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TOWARDS A CONCEPTUAL FRAMEWORK
FOR DEVELOPING EMBASSY PORTALS

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Abstract

In the past decades, Information and Communication Technologies have significantly changed diplomacy and the way countries manage their international relations through embassies, which are often also responsible for providing a wide range of services to increasingly technology literate citizens.

This dissertation proposes a conceptual framework for developing embassy portals, comprised of the following four dimensions: 1) shared infrastructure, 2) integrated platform management, 3) templated content and 4) simplified online services delivery.

To prove the feasibility of this conceptual framework, a prototype applied to the Embassy of Guinea-Bissau in Portugal was developed using an open source Content Management System and free Cloud Computing technology.

The conceptual framework hereby presented is expected to be of value to governments interested in implementing state-of-the-art portals and websites based on open source technology for their embassies and similar organizations, simultaneously optimizing the resources available and delivering value to their stakeholders.

Resumo

Nas últimas décadas, as Tecnologias de Informação e Comunicação alteraram significativamente a diplomacia e a forma como os países gerem as suas relações internacionais através de embaixadas, que frequentemente são também responsáveis pela prestação de diversos serviços a um público cada vez mais conhecedor das novas tecnologias.

Esta dissertação propõe um modelo conceitual para desenvolver portais para embaixadas, que é composto pelas seguintes quatro dimensões: 1) infraestrutura partilhada, 2) gestão integrada da plataforma, 3) conteúdo pré-definido e 4) prestação de serviços online de modo simplificado.

Para comprovar a viabilidade do modelo conceitual proposto, um protótipo aplicado à Embaixada da Guiné-Bissau em Portugal foi desenvolvido com base num Sistema de Gestão de Conteúdos de código aberto (*open source*) e com recurso a tecnologias gratuitas na *Cloud*.

Espera-se que o modelo conceitual aqui apresentado seja de valor para governos que tenham interesse em implementar portais e/ou websites modernos e baseados em tecnologias *open source* para as suas embaixadas e organizações de estrutura semelhante, simultaneamente otimizando os recursos disponíveis e melhorando a qualidade do serviço prestado.

Palavras-chave: Portal, Embaixada, Open-Source, Framework

Classificação JEL:

L86 (Information and Internet Services, Computer Software)

O32 (Management of Technological Innovation and R&D)

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"And now that you don't have to be perfect, you can be good."

— John Steinbeck, East of Eden

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List of Abbreviations

B2B	Business to Business
B2C	Business to Consumer
C2C	Consumer to Consumer
CMS	Content Management Systems
DGC	Direção Geral das Comunidades
GNU GPL	GNU General Public License
ICT	Information and Communication Technologies
IT	Information Technology
MNECIC	Ministério dos Negócios Estrangeiros, das Cooperação Internacional e das Comunidades
OSS	Open Source Software
PALOP	Países Africanos de Língua Oficial Portuguesa
PS	Proprietary Software
SEO	Search Engine Optimization
SEF	Serviço de Estrangeiros e Fronteiras
TCO	Total Cost of Ownership

1. Introduction

1.1. Context and Motivation

The community of Bissau-Guinean emigrants in Portugal is one of the largest, with approximately 15.650 legal residents (SEF, 2016) that need to contact the nearest Bissau-Guinean embassy or consulate at least once during their stay abroad to fulfil civil duties, obtain information and/or legal documents.

Currently, the diplomatic representations of the Republic of Guinea-Bissau around the world only provide services in person and the majority doesn't yet have an official website. The lack of an official online presence inhibits the broadcasting of important information, constrains the efficient functioning of services and hinders the fulfilment of the attributions of these organizations.

Thus, motivated by the author's experience and observations as a user of the services provided by Bissau-Guinean diplomatic representations in Portugal, Senegal and Brazil, this dissertation proposes a conceptual framework for developing embassy portals that offer a "one stop shop" for the stakeholders of such services.

Starting with the definition of the objectives to attain and a brief presentation of the methodological approach followed, this dissertation presents a review of the literature concerning key related topics, identifies the current state of the art in embassy portals through a comparative analysis, proposes a conceptual framework for developing embassy portals and proves the feasibility of the concept through a prototype based on a case study applied to the Embassy of Guinea-Bissau in Portugal.

Finally, the conclusions are summarized, followed by the identification of potential directions for future work.

1.2. Objectives

Although there are several conceptual frameworks for web development projects, none has been found to approach neither the specificities of diplomatic missions nor the needs of a country's diaspora. Therefore, the main objectives of this dissertation are:

- to propose a conceptual framework for developing embassy portals; and
- to prove its feasibility through a prototype developed using open source technologies.

1.3. Methodology

This project was developed in six phases. First, a review of the existing literature concerning the main relevant subjects was conducted to provide a clear context and summarise the current knowledge in the area under investigation.

Next, to identify the state of the art and potential patterns in design and/or information architecture, a comparative analysis was done to identify and score the main content elements and functionalities displayed in the portals or websites of the embassies of several countries in Portugal.

Based on the findings and insights gathered on the previous phases, the conceptual framework for developing embassy portals is proposed on the following chapter. Next, the Embassy of Guinea-Bissau in Portugal is introduced as a case study to evaluate the feasibility of the conceptual framework through the development of a prototype. Lastly, the findings, contributions, recommendations, limitations and directions for future work are presented.
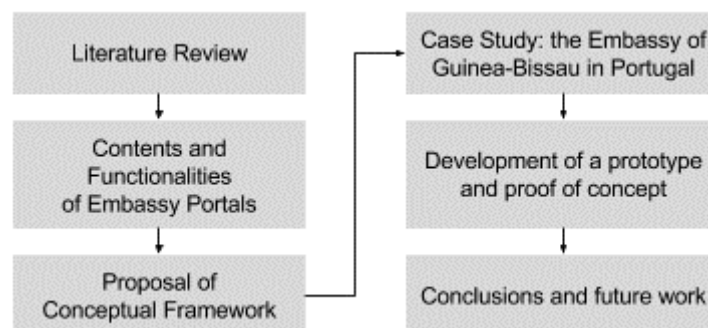
Figure 1- Methodological approach of the dissertation (own source)

2. Literature Review

The aim of this literature review is to provide a comprehensive theoretical background of the main concepts related to the theme of this dissertation. Therefore, to provide a clear view of the context in which it emerges, the present literature review begins with the concept of information and an overview of the information society, followed by an explanation of the main potential benefits, impacts and challenges that information and communication technologies (ICT) present to society and government institutions.

Next, this literature review approaches the concept of open source software and provides reasons why it can be a viable solution to help overcome certain challenges related to the management of public information and services, as well as the establishment of a trustworthy online presence through portals and websites. Following this, it continues with the definition and state of the art of Content Management Systems (CMS), followed by an overview of the three most popular open source CMS and arguments that support their use in the development of portals.

Since the aim of this project is to propose a conceptual framework for developing embassy portals, the present literature review also provides an overview of best practices and critical success factors to ensure the quality, suitability and sustainability of such endeavors.

2.1. The Information Society

The human need and ability to communicate and exchange information is considered the base of our civilization. The reasons behind it are diverse - they range from the need to sound alarms, to provide for common needs, to establish a sense of community and human empathy, to deliver information and news, and many others (Papp et al, 1997).

To reduce the impacts of distance, time and location while at the same time increasing privacy, security and authenticity, humankind has employed various forms of information and communication technologies throughout recorded history (Papp et al, 1997). Some examples of primitive information and communication technologies (ICT) given by Papp et al. (1997) include drums, torches, signal fires, flags, pictographs on papyrus, and writing on clay and stone tablets. As per those authors, codes, cyphers, trusted agents, seals and signatures are some of

the earlier methods employed to ensure privacy, security and authenticity of the information passed on.

According to Alberts and Papp (1997), the period comprised by the past 150 or 200 years has been labelled by many authors the "Information Age" due to the invention and evolution of technologies that transformed not only our ability to communicate but the way we live, work, process information and make decisions.

Goddard (1991) identifies four interrelated elements in the transition to an Information Society which together emphasize the centrality of information networks:

- The first element is related to the fact that information is becoming the key strategic resource on which the organization of the world economy is dependent;

- The second element is the establishment of an IT infrastructure, through which computers and modern communication technologies enable information to be rapid and reliably processed and distributed;

- The third element in the transition to an Information Society is the exceptionally rapid growth of services, such as new media (satellite broadcasting, cable, and video) and online databases providing information on a host of subjects ranging from stock market dealings, commodity prices, patent listings, and currency fluctuations to abstracts of scientific and technological journals; and

- The fourth element is the global integration of economies, linking together locations within and between towns, regions, regions, nations, continents and the entire world.

In turn, Webster (1994) analytically distinguishes the definitions of an Information Society in five categories: technological, economic, occupational, spatial, and cultural. According to this author, the most common definition of the Information Society emphasizes spectacular technological innovation. A good example of this is Goddard's (1991) definition presented above, where the key idea is that breakthroughs in information processing, storage, and transmission have led to the application of information technologies in virtually all corners of society.

The fact that there is an established subdivision of Economics that concerns itself with the economics of information has also contributed to the emergence of definitions of an Information Society that focus on economics. Likewise, an alleged shift in the distribution of occupations is at the heart of the most influential theory of the information society, which is based on the argument that there is a current predominance of occupations in information work (that is, that clerks, teachers, lawyers and entertainers now outnumber coal miners, steelworkers, dockers and builders).

Also, according to Webster (1994), the spatial conception of the Information Society emphasizes the information networks that connect locations and have greatly affected society's organization of time and space. Once again, Goddard's (1991) definition of the Information Society fits in this category.

Lastly, there is the cultural conception of the Information Society, which according to Webster (1994) is "the most easily acknowledged yet the least measured". This has to do with the undeniable increase in the informational content present in modern life - from television shows to YouTube channels, blogs, online newspapers and magazines, social media networks, and so on.

According to Kavanagh (2004), government agencies are important and influential information publishers. However, the fact that modern information and communication technologies allow practically anyone can generate and share informational content for whichever purposes and regardless of the consequences constitutes a major reason for concern.

Achenbach (1996) states that much of the information in the Information Age is in fact bad information. The author laments that computer technology and the rise of the Internet have democratized information, making it no longer the province of elite organizations like the historically trustworthy newspapers and broadcasting organizations. In other words, bad information and "fake news" seem to be inevitable consequences of the information age.

Webster (1994) also challenges the concept of an Information Society. For this author, the increase in volume and velocity at which information is generated and spread nowadays is not enough to imply the constitution of a new type of society.

Either way, it is undeniable that societies have profoundly changed in the past centuries because of the increasing quantity and accessibility of information, regardless of its quality or veracity. The fact that anyone can generate and distribute information that reaches people all around the world is an additional reason for all kinds of organizations to establish a solid and trustworthy presence in the main media outlets, taking advantage of its benefits to reach their goals and protect their interests and reputation.

2.2. The World Wide Web

The World Wide Web (abbreviated WWW or simply the Web) was created by Tim Berners-Lee in 1989 and consisted of a system of mainly static and read-only data in the form of interlinked hypertext documents accessible via the Internet (Nandini, 2014).

Its evolution resulted in the Web 2.0, which according to several authors is the currently available web and comprises everything from Facebook, YouTube and Amazon to Wikipedia and blogs. The Web 2.0 is focused on folksonomies and collective intelligence - that is, in the ability of people not only read information from the Internet, but also to generate their own content, contribute and collaborate by reviewing, providing and sharing information, uploading videos and photographs and so on (Nandini, 2014).

Although this makes the web even more resourceful, it also contributes to having too much information and not being able to discern the correct from the incorrect nor making meaningful connections between data (Nandini, 2014), especially because most of the Web's content today is designed for humans to read, not for computer programs to manipulate meaningfully (Berners-Lee et al. 2001).

The suggestion of a Web 3.0 - also called Semantic Web - is based on a desire to enter a new phase in which computers will be able to interpret information like humans and intelligently generate and distribute useful content tailored to the needs of users through dynamic web applications, interactive services and machine-to-machine interactions (Nandini, 2014).

According to Berners-Lee et al. (2006), "the Semantic Web is not a separate web, but an extension of the current one, in which information is given well-defined meaning, better enabling computers and people to cooperate."

Nandini (2014) states that, unlike the Web 2.0 which focuses on people, Web 3.0 focuses on machines, making it the so called "Internet of Things", which makes billions of non-human entities intelligent in order to understand user demands and serve them better.

According to Berners-Lee et al. (2006), the Semantic Web will also "create an environment where software agents roaming from page to page can readily carry out sophisticated tasks for users", using a more human-like way of solving problems by understanding the context surrounding queries and inferring new facts from existing facts and data (Nandini, 2014).

Berners-Lee et al (2006) explain that the idea of a Semantic Web is still in its early stages of conception and the task of adding logic to the web so that it is able to use rules to make inferences, choose courses of action and answer questions is one of the major challenges. However, the same authors state that the basic components and technologies for developing the Semantic Web are already in place.

Regarding the costs to develop, manage and maintain the ontologies that "will furnish the Web 3.0", Noy and McGuinness (2001) argue that, no matter how large, they will be easy to recoup due to the potential profit and productivity gains in commercial and scientific applications, for example.

2.3. How ICT affects diplomacy

According to Barston (2015), diplomacy is the means by which states articulate, coordinate and secure particular or wider interests, using correspondence, private talks, exchanges of view, lobbying, visits, threats and other related activities in the management of relations with other states and actors. This is done by their formal representatives and others which are concerned with advising, shaping and implementing foreign policy.

Communication is generally regarded as an essential aspect of diplomacy (Jönsson and Hall, 2003). In modern societies, the impacts of the widespread use of information and communication technologies "altered the ways that business, government, military and foreign policy establishments conduct their affairs", thus modifying the structure of the international system (Papp et al, 1997).

The development of air travel and information technologies in the twentieth century added to the ease and speed of movement and communication (Jönsson and Hall, 2003). According to Papp et al (1997), the telegraph's capacity to send messages in near real time over long distances had a considerable impact in the European foreign policy, international relations and diplomacy in the late nineteenth and early twentieth century, since it allowed embassies to be connected to their home foreign ministries and chief executives, providing instructions about pressing issues to ambassadors who used to previously operate on their own.

The improved links and the decreasing difficulty and costs of sending messages contributed to the increase in the volume of diplomatic traffic, making Europe – and the world - a much smaller place (Papp et al, 1997).

While facilitating the exchange of diplomatic communication, these technological innovations have been seen as challenges to ingrained diplomatic procedures, since one of the obvious effects of the ICT revolution is that diplomacy has lost its position as the main facilitator of contacts and communication across state boundaries (Jönsson and Hall, 2003).

Fast forward to the late twentieth century, Neuman (1996) concluded that the Internet is a mixed blessing for diplomacy and international relations, given its potential for global interaction, and with it common understanding - or at least more information. According to Jönsson and Hall (2003), while diplomats are adjusting to, learning to use and becoming engaged in "media diplomacy", foreign ministries have discovered the potential of the Internet as a powerful medium for the worldwide dissemination of information to an audience of highly educated and influential members of foreign societies (Kurbalija, 1999:185 apud Jönsson and Hal, 2003).

As an example of this, Neuman (1996) pointed out that the Israeli Foreign Ministry was one of the many political agencies around the world to set up an Internet address, and that "sophisticated governments and savvy political figures are making use of the Internet's global component, the World Wide Web, to reach former adversaries and attract new investors". This prediction has been proved correct, since nowadays most countries' foreign ministries and diplomatic representations have some form of official online presence in the Internet.

2.4. The impacts of ICT in the Public Sector

ICT has also enabled several improvements in the way public services are structured and delivered (Chen, 2007) in order to meet the demands of increasingly technology literate citizens for more quality, speed, transparency and accessibility for less cost.

The term e-government is defined by Prins (2001, apud Gant and Gant, 2002) as the delivery of government services online, providing the opportunity to increase citizen access to government, reduce government bureaucracy, increase citizen participation in democracy and enhance agency responsiveness to citizens' needs.

As stated in the "Plan of Action E-Government for Development" elaborated by the Italian Ministry for Innovation and Technologies and the United Nations' Department of Economic and Social Affairs (2002), "governments are confronted with a new reality and changed imperatives as a result of the diffusion of ICT throughout the world and within their nations".

This new reality requires a transformation in governance to make it more efficient, accountable and transparent, which can be achieved through ICT and e-government applications that support the reform of the public sector by improving communication between administrations, citizens and businesses and bridging the digital divide within a society and between countries.

Since the public sector tends to be one of the biggest provider of local content, public agencies can start acting as model users of ICT and be catalysts for others to follow, thus nurturing and fostering the further development of the local ICT industry. This can be done by embedding information and communication technologies in all kind of government activities, in education, health, agriculture, customs, etc. in order to minimize transaction costs, streamline bureaucratic procedures, make operations more efficient, free up resources to deliver services in a better-organized and more economical manner, increase citizen participation in policy formulation, resource allocation and decision-making processes, respond timely to citizen's needs, enhance interaction with the business community, attract investments and generate employment (Italy and UN, 2002).

Obviously, practically all the benefits above listed can be applied to embassies, which are the representations of the public administration of a country in a foreign territory. However, such achievements require substantial investment in modern IT, telecommunication infrastructure

and software, as well as in human resources to conceive, implement, manage and maintain such initiatives.

For developing countries, it's especially important to explore the alternatives that allow financial savings and the same or similar accomplishments. While in some cases Cloud Computing can help reduce or optimize the costs related to infrastructure while not compromising security (Grossman, 2009), considerable savings can also be obtained by replacing proprietary software by free or open source software.

For instance, according to Draoli (2014), the Portuguese government has a strong commitment to modernize, rationalize and decrease ICT costs in public administration. Its "Global Strategic Plan" for the period 2012-2016 [1] includes 25 rationalization measures, one of them being the deployment of the GO-Cloud (Governmental Open Cloud), a Portuguese government open cloud. According to Gomes and Domingues (2014), there are two major risks concerning the GO-Cloud: the lack of maturity of cloud computing technology and standards, combined with the cultural and organizational change it introduces within public administration. Therefore, initiatives have been taken to mitigate these risks at the technical and management level.

2.5. Free and Open Source Software

Although the terms free software and open source software are often used interchangeably, they have distinct meanings. According to Kavanagh (2004), the term free software has its origins from Richard Stallman's idea and arguments published in 1984, advocating that software should be free "as in free speech". This means that free software must be licensed under terms that respect the user's four essential freedoms: the freedom to run the software, to study it, to change it and to redistribute copies (Stallman, 2009) without paying royalties or any other costs. In some cases, there can be an obligation to share modifications or improvements with the community, thus guaranteeing global benefit, enabling innovation, increasing flexibility and facilitating integration (Burr and Barrows, 2012).

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[1] Plano global estratégico de racionalização e redução de custos nas TIC, na Administração Pública - Horizonte 2012-2016 - V.1.0, 15/12/2011

Likewise, the term open source software (OSS) was coined in 1997 to describe a type of software that must be distributed with source code included or easily available, such as by free download from the Internet (Kavanagh, 2004). The alternative to free and open source software is proprietary software (PS), also known as commercial, non-open, non-free or closed software (Kavanagh, 2004).

Raymond (1999) argues that open source software has a higher emphasis on quality thanks to their inherent transparency, which allow defects to be more quickly exposed and corrected by a community of dedicated experts who also provide thoughtful criticism and feature suggestions. Thus, this cycle of continuous improvement contributes to shorter release times and faster maturity of open source software.

Even though open source software has become more competitive in the recent years, its suitability for each individual case must be carefully analyzed and based on detailed and well-informed evaluation (Burr and Barrows, 2012) which considers both its potential positive and negative impacts.

Casson and Ryan (2006) argue that the public sector's interest in switching to open standards is affected by considerations regarding security, affordability, transparency, perpetuity of access, interoperability between bureaucratic entities and localism, in the sense that governments have an obligation to encourage the growth of their own economies and thus home grown software alternatives may be preferable to others given that there are open source software providers and commensurate performance in most or all key areas of emphasis.

For Kavanagh (2004), price/performance and scalability are always an issue for governments, who also have special motivation to employ open source software since they often offer mandatory services to a very large number of users (citizens). Therefore, there are opportunities for open source software at all governmental levels: from national government, state/province, city and local calendaring and newsletters.

According to Costa, Aparício and Figueiredo (2012) - who proposed an alternative Health Portal using open source technology -, the adoption of open source software in the Portuguese Public Sector has gained special relevance after the publication of the Global Strategic Plan for the Rationalization and Reductions of Costs in ICT.

Aparício and Costa (2012) identified three scopes that help analyze the open source software adoption by the public sector: economical, financial and economic growth. In the economical scope, the main variables are those that have direct impact on the Gross Domestic Product (GDP) as for the effect of software purchases, licensing and royalties on the balance of payments (BoP).

The financial scope analyzes the impact of open source adoption on public expenses and the budget deficit, considering that unlike proprietary software, open source software doesn't represent expenditure in licensing fees. Finally, the economic growth scope analyzes structural variables that derive from the adoption of open source software, such as skill improvement, employment growth and better productivity in public services and agencies, as well as the private sector.

To counterweight, Kavanagh (2004) also points out the following potential downsides to open source technology:

- The software industry is structured in ways that make it more difficult for one to choose open software and advocate it in an organization, mainly since open source software usually doesn't have the direct sales force, the marketing budget, or the incentive to bundle product; and

- Open source software has a less formal and complete level of sales and after-sales support, which can be perceived as a disadvantage and lack of guarantee.

Regardless of the pros and cons, Burr and Barrows (2012) state that the increased maturity of open source products and services has made it easier for government agencies to engage with open source software.

However, given the fiduciary duty of public entities, the authors defend that it is important to consider the benefits and impacts of any solution when faced with the choice between proprietary or open source software, and that a fair assessment needs to be made as to which offers the best value to the taxpayer.

Burr and Barrows (2012) therefore propose a Total Cost of Ownership (TCO) model for that effect, which takes into account several factors that impact lifetime costs and cost avoidance,

including acquisition, in-life changes, integration, interoperability and open standards, technology lock-in, dependency chains, multi-supplier market competition, and exit costs.

According to Casson and Ryan (2006), the TCO concept was developed by Bill Kirwin at Gartner in the late 1980's. As an objective method of analyzing the direct and indirect costs of owning and using hardware and software, TCO is used to help organizations determine whether they benefit financially from the use of specific technologies and to examine benefits from different angles (Emigh, 1999 apud Casson and Ryan, 2006).

With effect, in Portugal, the article 4-A of the Law of the State's Budget for 2014[2] defines that the calculation of the total cost of a solution must consider all expenses related to software licensing, maintenance expenses, adaptation, migration, retirement and training.

According to the European Union's Open Source Observatory (2017), open source solutions are being used in public administration agencies in Italy, Albania, Spain, United Kingdom, France, Sweden, Netherlands, Belgium, Portugal, Austria, Finland, Hungary, Romania, Malta, Turkey, Slovenia, Russia, China, India, Greece, United States, among many others.

2.6. Portals

Portals are defined by Al-Mudimigh et al. (2010) as large applications that integrate information, people and processes across organizational boundaries. They were originated in the mid 1990's from the earliest internet directories (e.g. Yahoo!) and search engines (e.g., AltaVista), becoming popular as vehicles for business-to-business (B2B), business-to-consumer (B2C), and consumer-to-consumer (C2C) commerce in the late 1990s.

In the early 2000s, web resources became more tailored to the interests and needs of specific groups of users, providing them targeted content, connecting them to helpful web domains and fostering the rapid growth of web applications (Jacso, 2001).

According to Kavanagh (2004), portals consolidate information and tools from a variety of sources and present them in a single user interface. Therefore, a portal is also a collection of

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2 Lei do Orçamento de Estado para 2014 (LOE 2014) - Lei n.º 83-C/2013, de 31 de dezembro

applications and infrastructure targeted at a set of customers (internal or external), not a distinct application in itself.

The implementation of portals across several industries is due the benefits it brings to organizations, such as the following identified by Eboueya and Uden (2007):

- Efficient delivery of information to the audience;

- Increased productivity for the end user;

- Increased interaction between customers and employees;

- Personalized environments for end users; and

- Integration of external applications and services by portlets.

Like the definition of the term, there are also many approaches when it comes to classifying and typifying portals. Eboueya and Uden (2007) identify the following generic types of portals:

- Vertical Portals (or Vortals) – provide access to a variety of information and services about a specific topic or area of interest for a niche audience;

- Horizontal Portals – provide a single and customized entry point to the Internet; "mega portals" that target the entire Internet community and usually contain search engines that provide the ability for anyone to personalize their content.

O'Leary (2000) distinguishes portals by their content, community and commerce features. To this author, content refers to an amalgam of proprietary and generic content including search engines, e-mail, discussion forums, and news. Community refers to a group of people with common business, professional, or personal interests who visit the portal for information and social communication. Finally, the commerce component refers to the consumer-to-retailer or business-to-business transactions enabled by the portal.

Looney and Lyman (2000), on the other hand, divide web portals into the following five categories:

- Consumer Portal – provides shopping, news, weather, stock information, etc., but rarely provides authentication;

- Community Portal – characterized by its design around a specific topic of interest;

- Vertical Portal (Vortals) – similar to Community portals, the Vortal is for more narrowly defined subjects;

- Enterprise Portals – corporately based portals, which may be either horizontal, covering the breadth of information of the enterprise, or vertical, covering a specific interest; and

- Business to Business (B2B) Portals – a special type of Enterprise Portal for business to business sites which buy and sell with each other, as a marketplace.

Research shows that there are also many references for other types of portals not mentioned by the above cited authors, namely personal, government, cultural, educational, corporate, stock, search, mobile, e-marketplace, tender, hosted and a series of domain-specific web portals offering access to related companies and services, as well as industry-specific news and information web portals.

According to Tatnall (2007), it constitutes a major problem that new types and categories of portals are appearing all the time, and that portal types are reclassified and most classification schemes include overlapping categories. This suggest that the lack of a definitive categorization of portals allows too much flexibility when it comes to classifying or typifying them.

2.6.1. Components of Portals

A classification of information categories (taxonomy), a search engine to facilitate more specific and exact information requests, and links to both internal and external websites and information sources are highlighted by Detlor (2000) as the most common elements of portals.

Nowadays, it's more and more common to find portals with more advanced features, such as collaboration and productivity tools, workflow automation, expense reporting, travel reservation applications and other specialized functions for transaction-based information processing.

According to Kavanagh (2004), portals include some content management as a core function, although that is often offered as a separate product. Any content management portal is going to need all or most of these technologies, either included or integrated: a directory, Web server, application development tools for creating additional custom components, indexing and search, and mail and calendaring.

The author states that a commitment to interoperability is needed so that other ways of developing aren't locked out in the future, especially since the product can be configured to use at least some external products and access to legacy databases and other services through Web services and shared authentication may be required. In the case of an open source portal, it's expectable to use open source components such as OpenLDAP, Apache, MySQL and an open source development language (Kavanagh, 2004).

2.7. Content Management Systems

In any organization, information is stored in several formats on a variety of devices or software. According to Kavanagh (2004), the goal of a content management system (CMS) is to allow users to be able to easily create, retrieve, and share content for intranets, extranets, and e-business/e-government. Therefore, a CMS must offer powerful control over document management, workflow such as approval processes and content distribution.

Also, the organization and structure of the content must be determined by and be relevant to the people who create and use it, so an authentication system is required to regulate who can perform which functions with which content. Concerning this, Kavanagh (2004) mentions two main roles:

– Authors - usually users without technical knowledge who must be able to compose and edit content in any browser, as well as tag and profile it to enable search.

– Managers - users with permissions to edit and delete content, as well as quickly define and edit page and template layouts.

Websites with current and reliable content provide a compelling reason for return visits. For some organizations, content may need to be updated hourly, others annually. Therefore, content

should be "*templatable*", so new material can be quickly incorporated in defined styles and expired and deleted content can be handled correctly.

The possibility to compare and revert content to a previous version is a plus, as well as a process for reviewing content before displaying it if appropriate. Last, but not least, Kavanagh (2004) highlights that the possibility to report on content state and use is also helpful.

2.7.1. Open Source CMS

According to Sullivan (2003), portals are composed by visible structures (which are readily apparent to users) and underlying structures, which are the core services such as authentication, access controls, metadata management, policies and procedures that guarantee the structural integrity of the portal.

The proprietary development of such structures requires significant financial and human resources. Depending also on the technical knowledge and skills available, the end-result may take a long time to be achieved and, once the portal is deployed online, further resources are required for its maintenance and evolution.

This is where open source CMS bring the most value, for they streamline and facilitate the process of creation and management of the underlying structures of a portal while complying with industry standards and best practices. As put by Seadle (2006), "a content management system offers a way to manage large amounts of web-based information that escapes the burden of coding all of the information into each page in HTML by hand".

As previously observed regarding open source software in general, the use of open source CMS can also have a positive impact on the overall cost of implementing and maintaining a portal, since they are created and supported by a community of developers and the source code can be downloaded without costs.

Given that there is a broad offer of open source CMS and considering what has been previously stated regarding the selection vendors, three open source CMS were selected for a comparison based on criteria mentioned by Kavanagh (2004): large quantity of users, significant growth and buzz, architectures that allow rapid deployment of functional applications but scale to

support complex custom development when needed. These are: Drupal, Joomla! and WordPress.

2.7.1.1. Drupal

Drupal was created in 2000 and describes itself as "an open source platform for building amazing digital experiences. It's made by a dedicated community. Anyone can use it, and it will always be free." (Drupal, 2017) It is licensed under GNU General Public License (GNU GPL), which means that anyone is free to download, reuse, modify and distribute it.

According to statistics provided in its website, as of January 2017, the Drupal community has over 1.1 million members, of which 105.400 are active contributors thanks to whom there are over 36.500 free modules and 2.400 themes that allow make it easier and faster to extend and customize Drupal's functionality and appearance.

According to data from BuiltWith.com, it is estimated that Drupal provides the back-end framework for at least 3% of the all the websites worldwide as of January 2017. Its success is likely to be attributed to its modular approach to website building, which allows it to be simple and flexible enough to be used by non-technical users for diverse purposes (Drupal, 2017), ranging from personal blogs to corporate sites and government portals such as the White House (http://WhiteHouse.gov), the Greater London Authority (http://www.london.gov.uk/), Chicago's Office of the City Clerk (http://www.chicityclerk.com), the United States of America's state of Georgia (http://Georgia.gov) and the cross-media Germany portal, (http://www.deutschland.de).

Furthermore, Drupal is also used for knowledge management solutions and business collaboration (Drupal, 2017). For this reason, Drupal describes itself both as a content management system and a content management framework.

Regarding security aspects, Drupal's policy is to announce the nature of each security vulnerability once the fix is released (Drupal, 2017). Drupal has a security team composed by

39 volunteers from Austria, Belgium, Canada, Catalonia, England, France, Germany, Hungary, Ireland, Japan and USA.

2.7.1.2. Joomla!

Joomla! was created in 2005 and describes itself as a free, open-source, mobile-ready, user-friendly and award-winning content management system and framework, which enables the creation of websites and powerful online applications. Like Drupal, Joomla! is also licensed under GNU GPL. However, the copyright over Joomla! project's CMS and framework is held by Open Source Matters Inc., a not-for-profit organization (Joomla!, 2017).

In its official website, Joomla! claims to have a market share of more than 9%, with more than 11% of the Web running on Joomla! (builtwith.com, 2017) to empower the online presence of hundreds of thousands of businesses, governments, non-profits and large organizations worldwide, such as the Scottish Recovery Indicator (http://www.sri2.net/), Costa Rica's Autoridad Reguladora de los Servicios Públicos - ARESEP (https://aresep.go.cr/) and Mexico's Gobierno de Baja California Sur (http://www.bcs.gob.mx/).

Joomla! is supported in 65 languages and, although there are no official numbers regarding the size of its community, as of January 2017, its active contributors were responsible for 7875 extensions, which include components, modules, plugins, templates, languages, libraries, files and packages that expand Joomla!'s capabilities, very often for free (Joomla!, 2017).

Although it's considered fairly easy to learn and implement by non-technical users, Joomla! has developed a strong focus on facilitating learning thanks to its embedded contextual help system, documentation, user forum, two large yearly conferences, free video training platform and certification program (Joomla!, 2017).

Like other CMS, Joomla! has also faced security issues in the past. In order to prevent these, it offers frequent security updates and announcements, a list of vulnerable extensions, a security guide which includes a checklist, guidelines and FAQ, as well as a forum dedicated to security matters and several articles written by experts in this matter.

2.7.1.3. WordPress

Created in 2003, WordPress describes itself as a mature and stable open source software that started as just a blogging system but has evolved to be used as much more than a full content management system with thousands of plugins, widgets and themes to create beautiful websites, blogs or apps (WordPress, 2017). Like Drupal and Joomla!, WordPress is also licensed under GNU GPL.

WordPress claims to power more than 24% of the web (WordPress, 2017). Its showcase includes the official websites of Finland (https://finland.fi/), Canada (http://o.canada.com/) and Sweden (https://sweden.se/), the official website of Indian Prime Minister's Office (http://www.pmindia.gov.in/), the website of the U.S. Chief Information Officer and the Federal CIO Council (https://cio.gov/), the UK Government Cabinet Office Digital Team (https://gds.blog.gov.uk/), Renault (https://group.renault.com/), Microsoft News Center (https://news.microsoft.com) and Mercedes-Benz's website (https://www.mercedes-benz.com/), among many others in several industries (WordPress, 2017).

Although the official size of the WordPress community is unknown, as of January 2017 it is fully available in 63 languages and there are more than 28.000 plugins and 2.400 free themes available.

WordPress is also vulnerable to security threats. Its security team is composed by approximately 25 experts including lead developers and security researchers who often consult with other security teams (such as Drupal's) to address issues in common dependencies (WordPress, 2017).

Besides the fully customizable software script that can be freely downloaded and installed in a Web Host, there is also a service called WordPress.com, created in 2005. WordPress.com is a hosted version of the open source software. Although it's less flexible and has several limitations when compared to WordPress.org, it allows people with little or no technical knowledge to create blogs and websites in very little time. As of January 2017, WordPress.com has 4 pricing plans with prices ranging from zero to 24.92 US Dollars per month (WordPress.com, 2017).

2.7.2. Comparison of the top 3 Open Source CMS

According to W3Techs.com (2017), WordPress is used by 27.4% of the top 10 million websites, which represents a CMS market share of 58.6%.
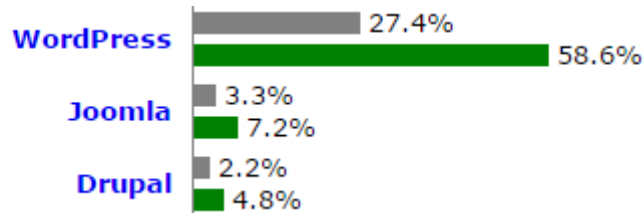

Figure 2 - Usage of Content Management Systems in the top 10 million websites (W3Techs.com, 2017)

Further research shows that, although the numbers vary, WordPress is unanimously appointed as the most used CMS. For example, WordPress's market share is 80% according to BuiltWith.com (2017) evaluation of the top million websites using open source technologies.
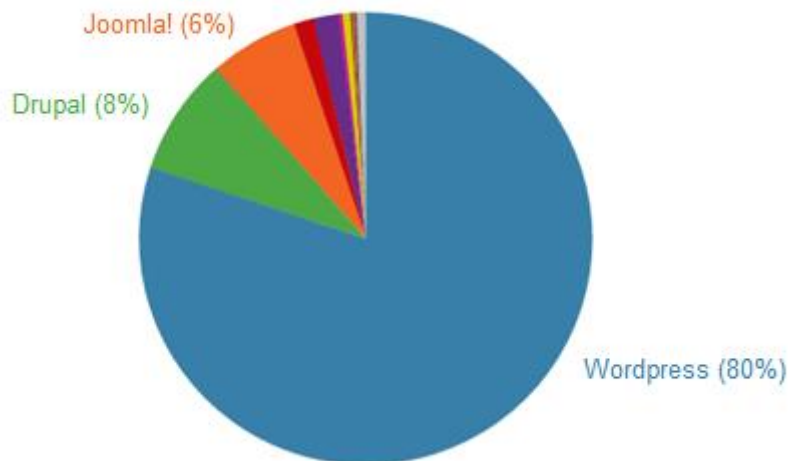
Figure 3 - Statistics for websites using Open Source technologies, considering the top million sites (Builtwith.com, 2017)

Although these results clearly show that the great majority of websites built on CMS are supported by WordPress, it is always necessary to evaluate the best fit for each project individually.

2.8. Open source portal development: best practices and success factors

The implementation of a portal can represent an important investment for an organization and have impacts on its daily operations, affecting its results, the way it manages internal processes and interacts with the public.

According to Remus (2006), the stages of portal development are not very different to the ones found in other web-based software implementation projects which also require an iterative approach that can accommodate changes in requirements. Thus, the author proposes the following stages:

– Analysis - comprises the strategic analysis of the organization and its needs, processes, application systems and user profiles in order to define the portal strategy, functional requirements and financial metrics;

– Design - this phase includes the make or buy decision, which should be based on a business case containing requirements documentation, portal design and storyboard, user concept and portal functionality, as well as security aspects, change management and roll-out strategy;

– Implementation - this stage refers to the installation of the chosen portal package and implementation of the portal design, navigation structure, content, back end systems and user profiles and roles. The implementation phase should end with thorough testing to ensure that the portal functions as expected;

– Introduction - the fourth stage in the portal development process consists of its phased introduction to the intended audience, change management and process integration;

– Evolution – last, but not least important, is the evolution phase, in which the portal is continuously improved, feedback is analysed and incorporated, and identified issues are fixed (troubleshooting).

Sullivan (2003) defends that the structural integrity of the portal should also be considered from the beginning, reflecting in factors such as the portal's ease of use, functionality and reliability, which must be considered from a user's perspective to determine the best way to organize

information on a page, following design patterns to logically group related content and provide a sense of context.

The key aspects of portal functionality are described by Gant and Gant (2002) in four dimensions:

- Usability - refers to the ease with which users can access information and navigate the portal. Usability can be measured through the verification of features that increase the ease of use of the portal, such as intuitive menu systems, sitemaps, new information indicators, search tools, common organization logo, uniform masthead, dynamically generated list boxes, help sections and FAQs.

- Customization - addresses the ability of the portals to provide targeted information to individuals and groups. Customization can be measured based on users' ability to uniquely tailor views based on user registration data, to identify themselves with distinct user groups, and the extent to which the portal dynamically recognizes these user groups and displays specialized content for them.

- Openness - refers to the extent to which a portal provides comprehensive information and services, and maintains timely communication to all key public audiences. Openness can be measured by examining the number and type of services available, the number of steps required to perform these services, and the extent to which personal data follows the user through their use of portal services.

- Transparency - indicates how easy it is for the users to assess the legitimacy of the portal content. Information such as key agency personnel contacts, the person responsible for online content, feedback procedures, date of last update, and security and privacy policies, is vital for users to trust the accuracy of portal content.

In order to develop a highly-functioning embassy portal with the capacity of delivering online government services, it's important to conceive it as a single point of contact for its users, so that it can truly reduce service-processing costs and enable the organization to provide a higher quality of service. Therefore, a complete system integration is required to create a true one-stop shop for users, and that, according to Gant and Gant (2002), is the challenge for policy makers and technology leaders.

Based on the premise that portal development projects are complex, expensive and time-consuming, Remus (2006) adapted Esteves and Pastor's (2000) "Unified Critical Success Factors Model" to portal implementation and related the main critical factors for the success of the implementation of enterprise portals to the different stages of the implementation process, in order to provide guidance and mitigate the risk of failure.

	Strategic	Tactical
Organizational	• Top management • Change management • Team competence and skills • Dedicated resources • Business process reengineering • Clear goal and objectives • Flexible project structure • Organizational culture	• User acceptance • Project management • Strong recommendation inwards and outwards • Project monitoring and controlling • User training and education
Technological	• Portal strategy • Selection of the appropriate portal package • Portal reengineering roadmap	• Defining the portal architecture • Requirement analysis • Process and application integration • Prototyping and portal design

Figure 4 - Model of CSFs (Remus, 2006)

According to Remus (2006), the timeframe of the portal project can be distinguished into the strategic (long-term goals related to core competencies) and tactical perspectives (short-term goals related to business activities), which can be viewed through an organizational (related with concerns like organizational structure, culture and business processes) and a technological perspective (related with technical aspects related to the chosen portal package).

In the organizational and strategic scope, we find that executive sponsorship, commitment of all resources involved, alignment of business rules and processes with the new system and cooperation of staff members from all segments of the organization are among the most critical success factors.

In the organizational and tactical scope, Remus (2006) states that the success of the implemented portal is heavily dependent on the acceptance of the user because its long-term success is heavily dependent on the usage of the portal. Thus, their proper training is crucial. On the other hand, the project should have clear and mutually agreed and understood objectives,

which requires strong communication among all stakeholders as well application appropriate standards and templates, for example. Also, it's critical to closely monitor and control time and costs as the implementation project scope and plan is reviewed.

Regarding the intersection of the technological and strategic perspectives, Remus (2006) explains that a portal can only be successful if its strategy for development, introduction and evolution are aligned with the overall corporate strategy. A comprehensive business case, a clear roadmap and the selection of the appropriate portal package can help achieve this alignment.

The business case is also important in terms of the technological and tactical perspectives, as it also outlines the main features of the portal. Furthermore, it's imperative to develop an open and flexible integration architecture that is aligned with the processes and general Information Services of the organization, as interfaces to other systems such as CRM (Customer Relationship Management) must be defined.

The user interface, on the other hand, is typically described by use cases. According to Remus (2006), rapid prototyping is a cycle of conception, realization, test and refinement that should be carried out until the prototype has reached the desired maturity, in order to minimize developmental risks, improve the project team's motivation and cooperation with the client.

2.9. Synthesis

Although human beings have been storing, retrieving, manipulating and communicating information for many millennia, it is clear that those processes have been greatly altered by the invention and evolution of the Internet, the World Wide Web and several other Information and Communication Technologies.

In the past decades, ICT has changed the way organizations function and interact with their stakeholders. Regarding governmental organizations, e-Government initiatives have been helping many countries optimize public service delivery in several areas, including foreign affairs.

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An important part of a country's foreign affairs are its diplomatic representations abroad in the form of Embassies and Consulates, which are responsible for building good and long-lasting relationships with local authorities, provide services to citizens abroad, promote tourism and business cooperation, among others.

These objectives are more easily achieved through a consistent and trustworthy online presence, which often results of the combination of several elements. For an Embassy, perhaps the most important of those elements is its website, through which relevant information can be made available to their target audience. Furthermore, the ability to also provide and manage online services and requests is nowadays an indispensable communication and operational tool for an Embassy.

Despite all this, the development and maintenance of such online presence and services can be costly, especially for developing countries in which the required human, material and financial resources are scarce. Nevertheless, such costs can be significantly reduced through Open Source and Cloud technologies, and the risks associated to the failure of such projects can be decreased through the identification and monitorization of critical success factors in conjunction with the adoption of best practices.

3. Contents and functionalities of Embassy Portals

A comparative analysis was carried out to identify the state of the art in embassy portals. Since there are hundreds (if not thousands) of them, the comparison was restricted to a more manageable sample of eleven portals and websites of embassies of foreign countries in Portugal, selected according to the following criteria:

a) the representability of the respective diaspora in Portugal according to the 2016 Immigration, Frontiers and Asylum published by the Service of Foreigners and Frontiers (Serviço de Estrangeiros e Fronteiras - SEF); and

b) the position on Google's search results for the word 'embassy'.

The conjugation of the above mentioned criteria resulted in the selection of the embassies of the following eleven countries in Portugal: Angola, Brazil, Cape Verde, China, France, Guinea-Bissau, Romania, Spain, Ukraine, United Kingdom and United States.

In order to establish objective grounds of comparison, each website was evaluated according to the verifiable presence of the following 40 criteria emerged from (the author's) observation concerning aspects related to their information architecture and navigation.

I. Information Architecture

A total of 27 criteria will be considered regarding the information architecture of the analyzed websites.

A. Business Context
1. About the embassy and/or ambassador
2. About the country
3. Institutional directory page / organigram

B. Content
1. Contact section
2. Emergency contacts
3. Opening hours / holiday calendar
4. Other useful contacts / links
5. Blog / Alerts / News / Announcements

6. Publications / Statistics / Reports

7. Local Events / Job Vacancies

8. Consular/ Citizen Services section

9. Detailed service portfolio

10. Visa information

11. Tourism information / travel advice

12. Diplomacy / Foreign Policy information

13. Multimedia (video, image gallery)

14. Social Media Links

15. Press releases / press room

16. FAQ Page

17. Sitemap

18. Cookie Policy / Privacy Policy / Copyright

C. Functionalities

1. Multi Language (at least 2)

2. Online Visa Application / service / document request

3. Survey / Poll / Feedback (suggestions, complaints or compliments)

4. Newsletter subscription

D. Users

1. Login area

2. Community / Forum

II. Navigation

A total of 9 criteria will be considered regarding the navigation aspects of the analyzed websites.

1. Breadcrumbs

2. Footer (fat footer)

3. Main menu

4. Pagination

5. Related Content

6. Search field / Filters

7. Slider

8. Tags / Topics
9. Widgets

III. Others
1. Security Certificates
2. Accessibility options (i.e. for visually impaired)
3. Responsiveness (can be accessed from different browsers and devices)
4. Part of an institutional portal (i.e. Government Portal or Ministry of Foreign Affairs' Portal)

By attributing one point whenever a criterion was observed in a web site / portal, it was possible to identify not only the most relevant criteria but also the best or most complete embassy portal to date.

Results of this analysis are summarized in Table 1. They indicate that the portals of the embassies of Spain and the United States of America in Portugal are the most complete in terms of content and functionalities, with 28 out of 40 points each. Following is the portal of the embassy of France (25/40). The websites / portals of the embassies of Cape Verde and Ukraine in Portugal are tied in the 3rd position, having both obtained 23/40 points. Likewise, the portals of the embassies of Romania and the United Kingdom in Portugal are tied in the 4th position with 21/40 points each, followed by the Angolan Embassy's portal with 18/40 points.. The least punctuated websites / portals were the ones of the embassies of Brazil (16/40), Guinea-Bissau (15/40) and China (12/40) in Portugal.

The results of this comparative analysis provide a clear picture of the main content elements that should be present in the information architecture of a modern embassy portal, as well as a solid base for the definition of the main functional requirements, features and functionalities.

Furthermore, the null punctuation of items such as a login area and a forum for the targeted audience evidences their irrelevance in this context. The inexistence of visible security certificates (such as GeoTrust, RapidSSL or Comodo) in all the portals and websites included in this analysis may be related to the fact that none of them provides a private area nor enables payments via credit cards. The low punctuation of related content and tags also seem to indicate that little importance is being attributed to metadata in the verified websites/portals.

Business Context	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
About the embassy / ambassador												11
About the country												10
Institutional directory page / organigram												9
Content	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
Contact section												12
Tourism information / travel advice												11
Opening hours / holiday calendar												10
Blog / Alerts / News / Announcements												10
Social Media Links												10
Diplomacy / Foreign Policy information												10
Other useful contacts / links												9
Press releases / press room												8
Cookie Policy / Privacy Policy / Copyright												8
Visa information												8
Local Events / Job Vacancies												8
Consular/ Citizen Services section												8
Multimedia (video, image gallery)												8
Emergency contacts												6
Sitemap												5
Publications / Statistics / Reports												5
Detailed service portfolio												5
FAQ Page												4
Functionalities	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
Multi Language (at least 2)												8
Newsletter subscription												4
Online Visa Application / service / document request												2
Survey / Poll / Feedback (suggestions, complaints or compliments)												2
Users / Stakeholders	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
Login area												0
Community / Forum												0
Navigation	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
Main menu												12
Search field / Filters												10
Breadcrumbs												9
Slider												7
Footer (fat footer)												5
Pagination												5
Widgets												4
Tags / Topics												2
Related Content												1
Others	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Points
Part of an insititional portal (ie. Ministry of Foreign Affairs)												7
Responsiveness (can be accessed from different browsers and devices)												6
Accessibility options (ie. for visually impaired)												4
Security Certificates												0
Country Score	28	28	25	23	23	21	21	18	16	15	12	

Table 1 - Comparison of the websites / portals of ten countries' embassies in Portugal (own source)

Code	Link	Description
AO	http://www.embaixadadeangola.pt/	Embassy of the Republic of Angola in Portugal
BR	http://lisboa.itamaraty.gov.br/pt-br/	Embassy of Brasil in Portugal
CN	http://pt.china-embassy.org/pot/	Embassy of the Popular Republic of China in Portugal
CV	http://embcv.pt/	Embassy of Cape Verde in portugal
ES	http://www.exteriores.gob.es/embajadas/lisboa/es/Paginas/inicio.aspx	Embassy of Spain in Portugal
FR	http://www.ambafrance-pt.org/	Embassy of France in Portugal
GW	http://www.embaixadaguinebissau.pt/	Embassy of Guinea-Bissau in Portugal
RO	http://lisabona.mae.ro/pt	Embassy of Romenia in Portugal
UA	http://portugal.mfa.gov.ua/pt	Embassy of Ukraine in Portugal
UK	https://www.gov.uk/government/world/organisations/british-embassy-lisbon	British Embassy in Lisbon
US	https://portugal.usembassy.gov/	Embassy of the United States of America in Portugal

Table 2 - List of countries whose portals/embassies in Portugal were in scope for the comparison

4. Proposal of Conceptual Framework

To enable the delivery of online services and content at the lowest TCO possible, the hereby proposed conceptual framework for developing embassy portals is centered in the optimization of human, material and financial resources.

In practical terms, this represents the implementation of a network of multilingual, responsive and integrated embassy websites aggregated by a portal, supported by shared infrastructure and governed by the same entity.

The sole purpose of the portal is to provide an overview of the network of a country's diplomatic representations and facilitate navigation to the website of each embassy. To streamline implementation and provide a consistent user experience, all embassy websites will be based on a standard but flexible template that includes basic content, assuming that the attributions, services provided and overall procedures are similar (if not the same) across embassies of the same country.

Upon implementation, each embassy should then personalize the content (i.e., the welcome message, ambassador's profile and contacts section) and certain visual aspects such as the color scheme. Furthermore, each embassy will be responsible and accountable for the management of the content on its own website.

The mentioned template (which should contain all the most highly punctuated elements identified in the previous chapter) will also include a set of preconfigured services that can be provided or initiated online, thanks to integration with external / third party solutions or plugins that capture and forward requests to the correct department for processing in due time (namely online visa applications, electronic consular registry, requests for information and other consular services).

Online services may require extra investment in terms of computer equipment and internal training, but may also require the reengineering of some internal processes in order to adapt them to the new technologies in place and be able to drive productivity, efficiency and service quality. Therefore, each embassy will be able to decide which services to provide online, depending on their internal capacity and conditions.

The hereby proposed conceptual framework also suggests that the development of the network of embassy websites is undertaken by a (preferably state-owned) Shared Services Centre. By sharing the infrastructure, services and resources required for its implementation, management and maintenance, significant reduction of time, cost and complexity can be obtained, mainly because:

- all sites will run off one installation, therefore it's only necessary to purchase (and renew) one web domain and web hosting;

- since each embassy' site represents a subdomain and the same template will be applied to all sites, it becomes possible to standardize design, taxonomy, branding and architecture to facilitate maintenance and user experience;

- the lead time for implementing new websites is smaller thanks to the template in place, which also contributes to reduce the learning curve of the technical, functional and support teams involved;

- the administration of the network and activities like user management, backup, platform upgrades, search engine optimization, troubleshooting, corrective and evolutive maintenance are greatly simplified since all sites can be easily managed and controlled from one place;

- although security threats can affect several instances, they can also be mitigated at once;

- the implementation and compliance with best practices, policies and procedures is facilitated;

- metrics can be measured more easily, allowing the adjustment of the overall strategy as needed; and

- training materials can be easily updated, adapted and reused, facilitating knowledge management and transfer.

Finally, the proposed conceptual framework also suggests that this kind of initiative is governed by a single state entity (i.e. the national Ministry of Foreign Affairs or its equivalent), which should not only sponsor the project so that the necessary funds are available to guarantee its

continuity, but also participate in the formulation of the core strategy and definition of objectives and performance metrics.

The main use cases involved in this conceptual framework are illustrated in figure 5 and the visual summary and main aspects of the framework are represented in figure 6.
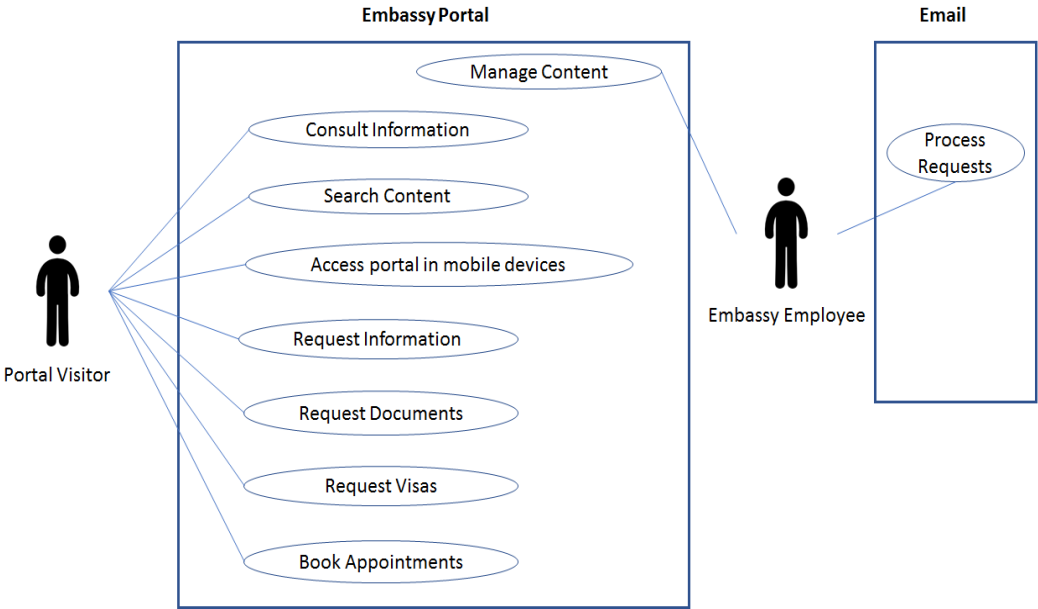
Figure 5- Main Use Cases involved in the proposed conceptual framework for developing embassy portals
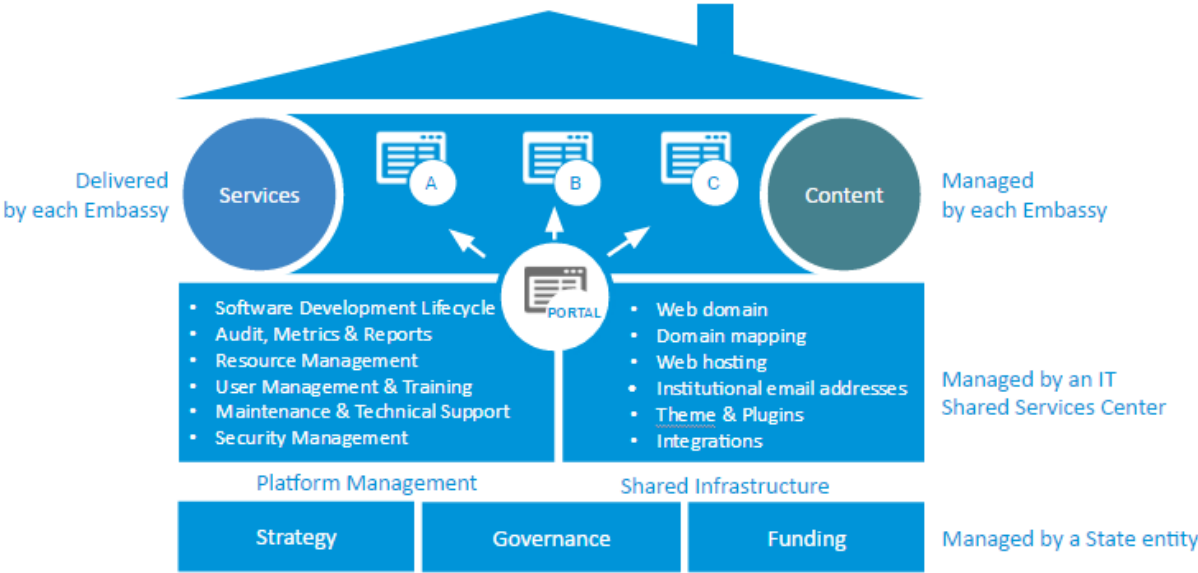
Figure 6 - Proposed Conceptual Framework (own source) - an "under one roof" solution for developing embassy portals

In order to successfully implement this framework, it is recommended to start with a comprehensive analysis in order to correctly define a strategy based on the commonly shared needs of both internal and external stakeholders, as well as the organization's processes and functional requirements. Also from the beginning, it's recommended to secure the sponsorship of the highest levels of the hierarchy and commitment of the main department and process leaders.

The design phase (which includes the selection of the platform or CMS package and the portal's functionalities), should have special focus on integrability, change management and roll-out strategy in order to guarantee that the final solution is viable, flexible, secure, scalable and easy to use.

Unlike the analysis and design phase which are done once and only repeated in case of major restructuration of the overall project, the implementation phase is divided in two:

− one that happens during the installation of the chosen portal package and implementation of the overall portal design, structure and content; and

− another that happens every time a new site (or embassy) is added to the network.

The latter implementation phase should ideally be preceded by a workshop to identify the desired customizations and gather the content to be presented.

Similarly to the implementation phase, the introduction phase also happens in two moments: one refers to the go-live of the portal and the other refers to the go-live of each embassy's site.

Last, but not least, in the spirit of continuous improvement, the evolution of the portal should happen in a controlled manner, in line with the underlined strategy and considering the most relevant feedback from both internal and external stakeholders. The good governance of this whole process is of outmost importance for the success of the endeavour, and so are the mechanisms to ensure strong end-user adoption.

5. Prototype Implementation

With the purpose of validating the feasibility of the proposed conceptual framework, this chapter describes the implementation of a prototype applied to the Embassy of Guinea-Bissau in Portugal.

As stated in the Literature Review, it is considered a best practice to analyse the organization and its needs in order to correctly define the portal strategy and requirements. Thus, the next sections shall provide an overview of the Embassy of Guinea-Bissau in Portugal, its attributions, services provided and stakeholders. It is important to note that, in case of real world implementations, a more thorough and complete analysis as described by Remus (2006) is required.

5.1. Case Study: the Embassy of Guinea-Bissau in Portugal

The Democratic Republic of Guinea-Bissau is a Portuguese-speaking country located in the western coast of Africa, with a population estimated at 1.84 million (World Bank, 2017).

According to the site of the Bissau-Guinean Direcção Geral das Comunidades (General Direction of the Communities), the country has 18 Embassies and 2 Consulate-Generals around the world. These diplomatic missions are located near the country's largest emigrant communities abroad and in countries with which Guinea-Bissau has strong cultural, trade and cooperation relationships.

The common language and historical ties contribute for the election of Portugal as one of the favourite destinations for Bissau-Guineans to visit, study, work and live in. According to the Portuguese Service of Foreigners and Frontiers (SEF - Serviço de estrangeiros e Fronteiras, 2016), Bissau-Guinean diaspora is the 8th most representative in Portugal, with approximately 15.650 legal residents.

In an initiative that aims to straighten the ties with the Bissau-Guinean diaspora, the Ministry of Foreign Affairs, International Cooperation and Communities (Ministério dos Negócios Estrangeiros, da Cooperação Internacional e das Comunidades- MNECIC) has implemented the Portal da Diáspora (Portal of the Diaspora, http://comunidades-gb.net/), which provides

basic information concerning exemptions and facilities for emigrants, incentives for investment in Guinea-Bissau, travel advice and publications, as well as information regarding some of the consular services provided and (often non institutional) email addresses to contact the country's diplomatic missions. Notwithstanding the importance of this initiative, the information provided is insufficient and outdated, failing to meet the needs and expectations of visitors.

The great majority of the country's embassies and consulates doesn't have an official online presence. The few exceptions are the recently deployed website of the Embassy of Guinea-Bissau in Portugal (http://embaixadaguinebissau.pt) and the Embassy of Guinea-Bissau in Brazil, which has a website (http://embaixadaguinebissau-brasil.org) and official pages in the main social media networks. Despite being initiatives to praise, these represent isolated and uncoordinated efforts that often fail to succeed due to lack of governance and maintenance.

In this context, one can easily see how the MNECIC and the Bissau-Guinean public administration could potentially benefit from the implementation of an IT shared services model in order to optimize the resources, reduce costs, standardize processes and improve the quality of information services that impact the lives of citizens residing in the country and abroad.

5.1.1. Attributions of the Embassy

As stated by the Direcção Geral das Comunidades in the Portal da Diáspora, embassies are representations of the Bissau-Guinean State in other states or international organizations. Their main competences include:

- the promotion of good cultural, economic and scientific relationships with the local State;

- negotiating with local governments, defending the interests of Guinea-Bissau and its nationals;

- using all legal means to stay up-to-date with the evolution of events in foreign governments and transmitting them to the government of Guinea-Bissau;

- facilitating the missions of official envoys of Guinea-Bissau through diplomatic support and contacts;

- intervening next to foreign governments to introduce, support and follow-up in matters concerning the Bissau-Guinean state; and

- divulging, within its domains of jurisdiction, the political, economic and socio-cultural realities of Guinea-Bissau.

As for the consular posts, they can be classified into Consulates (which can be Consulates-General, Consulates, Vice-Consulates and Consular Agencies) and Honorary Consulates. However, whenever it's convenient and justifiable, Consular Sections may be created within Embassies headed by diplomatic personnel - as is the case in the Embassy of Guinea-Bissau in Portugal.

According to the information displayed in the Portal da Diáspora, the main attributions of consular posts are:

- to protect, within lawful limits, the interests of the Bissau-Guinean state and its individual and legal persons in foreign states;

- to provide all assistance possible to the nationals of Guinea-Bissau and to reinforce the ties between the country and emigrated communities;

- to support Bissau-Guinean citizens in need and provide relief in case of natural catastrophe or serious civil disturbances;

- to promote the development of cultural, economic, commercial and scientific relationships between the Bissau-Guinean state and foreign states; and

- to exercise whichever other competences attributed by law.

5.1.2. Services Provided

The following is a non-exhaustive list of the services provided by the Consulate-General of Guinea-Bissau in Lisbon, grouped by categories:

- Acts of civil status

    - Refers to the vital records and certificates of certain aspects in the life of a citizen: adoption, birth, civil union, marriage, death, divorce, citizenship.

- Authentication and legalization of documents

    - Concerns the legalization of all documents issued by Bissau-Guinean Government Departments (e.g. Registry of Marriage Certificates, Birth Certificates and Educational Certificates), as well as some non-government documents (foreign / private / company documents).

- Nationality

    - Refers to the processes of recognition or acquisition of Bissau-Guinean nationality.

- Driver's licence

    - Concerns the renewal of driver's license or obtainment of documents required for its conversion to the local country's license.

- Emission of certificates and declarations

    - Refers to documents such as certificate of residence, letters of attorney, proof of life and criminal record.

- Notarial acts

    - Consists of the execution of notary services only for Bissau-Guinean citizens outside of Guinea-Bissau.

- Passports and travel documents

    - Refers to the issuing and renewal of passports and other travel documents in case of loss or theft, and travel documents pets and for minors traveling unaccompanied by parents.

- Register of Bissau-Guineans living abroad

- Refers to a right and duty of the citizen and is a prerequisite for use of all services provided by diplomatic and consular missions abroad, as well as for the exercise of important rights.

  – Recognition of academic degrees and professional titles
    - Concerns the authentication of such documents that confer validity to academic degrees or professional qualifications in the local territory.

  – Visas for travel to Guinea-Bissau
    - Refers to tourism, working or transit visas required for nationals of some countries to enter and stay in Bissau-Guinean territory.

  – Other Consular Services
    - Assistance provided for permanent relocation to Guinea-Bissau, for repatriation of remains or ashes, in case of arrest, detention or deportation. Also includes electoral and military census.

All the above-mentioned services are currently delivered only in person (at the Consular Section of the Embassy), according to internal procedures and guidelines which sometimes change due to new laws and policies.

The lack of an easily accessible platform to provide official, updated and reliable information regarding the prerequisites, cost and lead times for these services means that people often must dislocate to the Embassy for that purpose, which is inconvenient both for the public and for the administrative services, which could be more efficient otherwise.

5.1.3. Internal and external Stakeholders

According to Freeman (1984), a stakeholder is "any group or individual who can affect or is affected by the achievement of the organization's objectives". As stated by Friedman and Miles (2006), one of the purposes of any organization should be the management of the interests, needs and viewpoints of its main groups of stakeholders, which include customers, employees, local communities, shareholders, suppliers and distributors, but may also include the media, the public in general, business partners, future and past generations, academics, competitors,

NGOs, trade unions and associations, the government, regulators, policy makers, and many others.

In the case of the Embassy of Guinea-Bissau in Portugal, the main stakeholders were identified and grouped according to their common needs and interests.
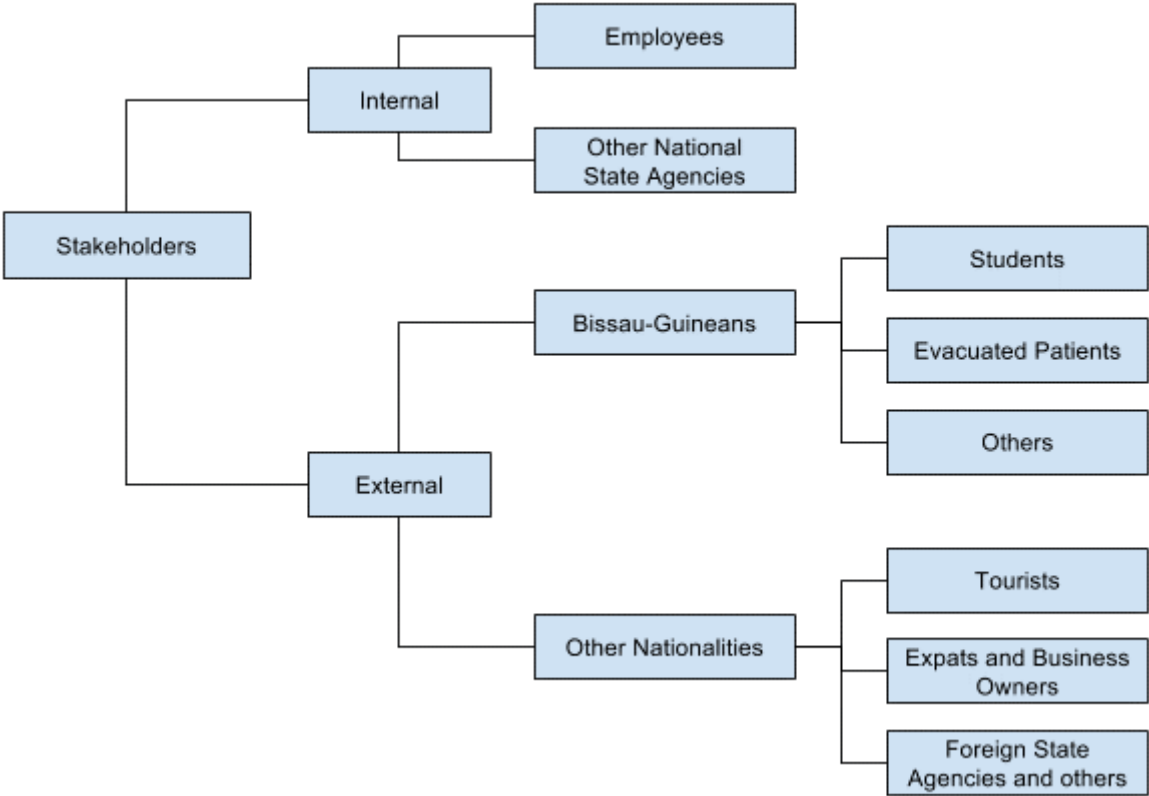
Figure 7 - Internal and external stakeholders of the Embassy of Guinea-Bissau in Portugal (own source)

The internal stakeholders comprise mainly the employees of the Embassy (which can be part of the diplomatic mission or not) and public servants from other agencies of the government of Guinea-Bissau who may interact frequently with the Embassy (such as the Ministry of Foreign Affairs).

Besides the need to consult official and updated information regarding administrative norms and processes, these stakeholders often handle different kinds of requests coming from the external stakeholders.

The external stakeholders are subcategorized in two groups: Bissau-Guineans and Other Nationalities. In turn, the Bissau-Guinean stakeholders can be aggregated in the following groups:

- Students: individuals who temporarily reside in Portugal for educational purposes, both under treaties in the education domain, scholarships or independently.

- Evacuated Patients: individuals who reside temporarily in Portugal due to health treatments. In the scope of treaties signed between Portugal and several of its former colonies in Africa (known as PALOP - Países Africanos de Língua Oficial Portuguesa) in the domain of public health, medical assistance is provided to up to 300 Bissau-Guineans a year, in Portuguese territory. In these cases, as per the normative circular Nº: 04/DCI issued by the Portuguese Direcção-Geral da Saúde in 16/04/04, the Embassy of Guinea-Bissau in Portugal is in charge of mediating the relationship with the Portuguese entities involved in the process.

- Others: includes the remaining individuals with Bissau-Guinean nationality that visit or reside in Portuguese territory (tourists and emigrants).

Although each of the above cited groups has particular needs and interests, they are all obliged to register at the local Consulate before being able to request any service (DGC, 2017). Also, at some point during their stay in Portugal, it's very likely that they will need to contact the nearest Bissau-Guinean embassy or consulate at least once to fulfil civil duties, obtain legal documents and/or seek help.

According to the DGC (2017), Bissau-Guinean emigrants may also benefit from exemptions of some customs fees and facilities for purchasing land, obtaining documents from the Central Registry in Bissau, transmits in processes of deportation and exchange of driving licenses, for example, which are all facilitated by the local embassies.

As for the external stakeholders of other nationalities, they can be aggregated in the following groups based on their common needs and interests:

- Tourists: people who visit or travel to Guinea-Bissau for leisure. According to treaties between countries, some nationalities may need to obtain a visa in order to enter the

Bissau-Guinean territory. This segment is also usually interested in cultural and tourism-related information, as well as advice for travellers.

- Expats and Business Owners: this group consists of people who are looking to invest in Guinea-Bissau or relocate there for work. They may also need a specific kind of visa for entering the Bissau-Guinean territory, and often have benefits or incentives given by the government.

- Foreign State Agencies and others: in this group, we find foreign state agencies (such as the Portuguese Ministry of Health) and other institutions (such as Universities) who may need to obtain information from or contact the embassy at some point.

5.2. Proposed solution

In order to provide the Embassies of Guinea-Bissau a one-stop shop to attend the needs of the country's emigrants and citizens of other countries who wish to travel there, the hereby presented solution and prototype were built according to the proposed conceptual framework.

Based on the literature review concerning open source CMS and considering the specificities of this case study, WordPress was the platform selected to serve as base to the portal and network of embassy websites.

The prototyped solution to deliver the embassy's online services will be achieved through the integration with Contact Form 7 and Appointments+ (WordPress plugins), Gmail and Streak (a simple and multipurpose cloud-based CRM solution that works inside Gmail).
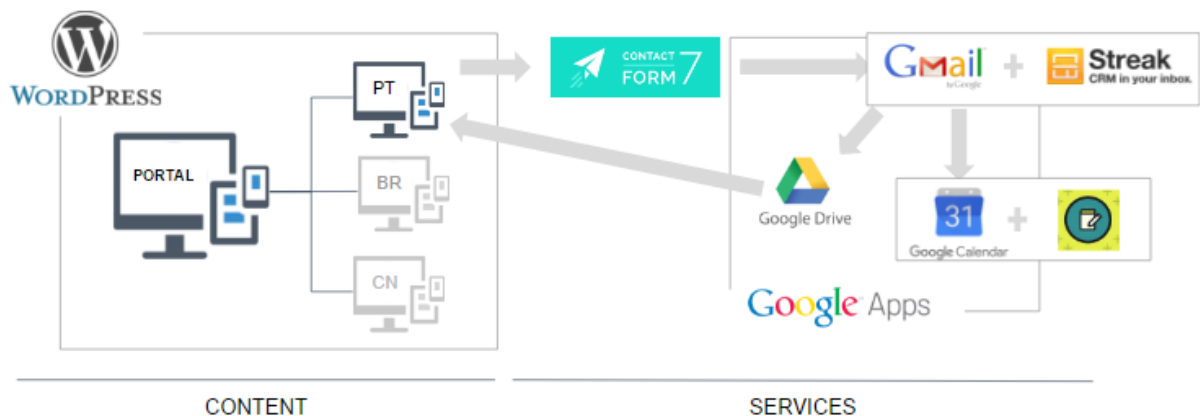
Figure 8 - High level architecture of the prototype

As illustrated on the diagram above, the portal and network of embassy websites will be built on WordPress. In order to request information and initiate other processes online, visitors will be required to fill in a form with information and attachments that will be sent to the institutional email account accessible through Gmail, where it will be converted into an action item to be managed using Streak.

Necessary appointments (such as audiences with the Ambassador) will be managed through an integration of plugin Appointments+ and Google Calendar. Attached documents (such as the ones required on visa applications) will be stored in Google Drive, which will also serve as a repository for the files and documents made available on the website. More details on the proposed solution are presented in the following subsections.

5.2.1. Content Management System

Thanks to WordPress' multisite feature, it is possible to create and manage an unlimited number of sites on a single WordPress installation. In other words, all the websites of a country's embassies and consulates can be managed in the same place. As stated previously, this represents considerable savings to the accountable public entities.

Thanks to WordPress' multi language functionality, it is possible to change the site's front-end language and characters without affecting the administration area (back-end). This is especially useful for the embassies in countries that don't use the Latin alphabet.

Figure 9 - Implemented WordPress multisite feature

Since Guinea-Bissau has 18 embassies and 2 consulates-general, the scope of this prototype

will be limited to the portal and a website for its embassy in Portugal, which thus becomes the template-base that can be used to replicate the solution in the remaining embassies.

However, in Figure 9, we can see that the network of websites can be easily increased and the websites for the embassies in Brazil and China have already been created according to the base-template.
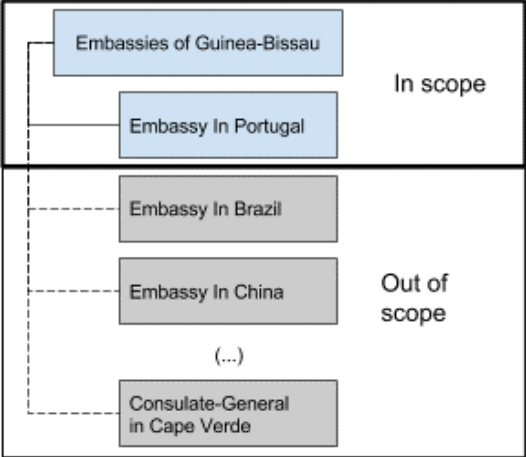
Figure 10 - Scope of the prototype

For prototyping purposes, the web domain embaixadaguinebissau.com was used for the portal, and the subdomain embaixadaguinebissau.com/Portugal was used for the website of the Embassy of Guinea-Bissau in Portugal.

Due to competitiveness of the offer at the time of implementation of this prototype, Amen.pt's WordPress pack (which includes 1 web domain, web hosting (10 GB, unlimited traffic), 5 email accounts and other features) was purchased by the author for the period of one year.

5.2.1.1. The Portal – embaixadaguinebissau.com

As previously stated, the sole purpose of the portal is to provide an overview and facilitate navigation. As such, the portal visitors will have an overview of all the diplomatic missions of Guinea-Bissau, as can be seen on Figure 11.

Upon hovering a location in the map, basic contact information will be displayed. Visitors can navigate to the to the website of an embassy or consulate-general by clicking on the corresponding country's name.

Figure 11 - Prototype of the portal: screenshot of the homepage

Thanks to a Google Translator plugin that detects the visitor's language (in case the computer's language isn't Portuguese), the content of the portal can be automatically translated to over 50 languages.

Figure 12 - The homepage of the Portal automatically translated into several languages via Google Translator

As shown on Figure 13, besides being redirected to the relevant embassy's webpage, visitors can also access a Frequently Asked Questions page where the most frequent queries are answered.

Visitors can use the floating icon to provide feedback regarding their experience in the portal. Additionally, accessibility options are available to users with disabilities, allowing them to adjust the font size, change contrast and navigate through the keyboard.
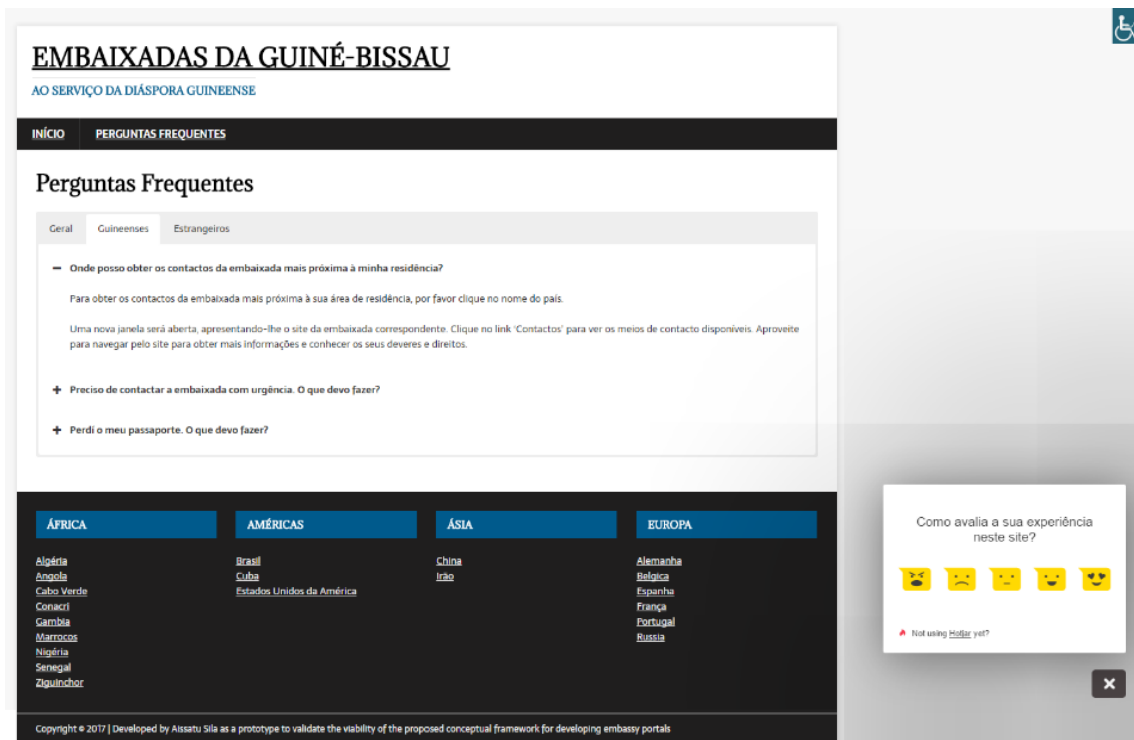
Figure 13 - Prototype of the portal: screenshot of the FAQs page displaying feedback plugin

Furthermore, the portal is fully responsive and functional on mobile browsers, allowing visitors to access to have the same experience on all screens and devices.

Figure 14 - Demonstration of the Portal in different screen sizes and devices

5.2.1.2. The website of the Embassy of Guinea-Bissau in Portugal - embaixadaguinebissau.com/portugal

Considering the proposed conceptual framework and the findings of the comparative analysis presented in chapter 3, the presented prototype of the website of the Embassy of Guinea-Bissau in Portugal was conceived to display all the highest scoring elements and functionalities.

As such, the main menu contains links to pages that allow visitors to consult information about:

- the country, its history, culture, tourism, economy, government and curiosities;

- the embassy, its jurisdiction, attributions and internal organization;

- the ambassador, his profile (or résumé) and message to the public;

- the local diaspora, civil organizations and activities of interest.

The next two items of the main menu contain links to pages that display information relevant for the two groups of external stakeholders identified. For national citizens, specific pages are dedicated to students, evacuated patients and others in general, informing them of their rights, duties, available aids and emergency contacts.

For foreign citizens, there is information available regarding tourism and leisure, investment opportunities and incentives, travel visas and advice. A frequently asked questions page is available to each group, clarifying the main doubts and providing information concerning specific foreseen situations.

The fourth item of the main menu refers to subjects related to the services provided by the embassy:

- All consular services are described in detail, including information regarding the documents and requirements for processing each.

- In the page concerning public attendance by the administrative services, information is provided concerning appointments, office hours, priority service and exceptions, among others. A subpage is available to allow visitors to schedule their attendance online, according to the embassy's availability.

- Online services are presented on page 'Balcão Digital', which has links to allow visitors to initiate the services available;

–   Official forms and document templates are also made available in advance to allow visitors to fill them in advance and save time.

–   A fee table is also presented to inform the public of the cost and processing times of several services; and

–   The most frequently asked questions about the embassy's services are also presented by category/topic.

The last item in the main menu is the contacts page, in which all the contacts of the embassy and its departments are made available, as well as emergency contacts and related information.
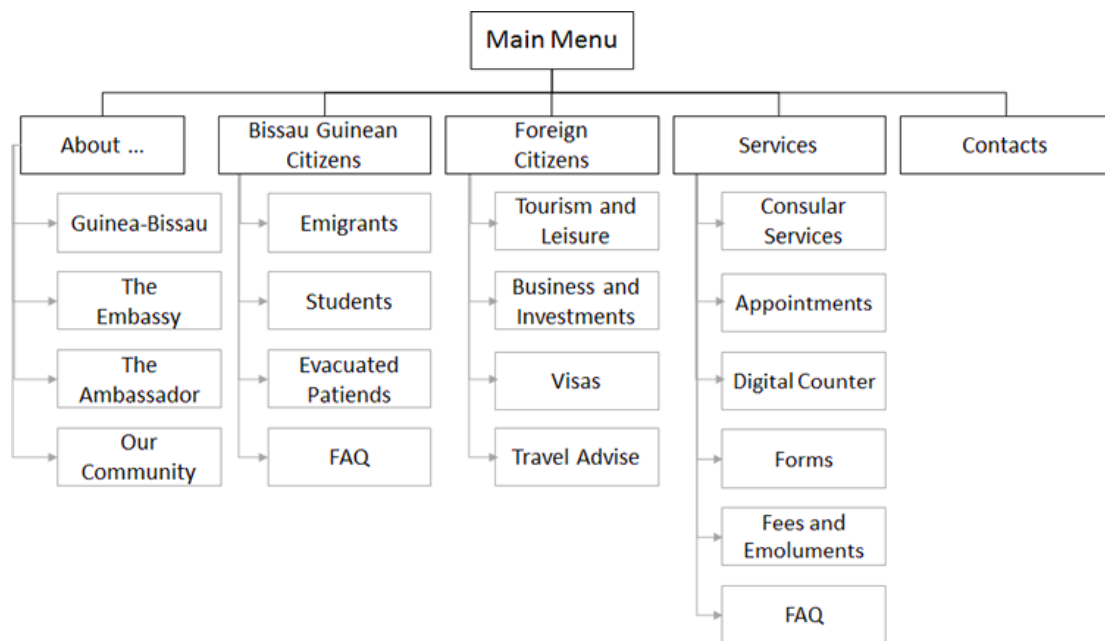
Figure 15 - Prototype of the portal: structure of main menu

On each of pages mentioned previously, a sidebar available on the right side provides the most relevant and related content to the visitor, as well as translation option, search field and social sharing icons. The content and metadata of each page is also optimized according to improve search engine optimization (SEO), according to guidelines provided by the plugin YOAST.

As for the homepage, a snippet runs below the main menu to present alerts and messages to visitors. On the left side of the page, several widgets are displayed, namely a slideshow to highlight recent and/or important content, sections for the embassy's communications and for

articles about the country's external and cooperation policies and, at the bottom, a section to inform visitors of the online services available.

On the right sidebar of the homepage users are able to perform search, translate the content to other languages and share the page using email, social media or mobile applications such as WhatsApp. The sidebar also contains a section for news and events, as well as a list of the consular services.

In the bottom of the page, the footer (which is displayed on all pages) contains four sections: a banner to advertise the portal, other relevant links, newsletter subscription, office hours and contacts. To promote the national culture, some pages (such as the ones dedicated to information for students) display artworks by different Bissau-Guinean artists.

Like in the portal, a cookie consent message is displayed on the bottom of the page with information about the site's cookie policy. The accessibility and feedback options are also displayed floating in the right side of the page, as well as a popup that allows visitors to inform in case they didn't find any information they were looking for in the site.

Considering that both the prototyped portal and site are responsive, and in order to provide a better experience to those who access them on mobile devices, the information is provided in tabs or accordion mode whenever possible to reduce the amount of scrolling (for example, the title of the FAQs are displayed while the answer is collapsed by default). The theme of the prototype was also selected with the mobile experience in mind, in order to provide a nice, modern and flexible user interface that can be adapted with the use of widgets.

Figure 12 displays a screenshot of the prototyped homepage of the website of the Embassy of Guinea-Bissau in Portugal as described above.

Full screenshots of other pages of this website can be found in the Annexes.

Figure 16 – Homepage of the prototyped website of the Embassy of Guinea-Bissau in Portugal

5.2.2. Online Services

As previously stated, the availability of online services requires significant investment in equipment, training and change management. Moreover, certain internal processes may need to be redesigned and the organization as a whole will need to adapt in order to ensure the good function of the services, so that new technologies are able to generate more productivity and efficiency, not disruption and confusion.

Considering the perceived material conditions and general computer literacy level at the Embassy of Guinea-Bissau in Portugal, this prototype presents a very simple yet effective solution based on free Google Apps (namely Gmail, Drive and Calendar) to enable the Embassy to provide or at least initiate certain services or processes online.

Although more sophisticated solutions are recommended for real world implementations (and, hopefully, for the real world implementation of this project), the scope of this prototype will focus on proving that it is possible to provide basic online services (such as requests for information) or initiate more complex processes (such as visa applications) from the Embassy's website with very little investment and impact on current administrative processes, using technologies and tools that are already known by and available to the staff.

Very simply stated, three following hypothetical processes were considered to cover the span of possible online services:

– Question to Answer (Q2A): refers mainly to requests for information, which consist in questions from any visitor of the embassy's website. The process begins with a question and ends with its satisfactory clarification by the appropriate department.

– Request to Process (R2P): concerns requests for appointments with the diplomatic mission's staff, as well as the initial stage for requests for documents, certificates and visas, among others that must be processed by the consulate. The process begins with a formal request and is completed when the requested item is processed and ready for delivery (or when the appointment is done).

– Pay to Deliver (P2D): is the final stage for some R2P processes (such as travel visas and consular registry), which require payment before delivery of the requested service. This implies verification of the original documents submitted as prerequisite.
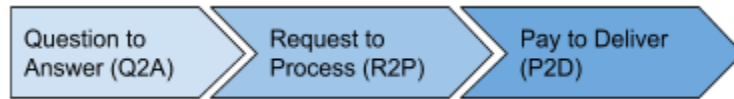
Figure 17 - Hypothetical internal processes considered in the prototype

5.2.2.1. Question to Answer (Q2A)

Currently, many individuals identified as external stakeholders must either make several attempts to call or go in person to the embassy's premises in Lisbon to obtain specific information. More than unnecessarily time consuming for them, this also contributes to the creation of a bottleneck at the administrative services.

Although the proposed website will solve great part of this problem, there are exceptions and cases in which further clarifications must be obtained. To take a step further and allow the submission of requests for information to the embassy, a form has been embedded in the website. The flow below synthesizes the process.
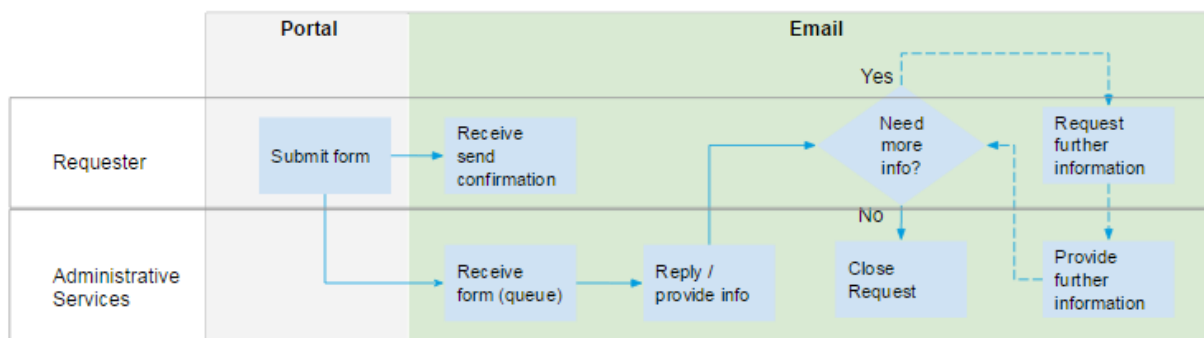
Figure 18 - Overview of the (hypothetical) Q2A process

In short, the visitor accesses the form through page "Pedido de Informação" fills it in correctly before submitting. The content of the form is sent as an email message to the embassy's mailbox and placed in a queue (or pipeline), from where the consular staff can view and answer it. Upon receiving the reply, the visitor can choose to request further information. Otherwise, the request for information is closed and archived. As with all other email messages, the history of interactions is recorded.
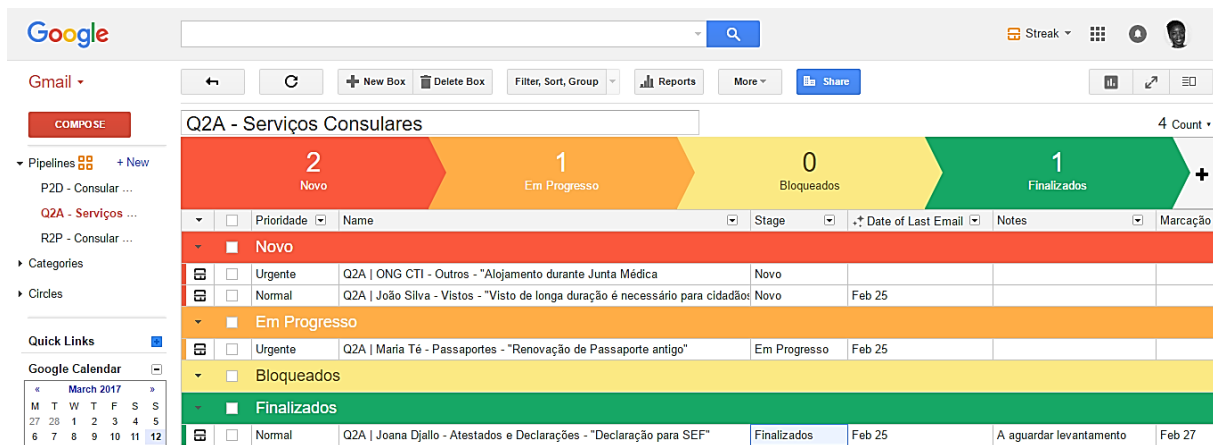
Figure 19 - Management of requests for information through Streak inside Gmail

5.2.2.2. Request to Process (R2P)

Like the previously described process, R2P also begins with the completion and submission of a form (with the required proof documents in attachment) in the website. Upon submission, the requester will also receive a confirmation message (if successful) and the request will be placed in a queue in the embassy's mailbox.

When processing the request, the consular staff may need to require further information and/or documents, and that interaction is done via email. Depending on the request, the requester may be required to attend the embassy for an interview or simply to collect the requested item. In these cases, the consular staff notifies the requester via email indicating the date and time of the appointment and including a reminder to bring the originals of the proof documents attached for verification before delivery.
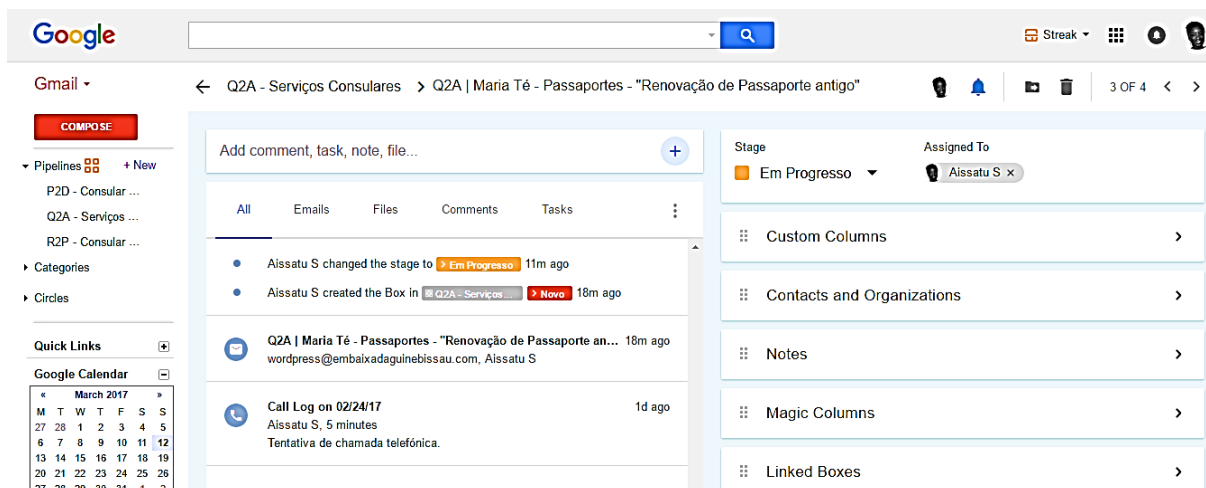
Figure 20 - View of the Streak request management page

5.2.2.3. Pay to Deliver (P2D)

As mentioned above, some requests require the payment of consular fees before completion and delivery. In such cases, the requester is notified via email of a date and time to attend the embassy to present the originals of the proof documents attached for verification and payment before delivery.
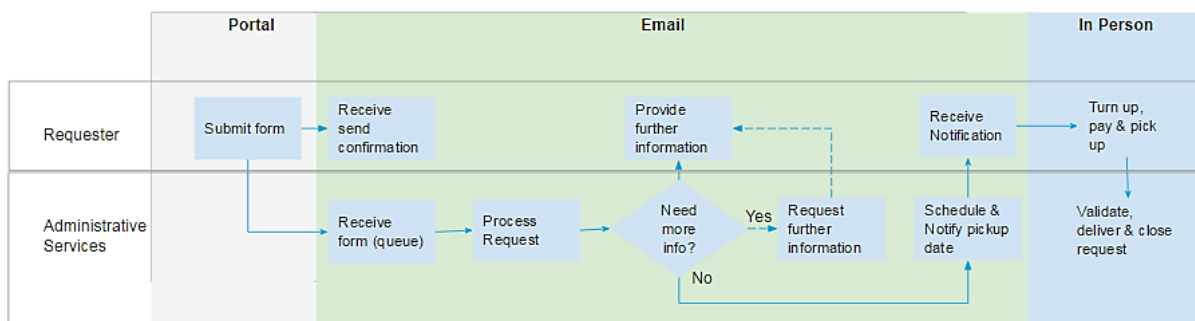
Figure 21 - Overview of the R2P and P2D processes

5.2.3. Results

Considering the criteria used in Chapter 3 for evaluating embassy websites, the total score of this prototype (GW$_{(P)}$) is 34/40, as shown in Table 3. This means that, if implemented according to the proposed framework, it would rank higher than the other embassy websites and portals

evaluated. Therefore, it is safe to affirm that this conceptual framework is feasible for embassies to implement state-of-the-art portals.

Business Context	GW(P)	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
About the embassy / ambassador													11
About the country													10
Institutional directory page / organigram													9
Content	GW(P)	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
Contact section													12
Tourism information / travel advice													11
Opening hours / holiday calendar													10
Blog / Alerts / News / Announcements													10
Social Media Links													10
Diplomacy / Foreign Policy information													10
Other useful contacts / links													9
Press releases / press room													8
Cookie Policy / Privacy Policy / Copyright													8
Visa information													8
Local Events / Job Vacancies													8
Consular / Citizen Services section													8
Multimedia (video, image gallery)													8
Emergency contacts													6
Sitemap													5
Publications / Statistics / Reports													5
Detailed service portfolio													5
FAQ Page													4
Functionalities	GW(P)	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
Multi Language (at least 2)													8
Newsletter subscription													4
Online Visa Application / service / document request													2
Survey / Poll / Feedback (suggestions, complaints or compliments)													2
Users / Stakeholders	GW(P)	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
Login area													0
Community / Forum													0
Navigation	GW(P)	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Score
Main menu													12
Search field / Filters													10
Breadcrumbs													9
Slider													7
Footer (fat footer)													5
Pagination													5
Widgets													4
Tags / Topics													2
Related Content													1
Others	GW(P)	ES	US	FR	CV	UA	RO	UK	AO	BR	GW	CN	Points
Part of an insititutional portal (ie. Ministry of Foreign Affairs)													7
Responsiveness (can be accessed from different browsers and devices)													6
Accessibility options (ie. for visually impaired)													4
Security Certificates													0
Country Score	34	28	28	25	23	23	21	21	18	16	15	12	

Code	Link	Description
AO	http://www.embaixadadeangola.pt/	Embassy of the Republic of Angola in Portugal
BR	http://lisboa.itamaraty.gov.br/pt-br/	Embassy of Brasil in Portugal
CN	http://pt.china-embassy.org/pot/	Embassy of the Popular Republic of China in Portugal
CV	http://embcv.pt/	Embassy of Cape Verde in portugal
ES	http://www.exteriores.gob.es/embajadas/lisboa/es/Paginas/inicio.aspx	Embassy of Spain in Portugal
FR	http://www.ambafrance-pt.org/	Embassy of France in Portugal
GW	http://www.embaixadaguinebissau.pt/	Embassy of Guinea-Bissau in Portugal
GW(P)	http://embaixadaguinebissau.com/portugal	Proposed Prototype	Embassy of Guinea-Bissau in Portugal
RO	http://lisabona.mae.ro/pt	Embassy of Romenia in Portugal
UA	http://portugal.mfa.gov.ua/pt	Embassy of Ukraine in Portugal
UK	https://www.gov.uk/government/world/organisations/british-embassy-lisbon	British Embassy in Lisbon
US	https://portugal.usembassy.gov/	Embassy of the United States of America in Portugal

Table 3 - Total score of the prototype as per the 40 criteria considered in the comparative analysis of embassy websites/portals

6. Conclusions and Future Work

This chapter summarizes the dissertation, points out the findings, contributions and limitations of the current work, as well as potential directions for future work.

6.1. Conclusions

The main objectives of this dissertation (as stated on page 2) have been attained:

- A conceptual framework for developing embassy portals has been successfully conceived; and
- Its feasibility has been proved through the development of a prototype using free, open source technologies.

The prototype developed shows that it is possible to develop state-of-the-art embassy portals and deliver online content and basic services using open source software or and free or low-cost infrastructure, which is especially convenient for developing countries with scarce resources for this kind of technological endeavors. It is to the embassies of such countries and to similar organizations that this work is expected to be most valuable, especially if implemented through the proposed model of shared services and governance.

As such, this dissertation will be submitted to the appreciation of the Bissau-Guinean Ministry of Foreign Affairs, International Cooperation and Communities (Ministério dos Negócios Estrangeiros, da Cooperação Internacional e das Comunidades- MNECIC) and the Embassy of Guinea-Bissau in Portugal, in the hopes that the proposed solution contributes towards the satisfaction of the needs of the Bissau-Guinean diaspora and the improvement of the quality of services provided by the country's diplomatic representations around the world.

6.2. Limitations and Future Work

In terms of limitations, a preliminary user acceptance survey has not been conducted to avoid problems related to exposing the prototype to the target audience, given that it concerns a state entity.

While this dissertation has demonstrated the feasibility of the proposed conceptual, the following opportunities for extending its scope and potentially increasing its overall quality and suitability remain to be explored in future work:

- Integration of the proposed platform with a CRM (Customer/Citizen Relationship Management) system to provide a more sophisticated solution for streamlining the processes in the service layer and ensuring better service quality.

- Integration of the proposed platform with other government applications and databases, to facilitate the obtainment and validation of citizen information, and to streamline cross-agency processes.

- Creation of a restricted, secure area to give frequent visitors the possibility to follow their requests from submission to completion, to save and finish completing forms later and to avoid retyping information every time they make a new request.

- Analysis of the feasibility of the implementation of an electronic travel visa solution for certain nationalities to promote tourism even further. By managing information, receiving payments and emitting electronic visas through an embassy's portal, not only the process becomes much easier and quicker, but the country maintains control of the flux of such entries.

- For the same reasons presented above, the analysis of the feasibility of an electronic consular registration module is also suggested.

7. Bibliography

Achenbach, J., 1996. Reality check: you can't believe everything you read, but you'd better believe this. Washington Post C, 1, pp.04-12.

Alberts, D.S. and Papp, D.S., 1997. The information age: An anthology on its impact and consequences. Office of the Assistant Secretary of Defense Washington DC Command and Control Research Program (CCRP).

Al-Mudimigh, A., Ullah, Z. and Shahzad, B., 2010. Critical success factors in implementing portal: A comparative study. Global Journal of Management and Business Research, 10(2).

Aparicio, M. and Costa, C.J., 2012, June. Macroeconomics leverage through open source. In Proceedings of the Workshop on Open Source and Design of Communication (pp. 19-24). ACM.

Barston, R.P., 2014. Modern diplomacy. Routledge.

Berners-Lee, T., Hendler, J. and Lassila, O., 2001. The semantic web. Scientific american, 284(5), pp.28-37.

Berners-Lee, T., Shadbolt, N. and Hall, W., 2006. The semantic web revisited. IEEE intelligent systems, 21(3), pp.96-101.

BuiltWith.com. 2017. CMS Usage Statistics. [ONLINE] Available at: https://trends.builtwith.com/cms. [Accessed 20 January 2017].

Burr, C. and Barrows, N., 2012. All about Open Source - An Introduction to Open Source Software for Government IT (Version 2.0)

Casson, T. and Ryan, P.S., 2006. Open standards, open source adoption in the public sector, and their relationship to Microsoft's market dominance.

Chen, P., 2007. Electronic Engagement: A guide for public sector managers. ANU E Press.

Costa, C.J., Aparicio, M. and Figueiredo, J.P., 2012. Health portal: an alternative using open source technology. International Journal of Web Portals (IJWP), 4(4), pp.1-18.

Detlor, B., 2000. The corporate portal as information infrastructure: towards a framework for portal design. International Journal of Information Management, 20(2), pp.91-101.

DGC - Direcção Geral das Comunidades - Portal da Diáspora. 2017. Home. [ONLINE] Available at: http://comunidades-gb.net/missoes-diplomatica-e-consular/. [Accessed 19 February 2017].

Draoli, M., 2014. D3.2 – Public Sector Study Version 1.0 - Cloud for Europe FP7-610650, European Union.

Drupal. 2017. About. [ONLINE] Available at: https://www.drupal.org/about. [Accessed 19 January 2017].

Eboueya, M. and Uden, L., 2007. Benefits and limitations of portals. In Encyclopedia of Portal Technologies and Applications (pp. 75-81). IGI Global.

Freeman, R.E., 2010. Strategic management: A stakeholder approach. Cambridge University Press.

Friedman, A.L. and Miles, S., 2006. Stakeholders: Theory and practice. Oxford University Press on Demand.

Gant, J.P. and Gant, D.B., 2002, January. Web portal functionality and State government E-service. In System Sciences, 2002. HICSS. Proceedings of the 35th Annual Hawaii International Conference on (pp. 1627-1636). IEEE.

Goddard, J., 1991. Networks of transactions. Times higher education supplement, 22, pp.178-201.

Gomes, J. and Domingues, L., 2014, July. The Portuguese government cloud services, deployment and management framework. In Atas da Conferência da Associação Portuguesa de Sistemas de Informação (Vol. 11).

Grossman, R.L., 2009. The case for cloud computing. IT professional, 11(2), pp.23-27.

Italy and UN, 2002. Plan of Action E-Government for Development [ONLINE] Available at:http://www.itu.int/net/wsis/docs/background/themes/egov/action_plan_it_un.doc [Accessed 21 January 2017].

Jacso, P., 2001. Portals, vortals, and mere mortals. Computers in libraries, 21(2), pp.46-48.

Jönsson, C. and Hall, M., 2003. Communication: An essential aspect of diplomacy. International Studies Perspectives, 4(2), pp.195-210.

Joomla!. 2017. About the Joomla! Project. [ONLINE] Available at: https://www.joomla.org/about-joomla/the-project.html. [Accessed 19 January 2017].

Kavanagh, P., 2004. Open source software: Implementation and management. Digital Press.

Looney, M. and Lyman, P., 2000. Portals in higher education. Educause Review, 35(4), pp.28-36.

Nandini, D., 2014. Semantic Web And Ontology-eBooks and textbooks from bookboon. com.

Neuman, J., 1996. The media's impact on international affairs, then and now. SAIS review, 16(1), pp.109-123.

Noy, N.F. and McGuinness, D.L., 2001. Ontology development 101: A guide to creating your first ontology.

Open Source Observatory by Joinup, The European Commission [ONLINE] Available at: https://opensource.org/personas/government [Accessed 02 August 2017].

O'Leary M., 2000. Vortals on the rise. Online, 24(2), pp.79-80.

Papp, D.S., Alberts, D.S. and Tuyahov, A., 1997. Historical impacts of information technologies: An overview. The Information Age: An Anthology of Its Impacts and Consequences. Washington DC: National Defense University.

Raymond, E.S., 2001. The Cathedral & the Bazaar: Musings on linux and open source by an accidental revolutionary. " O'Reilly Media, Inc.".

Remus, U., 2006, January. Critical success factors of implementing enterprise portals. In Hawaii International Conference On System Sciences (Vol. 39, p. 182). IEEE.

Seadle, M., 2006. Content management systems. Library hi tech, 24(1), pp.5-7.

SEF - Serviço de Estrangeiros e Fronteiras. 2017. Relatório de Imigração, Fronteiras e Asilo 2016. [ONLINE] Available at: http://sefstat.sef.pt/Docs/Rifa_2016.pdf. [Accessed 19 July 2017].

Stallman, R. 2009. Viewpoint: Why "open source" misses the point of free software. Commun. ACM 52, 6 (June 2009), 31-33.

Sullivan, D., 2003. Proven portals: best practices for planning, designing, and developing enterprise portals. Addison-Wesley Longman Publishing Co., Inc..

Tatnall, A. ed., 2007. Encyclopedia of portal technologies and applications. IGI Global.

W3Techs.com. 2017. Usage of content management systems for websites. [ONLINE] Available at: https://w3techs.com/technologies/overview/content_management/all. [Accessed 20 January 2017].

Webster, F., 1994. What information society?. The Information Society, 10(1), pp.1-23.

WordPress. 2017. About WordPress. [ONLINE] Available at: https://wordpress.org/about/. [Accessed 19 January 2017].

World Bank. 2017. Population, total. [ONLINE] Available at: http://data.worldbank.org/indicator/SP.POP.TOTL?locations=GW. [Accessed 12 February 2017].

8. Annexes

A. Screenshot of the webpage - Estudantes

EMBAIXADA DA GUINÉ-BISSAU EM PORTUGAL
AO SERVIÇO DA COMUNIDADE GUINEENSE EM PORTUGAL

INÍCIO SOBRE... ˅ CIDADÃOS GUINEENSES ˅ INFORMAÇÕES PARA ESTRANGEIROS ˅ SERVIÇOS ˅ CONTACTOS

Estudantes
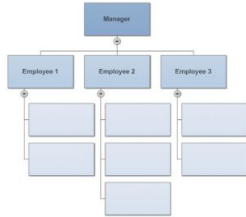
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Por Sidney Cerqueira (pintor guineense)

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Home » Início » A Comunidade Guineense em Portugal » **Estudantes**

PESQUISAR ...

ATENÇÃO!

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BALCÃO DIGITAL

Pedido de Atestados / Declarações
Pedido de Informação
Pedido de Visto
Pré-agendamento Online

SERVIÇOS CONSULARES

Bilhete de Identidade
Certidões
Certificados
Formulários
Inscrição Consular
Legalização de Documentos
Nacionalidade
Outros Documentos de Viagem
Passaporte
Procurações
Recenceamento Eleitoral
Registo Civil
Registo Criminal
Viagem de Menores
Vistos

VISITE TAMBÉM ...	SERVIÇOS ONLINE	HORÁRIO	CONTACTOS
• Portal das Embaixadas • Portal das Comunidades • Turismo na Guiné-Bissau • Guia turístico • Turismo na Guiné-Bissau	Pedido de Atestados / Declarações Pedido de Informação Pedido de Visto Pré-agendamento Online	Seg a Sex – das 09:00 às 16:00 (exepto feriados Portugueses e Guineenses) Recomendamos agendar o atendimento previamente online!	(+351) 912 345 678 Rua de Alcocena, nº 17 -A 1400-004 Lisboa Metro: Autocarros: Comboio:

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B. Screenshot of the webpage – A Comunidade Guineense em Portugal

C. Screenshot of the webpage – Sobre a Embaixada

EMBAIXADA DA GUINÉ-BISSAU EM PORTUGAL
AO SERVIÇO DA COMUNIDADE GUINEENSE EM PORTUGAL

INÍCIO SOBRE... ∨ CIDADÃOS GUINEENSES ∨ INFORMAÇÕES PARA ESTRANGEIROS ∨ SERVIÇOS ∨ CONTACTOS

A Embaixada

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Saúde	
Comércio & Indústria	
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Outros	

Home » Início » **A Embaixada**

PESQUISAR ...

TRANSLATE:

Select Language ▼

Novo Embaixador acreditado

Alterações à Junta Médica

Guiné-Bissau elimina vistos para atrair turistas portugueses

Turismo português considera Guiné-Bissau o destino de 2017

Tudo o que precisa saber sobre o novo passaporte CEDEAO

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D. Screenshot of the webpage – Sobre a Guiné-Bissau

EMBAIXADA DA GUINÉ-BISSAU EM PORTUGAL
AO SERVIÇO DA COMUNIDADE GUINEENSE EM PORTUGAL

INÍCIO   SOBRE... ⌄   CIDADÃOS GUINEENSES ⌄   INFORMAÇÕES PARA ESTRANGEIROS ⌄   SERVIÇOS ⌄   CONTACTOS

Sobre a Guiné-Bissau

Home » Início » **Sobre a Guiné-Bissau**

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Novo Embaixador acreditado

Alterações à Junta Médica

Guiné-Bissau elimina vistos para atrair turistas portugueses

Turismo português considera Guiné-Bissau o destino de 2017

Tudo o que precisa saber sobre o novo passaporte CEDEAO

História
Cultura
Turismo
Economia
Governo
Curiosidades
Estatísticas

Imagem da antiga nota de 1000 pesos (por Augusto Trigo)

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E. Screenshot of the webpage – O Embaixador

EMBAIXADA DA GUINÉ-BISSAU EM PORTUGAL
AO SERVIÇO DA COMUNIDADE GUINEENSE EM PORTUGAL

INÍCIO   SOBRE... ⌄   CIDADÃOS GUINEENSES ⌄   INFORMAÇÕES PARA ESTRANGEIROS ⌄   SERVIÇOS ⌄   CONTACTOS

Embaixador

Home » Início » **Embaixador**

PESQUISAR ...

TRANSLATE:

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LinkedIn

Novo Embaixador acreditado

Alterações à Junta Médica

Guiné-Bissau elimina vistos para atrair turistas portugueses

Turismo português considera Guiné-Bissau o destino de 2017

Tudo o que precisa saber sobre o novo passaporte CEDEAO

BALCÃO DIGITAL

Pedido de Atestados / Declarações
Pedido de Informação
Pedido de Visto
Pré-agendamento Online

CONTACTOS

Rua de Alcolena 17
1400 Lisboa
Telefone: (+351) 21 300 9080
Fax: (+351) 21 300 9080
Email: portugal@embaixadaguinebissau.com

VISITE TAMBÉM ...
- Portal das Embaixadas
- Portal das Comunidades
- Turismo na Guiné-Bissau
- Guia turístico
- Turismo na Guiné-Bissau

SERVIÇOS ONLINE
Pedido de Atestados / Declarações
Pedido de Informação
Pedido de Visto
Pré-agendamento Online

HORÁRIO
Seg a Sex – das 09:00 às 16:00
(exepto feriados
Portugueses e Guineenses)

Recomendamos agendar o atendimento previamente online!

CONTACTOS
(+351) 912 345 678
Rua de Alcocena, nº 17 –A
1400-004 Lisboa
Metro:
Autocarros:
Comboio:

Copyright © 2017 | Developed by Aissatu Sila as a prototype to validate the proposed framework for developing embassy websites.

F. Screenshot of the webpage – Conselhos aos Viajantes

G. Screenshot of the webpage – Pré-Agendamento Online

EMBAIXADA DA GUINÉ-BISSAU EM PORTUGAL
AO SERVIÇO DA COMUNIDADE GUINEENSE EM PORTUGAL

INÍCIO   SOBRE... ∨   CIDADÃOS GUINEENSES ∨   INFORMAÇÕES PARA ESTRANGEIROS ∨   SERVIÇOS ∨   CONTACTOS

Pré-agendamento Online

Curabitur maximus non orci vel tempor. Suspendisse tincidunt rhoncus sapien in venenatis. Suspendisse interdum tellus leo, sit amet elementum mi lobortis nec. Maecenas porta fringilla aliquet. Duis vitae commodo nunc. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Duis elementum lacus justo, eu volutpat ante cursus eget. Nam pulvinar volutpat ligula, eget rhoncus enim. Ut imperdiet enim in vestibulum rutrum. Duis magna libero, faucibus in tellus sit amet, vestibulum tincidunt ligula. Maecenas purus nisi, laoreet sit amet nunc id, hendrerit malesuada diam.

OUR SCHEDULE FOR MARÇO 2017

Click a free day to apply for an appointment.

S	T	Q	Q	S	S	D
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
S	T	Q	Q	S	S	D

6 Março, 2017

9:00	9:30	10:00
10:30	11:00	11:30
12:00	12:30	13:00
13:30	14:00	14:30

Free ▢   Busy ▢   Not possible ▢

Next Month »

—PLEASE CHECK THE APPOINTMENT DETAILS BELOW AND CONFIRM:—

Service name: Serviços Consulares
Date and time: 6 Março, 2017 11:30
Lasts (approx):   30 minutes
Your name: [   ]
Your email: [   ]
Your phone: 99999999

Google Calendar   ☑ Access Google Calendar and submit appointment

[Please click here to confirm this appointment] [Cancel]

Home » Balcão Digital » **Pré-agendamento Online**

PESQUISAR ...

TRANSLATE:

Select Language ▾

SERVIÇOS CONSULARES

Bilhete de Identidade
Certidões
Certificados
Formulários
Inscrição Consular
Legalização de Documentos
Nacionalidade
Outros Documentos de Viagem
Passaporte
Procurações
Recenceamento Eleitoral
Registo Civil
Registo Criminal
Viagem de Menores
Vistos

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H. Screenshot of the webpage – Pedido de Informações

I. Screenshot of the webpage – Contactos

EMBAIXADA DA GUINÉ-BISSAU EM PORTUGAL
AO SERVIÇO DA COMUNIDADE GUINEENSE EM PORTUGAL

INÍCIO | SOBRE... ˅ | CIDADÃOS GUINEENSES ˅ | INFORMAÇÕES PARA ESTRANGEIROS ˅ | SERVIÇOS ˅ | CONTACTOS

Contactos

R. Alcolena 17A
R. Alcolena 17A, Lisboa, Portugal
Direções   Guardar
Ver mapa maior

Rua Alcolena 17A

Telefone:

Fax:

Email:

Endereço

Outros contactos:

+ Serviços Consulares em Lisboa

+ Consulado no Porto

+ Secretaria

+ Gabinete do Embaixador

Atenção:

Distribuição de senhas para atendimento: das 9h00 às 12h00.
O Consulado reserva-se ao direito de interromper a distribuição de senhas antes das 12h00 quando o número de pessoas ultrapassar a capacidade de atendimento e processamento de pedidos.

Home » Contactos

TRANSLATE:

Select Language ▼

PESQUISAR ...

CONTACTOS DE EMERGÊNCIA

Contactos de Emergência

Em caso de emergência, Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse suscipit tincidunt ornare. Phasellus id luctus nisi, in maximus quam. Quisque nunc metus, pulvinar in auctor vitae, sollicitudin sed sem. Donec lobortis ligula augue, sit amet blandit velit convallis nec. In pulvinar lacinia efficitur. Quisque turpis ipsum, vestibulum vel ipsum nec, aliquam egestas diam. Curabitur ultrices, ligula sit amet aliquam ultricies, leo nisl blandit nulla, finibus commodo dolor magna a massa.

FERIADOS 2017

Feriados da Guiné-Bissau
Feriados de Portugal

VISITE TAMBÉM ...
- Portal das Embaixadas
- Portal das Comunidades
- Turismo na Guiné-Bissau
- Guia turístico
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Autocarros:
Comboio:

J. Screenshot – Mobile Experience