto Semplificazione" may be more surface-level than substantive, potentially failing to tackle the deeper, systemic issues within Italy's administrative culture (Ministero dello Sviluppo Economico, 2020). Similarly, while Italy's alignment with the European Commission's "Digital Compass for 2030" is a step in the right direction, the challenge lies in adapting these broad European goals to the specific realities of the Italian context, where long-standing inefficiencies could hinder progress (Ministero per l'Innovazione Tecnologica e la Digitalizzazione, 2020). Moreover, the balance between stringent regulation and technological advancement, particularly in the field of AI, remains a delicate issue, with the risk that overly cautious approaches could stifle innovation. The success of transformative plans like the Three-Year AgID Plan ultimately depends on Italy's ability to overcome the entrenched inefficiencies that have historically hampered its bureaucracy (AGID, 2023).

Ultimately, while Italy's digital and AI strategies reflect a strong commitment to modernization and European integration, the real challenge lies in effectively implementing these ambitious plans in a way that truly transforms Italy's public administration and broader digital landscape (Knowledge4Policy, 2023).

In line with the aforementioned aspects, Italy has defined a digital transformation strategy which focuses on several key areas to modernize public administration, enhance service delivery, and safeguard against digital threats. One of the primary goals is to migrate public administration services and applications to qualified cloud infrastructures and solutions. This migration is essential for improving the efficiency and accessibility of public services, ensuring that they are hosted in secure, reliable, and high-quality data centers. This initiative also involves the creation of a national cloud infrastructure, known as the "National Strategic Hub," to centralize and optimize digital resources. Another critical aspect of this strategy is to ensure that digital systems, datasets, and applications

of the public administration are hosted in trustworthy and high-standard data centers. This step is vital to maintain the integrity and security of public data, enhancing the overall reliability of digital services provided to citizens and businesses.

In this context improving the accessability of digital services offered by the public administration is also a priority. By adopting proven models and standards for creating websites and delivering digital public services, the government aims to enhance the user experience, making these services more accessible and user-friendly for all citizens.

Over the past decade, the availability of public data has significantly increased, leading to greater awareness regarding the topics aforementioned. This shift has necessitated changes in the data life cycle, introducing new technical challenges even in well-established fields like databases and requiring innovative software design approaches (Bertino, 2020; Craglia et al., 2021; DataGov, 2018). Public data is increasingly viewed not merely as an asset for competitive advantage, but as a crucial social infrastructure that should be accessible to policymakers and citizens to enhance societal well-being (Borgman, 2015; Kitchin, 2014). Consequently, public administrations have made more data available to boost transparency and accountability, despite facing challenges such as data heterogeneity and lack of interoperability needed to achieve the "once-only" principle, where data collected by one administration is accessible to others (European Data Portal, 2017; Janssen, Charalabidis, & Zuiderwijk, 2012; Baldoni et al., 2022; Pollock, 2020).

Addressing these challenges has urged the development of a comprehensive data ecosystem, which includes infrastructures, data analysis tools, and applications (Grönlund, 2010). In this context, smart city technologies have emerged as particularly promising. However, ensuring data security and privacy to meet regulatory requirements, such as the European General Data Protection Regulation (GDPR), remains a critical concern (Shackelford, 2016; Taylor, 2017). Moreover, digital platforms and cloud services are being increasingly adopted by PAs to support governance activities, although with varying levels of success (Meijer & Bolívar, 2016; OECD, 2020).

Artificial intelligence, as anticipated, will play a significant role in these developments, though its impact on privacy, transparency, and accountability is still under scrutiny (Eubanks, 2018; Mittelstadt et al., 2016). The application of these technologies aims to enhance data-driven decision-making in public administration, ultimately improving

citizens' quality of life. However, this requires overcoming significant challenges, particularly in urban environments where the creation of complex digital city models must balance efficiency with privacy and security concerns (European Commission, 2019; Van Zoonen, 2016).

The role of citizens in digital transformation (DT) processes is also increasingly recognized. A shift towards a people-driven model of service delivery places citizen participation at the center of service design and implementation, reflecting the need for services that are not only efficient but also valuable to their users (Linders, 2012; Mergel, Edelmann, & Haug, 2019). Moreover, the enhancement of digital skills among citizens is essential for fostering innovation and enabling active participation in the digital society (van Deursen & van Dijk, 2019; Unwin, 2017).

As part of this broader DT strategy, agile methodologies are being adopted to enhance organizational responsiveness and improve service delivery. Additionally, new frameworks and maturity models, such as the GovTech Maturity Index (GTMI) proposed by the World Bank, are being developed to measure the progress of DT initiatives within public organizations (Westerman, Bonnet, & McAfee, 2014; World Bank, 2020).

By focusing on these areas, Italy aims to create a robust digital infrastructure, improve service delivery, and ensure security and reliability of its digital public administration.

An investigation conducted in 2023 by "Forum PA" named "The Digital Maturity Survey of Capital Municipalities" (in Italian: *"Indagine sulla maturità digitale dei Comuni capoluogo"*) shows and analyzes the progress of the main Italian municipal administrations with respect to achieving the digitalization objectives identified by national strategies. The result is a classification of the "digital maturity" status of the 110 capital administrations according to their positioning with respect to three strategic dimensions:

- The Digital public services dimension: its aims is to measure the "as-is" process in the capital cities in terms of offering digital services to its user of reference.
- Digital PA: the integration of municipal systems with national platforms
- Digital Openness: the activation of tools for transparency, information, and digital interaction

The results of the investigation show positive trends in all the three areas: thirty-two regional capital cities achieve a good level of digital maturity, most of the municipalities

are in the higher ranges and those that are late in the process of digitalization, represent a minority.

However, to best define the state of the digitalization in Italy, it is useful to compare the progress of Italy's transition with that of the broader European context. To this end, the European Commission has monitored, since 2014, the digital progress of Member States through the "Digital Economy and Society Index (DESI)." Setting aside the years until 2019, starting from the COVID-19 pandemic, the DESI 2020 highlighted an increased adoption of digital solutions, confirming a trend towards greater digitalization. This digital shift, driven by the pandemic, saw a rise in remote work, e-commerce, and automation. The proportion of individuals engaging in online customer interactions increased from 32% in December 2019 to 55% in July 2020 (Statista, 2023), and the number of ICT specialists in Europe increased by over 1 million.

Businesses also enhanced their digital offerings, with fully digitized products and services rising from 34% to 50% during the pandemic, and the use of cloud computing services growing from 24% in 2019 to 41% in 2021. Despite this progress, significant disparities remain between large enterprises and SMEs in adopting cloud services (72% vs. 40%). On the other hand, the DESI 2022 revealed that while Member States are advancing in digital transformation, the adoption of advanced digital technologies like AI and big data remains low, hindered by insufficient digital skills.

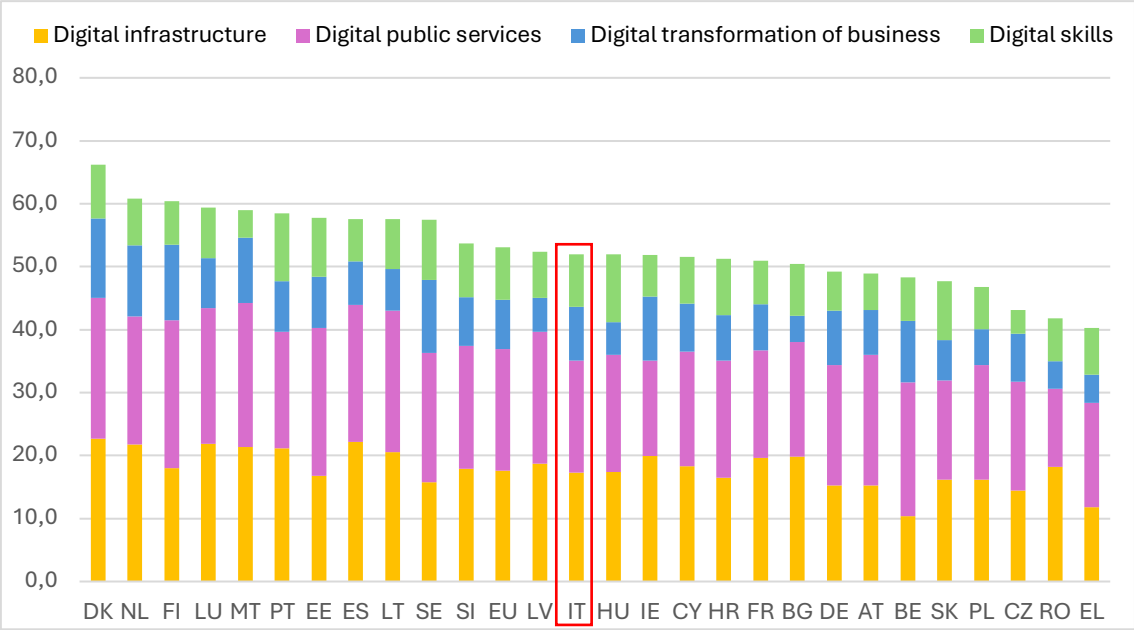
Finland, Denmark, Netherlands, and Sweden lead the EU in digitalization. Other Member States, such as Italy, Poland, and Greece, have made substantial improvements in their DESI scores over the past five years, driven by focused investments and political commitment to digital initiatives. In fact, in the Digital Economy and Society Index of 2022, Italy ranks 18th out of twenty-seven EU Member States, advancing by two positions compared to 2021. However, despite continuous progress, only 40% of Italian internet users utilize digital public services, a figure significantly below the EU average of 65%. Indeed, from the "Report on the state of the Digital Decade" published by the European Commission, which from this year replaces the DESI index, Italy is in line with the average of EU member states, ranking 14th among the others. On the four indicators used for the analysis (Figure 1), Italy registers positive results regarding the state of its digital infrastructure and improvements on the field of public services. However, digital skills and business digitalization remain the major areas in need of improvement.

The development of the graph is the result of a detailed personal analysis designed to assess Europe's performance across four main dimensions set by the "Digital Decade" policy agenda: digital skills, digital infrastructure, digital transformation of business and digital public services. These dimensions are broken down into specific indicators set by the European Commission, which reflect the state of digitalization in each sector.

After identifying relevant indicators, data was extracted from the extensive European Union dataset and categorized for the twenty-seven member states. Only data expressible in percentage was considered, excluding those that could not be interpreted in this way, such as the absolute number of quantum computers in Europe.

Moreover, the data was combined in a single spreadsheet to obtain the average value of indicators for each member state. This process provides an overall assessment of the state of digitalization for each state in Europe according to the four dimensions of the Digital Decade Policy. In conclusion, to ensure a balanced analysis, each dimension has been weighted equally (a quarter of the total weight for each dimension).

Figure 1: State of digitalization in Europe



Source: *Personal rework of "Report on the state of the Digital Decade" European Commission 29 Sep 2023*

2. Rethinking public administration services digitally and with a customer-centric approach

The Three-Year Plan for IT in Public Administration (*Piano Triennale per l'Informatica*) is a fundamental tool for promoting the digital transformation of the country through the transformation of the Italian Public Administration. In a constantly evolving socio-economic context, IT and emerging new technologies play a crucial role today and require a comprehensive plan and programming in the public sector that takes into account the many variables on the topic and the ongoing changes. The digital transformation of public services is increasingly driven by the need to shift from bureaucratic processes to a citizen-centric approach. The research conducted by Saxena et. al, (2022) emphasizes the importance of focusing on the citizen's journey when designing digital public services, aiming to overcome persistent issues that individuals face in interacting with government platforms. By understanding and addressing these pain points, public administrations can significantly enhance service delivery, making it more efficient, accessible, and responsive to citizen needs. The study argues that this transformation requires a cultural shift within public administration, moving from traditional, process-driven models to ones that prioritize the citizen experience, thereby fostering greater public trust and satisfaction (Saxena et al., 2022).

Furthermore, evidence from China illustrates how digital platforms, particularly mobile applications, have dramatically improved citizen satisfaction by making government services more accessible and easier to navigate (Wang C., Ma L., 2022). The research highlights that as citizens increasingly interact with public services through digital interfaces, these platforms must be designed with user-friendliness and responsiveness in mind. Such a focus on the digital experience not only enhances service delivery but also strengthens citizen engagement and trust in government institutions (Wang C., Ma L., 2022).

The evolution of available technological solutions and the adaptation of regulations aimed at digitalization, as well as European and national financial interventions on the subject, are significantly accompanying and reinforcing the ongoing digital transformation path.

Since its first edition (2017-2019), the Three-Year Plan has represented a support and guidance document for Italian public administrations in planning activities on the path of technological innovation. In subsequent editions, it has served as a reference for outlining

strategies that have followed an operational path composed of objectives and activities. The 2021-2023 edition envisioned an overview of investments in digital within the framework of the newly published "*Strategia Italia Digitale 2026*[8]*"*. Instead, the 2022-2024 update of the Plan was characterized by the increasingly pervasive presence of the National Recovery and Resilience Plan which, as analyzed in the first chapter, has represented, and continues to represent an extraordinary opportunity to accelerate the execution phase of the digital transformation of the PA.

On the other hand, the 2024-26 Three-Year Plan presents some changes in its structure compared to previous editions. Additionally, some contents have been deepened to effectively support public administrations in the process of implementing and managing digital services. The introduction of technologies does not lead to changes unless the organization of procedures and administrative activities is rethought, with a review of processes. In the next paragraph I will study the path the Italian PA followed in order to set the right strategies to embrace the digital transition.

2.1 Italian public administration strategic objectives

The Triennial Plan 2022-2024 aims to foster the development of a digital society where services prioritize citizens and businesses by digitizing public administration (Piano Triennale per l'Informatica, 2024), which serves as the driving force for the country's overall growth. The Plan promotes sustainable, ethical, and inclusive development through innovation and digitization, benefiting individuals, communities, and territories while respecting environmental sustainability. Additionally, it seeks to provide new digital technologies throughout Italy's economy by encouraging standardization, innovation, and experimentation in public services. The guiding principles of the Plan necessary to pursue the strategic objectives outlined above, emphasize several key areas:

- **Digital and Mobile First**: Public administrations are required to develop services that are primarily digital, ensuring accessibility and convenience for users who prefer mobile platforms.
- **Digital Identity Only**: Public administrations must exclusively adopt digital identity systems as defined by legislation, enhancing security and ease of access.

[8]"Italia Digitale 2026" is the strategy outlined in the NRRP for the digital transition and connectivity of the country. 27% of the total resources of the National Recovery and Resilience Plan are dedicated to digital transition. The strategy has two pillars: digital infrastructure and ultra-broadband connectivity. 6.74 billion € are dedicated to the digitalization of PA.

- **Cloud First**: When defining new projects and developing new services, public administrations should prioritize cloud solutions while mitigating the risk of vendor lock-in.
- **Inclusive and Accessible Services**: Public administrations must design digital public services that are inclusive and address the diverse needs of people and different territories.
- **Public Data as a Common Good**: The information assets of public administrations are fundamental for the country's development and should be valued and made available to citizens and businesses in an open and interoperable format.
- **Interoperable by Design**: Public services should be designed to function seamlessly across the single market by exposing appropriate APIs[9] for integration.
- **Security and Privacy by Design**: Digital services must be developed and delivered securely, ensuring the protection of personal data.
- **User-Centric, Data-Driven, and Agile**: Administrations should develop digital services using agile methods for continuous improvement, focusing on user experience and relying on ongoing performance and usage measurement.
- **"Once-Only" Principle**: Public administrations must avoid asking citizens and businesses for information they have already provided, streamlining processes and reducing redundancy.
- **Cross-Border by Design**: Public administrations should make relevant digital public services available across borders, facilitating international access and cooperation.
- **Open Source**: Public administrations should prefer open-source software and, when software is developed on their behalf, the source code must be made available.

2.2 From strategic to operational objectives

To translate a strategic objective into an operational one, the Triennial Plan 2022-2024, outlines the six key technological components needed to achieve the objectives outlined

[9] An API, or Application Programming Interface, is a set of rules that enables software applications to communicate with each other by exchanging data, features, and services. APIs simplify development by accelerating the integration of data and services from other applications, enhancing system security through the sharing of only necessary information while keeping internal details hidden. (IBM,2024)

above: Services, Data, Platforms, Infrastructures, Interoperability, IT security, Lever for innovation.

Services

The improvement in the quality and inclusiveness of digital public services is essential for increasing their usage by citizens, businesses, and other public administrations. In the current digital transformation process, services must provide clear value to users, which requires a multidisciplinary approach in adopting interoperable methodologies and techniques for service design. The final quality and overall cost of the service depend on a thorough analysis of the multiple technological and organizational layers that structure the entire delivery process, hiding its underlying complexity. This also implies the need for adequate simplification of procedures and a systematic approach to managing internal processes, coordinated by the Digital Manager, equipped with a suitably structured office and the fundamental involvement of other structures responsible for organization and strategic control. By trying to improve the efficiency and quality of public services, it is crucial to act on several strategic fronts. Sharing software and expertise among different administrations is a pivotal step towards optimizing resources and standardizing processes. Simultaneously, adopting already established Software as a Service solutions allows for the rapid implementation of new technologies without starting from scratch, ensuring a swift enhancement of user experience. Equally important is the adoption of validated models and tools, ensuring that the services offered adhere to high standards of quality and security. The ongoing monitoring of online services through tools such as Web Analytics Italia not only provides valuable statistical data for continuous improvement but also helps identify and resolve any issues promptly. Additionally, a focus on increasing the accessibility of digital services aims to ensure that all citizens can benefit equitably and comprehensively from resources provided by public administrations. These efforts are supported by promoting the exchange of best practices among administrations, facilitated through collaborative platforms such as *Designers Italia*, *Developers Italia*, and *Forum Italia*. Finally, simplifying the online user experience and improving service inclusivity aligns with current regulations, ensuring optimal and respectful utilization tailored to diverse user needs. Figure 3 presents in detail the operative objectives of the “Service” component.

Figure 3: Operating Objectives of “Services” Technological Component

SERVICES	
OBJECTIVES TRIENNIAL PLAN 2022-2024	EXPECTED RESULT 2022-2024
Improve the capacity of generating and delivering digital services	Diffusion of the software reuse model among administrations in accordance with AGID Guidelines on software acquisition and reuse for Public Administration
	Spread of monitoring by Administrations of the use of digital services
Improve the user experience and accessibility of services	Increase and spread of standard model for website development available on Designers Italia
	Spread of usability tests in administrations to facilitate feedback and evaluations from users
	Increase in the accessibility of digital services of the Public Administration, as indicated by the Guidelines on accessibility of IT tools
Full implementation of EU Regulation 2018/1724 (Single Digital Gateway)	Increase in the level of access to information, explanations, and instructions as per Articles 2, 9, and 10 of EU Regulation 2018/1724
	Implementation of procedures and the technical system as per Articles 6, 13, 14, and 15 of EU Regulation 2018/1724
Adaptation of qualified certified delivery services to the eIDAS Regulation	Migration from PEC to SERQ services[10]

Source: Personal rework of "Piano Triennale per l'informatica nella PA", 2023

Data

Enhancing public information assets is a strategic objective for Public Administration, aimed at effectively tackling the challenges posed by the data economy. This objective supports the European Data Strategy by facilitating the creation of value-added digital

[10] PEC corresponds to an ordinary e-mail inbox, with the advantage that the date and time of transmission/receipt of the message is certified. SERQ, additionally, also allows the identities of sender and receiver to be verified, thanks to the joint use of the electronic signature (Domicilio Digitale, 2024).

services for citizens, businesses, and all stakeholders, and by providing policy makers with data-driven tools for decision-making and production processes. The adoption of the European Directive (EU) 2019/1024, known as the Open Data Directive, and its implementation through Legislative Decree no. 200/2021, allows this strategic objective to be achieved by applying new technical rules outlined in the Open Data Guidelines.

To reach these goals, actions must be taken through tools and platforms provided by the NRRP, specifically under sub-investment M1C1-1.3: the National Digital Data Platform (PDND) and the National Data Catalog (NDC). Priority datasets, including dynamic data, high-value data, and research data, should be provided primarily through Application Programming Interfaces (APIs). These datasets must meet the requirements and recommendations set by the Open Data Guidelines, ensuring compliance with the Interoperability Guidelines (ModI), documentation through metadata, ontologies, and controlled vocabularies in the NDC for semantic interoperability, and registration in the PDND API catalog.

Continuing the principles and actions from previous plans, the current Three-Year Plan aims to enhance administrative efficiency in all data-related processes. This includes data sharing among public administrations for institutional purposes and data reuse for commercial and non-commercial purposes, in line with the open data paradigm.

For small public administrations, such as municipalities with fewer than 5,000 inhabitants, the implementation of these actions can be supported through subsidiarity mechanisms. This support can come from regions, autonomous provinces, provincial capital municipalities, municipal unions, metropolitan cities, and provinces, utilizing their associated offices where applicable. Figure 4 presents in detail the operative objectives of the "Data" component.

Figure 4: Operating Objectives of "Data" Technological Component

DATA	
OBJECTIVES TRIENNIAL PLAN 2022-2024	EXPECTED RESULT 2022-2024
Foster data sharing and re-use among PAs and re-use by citizens and businesses	Increasing the number of databases of national interest that expose APIs coherent with the interoperability model and national and European data reference models

	Increase in the number of dynamic open datasets in coherence with the provisions of Directive (EU) 2019/1024 on the openness of data and the re-use of public sector information, with reference to their publication in interoperable formats via APIs
	Increase in the number of datasets made available through territorial data services under Directive 2007/2/EC (INSPIRE)
Increase the quality of data and metadata	Increase in the number of datasets with quality metadata compliant with European and national reference standards
	Increase in the number of open datasets made available by public administrations
Raising Awareness on Public Information Asset valorization policies and a modern data economy	Increase in the number of open datasets adopting the licenses provided by the Open Data Guidelines

Source: Personal rework of "Piano Triennale per l'informatica nella PA", 2023

Platforms

The three-year plan also focuses on the evolution of digital platforms within the PA, designed to enhance the efficiency of back-office and front-end processes and promote system interoperability. These platforms reduce the workload of public administrations, lower implementation costs and times, and improve cybersecurity.

The main platforms include pagoPA for electronic payments, SPID and CIE for digital identity, and the IO app for access to public services. The plan aims for the continued development and enhancement of these platforms, as well as the creation of new ones such as the National Index of Digital Addresses (INAD), the Digital Notifications Platform (PND), and the Delegation Management System (SGD).

In 2024, the IDPay platform became operational, designed to streamline the management of economic benefits granted by the PA, allowing citizens to access benefits directly at the point of purchase of goods and services through electronic payment methods. Figure 5 presents in detail the operative objectives of the "Platform" component.

Figure 5: Operating Objectives of "Platforms" Technological Component

PLATFORMS	
OBJECTIVES TRIENNIAL PLAN 2022-2024	EXPECTED RESULT 2022-2024
Promoting the evolution of existing platforms to improve the services offered to citizens and businesses by simplifying administrative action	Increasing the level of digitization of the Electronic Health Record with health documents by local health facilities (ASL/AO/IRCCS)
	Increase in the number of administrations served by NoiPA and increase in the number of services offered by the platform (tax, social security, etc.) used
Increase the level of adoption and use of existing enabling platforms by public administrations	Increase in the adoption and use of SPID and CIE by public administrations
	Increase of services on the pagoPA platform
	Increase in the number of Education Administrations whose expenditure is accessible on-line through SIOPE+
Increase and streamline the number of platforms for administrations to simplify services to citizens	Increase of services on the IO Platform (the Public Services App)
	Implementation of the National Index Platform of the digital domiciles of physical persons and other private law entities not required to be registered in professional registers or in the Business Register (INAD)
	Implementation of the Digital Delegation Management System (SGD) to facilitate the use of online services through delegated subjects
	Creation of Digital Notification Platform (PND)

Source: Personal rework of "Piano Triennale per l'informatica nella PA", 2023

Infrastructures

The development of digital infrastructures is crucial for modernizing the public sector, requiring reliability, security, energy efficiency, and economic sustainability to ensure essential services for the country. However, technological advancements increase risks,

especially concerning data protection. Many PA infrastructures lack necessary security and reliability, exposing the country to service interruptions and cyberattacks.

The plan calls for migrating current services to infrastructures meeting standards for quality, security, performance, scalability, and interoperability. According to Article 33-septies of DL 179/2012, data centers are classified into categories to consolidate and secure PA digital infrastructures, promoting the development of a highly reliable infrastructure called the National Strategic Hub (PSN). Central and local administrations must migrate their data centers and IT systems to the PSN or other compliant infrastructures, or to qualified cloud solutions. Building new data centers is prohibited to prevent resource fragmentation and costly infrastructure proliferation.

The "Cloud Italy Strategy," published in September 2021, outlines the creation of the PSN, the qualification of public cloud providers, and the development of a methodology for classifying data and services. The migration process will be supported by NRRP funding and tools like the Cloud Enablement Manual and Consip's strategic ICT tenders. Finally, the connectivity model has been updated to enhance PA network performance and support secure remote work. Figure 6 presents in detail the operative objectives of the technological component.

Figure 6: Operating Objectives of "Infrastructure" Technological Component

<table>
<tr><th colspan="2">INFRASTRUCTURES</th></tr>
<tr><td>OBJECTIVES TRIENNIAL PLAN 2022-2024</td><td>EXPECTED RESULT 2022-2024</td></tr>
<tr><td rowspan="3">Improve the quality and security of digital services delivered by administrations by implementing the Cloud Strategy and migrating to qualified cloud infrastructures and services including PSN</td><td>Number of administrations that sent the classification of data and services and the migration plan</td></tr>
<tr><td>Number of migrated Administrations</td></tr>
<tr><td>Expansion of the Qualified Cloud Services Catalogue offering</td></tr>
</table>

Improve the use of digital services for citizens and businesses by enhancing PA connectivity	Availability of broadband and ultra-broadband Internet connectivity services for local PAs
	Upgrade of ultra broadband connectivity services in the SPC connectivity contract

Source: Personal rework of "Piano Triennale per l'informatica nella PA", 2023

Interoperability

Interoperability is crucial for enabling digital collaboration between public administrations, citizens, and businesses. This approach not only facilitates the implementation of the "once only" approach, but also aligns with the European Interoperability Framework. The operational objectives are shown in the table below.

Figure 7: Operating objectives of "Interoperability" technology component

INTEROPERABILITY	
OBJECTIVES TRIENNIAL PLAN 2022-2024	EXPECTED RESULT 2022-2024
Promoting the application of the Interoperability Model Guideline by API providers	Increase in the number of APIs in the API Catalogue
	Increase in the number of Administrations registered in PDND API and providers of API
Adopting APIs compliant with the Interoperability Model	Increase in the number of Administrations registered in PDND and benefiting from APIs
	Increase in the number of authorizations made to APIs registered in PDND
Models and rules for the integrated delivery of interoperable services	Increase in the number of Administrations involved in the evolution of the Guidelines on Technical Interoperability of Public Administrations

Source: Personal rework of "Piano Triennale per l'informatica nella PA", 2023

IT security

The NIS 2 Directive, published in 2022, has replaced the EU Directive 2016/1148 and aims to enhance the cybersecurity of networks and information systems across member states, including Central Public Administrations and some regional one managing critical services. Furthermore, the National Cybersecurity Strategy 2022-2026 and its

implementation plan promote measures to strengthen cybersecurity in public administrations through technical interventions and enhancing awareness among employees and users of digital public services, also advocating for a "zero trust" approach to cybersecurity.

Figure 7: Operating objectives of “It Security” technology component

IT SECURITY	
OBJECTIVES TRIENNIAL PLAN 2022-2024	EXPECTED RESULT 2022-2024
Raising Cyber Security Awareness in Pas	Increase in the level of Cyber Security Awareness measured through self-assessment questionnaires to RTDs and their offices
Raising the level of IT security of institutional public administration portals	Increase in the number of institutional portals using HTTPS only protocol, measured by specific analysis tool
	Maximize the number of Content Management Systems (CMS) with updated version used in PA institutional portals, measured by specific analysis tool

Source: Personal rework of “Piano Triennale per l’informatica nella PA”, 2023

2.3 Implementation of operational objectives in fully digitalized and customer-centric projects

As analyzed in chapter 2.2, to achieve the result of the digitalization of public administrations, the Triennial Plan 2022-2024, defines six key technological components as necessary to translate strategic objectives into operational ones: services: to improve the quality and inclusiveness of digital public services through a multidisciplinary approach, adopting interoperable methodologies and SaaS solutions, simplifying procedures, and promoting the sharing of best practices among administrations. Data: to enhance public information assets to support the European Data Strategy, promoting data sharing and reuse through platforms like the National Digital Data Platform (PDND) and the National Data Catalog (NDC). Platforms: evolving existing digital platforms to

enhance the efficiency of administrative processes and promote system interoperability, focusing on key platforms such as pagoPA, SPID, CIE, and App IO. Infrastructures: developing reliable, secure, efficient, and economically sustainable digital infrastructures by migrating current services to qualified infrastructures and cloud solutions, such as the National Strategic Hub (PSN). Interoperability: promoting digital collaboration between public administrations, citizens, and businesses by adopting models and rules for the integrated delivery of interoperable services, and finally IT Security: strengthening cybersecurity of networks and information systems through directives like NIS 2 and national strategies, increasing cybersecurity awareness, and adopting a "zero trust" approach. In this chapter concrete examples of implemented projects will be presented, demonstrating how operational objectives have been translated into fully digital and customer-oriented initiatives.

App IO – Digital citizenship

The App IO is a crucial development in advancing digital citizenship in Italy. It was designed to provide a unified and simplified access point to a broad range of public services. The main goal is to enhance interactions between citizens and public administrations, making these interactions more efficient and user-friendly (ForumPA, 2021).

The platform integrates multiple services, allowing citizens to manage notifications, make payments, and handle various administrative tasks directly from the users' smartphones. Key features highlighted in the article by ForumPA include:

- Centralized Notifications: The app provides reminders and updates about deadlines, appointments, and other significant information from different public administrations.
- Payment Capabilities: Through its integration with pagoPA, the app allows secure and convenient payments for public services.
- Document Management: Users can store and manage important documents, such as tax receipts and certificates, within the app.
- Service Requests and Tracking: The app enables citizens to submit service requests and monitor their progress in real time, offering transparency and convenience.

The development of the App IO focused on user-centric design and interoperability. It supports SPID and CIE (platforms that will be later analyzed) for secure authentication, ensuring safe access to services. The integration with existing digital platforms like pagoPA and the use of standardized protocols, facilitates seamless interactions between various public administration systems.

This initiative aligns with several legislative mandates that have shaped its development and implementation.

Article 64-bis, Digital Administration Code (CAD): This article mandates that public entities, as defined in Article 2, Paragraph 2, must make their services available online in compliance with technical standards outlined in Article 71. This is to be done through the telematic access point activated by the Presidency of the Council of Ministers, without incurring additional public finance burdens.sz

Legislative Decree No. 82 of 7 March 2005: Known as the " Digital Administration Code," this legislative decree establishes the telematic access point activated by the Presidency of the Council of Ministers as the channel through which all public entities must make their services accessible.

Decree-Law No. 76 of 16 July 2020: This decree, referred to as " Urgent Measures for Digital Simplification and Innovation" (Decree Simplifications), stipulates that from February 28, 2021, public administrations are required to initiate digital transformation projects necessary to make their services available on the App IO.

Decree-Law No. 77 of 31 May 2021: This decree outlines essential measures to strengthen the streamlining and simplification of public administration procedures.

For citizens, the App IO simplifies access to public services, reduces the need for physical visits to administrative offices, and offers an efficient way to manage the interactions with the government. For public administrations, the app streamlines service delivery, enhances communication with citizens, and provides valuable feedback for ongoing improvements. After its initial launch in April 2020, the app underwent rapid development and expansion, especially during the COVID-19 pandemic, when it facilitated access to emergency services such as the holiday bonus and the 'Cashback' program. In conclusion, the App IO represents a significant step forward in Italy's digital transformation efforts and meets the objectives outlined in Mission 1 of NRRP.

SPID and CIE – Digital Identity

Through digital identity, the Public Administration offers a unified key to access online services with a single credential that is activated once and remains valid indefinitely.

The Public Digital Identity System (SPID) and the Electronic Identity Card (CIE) enable secure, swift, and straightforward access to public online services. SPID and CIE serve as the official identification methods for accessing both public and participating private services online.

The “Simplification Decree” (Decree-Law No. 76/2020) stipulates that as of 1 March 2021 all public administrations are required to integrate SPID and CIE into their information systems, making these the exclusive digital identity systems for accessing digital services, and thus eliminating the need for outdated credentials (ForumPA, 2021).The main advantages for citizens who use SPID and CIE are the simplification of the access to public administration services by using consistent credentials across all portals and from all location and device. Furthermore, they ensure secure access to services, protecting user data from profiling and guaranteeing privacy.

As for app IO, these initiatives align with several legislative mandates that have shaped the development and implementation.

Article 24, paragraph 1, Decree-Law No. 76 of July 16, 2020: "From February 28, 2021, entities referred to in Article 2, paragraph 2, letter a, shall exclusively use digital identities and the electronic identity card for the purpose of identifying citizens accessing their online services."

Legislative Decree No. 82 of March 7, 2005 "Digital Administration Code": consolidates and organizes rules concerning the digitalization of Public Administration in its relations with citizens and businesses.

Decree-Law No. 76 of July 16, 2020 "Urgent Measures for Digital Simplification and Innovation (Simplifications Decree)": establishes the methods that Public Administrations must use for identifying citizens accessing their online services.

Finally, Law No. 120 of September 11, 2020, established that from October 1, 2021, SPID would have been mandatory for accessing digital services of the Public Administration and receiving public services.

PagoPA – Digital payments

PagoPA is the platform that allows citizens to make fast digital payments to the Public Administration. It provides citizens with the flexibility to choose from various electronic payment methods tailored to their preferences and habits. Through collaboration with diverse market actors, individual public entities can integrate innovative payment solutions, aiming to streamline and enhance the efficiency of public service payment processes. This initiative, managed by PagoPA S.p.A, a state-owned company, promotes the widespread adoption of digital services across Italy.
As for app IO and SPID and CIE, this initiative aligns with several legislative mandates that have shaped the development and its implementation.

Legislative Decree No. 179/2016 and Legislative Decree No. 217/2017 have modified and corrected Article 2, paragraph 2 of the Digital Administration Code (CAD), also including public service managers and publicly controlled companies within the CAD's subjective scope. The Decree-Law of July 16, 2020, No. 76, known as the "Simplification Decree," establishes that from February 28, 2021, all Public Administrations must integrate the pagoPA platform into their collection systems for the receipt of their revenues. Furthermore, the pagoPA platform, regulated by Article 5 of the CAD (Legislative Decree 82/2005), must be mandatorily adopted by all Public Administrations, as specified by Article 2, paragraph 2 of the CAD and Article 15, paragraph 5bis of Decree-Law 179/2012. Therefore, Public Administrations are required to exclusively use this payment system, discontinuing any other collection methods.

2.4 Future trajectories

The Triennial Plan for IT in Public Administration, as already mentioned, is a crucial tool for promoting the digital transformation of Italy, particularly within its public administration. It translates the digitalization strategy into operational guidelines, setting objectives and expected outcomes to be achieved by public administrations. The new 2024-2026 Plan introduces several key innovations aimed at furthering this digital transformation.
Institutional collaborations are established to create a Triennial Plan that directly involves public administrations, universities, research institutions, and ICT associations in the content collection and drafting process. A new strategic objective has been added to the

existing three, along with two new guiding principles, bringing the total to eleven principles guiding the Plan. The strategic model has been updated with the introduction of three macro-areas: processes, applications, and technologies. These categories classify the organizational and technological challenges that administrations must address.

Also, the structure of the Plan has been modified, retaining its division into three parts but redefining the content structure to distinguish between strategic and technological components. A new section dedicated to tools has also been introduced. This vertical section provides tools that administrations can reference as support models, including best practice examples and checklists for planning their interventions. Additionally, the document offers operational guidelines for the adoption of Artificial Intelligence technologies in public administration, based on practical experience.

The development of the Triennial Plan involves ongoing collaboration with central and local public administrations through negotiation tables and annual updates to the strategic model, strategies, and principles. This collaboration ensures that the Plan remains relevant and effective in addressing the evolving needs of public administrations. Additionally, universities and research institutions contribute to the Plan by focusing on strengthening digital competencies and sharing its content and structure. ICT associations are also involved, sharing the Plan's content and structure and providing contributions to its development.

The strategic objectives of the Plan are to provide tools to public administrations for delivering services exclusively in digital form, making interactions with citizens, businesses, and other public administrations more efficient and faster. It aims to promote the development of a digital society where services prioritize citizens and businesses, positioning the digitalization of the public administration as a driving force for national development. The Plan also seeks to foster sustainable, ethical, and inclusive development through innovation and digitization, benefiting individuals, communities, and territories while respecting environmental sustainability.

Having these concepts in mind, the new Three-Year Plan fits into a broader reference context defined by the strategic program "Digital Decade 2030," established by Decision (EU) 2022/2481 of the European Parliament and of the Council of December 14, 2022, whose objectives are articulated in four dimensions: digital skills, digital public services, digitalization of businesses, and secure and sustainable digital infrastructures. The

strategy underlying the 2024-26 Three-Year Plan thus arises from the need to rethink the planning of public administration digitalization based on new strategic levers, taking into account all the actors involved in the country's digital transformation and the goals set for 2030 by the path outlined by the European Commission for the Digital Decade. Investments from the National Recovery and Resilience Plan and the National Complementary Investment Plan, in addition to those foreseen by the 2021-2027 European Programming, represent the opportunity to meet these challenges.

In a continuous improvement logic, the strategic model of the 2024-26 Three-Year Plan proposes an organizational and technological architecture aimed at providing a comprehensive view of the digital Public Administration, starting from the "information system" of each entity to defining relationships with services, platforms, and national infrastructures provided centrally. The strategic model of the 2024-26 Three-Year Plan classifies the organizational and technological challenges that administrations must address into three main areas: processes, applications, technologies.

This model aims to address challenges related to both the operation of the information system of a single public body and the overall public information system of the entire country, following the cloud-first principle and a polycentric and federated architecture.

The strategic model is structured into three macro areas: processes, applications, and technologies. The processes macro area, refers to all activities of organization and management of PA change, emphasizing the role of the new Digital Transition Manager. The applications macro area is structured into three other levels: digital services, platforms and data, and artificial intelligence. The technologies macro area consists of digital infrastructures and IT security levels.

For each level of the architecture, starting from the Three-Year Plan, it is necessary to outline instruments, technical rules, and multi-year evolutionary trajectories that allow planning of investments on a multi-level institutional basis, using multiple sources of funding.

In this context, the Integrated Plan of Activities and Organization (PIAO) assumes fundamental relevance, introduced by Article 6 of Decree-Law No. 80/2021 in order to "ensure the quality and transparency of administrative activity and improve the quality of services to citizens and businesses and proceed with constant and progressive simplification and reengineering of processes (...)." The PIAO implements what CAD

defines in Article 15 as "structural and managerial reorganization," to exploit the opportunities offered by digitalization.
Following this approach, individual public entities identify their specific objectives for digitalization, simplification, and process reengineering within the PIAO, as provided by the DM of 24 June 2022, which now integrates most forms of PA planning on a three-year perspective.

AI in Public Administrations

In today's scenario is adequate to dedicate at least a part of the thesis to the topic of artificial intelligence and its current and future uses in public administrations. AI appears to be a promising solution to improve efficiency and effectiveness in the management and delivery of public services (ForumPA, 2024). The Triennial Plan 2024-2026 contributes to increasing the public administration's awareness of the adoption of AI technologies. This document is the result of a combined effort between various administrations and institutional actors and represents the first programmatic plan of the public administration dedicated to artificial intelligence. Accordingly, it contains the OECD definition of an artificial intelligence system, also used in the European Artificial Intelligence Regulation (AI act): "*An Artificial Intelligence system is defined as an automatic system that, for explicit or implicit purposes, deduces from the input received how to generate output such as predictions, content, recommendations or decisions that can influence physical or virtual environments. AI systems vary in their levels of autonomy and adaptability after implementation".* The fundamental characteristic of an artificial intelligence system lies both in its autonomy and adaptability, but its main strength is its ability to process input data to generate decision-making outputs (ForumPA, 2024). Therefore, it is essential for administrations to have processes capable of generating high-quality data. This implies that, before implementing AI solutions, an internal assessment of the state of their information systems must be conducted, and it must be ensured that the requirements of the Digital Administration Code (CAD) have been met.
Consequently, the potential benefits of artificial intelligence in public administration, highlighted in the article published by ForumPA, are:

- Automating simple and repetitive information research and analysis tasks, freeing up work time for higher-value activities.

- Enhancing predictive capabilities, thereby improving data-driven decision-making processes.
- Supporting the personalization of user-centered services, increasing the effectiveness of public service delivery through proactive mechanisms.

An example of proactivity is the experience of INPS, which has developed AI-based solutions to enhance the services offered to citizens. Among these, two main projects stand out. The first aiming at the automatic classification and routing of the over 16,000 certified emails received on average each day, and the second with the objective of the optimization of the Customer Service, which handles around 2.5 million web requests per year (ForumPA).

The literature available on AI applications, features a collection of papers examining various AI technologies in diverse organizational, institutional, and national contexts. Willems, Schmid, Vanderelst, Vogel and Ebinger, tackle the privacy risks associated with AI in public services. The authors highlight the data-intensive nature of AI and the lack of clear data ownership, which complicates understanding who can access personal data. Using an online vignette experiment with 1,048 Austrian citizens, the study confirms the privacy paradox, showing that citizens often prioritize the perceived usefulness of AI applications over general privacy concerns. The authors suggest that public administrators must monitor privacy issues when implementing AI, as citizens will engage with AI if they find it useful and ethically acceptable (Willems, Schmid, Vogel, Ebinger, 2023).

Neumann, Guirguis and, Steiner, in the article "Exploring artificial intelligence adoption in public organizations: a comparative case study" explore the adoption of AI in eight Swiss public organizations. The authors propose a maturity framework for AI adoption, noting that public sector adoption is slower compared to the private sector due to challenges such as regulatory concerns, organizational culture and resistance to change, complexity of public sector processes or lack of technical expertise. The study emphasizes the importance of technological, organizational, and environmental factors in facilitating AI adoption (Neumann, Guirguis, Steiner, 2024).

Additionally, Giest & Klievink explore the processes and impacts of AI on organizational functions and structures. The paper examines the dynamic ecosystem of AI implementation in public decision-making. The authors used case studies from the

Michigan Automated Fraud Detection System in the US and the Dutch Childcare Allowance program to show how AI can significantly alter bureaucratic roles. The findings indicate that AI can streamline processes but also lead to significant errors when the implications of AI-driven decisions are not fully understood by professionals (Giest, Klievink, 2024).

Furthermore, studies like Maragno's, found, through case studies, that successful AI implementation requires the creation of new team structures and roles, such as AI trainers. Effective implementation depends on adequate data provision, AI training, and oversight, underscoring the necessity for human-machine collaboration (Maragno, 2022).

In conclusion, Maryanne Scutella, Carolin Plewa, and Carmen Reaiche, focus on how citizens derive value from AI-driven virtual agents or chatbots in public services. Their study, based on data from a large Australian government department, reveals that value creation depends on the specific context and citizens' perceptions of chatbot effectiveness (Scutella, Plewa, Reaiche. 2024).

From these studies, we learn that AI adoption in public organizations faces significant challenges, including regulatory concerns, organizational resistance, complex processes, and limited technical expertise, which contribute to a slower pace compared to the private sector. Privacy risks are also a major concern, with citizens often prioritizing the usefulness of AI applications over privacy, highlighting the need for careful monitoring of privacy issues. While AI has the potential to streamline processes, it can also lead to significant errors if not properly understood by professionals, emphasizing the importance of thorough implementation and human oversight. Successful AI implementation requires new team structures, adequate data, training, and effective human-machine collaboration. Moreover, the value derived from AI-driven services, such as chatbots, depends heavily on the specific context and citizens' perceptions of their effectiveness.

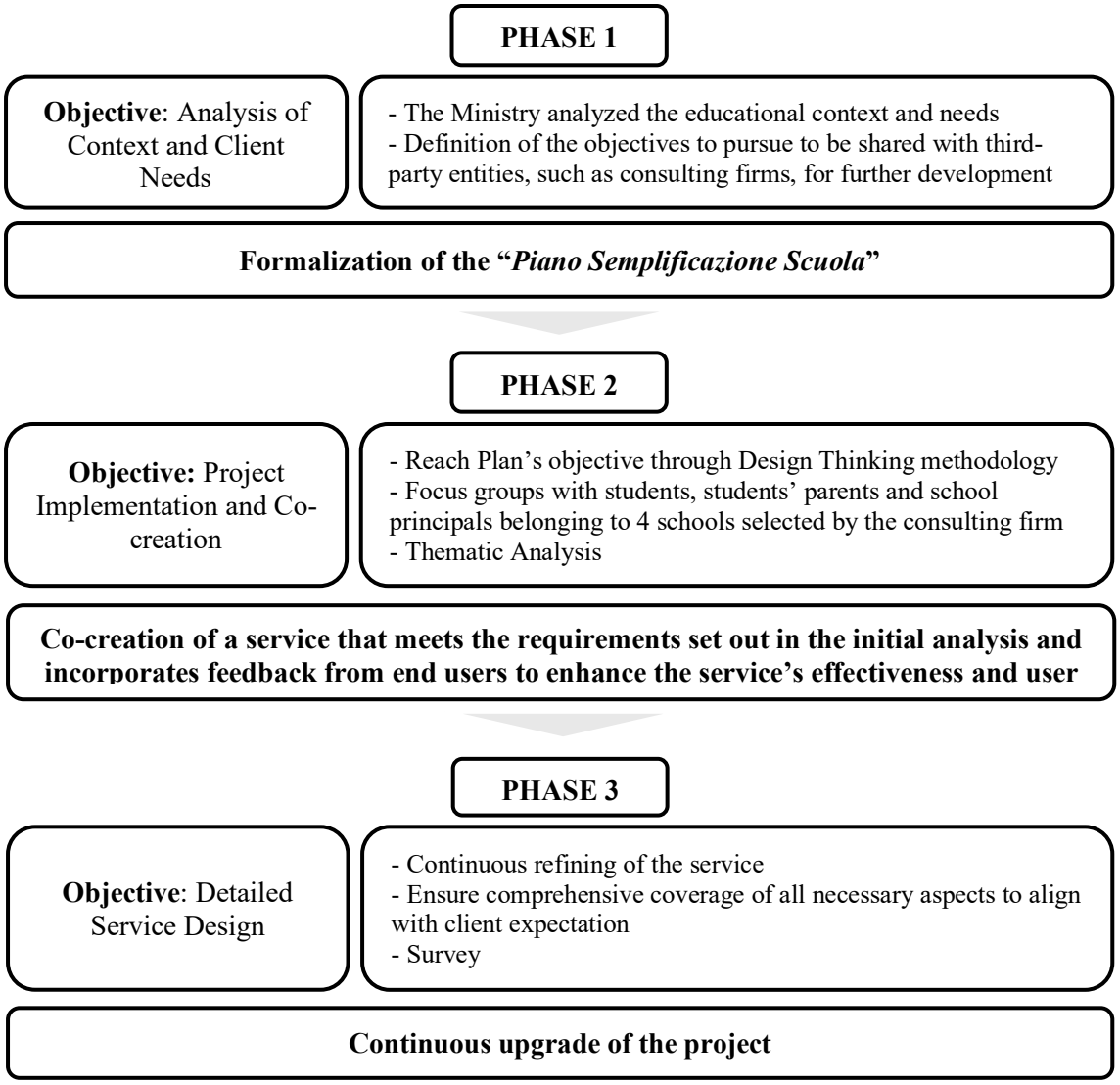
METHODOLOGY

The objective of this thesis is to define a best practice for public administrations that aim to provide digital service with a customer-centric approach. It therefore answers the guiding research question of: *How can public administration change and improve its management practices to achieve full digitalization and provide a customer-centric service in an ever-evolving external environment?*

To answer the research question, considering the novelty of the topic and the need for an in-depth exploration (D.W. Stewart et al., 1990), a mixed methods approach was adopted employing qualitative focus group as well as quantitative analysis, structured around the case study and survey design. The qualitative methodology employed thematic analysis (TA) (Braun & Clarke, 2006; Clarke & Braun, 2017). TA is a flexible approach that allows the researcher to apply a theoretical framework to guide the analysis while embracing an "organic approach" to coding and theme generation, as described by Clarke and Braun (2017, p. 297). This method emphasizes the active role of the researcher in the analytical process. Qualitative research is particularly valuable for exploring the deeper issues and motivations behind behaviors, offering a nuanced understanding of individuals' experiences (Willig, 2013). With the objective of identifying common points between the contributions that emerged from the different focus groups, data were analyzed using TA (Braun & Clarke, 2006) and transcribed in Excel for theme development. The analysis followed the following stages: (I) becoming familiar with the data through repeated readings of the transcripts, (II) generating initial codes by open coding, where verbatim quotes were extracted and isolated, (III) identifying themes based on discussion topics and emergent ideas from the transcripts, (IV) reviewing the initial codes to identify latent themes and grouping them into preliminary themes, (V) refining and developing these themes through subsequent iterations, and (VI) further consolidating the identified themes into a smaller number of overarching themes.

The analysis was conducted during my internship at one of the major strategic consulting firms in Italy, which, due to confidentiality agreements, will remain anonymous. The project carried out by the team in which I worked concerns the implementation of a digital service meant to be the only access point in which to gather and access all the services and information useful to guide and help students and families in their educational journey. It therefore follows that the firm works in the public sector with the Italian

ministry in charge of the education area. The case study will analyze how a public administration can adapt its service to become customer centric. To effectively draft the case study and present the process of creating a customer-centric and digital service, the structure of this chapter is divided into several phases that cover the entire process, starting from the analysis of the external environment to the implementation of the actual final product:



It is worth mentioning that working in a consulting firm that adopts an "agile" work methodology, the final result is continuously being modified and improved. In fact, the iterative nature of agile methodologies is well-known for its ability to adapt to changing requirements, making it superior to traditional methods in handling new information or shifting market conditions. This adaptability is essential in today's fast-paced business

world, where quick responses to change offer a competitive edge (Zasornova, Lysenko, & Zasornov, 2022).

The phases described above are transversally accompanied by the branding and naming phase, the analysis of regulatory requirements and by a project governance aimed at monitoring the progress of activities to ensure that the objectives are achieved within the set deadlines. The right implementation of the outlined phases ensures an effective deliver of a digital and customer-centric service.

Survey Design

Building on the findings from the literature review and the insights gained from the design thinking methodology, a comprehensive survey was designed to investigate the public perception, adoption and satisfaction with the school digital service design and implemented in the previous phase after nine months from development. The primary objective of this survey is in line with the one of the thesis: understanding how a Public Administration can change and improve its management practices to achieve full digitalization and provide a customer-centric service in an ever-evolving external environment. The data collected from this survey will highlight both strengths and areas needing improvement and will inform strategic recommendations for public administrations. Furthermore, data will serve as a monitoring tool useful to refining the PA's digital transformation strategies and ensuring that they are aligned with user expectations.

According to the objective, the survey assessed how users interact with these digital platforms, evaluate their satisfaction with the services provided, and identify areas where improvements are necessary. The survey also aimed to analyze the potential barriers to adoption, particularly focusing on demographic factors such as age, education, and digital literacy, which could potentially influence the overall user experience.

The survey was structured into several key sections: Efficiency, Privacy & Security, Simplification of procedures, User experience & inclusivity, Accessibility and New Feature, each targeting different aspects of service effectiveness.

CASE STUDY

3. Data Collection

3.1. Phase 1: Analysis of the context and client needs

On April 2023, the Italian minister in charge of the educational area, launched the "*Piano Semplificazione Scuola*", which outlined several thematic to be addressed, and set strategic objectives to be achieved: improving school services for students and families; ensuring more teaching positions are filled from the first day of school; strengthening the alliance between the various stakeholders in the school system; and freeing schools from excessive bureaucratic requirements. The Plan was defined through a process that involved gathering information from various school community categories (unions, associations, school staff) about the numerous requirements imposed on schools, as well as the difficulties families encounter in accessing the "school system".

3.2. Phase 2: Project Implementation and Co-creation

Once the context and the client's needs had been analyzed and identified, the co-creation phase begun, aimed at finding a solution to the gaps highlighted by the "*Piano Semplificazione Scuola*".

The approach proposed by the consulting firm to the design of new digital services for the PA, involves the application of the design thinking methodology to carry out a careful investigation of the needs and requirements of the end user. Design thinking is a problem-solving methodology that focuses on creating products that meet specific needs (Linton & Klinton, 2019). It emphasizes learning through the generation of new ideas and exploring various potential solutions, rather than simply selecting from pre-existing options. This approach introduces participants to complex and ambiguous problems, equipping them to handle future challenges (Lynch et al., 2021). Often seen as an iterative process, design thinking places people at the center as sources of inspiration and guidance for overcoming obstacles (Liu, 2023). It supports transformative learning by applying knowledge to tackle real-world issues, thereby enhancing creativity (Tsai et al., 2023; Winiasri et al., 2023).

Therefore, data was collected through the creation of workshops and focus groups with students, students' parents and school principals belonging to four different schools

selected by the consulting firm which, due to confidentiality, will be called school A, B, C and D. The focus groups were conducted during the months prior to the implementation of the final product, from April 2023 to September 2023. The structure of the days of the focus groups is as follows:

Starting Point – A Question for Each Group

To guide the focus groups, questions were raised to cover the following aspects of the educational journey: Orientation, Enrollment and Onboarding, Educational Career, Successes and Achievements.

THEMATHIC AREA	QUESTION
Orientation	What new services could support students in choosing their educational and professional paths in relation to their skills and aspirations, as well as the educational and job opportunities available in the area?
Enrollment & Onboarding	What new services could support students and families in managing the administrative procedures related to students' school enrollment and beginning of their educational journey?
Eduactional career	What new services could support students and families during the entire educational path?
Successes & Achievements	What new services could support students prepare for final exams and list their academic and extracurricular experiences?

These questions encourage participants to reflect on their needs and aspirations, directing the idea generation process towards practical and relevant solutions.

Below is the structure of the focus groups organized for students (S):

(S) Step 1: Brainwriting

The first step of the idea generation process was based on the Brainwriting technique. This 15-minute technique aimed to stimulate the individual creativity of participants by asking them to generate ideas about what services they would like to have on a digital

platform. During this phase, each participant responded to specific questions regarding desired functionalities and features that a platform should offer. This method allowed for a rapid and efficient collection of a wide range of ideas, encouraging contributions from all group members without the pressure of presenting ideas orally.

(S) Step 2: Brainwalking

The second phase, lasting 30 minutes, introduced the Brainwalking technique. In this activity, participants move between the tables of different work groups to review the ideas generated in the previous phase. The goal was to "cross-pollinate ideas" by integrating and enriching them with new insights and feedback. Participants could add comments and suggestions to existing ideas and vote for the most interesting ones using stickers. This step was crucial for broadening the perspective of initial ideas and identifying those with the greatest potential.

(S) Step 3: Dot Voting

Participants engaged in a 15-minute Dot Voting session to select the most promising ideas. They vote on the ideas generated, prioritizing those that they believed were most feasible and impactful. This democratic process helped to narrow down the focus to a few key ideas to be further developed.

(S) Step 4: Canvas

The final step, lasting 60 minutes, employed the Canvas technique to deepen the selected ideas. Participants were asked to thoroughly explore and integrate the ideas in terms of actual technical functionalities. This comprehensive analysis helped to refine and detail the chosen ideas, making them more actionable and ready for implementation.

Below is the structure of the focus groups organized for parents and school principals (P. & S.P.):

(P. & S.P.) Step 1: Brainwriting

The first step in this process was the Brainwriting technique, which lasted 10 minutes. Differently from the students' one, here the goal was to identify pain points and needs by representing personal experiences in terms of obstacles and challenges encountered while

following their children's educational journey. Participants were encouraged to map out specific issues they have faced, providing a clear visual representation of their struggles. This method helped capture detailed and context-rich insights into the difficulties encountered, setting the stage for a more focused

(P. & S.P.) Step 2: Affinity Diagram

The second phase, lasting 30 minutes, used the Affinity Diagram technique. During this phase, participants organized the identified pain points of their group by clustering similar issues and integrating them if necessary. This involved grouping the pain points according to specific moments in the educational journey and potentially adding new ones. This organization helped create a structured overview of common problems, facilitating a better understanding of the key areas that need addressing.

(P. & S.P.) Step 3: Crazy Idea

The fourth phase, lasting 10 minutes, involved the Crazy Idea technique. This step focused on defining desired improvements in the educational journey by identifying what participants would like to see function better. They were asked to think creatively about what they would like to change or do differently, generating innovative and out-of-the-box ideas. This technique encouraged participants to envision ideal solutions and improvements without constraints.

(P. & S.P.) Step 4: Dot Voting

Following the Crazy Idea phase, participants engaged in a 15-minute Dot Voting session to select the most promising ideas. They vote on the ideas generated, prioritizing those that they believed were most feasible and impactful. This democratic process helps to narrow down the focus to a few key ideas to be further developed.

(P. & S.P.) Step 5: Canvas

The final step, lasting 50 minutes, employed the Canvas technique to deepen the selected ideas. Participants were asked to thoroughly explore and integrate the ideas in terms of who, what, why, how, and with whom. This comprehensive analysis helped to refine and detail the chosen ideas, making them more actionable and ready for implementation

RESULTS

4.1. Results summary

The results of the design thinking workshops produced a total of 730 ideas, 412 of which considered useful after the qualitative data analysis process mentioned above (Appendix B). The ideas proposed by users align with the research conducted in the literature review and adequately address the issue stated in the research question.

Thanks to the thematic analysis process (Appendix A), the ideas that emerged from the workshops highlighted, for each of the four macro categories, the areas of intervention and the most requested features that users proposed in order to make service more customer centric. Answers were collected in Italian and later translated into English.

For the first phase, the results of the context analysis and user needs were gathered and showed in the already mentioned "*Piano Semplificazoine Scuola*" and won't be shown in the thesis.

Orientation: Of the 412 ideas, 57% of those related to the "Orientation" macro-category can be attributed to the following proposals:

ORIENTATION	
IDEA	IDEA DESCRIPTION
School review system	Functionalities that allow students to: ask and answer questions about the services offered by the school; share personal experiences and provide feedback; find out about the teaching methods and activities.
Digital content for orientation:	Availability of illustrative videos and other digital contents (e.g., vlogs, short videos, podcasts) containing exhaustive information about potential choice of schools (e.g., school structure, course materials, educational pathways, post-diploma placement, etc.).

Digital open days	Digital spaces where schools allow participation in webinars presenting the institutions, with content similar to that generally covered in in-person open days.

Enrollment & Onboarding: Of the 412 ideas, 59% of those related to the "Enrollment & Onboarding" macro-category can be attributed to the following proposals:

ENROLLMENT & ONBOARDING	
IDEA	IDEA DESCRIPTION
Service usage support	Providing families and students with tutorials, FAQs, or instruction manuals to understand how to use services such as online enrollment or payment systems.
Automated data entry	Automatic filling of data fields during administrative procedures and bureaucratic practices, for example, through the automatic entry of the school's identification code.
Chatbot for Q&A with schools	A chatbot that allows answering the most frequently asked questions about the school during pre-enrollment, enrollment, and later during the school onboarding process.
School-family communications	A direct communication channel with the target school's administration, teaching staff, and management, as an alternative to emails, facilitating contacts, information, and family participation in school life.

Educational Career: Of the 412 ideas, 33% of those related to the "Educational Career" macro-category can be attributed to the following proposals:

EDUCATIONAL CAREER	
IDEA	IDEA DESCRIPTION
Student file	Feature that allows to export all the information related to the students' academic life (e.g., educational and extracurricular path, achievements, certificates, etc.) in digital format to automatically compile their CV.
360° digital tutoring	A digital communication tool between teachers and students, aimed at providing support (through the use of multimedia and informative material) in areas such as study methods, new subjects, onboarding, …
Experience review system	A section/service within which it is possible to consult feedback on experiences carried out by other students to help those who follow in making choices.

Successes & Achievements: Of the 412 ideas, 100% of those related to the "Successes & Achievements" macro-category can be attributed to the following proposals:

SUCCESSES & ACHIEVEMENTS:	
IDEA	IDEA DESCRIPTION
Digital collaboration space for exam preparation	A section where students can find useful material to fill academic gaps, as well as

	collaboration features among students to learn from peers' experiences.

4.2. Phases results

After having presented the main findings of the workshop and focus groups, to give a better understanding of the process that starts from the generation of an idea and ends into the implementation of a final idea, the next section shows in detail the design thinking's phases results outlined in the methodology section. The section outlines, as exemplification of the process, the steps carried out by students belonging to school A regarding the macro category "Orientation" (Spiega) and parents and school principals belonging to school A regarding all of the four macro-categories.

STUDENTS

Brainwriting and Brainwalking (S)

During the phases of brainwriting and brainwalking, when trying to answer the question "*what new services could support students in choosing their educational and professional paths in relation to their skills and aspirations, as well as the educational and job opportunities available in the area?"*

36 "cross-pollinated" ideas, were generated among the different focus groups belonging to school A.

Dot Voting (S)

Out of the 36 ideas, 2 received the highest number of votes:

"A *service useful to look at reviews and past experiences of students and teachers, helpful to make an informed choice of school or educational journey to take*".

"*Digital open days that can be used to direct students in their future school choice (online sites with all school activities and information)*".

Canvas (S)

With the Canvas technique the selected ideas are thoroughly explored and integrated with actual technical functionalities, making them more actionable and ready for

implementation. The final result of the two ideas mentioned above is represented in figure, 3 and 4.

IDEA: A service useful to look at reviews and past experiences of students and teachers, helpful to make an informed choice of school or educational journey to take

Describe your idea	Access "reviews and experiences" section, select which reviews are most related to your interests (based on past experiences of student and faculty) finally evaluate your choice
Describe the user Last year of high school student	**Describe his/her story. What is he/she looking for? What problems does he/she want to solve?** The student is in her third year of middle school and has to choose which school path to take. She is interested in humanities subjects, but at the same time she is afraid of making the wrong choice and regretting it. Fortunately, she finds on the new platform a section dedicated to reviews and past experiences of students and teachers
Idea details Reviews of school and extracurricular activities, prof-student relationship, trips, school program organization	**Analogies** **What platforms or apps you know and/or use have features that would be useful in making your digital idea** TripAdvisor, MyDoctor

Figure 3: Canva of the idea

IDEA: digital open days that can be used to direct students in their future school choice (online sites with all school activities and information)".

Describe your idea	Section where you can navigate according to your interests. In this section you can find information of exams quizzes and much more to be best directed
Describe the user 17 years old excellent student	**Describe his/her story. What is he/she looking for? What problems does he/she want to solve?** The student is struggling in choosing a future university path. She is looking for a platform able to guide her in finding schools that promote initiatives that can bring her closer to the job life
Idea details Virtual open days, interactive workshops, Quizzes and orientation tests, preparatory tests	**Analogies** **What platforms or apps you know and/or use have features that would be useful in making your digital idea** CISIA – university tests and exams

Figure 4: Canva of the idea

PARENTS & SCHOOL PRINCIPALS

Brainwriting and Affinity Diagram (P. & S.P.)

During the phases of brainwriting and brain walking, when trying to answer the question "*What new services could support students in choosing their educational and professional paths in relation to their skills and aspirations, as well as the educational and job opportunities available in the area?"*

the focus groups belonging to school A clustered 83 pain points according to the similarity of the issues.

Evidence shows that for ***Orientation*** parents often complain a lack of clear and easily accessible information about school and university career paths and a lack of continuous orientation services, such as hands-on workshops and university admission test preparation. Moreover, open days and other orientation experiences are perceived as inadequate or too superficial, often limited to facade marketing with no real informational or experiential value

For ***Enrollment & Onboarding*** parents perceive the enrollment process as unintuitive and with administrative procedures that often require external support, in addition, in many cases the bureaucratic practices are outdated and insufficiently digitized hindering easy understanding and access to services. Moreover, there are reports of difficulties in integrating students into the class group with a lack of initiatives to facilitate their integration into the school environment.

About ***Educational Career*** there is criticism about the use of digital services due to their lack of accessibility and constant system changes that disorient users. In addition, parents identify a lack of personalization of students' educational path, and finally, it is highlighted how schools struggle to adequately prepare students for the world of work.

In conclusion, for ***Successes & Achievements*** the following was highlighted: the need to promote an approach that values an inclusive environment, the lack of counseling counters considered essential tools to help students in planning their educational journey, and finally, the need for a better coordination between school and family.

Dot Voting and Crazy Idea (P. & S.P.)

After identifying what participants would like to see function better, two of the most voted out-of-the-box ideas (the vote occurred according to the "Dot Voting" phase) were:

"It would be nice if there was an app that followed the student throughout his or her education in a personalized way. Thanks to this app, it would be nice if students could take advantage of virtual classrooms to discover the world of university and work (metaverse)."

"It would be nice if there was a multitasking mobile and user-friendly platform, with tutoring and mentoring services, video calls, work orienteering, forums and blog".

Canvas (P. & S.P.)

With the Canvas technique the selected ideas are thoroughly explore and integrated in terms of who, what, why, how, and with whom. The following shows the result.

IDEA: it would be nice if there was an app that followed the student throughout his or her education in a personalized way. In particular, thanks to this app, it would be nice if students could take advantage of virtual classrooms to discover the world of university and work (metaverse)

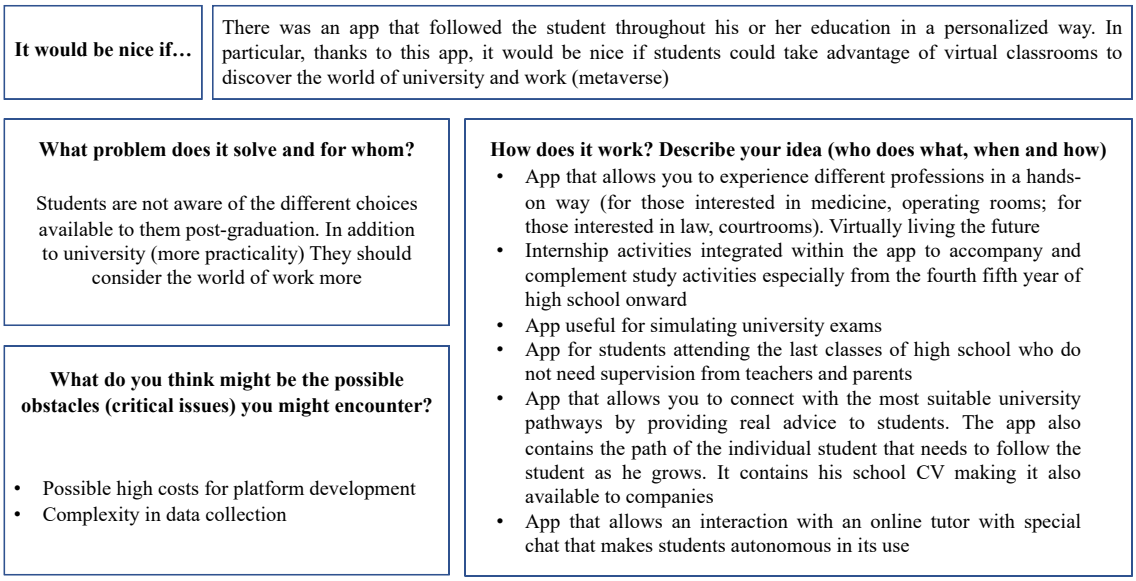


Figure 5: Canva of the idea

IDEA: "It would be nice if there was a multitasking mobile and user-friendly platform, with tutoring and mentoring services, video calls, work orienteering, forums and blog

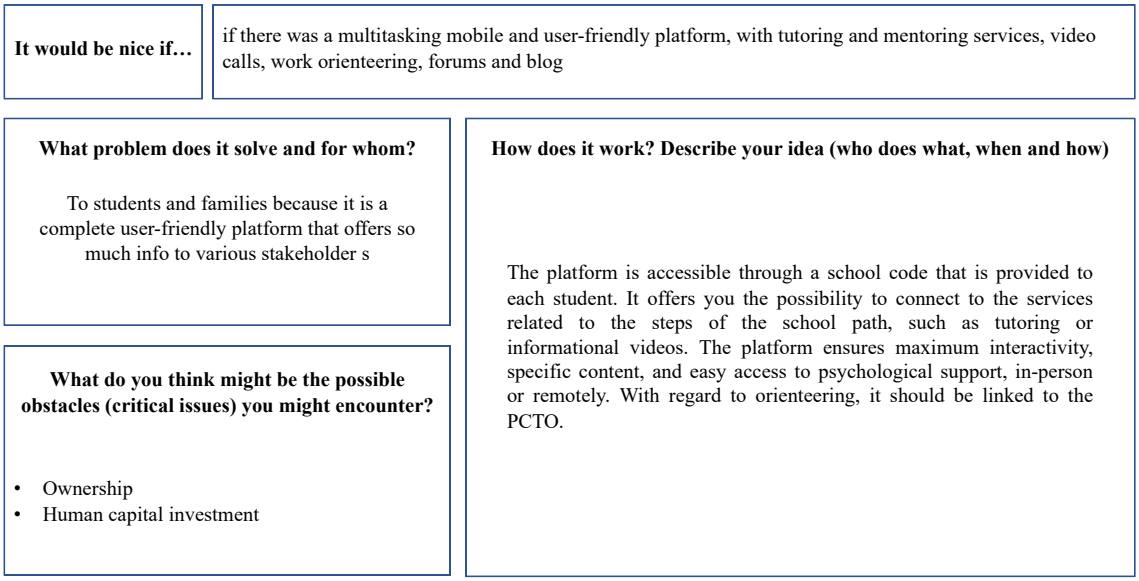


Figure 6: Canva of the idea

4.3. Survey's Results

Statistical analyses were performed using SPSS software version 29.0.2.0. Descriptive statistics such as mean, median and mode were conducted. In addition, the study also calculated the standard deviation and variance to measure data distribution of the responses. This analysis of descriptive statistics helped identify patterns, trends, and important statistics in the data, providing a snapshot of its distribution. Furthermore, a correlation test was conducted to determine whether there was a significant correlation among the different types of respondents and the macro categories outlined in the survey. Additionally, the ANOVA test was chosen to assess whether the means of more than two groups were statistically equal. A total of 51 respondents completed the questionnaire.

Responses' distribution

Through the observation of frequencies in Tab. 1,2,3,4,5,6, we observed that the category of participants with the highest percentage of responses is the students' one (65%), while for teachers is 21% and for students' parents is 14%. The number of females respondents is greater than the one of males respectively with a percentage of 65% and 35%. The comparison of usage patterns between males and females reveals distinct differences in engagement with the service across various groups. Overall, females tend to use it more frequently than males as evidenced by higher responses in the "Sometimes" and "Often" categories, particularly among students and teachers. Female students, especially those

under 18, show the highest level of engagement, with many using the service regularly, while male students in the same age group are more likely to either rarely use it or not at all. Among teachers, female participants, especially those over 30, predominantly use the service "Sometimes," with some using it "Often," reflecting a moderate but consistent engagement. In contrast, male teachers, all of whom are over 30, show minimal engagement, with responses limited to "Rarely" and "Sometimes". In both genders, parents exhibit the lowest level of usage, with all male and female parents over 30 indicating they "Rarely" use the service, highlighting low engagement in this group. Despite these differences, neither males nor females report habitual use of the service, as no respondents indicated "Always" using it. This suggests that while females, particularly younger students and older teachers, are more likely to engage with the service, it remains a supplementary rather than essential tool across all groups.

TOT Female Students =	21	*Female responses' distribution*				
Tab 1	**Usage: Never**	**Usage: Rarely**	**Usage: Sometimes**	**Usage: Often**	**Usage: Always**	**TOT FEMALE PER AGE**
Less than 18 y/o	2	1	5	2		10
18-30 y/o	1	7	2	1		11
More than 30 y/o						

TOT Female Teachers =	9					
Tab 2	**Usage: Never**	**Usage: Rarely**	**Usage: Sometimes**	**Usage: Often**	**Usage: Always**	
Less than 18 y/o						
18-30 y/o	1					1
More than 30 y/o	1	1	5	1		8

TOT Female Parents =	3					
Tab 3	**Usage: Never**	**Usage: Rarely**	**Usage: Sometimes**	**Usage: Often**	**Usage: Always**	
Less than 18 y/o						

18-30 y/o						
More than 30 y/o			3			3
TOT FEMALE PER USAGE =	5	9	15	4	0	

TOT Male Students =	12	*Male Responses' distribution*				
Tab 4	**Usage: Never**	**Usage: Rarely**	**Usage: Sometimes**	**Usage: Often**	**Usage: Always**	**TOT MALE PER AGE**
Less than 18 y/o	2	1		1		4
18-30 y/o	1	3	3	1		8
More than 30 y/o						

TOT Male Teachers =	2					
Tab 5	**Usage: Never**	**Usage: Rarely**	**Usage: Sometimes**	**Usage: Often**	**Usage: Always**	
Less than 18 y/o						
18-30 y/o						
More than 30 y/o		1		1		2

TOT Male Parents =	4					
Tab 6	**Usage: Never**	**Usage: Rarely**	**Usage: Sometimes**	**Usage: Often**	**Usage: Always**	
Less than 18 y/o						
18-30 y/o						
More than 30 y/o			4			4
TOT MALE PER USAGE =	3	5	7	3	0	

Comprehensive descriptive statistics

		Efficiency	Privacy& Security	Simplification_of_procedures	UXandInclusivity	Accessibility	New feature
N	Valid	51	51	51	51	51	51
	Missing	0	0	0	0	0	0
Mean		4,776	5,529	4,866	4,725	5,071	4,730
Median		4,875	6,000	5,000	4,833	5,200	4,500
Mode		5,750	6,00	4,000	3,500[a]	4,0[a]	4,00
Std. Deviation		,999	1,208	1,146	1,287	1,1270	1,18094
Variance		,999	1,462	1,313	1,656	1,270	1,395
Skewness		-1,115	-1,243	-,731	-,517	-,919	-,364
Std. Error of Skewness		,333	,333	,333	,333	,333	,333
Kurtosis		2,022	2,357	1,361	,283	1,864	,647
Std. Error of Kurtosis		,656	,656	,656	,656	,656	,656

Tab.7

The results of the statistical analysis (Tab.7) reveal that the respondents rated the factors of Privacy and Security, and Accessibility more favorably compared to other factors, with privacy and security receiving the highest mean score of 5,529, alongside a median and mode of 6,00, indicating strong satisfaction in this area. The Efficiency factor also received a relatively high mean score of 4,776, though it showed greater variability as evidenced by its standard deviation of 0,999 and a mode of 5,75. In contrast, the User Experience and Inclusivity factor exhibited the lowest mode at 3,50, suggesting more mixed perceptions, and its mean score of 4,725 was among the lower ratings, indicating room for improvement in this area. The skewness values for all factors were negative, reflecting a general trend of positive ratings with responses clustered toward the higher end of the scale. If “privacy and security” stands out as the most positively rated aspects,

the findings suggest that “user experience and inclusivity” should be increase as it shows greater variability and less favorable ratings compared to other factors.

Students’ descriptive statistics

Statistics

		Efficiency	Privacy&Security	Simplification_of_procedures	UXandInclusivity	Accessibility	New feature
N	Valid	33	33	33	33	33	33
	Missing	0	0	0	0	0	0
Mean		4,791	5,553	4,959	5,080	5,352	4,909
Median		4,875	6,000	5,000	5,333	5,800	5,000
Mode		4,000[a]	6,00	4,000	5,333	6,0	4,00[a]
Std. Deviation		1,094	1,360	1,320	1,327	1,2156	1,269
Variance		1,198	1,851	1,745	1,762	1,478	1,613
Skewness		-1,322	-1,314	-,895	-1,247	-1,642	-,695
Std. Error of Skewness		,409	,409	,409	,409	,409	,409
Kurtosis		2,423	2,284	1,098	2,129	3,868	1,205
Std. Error of Kurtosis		,798	,798	,798	,798	,798	,798

Tab 8

The analysis of the data for students (Tab.8) reveals varying levels of satisfaction across several key factors. Privacy and security emerged as the highest-rated factor, with a mean score of 5,53, indicating that students generally feel secure and confident in the system's ability to protect their information. This is further supported by a median and mode of 6,00, suggesting that many students consistently rated this factor highly. Efficiency also received favorable ratings, with a mean of 4,791 and a relatively low standard deviation of 1,094, indicating that most students found the system to be efficient with minimal

variability in their responses. On the other hand, UX and inclusivity scored lower, with a mean of 4,73 and a notably low mode of 3,50, pointing to mixed perceptions and a potential area for improvement. Simplification of procedures and accessibility also received moderate ratings, with means of 4,95 and 5,32, respectively. The factor related to new features had a mean of 4,909, reflecting average satisfaction. Overall, while students generally rated privacy and security highly, the data indicates that there is variability in how other aspects of the system are perceived, with particular attention needed for improving user experience and inclusivity.

Students' parents' descriptive statistics

		Efficiency	Privacyand Security	Simplification_of_procedures	UXandInclusivity	Accessibility	New feature
N	Valid	7	7	7	7	7	7
	Missing	0	0	0	0	0	0
Mean		5,142	5,964	4,928	3,809	4,742	4,643
Median		5,125	6,000	5,166	3,666	4,800	4,500
Mode		4,875[a]	6,00	5,333	3,500[a]	4,800	4,5
Std. Deviation		,497	,094	,672	,556	,442	,690
Variance		,247	,009	,452	,310	,196	,476
Skewness		-,080	-2,646	-2,076	2,056	-,400	1,424
Std. Error of Skewness		,794	,794	,794	,794	,794	,794
Kurtosis		-,583	7,000	4,306	4,726	,774	2,320
Std. Error of Kurtosis		1,587	1,587	1,587	1,587	1,587	1,587

Tab 9

The data for students' parents (Tab 9) provides insights into how they perceive various aspects of the system. Privacy and security stand out with the highest mean score of 5,96, indicating that parents feel very confident about the system's ability to protect privacy

and ensure security. This factor also shows a low standard deviation of 0,094, suggesting a high level of agreement among parents in their positive assessment. Efficiency is also rated positively with a mean score of 5,142, though the standard deviation of 0,497 indicates slightly more variability in responses. In contrast, user experience and inclusivity receive the lowest mean score of 3,809, highlighting this area as a potential concern for parents, and it shows a considerable positive skewness of 2,056, indicating that while many parents rated it low, a few rated it highly. Simplification of procedures has a mean of 4,928, indicating a moderate level of satisfaction, with a higher standard deviation of 0,672, pointing to more diverse opinions among parents. Accessibility is rated well with a mean of 4,742 and a low standard deviation of 0,442, suggesting general satisfaction but with limited variability. The "New Feature" factor, has a mean of 4,643, indicating moderate satisfaction, though the skewness of 1,424 suggests that while many parents rated it around the mean, a few gave it higher ratings.

Parents generally rate privacy and security very highly, however, their perceptions of user experience and inclusivity are notably less favorable, and there is some variability in how they view the system's efficiency and other features. The data suggests that improvements in user experience and inclusivity could enhance overall parental satisfaction.

Teachers' descriptive statistics

		Efficiency	PrivacyandSecurity	Simplification_of_procedures	UXandInclusivity	Accessibility	New feature
N	Valid	11	11	11	11	11	11
	Missing	0	0	0	0	0	0
Mean		4,500	5,182	4,545	4,242	4,436	4,250
Median		4,125	5,500	4,500	4,000	4,000	4,000
Mode		3,750[a]	4,0	4,000	4,000[a]	4,000	4,00
Std. Deviation		,913	1,055	,753	1,093	,852	1,078
Variance		,834	1,114	,567	1,196	,727	1,163
Skewness		,344	,115	,410	,067	,604	,283

Std. Error of Skewness	,661	,661	,661	,661	,661	,661
Kurtosis	-,944	-1,196	,046	-,387	-,639	-,602
Std. Error of Kurtosis	1,279	1,279	1,279	1,279	1,279	1,279

Tab 10

The data for teachers provides an overview of their perceptions across various factors of the system. Privacy and security are the most positively rated aspects, with a mean score of 5,182, indicating that teachers generally trust the service. This factor also shows moderate variability with a standard deviation of 1,055, suggesting that while many teachers rate it highly, there are some differences in opinion. Efficiency is rated moderately with a mean of 4,50, and a standard deviation of 0,913, indicating that opinions on this factor are relatively consistent. The simplification of procedures also has a similar mean score of 4,545, reflecting moderate satisfaction, and a lower standard deviation of 0,753, indicating less variability in responses.

UX and inclusivity have a lower mean score of 4,242, highlighting a potential area for improvement. Accessibility is rated with a mean of 4,436 and a relatively low standard deviation of 0,852, showing that teachers generally agree on their satisfaction with this factor. The “New feature” factor has a mean of 4,25, with a standard deviation of 1,078, indicating a wider range of opinions.

Teachers generally rate privacy and security positively, however, there is room for improvement in user experience and inclusivity.

Insights based on comparison

The comparison of data across students, parents, and teachers reveals distinct patterns in how each group perceives various aspects of the system. Privacy and security consistently emerge as the most positively rated factor across all three groups, with mean scores of 5,553 for students, 5,964 for parents, and 5,182 for teachers. This suggests a high level of trust on the system’s ability to protect the information.

On the other hand, UX and inclusivity is the lowest-rated factor among parents' mean score (3,809) and teachers' mean score (4,242). Parents rated this factor significantly lower, highlighting a key area for improvement and suggesting that they may find the system less accommodating or user-friendly compared to students and teachers.

Efficiency is another factor where perceptions vary slightly. Teachers rated efficiency with a mean of 4,500, while students gave it a mean of 4,791, and parents rated it the highest at 5,142. Teachers might need service's improvements, potentially due to their more complex interactions with it.

Simplification of procedures received moderate ratings across the board, with mean scores of 4,959 for students, 4,928 for parents, and 4,545 for teachers. All groups see potential for making further simplification of procedures.

Accessibility also outlined mixed reviews, with parents rating it at 4,742, students at 5,352, and teachers at 4,25.

Finally, the "New features" was generally rated favorably across all groups, though with some variability.

Correlation analysis' results

After computing descriptive statistics of the dataset, to show the strength and direction of the relationship between the variables, correlations tests were performed, and three research questions were formulated:

RQ1: *Is User Experience and Inclusivity influenced by the service's accessibility?*

$\boldsymbol{H_0}$: Correlation of UX and Incl. and Accessibility = 0; $\rho_{ux,a} = 0$

$\boldsymbol{H_1}$: Correlation of UX and Incl and Accessibility ≠ 0 → $\rho_{ux,a} \neq 0$

Correlations

		Average_UX_Incl	Average_Accessibility
Average_UX_Incl	Pearson Correlation	1	,805**
	Sig. (2-tailed)		<,001
	N	51	51
Average_Accessibility	Pearson Correlation	,805**	1
	Sig. (2-tailed)	<,001	
	N	51	51

**. Correlation is significant at the 0.01 level (2-tailed).

Tab 11

Tab 11 proofs that there is a positive correlation between the two variables. A p value < 0,001 (Sig. 2-tailed), indicates that the correlation is statistically significant, hence it is possible to reject the null hypothesis H_0, accept the alternative one H_1 and state that there is a positive correlation with a coefficient of 0,805 among the two variables. This means that as UX and Inclusivity increases, Accessibility increases as well.

RQ2: *Is User Experience and Inclusivity influenced by the "New Feature" variable?*

$\boldsymbol{H_0}$: Correlation of User Experience and New feature variable = 0; $\rho_{ux,n} = 0$

$\boldsymbol{H_1}$: Correlation of User Experience and New feature variable ≠ 0 → $\rho_{ux,n} \neq 0$

Correlations

		Average_UX_Incl	Average_New
Average_UX_Incl	Pearson Correlation	1	,712**
	Sig. (2-tailed)		<,001
	N	51	51
Average_New	Pearson Correlation	,712**	1
	Sig. (2-tailed)	<,001	
	N	51	51

**. Correlation is significant at the 0.01 level (2-tailed).

Tab 12

Tab 12 shows that there is a positive correlation between the two variables. Also in this case a p value < 0,001 (Sig. 2-tailed), indicates that the correlation is statistically significant, hence it is possible reject the null hypothesis H_0, accept the alternative one H_1 and state that there is a positive correlation with a coefficient of 0,712 among the two variables. As UX increases, new feature variable increases as well.

RQ3: *Is User Experience and Inclusivity by the Simplification of procedures (SOP)?*

$\boldsymbol{H_0}$: Correlation of User Experience and Inclusivity= 0; $\rho_{ux,sop} = 0$

$\boldsymbol{H_1}$: Correlation of User Experience and SOP variable ≠ 0 → $\rho_{ux,sop} \neq 0$

Correlations

		Average_UX_Incl	Average_SOP
Average_UX_Incl	Pearson Correlation	1	,777**
	Sig. (2-tailed)		<,001
	N	51	51
Average_SOP	Pearson Correlation	,777**	1
	Sig. (2-tailed)	<,001	
	N	51	51

**. Correlation is significant at the 0.01 level (2-tailed).

Tab 13

Tab 13 shows that there is a positive correlation between the two variables. The correlation is statistically significant with a p value < 0,001 (Sig. 2-tailed). Therefore, it is possible to reject the null hypothesis H_0, accept the alternative one H_1 and state that there is a positive correlation with a coefficient of 0,777 among the two variables. As UX and Inclusivity increases, simplification of procedure increases as well.

ANOVA results

The last analysis was conducted through the one-way ANOVA test. It was run in order to understand whether the means of the six macro areas (Efficiency, Privacy & Security, Simplification of procedures, User experience & inclusivity, Accessibility, New Feature) were actually statistically different for the three groups of respondents: student, students' parents and teachers. The confidence interval was set at 90% in order to determine a statistical significance with p values of 0,1.

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Average_Efficiency	Based on Mean	1,575	2	48	,218
	Based on Median	1,378	2	48	,262
	Based on Median and with adjusted df	1,378	2	43,494	,263

	Based on trimmed mean	1,516	2	48	,230

Tab 14

From the table above (Tab.14) it is seen how the significance level is higher than 0,1 (0,218) so the null hypothesis that affirms that the three standard deviations are all the same, can be accepted.

Assuming the standard deviations as equal, the ANOVA test was run under the following hypothesis:

H_0: $\mu_{students} = \mu_{teachers} = \mu_{students' parents}$

H_1: $\mu_{students} \neq \mu_{teachers} \neq \mu_{students' parents}$

ANOVA

Average_Efficiency

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,788	2	,894	,891	,417
Within Groups	48,159	48	1,003		
Total	49,947	50			

Tab 15

The ANOVA table (Tab.15) tells us whether there is at least one mean which is different from the others showing us if the hypothesis should or not be rejected. Since the p value is equal to 0,417 (higher than 0,1) the error that I make if I reject the null hypothesis is very high. Therefore, H_0 can be accepted and affirm that the three groups have the same mean in term of perception of service's efficiency.

This analysis' results were also recurring in the outcomes of the analysis carried out to test whether the means of the macro areas "Privacy & Security", "Simplification of procedures" and "New Feature" were equal among the respondents' groups. As a matter

of fact, ANOVA's p values of 0,409, 0,586, 0,276 were respectively reported in each of the macro categories cited above (Appendix C). However, for "Accessibility" and "UX & inclusivity" variable, different results were shown.

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Average_Accessibility	Based on Mean	2,162	2	48	,126
	Based on Median	1,292	2	48	,284
	Based on Median and with adjusted df	1,292	2	40,967	,286
	Based on trimmed mean	1,869	2	48	,165

Tab 16

From the table above (Tab 16) it is seen how the significance level is higher than 0,1 (0,126) so we can accept the null hypothesis that affirms that the three standard deviations are all the same.

As for the other procedures, assuming the standard deviations as equal, the ANOVA test was run under the following hypothesis:

H_0: $\mu_{students} = \mu_{teachers} = \mu_{students' parents}$

H_1: $\mu_{students} \neq \mu_{teachers} \neq \mu_{students' parents}$

ANOVA

Average_Accessibility

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7,781	2	3,890	3,351	,043
Within Groups	55,725	48	1,161		
Total	63,506	50			

Tab 17

Based on the table above (Tab 17), the significance value of 0,043 < 0,1 indicates that the relationship between the service's accessibility and the different groups of respondents is significant. However, the table only tells whether there is at least one mean which is different from the others. Therefore, to understand which are the statistically significant different means, further post-hoc testing is required, specifically the "Scheffe" post-hoc test was used.

Multiple Comparisons

Dependent Variable: Average_Accessibility

Scheffe

(I) Respondent_type	(J) Respondent_type	Mean Difference (I-J)	Std. Error	Sig.	90% Confidence Interval	
					Lower Bound	Upper Bound
Student	Teacher	,9152*	,3751	,060	,090	1,740
	Parent	,6087	,4484	,405	-,377	1,594
Teacher	Student	-,9152*	,3751	,060	-1,740	-,090
	Parent	-,3065	,5209	,842	-1,452	,839
Parent	Student	-,6087	,4484	,405	-1,594	,377
	Teacher	,3065	,5209	,842	-,839	1,452

*. The mean difference is significant at the 0.1 level.

Tab 18

Thanks to the results shown in the Scheffe table (Tab. 18) it is possible to affirm that H_0 can be rejected only when we compare students with teachers (p value = 0,06 significant with 90% Confidence interval) and therefore conclude that there is a statistically significant difference between the perception of the two groups.

The same procedure was run for the "UX and Inclusivity" variable:

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Average_UX_ Incl	Based on Mean	1,851	2	48	,168
	Based on Median	1,578	2	48	,217
	Based on Median and with adjusted df	1,578	2	43,174	,218
	Based on trimmed mean	1,769	2	48	,181

Tab. 19

The significance level shown in Tab.19 is higher than 0,1 (0,168) so we can accept the null hypothesis that affirms that the three standard deviations are all the same and run the ANOVA test under the following hypothesis:

H_0: $\mu_{students} = \mu_{teachers} = \mu_{students' parents}$

H_1: $\mu_{students} \neq \mu_{teachers} \neq \mu_{students' parents}$

ANOVA

Average_UX_Incl

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12,606	2	6,303	4,309	,019
Within Groups	70,217	48	1,463		
Total	82,824	50			

Tab. 20

Based on the table above (Tab 20), the significance value of 0,019 < 0,1 indicates that the relationship between the service's UX and Inclusivity and the different groups of respondents is significant. However, as for accessibility variable, the table only tells whether there is at least one mean which is different from the others. Therefore, to understand which are the statistically significant different means, further post-hoc testing is required, specifically the "Scheffe" post-hoc test was used.

Multiple Comparisons

Dependent Variable: Average_UX_Incl

Scheffe

(I) Respondent_ type	(J) Respondent_ type	Mean Difference (I-J)	Std. Error	Sig.	90% Confidence Interval	
					Lower Bound	Upper Bound
Student	Teacher	,838	,421	,149	-,087	1,764
	Parent	1,271*	,503	,050	,164	2,377
Teacher	Student	-,838	,421	,149	-1,764	,087
	Parent	,432	,584	,762	-,852	1,718
Parent	Student	-1,271*	,503	,050	-2,377	-,164
	Teacher	-,432	,584	,762	-1,718	,852

*. The mean difference is significant at the 0.1 level.

Tab. 21

Thanks to the results shown in the Scheffe table (Tab. 21) it is possible to affirm that H_0 can be rejected only when we compared students with Parents (p value = 0,05 significant with 90% Confidence interval) and therefore conclude that there is a significant difference between the perception of the two groups.

DISCUSSION

The study focuses on digital services for schools and involves a diverse set of stakeholders (students, parents, and teachers) who participated in design thinking workshops and answered the survey. These workshops were structured around four thematic areas: Orientation, Enrollment & Onboarding, Educational Career, Successes & Achievements. A wide variety of ideas were collected through the focus groups, and with the insights gained, it is possible to address the research question: *How can Public Administration improve its management practices to achieve full digitalization and provide a customer-centric service in an ever-evolving external environment?* This evidence and the results of the statistical analysis conducted, provides Public Administrations with a best practice for implementing a more effective and customer-centric digital service management. The principles of user-centered design in public services, especially in education, have been extensively discussed in works like by Bason's (2016), which emphasizes the need for public administrations to adopt design thinking to create services that better meet the needs of users. Similarly, the study conducted by Norman, D. A. (2013) emphasizes the importance of designing systems and products that are intuitive and responsive to user needs, in order to align with the necessity of user-centered approaches in public administration. Additionally, Sanders and Stappers (2008) also discuss the evolving role of users in the design process, highlighting how involving users in co-creation can lead to more effective and tailored public services. However, critiques of user-centric approaches in public services argue that they can lead to inefficiencies and fail to account for the complexities of large-scale public administration (Bovaird; Löffler, 2016) and that competing interests and policy goals can complicate the design process (Christensen, T., & Lægreid, P., 2011). Or as Junginger (2013) suggests, public services often struggle to adapt design thinking principles due to bureaucratic inertia and the complexity of serving diverse populations.

Orientation: Enhancing User Experience for Students and Parents - Students' Perspectives

The theme of Orientation emerged as a pivotal area for improving digital services, particularly in helping students and families in making informed educational decisions.

The workshops revealed a strong demand for a school review system that allows students to share personal experiences and feedback about schools. This system would foster a transparent exchange of information, empowering students with peer insights that are crucial for decision-making. Implementing such a system would necessitate a cultural shift within the education Public Administration towards greater transparency and engagement, ultimately enhancing the responsiveness of the education system to user needs, which, as outlined in the literature review, is much sought after by users. This concept is well supported by literature. As a matter of fact, Fung, (2006), Michels and De Graaf, (2010), Bovens, (2007) in their works, highlight how, by involving citizens in feedback processes, transparency and engagement is improved in public services. On the other hand, scholars like Heeks (2003) and Power, (1997) have pointed out that transparency initiatives can be challenging to implement effectively in contexts with low levels of digital literacy and that transparency can lead to a tick-box approach that prioritizes form over substance potentially undermining the quality of public services.
Furthermore, the preference for digital content such as vlogs, podcasts, and videos over traditional brochures indicates a significant shift towards interactive and engaging resources, as also highlighted by Selwyn (2016), Anderson, J., & Rainie, L., (2017) and Heffernan, T. (2021).

Parents' Perspectives

For parents, Orientation services often fall short, characterized by inadequate information and superficial engagement. Existing orientation activities, such as open days and workshops, are frequently perceived as marketing exercises rather than substantial informational resources. To address these concerns, the Public Administration must mandate and support the development of more meaningful orientation services. This involves integrating practical insights and comprehensive information to help parents in making well-informed educational choices for their children.
The lack of continuous orientation services, such as ongoing workshops and preparation for university admission tests, further exacerbates this issue. West, Sweeting, and Young (2010), Ecclestone, K., Biesta, G., & Hughes, M. (2010), Gale, T., & Parker, S. (2014), highlight the importance of continuous support for students, reinforcing the need for sustained orientation and onboarding services. There is also literature that questions the

scalability of sustained onboarding services in large public education systems, suggesting that such approaches may be resource-intensive and difficult to maintain (Lynch, 2006).

Enrollment & Onboarding: Streamlining Administrative Processes - Students' Perspectives

In the Enrollment & Onboarding category, several key issues were identified. The need for comprehensive support materials, such as tutorials and FAQs, highlights the importance of user-friendly digital interfaces. Developing clear, multilingual resources is essential for ensuring that families and students can navigate online enrollment systems effectively. Additionally, the proposal for automated data entry systems underscores a need for efficiency and accuracy in administrative procedures. Automating tasks such as form filling can alleviate the administrative burden on families and schools, reflecting a broader trend towards digitalization in public services. The Public Administration should consider implementing AI solutions to meet the user needs. Mergel, I. (2016), Vogl, T. M., Seidelin, C., Ganesh, B., Wedel, M. (2020) discuss how digital tools, are being institutionalized in public administrations to improve service delivery, efficiency and responsiveness.

Parents' Perspectives

For parents, the enrollment process is often seen as cumbersome and unintuitive. The persistence of outdated bureaucratic practices hinders access to services and necessitates modernization. In this context, Mergel, Edelmann, and Haug (2019), show that the use of AI and digital tools can enhance service delivery and reduce administrative burdens. On the other hand, critics like Eubanks' (2018), suggest that AI and automation in public services can lead to unintended consequences, such as reinforcing existing biases or creating new forms of digital exclusion.

Educational Career: Supporting Students' Academic Journeys - Students' Perspectives

The Educational Career category highlights the need for personalized and accessible resources. The proposal for a digital student file that compiles academic and extracurricular achievements would facilitate comprehensive record-keeping and CV

creation, which aligns perfectly with the trend of having “dematerialized” documents. Additionally, the concept of 360° digital tutoring underscores the importance of continuous academic support through multimedia resources and personalized guidance.
The findings align with a great part of literature, in fact, Levin, H. M. (2012), De Ruyter and Conroy (2002) discuss the importance of cost-effective educational interventions, which supports the argument for comprehensive digital student files and personalized tutoring systems as efficient ways to support students in their educational career.

Parents’ Perspectives

From the parents' perspective, concerns include the accessibility and consistency of digital services. Frequent system changes can create confusion, highlighting the need for stable and user-friendly platforms. Moreover, inadequate preparation for the work life underscores the need for stronger links between education and industry. Findings from Gale, T., & Parker, S. (2014) and Bell & Blanchflower, D. G. (2011) works, consolidate this necessity: their studies emphasize the need for stronger links between education and industry and state that workshops and support are crucial for successful student transitions.

Successes & Achievements: Recognizing and Celebrating Student Accomplishments - Students’ Perspectives

The Successes & Achievements category emphasizes the importance of creating an environment that values and supports student accomplishments. The proposal for a digital collaboration space for exam preparation reflects the growing significance of peer learning and resource sharing. Such a platform could enhance cooperative learning and provide students with valuable support during exam preparation.

Parents’ Perspectives

For parents, promoting an inclusive school environment is crucial. Public Administration should prioritize policies that foster inclusivity and ensure that all students feel supported and valued. In the literature this issue is widely tackled: Selwyn, N., & Facer, K. (2013) discuss the political dimensions of digital education, highlighting how technology can either enhance or inhibit inclusivity, depending on its implementation. Gouseti, A. (2017), argues for the critical importance of inclusivity in digital education, supporting the need

for accessible digital platforms that cater to diverse student populations. Finally, Ashman and Elkins (2012) stress the importance of designing educational environments that are accessible to all students, including those from marginalized backgrounds. However, this objective can be often hard to achieve. Selwyn (2014) argues that digital inclusivity is difficult to achieve in practice often due to resource limitations and complexity of diverse user needs. Gorski, P. C. (2009), and Warschauer, M. (2004), critique the assumption that digital tools promote inclusivity, arguing that without addressing underlying social inequalities, digital education services can actually perpetuate existing disparities often failing to reach marginalized populations.

Quantitative Analysis

The combination of the insight from the design thinking workshops and the statistical analysis, provide findings on which are the factors that influence the user to perceive a digital service more customer centric. Consequently, the identification of those factors can contribute to improving customer centricity in digital services and emphasize the need for a user-centered approach in the digital transformation of public services.

The correlation analysis revealed a strong relationship between Accessibility and UX and Inclusivity aligning with a broader global trend where accessibility acts as a crucial enabler for service's user-centricity (Campmas A. et al., 2022). Furthermore, in the context of public services, accessibility refers to how simple it is for users to engage with digital platforms; this includes features like mobile compatibility, user-friendly interfaces, and assistance for people with disabilities (Bélanger & Carter, 2012). In this context, the significant positive association suggests that enhancing these factors increases inclusivity and improves the user experience, which is in line with the larger objective of equitable service delivery in public administration (Margetts & Dunleavy, 2013). Moreover, when governments adopt new digital procedures to simplify processes, the result is an increase in user engagement and experience (Campmas A. et al., 2022).

The analysis also proved a statistically significant positive correlation between "new feature" and UX and Inclusivity. This result is reinforced by the conclusions achieved by Mergel (2016), and Janssen et al. (2021), that respectively explain firstly, how continuous innovation is essential for user engagement and centricity within digital services,

secondly how fostering a culture of innovation within public administration is the key to improve service delivery.

Furthermore, thanks to the ANOVA analysis, useful insights were provided in identifying how students, parents and teachers perceive different aspects of the digital service usage. While for Efficiency, Privacy & Security, and new feature, significant differences were not found, the analysis highlighted differences in perception of Accessibility and UX and Inclusivity for the different types of groups. Assuming the significant strong positive correlation outlined above between accessibility and UX and Inclusivity, a possible explanation for the statistically significant mean difference detected in the ANOVA test can be attributed to a wrong adoption of digital technologies. In fact, even if frequently considered as a universal solution to enhance UX, if adopted without thorough consideration of different user needs, digital technologies can bring to services' usage inequalities, therefore compromising the user experience and inclusivity (Mergel, et al., 2019).

CONCLUSION

The discussion that occurred in the previous chapter led us to reason on various issues concerning the creation of user-centric digital services, highlighting positives and negatives aspects of their implementation. In the last chapter of the thesis, conclusions were drawn from what was analyzed and the research question of, “how can Public Administration improve its management practices to achieve full digitalization and provide a customer-centric service in an ever-evolving external environment?” is finally answered. To make the reasoning leading to these conclusions more easily understandable, the chapter shows the detected problematics, lessons learned, and give managerial implications that arise from this research.

Detected Pain Points

Orientation Deficiencies

Both students and parents highlighted significant gaps in the orientation services provided by schools. Current services are often perceived as inadequate, with a lack of detailed, accessible, and engaging information about educational options. There is also a perceived absence of ongoing support throughout the educational journey.

Cumbersome Enrollment Processes

The enrollment and onboarding processes are seen as overly complex and not user-friendly. Parents and students struggle with outdated bureaucratic practices and insufficient digital resources. The lack of intuitive and efficient systems for administrative tasks hinders access and creates frustration.

Inconsistent Educational Career Support

Students and parents noted a lack of personalized educational pathways and continuous academic support. The absence of adaptive learning tools and career-oriented services creates challenges in adequately preparing students for their future careers.

Underappreciated Student Successes & Achievements

The education system lacks mechanisms to adequately recognize and celebrate student achievements. Additionally, there is insufficient support for cooperative learning and exam preparation, which could enhance student success.

Lessons Learned

User-Centered Design is Crucial

The workshops revealed that users desire services that are intuitive, accessible, and personalized. Public Administration must prioritize user experience by involving stakeholders in the design process to create solutions that truly address their needs.

Digital Tools are Key Enablers

The preference for digital content and tools, such as chatbots, automated systems, and multimedia resources, reflects the growing demand for digitalization in public services. Furthermore, the quantitative analysis proved a strong significant correlation between user-experience and inclusivity and the implementation of new feature, suggesting investing in the newest technologies to increase customer centricity. However, digital transformation must be accompanied by efforts to ensure accessibility and ease of use.

Continuous Support is Essential

The need for ongoing support, whether in the form of orientation services, academic guidance, or career preparation, was a recurring theme. Public Administration must recognize that a one-time intervention is insufficient; continuous engagement and support are required throughout the educational journey. The quantitative analysis proved a strong significant correlation between user-experience and inclusivity and the simplification of procedures, suggesting investing in facilitation procedures to increase customer satisfaction.

Transparency and Engagement Build Trust

There is a strong demand for transparency, especially in the Orientation and Educational Career stages. Users want access to honest reviews, comprehensive information, and meaningful engagement opportunities. By fostering transparency, Public Administration can build trust and enhance user satisfaction.

Inclusivity Must be a Priority

Ensuring that all students, regardless of background or ability, have access to supportive and inclusive services is vital. The lack of inclusive practices in some areas of the current system was a significant concern for both students and parents. The correlation analysis proved a strong positive correlation between UX and inclusivity and accessibility, proving the need of an inclusive digital service.

What to Do? (Managerial Implications)

Modernize Administrative Processes

Public Administration should focus on digitizing and automating administrative processes to enhance efficiency, reduce the burden on users and simplify procedures. This includes implementing AI-driven solutions like chatbots and automated data entry systems to streamline enrollment, onboarding, and other bureaucratic procedures.

Develop Comprehensive Support Systems

Creating and maintaining a robust support infrastructure is essential. This involves offering multilingual tutorials, FAQs, and ongoing orientation services that promote accessibility and guide students and parents through the educational journey. Continuous academic support, personalized tutoring, and career counseling should also be prioritized.

Foster a Culture of Transparency and Engagement

Public Administration should develop platforms that allow for the transparent exchange of information, such as school review systems and experience-sharing platforms. These tools will enable users to make informed decisions and feel more engaged in the process.

Promote Inclusivity and Accessibility

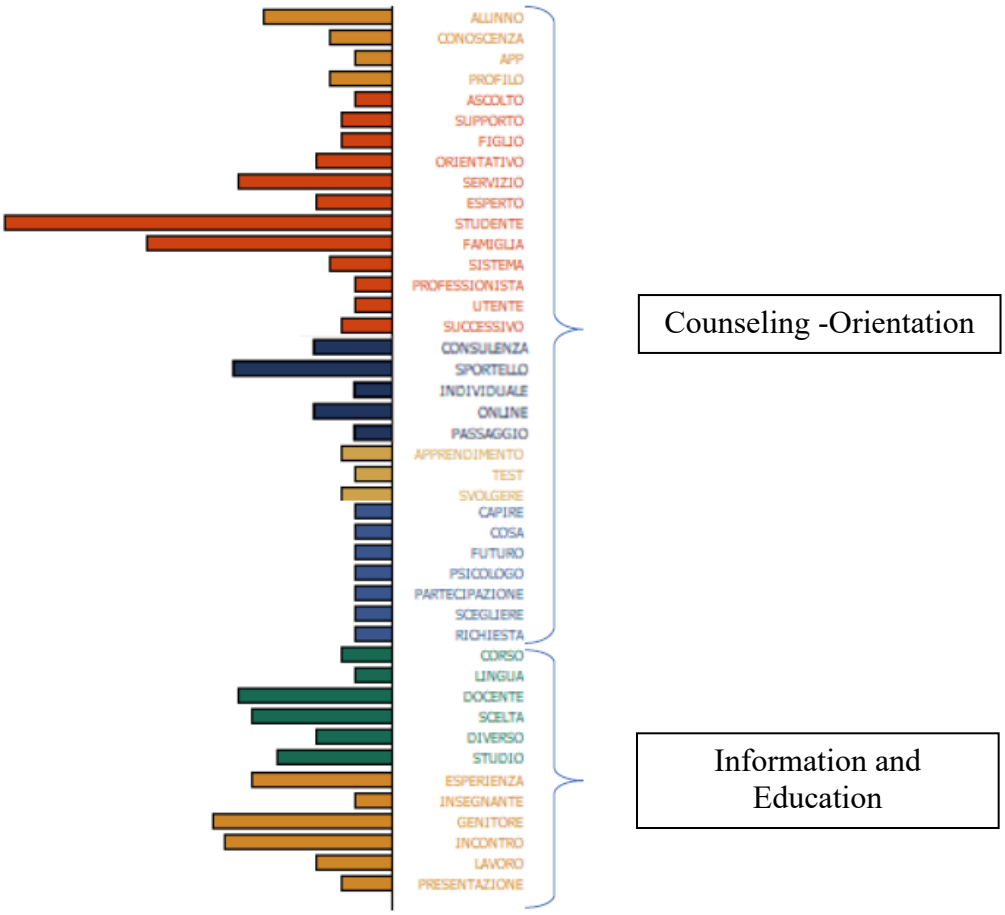
Implement policies and programs that ensure all students have access to the resources and support they need. This includes creating adaptive learning platforms that meet individual needs and ensuring that digital services are accessible to all users, regardless of their technical skills or language proficiency. This action plan will grant an increase in user experience (as proved in the ANOVA statistical analysis).

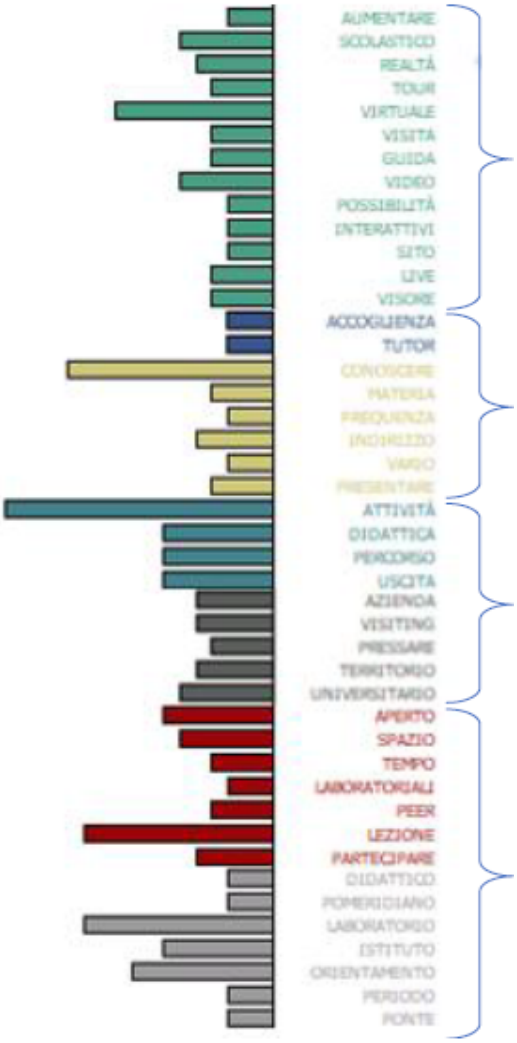
Final Thoughts

The insights gained from this study underscore the need for Public Administration to adopt a holistic, user-centered approach to digitalization. By addressing the identified problematics and implementing the lessons learned, Public Administration can create a more responsive, inclusive, and customer-centric educational system. The transformation required is not just technological but also cultural, demanding a shift towards greater transparency, engagement, and continuous support. This comprehensive approach will ensure that the digital services provided meet the evolving needs of students, parents, and teachers in a dynamic external environment.

Appendix A

Thematic Analysis - School A





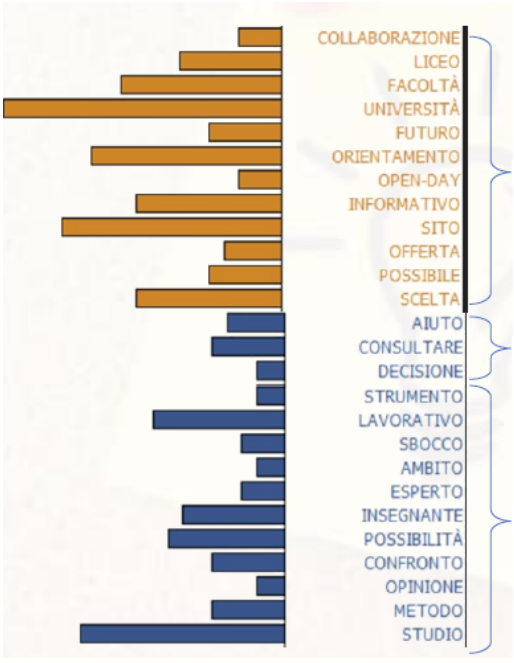
"Augmented" school

Tutoring / Mentoring

Realistic preview

Experiential workshops

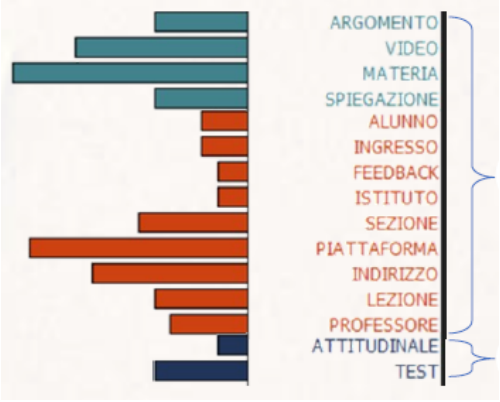
Thematic Analysis - School B



Digital open-day

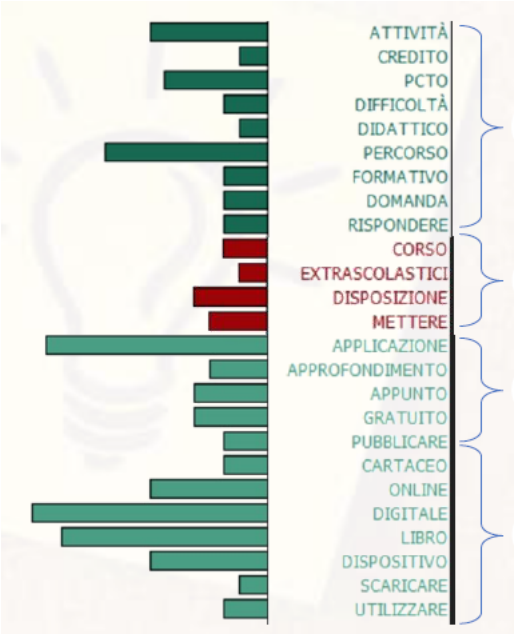
Mentoring

Digital orientation



Realisitc Preview

Preparation tests

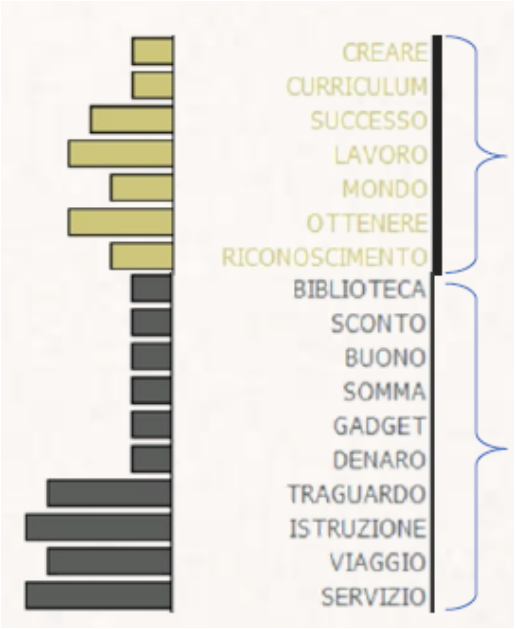


Digital tutoring

Extracurricular

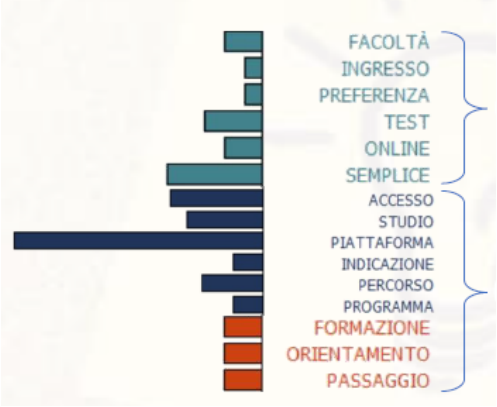
Digital documents

360 digital tutoring



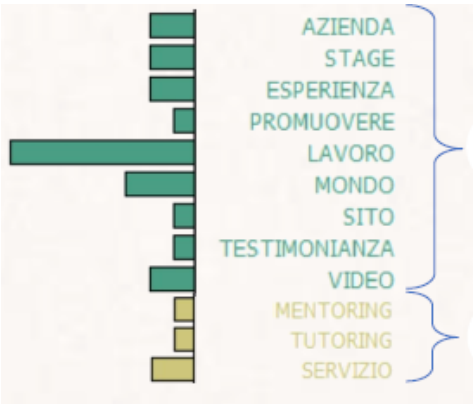
Successes

Student File



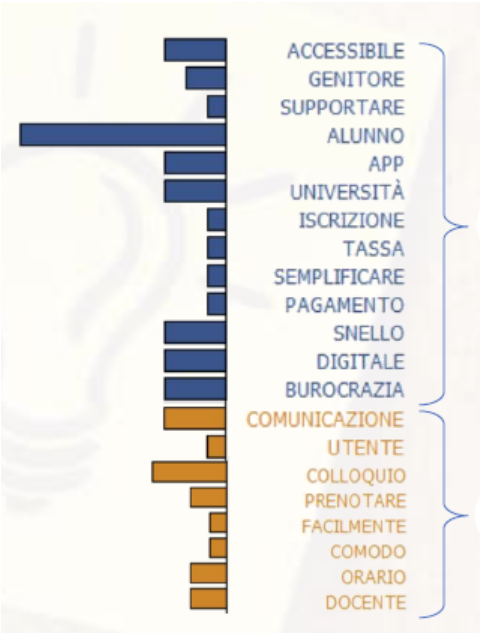
Preparation tests

Digital orientation



Real work

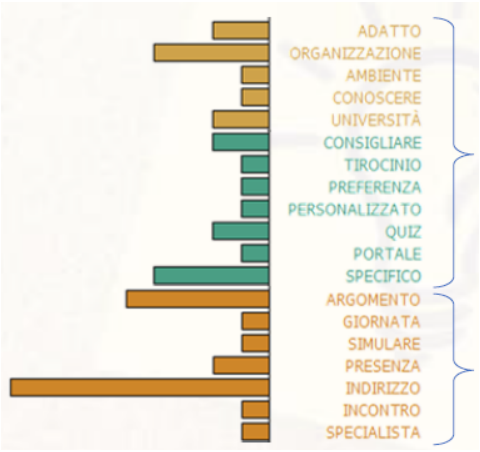
Mentoring / Tutoring



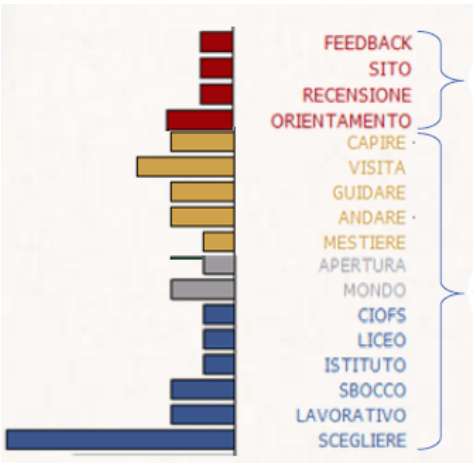
Semplification of administration

School – family communication

Thematic Analysis - School C



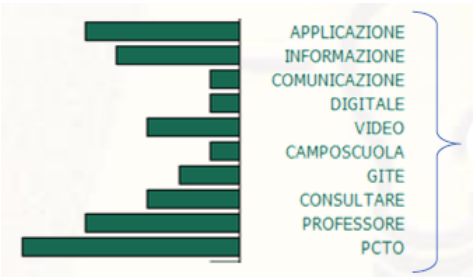
Tutoting



Orientation desks

Review system

Realistic preview

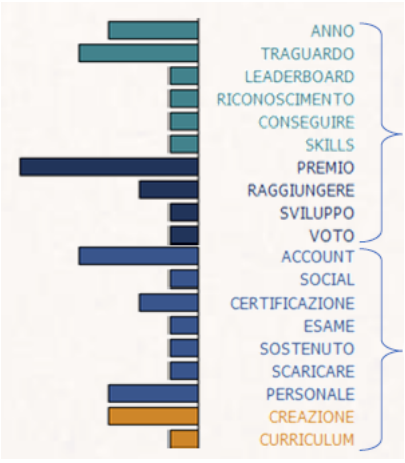


Semplification in communication

Online tutoring

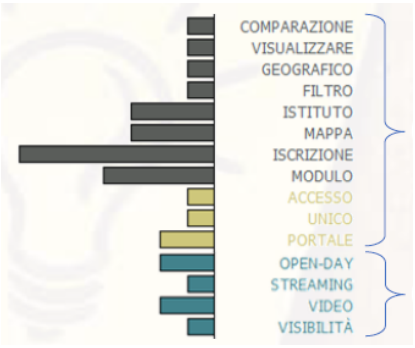
Digital school

Digital open day



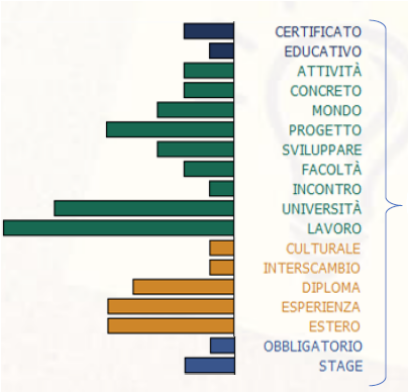
Personalization

Successes



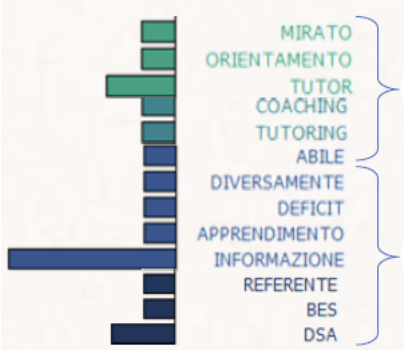
Student file

Review system



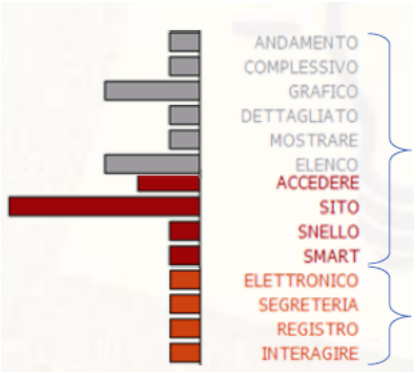
Review system

Worklife



Coaching and tutoring

Inclusivity

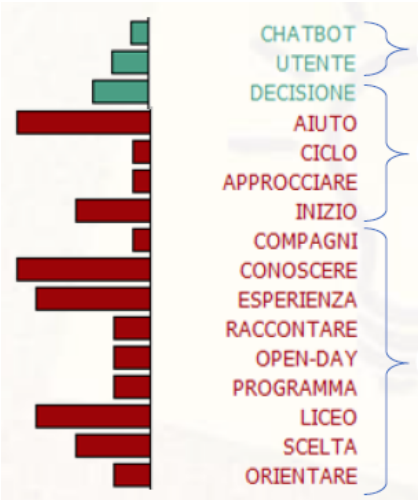


User-friendliness

Simplification of cummunication

Personalization

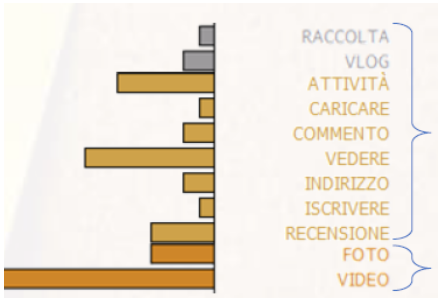
Thematic Analysis – School D



Chatbot

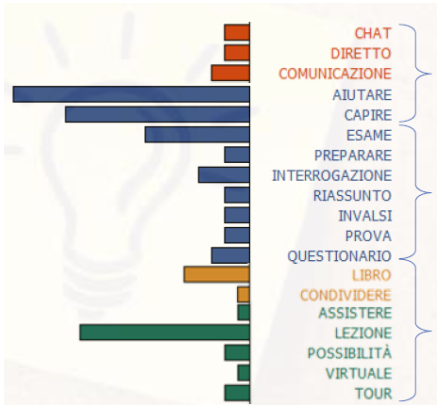
Tutoring

Online mentoring



Review system

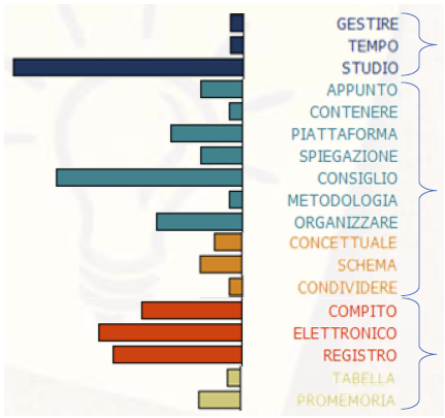
Online experience preview



Help-desk

Preparation tests

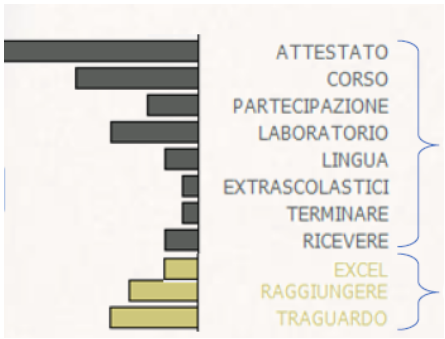
Online support



Online support

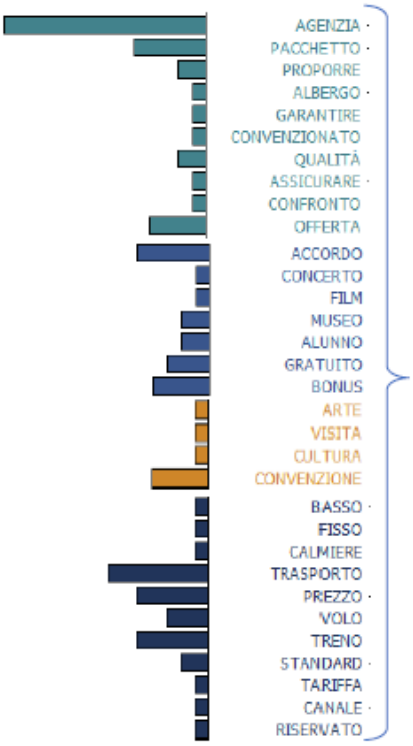
Tutoring

Personalization



Extracurricualr personalization

Student file



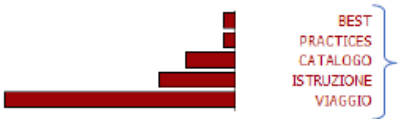
Booking.com for schools

Semplification of procedures

Registry of operators

Personalization

Education



Compendium of best practices

Appendix B

STUDENTS, PARENTS, TEACHER' IDEAS

ORIENTATION - PARENTS AND SCHOOL PRINCIPALS: TOT N° 34

Sarebbe bello se ci fosse la possibilità di selezionare con dei filtri la tipologia di corso, la mappa geografica, la mappa con i collegamenti con il trasporto pubblico per visualizzare gli istituti e uno schema di comparazione dei percorsi/servizi/plus di ciascun istituto. Più condizioni per iscrizione (es. residenza, provenienza scolastica, fratelli, ecc.)

Sarebbe bello se si potesse accedere a programmi/obiettivi/percorsi/sbocchi dei diversi percorsi di studio in modo chiaro

Sarebbe bello se ci fossero incontri con studenti provenienti da varei facoltà universitarie per sapere la loro esperienza

Sarebbe bello se dopo la scuola si potesse già trovare il lavoro adeguato o l'università (facoltà)

Sarebbe bello se la scuola proponesse più progetti o attività per aiutare i ragazzi nella scelta dell'università

Sarebbe bello se ci fossero servizi digitali che mettano in evidenza:
- sbocchi professionali post diploma;
- possibili esperienze all'estero e costi

Sarebbe bello se la piattaforma rendesse l'accesso virtuale a facoltà più facile ed esplicito

Sarebbe bello se la scuola supportasse alunni e genitori, se tutte le scuole fossero più sicure, adeguate ed accessibili

Sarebbe bello se ci fosse una piattaforma unica per la scuola dell'obbligo, che comunica con tutte le altre piattaforme dello Stato, attraverso la quale si trovano tutti i servizi del Mondo Scuola

Sarebbe bello se sul sito del MIM ci fosse il link a un portale contenente un elenco con tutte le tipologie di scuole e poi tutte le scuole sul territorio

Sarebbe bello se ci fosse una piattaforma di confronto delle varie offerte formative. Per capirci qualcosa di simole al confronto questi forni , ma sull

Sarebbe bello se un ragazzo che deve scegleire la scuola superiore abbia la possibilità di accedere ad una piattaforma per conoscere l'offerta formativa e scegliere più consapevolmente

Sarebbe bello se ci fosse una mappa di tutte le scuole d'interesse quando si digita un certo istituto

Sarebbe bello se ci fossero dei commenti degli alunni della scuola su come si sono trovati al di fuori (università/lavoro)

Sarebbe bello se ci fosse più tempo dedicato allo studio lavoro per poter dare la possibilità allo studente di fare la scelta migliore, nel caso delle scienze umane lavorare con bambini dell'asilo o delle elementari

Sarebbe bello se facessero un TEMA test gli alunni manifestando le proprie preferenze scolastiche

Sarebbe bello se ogni tipo di comunicazione passasse attraverso l'app (anche le varie pubblicità di altre scuole/università) tutte attraverso un'unica

Sarebbe bello se ci fosse più visibilità delle esperienze delle scuole (3D, hotspot,...) e video per una migliore scelta

Sarebbe bello se ci fossero "siti" in cui vengono ripresi argomenti specifici del mondo del lavoro (video di testimonianze)

Sarebbe bello se accedendo alla piattaforma si avessero delle indicazioni in più e ad hoc per la scelta degli studi futura

Sarebbe bello se tutte le scuole facessero idonei test di orientamento per il passaggio al ciclo scolastico successivo

Sarebbe bello se gli studenti potessero fare/seguire progetti concreti per avvicinarli all'università o al mondo del lavoro

Sarebbe bello se ci fossero indicazioni sul percorso futuro per non "sprecare" talenti e opportunità

Sarebbe bello se ci fossero open day con video e possibile streaming su varie piattaforme

Sarebbe bello se l'autonomia selezionasse le migliori pratiche

Sarebbe bello se ci fosse l'assegnazione della password per la firma digitale dei genitori per tutte le pratiche con la scuola e la gestione del profilo

Sarebbe bello se ci fossero informazioni su nuovi lavori che internet e le nuove tecnologie hanno portato

Sarebbe bello se accedendo sulla piattaforma ci fossero più informazioni per gli sbocchi sullo studio fatto

Sarebbe bello se ci fosse un portale/ accesso unico che consentisse:
- navgazioni diverse in base a cosa ti piace e a cosa vorresti imparare a fare (suggerimenti);
- test opzionali che ti forniscano informazioni in base alle selezioni

Sarebbe bello avere un elenco di base delle offerte formative, con un grafico che mostri l'impatto di ogni materia per una determinata scelta.
Selezionando una delle offerte di base si può navigare in offerte più dettagliate che mostrino oltre ai grafici precedenti, anche statistiche utili come:
- percentuali di studenti che lavorano dopo il diploma;
- percentuale di promossi rispetto agli iscritti;
- ecc.

Come ultimo elenco si avrà quello delle scuole che propongono l'offerta selezionata, riportando:
- dati logistici (come raggiungere la scuola);
- dati sugli iscritti (promossi, bocciati, ecc.);
- contatti;
- come iscriversi;
- open day;
- ecc.

Sarebbe bello se ci fosse un data base di offerte professinali/stage

Sarebbe bello se si potesse entrare in un'aula virtuale estera

Sarebbe bello se venissero eliminati i test di ingresso a tutte le facoltà!!

ENROLLMENT & ONBOARDING - PARENTS AND SCHOOL PRINCIPALS: TOT N° 36

Sarebbe bello se ci fossero corsi di digitalizzazione per docenti e genitori
Sarebbe bello se la piattaforma fosse interconnessa con banche dati pubbliche del Ministero della Salute, delle Finanze, del Lavoro, ecc.
Sarebbe bello se ci fossero proposte di lavoro alla fine del percorso scolastico, inserendo le aziende direttamente sul sito
Sarebbe bello se la scuola avesse una piattaforma per parlare con la segreteria ed eventuale dirigenza invece/oltre dell'e-mail
Sarebbe bello avere la possibilità che i figli esprimano in una piattaforma le loro criticità invece dell'assemblea a scuola
Sarebbe bello se fosse possibile mettere il "buono" dei social sulle piattaforme scolastiche
Sarebbe bello se si potesse (far) conoscere cosa succede nel resto della scuola (del proprio figlio e del territorio)
Sarebbe bello se ci fosse un calendario con partenze corsi, PCTO, scedenze iscrizioni, date esami e iniziative in genere
Sarebbe bello se ci fossero moduli d'iscrizione uguali per tutte le scuole
Sarebbe bello se ci fosse meno complessità amministrativa
Sarebbe bello se ci fossero moduli d'iscrizione più chiari
Sarebbe bello se ci fosse un processo di iscrizione di tipo wizard con informazioni esplicative per ogni domanda
Sarebbe bello se ci fosse la possibilità di fare l'iscrizione non solo online, ma anche cartacea. Non tutti posseggono un PC
Sarebbe bello se l'scirzione fosse esclusivamente telematica ma facile, rapida, più sintetica
Sarebbe bello se ci fosse l'inserimento del modulo d'iscrizione con conferma dei dati inseriti via mail
Sarebbe bello se ci fosse un sito snello, semplice e intuitivo
Sarebbe bello se ci fosse una digitalizzazione easy, funzionale e semplice
Sarebbe bello poter svolgere ogni pratica online con la scuola
Sarebbe bello se non dovessimo ripetere più volte gli stessi dati e documenti
Sarebbe bello se non si dovesse reinserire gli stessi dati più volte
Sarebbe bello se la piattaforma mi ricordi le scadenze dei pagamenti
Sarebbe bello se ci fossero servizi di pagamento orientati allo studente a all'anno scolastico
Sarebbe bello se ci fossero colloqui collettivi con i professori per parlare del proprio figlio
Sarebbe bello se sul registro elettronico ci fosse uno spazio per consentire ai genitori di interagire tra di loro e con la scuola (professori e segreteria)
Sarebbe bello se ci fossero più risorse online offerte dai docenti su Moodle e Google Classroom
Sarebbe bello se ci fossero dei grafici sull'andamento scolasstico complessivo
Sarebbe bello se esistessero dei corsi facilitati per i genitori non più giovani per il digitale
Sarebbe bello se si acoltassero le proposte fatte dai genitori attraverso un modulo interattivo
Sarebbe bello se ci fosse un "calendar" appuntamenti immediato con le varie figure scolastiche
Sarebbe bello se ci fossero aree di "social" e "e-learning"
Sarebbe bello se si potessero fare colloqui per video conferenza anche ora senza COVID
Sarebbe bello se la scuola riuscisse ad organizzare i colloqui per tutti senza bisogno di prenotazione
Sarebbe bello se si potessero prenotare colloqui facilmente
Sarebbe bello se fosse facilitato interagire con il dirigente scolastico
Sarebbe bello se ci fosse un'unica piattaforma di gestione per tutte le attività previste nel ciclo di studi di un figlio dall'infanzia alla scuola superiore di II grado
Sarebbe bello poter prenotare i colloqui con i docenti ad un orario a me comodo (Orario dedicato)

SUCCESSES & ACHIEVEMENTS - PARENTS AND SCHOOL PRINCIPALS: TOT N° 12

Sarebbe bello che si evitasse di far proliferare piattaforme e che le nuove piattaforme comunichino tra loro: che ci sia anche il back-end e non solo il front-end

Sarebbe bello se ci fosse più comunicazione tra la scuola e gli utenti
Sarebbe bello se si sviluppassero progetti futuri della scuola perché potrebbero aumentarne il prestigio
Sarebbe bello se si sviluppasse un sito con nuove tecniche informatiche (non obsolete)
Sarebbe bello se ci fosse un sito più chiaro, utile, "smart"
Sarebbe bello che ogni studente fosse valutato non solo come performance
Sarebbe bello se l'amministrazione fosse più snella
Sarebbe bello se tutte le scuole fossero accessibili
Sarebbe bello se tutta la piattaforma fosse accessibile
Sarebbe bello se l'app digitale accompagnasse e crescesse con i nostri figli, fino all'università e oltre (master, specializzazioni) facendo crollare tutti i muri della rigida burocrazia cartacea, snellendo e semplificando la vita di genitori e figli (pagamento tasse, voti, rendimento, iscrizioni ecc)

Sarebbe bello se venisse eliminata tutta la burocrazia e la comunicazione con la scuola fosse sempre immediata
Sarebbe bello se fosse possibile avere una piattaforma che contenga tutti i programmi informatici utili alla didattica e che fossero spiegati agli stude

EDUCATIONAL CAREER - PARENTS AND SCHOOL PRINCIPALS: TOT N° 54

Sarebbe bello se ci fosse più accessibilità al referente BES-DSA
Sarebbe bello se ci fosse un aiuto maggiore per chi ha difficoltà
Sarebbe bello se ci fossero insegnanti più preparati sui DSA
Sarebbe bello se ci fossro più informazioni "sensibili" a diversamente abili e deficit di apprendimento
Sarebbe bello se ci fossero sistemi di coaching/tutoring online
Sarebbe bello se ci fosse uno psicologo per gli studenti online
Sarebbe bello che la scuola aiutasse i ragazzi a perseguire le proprie passioni
Sarebbe bello se ci fosse attenzione al singolo studente (tutor e orientamento mirato)
Sarebbe bello se ci fosse un tutor per capire i PCTO da fare
Sarebbe bello se ci fossero servizi di mentoring e tutoring
Sarebbe bello se ci fosse un curriculum dello studente aggiornato direttamente dalla scuola con i corsi seguiti internamente
Sarebbe bello se ci fosse precisione da parte dei docenti su eccellenze e talenti dei nostri figli
Sarebbe bello se ci fosse una certificazione edu e pro a seconda della conoscenza dei ragazzi
Sarebbe bello se per ogni indirizzo scolastico la piattaforma garantisse le stesse possibilità formative agli studenti
Sarebbe bello se ci fosse un'alimentazione da parte della scuola della partecipazione a corsi ed eventi organizzati dalla scuola e/o enti, ecc. (C.U.S. studente)
Sarebbe bello se si creasse un'area personale in cui vedere traguardi raggiunti, PCTO svolti, esami superati, ore di avanzamento PCTO
Sarebbe bello se ci fossero certificati utili e richiesti da aziende e/o università estere
Sarebbe bello se lo studente, alla fine del ciclo scolastico, avesse un curriculum da presentare contenente tutti i successi raggiunti da presentare sia per il lavoro che per l'università
Sarebbe bello se ci fossero setting scolastici più multimediali e coinvolgenti
Sarebbe bello se si sviluppassero progetti che motivino i ragazzi
Sarebbe bello se ci fosse un curriculum vitae degli studenti con documenti personali consultabili
Sarebbe bello se ci fosse un'area nel sito a cui si accedere con credenziali per rileggere in qualsiasi momento lo storico del proprio figlio
Sarebbe bello se ci fosse un Curriculum dello studente più facile da compilare (sezioni e accesso alla piattaforma più semplici)
Sarebbe bello se si facessero laboratori su attività non strettamente legate alla scuola (modello giapponese)
Sarebbe bello se si implementassero le informazioni per esperienze all'estero post diploma attraverso l'interscambio culturale
Sarebbe bello se ci fosse la possibilità di entrare in contatto con altre scuole italiane ekd estere dello stesso ramo
Sarebbe bello se un'azienda potesse chiedere alla scuola la realizzazione di un servizio/prodotto/progetto che gli serve e studenti e professori isieme si dedichino alla realizzazione di qualcosa di concreto per capire come funziona il mondo delle aziende

Sarebbe bello se la piattaforma fosse aperta al mondo del lavoro
Sarebbe bello se sulla piattaforma fossero presenti, anche in forma riassuntiva, le esperienze sui PCTO svolti, per aiutare gli studenti che seguiranno nella scelta
Sarebbe bello se ci fosse un'alimentazione da parte della scuola dell'avanzamento dei PCTO (C.U.S. stiudente)
Sarebbe bello se sulla piattaforma ci fosse indicazione sul come iscriversi a dei tirocini utili per loro
Sarebbe bello se i percorsi di PCTO fossero ampliati da una formazione in collaborazione con il Comune di Roma e le scuole statali
Sarebbe bello se gli alunni avessero possibilità di fare stage nel mondo del lavoro aziendale ecc per 15 gg di esperienza
Sarebbe bello se la scuola potesse offrire un tirocinio obbligatorio alla fine del percorso scolastico
Sarebbe bello se ci fossero più corsi brevi, PCTO e certificazioni utili oer oost diploma
Sarebbe bello se ci fosse alternanza scuola/lavoro mirata e con possibili sbocchi
Sarebbe bello se la scuola promuovesse le esperienze lavorative, stage e/o aziende ecc
Sarebbe bello se si potesse far partecipare gli studenti alla gestione dei problemi (PCTO interno), responsabilizzare
Sarebbe bello se ci fossero PCTO meno teorici con veri tirocini formativi e meno burocrazia (convenzioni, documenti)
Sarebbe bello che l'alternanza scuola lavoro potesse essere coerente e sicura
Sarebbe bello se si potesse integrare attività scolastiche con le altre attività educative (sport, sociali, culturali) del territorio
Sarebbe bello se fossero riconosciuti e supportati i ragazzi che hanno diritto a strumenti compensativi
Sarebbe bello se sulla piattaforma fossero presenti dalle riviste specializzate dove potersi aggiornare sugli sviluppi tecnologici delle aziende ed imaprare i vocaboli tecnologici inglesi
Sarebbe bello se ci fossero interscambi tra vari licei dello stesso indirizzo
Sarebbe bello se ci fossero tag circolare secondo criteri comuni a tutte le scuole
Sarebbe bello se si potessero acquistare direttamente i libri di testo
Sarebbe bello se si obbligassero tutti gli insegnanti ad utilizzare i mezzi informatici messi a disposizione
Sarebbe bello se si potesse spingere un bottone per denunciare il bullismo
Sarebbe bello se si abolissero i voti, generano ansie da prestazione
Sarebbe bello se ci fosse una continuità scolastica garantita (degli insegnanti)
Sarebbe bello se ci fosse una biblioteca digitale, soprattutto in una scuola come l'ITIS Galilei che utilizza l'iPad al posto dei libri di testo
Sarebbe bello se ci fosse un servizio di libreria digitale con del materiale anche spiegato

ORIENTATION - STUDENTS: TOT N° 97

Incontro con specialisti o centri studi della zona, online o in presenza, a seconda dell'indirizzo dello studente
"Recensioni" o "esperienze" di persone che hanno scleto la strada che vorrei prendere
"Tirocini" per tutte le facoltà universitarie
Agevolare gli spostamenti tra città per ampliare la scelta universitaria
Altri studenti/professori potrebbero tenere delle lezioni complete di tutte le materie di indirizzo
Applicazione dove vengono indicati sbocchi lavorativi per ogni facoltà universitaria o indirizzi liceali, percentuale di successo e percentuale inerente al tasso di occupazione
Applicazione informativa sulle possibili scelte di percorso liceale ed eventualivantaggi e ripercussioni alla fine del percorso scolastico e l'inizio del percorso lavorativo
Avere libri informativi universitari oltre che sulle discipline del liceo
Avere maggiore praticità dal punto di vista di formazione per far comprendere cosa si fa davvero in un'industria e far si che una volta finita la scuola, lo studente non abbia dubbi su quali attività si svolgano nei luoghi di lavoro
Avere per ogni scuola delle informazioni sui corsi erogati e sulle materie di indirizzo che siano intuitive e ben organizate in un'app compartimentalizzata in varie sezioni ed adatta a chi gestisce il percorso scolastico
Avere più informazioni sulle attività didattiche del triennio di informatica ad esempio l'indirizzo di cybersecurity
Avere un catalogo delle scuole organizzate per nomi ed indirizzi
Colloqui/aiuti esterni sul futuro lavoro o percorso scolastico
Creazione di una piattaforma con spiegazione dei corsi universitari: programmi, obiettivi e sbocco professionale
Descrizione dei vari corsi, indirizzi, PCTO specificando gli argomenti che verranno trattati in presenza che permettano anche di simulare una giornata tipica nella scuola che si vuole scegliere
Esperienze lavorative per capire gli sbocchi lavorativi dell'indirizzo
La presentazione di un video che mostri i possibili sbocchi lavorativi degli specifici indirizzi che si scelgono in una determinata scuola. Gli indirizzi possono essere divisi in: Licei, Istituti tecnici e CIOFS. Questa idea riguarda il momento in cui bisogna scegliere il continuo della carriera scolastica
Maggiore collaborazione liceo-università
Maggiore scelta delle materie che si dovranno studiare in base al rendimento scolastico e ai risultati delle materie
Mi sarebbe utile una piattaforma che riportasse in modo dettagliato le esperienze lavorative o relative a facoltà di studio di altre persone per iniziare ad avere una visuale completa
Offrire un orientamento al lavoro alla fine delle superiori (andrebbe fatto al terzo anno) tramite dei video esplicativi dei mestieri possibili che faccia chiarezza allo studente
Open day online, che mostrano le proposte della scuola attraverso video
Open day per indirizzare i ragazzi nella scelta scolastica futura, anche in modo interattivo potendone usufruire più volte (siti online con tutte le attvità e informazioni della scuola)
Open day svolti direttamente da studenti, che spieghino il percorso formativo e le attività extra-scolastiche o l'alternanza scuola-lavoro
Organizzare laboratori "Vivi un giorno da..." per provare un'esperienza completa e rendersi conto di ciò che realmente comporta fare un determinato
Organizzazione di visite organizzate all'interno delle università per conoscere meglio l'ambiente in cui si potrebbe andare dopo le superiori. Anche l'aggiunta di quiz per capire quale percorso possa essere più adatto allo studente.
Orientamento con masterclass nelle varie facoltà delle università delle città, con esperienze di studenti laureati i n altre città/facoltà
Parte del sito alle recensioni e alle esperienze di studenti e docenti e se gli interessi di questi ultimi combaciano con i propri. Condivisione delle esperienze negative e se ripetute più volte trovare una soluzione
Parte del sito dedicata esclusivamente all'orientamento in uscita per le facoltà universitarie
Percorso dimostrativo, che mostri agli studenti gli obiettivi, i traguardi e le nuove competenze che si possono ottenere scegliendo quel percorso
Piattaforma divisa in sezioni. Una sezione in cui ci sono video lezioni esplicative per i vari indirizzi degli istituti superiori, con video lezioni di una giornata tipo delle lezioni con quiz per feedback alla fine
Più giorni per la settimana dello studente per un orientamento più efficace. Corsi a fine informativo riguardanti il futuro percorso lavorativo e universitario
Più open day (collaborazioni tra licei e università)
Possibilità di parlare del proprio percorso e dei propri dubbi con uno psicologo adatto all'orientamento. Piattaforma che aiuti attraverso esperti, strumenti, insegnanti, nella decisione degli studi finalizzati allo sbocco lavorativo
Presentazioni delle diverse facoltà con collaboratori esterni all'interno del liceo (maggiore collaborazione tra liceo e università)
Presentazioni digitali circa l'orientamento universitario

Quali erano i loro interessi prima di prendere una decisione sul futuro accademico e/o lavorativo e se combaciano con i propri
Quiz per aiutare gli studenti sulla scelta del liceo/università e confronto con altri studenti riguardo le esperienze positive o negative
Seconda sezione con database diviso per città, quartieri e disponibilità di mezzi pubblici per arrivare all'istituto, in modo da avere una scelta più informata possibile (con feedback di ex studenti). Per essere più indirizzati all'ingresso di un nuovo ciclo scolastico, piattaforme digitali all'iinterno per indirizzare gli alunni ed illustrare le attività, sarebbero un grande vantaggio.
Servizi che permettano di poter osservare i traguardi degli studenti e quelli dei ragazzi più grandi che hanno svolto un percordo nello stesso indirizzo in una leaderboard con: riconoscimenti, specializzazione, anno scolastico
Servizio che mostra a 360° in digitale, un particolare campo di lavoro o universitario
Sito scolastico a scopo informativo, dove gli studenti possono porre domande e rispondere a quelle altrui circa i servizi che offre la scuola
Spiegazioni approfondite di tutte le possibili offerte universitarie, panoramica totale sul futuro che si prospetterebbe su quella scelta

Studenti più grandi, genitori e docenti sarebbero un'ottima guida in quanto più esperti. Per le piattaforme invece se ci fosse più disponibilità di form con maggiori spiegazioni saremmo più indirizzati

Test attitudinali approfonditi e più pratici che ti indirizzino in una precisa facoltà

Test attitudinali e esperienza altrui

Un sito che possa indirizzarmi ad una ipotetica scelta, attraverso sondaggi e quesiti, che in base ai risultati possa consigliarmi

Un sito di orientamento con feedback e recensioni degli studenti e un periodo di prova nella scuola. Integrato anche tramite app e finanziato tramite la pubblicità dopo un periodo di tempo

Un sito internet di tipo informativo ed orientativo riguardante l'intraprendere possibili percorsi lavorativi nell'ambito a cui si è interessati, con possibilità di comunicare con esperti che hanno intrapreso lo stesso percorso

Un sito web tipo forum in cui ogni studente inserisce la propria esperienza scolastica

Una sezione di commenti di universitari al primo o secondo anno che descrivono la facoltà in cui studiano. *consultare le loro opinioni grazie al sito dell'università

Uscite guidate per visitare impianti industriali e capire come funziona concretamente il mondo del lavoro (idea da semplificare)

Pensiero di altre persone riguardo a quell'ambiente lavorativo/scolastico

Io vorrei poter scegliere un liceo sapendo però dal sito quanti in generale e/o nella mia scuola hanno fatto la mia scelta e quanti ne hanno fatte di diverse

Vorrei che durante la scelta della scuola ci fossero alcuni elementi, come per esempio alcune foto o video che possano permettermi di capire se la scuola è buona oppure no. Ad esempio delle recensioni degli alunni, magari di quinto liceo, che hanno più esperienza

Attraverso dei "test" su tutte le materie (online) ti aiuta a capire per quale scuola sei più portato

Io avrei voluto all'inizio del percorso una sorta di presentazione, più di un open day, dove ti spiegavano anche tramite foto e video il eprcorso passo dopo passo (magari anche una presentazione del programma o delle nuove materie)

Quando sono entrata alle medie avrei voluto che i ragazzi delle III ci avessero fatto da tutor della scuola e avrei voluto dei consigli e delle dritte su come "sopravvivere" con i professori. Inoltre, sarebbe bello avere la possibilità di fare dei tour virtuali e partecipare a lezioni aperte.

Una "spiegazione" da parte dei ragazzi più grandi su come affrontare lo studio di nuove materie

Io vorrei poter scegliere il mio percorso scolastico sulla base di recensioni fornite da ex studenti che hanno frequentato la scuola prima di noi

Un quiz che ti chiede delle domande su delle competenze per capire per quale liceo si è più portati

Un'app in cui devi rispondere a delle domande riguardanti la tua vita sociale e scolastica (sport, interesse, ecc.) e poi la scuola che fa di più al caso tuo ti esce come risultato

Potrebbe aiutarmi un'app dove le persone raccontano esperienze personali, per esempio come si sono trovate in un liceo/università. Oppure partecipare a degli open day

Potrebbe aiutare a prendere una decisione creare sul sito della scuola un quiz gratuito che ti chiede le cose che ti piacciono e ti propone che scuola fare

Un sito dove ci sono delle domande per farti orientare meglio su quello che dovresti fare. Altre persone potrebbero darti dei consigli su cosa fare (lcieo, lavoro, università, ecc.)

Potrebbe essere d'aiuto per alcuni studenti un'app dove selezioni la scuola e un indirizzo e ti appaiono delle recensioni di altri studenti che ci vanno. Inoltre dove puoi selezionare diverse scuole per vedere più opzioni, infine in quella che ti interessa di più ti ci iscrivi

Poter parlare con gli studenti senza il giudizio dei professori per capire se quel tipo di scuola fa per noi

Un sito con scritto tutti i cambiamenti che affronterai cambiando scuola, ma anche dei consigli che ti potrebbero essere utili. Meglio se i consigli venisseto direttamente da ex alunni che hanno avuto quei problemi

Sui siti delle scuole superiori andrebbero scritte le informazioni (su laboratori, materie e su tutto il percorso scolastico) in maniera chiara e diretta, senza giri di parole

Creare un quiz o delle app che facciano delle domande per farci capire qual è la cosa più adatta a noi.

Avere un sito che ci aiuta dandoci delle risposte indicate per noi, per tutte le nostre esigenze. Ci potrebbero aiutare anche i nostri docenti o familiari che l'hanno già vissuto

Avere un quiz che in base alle risposte date indica le scuole più adatte

Per me sarebbe utile un sito dove potersi confrontare con altri ragazzi che hanno le stesse difficoltà per chiarire e darsi una mano nella scelta della scuola.

In base a delle preferenze app che scelgano un lavoro o una scuola

Fare dei percorsi appositi per i genitori, che li aiutino a capire le esigenze e gli indirizzi adatti ai propri figli

Grazie ai siti scolastici che ho confrontato

Magari fare delle lezioni aperte

Per me, all'inizio del ciclo scolastico, potrebbe essere utile un sito per poter conoscere ragazzi e ragazze della scuola e per chiedere aiuto a persone che stanno facendo il mio stesso percors

Conoscere le esperienze delle persone che frequentano o hanno frequentato la scuola che abbiamo scelto o vorremmo scegliere

Un sito che spieghi bene le attività, le materie sche si svolgono in quella scuola così da sapere a cosa si va incontro.

Ascoltare esperienze di alunni che hanno già frequentato quella scuola è molto utile anche perché alcuni potrebbero aver avuto gli stessi dubbi, domande, problemi ecc.

Partecipare a lezioni per capire il modo in cui lavorano e capire come sono i professori tramite una presentazione. Aiuterebbe a capire se ti trovi bene e se vuoi fare veramente quella scuola, per vedere come ci si trova

Assistere a lezioni specifiche che spiegano quello che si fa nella scuola

Per prendere decisioni sul mio futuro mi è servito tanto l'aiuto dei miei professori, i quali ci hanno consegnato dei questionari che ci hanno fatto capire quale fosse la giusta strada

Un servizio/sito fornito di sondaggi che aiutano a prendere una decisione accademica in base agli interessi dell'utente
Sviluppo di un'app che indica il nuovo percorso scolastico in base alle proprie capacità, ricavate da un test su tutte le materie
Un sito in cui si presenta il percorso scolastico e si presentano i prof, ma anche foto e video per conoscere la scuola e vedere l'andamento delle lezioni

Raccolta digitale di vlog, dove i ragazzi illustrano la scuola. Preferibilmente ragazzi degli ultimi anni.
Oltre ai vlog si potrebbero mettere domande e risposte fatte in passato che potrebbero aiutare i ragazzi nuovi che entrano in una scuola a capire se è veramente quella giusta.

Un sito in cui vengono fornite le risposte più frequenti fatte dagli utenti, per esempio con un chatbot IA
Applicazione che spiega il metodo di lavoro, ma anche tutte le attività da svolgere, nelle scuole superiori a seconda di ogni disciplina es. scientifico, classico, linguistico, ecc. e poter avere le recensioni degli ex alunni

Poter avere un confronto con gli studenti senza i professori
App che in base alle preferenze che si hanno scelga un lavoro o una scuola. Una persona potrebbe aiutarti incoraggiandoti e portarti verso le tue preferenze (magari si potrebbero compilare questionari che ti mandino sulla strada giusta)

Per le superiori ci potrebbe essere un sito in cui ti viene detto (in base alla scuola che scegli) la professione che offre in futuro quel tipo di scuola

Una settimana o prima dell'inizio della scuola andare a vedere la scuola e conoscere i futuri insegnanti
Un'app con tutti i commenti buoni o brutti, di tutte le persone che hanno frequentato quella scuola, con magari anche dei video che facciano vedere lo volgimento delle lezioni

Avere un tutor della stessa età o un po' più grande che ti aiuti a orientarti, magari persone del liceo che hanno già affrontato questa scelta e possonoaiutarti maggiormente

ENROLLMENT & ONBOARDING - STUDENTS: TOT N° 86

Registrazione delle lezioni per gli studenti che erano assenti o per motivi personali o medici con anche delle ore integrative di recupero rigurardo quelle lezioni. In aggiunta anche il tutoraggio per chi ha difficoltà su determinati argomenti.

Agevolazioni economiche per i primi anni di studi, in modo tale da non penalizzare chi cambia indirizzo o facoltà
Applicazione con una chat virtuale per rispondere a domande inerenti ad attività all'interno del percorso formativo, come PCTO, crediti, attività, viaggi di scambio o formativi

Applicazione dove poter organizzare una calanderizzazione della mole di studio, divisa in modo equo per giorni o ore (calendario delle scadenze e divisione per pagine)

Applicazione dove pubblicare la prpria esperienza in modo da poter arricchire le esperienze. Creare un sito/blog della scuola dove gli studenti possano condividere le loro esperienze scolastiche

Applicazione nella quale inviare appunti, schemi, lezioni, dove siano presenti studenti e professori
Applicazione/registro come un centro informazioni digitale con comunicazioni fra alunni e scuola rispetto ad uscite, con video dei luoghi in cui verrebbero fatte le gite, e PCTO visibile a tutti

Appliczione gratuita dove poter pubblicare appunti, schemi o approfondimenti con la possibilità di salvare i documenti e caricarne dei propri senza dover pagare

Avere contatti diretti con Professori o compagni di altre classi eventualmente anche oltre orario scolastico
Avere la possibilità di sapere già all'inizio dell'anno tutte le valutazioni che i prof devono avere per organizzare lo studio
Avere una sezione specifica per lo studente attraverso cui comunicare con i professori e per consultare gli argomenti svolti.
Avere un'applicazione in cui ogni studente ha un proprio account in cui sono contenute le proprie informazioni scolastiche e scegliere se renderlo privato (visibile solo ai professori) oppure pubblico.

Biblioteca digitale
Caricare appunti di tutte le materie da parte degli studenti per gli studenti (controllati dai professori)
Consentire l'utilizzo di dispositivi digitali (anche da parte dei docenti). La scuola dovrebbe fornire dispositivi elettronici (come tablet e computer)
Creazione di una sezione nella piattaforma in cui gli studenti possano scrivere i propri interessi ed in base a quelli, seguire alcune lezioni di quelle materie. Qualora non gli piacciano ci sarebbe anche l'opportunità di cambiare corsi

La scuola dovrebbe mettere a disposizione strumenti elettronico di maggior qualità per gli alunni
Lezioni su come utilizzare dispositivi digitali e imparare ad usare programmi utili per progetti scolastici
Maggiore possibilità di interagire e lavorare tramite dispositivi digitali/elettronici
Metodo di insegnamento dei vari insegnanti (devono spiegarlo). Spazio in cui gli studenti possano confrontarsi riguardo l'impostazione di un prof (opinioni su metodi/voti/insegnamento/atteggiamento)

Per quanto riguarda i corsi extrascolastici o le attività PCTO, sarebbe interessante se prima di iniziare il 3° anno la scuola mettesse a disposizione una piattaforma per conoscere meglio le attività, senza il bisogno di aspettare le relative circolari

Powerpoint e file di approfondimento sulle materie studiate a scuola. Più video eplicativi su internet facilitati, in mododa avere più successo nelle diverse materie. Sezione nell'app dedicata a tutti i video di ogni materia

Rendere i registri elettronici più funzionali ed efficienti in modo da seguire al meglio i propri progressi
Sconti studenti per musei o biblioteche al fine di vivere l'ambiente scolastico e l'istruzione in modo più presente
Sconto studenti dovuti ad attività extrascolastiche (cinema, teatro, concerti). Maggiore possibilità di accesso a viaggi di istruzione
Servizio semplificato con video per tutti gli studenti in cui vengono riassunti in modo chiaro gli argomenti
Sistemi specifici per le scuole in un portale compartimentato e con schermate e link per ciascun indirizzo
Sito di condivisione di appunti/schede/approfondimenti disponibili a tutti. App che spiega i metodi di studio
Sito di dibattito e di confronto tra i soli alunni, diviso in diversi indirizzi/facoltà
Supporti digitali (file e video) di approfondimento delle materie scolastiche e non
Supporti elettronici nei quali ogni studente registra i suoi progressi per poter, alla fine di ogni anno, osservare percentuali e risultati globali per poterli confrontare con quelli dell'anno successivo

Un servizio di comuniazione diretta con i docenti
Un sistema in cui tutti i Professori possano comunicare tra loro (per esempio PCTO, gite, camposcuola)
Una lista in classe di siti da poter consultare per aiuto o interesse affini al proprio indirizzo
Una piattaforma dove avere un contatto direttocon i professori
Una piattaforma nella quale possa chiedere aiuto nel momento in cui ho delle difficoltà in qualche materia, dove qualsiasi professore (anche di altre scuole) possa rispondere
Una sezione con video che spieghino ogni argomento di ogni materia che si affronta durante l'anno
Un'interfaccia utente simile ai profili social di Facebook o Instagram con notifiche a forma di post it che rendano l'app più interattiva.
Uso di power point o slide per spiegazioni, pubblicati successivamente su piattaforma tipo classroom o R.E.
Utilizzo di dispositivi elettronici che "sostituiscono" libri e quaderni
Video a scopo informativo circa gli argomenti studiati in classe e che si studieranno durante l'anno per ogni singola materia
Video o spiegazioni online riguardanti gli ambiti delle materie e degli argomenti di studio
Video su youtube a scopo informativo circa gli argomenti trattati a scuola
La scuola potrebbe mettere a disposizione un tutorial o un manuale d'istruzione per capire meglio come usare il registro elettronico, classroom, iscrizioni alla scuola ed eventuali pagamenti
è molto frequente che uno studente alle prime armi in una nuova scuola si perda, ed è per questo che secondo me all'interno di un'app si dovrebbe creare una sezione dedicata alle classi dei professori con orari/classe/e mappa della scuola (magari anche un tour privato)
Durante l'anno scolastico avrei voluto avere più metodi per studiare e non solo libri e quaderni, ma per esempio un apparecchio elettronico come
Qualcuno che spiegasse agli studenti il "come" studiare e come gestire il tempo (dedicato allo studio)
Io vorrei ci fosse un sito dove poter votare i servizi della nostra scuola passo dopo passo, inviando anche dei feedback su professori e metodi di insegnamento in maniera anonima. In questo modo la scuola può rifletterci sopra e cambiare in meglio
Io avrei voluto avere la possibilità di usare i laboratori di ogni tipo durante il percorso scolastico, che avrebbero potuto far comprendere meglio un argomento
Io durante la mia esperienza scolastica avrei voluto fare di più attività digitali di gruppo, simili a giochi e a quiz, che potrebbero invogliarmi nello studio

Per studiare meglio durante il percorso sarebbero stati di aiuto più esercizi digitali e mappe
Durante l'anno scolastico vorrei che i professori trovassero altri metodi per spiegare e non sempre il solito monologo, magari con video, mappe e altro. Anche gli studenti tra loro potrebbero scambiarsi i materiali
Un sito dove i professori segnano verifiche e interrogazioni e se non sei stato ancora interrogatoi ti ricorda di studiare
Mi avrebbe potuto supportare un'applicazione su cui mettere i voti ricevuti che quando si prende un'insufficienza ti ricorda di ripassare per poi non trovarsi impreparati per il resto dell'anno su delle cose specifiche. Magari un'app che ti procura dei test o delle esercitazioni principalmente sull'argomento in cui si hanno difficoltà
Un promemoria per ricordare agli alunni di fare i compiti e uno per ricordare ai professori di inserire i compiti il giorno stesso che si danno, in modo da riprendere il ritomo dopo le vacanze
Si potrebbe migliorare il registro elettronico mandando una notifica ai professori per ricordargli di mettere i compiti, dato che non tutti li dettano in classe
Una piattaforma su cui i professori possano inserire il loro materiale (appunti, mappe, power point)
Potrebbe facilitare avere una parte del registro elettronico dove poter mandare dei messaggi ai docenti (chiedere i compiti, chiedere gli argomenti svolti in classe quando si era ssenti, ulteriori spiegazioni o anche ulteriori materiali come foto, mappe,- video e file)
Un sistema di comunicazione più diretto per comunicare qualcosa ai professori, magari una chat provata con il professore direttamente sul registro elettronico
Sulle piattaforme per comunicare con i prof secondo me si potrebbe mettere l'opzione di scrivere in privato al professore, perché ad esempio se non hai capito qualcosa della lezione il professore te la può rispiegare
Una pagina in cui ci sono scritte le materie in cui un alunno va peggio e quelle in cui un alunno va meglio, ma anche tutte le attività che si sono fatte e quelle che sono piaciute di più o meno all'alunno
Potrebbero esserci delle chat con cui si possono contattare persone in caso di domande al riguardo
Ora c'è il registro elettronico anche per gli studenti. Alle elementari a volte non c'era nemmeno per i genitori. Penso che avrebbe potuto aiutarmi ad avere un programma e ad organizzarmi.
Ci sono dei ragazzi che alle medie arrivano con una preparazione alle elementari scarsa, perciò sarebbe utile avere un registro elettronico anche alle elementari.
Una piattaforma che aiuti gli studenti nell'organizzazione dello studio tra attività ed impegni vari
Un sito che permetta di fissare prima verifiche e compiti
Sarebbe utile infatti un calendario completo di tutti i test
Un'app diversa dal registro elettronico, magari con un promemoria il giorno prima
Un sito che durante tutto l'anno faccia vedere il percorso del proprio figlio, non soltanto con voti o richiami ma anche con le attività che si fanno o con commenti dell'alunno
Ogni test dopo essere stato svolto potrebbe venire scannerizzato e caricato su un'applicazione dove si potrebbe visualizzare più facilmente. Magari può essere fatto vedere solo alle persone a cui lo studente dà il consenso
Magari un'app con esercitazioni su quella determinata materia
Sarebbero stati utili dei materiali extra (video, schemi, file, mappe concettuali) forniti dalla scuola che possano aiutare gli studenti a studiare o approfon
Avere più mappe o video che mettano in chiaro argomenti più complicati. Anche condividere tra studenti i materiali che per loro sono stati più utili.

Sarebbero necessari video riassuntivi che ci aiutini a sintetizzare magari le materie orali. In seguito si possono fare dei test.
Video o mappe che spieghino argomenti futuri.
Video che aiutino a scegliere la scuola
Inserire una nuova sezione nel registro elettronico nella quale si trovano quiz o questionari per esercitarsi per verifiche, prove d'ingresso, invalsi...
Una piattaforma in grado di organizzare al meglio il proprio studio sia in ambito di tempistiche che di metodologia
I prof possono allegare la lezione nel caso di assenze, uscite anticipate o ingressi in ritardo
Una piattaforma che viene periodicamente aggiornata da alunni e professori sulle lezioni contenenti spiegazioni e appunti. Potrebbe essere aggiornata a
Un sito che ti faccia una descrizione di ogni stanza e una mappa
Sapere nelle varie classi quali professori ci saranno e quali verranno sostituiti o andranno in pensione e per questo verranno sostituiti, ma anche conoscere i futuri compangi in un incontro prima del primo giorno di scuola
Sito che dia informazionisu argomenti specifici, quindi più materiale didattico a disposizione, ma anche video di presentazione dove i ragazzi illustrano la scuola
Nei libri di scuola avere una determinata app che fa un riassunto vocale o scritto per approfondire una lezione. Nei libri digitali approfondimenti come video o mappe per capire meglio gli argomenti e aiutare gli alunni per semplificare los tudio e capire come esporre interrogazioni o prove
Una determinata app o un sito che che presenti dei test o una sorta di esercitazioni prima di una verifica
Installazione di un'app per esercitazioni

EDUCATIONAL CAREER - STUDENTS: TOT N° 88

Abbonamenti gratis a siti di informazione
Aiuto per l'organizzazione dei compiti settimanali.
Alla fine di ogni anno fare iuna sorta di sondaggio online in cui chiedere ad ogni studente i propriio traguardi raggiunti durante l'anno e ottenere eventuali riconoscimenti
All'inizio del percorso didattico, attraverso un quiz con domande mirate all'individuazione del proprio metodo di studio
App universale per tutti i vari libri digitali, con audiolibri per studenti con dislessia o in difficoltà. Mettere a disposizione i propri appunti in maniera gratuita e accessibile a tutti
Attraverso una piattaforma, far si che gli studenti scelgano in prima persona i PCTO sulla base dei loro interessi, senza che la scuola li scelga per loro.

Attrezzature fornite dalla scuola (PC, tablet, smartphone limitati ad uso scolastico) con controllo mensile e rinnovo in caso di necessità
Avere un'applicazione in cui ogni studente ha un proprio account in cui sono contenute le proprie informazioni scolastiche e scegliere se renderlo privato (visibile solo ai professori) oppure pubblico.
Bonus per l'acquisto di libri extrascolastici
Cambiamento del sistema scolastico aggiornato allo standard attuale, cambiando anche le materie e creandone delle nuove per la vita post-scolastica. PCTO che preparino al futuro, insegnare come si calcolano le tasse e come funziona il mercato
Come individuare il proprio metodo di studio
Consegna di dispositivi da parte della scuola a fine anno
Consigli da parte degli insegnanti per capire i propri talenti e le materie in cui siamo più ferrati
Corsi per test d'ingresso di medicina gratuiti
Creare una sorta di curriculum dello studente, non solo per valorizzare lo studente, ma anche per presentarlo meglio al mondo del lavoro, magari citando in esso i successi scolastici ottenuti dallo studente
Creazione di un curriculum con tutte le attività extra-scolastiche svolte dagli studenti con eventuale lettera di raccomandazione.
Esperienza studenti (sito che riassuma il percorso di uno studente)
Il codice di un libro cartaceo deve poter essere utilizzato in digitale più volte
Introdurre ipad e una piattaforma scolastica personale per i propri successi
libri scaricabili online gratuitamente o al minimo prezzo. App che ti permette di accedere con l'account della scuola e ti permette di scaricare gratuitamente libri utilizzati dalla tua scuola differenziati per anno scolastico
Offerta dalla scuola di un servizio online di libri digitali con scnto rispetto a quelli cartacei (i dispositivi vengono messi a disposizione delle scuole).
Ottenere riconoscimenti scolastici per un buon ingresso nel mondo del lavoro
PCTO finalizzati alla scelta dell'università, raggruppati per diversi indirizzi. Maggiore scelta tra i possibili PCTO che la scuola offre
PCTO personalizzati in base alle materie ferrate. Attività che comprendono più scuole in modo tale da confrontarsi
Per chi studia per la patente, durante il periodo il periodo di studio per il teorico, esenzione da compiti a casa e interrogazioni
Per non portare materialmente tutti i libri, favorire l'utilizzo di dispositivi per scaricarli digitalmente (e-book, ipad). Avere tutti i libri digitali in un'unica piattaforma
Periodi di ripasso per rimanere al passo con gli argomenti in programma
Piattaforma con profilo personale dove è possibile scaricare il certificato di frequenza scolastica e degli esami sostenuti (ad esempio terza media).
piattaforme digitali per scaricare libri (Applicazione unica)
Più uscite didattiche, 2 o più viaggi di istruzione
Possibilità di comprare libri online senza comprare quello cartaceo
Possibilità di vedere in una singola schermata tutti i propri traguardi sommativamente
Premiare gli obiettivi raggiunti dagli studenti sulla piattaforma cosi da poter porre degli obiettivi da superare nel tempo. Ad esempio la vittoria per una classe di una visita guidata sugli argomenti svolti in classe o premi nascosti.
Proporre corsi o tirocini specifici personalizzati a ciascuno studente, con quiz, che determinano o consigliano il percorso scolastico a seconda delle proprie preferenze

Riconosciementi per attività private e individuali
Ricopense come ad esempio aggiunta di crediti o ore di PCTO , che spesso gli studenti si trovano in difficoltà ad ottenere
Servizi digitali che permettano di ottenere una ricompensa che ci faccia sentire appagati e coscienti dei nostri traguardi (attraverso una somma di "denaro" o buoni come viaggi di istruzione o gadget). Ricompens e in stage e in Erasmus
Servizi extra-scolastici che permettano agli studenti di essere seguiti anche dopo l'orario scolastico nell'ambito che lo studente preferisce
Sportello informativo
Supporti economici per viaggi di istruzione come riconoscimento di un buon rendimento scolastico
Sviluppo di un sistema di trofei ogni traguardo raggiunto (ad esempio 50 trofei per avere svolto i PCTO, 100 trofei per aver svolto un tot di ore senza assenze, 150 trofei per avere preso un bel voto)
Tabella con la condotta scolastica degli studenti nei vari anni
Un curriculum scolastico con tutti i traguardi degli studenti, che indirizzi lo studente nel suo futuro universitario in base ai traguardi nelle singole materie
Un ipad fornito dalla scuola o un qualsiasi supporto elettronico
Un registro in cui vengono registrate attività e le ore spese in PCTO
Una pagina in cui siano raccolte le certificazioni di traguardi conseguiti e le skills riconosciute dai professori durante l'anno scolastico
Una piattaforma online dove siano raccolti esami, invalsi, scritti precedenti completabili e valutabili per testare le proprie competenze e applicazione per simulazioni di esami universitari o Esami di stato
Una sezione su una piattaforma dedicata a PCTO suddivisi in base al liceo e indirizzo professionale o interesse individuale in uscita
Un'applicazione/sito dove poter inserire i propri interessi o risultati didattici, dove viene indicato il percorso formativo ideale, modellato su questi ultimi
Unica app universale per tutti i libri digitali e scolastici
Unica applicazione per tutti i libri digitali
Più aperture al mondo lavorativo
Secondo me si dovrebbe migliorare il registro elettronico togliendo la media dei voti totale, perché poi le persone alla fine si concentrano sullo sul mantenere la media. Togliere i voti al 50% e mettere come voto massimo 10 e come voto minimo 4
Video che aiutano per l'esame
Una pagina digitale con scritto tutti i traguardi e i punti di forza dell'alunno/alunna, ma anche i punti deboli per farlo migliorare
Sul sito della scuola ci potrebbe essere scritto per ogni alunno se il suo comportamento e/o media scolastica sono migliorati durante l'anno scoalstico
Potrebbe essere messa a servizio della scuola una pagina web dove ci sono tutti i traguardi che ha raggiunto la scuola o gli studenti dirante l'anno scolastico, oppure si potrebbero consegnare degli attestati a fine anno con i traguardi raggiunti
Avere un'applicazione dove tu inserisci i voti o le note, magari collegata al registro elettronico, e alla fine di ogni quadrimestre l'app ti dice le tue difficoltà nelle diverse materie, ma anche i tuoi successi nel completamento dello studio e a fine dell'anno ti da una percentuale del tuo miglioramento
Magari oltre che ad organizzare anche a studiare e a dare consigli su quale metodo di studio usare.
Magari portare al nuovo docente le migliori verifiche tramite un'app nella quale sono presenti
Al docente potrebbe essere presentato tutto il percorso di uno studente, evidenziando i suoi successi, ma anche ciò che non è andato a buon fine, per cercare di aiutarlo e far vedere ciò che va migliorato
Consigli da parte di studenti o professori sul nuovo metodo di studio o sulle nuove materie
Consigli per organizzare la propria vita fuori dalla scuola: sport, uscire con gli amici, ecc.
Consigli su come organizzare i compiti e le interrogazioni durante l'anno.
Consigli da parte di famigliari che hanno già vissuto da tutto ciò
Svolgere lezioni per potenziare le difficoltà nelle materie
Lezioni su materie nuove che in precedenza non sono mai state affrontate e supporto dei nuovi professori
Fare dei corsi prima che inizi la scuola per iniziare ad approcciare la nuova materia
Avere qualcuno che consigli bene quello che potrebbe servirci o essere utile fare, come vari corsi, e di questi sapere bene quello che si fa
Fare delle simulazioni digitali delle verifiche
Attestati di partecipazione a corsi o laboratori rilasciati dalla scuola, come ad esempio certificazioni nelle lingue
Certificazioni nelle lingue
Attestati, certificazioni di corsi, esami, laboratori
Attestati, certificazioni che confermino la partecipazione a profetti o corsi vari
Organizzare delle classi pomeridiane di recupero in caso di assenze o in altri casi
Un'app che indica il tuo andamento, i tuoi traguardi in uno schema (simile ad excel) dove bisogna inserire alcuni dati in modo tale da indicare per quali cose si è più portate o meno
Un sito in cui gli alunni chiedono corsi extrascolastici al dirigente scolastico e, una volta terminati, ricevono un attestato di partecipazione.
Creazione di un'applicazione che fornisce schemi/mappe concettuali sulla lezione fornita sul libro, magari anche attraverso video e videochiamate con un prof.
Tabelle informatiche (tipo excel) che rappresentano punti che devono essere raggiunti dallo studente in ordine di importanza, così che lo studente sappia dove approfondire i propri studi, magari con un promemoria prima della scadenza.
Un'app che segni i traguardi raggiunti, magari facendo test sulle certificazioni linguistiche
Magari alla fine dell'anno si possono consegnare agli alunni attestati o certificazioni di corsi, laboratori ecc.
Sito dove puoi conoscere vecchi studenti che ti raccontano la loro esperienza e che ti danno anche dei consigli e delle dritte su come studiare meglio

Un software dove sia studenti che docenti possono confrontarsi sul proprio percorso scolastico, così tutti gli studenti dello stesso istituto hanno la stessa base di informazioni
Secondo me nei libri digitali dovrebbero mettere più mappe che sono utili per tutti i ragazzi
App che ti ascolta e ti aiuta a ripetere meglio per prepararti per un'interrogazione o un esame
Il giorno prima fare una videochiamata attraverso un'app con vari professori e studenti più grandi (non per forza che si conoscono) dove vengono spiegate in maniera più dettagliata le cose da ricordare per un esame o un test finale. Magri un video già registrato dai professori in modo che non debbano fare tante chaimete
Avere una sorta di "colloquio" con un professore specifico per capire cosa migliorare
App che produce test, indovinelli e simulazioni in preparazione a un compito

SUCCESSES & ACHIEVEMENTS - STUDENTS: TOT N° 7

Un servizio che premia i traguardi degli studenti con una somma di "denaro" (buoni come viaggi d'istruzione o gadget)
Io vorrei ci fosse un sito ufficiale dove potersi preparare agli Invalsi e al contempo dove trovare esempi di esami con video, così da sapere cosa ci aspetta veramente
Un sito dove poter compilare delle simulazioni, che danno le risposte giuste e quelle errate, affinchè si possa migliorare dove si è carente
Avere un'app che spieghi come si svolgono gli esami ed esercitazioni
A scuola avere una settimana dove tutte le ore vengono usate per aiutare gli studenti con maggiore bisogno per l'esame finale
App che ti aiuti a fare collegamenti per la tesina o che dia consigli sull'argomento centrale della mappa
Un sito dove i professori possano darti una mano per l'esame nelle materie in cui vai peggio e aiutarti a trovare collegamenti originali per la tesina

Appendix C

Privacy & Security

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Average_Privacy&Security	Based on Mean	5,978	2	48	,005
	Based on Median	3,214	2	48	,049
	Based on Median and with adjusted df	3,214	2	38,396	,051
	Based on trimmed mean	5,327	2	48	,008

ANOVA

Average_Privacy&Security

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2,671	2	1,336	,911	,409
Within Groups	70,410	48	1,467		
Total	73,081	50			

Simplification of procedures

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Average_SOP	Based on Mean	2,933	2	48	,063
	Based on Median	3,242	2	48	,048
	Based on Median and with adjusted df	3,242	2	41,946	,049
	Based on trimmed mean	2,878	2	48	,066

ANOVA

Average_SOP

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,447	2	,723	,541	,586
Within Groups	64,221	48	1,338		
Total	65,668	50			

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