

**WHAT SHOULD APPS FOR GOOD DO TO KEEP ITS CONSUMERS
SATISFIED, MAINTAIN ITS UNIQUENESS AND ENLARGE ITS
IMPACT?**

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Abstract

The Center for Digital Inclusion is a non-profit organisation focused on increasing equitable access to digital resources and skills in Portugal. Apps for Good is one of the educational programs that operates as a business unit of CDI and has been operating in Portugal for eight years. Apps for Good is a program that creates the opportunity for young people to engage in solutions-oriented app designing around a social, environmental, political, or cultural issue of their choice. The endgame objective of the program is national expansion via government adoption. To achieve this objective, Apps for Good must continue to show that the project shows impressive impact reports as well as continue to increase their market share. Currently, the revenues of the program cover 57% of the costs and most of their revenues are reliant on private donations. The focus of this project is to investigate possible solutions to increase the program's own revenues and to highlight possible areas of investment into the business that can foster growth. Based on a five-year scenario analysis, incorporating our recommendations increases AfG total revenues by €23,400 whilst managing a cost increase of €1,700. Total own revenues will increase by €3,400.

Abstract – individual part

In the public segment, a unique and free product leaves the Apps for Good users satisfied, but an extra support is desired in the use of this curricular product. In the private segment, the product works great for the users, while customers struggle in the consideration phase. Retaining private sponsors is challenging. Apps for Good serves public and private buyers, with low and high bargaining power, respectively. AfG relies highly on one supplier and operates in a tranquil environment that can still present threats. AfG is about developing conscience and

awareness and focuses on events and on exploiting teacher-student cooperation and seeing digital as a means, and not an end. An official and established network of alumni would be beneficial for the program. Analyzing the segments: public schools need impact, private schools ensure financial sustainability, and private sponsors are vital until the latter is reached. For what concerns the choice of the growth strategy to opt for: users satisfied by the current product, high retention rates, digital trends, student's interest in tech, and a large PotMkt lead to the strategy of market penetration.

Keywords

Education; Digitalization; Digital and Social Inclusion; Technology; Non-Governmental Organization; School; Teacher; Student; Social Impact.

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1. CONTEXTUALISATION: WHAT IS THE CURRENT ENVIRONMENT OF CENTRE OF DIGITAL INCLUSION?

1.1. UE Perspectives for the Digital Society

1.1.1. Europe's Digital Decade

The permeation of technology in our day to day lives is ever growing. The number of internet users worldwide has increased by roughly 2.87 billion people in the last 10 years to reach 4.95 billion, over half of the world's population (Kemp 2022). The uniquely fast pace of technological evolution that has happened since the creation of the first computer systems in the early 1960s, has had incredible impacts on the ways we do business, the ways we participate in civil society as well as the ways share information (Salmela-Aro and Motti-Stefanidi 2022). Due to the ever-evolving nature of technological influence, different countries have dealt with this in different ways. The European Commission has used the language of "Digital Decade" to describe the context of their digital strategies until 2030 (Commission 2022). The goal of these strategies is to move European countries with the tide of digital revolution focusing on people, business, and the environment. The commission has highlighted that data, technology, and infrastructure are the three main pillars of their strategy, in which they aim ensure that technology is used to higher the standard of living for citizens (Commission 2022).

In terms of skills, the commission divides the needs into two categories. First, the need for skilled labour in the digital workforce, and second the need for basic digital skills amongst citizens. The need for greater digital citizenship is in conversation with the digitalization of

social services. The digitization of public services is one of the most aggressive goals set out by the commission. On top of offering key public services 100% online, they also plan to increase e-health services as well as digital identity schemes. The private sector is not far behind in their goals for digital transformation. As the commission and nation based governmental bodies look to create more attractive economic environments for business, by increase tax incentives for tech-based companies and educational streams, they are also looking to the public sector to co-invest in this digital transition through their own up-take in technical solutions, and innovative solutions.

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One of the uniting forces of all the previous initiatives presented is the investment in secure and sustainable infrastructures. For digital transformations to be effective, countries must have the necessary connectivity to fully make use of the digital opportunities. The commission makes clear that they intend to increase Europe's self-sufficiency when it comes to resources such as

semi-conductors as well as data storage infrastructures. The greatest challenges faced by the commission with these pursuits is the lack of uniform needs across member states. Portugal sits just below the European average when looking across the components of human capital, connectivity, integration of digital technology and digital public services (European Commission 2022). Although there is relatively high connectivity in the country compared to nations with similar profiles to Portugal such as Lithuania and Belgium, Portugal struggles with digital public services and integration of digital technology (European Commission 2022).

A. Digital Citizenship

The concept of digital citizenship is the identity based on participation in the digital world that privileges rights and responsibilities as well as liberties. Digital citizenship is unavoidable in societies where people connect and share information via the internet as well as who subscribe to digital identification platforms and services (Imanalieva 2021). The EU Commission acknowledged the need to create a framework around the factors that contribute to digital citizenship. A high priority of the Commission is to ensure that EU values are promoted, protected across the digital landscape (Commission 2022). Key aspect of this are the equitable access to internet, digital skills, digital public service and to fair working conditions. Agency on the part of the individual is also privileged. The commission states that the online environment should be fair and safe, and that technology should be used to empower and not oppress. Finally, sustainability is championed and the language of the ‘green transition’ is used to describe this digital transformation (Commission 2022).

B. Digital Literacy

Digital literacy is a foundational element to digital citizenship. In order to effectively use technology and participate in the digital society, it is imperative to understand how to operate

devices, analyze and share information, as well as build community (Imanalieva 2021). The concept of digital literacy is also a pillar in the equitable growth of technologically influenced societies. The gatekeep of information has historically been used as a weapon of oppression and digital revolution is no exception. Building a more digitally literate community is as important an investment as any other infrastructural project and there the educational systems across the EU have a large role to play in the digital decade (Commission 2022).

C. The Path to Digital Decade

To enable these digital transitions to occur, the commission has put in place a plan of action which includes policies and metrics that will help enforce and monitor digitization initiatives (European Comission 2022). The Commissions strategy is first developing trajectories and goals with the member states. The member states then work on the national level to create a roadmap for the process of making the goals a reality. The key elements that will be needed to ensure success in this plan is a shared monitoring system, consistent reporting, evolving support structure that can help create equity across the member states (European Comission 2022).

The Digital Services Act is one from of governance policy the EU has instated to jump start the growth of the tech sector in the EU as well as to protect citizens from looming threats (European Comission 2022). On the level of the citizens, this act is supposed to protect rights, make sure that prices remain fair, and to gatekeep illegal content. For the providers of digital services, this act can increase ease of business and scaling up as well as to create an environment of certainty. For the society at large there will be increase transparency for the ways technology interacts with public and private services, there will be greater safeguards against malicious actors, and there will be a greater advancement in the connection between consumer and provider that is ethically aligned with European values (European Comission 2022).

1.1.2. Teaching Profession Transition to Digitalisation

CESI, the European Confederation of Independent Trade Unions, supports more social integration inside the EU and better working conditions for European employees (CESI Europe Academy 2021). Concerning the education sector, a high-level focus especially regarding the development of the teaching career is conveyed, especially after 2018 when it was issued the Manifesto for the Teaching Profession.

While focusing on the analysis of the transformations that the practice of digital education will have on the teaching profession, CESI believes that to succeed, the eagerness to progress can not evolve without combining a set of recommendations and conceptions, since these will allow further understanding of the real-life implications of digitalizing this profession (Manifesto for the Teaching Profession: Horizon 2025 2018). To better enable the development of digital education and digital skills in schools there is the need to consider:

- A. From a general point of view, many countries from the EU need to find a way to provide better work conditions for teaching, mainly focused on “recruit and retain more talented young persons into this occupational field and to counter widespread teacher shortages” (Digital Education and Digital Skills 2022), since this would include increasing the value of the profession, guarantee decent salaries and overall recognition of their contribution to society.
- B. Using digital technologies in teaching should go further and, therefore, reach a curriculum standing where students would combine their school subjects to be more fulfilled citizens (CESI: European Confederation of Independent Trade Unions 2018)
- C. Training teachers should be one of the main solutions a country or school might adopt. It is believed by CESI (2022) that the general goal might not be reached if modern teaching is not secured by efficient training, thus “teachers must receive high-quality basic digital training and they must have opportunities to perfect their digital skills during their careers”.

D. A requirement will also be to ensure that digital equipment is provided not only to students and schools but with the same level of importance to teachers since this will allow the closing of digital gaps without the need for investments from self-contained incomes.

E. Lastly, looking forward, the students will reap the future benefit as digital literacy “helps employees become more productive and allow them to develop professionally” (European Confederation of Independent Trade Unions 2022).

Additionally, to ensure the successful transition into a more digitalized era teachers and students cannot be the only ones participating in the change. Even though teachers and students are seen as integral parts of the digitization strategy, the government bodies that oversee education need to “create environments where digital technologies and media are used for learning, communication and cooperation between pupils, teachers, other staff members, parents and external partners” (Schola Europaea - Office of the Secretary 2018).

When given the appropriate resources, educational staff can provide the most effective educational experiences and guarantee that every student meets their educational targets (European Commission 2019).

A. Digital Education Action Plan

“European countries need to continually review and develop new strategic policies and measures to meet the new demands for high-quality digital education” (Digital Education at School in Europe 2019).

- Early in the XXI century, the European Parliament organised recommendation on the Key Competences for Lifelong Learning (European Commission 2019) that digital would be an important component for the development of any citizen. Following this thought, digital competence was one of the eight essential competencies mentioned

where it was stated that it “involves the confident and critical of Information Society Technology (IST) for work, leisure, and communication” (Official Journal of the European Union 2006) which allows settling that digital, from an early stage, was already seen as a fragment to achieve a successful learning experience.

In light of the mission of the European Schools shared in April 2013 and trusting the idea that learning and digital technologies are no longer detachable (Digital Education Vision for the European Schools System (DEVES) 2018), the purpose and vision of European Schools’ stated that “every pupil and student develops throughout his/her European School education the digital competence to foster the confident, critical, responsible and creative use of, and engagement with, digital technologies for learning, at work, and for participation in society” (Schola Europaea - Office of the Secretary 2018).

A decade later 30th December 2020, the European Commission issued and adopted the Digital Education Action Plan, a renewed European Union policy initiative (Digital Education Action Plan (2021-2027) 2020).

- This action plan was developed under two main strategic priorities. One focuses on “fostering the development of a high-performing digital education ecosystem” and the second one focuses on “enhancing digital skills and competencies for digital transformation”. Both these topics combine themselves into a set of actions that try to reach the answer to the question “what will the European Commission do to achieve this?” (European Commission 2020).

The document came about as a result of stakeholder consultation and open public consultation to acquire what were the main topics to tackle (Dimitrov 2020). Following this process, they concluded that increasing digital competency is crucial while developing a more operational

and intelligible approach to digital education (2020), and they focused on this in six of its thirteen actions, namely actions number 3, 5, 6, 7, 8 and 9.

Based on the official publication of these actions by the European Commission (Digital Education Action Plan (2021-2027) 2020), it is possible to further develop these six actions:

- Action 3: entitled *European Digital Education Content Framework* wishes to combine the acknowledgment of the continuous digital change on the relationships maintained between the supply side - industry and the public sector - and those on the demand side - teachers and students.

It should be noted that the tensions around privacy and data protection for educational materials are still unresolved. However, identifying the areas where EU action might add value and collaborating closely with stakeholders to identify the best solutions are thus the major objectives. (Digital Education Action Plan – Action 3 2020).

- Action 5: Following the purpose under the *Digital Transformation Plans for Education and Training Institutions* this achievement hopes to achieve several outcomes that include boosting digital capacity in educational establishments, providing opportunities for professional development to teachers, and enabling professionals to recognize strengths and weaknesses in their digital abilities (Digital Education Action Plan – Action 5 2020).
- Action 6: named *Ethical Guidelines on the use of AI and Data in Teaching and Learning for Educators* wants to increase awareness of potential hazards while assisting teachers and educators in comprehending the potential that applications of AI and data utilization in education may have.

A formal publication titled "Ethical Guidelines on the Use of Artificial Intelligence (AI) and Data in Teaching and Learning for Educators" (Directorate-General for Education, Youth, Sport and Culture (EU) 2022, Redecker 2017, Redecker 2017) was released by the Commission in October 2022 to ensure the unveiling of this path. The publication seeks to teach, assist, and support teachers on the matter (Digital Education Action Plan – Action 6 2020).

- Action 7: labeled Common Guidelines for Teachers and Educators to Foster Digital Literacy and Tackle Disinformation through Education and Training kept its main initiatives start with the release of guidelines that offer helpful advice and lesson plans for various academic years and are intended to assist teachers and educators in promoting digital literacy – named “Guidelines for teachers and educators on tackling disinformation and promoting digital literacy through education and training” (Directorate-General for Education, Youth, Sport and Culture (EU)).

Additionally, they come with a final report that compiles the key conclusions and suggestions of the Expert Group. They are intended for primary and secondary teachers, regardless of whether they have a specialized understanding of digital education (Digital Education Action Plan – Action 7 2022).

- Action 8: aiming to give answers to the need of *Updating the European Digital Competence Framework to include AI and Data-Related Skills*, therefore the “DigComp 2.2: Digital Competence Framework” (Vuorikari, Kluzer e Punie 2022) was released to empower all individuals to become knowledgeable, ethical, and comfortable users of digital technology driven by artificial intelligence systems and impact on self (Digital Education Action Plan – Action 8 2022).
- Action 9: designated *European Digital Skills Certificate* (EDSC) The EU looked at the creation of EDSC, which is based on the DigComp, with the concept that a fast-

evolving, technologically driven economy and society require everyone to have digital skills in consideration.

The major objectives are based on projections, such as guaranteeing that 80% of the population has minimum basic digital skills by 2030 and that 70% of those aged 16 to 74 have such competencies by 2025. (Digital Education Action Plan – Action 9 2022).

Several sources reinforce the idea that technology has invaded every aspect of a teacher's employment, including instruction and assessment, evaluation, engagement and cooperation with families and coworkers, and the development and transmission of information and resources (European Commission et al. 2019).

As a consequence of the situation, this act was released by the European Commission bearing in mind the need for adaptation of schools, teachers, and students to this new digital reality and therefore it reinforces this goal by compromising on “making better use of digital technology for teaching and learning; developing the digital competences and skills needed for living and working in an age of digital transformation; and improving education through better data analysis and foresight” (European Commission - Education Package 2018).

B. Digital Competence Framework of Educators

According to research, pedagogical breakthroughs seldom succeed if teachers are not granted the training and resources needed to bring them to reality (European Commission et al. 2019), consequently, the EU currently highlights digital competence across many frameworks and has provided details about it regarding the educational sector (Digital Education Vision for the European Schools System (DEVES) 2018) – as can be seen from the context previously provided.

In the specific analysis, it is important to highlight the development of DigCompEdu – Digital Competence Framework for Educators – that is described by the European Commission (EU Science Hub: Digital Competence Framework for Educators (DigCompEdu) 2020) as a framework that defines what it means for educators to be digitally proficient and was a product of the teamwork of many who contributed to shaping (Redecker 2017).

The teaching and learning practices associated with teachers' digital literacy are also handled in other official documents (Digital Education at School in Europe 2019), such as the European Framework for Digitally Competent Educational Organisations where SELFIE – “a free, easy-to-use, customizable tool to help schools assess where they stand with learning in the digital age” (European Commission 2022) – is part of.

Briefly, the main goal behind the DigCompEdu official document is presenting an answer to the overall European need of guaranteeing a set of digital knowhows that are entirely related to the teaching profession since it will allow increasing the potential of the technologies while reinforcing the growth and dynamization of education (Redecker 2017). The performance of teachers is expressed through a framework that distinguishes six different areas in which educators' Digital Competence is expressed with a total of 22 competences, provided in [Appendix 1](#).

In sum, all the structure aims to provide a valid and easy to follow guideline that answers all lack of investment and understanding underlying in the topic.

This all supports the idea that teachers who want to set an example for the next generation must be digitally literate and capable of using technology in a self-assured, critical, and responsible manner (European Commission et al. 2019) while not forgetting that the “educational staff have

a decisive impact on learners' achievements and motivations and consequently learners' competence development" (European Commission 2019).

1.1.3. The European Social Economy

The social economy encompasses a variety of businesses, organizations, and different legal entities. The social economy business models aim at reinvesting most of the profits into the organization or a social cause. In Europe social economy enterprises are around 12.8 million: they represent 10% of all businesses and employ around 13.6 million people, which represent about 6.2% of the employees in the European Union (European Commission 2022). The social economy does not just rely on paid workforce but mobilizes volunteers whose activities are equivalent to 5.5 million full-time workers (European Commission 2022). In Europe, more than 160 million people are members of social economy enterprises that, for the majority, aim at social cohesion, rural development, environmental protection, and agricultural and third countries' development (European Commission 2022). Another characteristic commonly shared by European social economy organizations is their size since they are mostly micro, small, and medium-sized enterprises.

A. The vision of the European Commission on the importance of the social economy

Since 2011, the European Commission has launched a large number of actions to support the development of the social economy to address societal challenges (European Commission 2021). Over the last decade, the social economy ecosystems have developed remarkably and yet much work remains to be done to unlock the full potential of this important sector (European Commission 2021). Therefore, in 2021 the president of the European Commission Ursula von der Leyen officially mandated the development of a European action plan for the social economy intended to enhance social investment, support social economy actors and social

enterprises to start-up, scale-up, innovate and create jobs (European Commission 2021). To lay the groundwork, the EU started by collecting feedback and opening a constructive dialogue with European institutions, expert stakeholders, and citizens to provide input for the action plan.

B. The vision of the European Commission on fostering digitalization for digital education

Specifically, the input from social enterprises was that many of them are yet to undergo a digital transformation as they lack expertise in digitalization. Moreover, a lack of visibility of the role of the social economy sector in digital education was highlighted. Catalyst 2030, a fast-growing global movement of people and organizations committed to achieving the SDGs of the UN by 2030 (Catalyst 2030 2022), stressed the need of having social enterprises promoting digital education: a vital tool to empower the young generation for its precious future. Furthermore, Cooperatives Europe, the European regional office and voice of cooperative enterprises in Europe, which represents 84 member organizations (Cooperatives Europe 2022), stressed that the currently existing digital gap should be addressed from a gender perspective (European Commission 2021).

The Commission, upon analyzing inputs and feedback, agreed on the urgency of supporting social economy organizations in their digitalization efforts and recognized it as an area for further capacity building and mutual learning (European Commission 2021).

1.2. Digital Sector in Portugal

1.2.1. Digitalisation in Portugal

Portugal's progress in digital transition has been notable in the past few years, however it is still far behind the ideal performance as a digital country. Usually, it is positioned under its

peers, the 27 Member States of the EC (OECD 2021). To increase this position, the country has to leverage usage of digital technologies and improve the digital knowledge of its inhabitants, although there is a rising risk of escalating socio-economic inequalities that needs to be addressed (OECD 2021).

One of the main issues Portugal is facing regarding work performance is the low productivity rate: in 2021, Portugal was the 4th least labour productive country in the EU (Eurostat 2022). This indicator has been falling since the financial crisis in 2008, and in 2020 the Portuguese productivity by hour worked is almost half of the 27 Member States average (23.5€ vs. 42.1€) (Pordata 2022). Boosting digital skills could be one factor to rise these indexes, as productivity increases when workers are more skilled, as they are more willing to use digital technologies (Barros 2021).

One interesting aspect is that in 2020, 99.9% of total enterprises in Portugal were considered SMEs (Pordata 2022), and, according to CaixaBank, the level of productivity in these companies is less than half than in large companies, as the second ones invest more in intangible assets (CaixaBank Research 2022).

Furthermore, until 2030, 50% of time spent in labour activities will potentially be automated, and this number can increase up to 67%, if considering new technologies (Nova SBE | CIP 2019). Indeed, at least 20% of jobs risk automation in the next 20 years, as the Portuguese industry environment includes a lot of repeated tasks and low skill requirements in various sectors, mainly in the manufacturing industry, commerce and retail, and agriculture (Nova SBE | CIP 2019). This problem is even bigger in the rural areas than the urban areas – 54% for Lisbon Metropolitan Area and 62% for Alentejo. So, it is crucial to improve digital skills on the workforce, as a considerable number of people will either have to change its job position or upgrade their education level in order to follow these trends (Nova SBE | CIP 2019).

A. Digital Economy and Society Index - Main Results

In September 2022, Portugal was positioned as the 15th most digital country within the 27 Member States of the European Commission, according to the Digital Economy and Society Index (DESI) (European Commission 2022). This index evaluates four dimensions: human capital (digital and internet skills of people), connectivity (supply and demand of mobile and fixed broadband), integration of digital technology (integration of new technologies in businesses and eCommerce) and, lastly, digital public services (usage of technology by the government in public services) (European Commission 2022).

Regarding the overall ranking, considering the four dimensions under analysis, Portugal is close to the Member States' average, with a score of 50.8 (European Commission 2022). This means that, in comparison, the country's performance still has some improvements to tackle (European Commission 2022). To better understand which dimensions need more attention, an analysis covering each of the four will be addressed.

1. First, the human capital score of Portugal is slightly higher than the EU average: 45.9 vs. 45.7. This indicator shows that 55% of Portuguese people have, at least, basic digital skills, but only 29% have them above the basic (European Commission 2022).
2. The second dimension, connectivity, is the one that requires more intervention, where Portugal scores 51.6 and the EU average is 59.9, so the country ranks 18th on the index (European Commission 2022). The results show that 81% of households have fixed broadband access, but only 1.9% have at least 1gbps take-up and there are no populated areas that have 5G coverage (at least one operator) (European Commission 2022). The last one is the most concerning due to the very limited 5G deployment – the main telecommunications operators appealed against the 5G Auction Regulation, so the conclusions are still unknown (European Commission 2022).

3. The dimension of integration of digital technology is the best one for Portugal, where it scores the best when comparing to the other Member States, occupying the 12th position on the ranking (European Commission 2022). The index concluded that 52% of SMEs have at least a basic level of digital intensity, 11% use big data and only 16% are selling their products online (European Commission 2022).
4. Lastly, regarding digital public services, the country ranks slightly upper than the EU average (67.9 vs. 67.3) and occupies the 14th place (European Commission 2022). The percentage of e-Government users is 59%, lower than the EU average of 65%. The indicator that needs more intervention is the open data, where Portugal scored 66%, 15 points less than the average (European Commission 2022). However, there is the ambition to convert at least 95% of digital public services accessible online, so there is a long way to go (European Commission 2022).

B. Actions to boost digitalization

Over the past three years, Portugal's position on the DESI climbed from 19th to 15th, which shows that the country has been developing its digital performance (European Commission 2022). However, the country's commitment to become more digital is more and more noticeable, since the national government implemented several measures, by putting into practice different initiatives that will be now developed.

In 2021, the Portuguese Government created the project Portugal 2030, which materializes the agreement between the country and the European Commission of applying 23 thousand million euros from 2021 to 2027 (Portugal 2030 2021). In this strategy, there are twelve separate programs, ranging from education to innovation and climate action. There is a fund of 3905 million euros for the Innovation and Digital Transition program, which is extremely relevant to

invest in the digitalization of the country, mainly in the less developed regions (Portugal 2030 2022).

In April of 2020, the Portuguese Ministry of Economy and Digital Transition launched Portugal Digital, an initiative to promote the country's digital transformation while ensuring competitive advantage in a digital world (Portugal Digital 2022). This program is responsible for the coordination of the Action Plan for the Digital Transition, which reflects the strategy to become a more digital nation, by accelerating the country's transformation (Portugal 2030 2020).

This plan includes three different pillars of action: i) capacity building and digital inclusion, ii) businesses' digital transformation and iii) public services' digitalization. Moreover, the catalysation of the plan acts along, to ensure the well-functioning of each pillar in the regulatory environment. There are also seven guiding principles stated: transversal focus, ambition, pragmatism, involvement, communication and promotion, monitoring and accountability and replication, reuse and sustainability (Portugal 2030 2020).

On the first pillar, it is important to highlight the need of empowering digital skills within the human resources of the country. This pillar includes three different sub pillars: i) Digital education, ii) Professional training and reskilling and iii) Digital inclusion and literacy. Here, INCoDe.2030, Indústria 4.0 and UPskill are the main programs to help achieving the strategies proposed (Portugal 2030 2020).

INCoDe.2030 is a public policy initiative and its mission is to enhance digital skills, mainly by promoting Internet usage (Portugal INCoDe.2030 2022). The three main challenges covered by the program are citizenship, related to the generalization of digital access; employment, by boosting employability and professional training to satisfy the demand of the market; and

knowledge, tied with participation in international Research and Development networks (Portugal INCoDe.2030 2022).

Indústria 4.0 (Industry 4.0) is a program created by IAPMEI and COTEC Portugal to create favourable conditions for development of the industry and services in the new paradigm of Digital Economy and the Fourth Industrial Revolution, where companies rapidly change due to the rise in interconnectivity and smart automation (IAPMEI 2022) and (COTEC Portugal 2022). The three axes of action of the program are: i) accelerate the adoption of i4.0 in the Portuguese business landscape; ii) promote Portuguese technological suppliers, such as start-ups; and iii) turn Portugal into an attractive technological HUB and raising investment for this industry (IAPMEI 2022). Currently, the program is on its second phase “Generalizar, Capacitar e Assimilar”, where there are more than 600 million euros to be mobilized in the next two years. The goal is to include 20 thousand companies, 200 thousand workers and finance 350 innovative projects (IAPMEI 2020).

UPskill is a project created by APDC, IEFP and three Portuguese universities to requalify unemployed and underemployed citizens, by promoting and teaching ICT skills (UPskill 2022). Portuguese companies identify their vacancies in the technological areas and the trainees have training lessons to better meet the needs of the companies and improve their knowledge on digital technologies. In only two editions, the program formed over 1000 people (UPskill 2022).

The second pillar of the plan (businesses’ digital transformation) focuses on boosting digitalization within the Portuguese companies, as a way of approximating them from the European and International business landscape (Portugal 2030 2020). The three sub pillars are: i) Entrepreneurship and investment attraction, ii) Companies, with a focus on SMEs and iii) Scientific and technological knowledge transfer to the country (Portugal 2030 2020). Besides

Indústria 4.0, Simplex 2019 and +CO3SO Digital are some of the programs that help concretize these goals (Portugal 2030 2020).

Simplex is an administrative and legislative modernization project launched in 2006 by the Portuguese Government to simplify citizens and companies lives and their interaction with the public services (iSimplex 2022). iSimplex 2019 implemented 119 different measures, by putting citizens' and companies' suggestions into practice (Simplex 2022). Specifically, it was expected to implement a e-residency Programme to facilitate access to public services in an online version for residents out of the country (Simplex 2022).

+CO3SO Digital is another government project that stimulates scientific development and digital technologies implementation on businesses (Diário da República 2020). The main idea was to implement training for inland workers, to balance all areas in Portugal in terms of digital skills. By achieving this, the ICT talent would be spread throughout the country, making it more competitive (Diário da República 2020).

The last pillar (Public services' digitalization) targets Public Administration, in order to facilitate access and reduce bureaucratic procedures, while evolving in terms of both technology and communication and increasing efficiency (Portugal 2030 2020). The three sub-pillars include: i) Digital public services, ii) Agile and open Public Administration and iii) Connected and open local and regional administration (Portugal 2030 2020). Some of the measures include digitalization of the 25 most used public services and the creation of a cloud strategy for the Public Administration (Portugal 2030 2021). The entities involved include various Government Areas (Ministries), such as the State modernization and of Public Administration, the Environment, and the Justice. Also, AMA (Agency for the Administrative Modernization) takes part in the several measures as the coordinating entity (AMA 2016).

Many more initiatives have been introduced by the Portuguese Government, such as MUDA (Movement for Active Digital Use) (MUDA 2022), Digital Skills and Jobs Coalition (European Union 2022) and Emprego Mais Digital (CIP 2022).

Nonetheless, there is still much space to improve and mainly boost the digital skills to better face the challenges of the future and ensure the Portuguese are ready to follow the other Member States in terms of digitalization and not be left behind.

1.2.2. Education in Portugal

In the last ten years, with the reinforcement of the population with higher education, and with secondary and post-secondary education, the level of education significantly increased in Portugal. “The 2021 Census shows that the population with higher education is 1 782 888 individuals, representing 19.8% of the population aged 15 or over (13.9% in 2011). The population with secondary and post-secondary education increased from 16.7% to 24.7%.” (Instituto Nacional de Estatística 2022)

The education system has four stages: pre-school education (3 to 6 years old); basic education (6 to 15) years old), where the 1st cycle is the first 4 years of primary school, the 2nd cycle is the 5th and 6th grades, and the 3rd cycle is from the 7th to the 9th grade; secondary education (15 to 18 years old) from the 10th to 12th grade; and higher education (18 years old and above). From 6 to 18 years old school is mandatory.

A. Public, Private and Cooperative Education

In Portugal, there is both public and private education. There is also cooperative education - private schools that have an agreement with the Ministry of Education and enter the public education network, providing the teaching service free of charge to those who enrol.

In 2021, 20.4% of the total number of students enrolled in all levels of education were enrolled in private education. (PORDATA 2022)

Private education has a greater presence on the coast of the country and in large cities, there is little offer in the interior of Portugal. Public education is present in all the councils of the country. In recent years, due to the fall in the number of students, some schools have closed in more depopulated and particularly ageing areas. This means that pupils have to go to the nearest school, probably in the centre of the municipality.

Private education is recognised for a more demanding style and being closer to the students. It also has more specialised provision for pupils with special needs, something that public schools mostly do not offer with quality.

“The education minister has revealed that, on average, a student in public education costs taxpayers €6,200 per year, an increase of 30% since 2015. This is higher than the fees paid at any of the top 5 colleges in the country (considering the 2020 Schools Ranking).” (+Liberdade 2021).

Through both public and private education, students access higher education by taking a common national exam. One of the ways of obtaining the ranking of schools in the country is through the qualifications of that assessment.

B. Being a Teacher in Portugal

Being a teacher in Portugal has not been an attractive profession. There are several reasons for this, from salary to self-motivation, to various obstacles in the education system itself and the hiring system used. It is already difficult to guarantee that the number of teachers will fill all

the necessary vacancies in schools. There are schools that do not have enough teachers for their pupils these days.

A team of researchers from Nova SBE did a study led by Luís Catela Nunes, asked by the Ministry of Education, in which the projections of retirements are interconnected with the projections of students, and with this, the number of new hirings to be carried out in the short and medium term is calculated (Nunes, et al. 2021). From this study we can see how critical the situation of the lack of teachers is to fill in the necessities for the next years.

Comparison of teachers needed and available			
Subject Group	Teachers needed from 2022/23 to 2025/26 (on average, per year)	Teachers needed from 2026/27 to 2030/31 (on average, per year)	New teachers graduated from 2016 to 2020 (on average, per year)
From Preschool to 2nd Cycle	474	752	783
Portuguese	284	345	72
Mathematics	155	187	27
Biology and Geology	125	146	20
Physics and Chemistry	97	172	9
History and Geography	254	249	54
English	141	149	34
Philosophy	90	81	13

Table 1: Teachers needed vs. Available teachers per subject - Source: (Loura 2022)

There is a large mass of teachers who are close to retirement age, so there is a high number of teachers who will leave without having someone to replace them, as there is not enough rejuvenation of the profession to ensure that pupils do not miss out on teachers. The big boom of teachers trained in the 1980s, is now starting to enter the decade of their retirement, so there will be an exit boom of teachers. Table 1 shows the seriousness of the situation regarding the need for teachers in the coming years, compared to the number of recently trained teachers.

The education system in Portugal is still outdated, not only in the way of teaching, which sometimes has compulsory models, not very appropriate to the present day, but also in the way teachers are hired. The excessive bureaucracy felt in Portugal, especially in public services, is also particularly felt not only by schools but also by the teachers themselves.

The projections indicate that the number of students enrolled in public schools will decrease substantially over the next few years, reaching 960,919 students in 2030/31, a drop of 15% from the 1,131,733 observed in 2018/19 (Nunes, et al. 2021).

On the other hand, due to the marked ageing of the current teaching staff, a substantial reduction in their availability is also expected over the coming years due to reductions in their working hours and retirements. Of the 120,369 teachers observed in 2018/19, we estimate that only 73,401 are not yet available. Diagnostic study of teaching needs from 2021 to 2030 will have retired in the 2030/31 school year, which corresponds to a reduction of 39%. (Nunes, et al. 2021).

C. Remaining Issues in Education in Portugal

When Covid-19 pandemic started and the lockdown the Portuguese Government implemented several measures to allow online schooling due to schools' closure. However, 70% of parents were not satisfied with the actions taken, such as the video recorded classes and the homework (Deco 2020). Indeed, students began to lose interest on online lessons and become more and more tired. Evidence shows that the face-to-face presence is more effective when learning, especially for younger students (TPN/ Lusa 2021).

However, the dissatisfaction with the Portuguese education from its beneficiaries has been long lasting and will remain in the future, unless innovative measures are implemented. Teachers are getting saturated of the weak working conditions, as the salaries are not increasing, and the

tasks are more demanding – they are spending bigger amounts of time out-of-schedule to do the tasks needed (prepare contents for classes and grade tests and exams). It is becoming a tiring job: professors do not feel that they are valued in society, the salaries are not enough to fulfil their needs and the stress levels are increasing (Financial Times 2022).

Besides that, 40% of teachers that were lecturing in public schools in 2018 will be retired by 2030 (Luís Catela Nunes 2022). Over the next decade, the Ministry of Education should hire 34.500 new teachers to fight this gap (Expresso 2021).

In the attempt of appealing for changes and bigger investments in education, several national strikes have been happening in the country over the past years to claim better working conditions. For example, during the month of November 2022, two strikes were undertaken in the country, in the 2nd (CGTP 2022) and in the 18th (Eco Sapo 2022). These strikes harm not only the learning pace of students, but also the school environment and education as a whole.

D. Digital Transition in Education - Recovery and Resilience Plan

In April 2021, the Ministry of Planning created the *Plano de Recuperação e Resiliência* (PRR) (Recovery and Resilience Plan (RRP)) for Portugal, as a way of rebuilding the country by changing the future of the country (Ministry of Planning 2021). Also, the Mission Structure to Recover Portugal was created to put this plan into practice, by making a set of improvements and reforms in three dimensions: Resilience, Climate Transition and Digital Transition (Recuperar Portugal 2022).

In the Digital Transition area, one of its components is the Digital School, that aims to invest 500 million euros on digitalization education in Portugal, by creating conditions to innovative education through development of digital skills (Ministry of Planning 2021).

Some of the measures include the acquirement of 600.000 computers for individual use (both for students and teachers) and the ensure at least 90% of schools have Wi-Fi connectivity (Ministry of Planning 2021).

1.3. Key influences to keep in mind as an NGO

1.3.1. The trade-off between partnering with the government or not

CDI Portugal is not funded by the government. Obtaining governmental funds would imply the loss of some autonomy. There is an excess of bureaucracy that demands too much time and resources. The required cost reporting model is still not efficient or easy, it is outdated and inadequate to current needs. Most of the time it happens that the organisation has already made some expenses or investment and it is only refunded after 3 years of reporting: a scenario that many NGOs or social organizations cannot survive.

The organization, though, gets funds from Portugal Social Innovation: a Portuguese government initiative aimed at promoting social innovation and stimulating the social investment market in Portugal (Portugal Social Innovation 2022) and CDI Portugal aims at keeping these funds, in percentage, below fifty (Baracho and Buisel 2022). The remaining half is composed of private funding companies: national companies like Galp which aim at supporting a project they admire as well as showing their social commitment, and international companies like Microsoft that want Apps for Good's users to utilize their tools.

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supporting a project they admire as well as showing their social commitment, and international companies like Microsoft that want Apps for Good's users to utilize their tools.

1.3.2. Being a (social) non-governmental organization

Being a player in a dynamic and competitive environment is challenging for every type of organization. Nonetheless, non-governmental ones must face specific challenges related to their particular nature and the environment and market they operate in. NGOs usually do not have many resources at their disposal and non-profit organizations have cash inflow maximization and efficient revenue models as not their number one priority, since social impact must be the number one. For this reason, relying on funders and donors is often vital for NGOs to run their operations properly. Nowadays, the number of NGOs does not stop growing, and it is estimated to have reached ten million organizations worldwide (Ba 2018). A study conducted by the OECD reveals that 20% of the NGOs concentrate 80 to 90% of all the resources available for NGOs (Ba 2018), opening a scenario for fierce competition between them to attract donations and funds. For-profit companies compete to gain clients, whereas NGOs compete to get donors in what can be defined as the donations market: a very competitive market that expects its players to have a mindset that contrasts the more humane spirit that is peculiar of a non-governmental organization (Ba 2018).

1.3.3. Funds: a hard-to-obtain vital source in a competitive market

The major difficulty concerns getting enough and continuous flows of funds to perform their activities and do their work. Attracting donors is a challenging task for non-governmental organizations and enterprises in the social economy. These challenges can become harder when the organization is not a start-up, which is more attractive in the eyes of possible sponsors and funders, and when the project is a mature one. Furthermore, if an organization like CDI, which

is not a start-up, manages to obtain funds for one “mature” project like Apps for Good, which arrived at its 9th edition, second obstacles might appear on the way. Funding conditions can be hard to deal with and can, in certain cases, compromise the goal of the enterprise. CDI’s program Apps for Good already managed to bring on board several sponsors, from private foundations to large private international enterprises operating in different industries. The main challenge posed by these big enterprises is to, not only get them on board, but especially to retain them for long periods of time (Baracho and Buisel 2022). Interviewing the team of Apps for Good, we could have confirmation of this, as one year has been the average permanence of sponsors on board the Apps for Good project. When we talk about compromising the goal of the program, we refer to the demanding requests made by sponsors for constant updates on the scope of the project. Sponsors crave to observe changes in the projects, in their scope, as well as new projects ideated by the company. To satisfy these demanding requests can take the organization off-track as they would need to allocate their efforts and their resources to something that is not focused on the impact they strive to make with the current project, with the current business model, and with the current strategies. A trade-off between retaining the sponsors and making the desired impact by keeping the current operations eventually arises. Most times, social enterprises and NGOs are forced to choose the second option, and hence, they must start looking for new donors since these organizations usually lack the resources and personnel to break this trade-off.

A. Efficient networking: more donors and partners

The lack of efficient networking can be another major problem for non-governmental organizations. This can be an issue not only when referring to a network of donors or funding partners, but also a network of peer organizations. NGOs tend not to be very strong communicators, and if an organization does not clearly communicate its core activities and

objectives, it is consequently hard to find similar organizations to potentially partner with or somehow collaborate with to reach, together, the goal of every NGO: putting people first, producing a positive impact on local communities and pursuing a social cause. CDI Portugal is considered a strong communicator in the social economy, and relative to other non-governmental, non-profit organizations or social enterprises (Baracho and Buisel 2022).

Having a solid network of peer organizations can also assist one with bureaucracy or with financial or legal problems that might have to be dealt with.

1.3.4. Understanding the importance of governance

The lack of governance is another problem that a non-governmental organization usually faces. In fact, many NGOs do not have a board of directors mainly due to a lack of resources to attract potential members and pay them a fair salary. In other cases, these organizations do not even aim at having a board of directors since they do not see it as a priority, not understanding its importance. Effective governance improves operational efficiency, and business and investment risk are lowered, it facilitates effective communication with stakeholders, and prevent malpractices, among many other benefits (Funds for NGOs 2020). Weaknesses in governance also result in lack of transparency, which might place the NGO in an undesired and unfavorable position when looking for funds. Furthermore, the lack of governance can lead a company to be more exposed to legal, regulatory, and reputational risks (Analyst Prep 2021).

1.4. Centre of Digital Inclusion

CDI (Center of Digital Inclusion) is an international non-governmental organization of social and digital inclusion. The company is part of the global network Recode, a Brazilian civil society organization for digital empowerment (CDI Portugal 2022). CDI firmly believes in the vital role that technology can play when used as a means, and not an end, for social

transformation. To achieve this, CDI exploits projects and programs that promote digital literacy, active citizenship, and the use of technologies to solve problems in the very environment that surrounds the users, in their communities, and in the whole world. CDI arrived in Portugal in May 2013 thanks to large private corporate sponsors and private foundations (CDI Portugal 2022).

The organizational understanding of CDI must be done by analyzing the different business units and program that compose the company. The four business units are Digital Citizenship Center, with the Switch to Innovation project, House of Knowledge, Recode, and Apps for Good (CDI Portugal 2022).

1.4.1. Organizations in the Portuguese social economy

In Portugal, the social economy sector is represented by more than 60,000 organizations and the sector employs around 200,000 people (PLMJ 2022). In the country, more than 600,000 people volunteer but the hours of volunteer work represent only 2.9% of the total hours worked in the Portuguese economy placing Portugal as the third to last country in the European Union for volunteer contribution (Pereira 2019). Traditionally, the main actors forming the Portuguese social economy were charitable institutions, foundations, cooperatives, professional, and civic associations (PLMJ 2022). Nonetheless, nowadays, this sector touches a broad range of areas including social support, health, education, sport, environmental sustainability, and so on (PLMJ 2022).

Many of these organizations struggle to attract qualified professionals, and the average salary of a worker employed in the social economy is eighty-three percent of the Portuguese national average (The Guardian 2018). Furthermore, the Portuguese social economy is no exception when analyzing the organizational structures of its organizations: the roles inside the company

often overlap and it is not unusual to see the role of boards of directors and executive directors mixed. This can lead to a failure in providing a long-term strategic plan.

1.4.2. CDI's Breakdown: 4 Business Units

1. *Digital Citizenship Center* aims at using technologies to improve the life of communities with the goal of having their people live, one day, in what are called “smart cities”: cities where accessing services and facilities is made faster, easier, and more inclusive by exploiting technology (CDI Portugal 2022). This project started in 2018 as a result of the partnership between Valongo City Council and CDI Portugal. Two years later the Digital Citizenship Center started the Switch to Innovation program: a pioneering initiative that develops a digital ecosystem, in Valongo, to promote the diffusion, on a larger scale, of different technologies (CDI Portugal 2022). The program allows people to meet and discuss the challenges and opportunities of technology, sustainability, inclusion, education, and humanization.

2. *The House of Knowledge* was inaugurated in the first edition of the Switch to Innovation summit. It is a physical space equipped with technological tools and facilities to engage citizens in challenges related to innovation, learning, and creativity (CDI Portugal 2022). Moreover, the center allows the local community to come together, build stronger ties, and boost economic development while creating opportunities for local entrepreneurship (CDI Portugal 2022).

3. *Recode* is a digital platform for courses with certification from major companies such as Microsoft and the Project Management Institute. The platform has free courses tailored to a Portuguese audience that range from digital marketing to cloud computing. CDI Portugal is the issuing center of the diplomas (CDI Portugal 2022).

4. *Apps for Good* is a technological education program that challenges 5th to 12th grade public and private schools' students and teachers in Portugal, the UK, where the program came to life

originally, Angola, and Timor-Leste, to develop smartphone or tablet applications, showing them the potential of digital technologies (CDI Portugal 2022). Every professor can join the program regardless of the subject she or he teaches. Professors and students can count on the precious support of volunteer experts from all around the globe with the most diverse topics.

Through Apps for Good, CDI aims to transform old-fashioned teaching methods into cutting edge methodologies by exploiting technology as a means, and not an end. Apps for Good visualizes a world where the new generations are confident active citizens equipped with skills to make a real impact by solving real problems of the real world. The applications developed by Apps for Good users must contribute to reaching the seventeen Sustainable Development Goals of the United Nations. To reach this noble goal they count on five vital players: schools, students, professors, municipalities, and private sponsoring enterprises, whose journey will be analyzed in a specific chapter. Students and professors have access to the Apps for Good platform where innovative and diverse pedagogical content can be found in English and Portuguese. Furthermore, all the participating schools are invited to the regional competition and, if qualifying, to the final competition where the group with the best and most impactful application developed will be the winner.

1.4.3. Apps for Good – The Social Problem Tree

With the advances of a digital society, the traditional education system is increasingly ill-suited to the needs of students, and consequently, to the skills that are required in the job search. Figure 1 shows in detail the causes and effects of this problem.

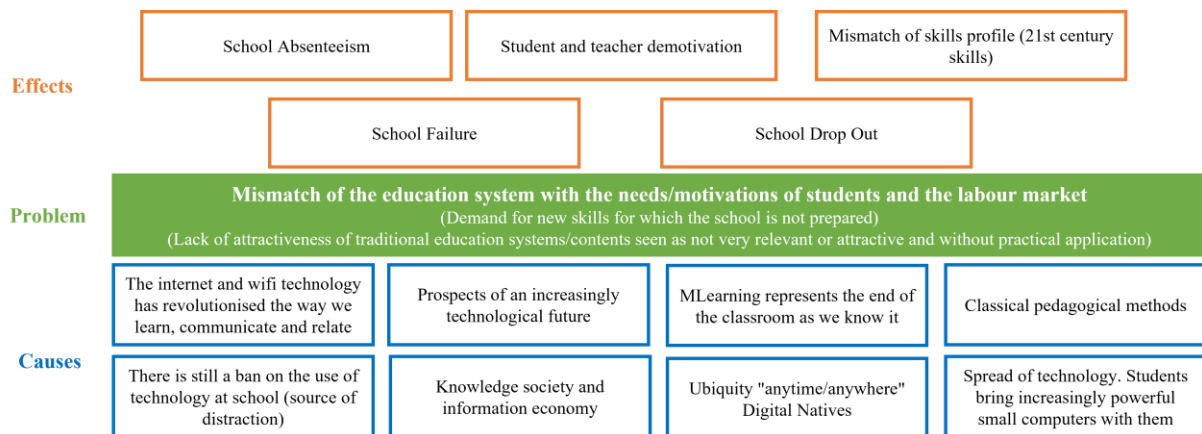


Figure 1 – Social Problem Tree (Source: (CDI Portugal 2022))

1.4.4. Our goal – why we were brought on board

After a thorough evaluation of the different programs, projects, and social initiatives from CDI, and preliminary sessions of interviews with the CDI team, the decision was to focus on this particular program (refer [Appendix 2](#) to [Appendix 5](#) to further questions). The characteristics of the product, its adaptability to different segments and scenarios, the constantly growing impact of the project throughout the first eight editions, and the PESTLE analysis of the Portuguese context, lead us to make this decision. We strongly believe this project has the potential to make a larger and larger impact in the years to come.

Our objective is to provide, through a clear internal and external analysis, precious recommendations to be put into practice to scale the Apps for Good programme and enlarge its social impact.

3. MARKET: WHAT SHOULD APPS FOR GOOD DO TO KEEP ITS CONSUMERS SATISFIED, MAINTAIN ITS UNIQUENESS, AND ENLARGE ITS IMPACT?

3.1. Consumer decision journey: can the Apps for Good project run more smoothly for its current stakeholders?

3.1.1. Importance of the consumer decision journey

To better understand how AfG delivers value, it is crucial to explore the types of segments and stakeholders that are vital to this project. Particularly, it is fundamental to distinguish between the private sector and the public sector and their stakeholders as these two “segments” fit differently into AfG’s business model: they represent different sorts of costs and revenues to the enterprise, they have different actors and users who, in turn, walk different steps of the consumer journey. Nonetheless, in the end, public and private customers both enjoy a great product that impacts largely on the environment they live in, as well as the users themselves. These segments and stakeholders are actively involved in all five steps of the consumer decision journey – Awareness, Consideration, Conversion, Loyalty, and Advocacy, a tool we consider fundamental to analyze the current situation of AfG and, based on their strong points and pain points, shed a light on what could be improved.

3.1.2. Public Segment

The public segment is composed of three different types of stakeholders: the municipalities can be seen as both funders of the project and indirect beneficiaries of AfG’s impact; the public

schools which represent the public customer of AfG's product; and teachers and students of public schools, who are seen in our analysis as the group of stakeholders identified as users.

In the awareness phase, municipalities' interest is immediately captured. The mayor wants to boost his/her reputation by supporting a project that is in line with the seventeen SDG of the UN, and that impacts the municipality as the apps developed by the students soothe local problems. During the consideration phase and conversion phase, the municipalities do not have a protagonist role in the project journey. For some projects, the mayor can collaborate with the students in the development of their ideas, which makes the students feel empowered. AfG, in the loyalty phase, is contacted by the municipalities that, for the above-mentioned reasons, want to host the regional competition. This event is a chance for the mayor to show the support provided for an impactful social project.

Where to go: municipalities could be more present in the conversion phase of the journey. The budget at their disposal is limited, but they could partially help by covering travel expenses for the competing teams. They might also have a more active role in the awareness phase by contacting their schools directly. This can be more efficient than having the first contact made by the DGE as the municipality knows best the environment and the profile of its schools and could offer tailored support.

Schools are the customers of this impactful project. Public schools get contacted by the DGE, and although fully understanding the value of AfG is not easy for them, in the early stages, they are excited to try out this project for free. The project is free regardless of how many professors and students join per school. Throughout the project, public schools receive two presential visits from the team of AfG. The customers are satisfied with the product: it is unique and free, they feel supported by the experts, and they can use precious learning tools, like the platform. At the

end of the project cycle, they fully understand AfG's value, which leads to positive strong word of mouth in the advocacy phase.

Where to go: DGE contacting the schools is not the most efficient method to reach more schools. Many times, as proven in the interviews we conducted with teachers, the project is brought to schools by professors who got to know the project through word of mouth, or by conducting internet research. Schools receive many emails and project proposals: an efficient communication strategy to stand out is a viable and desirable option.

The users of the product are students and teachers. In public schools, they have a specific user journey with peculiar solid points and pain points.

The teachers who join the program, in the consideration phase, question whether they have the proper skill set to use the product effectively or not. They then understand they are not alone: AfG supports them with presential touch and online support. Additionally, the strong network of *Ninja* teachers – a group of professors who have previously used the product, is a solid point of the journey, as their goal is to help fellow teachers. Despite the priceless support, public school teachers must be strongly committed and motivated as some critical points can be stumbled upon throughout their consumer journey. In the public system AfG's program is curricular, and teachers need to put some extra effort in to try and make it fit. In fact, they do not receive support during this time-consuming process, and this can keep some teachers from joining. Moreover, participating teachers do not receive rewards or incentives.

Where to go: exploiting partnerships with the private sector could be a further incentive to keep already participating teachers motivated, on top of attracting new teachers who are slightly afraid of having to make some extra time to adapt the curriculum. Furthermore, exploiting the partnership with the DGE and editing the Portuguese public system's curriculum for AfG

schools, which is more likely to happen if AfG could reach a higher number of schools on the territory, might uproot the problem.

Students are the other class of stakeholders who are users of AfG. In the first two phases of the journey, they are excited seeing the sponsors involved and curious about new fun and up-to-date learning methods that can provide them with precious skills to be spent, one day, in the job market. In the students' conversion phase, the time scarcity and high workload, due to this extra element to the curriculum, create an overwhelming feeling that can be marked as a pain point. Students gain confidence, boost their market research skills, learn how to pitch confidently, and develop active citizenship; they are excited and looking forward to competing and giving life to their ideas. Nevertheless, covering travel expenses to attend the regional or national event, can be a blocking point and generates stress. Moreover, the apps created by the students can have some maintenance costs they might not be able to cover.

Where to go: having a pool of partner investors who can buy the apps or help students sustain the costs to keep them running can be a win-win for impact-driven investors and the students. Covering travel expenses can be hard for a Municipality and the solution to alleviate this pain could be found in the private segment. Private enterprises could cover the travel expenses of the sponsored teams in a model where, ideally, the 18 districts of the country, and their schools and competing teams of students, are sponsored by 18 respective private companies.

3.1.3. Private Segment

The private segment is composed of three different types of stakeholders: the private sponsors; the private schools which represent the private customer of AfG's product; and teachers and students of private schools as the users.

In the awareness phase, private companies receive a contract proposal from AfG where detailed information about the project is provided. The main difficulty when onboarding private sponsors is embedded in the attractiveness of a “mature” project in the social economy. Moreover, when a corporation is already sponsoring the project, there is a high chance that direct competitors will not join. Nonetheless, what does attract sponsors in the consideration phase is the boost in their reputation, and the luxury of being able to witness the core of the project and its development, as AfG invites them to be present during school visits, training, and events. They are also kept updated through periodical emails and reports. Every six months, sponsors can attend a “face-to-face” meeting with the team. In the advocacy phase, employees of private enterprises, with kids in school, can spread their voices and have their employers consider the option of joining the project as a sponsor.

Where to go: having geographical areas, or certain teams, sponsored by a company, and others by a direct competitor, could not only make the regional and final competition more vibrant but also break the onboarding rival sponsoring companies’ trade-off. Private sponsors could also be the link between the private sector and the public one. In fact, the travel expenses of a team represented by one company could be paid for. Additionally, teachers in public schools could benefit from discounts on products of sponsors that onboard AfG.

Private schools are the private customers of AfG. Struggling to understand the value of AfG in the early stages is not the only pain point of the consideration phase. Private schools need to pay for this product: a project that public schools receive for free. The additional visit, compared to the public schools, that AfG pays them during the conversion phase is not enough to maintain their exclusivity. In private schools AfG is an extra-curricular activity and this results in a smoother use of the product.

The private users are able to decide whether to join the project or not based on their availability and priorities. This leads to committed users not struggling using the product.

Where to go: Private schools do want to feel exclusive and do want to feel that, in the education sector, their prestige is recognized. Additional elements of exclusivity should be addressed when "selling" AfG to private customers. Badges of recognition and national ranking-influencing elements should be brought to the table.

3.2. What level of competition will Apps for Good have to face in the market?

3.2.1. Intensity of the competition in the market: Porter's 5 forces

"Competitors" are not likely to implement aggressive tactics, and possibilities for partnerships are not remote. Outsystems, the main supplier, has a high bargaining power as AfG represents a tiny percentage of its clients. Public schools that receive a free and needed product have low bargaining power, whereas a higher power is in the hands of private schools: the only sources of financial independence from donors. A medium threat of substitute product is the result of a quite unique product customers are loyal to that has, though, low market share, whereas several elements such as the EU action plan for the social economy, digitalization trends, and low barriers to entry make the threat of new entrants high (refer to [Appendix 27](#) for more detailed analysis).

3.2.2. Main competitors: overview

CDI is a player in the Portuguese social economy and, with AfG, a player that aims at a digitally inclusive society by "investing" in the schools and their students. Considering these factors, some major organizations that have similar business models, scope, goals and targets, or "actors" involved will be overviewed to identify competitors, or potential future partners.

A. *Teach for Portugal*

Teach for Portugal is a Portuguese non-profit organization part of the international network *Teach for All* (Teach for Portugal 2022). The goal of their program is to reduce educational inequality and provide students from disadvantaged socio-economic contexts the means to succeed in school, impacting them in the short term, and the soft skills to positively impact their future (Teach for Portugal 2022). To achieve this noble goal, TFP implements the *Leadership Development Program*. Through this 2-year program, which came to its 3rd edition, the mentor, a Bachelor's graduate inspiring social leader, works full-time in a public school inserted in an unfavorable socio-economic context, with the goal of allowing 5th and 6th-grade kids to unlock their full potential regardless of the environment they grow up in (Teach for Portugal 2022). The program is also designed to promote short and long-term impact in the educational system on mentors: short-term impact during the program, and long-term when becoming part of the alumni movement. In fact, 70% of the alumni make a career in the promotion of educational equality.

TFP allocates a mentor to a certain public school where the mentor pairs up with one professor to provide disciplinary support and, above all, help students develop confidence, determination, and resilience (Teach for Portugal 2022). Mentors receive two-year training from TFP which includes theory, an internship in between, on-the-field work, and ongoing support. These mentors are paid for their full-time work and gain hard and soft skills to obtain a full-time job upon finishing the fixed-term contract of the program.

TFP relies on the support of 33 funders that include private consulting firms, Governmental entities, private foundations, banks, private enterprises, and municipalities. The organization relies on public and private partners in the educational sector like universities, the Portuguese Ministry of Education, and large private enterprises.

B. Ubbu

Ubbu is a computer science and programming education social project headquartered in Portugal. Ubbu is aware that nowadays kids are surrounded by technology and screens every day. Ubbu aims at having kids, aged from six to twelve, using these tools actively and for noble purposes: they teach kids how to effectively utilize technology to address challenges and find solutions to social problems. Ubbu's users become logical thinkers, problem solvers, and skillful conscious citizens while having fun. All of Ubbu's interactive lessons are aligned with the Sustainable Development Goals and the challenges posed to kids regard the biggest challenges the world faces today. Ubbu's customers are parents or schools, who pay for the product through a subscription fee. Ubbu relies on partners such as Microsoft, European Teach Alliance, Aulas Amigas, and others to take computer science education everywhere.

To achieve this, Ubbu relies on an extensive “living curriculum that evolves with time” (Ubbu 2022), diverse challenges to be posed to kids, and a platform as the main tool to create projects that address those challenges. The kids learn hard skills as computer science, coding, and project building by playing games, developing group projects, through video learning, and quizzes (Ubbu 2022). The curriculum, personalized for every age group, is composed of six main macro areas that are: science, math & logic, online safety, citizenship, problem-solving, and creativity & art (Ubbu 2022).

Ubbu does not teach directly to its users but sells its product to its customers: parents or school educators. “Ubbu for home”, purchasable by parents, costs from 4.8€ to 6€ a month based on the length of the subscription, whereas the “Ubbu for school” costs, on average, 20€ per pupil per year and volume discounts apply. Both customers receive training, as well as constant support via email, FAQs, and the forum.

3.2.3. Apps for Good's uniqueness: prevention, and investment in a better society of tomorrow

The main players in the Portuguese social economy and their projects mostly share a common characteristic that differentiates them from AfG. They all exist to solve a problem that already affects society. AfG, instead, is about prevention and investing in the future: the goal is to lay the groundwork to make sure that a possible negative scenario is replaced with a brighter one that makes society progress. AfG makes education and its methodologies up-to-date, and creates an environment where students are more involved, cooperate with teachers and peers, and gain hard digital skills and active citizenship, which combined will result in an impact on their present and everyone's future.

This difference between solving an existing problem and preventing or investing in the future has a consequence: doing marketing is easier if you have "a story to tell", and this can also help when hunting for funds. For this reason, AfG should not only implement smart low-resource strategies to involve more partners, more sponsors, and more stakeholders to gain visibility and boost brand awareness, but also leverage and mobilize the stakeholders, especially users and beneficiaries, who have been already impacted by the eight editions of the project.

3.2.4. Market analysis: Apps for Good and the competition

Considering the whole market of public and private schools, AfG has currently a market share of 2.33%, whereas TFP, which only targets 2nd cycle public schools has a market share of only 0.43%, while Ubbu has 4.32% ([Appendix 29](#)). Small market shares and the potential complementarity of business models to make a larger impact could result in successful partnerships.

3.3. What segments should Apps for Good target and what growth strategy should be adopted?

3.3.1. Current segments to target which ensure growth and a larger impact

Through our project, the main goal is to grow AfG's impact by further expanding some of these current segments, whose current strengths and pain points were highlighted. In particular, the private schools, the public schools, and the private sponsors are, for three different reasons explored hereafter, the ones identified as the most relevant to be expanded.

A. Private schools

This paying segment must pay a fee to have AfG in its institutions and, enlarging the private customers will be a precious impactful element leading AfG towards financial sustainability. This type of customer represents today only 1.7% of AfG's customers (see [Appendix 30](#)).

B. Public schools

AfG currently serves 175 public schools in Portugal, meaning 98.3% of their customers (see [Appendix 30](#)), which makes this segment the most-largely targeted one. AfG's largest impact has been made in the public sector. In fact, a lack of digitally prepared teachers, and a lack of up-to-date learning methods and tools, are more likely to be found in the public sector. Moreover, 73.5% of the schools on the territory are public ([Appendix 31](#)). For this reason, this segment is where AfG's impact is needed the most and the impact is what we want to expand. The public schools' segment is, hence, crucially important to reach our ultimate goal.

Furthermore, as shown by the trend in [Appendix 32](#), the number of students enrolled in public schools has been constantly growing for the last 5 years, while private schools have been

showing an overall decreasing trend of enrollments since the 2008 crisis ((DGEEC), Direção-Geral de Estatísticas da Educação e Ciência 2022).

C. Private Sponsors

Private sponsors have proven to be a vital segment for AfG. Large private corporations funded the first eight editions of the project, and we cannot think of expanding AfG's impact without counting on this segment. CDI has a small team, limited resources, and a current business model that is not financially sustainable. To scale the project, we must have more economical resources and large corporations can provide them. The sponsors could additionally support directly the competing teams of students, and be important actors in the advocacy of the journey for the more intrinsic demographic aspects of Portugal: in certain districts, large enterprises employ the majority of the local population, meaning many parents that have interest in having their kids receive up-to-date education. This factor must be exploited and mobilizing them could be crucial for the expansion we aim at.

On top of the segments that are currently involved in the AfG journey, and that we aim to further expand, three segments that AfG has not targeted yet will be explored with the objective of finding margin for either revenues, boosting brand awareness, or making a larger impact.

3.3.2. Exploration of new segments and choice of the growth strategy

A. ATLs

The *Atividades de Tempos Livres* “ATL”, or Leisure-time Activity Centers respond to the needs of parents at work who cannot look after their kids, who are at least 6 years old, during extra scholar hours, through their core operations. ATLs provide leisure activities also during holidays, or more generally in periods of academic interruptions. ATLs can be public or private.

The ultimate kid-centered goals of ATLs are to make sure that every kid participates in group activities and hence, learns how to express him/herself, respects the plurality of cultures and backgrounds, and collaborates with peers developing precious soft skills, making sure that kids boost their curiosity and creativity (Associação Teatro Construção (ATC) 2022).

B. Portuguese companies with employees who lack of digital skills

Portugal has a very large number, relative to its inhabitants, of around 800,000 enterprises that employ less than 10 people that might lack of digital skills, as well as more than 800 enterprises that employ more than 250 people (Statista 2021). These large enterprises are more likely to have skilled employees in the digital field but also a higher budget to pay to boost those skills. On a mission to satisfy this market demand on the territory there is AMUT ([Appendix 33](#)), an organization that could be explored for partnership purposes.

C. Fragile population – elderly and people with physical disabilities

Portugal, with a median age of 46.2, is far above the world average of 30.6 (World Economics 2022) and above the median age of the EU of 43.1. The elderly population is a generation that is impressively far from digital newborns in terms of digital knowledge. Teaching the elderly how to use technological tools on a high level as with basic courses on how to read the news or communicate with their loved ones online could be a precious role Apps for Good could play in this market. Furthermore, young people with disabilities could receive a product that is more similar to the current one provided by AfG. The segment of fragile population could be targeted to have a very large social impact, and the possibility of partnering with a 45+ years of experience company like ARCIL ([Appendix 33](#)) could be explored.

D. Exploration of the product diversification growth strategy

After analyzing these potential new segments to be targeted, the growth strategy of diversification was considered: a strategy in which a new market, meaning new customers, is targeted with a new product. Certain elements led our team to consider also this strategy, namely the possibility of partnering with ARCIL ([Appendix 33](#)), a well-consolidated organization, a large network of customers, a wide variety of programs, and a noble social mission. For what regards Portuguese companies without proper digital skills among employees, the tempting factors were mainly the higher willingness to pay and the larger resources this potential customer disposes of. This segment is, in part, already served by AMUT ([Appendix 33](#)), a company AfG could compete or partner with. In the end, the potential customers represented by ATLs were taken into account because of the similarity with the currently targeted segment of schools, as ATLs are part of the same environment. Additionally, the pilot project of AfG in prison facilities can prove that AfG could work cross-market. Nevertheless, this pilot project is very young and does not have enough data to analyze its impact and the consumer journey was provided to our team.

Nonetheless, all these segments and potential new customers would also require a completely or slightly, according to the segment, different product compared to the current one provided in schools. Even in the most similar segment, the ATLs, the users would be “educators” and students, but not teachers and hence, the teacher-student cooperation would be lost. The final competition and the excitement that revolves around it would be lost too, as well as the precious network of Ninjas. The product has proven to be impactful, successful, and loved by its users because of all its features and, for this reason, we believe that losing some of them would risk lowering AfG’s quality.

3.3.3. The choice: Market penetration growth strategy

Four types of growth strategies that combine product and market were considered when choosing the best option to scale AfG: market penetration, market development, product development, and diversification. When choosing the one three main factors led us to choose market penetration: a strategy in which AfG will “sell” the current existing product, that has been proven to be impactful and satisfactory, to an existing market that still has sale potential (see [Appendix 34](#) for market potential).

3.3.4. The reasons why

A. Product satisfaction of the users

To understand if the current product is leaving its users satisfied, a series of interviews to teachers were conducted. The professors from the private schools interviewed did not identify any flaws in the project and, moreover, stated that their students participate happily and spontaneously to this extra-curricular project (Silva 2022). The teachers from public schools highlighted some little pain points, also described in the user journey, that are more intrinsic to the way the program works in the public system. Nevertheless, the “amazing benefits” of the program, as defined, were said to completely outweigh these little flaws this much that when asked what they would change about the project the most common answer was “nothing!” (Silva 2022). These outcomes of interviews and surveys are further backed up by the very high retention rate of more than 70% of AfG users (CDI Portugal 2022).

B. Digitalization and technology in the Portuguese schools

CDI operates, with the project AfG, in the education sector. To further analyze AfG’s environment, understanding the interests of current and potential users of this program is

important. The graph ([Appendix 35](#)) shows that technological courses have the highest percentage of concluded courses in secondary education, a segment that is currently targeted by AfG, and that this percentage grew of more than 100% in the last twenty years. This trend shows that the product that AfG provides is likely to keep showing interest and satisfaction in the schools that have not been targeted yet. Moreover, technology is now part of our daily activities and having courses with a digital stamp in schools is nowadays a must.

C. Market gap and market potential for Apps for Good

AfG is now present in the schools of all five regions of continental Portugal and in the Azores archipelago and Madeira. Nonetheless, out of the 3587 private and public schools, considering the ones that range from the 2nd cycle to high school education, present in the country, AfG is currently targeting, with its 8th edition of the project, only 178 of them (see [Appendix 30](#)). In particular, for what concerns public schools, the regions of Alentejo and Algarve have the highest market gap, as only 4.2% and 3.7% of their schools have been successfully reached by AfG. On the other hand, outside of continental Portugal is where the project has expanded the most as in the Azores islands and Madeira 15.8% and 15% of schools have been targeted successfully, respectively (see [Appendix 36](#)). AfG only had 3 private schools in their 8th edition's portfolio, and a geographical analysis of the market shows that coastal Portugal encompasses the highest number of private schools (see [Appendix 37](#)). This factor, partially due to a higher population density of that area, is being analyzed along with the most intrinsic feature of each region in terms of market demand: the region of Lisbon shows the highest demand for private education as 37.6% of its schools are private, whereas the opposite trend is seen in Alentejo, where only 11.1% of the schools are private (see [Appendix 31](#)).

7. CONCLUSION AND FINAL RECOMMENDATIONS

2. How can Center of Digital Inclusion and its technological educational program Apps for Good be evaluated from an expansion point of view?

2.1. How can the core of the business be assessed considering a triangle diagnostic?

- Accessing the human resources management should improve based on two axes: the investment in recruitment, whether by relying on volunteers or by acquiring official members from the community that already see the value and importance of the project and keeping its focus on maintaining a low turnover rate against the odds associated with being an NGO and providing low salaries and harder career progression.
- The paradox between growth and scalability must be decreased as much as possible when projecting the expansion of AfG. If on one hand, there is a high necessity of investing in marketing and recruitment in an earlier stage, in the long-term this cost would be covered by the creation of economies of scale associated with the dynamic of the program.
- The impact generated by AfG is already significant (CDI Portugal 2021/2022) meaning that the biggest breakdown related to this measurement is connected to how it is projected to society and how the community is not at the moment able to understand the power and influence this can have in the future of the students and the education system.

2.2. What should be the main variables under consideration when evaluating the status quo of both the organisation and the educational program?

- CDI presents itself as a worthwhile organization to develop a new scalability point of view, if departments like marketing, human resources, and financial sustainability are progressed under the evaluation made by the diagnostic tool (K. Sousa 2016).

- By overviewing the Social Business Model Canvas (Social Business Design 2022) we can obtain a greater image of the project while understanding that the cost structure is related to the key activities, while the revenue streams are fully interrelated with key partners and resources.

2.3. Aiming to scale Apps for Good, what points of leverage should be considered?

- AfG is a project focused on the prevention of a problem that not only adds value to its mission but also becomes a point of leverage for its shareholders with the ability to have a clear vision of the improvements made after joining the platform.
- There are a lot of influences coming not only from the inside but also from the environment which AfG is part of meaning that to achieve success the biggest reliance should be on the strengths of having a good product and a network that understands its value.
- AfG originated from the UK in 2010 but works independently per nation. In this framework, there are some aspects from which both countries would benefit from sharing expertise. Besides that, it is important to keep in mind that the level of support from the government, the data from which individuals are based, and how each reaches funding opportunities are from wholly different foundations.

3. What should Apps for Good do to keep its consumers satisfied, maintain its uniqueness, and enlarge its impact?

3.1. Can the Apps for Good project run more smoothly for its current stakeholders?

- Public segment: municipalities boost their reputation by supporting Apps for Good and get positively impacted by the projects developed by the students. They could be more present in the conversion phase of the journey. Public schools are excited to try the program, even if not immediately understanding its real value, as it is free. In the end,

the public customers (public schools) are satisfied with the product, and this leads to positive word of mouth in the advocacy phase. Users (teachers and students) are supported by Apps for Good along the journey, yet additional support to make the program fit in the curriculum is wished. Students are excited and committed but struggle with travel expenses to participate in the competitions.

- Private segment: private sponsors are vital for Apps for Good. Convincing them to support the program and retaining them for long has been hard so far, as well as having two enterprises that are direct competitors both on board. Private customers feel a lack of exclusivity by having to pay for a product that public ones receive for free. Students and teachers enjoy a program that is extra-curricular.

3.2. What level of competition will Apps for Good have to face in the market?

- “Competitors” are not likely to implement aggressive tactics, and possibilities for partnerships are not remote. Outsystems, the main supplier, has a high bargaining power due to its size. Public schools have low bargaining power whereas a higher power is in the hands of private schools: the only sources of financial independence from donors. A medium threat of substitute product is the result of a quite unique product that has low market share, whereas several elements make the threat of new entrants high.
- The two most similar players in the market identified are Teach for Portugal, an NGO with similarities in the targeted segments, even if focused exclusively on the public sector, and in the reliance on donors and a lower market share and Ubbu, a social organization with a close similarity in targets, tools, and scope, but with a higher market share as well as a more financially sustainable business model.

3.3. What segments should Apps for Good target and what growth strategy should be adopted?

- Expanding the public and private schools, and the private sponsors is key for enlarging Apps for Good's impact. The first one represents the segment where Apps for Good's impact is needed the most and 73.5% of Portuguese schools are public and cannot be overlooked. The two private segments represent the main ways to fund the impact making process.
- Three segments were considered as possible new targets: ATLs, mainly because of the already known school environment, companies that want to boost their employees' digital skills, mostly for their budget, and the elderly-fragile population, because of the large social impact and demographics of Portugal. Some organizations already serve part of these markets and partnerships could be created. Targeting these segments would mean changing the product and some of the characteristics that users love, with the risk of losing some quality. Diversification was excluded as a growth strategy.
- The current users' high levels of satisfaction, testified by a high retention rate and interviews, a recent boost in digitalization in the Portuguese school system, as well as a large potential market gap in both the public and private sector were the main elements pointing towards the choice of market penetration as the growth strategy to adopt.

4. How can CDI Portugal improve Apps for Good value proposition by enhancing points of leverage to better suit the target market?

4.1. What are the most important public entities to further penetrate the market and how can AfG reach them?

- Public schools are the most important public entity when it comes to Apps for Good, as they represent 99% of the current customers. To further acquire more public schools to the AfG ecosystem, deeper connections with the Ministry of Education should be

created, promotion should be boosted (to increase brand awareness) and the engagement with the beneficiaries should be reinforced.

- Regarding the value proposition, Apps for Good represents an innovative approach to digital education and the advantages vary from students to teachers, but the outcomes have been truly positive (CDI Portugal 2022).
- Public sponsors are represented as municipalities and these can benefit from partnering with Apps for Good to benefit from mutual benefits, such as increase their connection with the community and solving local problems of their regions.

4.2. How can private entities be addressed?

- Approaching private schools is a remaining challenge for the Apps for Good team due to their unwillingness to pay for the project. However, by enhancing its benefits and making more effective and strict communications, it is possible to acquire new clients to join the ecosystem. Parents associations can play a relevant role as promoters of the project.
- The value proposition for private schools is established based on the impact of providing a differentiator factor in the competitive universe of private schools. Students and teachers benefit from this new learning method and develop mainly digital skills, crucial to face the current challenges.
- Companies are the private sponsors, and they can find an added value for donating to Apps for Good, by helping a technological project to grow and increasing their CSR in the community. Furthermore, they can gain brand awareness and broad the AfG ecosystem, as their employees might become Experts.

4.3. What are the final recommendations and next steps to follow?

- After assessing recommendations for the main public and private entities, the next steps should be to focus on private schools due to their importance for the financial sustainability of Apps for Good. Although public schools continue to be extremely relevant in terms of impact, CDI Portugal needs to improve its financial situation to be able to last more and more years.

5.What are the go-to market strategies apps for good needs to apply to penetrate the market?

5.1. How can AfG efficiently reach the private school's sector?

- Apps for Good should invest in being self-sustaining by increasing its revenues. For this, it is important to invest in the strategy of getting more private schools, trying to overcome the challenges of having a simultaneous presence of the project both in public schools, for free, and in public schools, for a fee.
- There is an opportunity for Apps for Good to have a presence in international schools. For the most part, they have the same concerns and ambitions. They differ by different factors, such as fees, if teachers are native, curriculum, schools transport availability, extracurricular activities, class sizes, students' nationalities, the technology used, and locations. Of particular relevance to AfG's work is the use of technology, which is usually advanced, and the curriculum, which is mostly based on the English or American model.
- AfG will have a strong impact on the lives of students from international schools, in particular by working on the development of applications that solve real-world problems, working towards the 17 SDGs.
- The strategy involves activating International Schools in the Lisbon region, approaching them with good content, including testimonials from alumni. Activating the network of

parents' associations, as it is through them that we can put pressure on the school to offer this programme to students.

- To differentiate schools, with or without AfG, i.e. with or without students developing real solutions, aiming at the SDGs and through digitalisation, the creation of a label for the school, something like "Digital Social School", should be analysed.

5.2. How can AfG benefit from wider sponsor's cluster & number?

- The private sector is very relevant for the achievement of the SDGs and to act on the wellbeing of the local community. Nowadays, a company's CSR goes through much more than it used to. Focusing more on the empowerment of its people, more sustainable concern and action and value creation. In order to attract the best sponsors, it is necessary to look for companies that have similar values to those of the AfG, and that place particular value on investing in the education sector in the region. For *Alentejo* region, it is advisable to go to Delta Cafés.
- It is proposed to activate regional sponsors so that they can be active members of the development of the region in which they are involved. They can therefore opt for different models of sponsorship, choosing or not to make their members also an active part of the collaboration. For example, as volunteers who share their experience and know-how, the so-called Experts, with teachers and students.
- The impact for the company is special, it is not only by financing a social organization, but an investment in the young people of today, who can become the future of their companies. In the end, it impacts the lives of the families to which the students belong, most of whom work in the company. The students may co-create solutions to problems felt by the company or its employees.

6. What impacts will our suggested market penetration strategies have on the financial sustainability of Apps for Good?

6.1.1. What are the financial impacts of Strategy 1?

- Increase in the number of paid users will increase own revenues and lessen dependency on donations. This is imperative when looking to grow, as there need to have available funds to invest in growth capacity. The increase in paid users will not cover costs (even at 100% market share), as the actual price per school is too high compared to the willingness of the customer to pay. For this reason, the new pricing strategy recommends that the fee is lowered in the first year in order to attract more private users to the platform.

6.1.2. What is the payback period and implied market share?

- Analysis shows there is a quick rate of return given that the new strategy asks for the same price as the current strategy, meaning there are only potential losses in the first year. As AfG currently has 0% market share in the International school market in Lisbon, the scenario analysis performed to estimate the financial impact of increasing market share of international schools by 25% (7 schools) in five years. Our analysis shows that with the new pricing strategy, revenues would be increased by €300 in five years compared to the current price strategy.

6.1.3. How are revenues impacted by our new pricing strategy?

- The more attractive price point is designed to attract more users in a short period of time. The new price strategy requires the acquisition of 2 schools to cover the cost of one school with the current strategy, however in the second year and onward, the revenues are the same.
- The increase in available funds from acquiring new revenues (own and donations) should be reinvested into the ninja and fellows community, in order to maintain the quality of the product as well as maintain close connection with the educational branches of government. This is an investment into the long-term sustainability of the

program as it directly impact the key stakeholders that connect the program with the schools.

- The major cost saving aspect of the growth of AfG's program is their platform costs. As they currently pay a fixed three-year rate with the capacity of 10,000 users, there is growth potential and the opportunity to lower the cost per school

6.2.1. What are the expected costs for Strategy 2?

- As social media marketing is not accessible due to it being costly and not incredibly effective for business like AfG, our recommendations encourage focusing on organic engagement. Using private sponsors to post on their social media accounts is a suggestion to create more online identity and connect with more potential clients. The current budget for AfG's content creation is high, therefore it is advisable for AfG to use the content they have been producing over their eight years of operations to create story-oriented content that bolsters their online identity and shows them to the digitally forward program they are.

6.2.2. What are the new sponsorship tiers we propose?

- There are three new sponsorship tiers that have been developed by the team to provide as a framework when approaching private sponsors in the future. Across all tier, analysis shows that there is capacity for the sponsor to cover two schools at every level.

6.2.3 How should AfG reinvesting newly acquired funds?

- The ninja teacher community and the fellow communities are the areas that should be invested in moving forward. These communities offer a lot of resources for very little cost. Teachers provide insights into how to keep the quality of the program high as well as provide as a bridge to the public school educational system.

6.3.1. How do the defined go to market strategies impact the organisation's long-term goals for scaling AfG?

- Sustainability in the long-term is only achieved through government adoption (with the current cost structures and mission). The investments made by governments has stable durations as they are typically investments made with the intension of using the program for a long time. Government adoption is attractive for AfG's financial sustainability because it is not easy to continue to grow relying on a small portfolio of private sponsors.

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9. GLOSSARY

Experts – Volunteer experts that support students at various phases of their product development by providing their technical knowledge (CDI Portugal 2022).

Ninjas – community of teachers that work as advisors to support the Apps for Good team improving their project, by meeting with them regularly and suggesting changes that could be done to create better and bigger outputs (Baracho and Buisel 2022).

10. ACRONYMS

4 Ps – Product, Place, Price, Promotion

AfG – Apps for Good

AMA – Agency for the Administrative Modernization

APDC – Digital Business Community

CD – Community Development

CDI – Center of Digital Inclusion

CFAEs – Centres of Training of Associations of Schools (*“Centros de Formação de Associação de Escolas”*)

COTEC Portugal – Business Association for Innovation (*“Associação Empresarial para a Inovação”*)

CSR – Corporate Social Responsibility

DGE – Directorate-General for Education

EC – European Commission

EU – European Union

IAPMEI – Agency for Competitiveness and Innovation (*“Agência para a Competitividade e Inovação”*)

ICT – Information and Communications Technology

IEFP – Institute for Employment and Vocational Training (*“Instituto de Emprego e Formação Profissional”*)

MVP – Minimum Viable Product

NGO – Non-Governmental Organization

OCDE – Organization for Economic Co-operation and Development

SBMC – Social Business Model Canvas

SDGs – Sustainable Development Goals

SMEs – Small and Medium-sized Enterprises

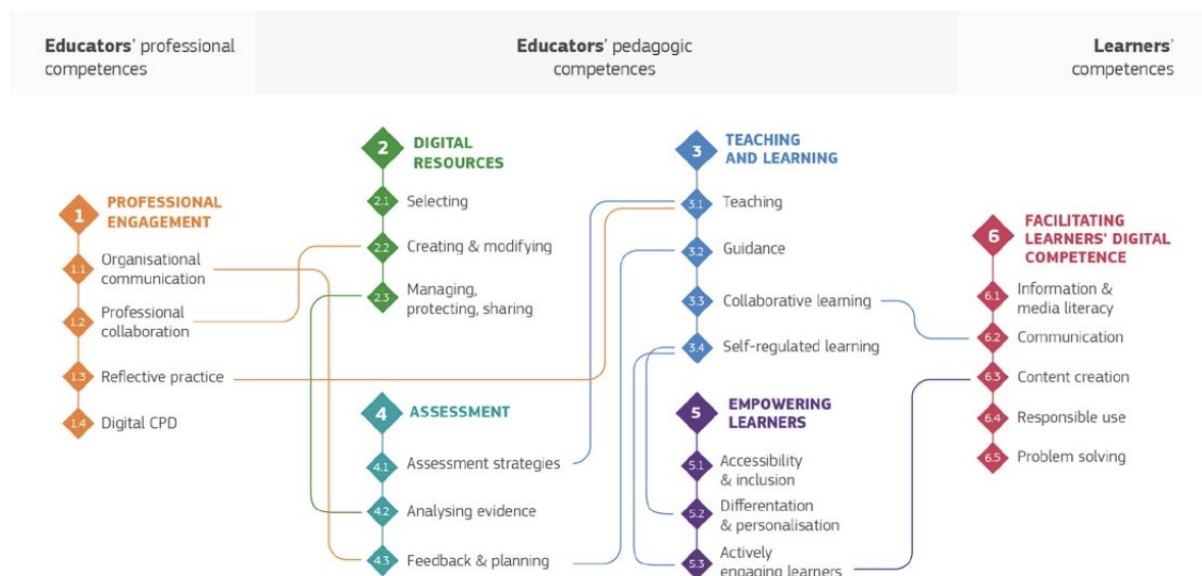
STEM – Science, Technology, Engineering and Mathematics

TFP – Teach for Portugal

UN – United Nations

VP – Value Proposition

Appendix 1.22 Digital Competences (Digital Education Vision for the European Schools System (DEVES) 2018)



**Appendix 2. Interview Script João Baracho (CEO of CDI Portugal) and Matilde Buisel
(Project Manager of Apps for Good)**

1. How does Apps for Good work?
2. What was the progress of Apps for Good in the UK? And in Portugal?
3. How is the relationship between Apps for Good and public schools? What about private schools?
4. What are the main challenges CDI faces regarding Apps for Good?
5. Do schools continue on AfG after one year/ edition?
6. How many schools are currently using AfG?
7. Would you consider having volunteers working with CDI in AfG?
8. How does the funding of the different projects from CDI works? Are the Business Units dependent on each other?
9. How does the pricing/cost strategy work?
10. When looking for sponsorships and state funds, what are the main challenges (competition, lack of opportunities, lack of money, lack of human resources)?
11. Where would you like to see Apps for Good in the future? What is the main goal?
12. How do you recruit new employees for the team?

Observation: additional questions were made throughout the flow of the interviews.

Appendix 3. Interview Script Maria Silva (Public School Teacher)

1. How would you describe the project Apps for Good? And its impact?
2. How is the feedback from students regarding the project?
3. What are the main differences between the approach in public and in private schools? And the outcomes?
4. What do you think could be improved in AfG?
5. How long have you participated with AfG?
6. Has it impacted your confidence with technology?
7. Does AfG fill a gap in the current educational program?
8. What is the most impactful aspect of AfG?
9. What is the most memorable App students have produced?
10. What is the greatest selling point for AfG?
11. What happens to the Apps students create once they are finished?
12. Why is it worth it to join the project?
13. Do you feel that you had enough preparation to lead a group of students through a technological contest?
14. If you could change something, what it would be?
15. How do you evaluate your motivation with the program during the year?
16. Did you ever want to give up?
17. Did you want to have all your colleagues doing the same as you?

Observation: additional questions were made throughout the flow of the interviews

Appendix 4. Porter 5 Forces Analysis (Porter 2008)

Rivalry among existing competitors	CDI, with its Apps for Good project fits in the digital education sector, and more importantly, is a player in the social economy whose ultimate goal is digital inclusion. Despite being quite unique, the program can have some competition. However, the level of rivalry among competitors is low due not only to its uniqueness, but also because the identified potential competitors are mostly non-governmental organizations that are not likely to implement aggressive tactics. Furthermore, the “competitors” are similar to Apps for Good just on one of many features of the latter, creating hence, possibilities for partnerships to make, together, a larger impact. The competition, however, could be considered low-to-medium when approaching one of the segments we identified: the private sponsors. The number of NGOs is in fact increasing and a dynamic hunt for funds is unavoidable.
Bargaining power of suppliers	The main operative cost CDI incurs for the Apps for Good Business Unit is the cost related to the platform that, as shown in detail in the financial analysis, amounts to eighty thousand Euros per year. The provider of this platform, Outsystems, is a very large supplier with revenues amounting to more than €100 million and Apps for Good does not represent a relevant portion of the supplier’s sales. Furthermore, the supplier Outsystems can potentially change the contract terms with Apps for Good every three years. The illustrated situation allows us to state that the supplier has high bargaining power.
Bargaining power of public buyers	The segment that has been identified as the customers is represented by schools. Analyzing the public customers of Apps for Good, meaning public schools, we can state that their bargaining power is low. The product-program for greatly satisfy the customer and satisfy, overall, its users. The little “flaws” of the program are definitely offset by the many great aspects of it, as the numbers of users repeating the program testify, as well as the multiple interviews conducted by our team. Public schools receive an impactful program that satisfy its users for free.
Bargaining power of private buyers	Analyzing the private customers of Apps for Good, meaning private schools, we can state that their bargaining power is medium to high. The product-program greatly satisfies private users but does not entirely satisfy the private customer. Private schools, in fact, receive a product that is almost the same as the one received by the public customer, but they have to pay a fee for it and, for this reason, they feel like they are losing their much-desired exclusivity. On top of this, their bargaining power is higher as they represent the only paying customer and Apps for Good’s only source of financial independence from sponsors and donors.

Threat of substitutes products	The product provided by Apps for Good is unique, free for its current main customers, it satisfies the customers and users, it mobilizes a motivated and proud community and it is well consolidated as it reached its 8th edition. These elements alone make the threat of substitute products low since customers might have high switching costs driven mostly by the loyalty factor. Nevertheless, the project does not require a particularly elaborated infrastructure, a wide range of assets, nor a large team to function. Moreover, the percentage of schools reached is very low. For these last two reasons, the threat of potential similar products being developed and sold on the market becomes medium.
Threat of new entrants	When considering the threat of new entrants three main elements should be taken into account: the attractiveness of the social economy, the attractiveness of the educational sector, and digitalization perspectives for the Portuguese environment. Data shows that the social economy is growing, the EU is working on a social economy action plan in which digitalization, including digitalization in the education sector, is seen as a priority, and incentives to invest in the sector will be rolled out (European Commission 2021). Additionally, Portugal's digital infrastructure is becoming more modern and able to support up-to-date technologies but it is still under the EU average (Appendix 28) Furthermore, a relatively young and growing industry like the social economy and a sector with large margins to be revolutionized, as the education sector is, create room for international players to try and enter. Overall, this threat can be considered high.

Appendix 5. Technological analysis

- Having embraced digitalization later than the rest of the continent, southern Europe has also been forecast to have the best potential for growth when it comes to internet use over the next 5 years. Here, an increase of nearly 18 million users is expected from 2020 to 2025 (Statista, 2022).
- Specifically, in Portugal, in 2022, roughly 73 percent of mobile phone users accessed the internet through their mobile phone, either via browser or via app. Just 5 years ago only 52.5% could access the internet via mobile broadband. By 2027, it is projected that almost 79% of mobile users in Portugal will have access to the internet via their mobile phones.
- In 2022, 7.39 million people in Portugal accessed the internet through any kind of mobile device at least once a month. In 2027, this figure is projected to amount to over 7.89 million mobile internet users, representing an increase of approximately 6.7 percent in new users from 2022 (L.Ceci 2022).
- Furthermore, breaking down the country into 3 groups – Suburban, Urban, and Rural Portugal, statistics show that the share of suburban households with internet access increased from 57% to 87% in the last 10 years (Statista 2022). The same share increased, in the same time range, from 66% to 92% when considering urban households, and from 44% to 78% in rural households (Statista 2022).
- Covid-19 was definitely a factor that boosted the usage of the internet and its online education platforms. In fact, the share of internet users engaging in online learning activities in Portugal, while showing quite a stable and “flat” trend in the pre-pandemic years, it increased by 11 percent from 2019 to 2020 touching 36% (Statista 2022). This share reaches 68% when

considering high formal education, whereas barely 15 percent if low formal education is considered (Statista 2022).

- When breaking down the Portuguese population by age, the 16-24-year-old group shows that 99% of them use the internet (Statista 2022).
- For what concerns remote working in Portugal, more than 133 thousand people were already working fully remotely already pre-Covid corresponding to only 2.4% of the employed population (Idealista 2021). This percentage reached roughly 25% at the peak of the pandemic and it's now decreasing (Idealista 2021). Nonetheless, 75% of Portuguese companies have kept a hybrid work regime as a goal of theirs (Ferreira 2021).

Appendix 6. Market share of Apps for Good, Teach for Portugal and Ubbu (CDI Portugal 2022)

Market share - whole market (private + public)	
UBBU	4.32%
Apps for Good	2.33%
Teach for Portugal	0.43%

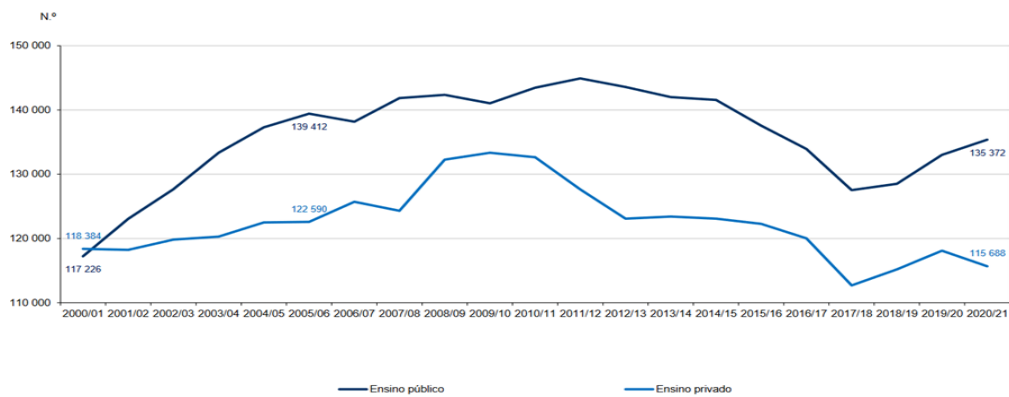
Appendix 7. Current Apps for Good schools (8th edition) in Portugal (Apps for Good Portugal 2022)

AFG schools	Public	Private	Total
Q	175	3	178
%	98.3%	1.7%	100%

Appendix 8. Region's characteristics (demand for public and private schools) (Pordata 2022)

	2021	Public	Private	% of public	% of private
Regions	North	884	336	72.5%	27.5%
	Center	649	189	77.4%	22.6%
	Lisbon	547	329	62.4%	37.6%
	Alentejo	263	33	88.9%	11.1%
	Algarve	136	27	83.4%	16.6%
	Açores	89	22	80.2%	19.8%
	Madeira	67	16	80.7%	19.3%
	Total	2635	952	73.5%	26.5%

Appendix 9. Number of students enrolled in public vs private schools (trend)
((DGEEC), Direção-Geral de Estatísticas da Educação e Ciência 2022)



Appendix 10. Players explored as partners/ competitors for product diversification strategy

ARCIL	ARCIL is a private non-profit organization that contributes to effectively include people with disabilities, of all ages, and special needs in the society, from the more humane perspective to the professional integration, aiming to change the way disability is looked at as well as removing professional obstacles (ARCIL 2022). Arcil does this by providing products and services relying on both public funds, agreements with cooperations, and the revenues generated by its activities which are, in turn, re-invested back into the company. The company has been operating for over forty-five years and has impacted more than 1500 people, who took part in Arcil's nine projects (ARCIL 2022). Arcil's staff is composed of social work technicians, psychologists, childhood educators, physiotherapists, pedagogical assistants, and more project-tailored professionals according to the specific project (ARCIL 2022).
AMUT – Associação Mutualista de Gondomar	AMUT, or Associação Mutualista de Gondomar, is a Portuguese organization that develops and provides training programmes tailored to the needs of organizations or companies and their teams of employees to help them achieve their objectives, to satisfy business needs, or to satisfy the desire of some employees of boosting certain types of skills (AMUT 2022). The training provided can be about hard skills such as writing effective emails or reports, about presentation and pitching techniques, accounting and taxation, learning or bettering the use of Microsoft Office, IT tools, as well as training tailored to soft skills and personal development (AMUT 2022). Additionally, the organization provides certified modular training to unemployed people free of charge relying on the partnerships with the European Union, and specifically its European Social Fund, Portugal 2020, and the Portuguese PO ISE – Operational programme of social inclusion and employment (AMUT 2022).

Appendix 11. Market potential for Apps for Good (CDI Portugal 2022)

	2021 - 8th edition	Apps for Good schools	PotMkt per region	PotMkt per region in %	Market share
Regions	North	68	816	92.3%	7.7%
	Center	36	613	94.5%	5.5%
	Lisbon	31	516	94.3%	5.7%
	Alentejo	11	252	95.8%	4.2%
	Algarve	5	131	96.3%	3.7%
	Açores	14	75	84.2%	15.8%
	Madeira	10	57	85.0%	15.0%
	TOT	175	2460	93.4%	6.6%

[See Excel file “Market analysis Apps for Good” for a more complete analysis]

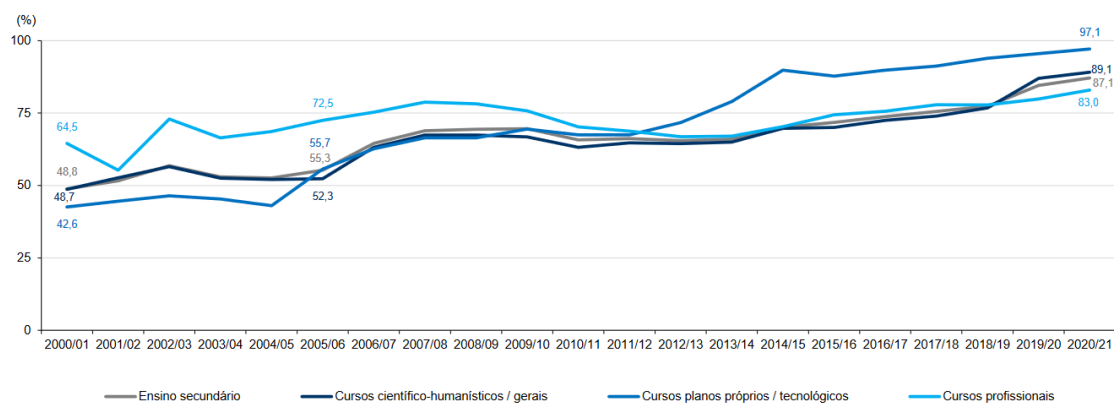
Appendix 12. Secondary school completion rate, by education and training type

Source: ((DGEEC), Direção-Geral de Estatísticas da Educação e Ciência 2022)

ALUNOS – Ensino secundário

EDUCAÇÃO EM NÚMEROS – Portugal 2022

Gráfico 1.4.6. Taxa de conclusão no ensino secundário, por oferta de educação e formação (Portugal; 2000/01 - 2020/21)

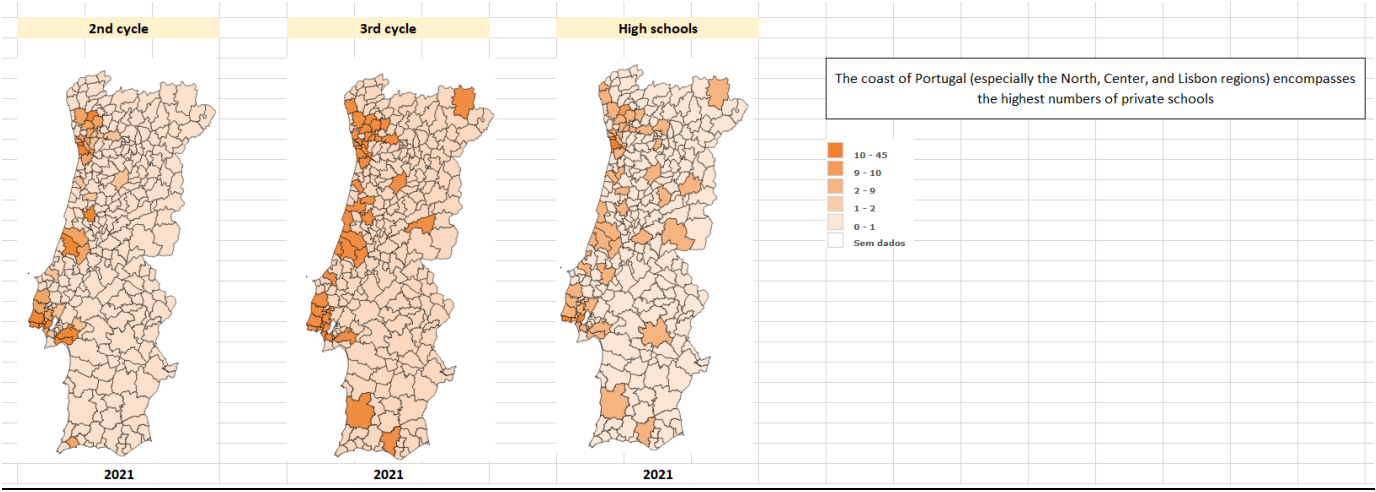


Appendix 13. Market analysis Apps for Good (public) (Pordata 2022) (CDI Portugal 2022)

	number of public schools in Portugal											
	*	Apps for Good's type of targeted schools				*						
	2021	1st cycle	2nd cycle	3rd cycle	high school	TOT		2021 - 8th edition	Apps for Good schools	PotMkt per region	PotMkt per region in %	Market share
Regions	North	1214	306	379	199	884	Regions	North	68	816	92.3%	7.7%
	Center	1016	230	275	144	649		Center	36	613	94.5%	5.5%
	Lisbon	617	181	238	128	547		Lisbon	31	516	94.3%	5.7%
	Alentejo	355	91	116	56	263		Alentejo	11	252	95.8%	4.2%
	Algarve	142	52	62	22	136		Algarve	5	131	96.3%	3.7%
	Açores	138	33	34	22	89		Açores	14	75	84.2%	15.8%
	Madeira	65	24	24	19	67		Madeira	10	57	85.0%	15.0%
	TOT	3547	917	1128	590	2635		TOT	175	2460	93.4%	6.6%
							Abroad	Timor Leste	1			
								Angola	1			
								TOT	2			

[See Excel file “Market analysis Apps for Good” for a more complete analysis]

Appendix 14. Market analysis Apps for Good (private) (Pordata 2022)



[See Excel file “Market analysis Apps for Good” for a more complete analysis]

