

ODEON – D.3.2.2 Preliminary Study to define the overall frame for the exploitation of Data in the MED Areas



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Preliminary Study to define the overall frame for the exploitation of Data in the MED Areas

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Summary

This report addresses the needs of Deliverable 3.2.2: Preliminary study to define the overall frame for the exploitation of Data in the Med areas and has been elaborated by Greek Free Open Source Software Society (GFOSS_P.P.4) as part of the Activity 3.2: Capitalization of EU and past experiences to increase the availability of OD/LOD, in order to **support the mapping and identification of all relevant topics concerning the cooperation at HUB (local-regional-national) as well as at EU/MED level for the uploading and exploitation of OD/LOD data by Public and Private entities.**

By providing the necessary input to develop the **initial structure of ODEON framework**, ODEON Project Partners (PPs) can have a valuable starting point for the implementation of the Work Package 3 (Testing).

It consists of the identification of the following:

- **Level of exploitation of OD/LOD at HUB** (local-regional-national) as well as at **EU/MED level state of the art** (indicators, qualitative-quantitative analysis, best practices)
- **Megatrends/trends identified and analysed** consistent with the OD/LOD system
- **Selection of sectors and subsector of focus/Topics linkage** (green growth-blue growth-CCI) taking into account the local/regional/national strengths and needs, as well as the area's competitive advantages (linkage with S3/RIS Strategies)

Last but not least, a **SWOT analysis** concerning the cooperation at the area level for the uploading and exploitation of OD/LOD data by Public and Private entities for the selected sectors/subsectors was elaborated in the framework of this deliverable, where Threats and Opportunities are identified and Weaknesses with Strengths are acknowledged.

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1. Introduction

ODEON's main goal is the support of the growth of Clusters and SMEs linked to Strategies for Smart Specialisation (S3) of the areas involved (focusing on Green/Blue growth and Cultural and Creative Industries) through the exploitation of Open and Linked Open Data.

A clear comprehension of the current situation, concerning the extent of the use of Open/ Open Linked Data in the countries involved, will enable the project's success.

Deliverable D.3.2.2 aims exactly at clarifying the framework that exists in each Data Hub that is about to be created, as well as identify key trends, challenges and opportunities that are expected to have an impact to ODEON implementation.

Countries with different characteristics are planned to be involved and a Data Hub will be created in each country/area involved (apart from Spain that two Data Hubs will be developed), actively participating in a Cluster of (8) eight Data Hubs. These Data Hubs will be a network of SMEs, Public Institutions, Private Sector representatives and other key players of the value chain for the exploitation of Open Data.

The eight (8) Data Hubs will be created in the following countries:

- Italy
- Slovenia
- Spain (2 Data Hubs will be developed)
- Greece
- Montenegro
- Croatia
- France

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These Data Hubs will become part of the ODEON MED DATA CLUSTER:

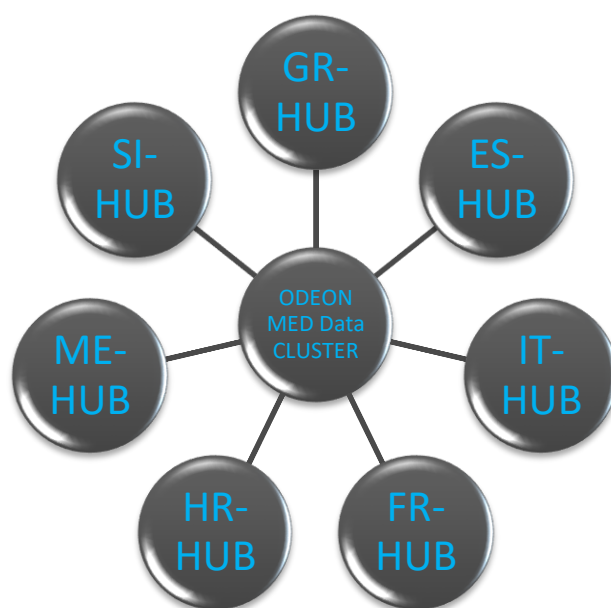


Diagram 1 ODEON Med Data Cluster

This deliverable consists of the analysis of OD/LOD level of exploitation in the areas involved and of key trends and sectors, in order to support the mapping and identification of all relevant topics concerning the cooperation at HUB (local-regional-national) as well as at EU/MED level for the uploading and exploitation of OD/LOD data by Public and Private entities.

These topics have to be connected with their S3 and the strategic MED sectors (Green Growth, Blue Growth and Cultural and Creative Industries) that fit mostly to their own characteristics. Each Data Hub to be created will define which strategic sector(s) will be targeted for the further use and exploitation of the Open Data through ODEON.

The following Hubs have been analyzed: Italy, Greece, France, Croatia, Montenegro, Spain, Slovenia.

Key words: Cluster, Med, Hub, Data Hub, Open Data, Linked Open Data, S3, Green Growth, Blue Growth, Cultural and Creative Industries

2. Exploitation of OD/ LOD in MED area state of the art

2.1 Exploitation in Med area

At first, there has to be an identification of the EU/MED level for the uploading and exploitation of OD/LOD data by Public and Private Entities. This identification will enable the creation of the necessary input to develop the initial structure of ODEON framework.

A strong indication of this level would be to examine what is the state of the art, concerning the **Open Government Data Publication**, in the countries that each Hub represents, since one of the main goals of ODEON project is the further use and publication of Open Data by the government of each country. According to the Global OD index¹, one of the most comprehensive snapshots available of the state of Open Government Data publication, six (6)² Hubs out of seven (7) Hubs are listed as followed:

| Rank | Country |
|------|------------|
| 4th | France |
| 28th | Slovenia |
| 32th | Italy |
| 35th | Greece |
| 44th | Croatia |
| 49th | Montenegro |

Table 1 Global OD index

Furthermore, taking into account the **Open Data Maturity Report 2018**³, the countries that ODEON will set up Data HUBs to (except Montenegro which is not included in the analysis) are among the **fast-trackers and trend-setters** with respect to their efforts to drive digital transformation through open data.



¹ <https://index.okfn.org/dataset/>

² Spain is not included in the Global OD Index

³ https://www.europeandataportal.eu/sites/default/files/edp_landscaping_insight_report_n4_2018.pdf

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Another indicator of the OD/LOD data use is **the openness** of the Public sector information (refers to all the information that public bodies produce, collect or pay for), sometimes also referred to, as government data and one of the main indicators, that one can look up to in order to understand a country's situation.

Here are some examples of the Public Sector Information:

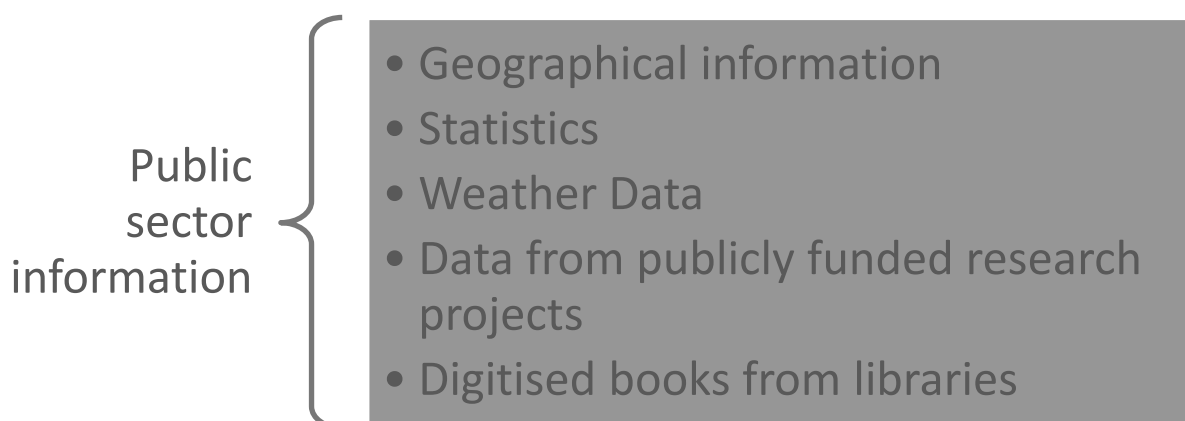


Table 2 Public Sector Information

The European Commission policies focus on generating value for the economy and society through the re-use of this type of data.

It has been calculated that the total direct economic value of PSI (Public Sector Information) is expected to increase from a baseline of EUR 52 billion in 2018 for the EU28, to EUR 194 billion⁴ in 2030 so ODEON Cluster will help the partners' countries to accelerate their economic growth.

Last but not least, the extent of the use of Open Data by the Private Sector, by the country/region that has been selected to create a Data Hub is another element that needs to be taken into consideration.

Based on the information provided by the consortium a specific analysis for each Hub follows.

⁴ <https://ec.europa.eu/digital-single-market/en/open-data>

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2.1.1 Italy

Current legislative framework

In 2011, Italy joined the Open Government Partnership and launched dati.gov.it.

Article 9 of Italian decree-law no. 179/2012, defines a legislative framework that enhances access and reuse of Public Sector Information (PSI). Italian legislation has recently introduced an “open data by default” principle: when no license is associated with the published data, the data available on public administration web portals are implicitly considered “open” for reuse.

The Agency for Digital Italy (AgID) is identified, as the Italian PSI enabler. The Agency for Digital Italy is the national centre of competence in open data, within the framework of the Digital Administration Code and of the PSI directive and in line with the Open Government policies promoted by the Italian Government.

In this context, AgID:

- manages the national open data catalogue as a reference tool for the consultation of public datasets,
- promotes policies for the valorisation of national public information assets,
- promotes open data culture, especially through online seminars which are free and open to all,
- drafts guidelines.

AgID, together with the Digital Team, pursues the strategic objectives related to the promotion of open data included in the three-year plan for information technology in public administration.

In this context, AgID publishes annually three key documents on PSI:

- an Agenda including the national policies and strategies,
- a set of Guidelines to support public administrations in the implementation of the strategies included in the Agenda and
- A report assessing the status of development of PSI in Italy with respect to the strategies defined in Agenda.

A first version of the Guidelines and the Agenda has been published in August 2013.

Within this renewed regulatory framework, Italy is experiencing a wide participation of Public Administrations and of social communities to Open Data activities.

A significant number of Open Data initiatives has been registered at different levels: (Open Parlamento, Open Coesione, Open Bilanci, Open Expo, Italia Sicura, Confiscati bene etc.).

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In May 2016 the Freedom of Information Act (FOIA) has been officially introduced in Italy, with the decree no. 97/2016. Modifications and integrations of the CAD - Codice di Amministrazione Digitale have been approved in August 2016.

On the 20th of September the National OGP Third Action Plan has been released, after the constitution of an institutional and dedicated group and the creation of the Open Government Forum.

In September 2016, the Italian Government has announced and created the Team Digitale, guided Diego Piacentini. The Digital team is helping government agencies in implementing the plan for the digital transformation of Italian Public administrations. Furthermore, the following took place: the launching of the DAF, the Data & Analytics Framework and the formation of platform developers.ita, which is a website for developers of public digital services. In December 2016 AgID published Le Linee Guida Nazionali per la Valorizzazione, including a checklist for Open Data published by the government agencies. A new version of the national catalogue dati.gov.it was released on the 8th of March 2017.

In May 2017 il Piano Triennale 2017-2019 per l'informatica nella pubblica amministrazione, defined the strategy regarding public data and its value.

According to the Open Data maturity report, Italy ranks fourth in the European ranking for the ability to enhance its Open Data and is, for the second consecutive year, confirmed as being among the trendsetter countries.

Available datasets

In the following Tables there is the number of available datasets per Types of licence and per Topic:

| Type of license | Number of Datasets |
|--|--------------------|
| Creative Commons Attribution 4.0 International CC-BY 4.0 | 12.793 |
| Italian Open Data License 2.0 | 3.552 |
| Creative Commons CC0 1.0 Universal - Public Domain Dedication CC0 1.0 | 741 |
| Creative Commons Attribution - ShareAlike 4.0 International CC-BY-SA 4.0 | 380 |
| Creative Commons Attribution 2.5 Italia CC-BY 2.5 IT | 73 |
| Italian Open Data License 1.0 | 32 |
| Creative Commons Attribuzione 3.0 Italia CC-BY 3.0 IT | 5 |
| Open Data Commons Open Database License 1.0 | 1 |

Table 3 Italy - Number of Datasets per Type of licence

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| Topic of datasets | Number of datasets |
|--|--------------------|
| Population and society | 2.193 |
| Environment | 1.929 |
| Government and public sector | 1.327 |
| Education, culture and sport | 835 |
| Economy and Finance | 763 |
| Regions and cities | 424 |
| Transportation | 349 |
| Health | 131 |
| Agriculture, fishing, forestry and food products | 117 |
| Justice, legal system and public security | 92 |
| Energy | 47 |
| Science and technology | 45 |
| International Issues | 36 |

Table 4 Italy - Number of Datasets per Topic

The Open Data Status for Veneto Region

Following the path traced by the national Digital Agenda, Italian Regions and Autonomous Provinces formally acknowledged in 2012 both Open Data as a strategic/political tool for openness and transparency of decision making and usage of public resources and the usefulness of the data held by Public Administrations for all businesses interested in developing new products and services.

A direct consequence of such acknowledgments has been the awareness that innovation in the Public Sector should not be limited, concerning the exchange of data and services among administrations: it must be evaluated and oriented also according to the impact it has, also thanks to Open Data, on the economic development of the territories served. This has caused the inclusion of Veneto Region, in the European project HOMER (Harmonising Open Data in the Mediterranean through better access and Reuse of public sector information).

HOMER was the strategic MED project that focused on the theme of Open Data, a world- wide policy aiming at making available and exploitable Public Sector Information (PSI).

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Veneto Region is, in general, one of the first Regions in Italy in terms of rates of adoption and usage of new technologies by citizens, thanks to initiatives ranging from programmes of computer literacy to dematerialization of payments, documents, administrative procedures and e-Procurement.

Veneto Region has adopted the Resolution 2301/2011 of the Regional Council, which instituted the Regional Open Data portal described in other sections of this Action Plan.

The Guidelines for the Regional Digital Agenda, issued in May 2013 and approved with the Resolution 554 of the Regional Council, confirmed among the priorities of the same Agenda promotion of E-Government and increase of transparency in the relationships between Public Administrations and citizens, also “through the usage of Open Data, defined as an approach to management of information and data owned by public institutions and entirely implemented through ICT technologies”.

Actually, the regional portal “dati.veneto.it” contained 505 datasets from 11 different Public Administrations in several open and proprietary formats (e.g. Microsoft Access or Excel), mostly released under “CC-BY” or “IODL 2.0” licenses.

The content of this portal, which is open to contributions by any administration interested in joining this effort, is automatically linked to that of the national one, “dati.gov.it”. The majority of the already published datasets, provided for the most part by regional Agencies and organizations, the Cities of Venice, Treviso, Vicenza and Roncade, the Province of Verona and the Zoo prophylactic Institute of the Venezie, belongs to the following categories:

- environment (soil, environmental pollution and hydrography)
- cartography and demography or land statistics
- services and activities of library institutions
- Economic data about consortia and investment societies (Province of Verona)

The datasets more often downloaded, are the geographic, environmental and meteorological ones, while statistics, economics and public transport data are the next most popular categories.

Veneto Region intends to pursue through this Action Plan a greater local awareness of Open Data and of their benefits, starting with the economic ones, both in terms of savings for Public Administration, and as generators of wealth and economic opportunities.

The Region aims to involve all the components of the Veneto society, from civil servant and activists to Small and Medium Enterprises and all its citizens.

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| Italy - Key Facts |
|---|
| <ul style="list-style-type: none">• Extensive Existing Legislation about Open Data Use by Public Sector• Veneto Region is one of the most adaptive Italian Regions to the New technologies era |

2.1.2 Greece

Current legislative framework

By October 2014, with the Law 4305/2014 modifying Law 3448/2006, a concrete set of provisions on open data and further use of public sector datasets- in accordance with the revised EU Directive (2013/37/EU) of the European Parliament and of the Council⁵- was promoted.

The majority of public entities fall under the scope of Law 4305/2014 such as:

1. Ministries
2. Independent Authorities
3. Regions and Municipalities and other public law entities

And specific exceptions were set to safeguard sensitive data (classified information, protection of personal information, information held by educational and research institutions). Furthermore, the scope of the Law was extended both to entities as well as to new categories of data (Independent Authorities, Libraries and Records).

With the Law 4305/2014, the “open by default” principle was established. In addition, clarifications concerning the procedures and the Open Data tools that should be used were given and the National Open Data Portal (data.gov.gr⁶) was officially established as the main repository of the data of the Greek public administration. An annual report⁷ is submitted to the Greek Parliament regarding open data policy implementation.

A strong indication of the actual extent of the use of Open Data is the number of the government institutions that have made the transition to the Open data era. According to the Greek Ministry of Interior-Administrative Reform, there has been a certain acceleration in the rate in which there is an increase of the number of the Institutions, as it is shown in the table below⁸.

⁵ <http://data.gov.gr/pages/thesmikoplaisio>

⁶ <http://data.gov.gr/>

⁷ <https://diavgeia.gov.gr/blog/wpcontent/uploads/2016/04/%CE%95%CF%84%CE%AE%CF%83%CE%B9%CE%B1-%CE%88%CE%BA%CE%B8%CE%B5%CF%83%CE%B7.pdf>

⁸ <http://www.data.gov.gr/dataset/ethsies-ek8eseis-gia-th-dia8esh-kai-peraiterw-xrhsh-twn-anoiktwn-dedomenwn>

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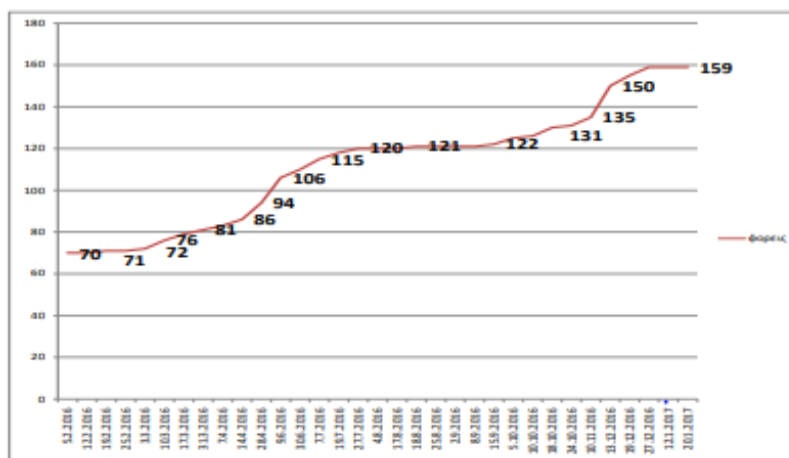


Table 5 Number of Institutions

In a Central Government oriented economy, it is usual that the Government Institutions set an example, so it should be considered very probable that the Private Sector will soon have to follow the use of Open Data.

In the following table⁹ one can have a clear view of what is the situation concerning the use of Open Data (by 2015) in several sectors and in comparison with other countries:



Table 6 The use of Open Data in Greece (2015)

⁹ https://opendatabarometer.org/data-explorer/?_year=2015&indicator=ODB&lang=en&open=GRC

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When it comes to the use of Open Data according to Open Data Barometer¹⁰ up until 2015, Greece's New Entrepreneurs had been using Open Data to a percentage of 38.48 %, but with a total positive impact of its use actually not rising above 0 out of 10, compared to a 2.17 out of 10 for the rest of the Europe and Central Asia. It is therefore obvious, that there is a large opportunity for extensive use of the Open Data for a vast variety of entrepreneurial activities.

Available datasets

Below there is a list of the Sectors that have been using Datasets with the indication of whether they are open or not:

| Sector | Is the Dataset Open? | Dataset Quality |
|---|----------------------|-----------------|
| Health Sector performance | YES | 70 |
| Crime Statistics | NO | 60 |
| Detailed Government Budget | NO | 15 |
| Company Register | NO | 5 |
| Map data | NO | 75 |
| Primary or Secondary Education Performance Data | NO | 60 |
| National Election Results | NO | 75 |
| National Environmental Statistics | NO | 15 |
| International Trade Data | NO | 15 |
| Detailed Census data | NO | 70 |
| Public Transportation Data | YES | 95 |
| Legislation | NO | 15 |
| Detailed data on Government Spend | NO | 5 |
| Public Contracts | NO | 15 |
| Ownership Data | NO | 15 |

Table 7 List of Sectors using Open Data

| Greece - Key Facts |
|---|
| <ul style="list-style-type: none">• Existing Legislation about Open Data Use by Public Sector• Attiki Region accounts for almost half of Greece's Economy, in terms of Gross Domestic Product (GDP) and could be considered as the region where the Data Hub will be created |

¹⁰ https://opendatabarometer.org/data-explorer/?_year=2015&indicator=ODB.2013.I.ECON&open=GRC

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2.1.3 France

Current legislative framework

In France there has been a law enacted in 2016 “The French Digital Republic Bill” that has created a legislative framework: every city with population over 3.500 inhabitants has to publish the data by “default”. Before that, the year 1978 is marked by 2 fundamental legal acts concerning our subject. The National Commission for Informatics and Freedom (*CNIL, Commission Nationale Informatique et Libertés*) was created by the law of January the 6th for personal data, called “*loi informatique et libertés*”. The second text, edited on July 17th of 1978, concerns the issue of administrative documents, thus public data, and it is the “Cada” (*Commission d’Accès aux documents administratifs, Access Commission to public data*) which is in charge of ensuring its good implementation.

According to Simon Chignard¹¹, French Open Data expert, the issue of personal data concerns anyone of us and the protection of these data persists as a delicate subject. Each time when we complete a form, there are some words which indicating us how to exercise our rights for the data provided. The Cnil (*Commission Nationale Informatique et Libertés*) is well known to the big public. On the contrary, the Cada, is largely unknown to french citizens.

According to the Cada Law of 1978 (art.1, Par.2), public data are information which exist on documents produced or received by a public actor within the context of a mission aimed for the public. As a public actor we define: the State, local communities (regions, departments or municipalities), and all people submitted to public or private law in charge of a mission aimed for the public. The meaning of “public document” is however so large because it can be raw data like statistics, but also studies, memos, resumes, ministerial notes and answers, instructions, plans etc.

The Cada Law makes the distinction between three laws: the usage of administrative documents (from the public actors themselves), their access and the re-usage of public data.

In addition, the same Law demonstrates two important criteria to determine the applicable rights:

Are data produced or received within the context of a public service mission?

Is the producer or holder of public data a public actor or a person (of public or private law) in charge of a public service mission?

In case of re-usage, the legal status of public data raises another question. The 1978 Law (art. 10, Par.2, b), makes a particular distinction for data produced or received during a public service mission of an industrial and commercial character (*SPIC, Service Public Industriel et Commercial*). This is the case for a big number of structures like RATP (*Régie Autonome des Transports Parisiens, local Parisian Transport Agency*), SNCF

¹¹ *Open data, comprendre l'ouverture des données publiques*, Simon Chignard FYP 2012

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(*Société Nationale Chemins de Fer National French Railways Train Society*) and the French Blood Institution (EFS, *Etablissement Français du Sang*). The documents produced or received by these institutions (during their public service missions) are subjected to access law, but excluded by re-usage law. To conclude: we can ask RATP to consult documents, which concern the closest metro station (for example the daily average passenger rate), but we do not have the right to re-use them without a specific agreement.

One other exception (Cada Law, art.11), concerns research, teaching or cultural institutions (for example, the departmental public archives). If they wish, these institutions can decide only on re-usage conditions of their public documents, similar to the case of public institutions of industrial or commercial purpose (EPIC). We can understand the meaning of this limitation: these publications are not necessarily public data. Actually, they can be protected by specific creators' rights and thus be concerned by the rules of intellectual property law.

Furthermore, each physical or moral person can plead the Cada (an independent administrative authority) in case of refuse of access or of re-usage of documents. The Commission offers a consultative opinion, which the public actor is not obliged to accept. If the refuse persists, the demanding party can address the administrative courts. In 2010, almost 5000 demands have been processed by Cada, which represents an increase of about 10 per cent comparing to the previous year. Concerning the subject, urban planning, public function (individual cases) and social affairs (e.g. medical files) represent almost half of the demands.

In the action report of 2010, Cada indicates, concerning re-usage of public data, that "[...] this possibility [...] could not cause, in previous years, a particular interest to the eventual re-users, a considerable change has happened during the last one or two years, the re-usage is nowadays the object of a notable interest". However the same report indicates that demands which concern exclusively data re-usage (and not the access in documents) represent roughly 2 per cent of cases treated. A poor percentage, but an important work: "Often unedited by administration, which always considers bad the stakes of re-usage, the demands on this field create questions especially delicate and totally new."

Available datasets

The application of Open Data in France is relatively recent. Since 2010, many communities, cultural institutions, the State (data.gouv.fr) or firms have initiated actions in order to open data, which are more or less successful. Every month new initiatives are announced.

Majorities from the left wing parties administrate most of the communities, which are already engaged in the implementation of their proper platforms. The little communities administrated by the right wing parties use mostly the government portal data.gouv.fr, for example the cities of Longjumeau, Coulommiers or Saint-Quentin.

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However, it is convenient to relativize the obvious political aspect. Also, among the 11 most populated French cities, 8 are administrated by the Left. Among those who do not yet participate in the open data movement at the end of 2011, we can also find communities managed by both the Left (Lyon, Strasbourg, Lille) and the Right (Nice and Marseille). In addition, from a geographical point of view, we observe that the cities on the Atlantic side are more advanced in this subject rather than cities on the South East or North East of France.

A study of the different initiatives allows us to measure the really big diversity of practices and the absence of homogeneity in the actions taken in a national level. They are different most importantly in:

- The volume of public data;
- The principal subjects;
- The types of re-usage put into priority (consultation, mediation-visualization, application);
- The choice in technical formats and legal licenses;
- The animation actions.

The present board presents the dominant subjects, present or absent (or little represented) in the initiatives of big cities and metropolitan areas. Because each territory defines its proper categorization, we take 9 subjects in order to facilitate comparison.

| Themes | Paris | Rennes | Nantes | Montpellier | Grand Toulouse | Bordeaux |
|--------------------------------|-------|--------|--------|-------------|----------------|----------|
| Demographics | | | | | | |
| Arts, culture, patrimony | | | | | | |
| Transports | | | | | | |
| Democratic life | | | | | | |
| Equipment and Services | | | | | | |
| Environment | | | | | | |
| Urbanism and Living | | | | | | |
| Location and Geographical info | | | | | | |
| Economy | | | | | | |

Information about this board:

Black= dominant subjects

Grey= present subjects

White= absent or little represented subjects.

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This board confirms the important place that transports occupy; it is the dominate category among these mentioned. On the contrary, we can note that economy, democratic life or demographics are little to none represented in a big number of cities and metropolitan regions with their data opened.

The number of datasets issue

Sometimes, we find on platforms information about the number of datasets available. It is one of the elements most times cited by media, when a new initiative is launched, in local or national level (like the platform data.gouv.fr). This indicator must be handled with care, because it depends on choices taken by the organization that opens the data.

Facing the same dataset – for example the list of popular names – we can make the choice to provide only one dataset which covers the first ten years, or to propose one list per year. Furthermore, with the same data source, we can account to one or ten datasets. The problematic is the sale with datasets that cover diverse geographical regions. We can propose one global dataset on a national level or propose numerous on a regional, departmental or community level. The stake here is to offer granularity at the highest possible level, without making mistakes because of the number of datasets available.

It is rare to find available information for many regions. If subjects are sometimes identical (e.g. bicycles for free use), disposition ways (APIs, legal licenses), are usually different from one city to other. This absence of homogeneity in choices and practices is related to the birth of most of these projects. They have emerged in different territories, with project teams originating from different professions (informatics, communication, innovation etc.) and from a local network of different re-users for each region.

The emergence and progressive adoption of common standards, both technical and legal, must also allow re-users (and also the big actors of on line information) to duplicate more easily their services from one zone to another.

As the open data movement is progressively being developed in France, it becomes necessary to have the means of measuring the real engagement of each actor which opens its data.

There are no unique criteria to evaluate the quality of this investment. The grading scale of 5 stars, proposed by Tim Berners-Lee is concentrated in technical and legal criteria, and promotes the establishment of linked data.

Except of a dataset analyze and their subjects, we can equally search to measure:

- The quality of the approach: the technical formats and licenses, documentation, the presence of a metadata file, the presence of an API;

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- The engagement and the sustainability: the frequency in publishing new datasets, the implementation of the already existing ones, the set of the animation systems already activated, community implication to the developers' forums, how demands by re-users are taken into consideration.

The following types of Data are published:

- Data concerning the Government budget
- National statistics
- Administrative boundaries
- Company Register and Election Results are 100% open,

While other data are partially considered as opened, government spending and land ownership are not open at all.

There have been Open Data initiatives in all of the regions, but at different levels: regional and local by different kinds of stakeholders: public, private, associative, individual.

Regarding Open Data, the following Figure 3 presents the number of OD actors in all French regions¹² (local authorities publishing data).

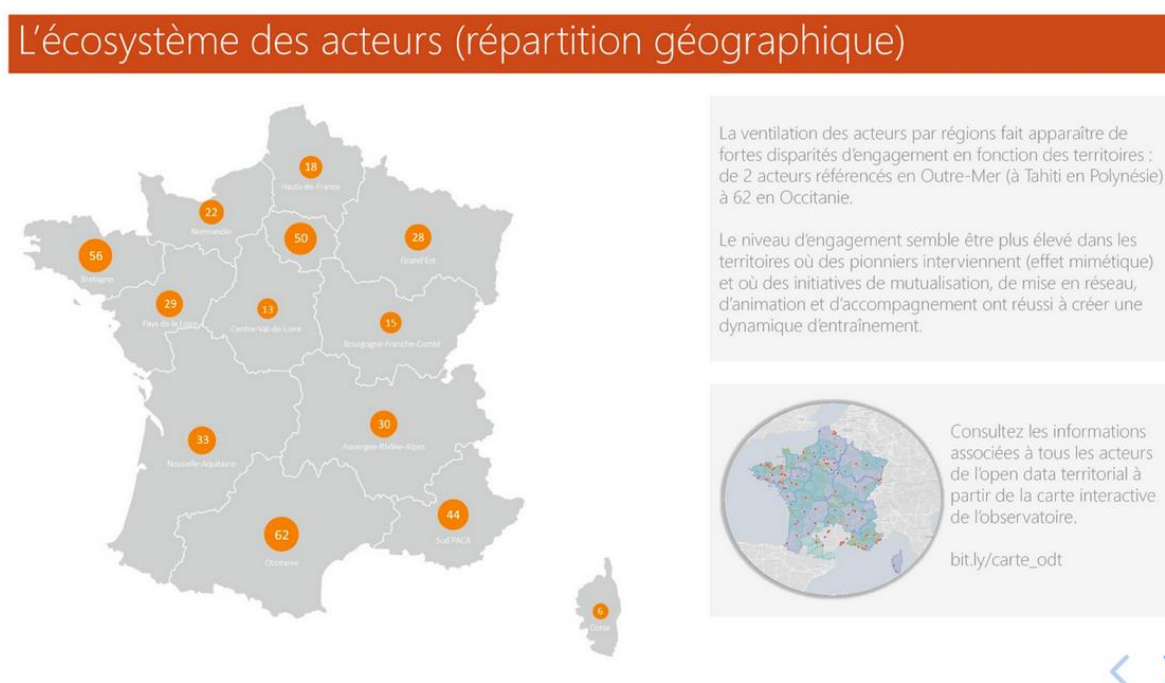


Figure 1 Ecosystem of Actors

¹² "Ecosystem of actors (geographic distribution)" - Source: <http://www.observatoire-opendata.fr/resultats/> (October 2018)

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In France, the Open Data published, at national level, concerns mainly the following sectors:

- 32% Territories including transport, infrastructure
- 28% Local administration including budget, democracy
- 17% Culture, sport and leisure activities
- 10% Research and education
- 7% Housing and urbanism

Most of the data published by the local/regional governments is related to territories and in particular to transport and infrastructure. The other economic sector concerned is the cultural and leisure sector.

Local governments are obliged to publish 3 categories of data and one of them concerns economic, social or environmental interest.

The Open Data Status for PACA Region

The Region has embarked on an ambitious process to open up public data by Deliberation No. 11-1631 of 16 December 2011.

Today, around forty structures are involved in the process and publish data on the regional Open Paca platform, which offers more than 540 data sets in free access.

The Region is also at the origin of the European HOMER project (completed in 2015). The project has made it possible to promote the opening of public data around the basin Open Paca Roadmap: "Open Data, Digital Data" 2015 - 2017 8 Mediterranean. 4 6001 data sets have been collected. They are available on the regional platform Open Paca.

An Open Paca competition was held in 2013. With 150 candidate projects, 18 winners and with an endowment of €100,000, the competition supported 11 innovative applications reuse of public data. A second edition of the competition was held in 2015.

The planned allocation is €80,000.

At the national level, the Region cooperates closely with Etalab, in particular on the issue of the reporting of open data by aggregation. The regional data sets are automatically available on the national platform Data.gouv.fr

The Region is also a founding member of the Open Data France association, which campaigns and supports local authorities in the homogeneous and harmonised development of the Open Data in France as well as for the evolution of a more incentive-based legislative framework.

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It is committed to the deployment of an open regional tourist information system and shared. This approach reinforces a strategy of support for the bases of shared data presented below in this roadmap.

Finally, the Region participates in numerous working groups and exchanges on the subject of data, such as the Fabrique des Mobilités, aimed at promoting the emergence of transport and intelligent vehicles.

| France - Key Facts |
|---|
| <ul style="list-style-type: none">Existing Legislation about Open Data Use by Public SectorPACA Region is the area with those economic and geographic characteristics that will enable the creation of the Digital Hub |

2.1.4 Croatia

Current legislative framework

By joining the Open Government Partnership initiative, the Republic of Croatia expressed willingness to support the very same principles and values to which it already committed to during the process of accession to the European Union, namely, through multiannual efforts invested in performing reform and adjustment requests in all areas of social, political and economic life, including transparency, fight against corruption, strengthening enabling environment for civil society development and using ICT for purpose of effective and innovative public services delivery.

The development of Croatia's OGP Action Plan was a truly joint effort of government bodies and civil society and involved a series of public consultations, public hearings and in-depth discussions through National OGP Council. The Council is a cross-sector body established to promote partnership approach in developing and monitoring the implementation of OGP. It is composed of representatives of central and local/regional government bodies, civil society representatives (chosen by CSOs themselves), academic community and media.

The Action Plan envisages implementation of priority measures and implementing activities, with concrete indicators for measuring the success of measures and activities undertaken in agreed deadlines. Measures and implementation activities of Action Plan are grouped in four priority areas:

1. fiscal transparency,
2. access to information,
3. use of information technologies,

Commitments whose implementation period has been completed and which have been reviewed by the OGP's Independent Reporting Mechanism:

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- Improving the Consultation Process with the Interested Public in Legislative Procedures (2014)
- Participation in Drafting the New Anti-Corruption Strategy (2014)
- Improving the Content and Transparency of Budgetary Documents: Publish and update the state budget proposal (2012)
- Improving Transparency of Business Activity of The Companies Of Special State Interest (2012)
- Making The Contents of All Budgetary Documents Understandable And Accessible To Citizens (2012)
- Improving Accessibility of Local Budget Contents to the Citizens and the Public: Give recommendations to local units to publish budget documents (2012)
- Improving the Legislative Framework for Exercising the Right of Access to Information: Amend the Act on the Right of Access to Information (2012)
- Improving the Legislative Framework for Exercising the Right of Access to Information: Harmonise Act on Data Confidentiality with Act on the Right of Access to Information (2012)
- Improving Access to Information on Expending Public Resources and Contents of Relevant Registers: Implementation of acts on political activity and cam (2012)
- Improving Access to Information on Expending Public Resources and Contents of Relevant Registers: Grants database (2012)

Available datasets

Croatia joined the Open Government Partnership initiative and has since expressed willingness to support the very same principles and values to which it already committed to during the process of accession to the European Union, namely, through multiannual efforts invested in performing reform and adjustment requests in all areas of social, political and economic life, including transparency, fight against corruption, strengthening enabling environment for civil society development and using ICT for purpose of effective and innovative public services delivery.

In 2015 government officials launched a new, open data portal called data.gov.hr, which offers in a single place all data related to public administration and is an integral part of the e-citizens project. The portal was one more step toward making public administration open and transparent and increasing the availability of services to citizens.

The first services in the e-citizens project were data from:

- voter registers
- registers of births
- marriages and deaths

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- attendance registers for parents, and
- data on citizens' primary health care physicians.

Citizens now use extensively 21 e-services, including one enabling them to see which prescription drugs they have taken in the last six months, or to obtain an e-certificate of permanent or temporary residence or vehicle ownership.

In this way, public sector institutions are encouraged to develop the best quality and most user friendly electronic services. ODEON will enable the coordination in order to furthermore utilise Open Data in the Private and the Public Sector.

| Dataset | Score |
|---------------------------|-------|
| Government Budget | 100% |
| National Statistics | 80% |
| Air Quality | 80% |
| National Maps | 60% |
| Procurement | 45% |
| National Laws | 45% |
| Administrative Boundaries | 45% |
| Draft Legislation | |
| Election Results | 45% |
| Company Register | 35% |
| Weather Forecast | 0% |
| Locations | 0% |
| Water Quality | 0% |
| Government Spending | 0% |
| Land Ownership | 0% |

Table 8 Croatia's Global Open data Index

As of late July of 2017, Croatia has entered the circle of European countries that have their own licence for the publication of open data, i.e. for the provision of information for re-use upon users' requests.

The development of Croatia's OGP Action Plan was a truly joint effort of government bodies and civil society and involved a series of public consultations, public hearings and in-depth discussions through National OGP Council. The Council is a cross-sector body established to promote partnership approach in developing and monitoring the implementation of OGP. It is composed of representatives of central and local/regional government bodies, civil society representatives (chosen by CSOs themselves), academic community and media.

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The Action Plan envisages implementation of 9 priority measures and 34 implementing activities, with concrete indicators for measuring the success of measures and activities undertaken in agreed deadlines. Measures and implementation activities of Action Plan are grouped in four priority areas: fiscal transparency, access to information, use of information technologies, citizen and civil society participation.

The Presence of an Open Data policy has slightly increased, thanks to Croatia now having a policy encouraging the use of the CC-BY license, more events are held annually and there are more regional data initiatives. The Use of Open Data has also slightly increased, with the amount of unique visitors going to the national portal each month having more than doubled, going from 1500 on average per month to 3500 per month. The Impact of Open Data has increased significantly, thanks to a steep increase in the political and social impact indicators, and an increase in the economic impact indicator.

The following are information concerning Croatian Open Data Use key numbers

- Top data set & domains:
 - a) (<https://data.gov.hr> (2015))
 - b) local and regional portals
- Open Data Barometer Rank: **#58**
- Open Data Index Rank: **#44**
- Transposition PSI Directive: **Yes**
- Five priority domains identified
- Pre-defined approach to ensure data sets are up-to-date
- More than 3 events held annually
- No national 5 year strategy
- 25-49% data uploaded automatically

The Open Data Status for a City of Zagreb

City of Zagreb (Grad Zagreb) region -open data portal contains info about:

- Addresses
- Education
- Infrastructure
- Support
- Economy
- Tourism
- Public procurement
- Finances

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- Health
- Statistics

| Croatia - Key Facts |
|--|
| <ul style="list-style-type: none">• Existing Legislation about Open Data Use by Public Sector• Growing rate of Open Data use by Public & Private Sector |

2.1.5 Montenegro

Current legislative framework

In Montenegro, apart from the new Law on the Reuse of Public Sector Information, as the basic legal act defining this area, several strategic documents of Montenegro are of particular importance in the Open Data field. Alignment of the Strategy for implementing Open Data with the current legal acts of Montenegro implies an iterative process, i.e. permanent harmonization and complementing of the Strategy and of the legal regulation. It is to be expected that certain recommendations, given in view of implementing the objectives of Strategy for Open Data are not harmonized with the valid legal acts or that they are not at all defined by the existing legal framework.

In the second quarter of 2018, the Ministry of Public Administration of Montenegro launched the Open Data Portal www.datagov.me. The portal contains the data available for limitless use together with the useful information on the data (metadata), such as what the cluster of data refers to, what is their due date, who published them and when, as well as other pieces of information which enable their easier search.

Furthermore, the Ministry of Public Administration has prepared the rules for publishing the information in the open format which include the programme guidelines for public bodies for publishing information in the open format, i.e. the use of the portal. Aside the data sets by the public administration bodies, the portal will contain the most interesting applications which will result from the use of data sets (the examples of the use of open data).

In the next period, the public bodies will be in charge of adding new data sets, as well as their adequate overtaking and usage and the portal www.data.gov.me might become the central place where the datasets of all institutions can be found, the place where the information of open data are shared, where the communication among the institutions is taking place, as well as between the institutions and the citizens.

The publishing of data in the machine readable format is an obligation prescribed by the Law on Free Access to Information, which is harmonised with the EU directive on the publishing of information in the public sector. The adoption of the Law on E-government, as well as the creation of the legal basis for

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further inclusion of state bodies and opening new sets of data which could lead to the GDP growth up to 1% and employment to 2%, as it is the case with other European countries, is of utmost importance.

As it has been already mentioned, Montenegro has been included in the global index of public open data, Open Data Barometer and has been ranked as 83rd out of 115 countries.

Available datasets

Currently, five organisations offer their open data at the portal, in total twelve data sets

| No. | Institution | Data Set | |
|-----|---|----------|---|
| 1. | Ministry of Agriculture and Rural Development | 1. | Wine producers register |
| | | 2. | Wine producers register – register of wine cellars |
| | | 3. | Organic producers register |
| 2. | Ministry of Public Administration | 1. | Register of deleted NGOs |
| | | 2. | Register of active NGOs |
| | | 3. | The catalogue of public administration bodies |
| 3. | Ministry of Justice | 1. | Register of trustees in bankruptcy |
| | | 2. | The list of lawyers who have passed the training to represent children in the procedures pertaining to the domestic law |
| | | 3. | The list of persons entitled to provide support to children in the procedures pertaining to the domestic law |
| 4. | The National Metrology Institute | 1. | The list of approved types of measurement units |
| | | 2. | The list of authorised persons for the preparation of measurement units for certification |
| 5. | Ministry of Transport and Maritime | 1. | The list of issued licences for the railway transport and railway infrastructure management |

Given the size of the country and the level of OD development at this point, the partner has selected to address the whole country applying the ODEON Data Hub activities.

| Montenegro - Key Facts |
|---|
| <ul style="list-style-type: none">• Existing Legislation about Open Data Use by Public Sector• Existing Legislation about Publishing Data in a Machine Readable Format• Growing rate of Open Data use by Public & Private Sector |

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2.1.6 Spain

Spain is considered among the top European countries best prepared to assimilate and implement open data policies with 92.2% capacity, according to the annual report of the European Public Data Portal.¹³

According to the information of the study, the most developed countries in terms of Open Data are: Spain in the first place (leads the data market from an economic point of view, both by the number of open data sources and the quality of them), followed by France, Ireland and the Netherlands.

Spain offers a big community of open data publishers and open data portals comply with certain standards. There are state portals such as <http://datos.gob.es> that serve as a full open datasets catalogue. Generally the Spanish open data catalogue offers more than 4.700 datasets that could contribute with value to ODEON in the themes previously identified.

In Spain, the Ministry of Industry and Commerce is carrying out the Aporta Project¹⁴, which aims to place Spain at the forefront of the reuse of public sector information in Europe, with the initiative Datos.gob.es, the Public Sector Information Catalog. This project is framed within the Avanza2 Plan, which faces the challenge of making the use of Information and Communication Technologies (ICT) increasingly provide benefits to citizens. In addition, the Avanza2 plan seeks to contribute to the economic recovery of the country thanks to the intensive and widespread use of ICT, promoting business development in key sectors such as digital content.

The Aporta project promotes a culture of information reuse within the scope of Administrations, raising awareness of the importance and value of this information and its subsequent reuse. It also wants to facilitate the provision of all possible information to take advantage of the information reuse market in Spain through both training and awareness actions, as well as the development of an information reuse generated by the public sector, called Guide Provides.

In 2016, Spain was identified as the reference country in open data in the public sphere by the pan-European portal European Data Portal. This favorable starting position should not lead to a self-satisfied position, since the potential to be developed is still very large, "explains the report¹⁵. And is that the opening of data has experienced an exponential growth in the last decade.

¹³ Bello.A "Datos abiertos y participación en el gobierno social" source = <https://www.mincotur.gob.es/Publicaciones/Publicacionesperiodicas/EconomiaIndustrial/RevistaEconomiaIndustrial/405/BELLO%20GARC%C3%8DA.pdf>

¹⁴ <https://datos.gob.es/es/acerca-de-la-iniciativa-aporta>

¹⁵ <https://datos.gob.es/es/noticia/espana-lider-en-madurez-open-data-de-europa-en-2016>

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Region of Aragon

Aragón Open Data is the open data portal of the Government of Aragon, whose mission is to be the catalog from which citizens and businesses can access the set of open data published by the Government of Aragon, as well as other institutions of the Aragonese territory that want to join the initiative.

Aragón Open Data is therefore a portal in which open data are displayed, in reusable formats so that they can be used by other people or companies to develop applications and services for all citizens.

In this way, Aragón Open Data is the means through which the Government of Aragón's commitment to publish its data in an open manner is materialized. This commitment of the Government of Aragon arises from the Agreement of July 17, 2012 that orders the start of the project of opening public data and has as fundamental objectives the creation of economic wealth through the reuse of information and the promotion of transparency.

However, the study also highlights the lack of homogeneity and quality of this type of data, which hinders the creation of innovative businesses. In this sense, despite the fact that the majority of services generated from Open Data are based on the use of geolocation (87%) and updating data in real time (66%), only 10% of the data published in open portals has some geographical reference and less than 1% are updated in real time.¹⁶

Legal Framework of Open Data

The principles of open data have not been included as such in the Spanish legal system. However, reading the various regulations in force allows the following principles to be identified regarding the dissemination and reuse of data that is fully applicable to open data.

In particular, the principles applicable to open data are:

- **Accessibility.** Open data must be accessible and understandable. Its use can not cause discrimination because of the medium used or because of the abilities or difficulties that the recipients have.
- **Quality.** The open data must satisfy the purposes of transparency and reuse and must also respond to the needs of the recipients, according to the characteristics that are exposed later. For this, it must be guaranteed that the data is complete, primary, timely and permanent.
- **Responsibility.** The portal through which open data are disseminated must ensure the veracity and authenticity of the information and establish mechanisms to respond in case it is not so or that the information disseminated causes harm.
- **Security.** Open data must guarantee their identity, integrity and conservation and, therefore, can not be altered by a third party.

¹⁶ <https://transparencia.aragon.es/content/open-data>

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- **Technological neutrality.** Open data should be able to be used independently of the technological options chosen by users, particularly those based on open standards. From the perspective of open data, these must be available in widely used formats and facilitate their automatic processing.
- **Efficiency.** The open data must fulfill the purposes for which they have been created, facilitating the maximum transparency and reuse, commercial or non-commercial, possible of the information that is disseminated. Therefore, as provided by Law 19/2013, of December 9, transparency, access to public information and good governance (hereinafter LTAIBG), the data disseminated will be published in a clear, structured and understandable for those interested.
- **Interoperability.** Interoperability aims to facilitate the exchange of data and its reuse.
- **Personal data protection.** Open data must respect the right to the protection of personal data. Furthermore, in order to open the data, the protection of other rights such as intellectual property, image rights and, in general, any right of honor and reputation (privacy) of natural persons must be safeguarded. It should also be borne in mind that Law 37/2007, of November 16, on the reuse of information from the public sector (hereinafter LRISP) provides for the possibility of facilitating reuse without establishing any cost and, where appropriate, that the cost be marginal. Despite the prediction of all these principles in our legal system, in practice some open data portals have not made a reading that favors the reuse of data. Indeed, as we will see in the following pages, the concretion of these principles in the portals of open data through the legal notices that they publish is more oriented to safeguard the Public Administration than the reusers.¹⁷

Laws, royal decrees and resolutions about open data:

Directive 2003/98 / CE, of November 17, 2003, relative to the reuse of information of the public sector (consolidated version on 06/27/2013).

Law 37/2007, of November 16, on reuse of public sector information.

Law 18/2015, of July 9, which modifies Law 37/2007, of November 16, on reuse of public sector information

Royal Decree 1495/2011, of October 24, which develops Law 37/2007, of November 16, on reuse of public sector information, for the public sector sector state.

Resolution of February 19, 2013, of the Secretary of State for Public Administrations, by which the Technical Standard of Interoperability of Reuse of Information Resources is approved.

¹⁷ Cerrillo. A “Los principios de los datos abiertos en la legislación española” source= <https://dialnet.unirioja.es/descarga/articulo/5582974.pdf>

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Directive 2013/37 / EU of the European Parliament and of the Council of June 26, 2013, amending Directive 2003/98 / EC on the reuse of public sector information

Available datasets

Datasets are available mainly regarding:

- Agriculture,
- Tourism,
- Environment,
- Energy
- ICT
- Smart manufacturing
- Weather.

So, a wide variety of data sources could be used and different local, regional or state points of view could be taken into account.

| Range | Open Data Publisher | Number of datasets |
|----------|--|--------------------|
| Local | Autoridad Portuaria de Ceuta | 1 |
| Local | Autoridad Portuaria de Marín y Ría de Pontevedra | 1 |
| Local | Ayuntamiento de Alcobendas | 39 |
| Local | Ayuntamiento de Arganda del Rey | 107 |
| Local | Ayuntamiento de Barcelona | 70 |
| Local | Ayuntamiento de Bilbao | 9 |
| Local | Ayuntamiento de Cáceres | 32 |
| Local | Ayuntamiento de Gijón | 171 |
| Local | Ayuntamiento de Las Palmas de Gran Canaria | 27 |
| Local | Ayuntamiento de L'Hospitalet de Llobregat | 1 |
| Local | Ayuntamiento de Lorca | 6 |
| Local | Ayuntamiento de Madrid | 65 |
| Local | Ayuntamiento de Málaga | 356 |
| Local | Ayuntamiento de Pamplona | 1 |
| Local | Ayuntamiento de Rivas-Vaciamadrid | 4 |
| Local | Ayuntamiento de Santander | 20 |
| Local | Ayuntamiento de Torrent | 71 |
| Local | Ayuntamiento de Valencia | 46 |
| Local | Ayuntamiento de Vitoria-Gasteiz | 44 |
| Local | Ayuntamiento de Zaragoza | 32 |
| Local | Mercados Centrales de Abastecimiento S.A. | 1 |
| Regional | Cabildo Insular de Tenerife | 7 |
| Regional | Comunidad Autónoma de Canarias | 8 |
| Regional | Comunidad Autónoma de Castilla-La Mancha | 89 |
| Regional | Comunidad Autónoma de País Vasco | 1253 |
| Regional | Confederación Hidrográfica del Guadalquivir | 51 |
| Regional | Confederación Hidrográfica del Júcar | 13 |

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| | | |
|-----------------|---|-----|
| Regional | Diputación Foral de Gipuzkoa | 5 |
| Regional | Diputacion Provincial de Barcelona | 36 |
| Regional | Diputación Provincial de Cádiz | 16 |
| Regional | Diputación Provincial de Castelló/Castellón | 2 |
| Regional | Generalitat Valenciana | 226 |
| Regional | Gobierno de Aragón | 502 |
| Regional | Gobierno de La Rioja | 108 |
| Regional | Instituto de Astrofísica de Canarias | 1 |
| Regional | Junta de Castilla y León | 208 |
| Regional | Región de Murcia | 1 |
| Regional | Universidad de Extremadura | 9 |
| Regional | Universidad Pablo de Olavide | 2 |
| Regional | Xunta de Galicia | 97 |
| State | Agencia Estatal Consejo Superior de Investigaciones Científicas | 16 |
| State | Agencia Estatal de Evaluación de las Políticas Públicas y la Calidad de los Servicios | 2 |
| State | Agencia Estatal de Meteorología | 11 |
| State | Biblioteca Nacional de España | 12 |
| State | Centro de Estudios y Experimentación de Obras Públicas | 1 |
| State | Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas | 5 |
| State | Centro de Investigaciones Sociológicas | 416 |
| State | Centro para el Desarrollo Tecnológico Industrial | 9 |
| State | Comisión Nacional de los Mercados y la Competencia | 14 |
| State | Entidad Estatal de Seguros Agrarios | 1 |
| State | Fondo Español de Garantía Agraria | 12 |
| State | Fundación Española para la Ciencia y la Tecnología | 15 |
| State | Fundación Lázaro Galdiano | 1 |
| State | Instituto de Mayores y Servicios Sociales | 1 |
| State | Instituto de Salud Carlos III | 3 |
| State | Instituto de Turismo de España | 5 |
| State | Instituto Geológico y Minero de España | 4 |
| State | Instituto Nacional de Estadística | 287 |
| State | Instituto Nacional de las Artes Escénicas y de la Música | 1 |
| State | Instituto Nacional de Técnica Aeroespacial Esteban Terradas | 8 |
| State | Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente | 85 |
| State | Ministerio de Asuntos Exteriores y de Cooperación | 3 |
| State | Ministerio de Economía, Industria y Competitividad | 2 |
| State | Ministerio de Educación, Cultura y Deporte | 31 |
| State | Ministerio de Energía, Turismo y Agenda Digital | 27 |
| State | Ministerio del Interior | 3 |
| State | Oficina Española de Patentes y Marcas | 19 |
| State | Puertos del Estado | 1 |
| State | Red.es | 12 |
| State | Sociedad Estatal de Participaciones Industriales | 1 |
| State | Sociedad Estatal para la Gestión de la Innovación y las Tecnologías Turísticas, S.A. | 1 |

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Although, there has been a great progress still many local and regional governments are not correctly involved in the publishing of open data.

| Spain - Key Facts |
|--|
| <ul style="list-style-type: none">• Existing Legislation about Open Data Use by Public Sector• Growing rate of Open Data use by Public & Private Sector• Region of Aragon since 2012 is committed to opening public data and has as fundamental objectives the creation of economic wealth through the reuse of information and the promotion of transparency. One of the Two Spanish Data Hubs will be established in this region.• Catalunia Region contributes 223.6 billion euros (\$262.96 billion) a year to the economy of Spain, which is around 20 percent of total gross domestic product (GDP). One of the Two Spanish Data Hubs will be established in this region. |

2.1.7 Slovenia

Current legislative framework

The EU Directive on the re-use of public sector data (2003, hereinafter referred to as the PSI Directive) provided equal basis and enabled access to all interested parties to re-use public information because they prohibited the granting of exclusive rights to use data and other activities that could prevent competition at EU level. Changes to the PSI 2013 directive went a step further, by highlighting the need for proactive opening of data by institutions and introducing a new term: Open Data.

In order to implement the amendments to the PSI Directive, the amendments to the Access to Public Information Act (hereinafter: ZDIJZ-E, which provisions were put into use on 8 May 2016) were adopted on December 8, 2016. On this basis, a new Mediation Regulation and the re-use of public information was adopted in April 2016 (hereinafter: the Regulation).

In accordance with the ZDIJZ, the authorities are primarily obliged to provide access to the public information that they have at their disposal. The essence of "access" is to make it possible to get acquainted with the content of the document. Unlike access, the essence of "re-use" is that the user cannot transfer a particular document, collection, or raw data from an easy way to the Internet, and further process, analyse, integrate it into new applications, services or products, etc. on their computer. In addition to pursuing a transparent and efficient functioning of the public sector, the latter is particularly important from the economic point of view, as open data represents an incentive for the growth of the digital economy, such as services related to the production of web applications, navigation systems, maps, weather forecasts, etc.

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The ZDIJZ-E provisions impose on public authorities not only provide public data for re-use on the basis of received requests for re-use, but also imposes proactive engagement, that is, the proactive opening of public data in the (pre-existing) way on the world wide web. ZDIJZ, after the entry into force of the novelty ZDIJZ-E, contains in the first paragraph of Article 10b an important recommendation and stipulates that the bodies obliged, wherever this does not represent an excessive and disproportionate effort (especially in the priority areas of the public sector), opened data in machine-readable formats and therefore make them available for further use to anyone for any purpose, via a post on-line (the National Open Data Portal or the Authority's own website).

National portal of Open Data Slovenia

The Ministry of Public Administration of Republic Slovenia launched National portal of Open Data Slovenia – named OPSI in December 2016. OPSI was built on the same open source software and equipment as English portal of open data DATA GOV UK, and the EU portal of open data.

OPSI represents a single national website for publishing open data of the entire public sector. Due to the specific structure of published content as well as primary orientation to the user, and as seen by reviewing approaches of other countries, it was necessary to establish a dedicated open data portal where metadata descriptions of all public sector collections and open data sets are made available.

OPSI represents a single national Internet point for the publication of open data for the entire public sector and was set up considering the EU Directive on the re-use of public sector information and legislation on access to public information (ZDIJZ).

OPSI has two functions:

First of all, it represents a central catalogue of records and databases in the country, meaning it actually serves as central inventory of metadata about all records and databases managed by state authorities, municipalities and other public sector bodies;

Secondly, it also represents a single website for publishing data from data bases in open and machine-readable formats. When a particular open format database has already been published on another site, the OPSI portal lists an online link to such a site.

In addition to the data of state bodies, the OPSI portal also includes the publication of open local community information. The portal enables anyone interested free and easy re-use of accessible data, in case they are published in the manner of "open data" for any (non-profit / profit) purpose.

Open data published on the portal is subject to the rule of "Open License" (the only condition for re-use is listing the source; CC BY 4.0).

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On the portal, all public sector bodies publish data by area of operation. The publishing system works based on the editorial system (editors, field editors, content editors). The data or collections or new products generated in the re-use process may also be published by external stakeholders or users of databases.

Collections of open data sets

Currently, 195 open data collections are published on Open Data Slovenia portal, by the following organizations:

| No. | Institution | Num. of Data Set |
|-----|--|------------------|
| 1. | STATISTICAL OFFICE OF THE REPUBLIC OF SLOVENIA | (160) |
| 2. | MINISTRY OF PUBLIC ADMINISTRATION | (10) |
| 3. | MINISTRY OF INFRASTRUCTURE | (4) |
| 4. | MINISTRY OF ENVIRONMENT AND SPATIAL PLANNING, AGENCY OF THE REPUBLIC OF SLOVENIA FOR THE ENVIRONMENT | (2) |
| 5. | MINISTRY OF CULTURE | (2) |
| 6. | MINISTRY OF EDUCATION, SCIENCE AND SPORT | (2) |
| 7. | COMMISSION FOR THE PREVENTION OF CORRUPTION | (2) |
| 8. | GOVERNMENT OF THE REPUBLIC OF SLOVENIA LEGISLATION SERVICE | (1) |
| 9. | MINISTRY OF WORK, FAMILY, SOCIAL AFFAIRS AND EQUAL OPPORTUNITIES | (1) |
| 10. | MINISTRY OF HEALTH | (1) |
| 11. | MINISTRY OF ENVIRONMENT AND SPATIAL PLANNING | (1) |
| 12. | MINISTRY OF INTERNAL AFFAIRS - INSPECTORATE OF THE REPUBLIC OF SLOVENIA FOR INTERNAL AFFAIRS | (1) |
| 13. | MINISTRY OF AGRICULTURE, FORESTRY AND FOOD | (1) |
| 14. | MINISTRY OF INFRASTRUCTURE, DIRECTORATE OF THE REPUBLIC OF SLOVENIA FOR INFRASTRUCTURE | (1) |
| 15. | MINISTRY OF FINANCE ADMINISTRATION OF THE REPUBLIC OF SLOVENIA FOR PUBLIC PAYMENTS | (1) |
| 16. | MINISTRY OF FINANCE FINANCIAL MANAGEMENT OF THE REPUBLIC OF SLOVENIA | (1) |
| 17. | MINISTRY OF FINANCE | (1) |
| 18. | INFORMATION AUTHORITY | (1) |
| 19. | GENERAL SECRETARIAT OF THE GOVERNMENT OF THE REPUBLIC OF SLOVENIA | (1) |
| 20. | STATE ELECTION COMMISSION | (1) |

The most represented areas are: Population and society (43), Education, Culture and Sports (34), Social Affairs and Employment (27), Agriculture, Fishing, Forestry and Food (18), Science and Technology (16),

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Finance and Taxation (16), Economy (14), Public Sector (13), Transport and Infrastructure (5), Environment and Spatial Planning (5), Justice, Legal system and public security (3), Health (1)

Available datasets

High value-added portal of open data is a central catalog records and databases, which contains a list of all the records and databases created in the public sector. Collections have "metadata" descriptions that allows all of this information in their work needed to be an easy and quick way to become acquainted with the contents of databases and conditions for access and re-use of data from the database.

In the following Tables there is the number of available datasets per Types of licence and per Topic:

| Topic of datasets | Number of datasets |
|--|--------------------|
| Population and society | 775 |
| Economy | 603 |
| Education, culture and sport | 555 |
| Health | 435 |
| Environment and Spatial Planning | 418 |
| Finance and Taxes | 403 |
| Agriculture, fisheries, forestry and nutrition | 390 |
| Social and employment | 333 |
| Public Sector | 261 |
| Transport and infrastructure | 165 |
| Science and Technology | 145 |
| Justice, the legal system and public safety | 109 |
| Energy | 92 |
| International Affairs | 13 |

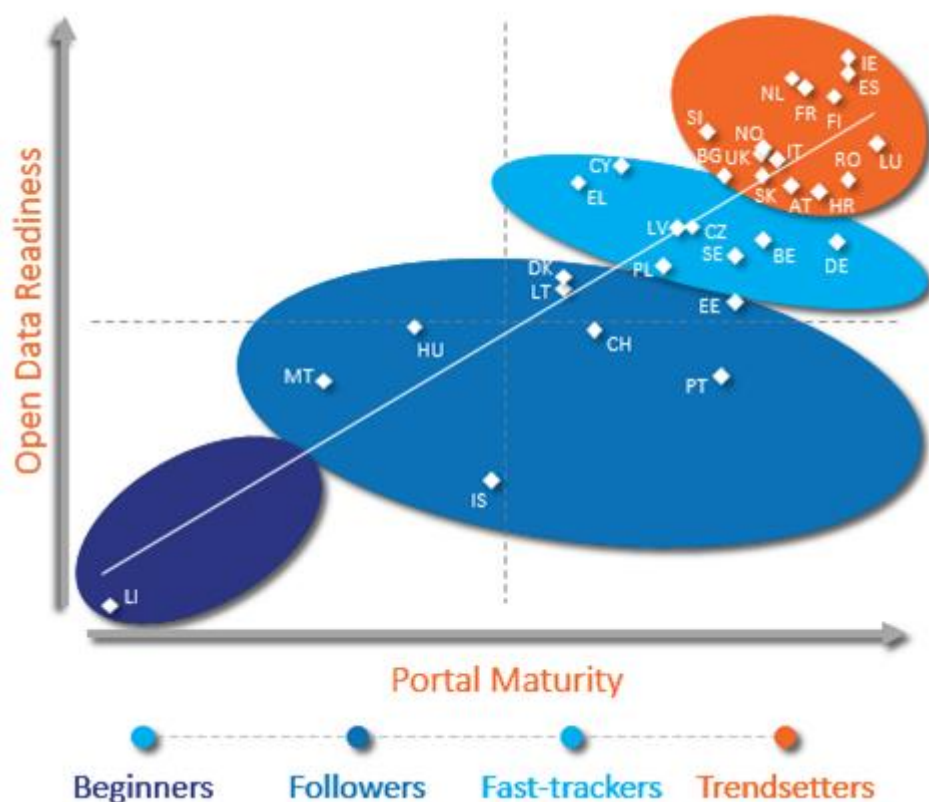
Sectors' analysis

As can be seen from the table, the Cultural and Creative area is one of the largest databases, and there are also many datasets in the field of environment and transport, the focus of green technology, smart cities and the circular economy is also indicated in the Slovenian Smart Specialization.

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Open Data Maturity Report 2017

In the Open Data Maturity Report 2017, the European Commission placed Slovenia in the field of public sector open data in the highest group ie. Trendsetters (7th place among EU countries).



To the progress on the scale contributed, that Slovenia has adopted the Public Administration Development Strategy 2020 - an appropriate normative framework and has established a National Open Data Portal (OPSI). A number of professional materials, work tools, video content (a manual for opening public sector data for public employees working with data and databases, video content: what are open data, the portal of open data of Slovenia - OPSI, video content for portal editors, etc.) was made available; numerous events were organized; and cooperation with other public sector bodies, business, non-governmental organizations, students, students, scientific institutions and other stakeholders is ongoing.

In the 2017 report, Slovenia highlighted following applications: Erar, Statistics, Public sector Salaries portal, which ensures greater efficiency and transparency of the ongoing in Slovenia. Slovenia is also one of the few European countries that has published the government materials and the data of the National Statistical Office on the Open Data Portal.

Ranking on the 7th place does not just mean praise for the work and efforts of Slovenia in the field of data opening, but also encouragement for further work and activities in the field of data opening. Therefore, we plan to upgrade the national portal with new functions and content.

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Our common goal is that Slovenia becomes an example of good practice in the field of opening public sector data and the use of open data. We want to create as many applications as possible, which will primarily be providing good service and services for citizens and businesses thus also in the long-term creating future market opportunities.

Global Open data Index

The questionnaire of Global Open data Index 2015/2016 included 115 countries, which were defined according to 15 different criteria. According to the Global Open data Index for 2015/2016 Slovenia is ranked 28th. When it comes to the region, Austria takes the same place as Slovenia, Italy is ranked on 32nd place, while Croatia (58), Bosnia and Herzegovina (100), Montenegro (83), Serbia (65), Kosovo (63), Albania (50) and Macedonia (48), are ranked lower.

The research included 115 countries, which are ranked based on the analysis of three areas: the readiness of the public administration for the initiatives related to the opening of data, implementation of open data policies and the influence which open data has on the public policies, economy and civil society.

Among other things, they included several additional questions and the level of existence and availability of data in open formats on subjects such as: the budget, public procurement, health and education sector, criminal statistics, etc.

The table below refers to 2015/2016. The research for 2017 has not included Slovenia.

| Data set | Openly licensed | In the open and machine readable format | Available for downloading | Updated | Publicly available | Free of charge | Grade |
|---------------------|-----------------|---|---------------------------|---------|--------------------|----------------|-------|
| National statistics | + | + | + | + | + | + | 100% |
| Weather Forecast | + | + | + | + | + | + | 100% |
| National maps | + | + | + | + | - | + | 85% |
| Government Budget | - | + | + | + | + | + | 80% |
| Procurement | - | + | - | + | + | + | 65% |
| Draft Legislation | + | - | - | + | + | + | 65% |
| Air Quality | - | + | - | + | + | + | 65% |
| Water Quality | - | + | - | - | + | + | 50% |

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| | | | | | | | |
|---------------------------|---|---|---|---|---|---|-----|
| National Laws | - | - | - | + | + | + | 45% |
| Land Ownership | - | - | - | + | + | + | 45% |
| Company register | - | - | - | + | - | + | 30% |
| Administrative Boundaries | - | - | - | - | - | - | 0% |
| Election Results | - | - | - | - | - | - | 0% |
| Locations | - | - | - | - | - | - | 0% |
| Government Spending | - | - | - | - | - | - | 0% |

Global Open data Index for Slovenia can be found at the following [link](#)

The Open Data Status for Slovenia as region

Slovenia as one Open Data region: To ensure cost-effectiveness, non-discrimination and the way data collection and processing data in the field of open data, Slovenia is being declared as one region which is also central management under the auspices of the Ministry of Public Administration

| Slovenia - Key Facts |
|---|
| <ul style="list-style-type: none"> • Existing Legislation about Open Data Use by Public Sector • Slovenia as an EU Trendsetter in the field of public sector open data • Slovenia as one Open Data region where an Open Data Hub will be developed |

2.2 Exploitation of OD/ LOD in MED area - Key Outputs

The so far analysis of the use of Open Data/ Linked Open Data, indicates that there has been an acceleration of the use of Open Data, mainly by the Public Sector, in the countries of the ODEON area. Nevertheless, little information has been provided by the partners, concerning the extent of the use of Linked Open Data, which might be a strong indication of a lack of an extensive use.

ODEON aims at identifying each Region's specific characteristics in order to maximize its positive economic impact, in accordance to every country's legislative framework.

There has to be a concrete and unified effort to further enable and reinforce the use of Open and Linked Open Data, and this is one of the ODEON's ambitions.

3. Geographical and economic description of the area focusing on Open Data, Innovation, Entrepreneurship and related sectors

In the following section particular information will be given in order to give an overview of the characteristics of each country. This information relates to the main aspects of the Economy that can be given a boost by the use of the ODEON Project. Terms like Innovation, Entrepreneurship, Green Growth, Blue Economy and other related sectors, are of great importance and key factors of the development of the ODEON area. For each Hub, specific Economic Sectors that fit mostly to each country's economy and its strengths will be chosen.



Figure 2 Countries where the Data Hubs will be created

ODEON area, with a population of approximately 191.000.000, is the region under consideration. The program's ten (10) partners are situated in (7) seven countries as shown in the map above. As part of the Mediterranean area, there is an extensive coastal line combined with a vast diverse mainland. Each country, bears its own characteristics which make it unique and the goal of this project is to unify all areas under the Open/Linked Open Data use and ensure that this will lead to the creation of a positive economic impact. A Data Hub can concern a whole country or a certain Region that will be appointed by the relevant partner.

In the following section countries will be analysed thoroughly, in consideration to the specific characteristics of each country.

3.1 Italy/Veneto

Veneto is one of the 20 regions of Italy and it is located in the north-eastern part of Italy and is bordered to the east by Friuli Venezia Giulia, to the south by Emilia Romagna, to the west by Lombardia and to the north by Trentino Alto Adige. At its northernmost corner it borders also on Austria.

With a surface area of 18.378 sq. km and a population of 4.905.037 people Veneto Region is the 8th largest region of Italy and the 5th most populous. Its territory is divided into 7 Provinces (Belluno, Padova, Rovigo, Treviso, Venezia, Verona, Vicenza), 581 Municipalities and 100 Districts.

Located in Italy's northeast, Veneto extends from the Dolomites to the Adriatic Sea, by way of an expansive range of hills and a valley furrowed by rivers, canals and the Po River Delta. The coasts of the

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Adriatic Sea are characterised by the Venetian Lagoon, a flat terrain with ponds, marshes and islands. The inland places are characterised by a rich entrepreneurial environment, historical cities and a very well developed economic system that put Veneto Region on the top of many ranking lists (from exports to industrial production; from innovation to research; from tourism to traditional events).

Key infrastructure of Veneto

The intercontinental airport of Venice, with over 10 million passengers and 60 thousand tons of goods, is the fourth airport in Italy and for the last 7 years it has recorded an average growth passengers of 6.1%, 3.3% more than the national average. The Venice airport forms with the airport of Treviso a single airport system that in 2017 managed a total of 13.4 million passengers, an increase of 9.2% compared to 2016.

In October 2014, SAVE entered the capital of the airport Valerio Catullo of Verona S.p.A. and manage the airports Verona and Brescia, of which today holds 40.3%. A passage that led to the establishment of the Polo Airport of the North East (Venice/Treviso / Verona/Brescia) and the revitalization of the Verona and Brescia airports. In 2017, the pole managed a total of 16.5 million passengers.

Strategically located at the top end of the Adriatic Sea, at the intersection of the main European transport corridors and of the Motorways of the Sea (MoS), the Port of Venice is in a position to act as the European gateway for trade flows to and from Asia. The Port of Venice is currently expanding its already vast internal railway infrastructure, to enhance multimodal transport.

Interporto Padova Spa is an excellent intermodal logistics centre that designs and constructs logistics, transport infrastructures and services. Interporto Padova occupies an area of more than 1 million square meters, 240,000 of which for the container terminals and 260,000 for the covered warehouses, which include 18,000 square meters of cold store. Every year there are more than 5,500 block trains that link Interporto Padova to the main Italian and north European ports.

The design of the trans-European network in the Veneto region is characterized by the presence of three corridors "Core". This characteristic makes our region, a Community level, one of the most infrastructured in terms of connections to international markets. These are in particular the following corridors:

- the "Scandinavian-Mediterranean" corridor, that connects Monaco to Palermo, with node a Verona, home of the main European interport (Interporto Quadrante Europa), specialized in intermodal logistics handling using the "speakers" technology furnishings". This infrastructure is already operational, even if full functionality will only be with the completion of the so-called "Base Tunnel of the Brenner ", subject to a recent loan of 1.18 billion from the EU with the instrument CEF;

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- the "Mediterranean" corridor, in phase of progressive completion among the Regions Veneto and Lombardy. It is already operational in Veneto railway quadruplication of the Venezia-Padova stretch;
- the "Adriatic-Baltic" corridor, whose extension of the Vienna-Udine-Venezia- Bologna-Ravenna section was possible thanks to an intense activity of coordination carried out by the Northern Regions.

Entrepreneurship

For some time, the Veneto economy has become an international model, namely the “case of the Veneto”, to refer to the particular model of economic growth that has been developed in this region of north-eastern Italy.

Since 1982, the region’s GDP has kept up a trend of uninterrupted growth achieving, from 1993 to 1999, one of the most relevant levels in the whole Europe. Region’s economy has the features of a balanced and homogeneous growth and it involves sectors such as: agriculture, manufacturing, artisan trades, commerce and services. It is also the Italian region that has succeeded in maintaining the highest employment levels, safeguarding jobs even in the recent difficult economic times.

Behind this success lie, above all, the qualities of its enterprising world - initiative and operational flexibility - and the capacity of the Veneto population for committing itself to its work with determination.

Such a background can hardly be created within a matter of a few years; it is rooted in the history of the Veneto region, and in its economic heritage, made of great business sense and ability, experience and an ongoing willingness to change.

This last aspect, in particular, takes concrete form in a remarkable ability for technological innovation, new products and processes and the definition of higher and higher quality standards, demonstrated by the constant growth in the number of Veneto firms operating under internationally acknowledged and certified quality assurance schemes.

The Veneto production system combines elements of innovation and modernization with more traditional features and values. The fundamental factors that characterize the “Veneto model” can be summarized as follows:

- small to medium-sized enterprises;
- the coexistence of traditional products with technologically advanced activities;
- internationalization of markets and organizational flexibility.

The load-bearing structure of the Veneto economy is represented by the small and medium- sized enterprises which form a widespread and capillary web of business interests all over the territory (there

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are 434,373 business units) characterized by great flexibility and remarkable speed of initiative and response to the demands expressed by the world markets.

However, although the Veneto's location does put it in a privileged position and give it a competitive edge, there are also causes for concern. These key axes, plus its strategic location for trade with Eastern Europe and southern Mediterranean countries, mean that the Veneto is being subjected to a constant increase in cross-border traffic, which puts additional pressure on a road network that is already used for short-haul intraregional mobility. Consequently, citizens have to endure a negative impact brought about the current state of the road network, which includes congestion, difficult access, accidents, plus atmosphere and noise pollution: all unpleasant features that affect the environment, health and quality of life.

If the Veneto is to make the most of its privileged location, then it must introduce mobility policies, i.e. it must complete major infrastructure, improve regional network use, improve demand management for passenger and freight mobility, and build a new relationship between territory and transport and between users and transport.

Open Data & Entrepreneurship

A 2010 study from Denmark, for example, estimated the benefits derived from the publication as Open Data of all the addresses in the country to be over 60 million Euros in the first four years. Consequently, besides the release of Open Data of more regional geodata, the Veneto Region will also promote the creation of an official, Open Data addresses database of Veneto. That database will include, for all addresses corresponding to regional public offices, healthcare structures or other Public Administrations, also their names.

Local grassroots initiatives like www.acqualta.org (real-time monitoring of “high water” in Venice) already show how it is possible, with very limited resources, to collect and publish online environmental Open Data of great general interest. For this reason the Region will promote contests for the development of similar platforms, entirely built with Open hardware, file formats and protocols, that can directly be reused for the same measurements.

Innovation

Veneto Region has implemented and is carrying out numerous actions on the territory that are part of the actions aimed at creating the backhauling network through the drafting of optical fiber, publicly owned, which will subsequently be made available to all telecommunications Operators to develop or create your own access network.

These interventions have been located in the so-called market failure areas, ie areas in which TLC operators do not consider it profitable to intervene.

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To date, the regional plan includes a total of 398 interventions in 250 Municipalities in the Veneto region, for a total investment of over € 50 million using various sources of financing. Veneto Region will carry out these interventions in collaboration with the Ministry of Economic Development.

Services sectors in Veneto

The most stimulating notes from the point of view of the dynamics of expansion of the regional entrepreneurial base come from services (+ 1.2% annual). Services to companies show the balance highest sectoral value in absolute value (+999 units compared to 2016). The contribution of the segment of social and personal services is relevant, that grows of 483 units, equal to an increase of 1.8%. The performance of the tourism sector is also good (catering and accommodation services) which records an annual increase in the stock of companies by one point percentage. Instead, they register negative dynamics real estate activities (-0.3%) and the logistics sector (-0.7%).

In Veneto there are n. 1.339 companies that use exclusively Internet in order to sell their products, mainly located in the province of Padua, Verona and Vicenza. From a survey of the Alkemy Observatory the Veneto is one of the first regions, together with Lombardy and Lazio, for the number of online product orders. On average, over 30 online purchases are made every 100 inhabitants with the following distribution among the provinces: in Belluno is the first one with 39.1 orders for every 100 inhabitants, follow Padova with 37.7, Verona with 37.5, Rovigo with 37.1, Vicenza with 35.6, Venice with 32, 6 and Treviso closes with 30.8.

The tourism sector

The Veneto region takes top marks for its tourist industry, too: with 19.2 million arrivals and 69.2 million days of attendance in 2017, it holds the national record for this sector with an increase over the previous year of 7,4% and 5,8% respectively. In Veneto there are n. 2.985 hotel facilities and n. 315 museums.

These results derive from the completeness of the offer in a territory that is crossed in 3-4 hours by car: city of extraordinary beauty, beyond 100 Km of beaches, magnificent mountains, parks natural, Lake Garda and thermal systems, all enriched by excellent food and wine and the ability to invest in quality, enhancing the offer with always innovative proposals.

The tourism represents an important sector for the Veneto economy, both for the directly produced wealth that for the economy induced upstream and downstream of the activity tourism: the approximately 17 billion euro produced by the sector's long chain in 2017 - up 6% compared to the previous year - represent more than 10% of regional GDP.

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Indications of the benefits of Open Data use/ Examples

In Italy, the Open Data 500 Italia Study was launched as a follow up to the Open Data 200 initiative. The study is actually the first systematic study on Italian companies that use Open Data to create products and services and generate social and economic value. The project is developed by GovLab - New York University in collaboration with Fondazione Bruno Kessler, an Italian research institute based in Trento. The Open Data 500 Italia website presents the results of the analysis and detailed information on the companies involved. The results of Open Data 500 Italy contribute to improving the matching between the supply and the demand of Open Data in Italy, and helps towards the formulation and improvement of national policies in the Open Data field.

For example, the use of Open data concerning geospatial, health, environment and climate offered the companies the possibility to have access to information in the sector of agriculture.

Open CUP is also one of the best practices in Italy reported in the fourth Open Data Maturity Report 2018. It presents data on investment decisions, related to almost 800,000 projects and makes data available to citizens, institutions and other organizations data, in open format, on public investment decisions financed with national, EU or regional public funds or with private resources, registered with the Unique Project Code.

It also enables downloading data on public investment decisions, making searches and having easy access to maps and infographics, selecting projects by sector, cost and territory.

This initiative is funded under the PON Governance and Institutional Capacity to respond to the need for effectiveness and efficiency in the implementation of development policies and public investment through "open government" actions.

Use of Big data

According to the Big Data Analytics & Business Intelligence Observatory of the Politecnico di Milano, in 2017 the investments of the analytics companies have reached a total value of 1.1 billion euros and although the role of large enterprises predominates, the SMEs determine 13% of the total market investment, recording an increase of 18% in comparison with the previous year (Source: Big Data Analytics Observatory & Business Intelligence of the School of Management).

3.2 Greece/Attica

Greece with a population of approximately 11.000.000¹⁸ people is the country under consideration. Greece is well known for its extensive coastal waterways and its geographic location that have traditionally served as a gateway to the central Balkans and the Middle East as well as a passage to the Black Sea.

In Greece's case, Attiki is the region that is considered representative of Greece's economic characteristics and strengths.

Entrepreneurship

The structure of the Greek economy is made of mostly small and family-owned businesses while Greece has one of the highest scores of established entrepreneurship amongst the EU innovation economies (12.8% in 2014)¹⁹. These established entrepreneurs in Greece do not seem to behave differently from entrepreneurs in other innovation countries in terms of the technology used. Therefore, access to latest technologies has not deteriorated during the latest period of crisis. Despite the difficulties that Greek entrepreneurs face, they continue to keep up with international technological advancements.

Among EU states, SMEs play the most important economic role in 2016 in Cyprus and Greece (more than 80 % of total employment) and Malta (more than 80 % of value added).

This is very hopeful concerning the adaptation of the Open Data use.

Services Sector / Tourism in Greece

The continuous rise of Tourism is a strong indication of the power generated by the Services Sector.

Open Data & Entrepreneurship

Whenever Open Data use has been performed, for example in Public Transportation Sector the results concerning the acceptance exceed 90% which is a strong indication of the impact Open Data can exhibit. So people are already have a sense of the ways Opens Data can make their life better and that should be a strong indication of what could happen if other Sectors also develop this kind of strategy. Therefore it will certainly become a facilitator for the further improvement of the conditions of entrepreneurship is considered which is critical for Greece's economic recovery.

The use of the internet by enterprises especially benefits SMEs, who often face difficulties in making themselves visible online, and to the economy as a whole. European platforms have already become a driver for growth and jobs. The market power of platforms can also be disruptive, undermining the

¹⁸ <http://www.statistics.gr>

¹⁹ http://iobe.gr/docs/research/en/RES_02_18022016_SUM_ENG.pdf

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transparency and fairness that are needed in the Single Market. As platforms generate and control enormous amounts of data, this raises questions about how this data should be handled. Open data can provide the solution that is needed to all this kind of problems.

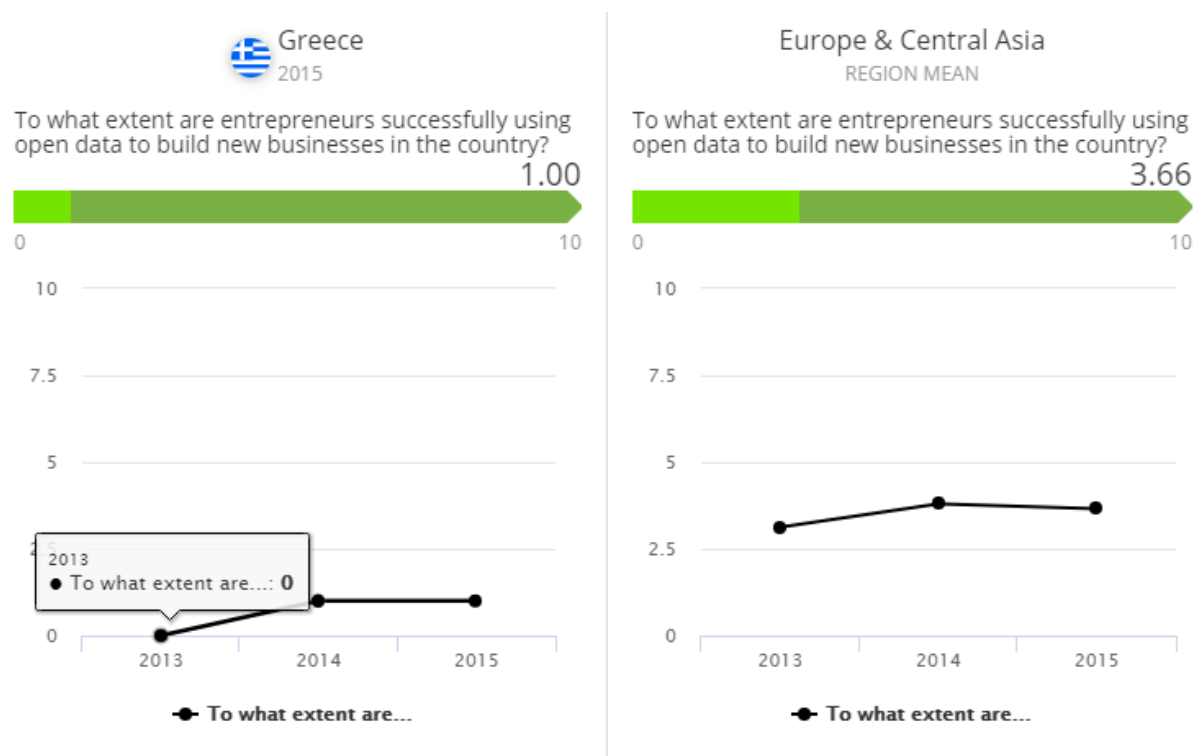


Figure 3 Extent of use of Open data

As it shown clearly in the above Figure there is a great room for improvement and it will certainly help boosting the economy and especially the entrepreneurship.

Innovation

Greece has been showing slow but clear development in research, technology development and innovation (RTDI).

Greece's framework conditions for innovation are still far from favourable as indicated by the lack of venture capital and the low Ease of Entrepreneurship Index, compared to the OECD median and the further implementation of Open Data Use will give the economy the boost needed.

Indications of the benefits of Open Data use/ Examples

The extension of Open Data could be used to give the consumer the sense of safety and to boost competition to his favour.

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The existence of the Diavgeia²⁰ program- an open data system that has already made a deep impact in the State-citizen relationship, is considered a tool against corruption and a provider of transparency on public spending and public administration activity in general.

It has been already considered a Best practice case (Best Practice at the 6th European Quality Conference, European Public Administration Network (EUPAN), "Doing the right things right - Towards a more result-oriented public sector in Europe") and it has also been acknowledged as one by the OGP - Open Government Partnership.

Use of Big data

When it comes to the 10% of SMEs and 25% of large enterprises report using some type of big data sources, showing that data driven business models are becoming a reality accessible to every entrepreneur. The most common in large enterprises are those coming from own internal processes and sectors like telecom, electricity, gas, water are in the lead. But data coming from geolocation and social media are more important and more often exploited by SMEs.

²⁰ <https://diavgeia.gov.gr/>

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3.3 France/PACA

General information and Key infrastructure of PACA²¹

PACA Region, due to the economic characteristics will be the region where the Data Hub will be created. It is a region of 4,96 million inhabitants, representing 7,8% of the French population and the 3rd French region concerning the area that it covers.

There are four (4) large, mainly urban, areas:

- Aix-Marseille,
- Nice,
- Toulon
- Avignon

And a large number of enterprises 445.381 of which nearly 70% are with no employee which is an indication of the status of Entrepreneurship in the area.

The regional income per capita is close to the French national average. Income inequality however is higher than in other regions: the region is ranked 4th by percent of population living above the poverty line. The region is ranked third by GDP. Between 2007 and 2011, the region registered an average annual growth rate of 1.6% of GDP (Eurostat), close to the national average annual growth rate of 1.5%. Representing 7.2% of the national GDP over the period, the region is an important economic powerhouse. In 2013, the region was responsible for 7.4% of national employment, with an employment rate of 89.2%. The region's employment success has a main characteristic: a higher concentration of elderly people than in the rest of France (respectively 27.1% and 24.1% in 2013).

With more than 80% of regional employment in the service sector in 2010, the regional economy is mostly oriented towards service activities, above the national average of 76.3%. The sector grew between 2000 and 2010 (3.1% on annual average vs. 2.1% in France). The region concentrates more on commercial activities than financial ones than the rest of France does; principally because of tourism. 34% of the labour force is employed in retail and trade, against 32% at the national level. Moreover, the sector strongly contributes to growth of added value (81.5% vs. 77.3% at the national level). The industrial sector (existing mainly through the Marseille-Fos Port), including construction, consists of 17.1% of regional employment (vs. 20.6% in the rest of France), and contributes to 9.3% of gross added value, 3.2 points below the French level.

Employment in the agricultural sector is lower than the national level (2.4% against 3.1%). However, it grew at a rate of 4.1% annually on average between 2000 and 2008, while the rest of the country saw its

²¹ Wikipedia 2:06 pm 20/03/2019, https://en.wikipedia.org/wiki/Provence-Alpes-C%C3%B4te_d%27Azur#Economy

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agricultural employment decline by 2.4%. According to the Institut national de la statistique et des études économiques, the region is characterised by a strong presence of SMEs of less than 500 employees, which represent 91.2% of local businesses (higher than the national average of 90.9%). Retail activities and tourism explain these figures.

The region's economy is dependent on tourism like most coastal places but also a majority of its economy is dependent on coastal activities. PACA is the 3rd richest French region and ranks 19th on the European scale. Its prosperity is mainly thanks to its attractiveness in terms of tourism; it is indeed one of the world's favourite tourist destinations, welcoming about 34 million tourists every year. The service sector predominates and provides a good many jobs. In 2009, the region was admittedly affected by the global economic crisis, albeit to a small extent. It is (after the Paris area) the 2nd French region with regards to business startups.

If tourism is the driving force of Provence-Alpes-Côte d'Azur, the region is also a leader when it comes to innovative sectors, such as high technology, biotechnology, and microelectronics. Education, for its part, is well developed with the region's various universities, international schools, preparatory classes for specialist university courses, and engineering and business schools. All these institutions of higher learning help contribute to the human capital needed by the region to meet current technological challenges.

The region has a total GDP (2012) of €142.4 billion, the third highest in France. It has a per capita GDP of €28,861, slightly higher than the French average. According to a recent survey, a person living in Provence-Alpes-Côte d'Azur has an average annual income of about €37,489.

PACA has two of the busiest airports in France: Nice Côte d'Azur Airport (ranking 3rd after Charles de Gaulle Airport and Orly Airport) and Marseille Provence Airport (ranking 5th after Lyon–Saint-Exupéry Airport). Nice saw 12,427,511 people travelling through its airport in 2016, while 8,478,541 used Marseille to fly.

Minor airports include Montpellier–Méditerranée Airport (1,671,545 passengers in 2016) and Toulon–Hyères Airport (500,046). The region is at the centre of a complex and dense motorway network, in the heart of mediterranean coast. Motorways are operated by ASF, ESCOTA, SMTC, MPM (Marseille Metropolis) and DIR Med (State). In PACA, motorways have the particularity to serve the city centres of big towns, unlike other big cities of France. This is due to their comparatively early construction in relation to the motorways of France's other regions. The region is served by 13 high-speed trains stations and one more in the Principality of Monaco. Two stations are situated on the HSL LGV Méditerranée opened in 2001: Avignon TGV and Aix-en-Provence TGV. The others stations served by high-speed services are Avignon-Centre, Arles, Miramas, Marseille-Saint-Charles, Toulon, Les Arcs-Draguignan, Saint-Raphaël-Valescure, Cannes, Antibes, Nice-Ville and Menton.

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Entrepreneurship

What about employment evolution in Provence-Alpes-Côte d’Azur? Like in 2012, employment in 2017 concentrates most of its regional payrolls in the service sector and it comprises in total 2.06 million people against 1.75 million five years ago. An increase that, unfortunately, is also underlined in the number of job seekers: they were 293.441 enlisted in 2011 against 327.760 in 2017. However, the unemployment percentage has fallen down: from 11.4 per cent in 2012, it has passed to 10.3 per cent at the end of 2017.

What about investment desire and export successes? If we compare once again the 2013 Direccte (*Direction Regionale des Entreprises de la Concurrence et de l’Emploi*, Regional Directions of business, competition, work and labour) Data and the 2018 Data from the Chamber of Commerce and Industry for Provence-Alpes-Côte d’Azur, the number of newly created firms has passed from 61.534 in 2012 to 58.455 in 2017, marking a slight reduction of 5 per cent. In any case, freelance enterprises are attracting people more and more: they represented 58 per cent of Siren numbers five years ago and it stayed near 42 per cent recently.

Although Provence-Alpes-Côte d’Azur remained at the seventh place of export regions in 2016, it exports a little less in 2017 (21.7 billion euros) than in 2012 (23.5 billion euros); it is the top 3 export countries which have been modified: Italy and Spain always continue to be the first countries aimed, but the United States have replaced Algeria in the third place of regional SMEs international markets.

More than an increase: an explosion in the numbers of tourists’ overnight bookings. A 300 per cent increase between 2012 and 2017: It is a number which needs clarifications and precisions, but nevertheless tourism in Provence-Alpes-Côte d’Azur has gained a lot in matters of frequency. Against the 36.4 million overnight bookings in hotels and camping sites mentioned at page 69 of Direccte key numbers for 2013, the 218.2 million overnight bookings announced at page 8 of Commerce and Industry Chamber’s key numbers for 2018, include the whole of touristic accommodation types, like hotels, host houses and holiday residences, but also, without any doubt, stays boasted by the Airbnb phenomenon. About tourists themselves, the profile has changed: if we note a slight reduction of French visitors (71.6 per cent in 2012 against 60.4 per cent in 2017), the arrival of Americans and Europeans in Provence-Alpes-Côte d’Azur has almost doubled within five years.²²

²² Chamber of Commerce of Alpes Côte d’Azur 2:32 pm <http://www.paca.cci.fr/info-actu-regionale--notre-region-en-chiffres--quelles-donnees-quelles-evolutions--7770.php>

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Innovation

According to the Chamber of Commerce of Marseille the PACA region has 10 nationally approved competitiveness clusters and 16 "PRIDES" (Regional clusters for innovation and solidarity-based economic development). 8 "clusters" have been recognized as collaborative dynamics for innovation. Here are some of the main innovative sectors:

- Development of energy systems in replacement of fossil fuels
- Identification and mobilization of water resources;
- concerted management of resources and uses;
- reuse of water from all sources;
- Complex optical, photonic and processing systems image for the environment, health, safety, the agri-food industry
- Secure Communicating Solutions covering the whole of the value chain of ICT professions, from Silicon to Uses (optics, electronics, software, telecommunications)

Indications on benefits of Open Data use

Since 2011, the Region Provence-Alpes-Côte d'Azur has participated in the big step of opening public data in order to answer transparency stakes, as well as economic development and innovation from data.

The Region's primary objectives from the opening of public data have been specified in the Strategic Chart for 2015-2017; This Chart proposes 30 operational actions to promote open data deployment in our Region.

The Regional Council voted in November 2016 the N°16-825 which fixes stakes, objectives and the first actions to shape this ambition. It needs to activate all levers, especially financial, in order to realize necessary investments for the deployment of digital infrastructure and services. Data consist the second from five pillars of the Smart Region strategy.

Partner action and regional program for public data opening.

The Region has initiated a partner's action for open data, which consists of the implementation of a regional platform hosting the data from the regional organization, as well as data from partners.

In 2017, the Region engaged in a project by the organization and the CRIGE (*Centre Régional de l'Information Géographique - Regional Center of Geographic Information*) Provence-Alpes-Côte d'Azur: the command of a new data platform, independent and shared in a national level.

DataSud.fr, diffuses open, geographical and intelligent data, for the service of digital innovation and territorial development.

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DataSud needs to be informed continuously by new data, serving as a base for mediation and animation device, and accompanying digital projects and initiatives for Provence-Alpes-Côte d’Azur.

Every regional community can publish its data on DataSud by freely subscribing to the regional program for the opening of intelligent and open data, on condition that they sign the partners’ convention for open and intelligent data.

The deliberation and the partnership convention proposed, within the framework of the regional program for open and intelligent data, are the following :

- the deliberation on the Regional Open and Intelligent Data Programme adopted on 29 June 2018The
- Regional Open and Intelligent Data Programme Convention adopted on 29 June 2018Regional Animation

Numerous animations alongside the digital ecosystem enrich regional actions for data opening:

Challenges and discussion workshops are regularly organised by Region Provence-Alpes-Côte d’Azur to assembly communities, firms and citizens regarding data stakes. Data projects are evaluated and open data experts bring their experience (Open Data France, FING, Open Street Map, Dataactivist...).

The Region has equally contributed to MED program in the 2007-2013 planning for transnational cooperation, which resulted to the HOMER project with the 8 coastal Mediterranean regions. The stake was to uniform public open data in a Euro-Mediterranean level, with the creation of a data search engine for the subjects of: tourism, agriculture, environment, culture and energy.

In 2013 and 2015, the Region launched Open Paca competition to support innovative projects and encourage new concepts and re-use services for open data.

Since October 2016, the Region became project chief of the OpenDATALOCALE experimentation, in partnership with OpenData France, in order to accompany, together with other territorial actors, the whole of the Region’s communities that want to initiate a data opening action.

Call for open and intelligent data projects

In 2016, the Region wishes to strengthen its contribution by voting an intervention frame and a call for projects entitled: “intelligent and open data for the development of new usage and digital services”. This call for projects is destined to support production and diffusion of open data in Provence-Alpes-Côte d’Azur Region, as well as actions for data mediation (challenges, hackathons, training ...).

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Use of Big Data

The digital transformation of companies places data at the heart of business models, thus fully participating in the value chain. This applies to "GAFA" (Google Amazon Facebook Apple...), 100% digital companies (Full Players), but also to players whose digital is only a management tool for competitiveness.

In the fields of agriculture, home automation or energy, for example, data are central. Sensors (connected or not) are also present in a wide range of sectors from industry to services. Finally, the proliferation of cloud computing services (Software As A Service: SaaS) is now a common practice.

If data, especially real-time data, are so important for companies today, it is because they are at the heart of challenging traditional business models, in favour of a strengthening in the services sector of the economy already identified in the regions as part of the strategic economic development guidelines adopted in October 2013.

Companies are nowadays largely mobilizing around strategic data management. According to Gartner, 20% of large companies already have a Chief Data Officer, in charge of digital innovation in particular.

Open Paca Roadmap: "Open Data, Digital Data" 2015 - 2017 19

Data mismanagement would cost a medium-sized global company \$13.5 million per year. The mission of these data managers, in addition to securing data, is to promote the ability of companies to mobilize data to develop their competitiveness.

Data is also at the heart of the 34 plans of the Nouvelle France Industrielle. Here are some of the levers related to the digital transformation of companies: big data, cloud computing, e-education, telecom sovereignty, nanoelectronics, connected objects, augmented reality, contactless services, supercomputers, robotics, cybersecurity and the factory of the future... All are linked in one way or another to the data issue.

Data (Big, Smart, Open...) at the heart of the "enterprise value chain" should be a reinforced theme within seminars, clusters, working groups and training courses for companies in the territories.

3.4 Croatia

Croatia of approximately 4.28 million inhabitants, is located in Central and Southeast Europe, bordering Hungary to the northeast, Serbia to the east, Bosnia and Herzegovina to the southeast, Montenegro to the southeast, the Adriatic Sea to the southwest and Slovenia to the northwest.

Croatia can be subdivided between a number of eco-regions because of its climate and geomorphology. The country is consequently one of the richest in Europe in terms of biodiversity. There are four types of bio-geographical regions in Croatia

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- Mediterranean
- Alpine
- Pannonian
- Continental

Small and medium enterprises

Small and medium enterprises are an important segment of the Croatian economy, because of its share in the total number of enterprises (99.7% in 2015), share in total revenues (54%), employment (69.2%) and total exports (50.3%). The results of international research in which Croatia has been involved for many years (Global Entrepreneurship Monitor, Doing Business, Global Competitiveness Report, Corruption Perceptions Index) are pointing out the key challenges for further development of the small and medium enterprise sector in Croatia: insufficient level of activity in new business venture start-up, small share of growing enterprises, administrative obstacles to the implementation of entrepreneurial activity, insufficient development of the financial market and lack of education focused on the development of entrepreneurial knowledge and skills. From the perspective of achieving the targets of Europe 2020 and the perspective of the European Semester, the development of the Croatian economy, and thus the small and medium enterprise sector in the future period, will depend on the responses to the identified challenges.

3.5 Montenegro

Montenegro is a rather small country, both in terms of the area (13.812 km²) and the population (625,2661), not abundant in natural resources, but a country of great diversities. Montenegro does not have strong industry, and as an ecological state²³, it focuses more on other economic sectors.

Geographical regions of Montenegro are: southern (comprises of Montenegro's coast), central (bigger cities are the capital Podgorica and Nikšić) and northern (mostly mountainous terrain in the north and north-east of the state).

There has been an implementation of a Strategy for the Open Data that should be harmonized with the most important development directions and objectives of Montenegro.

The key strategic document which would have a decisive influence on the Strategy for Open Data would be the Economic Development Strategy for Montenegro.

Among other strategic documents, the most important ones are:

1. Development directions of Montenegro as an Ecological State,

²³ Strategy on Sustainable Economic Development of Montenegro through Clustering (2012-2016), 2012

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2. National Strategy of Sustainable Development of Montenegro and the Physical Plan of Montenegro,
3. Strategy for the development of Information Society 2012 -2016,
4. Montenegro Strategy for Open Government Partnership.

The above mainly concern the following sectors:

- a) Energy,
- b) Transport,
- c) Agriculture,
- d) Tourism,
- e) Small and Medium size enterprises and other

Entrepreneurship and SMEs

The Montenegrin SME sector shows the growing tendency, measured by the number of enterprises and employees. According to the data from the Tax Administration Office, the number of SMEs in 2017 amounted at 25.991, which is an increase of 39,5% in comparison to 2011. Out of the total number of SMEs, 90,5%, fall into the category of micro enterprises, 7,9% - small enterprises, 1,3% - medium enterprises and 0,3% - big enterprises. The majority of the enterprises are engaged in the trade sector - 30,9%, food and accommodation - 12,4%, construction – 10,7%, processing industry – 8,4% and transport – 5,1%. The unemployment rate in 2017 was at the level of 22.1%. At the same time, an average number of employees was constantly growing. In 2017 the number of the employed persons amounted at 182.368 or it was higher by 2.5% compared to the previous year. Most of the employees work at micro enterprises - 30,9%, big enterprises - 24,3%, small enterprises - 23,6%, and medium enterprises - 21,2%. Therefore, SMEs make 99% of all enterprises in Montenegro, employ 75,5% of all employees and participate with 75,2% in the export.

Average salaries in the last three years slightly increased. In 2018, an average net salary amounted to 510 euro, while an average gross salary was 765 euro. The annual inflation rate in 2016 amounted at 0.9% and had a decreasing trend compared to the previous year. In 2017 the recorded annual inflation rate was 2.4%.

Some of the barriers faced by the SME sector are high insolvency, outstanding debts, grey economy and unfair competition, lack of skilled staff, inadequate infrastructure, high taxes, etc.

The improvement in this sector has been achieved with respect to the incentives and development of business, through the realisation of nine programmes, which include financial and technical support to SMEs.

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According to the draft Smart Specialisation Strategy, future development should be based on the growth of sectors in which Montenegro can achieve a competitive advantage and increase exports. These are **energy, tourism, production of construction materials** (cement, stone), **primary and organic agriculture, food and processing** industries.

Tourism

The quality and diversity of its natural and anthropological values makes Montenegro one of the most attractive regions in the Mediterranean. Three natural environments are distinguishable: the seaside, the karst field zone and the high mountain region. A tourist has the possibility of taking a swim in a lake or in the sea, rafting down a river and skiing on mountain slopes – all in one day. On Montenegro's seaside, which is 293 km long, there are numerous sandy and pebbly beaches – 117 in total, 73 km in length, of which sandy beaches make up 33 km. Tourism records the most dynamic development and influences the growth of agriculture and food-processing industry, transport, telecommunication, trade, as well as a whole set of other branches. According to the estimates of the World Travel and Tourism Council, for the next ten-year period, the expected annual growth rate is 8.8%.

Energy

The energy sector represents one of the strategic development areas in which Montenegro has great untapped potential. The total installed capacities of the power plants in Montenegro are 868 MGW. The strategic development objectives of the energy sector are defined in the National Energy Development Strategy of Montenegro by 2025, where building of new capacities for hydro and thermal power plants is planned, including small hydro power plants and other renewable and alternative energy sources. The construction of the submarine interconnection cable between Montenegro and Italy is almost completed, which will contribute to connecting markets of the Balkans with the EU market, strengthening of the transmission network and a better supply of Montenegro's market with electricity. The project related to construction of a small hydro-power plant of 900 kW is in the phase of implementation, as well as another nine small hydropower plants.

Transport

The transport with its share of 5.9% in the total employment and the close correlation with a number of other sectors (tourism, trade, industry), plays a significant role in the strategic development of Montenegro. Its share in the national GDP is 4,1%.

Montenegro has two international airports, with their IATA Airport Codes:

- Podgorica Airport - TGD
- Tivat Airport - TIV

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Both airports were thoroughly reconstructed in 2006, with a new passenger terminal being built at Podgorica Airport. The airports had a combined traffic of 2,184,857 passengers in 2017. Both airports had more than 1 million passengers for the first time in 2017.

Rail transport in Montenegro is operated by four separate companies, which independently handle railway infrastructure, passenger transport, cargo transport and maintenance of the rolling stock. The four companies were a part of public company Railways of Montenegro (Montenegrin: Željeznica Crne Gore / Жељезница Црне Горе (ŽCG)) until it was split up in 2008.

Montenegro is a member of the International Union of Railways (UIC). The UIC Country Code for Montenegro is 62. The total network is 250 kilometres long

The network consists of three railway lines that converge in Podgorica, making it a junction of Montenegrin X-shaped rail network

- Belgrade-Bar railway is the backbone of the Montenegrin railway system. It opened in 1976, and then was a state-of-the art railway, with features such as Mala Rijeka viaduct (highest railway viaduct in Europe) and the 6.2 km long Sozina tunnel. About one-third of the Montenegrin part of the railway is in a tunnel or on a viaduct. It is the first railway corridor in Montenegro that was fully electrified. The railway has suffered from chronic underfunding in the 1990s, resulting in it deteriorating and becoming unsafe. Efforts are being made to thoroughly reconstruct this railway, with northern section of the railway already being completely overhauled.
- The Nikšić-Podgorica railway (56,6 km long) was built in 1948 as narrow gauge railway, and upgraded to normal gauge in 1965. Since 1992, it has been used solely for freight traffic, particularly bauxite from the Nikšić mine to the Podgorica Aluminium Plant, with maximum speed on the railway reduced to 30 km/h. The railway was thoroughly reconstructed and electrified in 2006-2012 period, with passenger service reintroduced. Operating speeds on this railway are now in 75 km/h (47 mph) - 100 km/h (62 mph) range.
- The Podgorica–Shkodër railway, which extends to Tirana, has been used exclusively for freight traffic since its opening. Parts in Albania were damaged in 1997, but the connection was restored in 2002. There are plans to reconstruct the railway and introduce passenger traffic, as it is important for interests of both Montenegro and Albania.
- Overall length of roads in Montenegro is 5,277 km, of which 1,729 km is paved. The roads in Montenegro are categorized in the following way:
- Motorways - There are currently no roads built to motorway standards. One motorway is currently being built Bar - Boljare motorway, section from Mateševo (near Kolašin) to

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Smokovac (near Podgorica). Second motorway, Montenegrin section of Adriatic–Ionian motorway is in initial planning phase.

- Main roads - roads connecting bigger cities or economic regions of Montenegro. Most of the main roads of Montenegro are listed with International E-road network, and are locally labeled with M letter followed by a number. Typically, these are paved roads of single carriageway type, featuring one lane per direction, with frequent addition of a third overtaking lane on sections with steep gradients. Curve radii usually allow speeds of up to 80 km/h, and width of a single traffic lane is usually at least 3m. Main roads listed with International E-road network in Montenegro are:
 - E65 / E80, locally M-1, M-1.1, M-2 and M-5 (Debeli Brijeg/Croatia - Petrovac - Sutomore - Podgorica - Kolašin - Berane - Rožaje - border with Serbia)
 - E762, locally M-4 and M-3 (Border with Albania - Božaj - Tuzi - Podgorica - Danilovgrad - Nikšić - Plužine - Šćepan Polje - border with Bosnia & Herzegovina)
 - E763, locally M-2 (Bijelo Polje - border with Serbia)
 - E851, locally M-1 (Sutomore - Bar - Krute - Ulcinj - Sukobin - border with Albania)
 - Sections of E65/E80 (Debeli Brijeg - Petrovac) and E851 (Petrovac - Ulcinj) together make up for the Montenegrin section of Adriatic Highway.
- Regional roads - these are road connections between regional centers, and connections to the other regional roads, main roads or road network of other countries. Typically, these are paved roads, but with smaller curve radii and narrower lanes than those of the main roads. Thus, lower speed limits are more common on regional roads. These roads are locally labeled with R letter followed by a number.
- Local roads (Lokalni putevi) - local roads connections of villages and other settlements of local communities. Quality of road infrastructure varies wildly between local roads, so these can be both unpaved dirt roads, as well as roads resembling regional roads in quality and appearance. There is a proposed route from the city of Podgorica to Gusinje. The highway, expected to go through northwestern Albania, (from Grabom to Vermosh), will mean a journey time to Gusinje and Plav of about half an hour. Also, the Verige bridge spanning the Bay of Kotor and part of the Adriatic Highway is planned to be built in the future.
- Ports: Bar, Kotor, Risan and Zelenika

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Port of Bar is the major seaport in Montenegro. It is capable of handling about 5 million tons of cargo, and is a port for ferries to Bari and Ancona in Italy. Kotor, Risan, Tivat and Zelenika (in Bay of Kotor) are smaller ports.

Montenegro's rivers are generally not navigable, except for tourist attractions such as rafting on Tara River.

Agriculture

Agriculture is one of the strategic development areas of Montenegro. Fertile and unpolluted land and pure high quality waters represent a good basis for the development of agriculture and food industry. The production of meat, milk, dairy products, honey, fish, vegetable, fruit, high quality wines and mineral waters is recording growth. The share of agricultural products in the total exports was increased from 8.2% in 2007 to 14.2% in 2017, while the share of agricultural products import in the same period increased from 15.1% to 23.0%.

Open Data and Entrepreneurship

Given the fact that the use of open data in Montenegro is in its initial phase and that the first set of open data have only recently been published, the tasks lying before the state now are to open new sets of data, as well as to enhance their adequate download and use. The portal www.data.gov.me should become a central platform where all institutions should upload their data sets, as well as the meeting place which the institutions and the system users (citizens and business sector) should use to communicate. The activities pertaining to this project should help achieve these objectives.

Innovation

The process of Smart Specialisation Strategy for Montenegro has not been completed yet but is in its final phase. It is expected to be completed in the first half of 2019. In 2018 the Government increased investments in innovations for 60% in comparison to 2017, which opened new financing instruments. The majority of these instruments are co-financed by the business sector. The Ministry of Science opened four big competitions for research and innovations in 2018: doctoral researches, grants for innovative projects, excellence centers and scientific-research projects. The total value of these competitions is 3,85 mil. EUR. Montenegro has taken a leading part in the creation of a new big infrastructure South-East European International Institute for Sustainable Technologies. The state has also become a member of pan-European infrastructure for social researches. Currently, the Government and the University of Montenegro are working on finalising the opening of the Science-Technology Park, which will be oriented towards providing support to the implementation of the S3 strategy. The Innovation and Entrepreneurship

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Center Tehnopolis has been very successful in its activities. Currently, they are implementing six projects and have applied for another 19. The projects are mainly financed from the IPA funds.

3.6 Spain/Aragon

Spain is located in the southwest of Europe, occupying 80% of the Iberian Peninsula that it shares with Portugal. It limits to the North with the Cantabrian Sea, France and Andorra, to the East with the Mediterranean Sea, to the South with the Mediterranean Sea and the Atlantic Ocean, and to the West with the Atlantic Ocean and Portugal. Spain have six of its regions being eligible to the programme Interreg-Med: Andalusia, Aragon, Catalonia, Balearic islands, Murcia, Valencia, Ceuta y Melilla, Aragon.

Aragón is an autonomous community in the north of Spain, resulting from the historical reign of the same name that includes the central section of the Ebro valley, the central Pyrenees and the Iberian Sierras.

Aragón has 1.313 463 inhabitants (INE, 2018), of which 50.77% live in the capital, Zaragoza, the only city in the community that exceeds 100 000 inhabitants.

Entrepreneurship

The Santander Entrepreneurship International Center, the RED GEM Spain Association, the Rafael del Pino Foundation, the Santander Bank and ENISA presented the "Global Entrepreneurship Monitor Report (GEM) Spain 2017-18", a study that gathers the most recent information related to the Spanish entrepreneur ecosystem.

The Spanish Entrepreneurial Activity Rate measures business initiatives with less than 3.5 years of life that are active in the market. Between 2016 and 2017, this indicator has increased one point with respect to the previous year (increases from 5.2% to 6.2%). In fact, for the first time in eight years, Spain has exceeded the 6% threshold, approaching figures before the crisis (we obtained 7.6% in 2007).

Despite this increase, the index in Spain is still below the European average (8.1%). However, the 6.2% share reached in the new GEM report implies that our country surpasses economies such as France (3.9%), Italy (4.3%) or Germany (5.3%) with some slack.

But there is another good news. The consolidated business rate (those with more than 3.5 years in the market) has also improved, placing Spain at the European average, with 7%. And, if that were not enough, we also found that, during the last year, there was a lower percentage of business dropouts than the average of the countries in our area (1.9% versus 2.9%).

Aragon meanwhile also works constantly for entrepreneurship in their city, proof of this is the web <http://www.aragonemprededor.com/>. A web space that brings together all the services provided to the entrepreneur and, especially, the information in relevant actions offered by the entities that make up this

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portal. A place to be aware of all the entrepreneurial actions that are organized, the existing grants or subsidies or simply a way to contact the entities that comprise it.

The Aragonese Strategy for Entrepreneurship 2015-2020 has been designed as a process to diagnose the situation of entrepreneurship in a specific territorial area, in this case, the Autonomous Community of Aragon. This diagnosis allows to know the existing reality in the sector of the entrepreneurship and to be able to define the positive elements and those that require of an intervention of improvement.

State of the Art of Global Entrepreneurship, contextualized for Aragon: it is a section that analyzes the situation and normative framework of entrepreneurship at a European and national level, and how it influences the entrepreneurship system in Aragon, as well as the plans and lines of action at the regional and local levels that encourage, encourage and support the development of entrepreneurial projects

Map of Entrepreneurship in Aragon: identifies public and private agents that provide support services to the entrepreneur in Aragon, what type of stable services they provide and with what type of resources they have, through an inventory of entities and organizations

Strategic document: this is the key document and includes the Strategy to be developed during the 2015-2020 period, including the strategic axes and the priority action lines.

Open Data & Entrepreneurship

Spain is a European benchmark in terms of Open Data. The portal datos.gob.es is the clearest example of how the Spanish government has opted for open data.

In the last few years, numerous autonomic data portals have been created that provide a large number and variety of open data.

There are already many institutions, worldwide, national, regional or local that release their data to generate new opportunities. In just three years, the dozens of data sets initially published have moved to more than one million sets currently available from thousands of catalogs around the world.

This has resulted in the creation of a multitude of applications, websites, databases, etc. that handle these data and that did not exist before. And thanks to these utilities, the citizen obtains more information and knowledge of a multitude of services.

According to the Open Data and Entrepreneurship report, public administrations can help boost innovation and entrepreneurship based on open data through 5 principles:

Build an ecosystem that includes both technical experts with business knowledge, as citizens, journalists and data providers. The objective is to create a space for dialogue where the needs of those involved can be addressed and which favors collaboration and the creation of new financing mechanisms and income streams.

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Encourage the use of open data among young people through education. On the one hand, by encouraging academic plans to expand their offer in terms of data analysis and technology linked to innovation. On the other hand, promoting educational projects, contests or events that convey the value of open data, promote its reuse and promote the acquisition of new skills. As an example, Barcelona Dades obertes or the Schools Comciencia.

Invest in national and regional acceleration and incubation programs. A good idea is to advise and support entrepreneurs through virtual accelerators, scholarships, mentoring programs and other actions aimed at boosting innovation. All of this under the framework of the community that we have created, fostering the replication of success strategies.

Facilitate the connection between entrepreneurs, data and areas of interest. Organizing hackathons or challenges focused on specific issues of citizen interest can drive certain data sets and help companies related to that area arise.

Monitor the activities carried out by entrepreneurs. Know which sets of data are the most reused and with what purpose it allows to measure the impact of open data, as well as promote the opening of new sets of related data.

However, we still have to improve a lot. According to the 8wires consultancy, responsible for the 'Open Data Ranking 2017' report, only 0.92% of Spanish municipalities have developed an Open Data initiative. In addition, among the 75 municipalities that have an Open Data portal, 43 were discarded from the evaluation because they did not yet have a complete initiative. The leading municipalities in this classification are Barcelona, Terrasa (12.75 points), Madrid, Santander (12.25 points), Cáceres and Granollers (12 points).

In Aragón we can highlight the creation of open data platform <https://opendata.aragon.es/>. The catalog of Aragón Open Data includes all the data collected by the initiative to open data of the Government of Aragon. Aragón Open Data is the structured repository of open data and reusable formats of Aragon. The data is used so that it can be manipulated and enriched by citizens in general and developers in particular. The data catalog of Aragón Open Data is based on the DCAT vocabulary, a vocabulary recognized by the main independent organizations that ensure the long-term neutrality and technological interoperability of the internet.

At the regional level, the Aragón Open Data initiative - in collaboration with the HOMER project and the MED program - has organized its own hackathon, which will take place in the city of Jaca from September 25 to 28, 2014. The objective of this initiative is to encourage collaboration between computer developers, promote the use of open data and create a community around them.

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In the first part of the Jacathon the assistants will be trained in different computer tools through which to access the data published in the open data portal of Aragón. Afterwards, a competition will take place, during 24 uninterrupted hours, where the computer solutions based on datasets of Aragón Open Data will be developed. And as the icing on the cake, the proposals of the different teams will be exhibited and the prizes (worth 3,000 euros) will be awarded to the best in the following three categories:

- AragoPedia Award: best development, application or history based on AragoPedia / AragoDBPedia.
- Aragón Open Social Data Award: best development, application or history based on Aragón Open Social Data.
- Aragón Open Data Award: best development, application or history with data from Aragón Open Data.

Innovation

Spain occupies a discrete 16th place in the ranking that is deduced from the scoreboard of innovation in Europe, published by the European Commission based on 27 parameters. That position means for Spain to be below the EU average and receive the qualification of a country 'moderately innovative'. However, the data finally underlines a notable improvement compared to 2010, a year that indicates a stagnation, with falls in 2015 and 2015, prolonged until 2016.

The report emphasizes that human resources and the environment favorable to innovation are the strongest points, while corporate investments and relations between the various entities involved are the weakest.

It indicates good data in terms of education (doctorates, population with average studies), scientific publications and broadband penetration. In the chapter on intellectual property, Spain is well positioned in the use of trademarks, regular in registered designs and quite weak in patent applications.

In Aragon there is an important ecosystem of entrepreneurship and the universities are part of this ecosystem: the University of Zaragoza and Zaragoza University, both of them invest many of its resources in innovation. Furthermore, in Aragon there is also the cluster of the association Idia (Research, Development and Innovation in Aragón), integrated by companies and institutions with a presence in Aragón. The Zaragoza impact hub is the catalyst for innovation, entrepreneurship and the social and economic impact in Aragon. “Zaragoza Activa” is a public initiative of the City of Zaragoza that consists of 3 fundamental elements: The seedbed of ideas, the nursery of startups and the collaborator. CEMINEM (Centro Mixto de Innovación con Empresas) provides advice, training and mentoring to startups and spin-offs created by its students. The CEEI is an institution of the Government of Aragon that provides consulting, mentoring and training services to startups. They are focused on industrial companies.

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Furthermore, “La terminal” is Initiative of the City of Zaragoza and directed by Hiberus Technology in collaboration with the Ibercaja Foundation, offers consulting, mentoring and training to startups, especially technology.

Other innovation centers in Aragon are:

- Fundación CIRCE. Centro de Investigación de Recursos y Consumos Energéticos
- Fundación FADOT. Fundación Aragonesa para el Desarrollo de la Observación de la Tierra
- Instituto Agronómico Mediterráneo de Zaragoza
- Instituto de Investigación sobre el Cambio Climático de Zaragoza.
- Estación Experimental de Aula Dei.
- Instituto de Carboquímica.
- Instituto Pirenáico de Ecología.
- Instituto de Ciencias de Materiales de Aragón
- Centro de Investigación y Tecnología Agroalimentaria de Aragón.
- Instituto Tecnológico de Aragón
- Zaragoza Logistics Center

Agricultural and agrifood sector in Spain

The useful agricultural area of Spain (SAU) accounts for more than 23 million hectares, almost half of the Spanish territory, of which almost 17 million hectares are cultivated. Of the total cultivated area, 76% of this area is dedicated to rainfed cultivation and 24% to irrigated cultivation.

In the agricultural field, arable crops occupy most of the surface, followed by woody crops being the olive grove the woody crop with more cultivated area. With regard to the livestock sector, in Spain there are more than 25 million head of pigs and more than 16 million sheep according to the document prepared by the MAGRAMA "180 data of MAGRAMA".

The sector of agriculture in Aragon represents 5% of the Gross Domestic Product of the Community and creates some 30,000 jobs, in addition to generating, together with the livestock sector, a total turnover of about 2,700 million euros per year.

The government of Aragón has a department of rural development and sustainability with the following current priorities:

- Promote transfer and knowledge and innovation in the agricultural, forestry and rural areas
- Improve the competitiveness of all types of agriculture and the viability of farms
- Promote the organization of the food distribution chain and risk management in the agricultural sector.

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- Restore, preserve and improve ecosystems dependent on agriculture and forestry
- Promote the efficiency of resources and encourage the transition to a low carbon economy capable of adapting to climate change in the agricultural, food and forestry sector

Agrifood Research and Technology Centre of Aragon (CITA) is a university research structure with mixed funding (UNIZAR-CITA). It was launched after the official approval of the Government of Aragon, issued on 22 May 2015.

IA2 originated in response to the joint concerns of a large community of researchers from different areas of the agrofood sciences who wished to join forces in a university research structure that could create new synergies, optimize resources, associate their shared concerns and encourage interdisciplinary collaboration. They desired to create a research environment with ideal conditions to carry out ambitious, highly competitive R&D&I activities of the highest caliber, with the best possible funding and a maximum potential impact on the agrofood sector in the region of Aragon.

3.7 Geographical and economic description of the area focusing on Open Data, Innovation, Entrepreneurship and related sectors-Key Outputs

The Data Hubs will be created in countries/regions with many similarities concerning the environment, due to the Mediterranean Sea, but there are many differences regarding the population, the area that is being covered and the rate at which Innovation and Entrepreneurship have been developed. The exploitation of Open Data/ Linked Open Data aims at the economic growth as a whole, overcoming possible difficulties that actually derive from these differences.

4. Short description of the relevance of the Open Data in the green growth, blue growth and/or Cultural and Creative Industries in the ODEON area

According to Europe's 2020 Strategy, it is essential to plan a strategy for smart, inclusive and sustainable growth.

Managing the life cycle of natural resources, from extraction through the design and manufacture of products, to what is considered as waste is essential to green growth.

In the following table there is a list of Green growth Sub sectors:

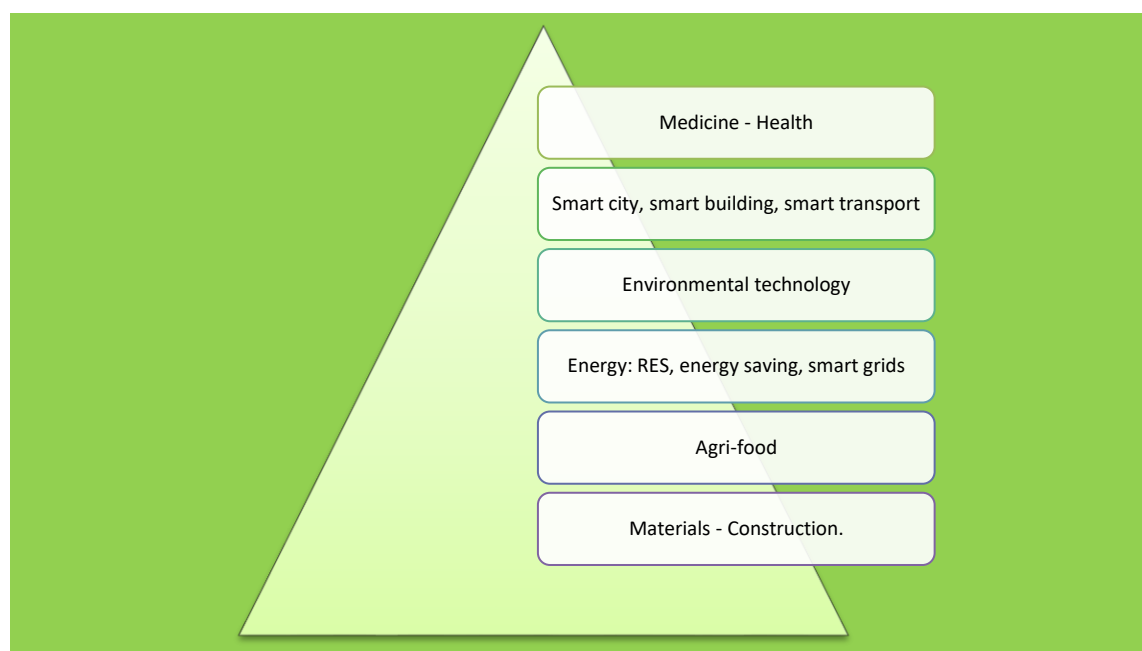


Table 9 Green Growth Sub-sectors

Europe 2020 also includes Blue Growth as the long term strategy to support sustainable growth in the marine and maritime sectors as a whole. Seas and oceans are drivers for the European economy and have great potential for innovation and growth.

The 'blue' economy represents roughly 5.4 million jobs and generates a gross added value of almost €500 billion a year. However, further growth is possible in a number of areas which are highlighted within the strategy.

Blue Economy Sectors

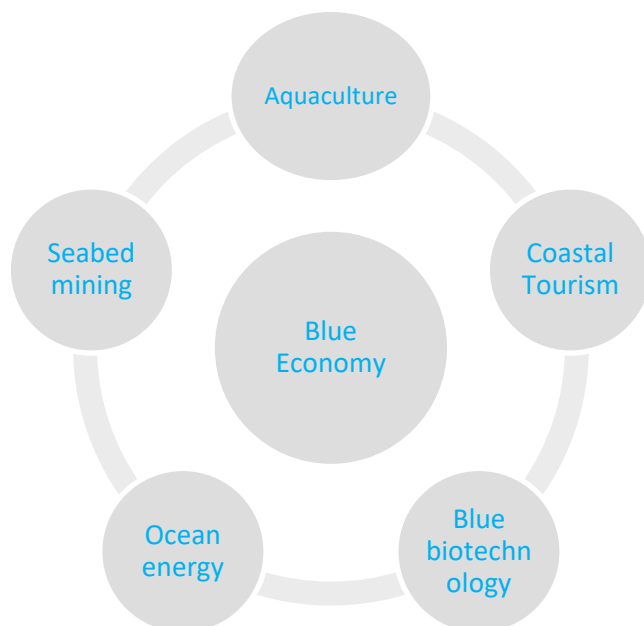
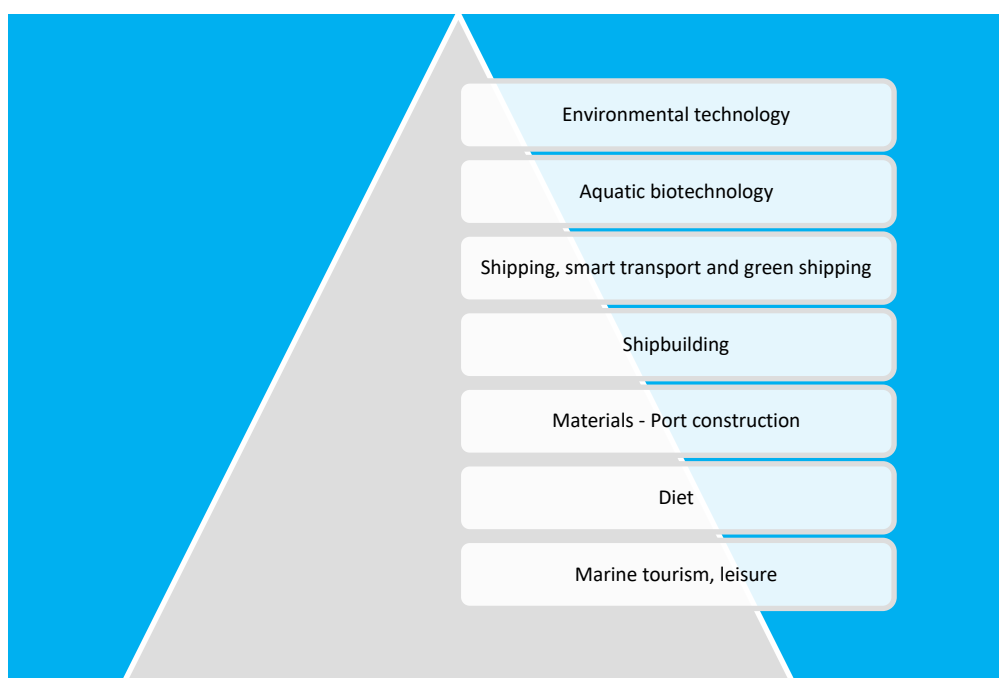


Table 10 Blue Economy Sectors

Blue Economy represents **roughly 5.4 million jobs** and generates a gross added value of almost €500 billion a year all over the world. However, further growth is possible in a number of areas which are highlighted within the strategy. The use of Open data will facilitate the acceleration of the growth rate by helping networking and the exchanges between maritime, port and logistic institutes and academies (sub-regional and national) one of the main Actions to be taken by the European Commission in order to advance Blue Growth.

Blue Economy Sub-Sectors:



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Table 11 Blue Economy Sub-Sectors

By the term Creative and Cultural Industries one refers to the stages of the value chain, including the production and dissemination stages of industrial and manufacturing operations that actually have to do with the Sectors whose Activities are based on cultural values or artistic and other individual or collective Creative expressions.

There is also a wide variety of sub-sectors such as the ones below that can be under the Creative and Cultural Industries:

C.C.I. Sub-sectors:

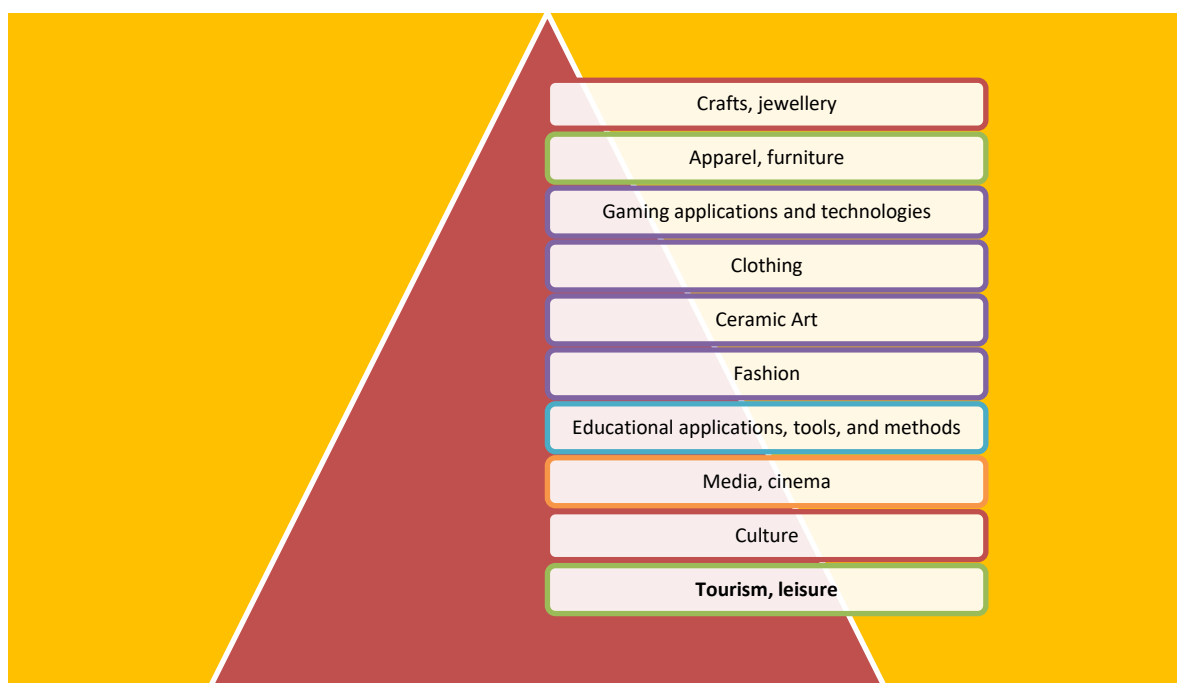


Table 12 C.C.I. Sub-sectors

In the following section specific information is provided, concerning the countries where the Data Hubs will be created in relevance to potential Sectors that Open Data could be applied.

4.1 Italy

Green growth

In Veneto region, the production of energy from renewable sources continued to grow up until 2015, probably due to the reduction in incentives for the installation of new plants.

In the decade from 2006 to 2015 the incidence of renewable sources compared to total electricity production rose from 18.4 to 40.3%. The particularly high percentages for Veneto Region are the fruit of the marked development of the photovoltaic and bio-energy industry.

Photovoltaic systems in the Veneto region have increased from 800 in 2007 to over 93,000 in 2015. At the end of 2015 the total installed capacity in Veneto in the photovoltaic sector it exceeded 1,750,000KW with an average of 18.3KW per plant. The quality of bathing water is considered excellent reaching a total of 96,4%.

Environmental policy in Veneto focuses on the promotion of renewable energies and energy efficiency measures that can promote eco-innovations and the Region is also involved at the local level on the topic of energy sustainability: there are 140 Veneto Municipalities participating in the initiative of the “European Commission Covenant of Mayors for Climate & Energy”, whose goal is to reach the European target of 20% reduction of CO2 emissions by 2020.

The Region promotes actions aimed at:

- Improvement of the energy performance of public buildings for a saving of primary sources of energy,
- reduction of gas emissions greenhouse,
- support for interventions that promote energy efficiency through district heating and cooling,
- giving priority to installations from renewable source (smart building).

Energy saving in public lighting is being promoted, through systems of automatic regulation (sensors) and reduction of light pollution in the regional territory, with a view to improving energy efficiency in end uses and the promotion of smart energy.

Reduction of energy consumption and climate-altering gas emissions in the structures and productive cycles of companies, including through the introduction of process and product innovations, facilitating the experimentation and diffusion of renewable energy sources for self-consumption to order to maximize the economic impact at the territorial level.

Orientation to self-consumption, or commensurate with the size of plants for energy needs and encouraging the introduction into the network in the areas where intelligent energy distribution systems will be installed (smart grids).

Blue economy

Veneto Region is a partner of European Project DORY. This project intends to capitalize ECOSEA results and its cooperation network, to strengthen Adriatic institutional dialogue and promote the adoption of common management models for sustainable fisheries to reduce economic activities threats on Adriatic marine stocks, and knowledge based tools to enhance biodiversity in terms of priority and essential fish habitats and to halt aquaculture ecological impact.

The small-scale fishery and the aquaculture are emergent sectors and represent key drivers for the sustainable growth of Adriatic-Ionian communities. These sectors are composed of several micro-companies, providing an atomized entrepreneurial landscape and tending to be marginalized in decision-making processes.

Creative Economy

The Veneto Region has recognized the creative industry as one of its own four areas of specialization in research and innovation (RIS 3) and in the constitution of Regional Innovative Networks (RIR).

The creative industry is one of the most active production companies in Veneto, capable of generating wellbeing and expressing unique and particular excellences. This sector is characterized by one continuous need for restructuring and modernization generated by multiple factors such as the close relationship with the changing expectations and preferences of consumers, fast progress technological innovations, material innovation, commercial competition and the change in costs production resulting from global competitiveness.

ODEON –D.3.2.2

Creativity and innovation are constantly necessary and often fundamental processes in the fashion industry, one of the well-known excellence of the Veneto region. At the creative fashion industry belong also the accessories and associated services (for example glasses), the handicraft of quality, high-end industries, glass and other artistic artifacts typical of the area, fabrics and objects for the furniture, the sport system.

Product design, materials preparation, production processes, "supply management chain", communication and branding, are the phases of the value chain in which the research, innovation and creativity are synergistically combined to generate new, competitive ones products. Research actions are needed to develop new materials for fabrics, such as special and composite fibers, functionalized materials, "bio-based material". Biotechnology and nanotechnologies can contribute by offering new elements to the Veneto industries for new types of production. The use of new subjects will also imply an innovation of the production processes that must be able to respond increasingly to criteria of environmental sustainability ensuring the emergence of new "green labels" of excellence.

The creative industry is characterized by important and diversified processes of conception and design that exploit the creativity and imagination of designers, graphic designers, artists, architects, designers.

New technologies are particularly interesting in increasing, improving and stimulating creative processes and in facilitating and facilitating the processes of collaborative design even among professionals with different backgrounds.

Support creative efforts and innovative businesses through projects aimed at developing and up-taking new ones technologies, to promote the originality of the final products, their pleasure and satisfaction final user, improving the competitiveness and growth potential of important sectors of the regional economy.

Acquire relevance, for example, the new environments for the exposure of the products, 3D visualization and virtual or augmented environments, the new tools for marketing online, shared digital spaces and multimodal and creative interaction.

Veneto Region is interested to focus mainly on the Creative and Cultural Industries.

4.2 Greece

Blue growth

The "Blue Growth" is a long term sustainable development strategy of the marine and maritime sector, constituting an integrated maritime policy for the achievement of the objectives of the "Europe 2020" strategy for smart, sustainable and inclusive growth. Sea and Oceans can contribute to the further development of the European economy considering that maritime sector generates 5.4 million jobs and an essential contribution to the gross value added (almost 500 billion annually).

Greece, consisting of numerous islands and having one of the largest fleets in the world, has the potential to become a European strategic port of "Blue" economic development. Realizing the geostrategic dynamics of the country in the Mediterranean and Adriatic Sea, being a marine crossroads between Europe, Africa and Asia, as well as the prospects of cooperation and economic growth arise through it, Greek Open Data community is active in developing projects related to the improvement of integrated maritime policies, improving the access in marine real time information, undertaking efficient and sustainable administration and management of maritime activities and actions related to coastal tourism.

Green growth

Greece is considered to have a good environmental quality²⁴. In some important areas where environmental quality was impaired, the situation has improved in recent years (air quality in Athens, restoration of architectural and historical heritage).

Environmental policy in Greece focuses on the promotion of renewable energies and energy efficiency measures that can promote eco-innovations. The country benefits from its significant natural capital in renewable energies – solar, wind, tidal –, growth in green and alternative tourism and innovation in agriculture and the food industry.

Despite the economic crisis, by the end of 2017, the installed capacity of photovoltaics, for example, reached 2,623 MWp which covered 7.1% of the electricity consumption. Nevertheless, the uptake of renewable energy has been stagnated the past years.

²⁴ <https://www.oecd.org/env/country-reviews/2448632.pdf>

ODEON –D.3.2.2

In the following table one can see the Performance of Greece in various Eco-areas²⁵

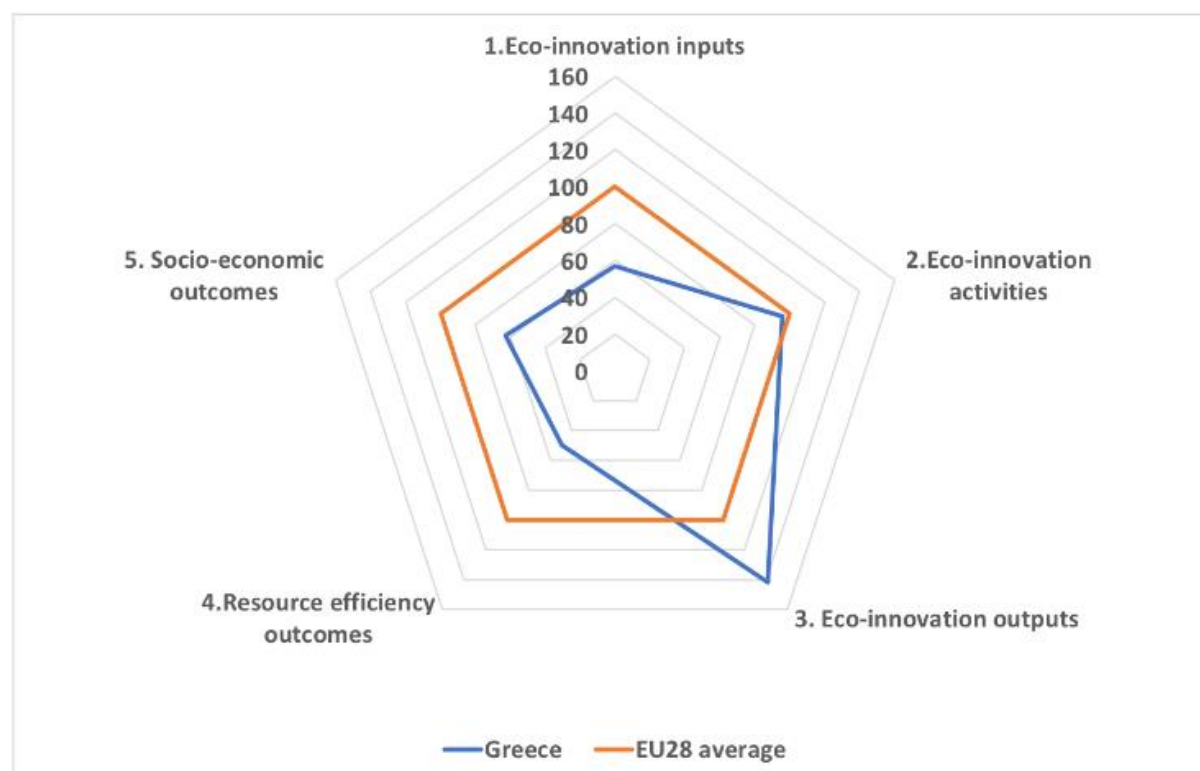


Table 13 Performance of Greece in various eco-areas

With the Socio –economic aspect being one of the lowest performances in socio-economic outcomes compared to the rest of Europe it is obvious that Open data application can make the difference in order for Greece to catch up.

Creative Economy

By the term Creative and Cultural Industries one refers to the stages of the value chain, including the production and dissemination stages of industrial and manufacturing operations that actually have to do with the Sectors whose Activities are based on cultural values or artistic and other individual or collective Creative expressions.

Greece's Cultural and Creative sector in 2014:

- employed 110,688 employees (EU-28/6.1 mn)
- 46,370 enterprises, (EU-28/1.7 mn)
- sold symbolic goods and services of about € 5.3 bn, with
- about € 2.1 bn added value for the Greek economy, and

²⁵ [https:// as:ec.europa.eu/environment/ecoap/greece_en](https://as.ec.europa.eu/environment/ecoap/greece_en)

- 1.4% contribution to the GDP (EU-28 CCI's contributed in 2014, 2.8% (€ 353 bn) to the European GDP)

Despite the significant downfall observed cumulatively between 2008 and 2014, in 2013/14 the cultural and creative sector appears to be recovering with an increase in added value by 6.9% and a stability trend in the numbers of employees and creative enterprises. The sectors of software and specialised design appear to have withstood the economic crisis, while in 2013/14 they increased their added value by 16.8% and 27.9% respectively.

Other sectors that showed significant increase in added value in the period 2013/14 include the audiovisual (54.8%), libraries and museums (16.8%) and television, radio, and communication (15.7%) sectors.²⁶ It is obvious that there is great potential of development and that the Use of Open Data. For example, connecting tourism with museums and symbolic goods shops using maps data will lead to a multiplying revenue effect.

In a country like Greece with a rich cultural heritage and especially Attiki-which includes Athens- where one can find some of the most known monuments of the world (Acropolis) the use of open Data for example information about antiquities connected with transportation information can easily turn the whole area (like Attiki) to a great experience for the visitor.

As a proportion of all enterprises in total services, cultural enterprises were most prominent in Sweden and Belgium (over 8 %), followed by Greece, Slovenia, France, Denmark and the Netherlands (all 7 % or more).

4.3 France

The South Region economy is characterised by a strong presence of service related activities and represents 80,6% of regional employment. Industrial employment (including construction) represents 16.1% of regional employment, compared to 20.4% at the national level (Eurostat, 2017). Employment in both sectors has been relatively stable between 2012 and 2016. In 2016, agriculture represented only 2,1% of the regional employment. The region is home to an important number of SMEs, and in particular small businesses: in 2014, 97.3% of companies had less than nine employees (Eurostat, 2017), versus 95.1% at the national level. The strong presence of retail activities and tourism help explain these figures. The South Region has identified the following seven strategic sectors: silver economy, tourism, culture, lifestyle and sports, renewable energies and eco-technologies, maritime, ports and logistic industries, aeronautics, space, naval and defence sectors, health, agriculture, agri-food and cosmetics (SRDEII, 2017). The seven strategic sectors are actively supported through various actions and policy support mechanisms

²⁶ http://ep.culture.gr/Lists/Custom_Announcements/Attachments/198/Xartografisi.Short.ENG.pdf

aimed at support the development of certain I Key Enabling Technologies (KETs), as defined at the European level: nanotechnology, micro & nanoelectronics, industrial biotechnology and photonics (SRI, 2014).

The South Region hosts ten competitiveness clusters: SAFE in the defence and security sector, CAPENERGIES in the energy sector , EUROBIOMED in the health sector, SCS in the ICT sector, OPTITEC in the optics sector, PASS in the cosmetic sector , AQUAVALLEY in the water sector, Mer Méditerranée in the blue economy sector, TERRALIA in the plant and agricultural sector and TRIMATEC on eco-technologies for industrial applications.²⁷

There is already a large variety of data concerning all the 3 sectors that are of great importance to the Europe's 2020 strategy and of course a big potential of further exploitation of them.

4.4. Croatia

Green and Blue growth

Croatia, as a relatively new member state of the European Union, has an interest to find a niche in economic policy. Ecological issues and the protection of the sea and rivers, the preservation of the marine – so-called blue economy – and terrestrial environment, as well as organic farming, green economy, are the areas in which Croatia needs to find its niche in economic policy. Consequently, it is extremely important that Croatia's foreign and economic policy play an active role in promoting ecological issues in both the European Union and in the whole Mediterranean region.

The foreign policy of specialization in the field of ecology is supported by Croatia being one of the most ecologically preserved countries in Europe.

Ecological issues – the protection of the sea and rivers, the preservation of the marine, so-called blue economy, terrestrial environment and organic farming as green economy, are the areas in which Croatia needs to find a niche in foreign policy.

Croatia is a tourist-oriented Mediterranean country, so it is in its vital interest to protect the Adriatic Sea from omnipresent pollution and to preserve all living species. Therefore, ecological issues linked to the onshore section of the country and to the Croatian maritime are of vital interest. Consequently, it is extremely important that Croatia's foreign economic policy plays an active role in promoting ecological issues in both the European Union and in the whole Mediterranean region.

²⁷ DG GROWTH 9 :59 am 21st of March 2019 <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/sud-r%C3%A9gion-provence-alpes-c%C3%B4te-d%E2%80%99azur-0>

In addition, a large part of the Croatian international economic cooperation refers to the member states of the Union for the Mediterranean and, according to estimates, 78 percent of exports and 73 percent of trade. These are the markets with the potential for a variety of goods.

Huge potential for the strengthening of Croatian foreign policy influence in the field of ecology lies in the Mediterranean.

Creative Economy

Croatian cluster of competitiveness of creative and cultural industries - was established in 2013 and number of staff in the management team is 5, it is a non-profit organisation.

Cultural and creative industries in Croatia have joined all of their sub-sectors (from architecture, design, gaming to music, film, media, advertising and others) and created a platform Creative Croatia, with the cooperation of the Croatian competitive cluster of creative and cultural industries and Croatian Employer's Association.

The goal of this platform is to take advantage of the economic potential of this industrial sector which is currently making more than 2 billion euros in revenues per year and employs over 42 000 people or 3% of all people employed in Croatia.

Largest obstacles preventing an even more significant growth and development of this sector are very limiting regulations and lack of recognition of this industry as one of the most important economic factors in the country.

There is a need for better institutional and legislative framework, instruments of incentive financing of business innovations as well as strengthening of public conscience when it comes to the importance of creative rights, copyright and other forms of intellectual property.

Results of the mapping study of cultural and creative industries in Croatia have confirmed all the trends that are present both in Europe and across the globe. This industry is extremely resistant to economic crisis, generates a significant percentage of GDP and creates jobs. These industries generate more than 2,6% of Croatian GDP with a revenue of over 2 billion euros and their gross added value is 850 million euros.

Through the platform "Creative Croatia", members of the Croatian creative industry have organised a Summit of creative and cultural industries where they had the chance to open a discussion about this important subject with the representatives of all leading political parties. They all agreed that without cultural and creative industries there is no market economy.

The general objectives of the cultural policy so far have included the pursuance of values such as: cultural pluralism (aesthetic and multiethnic), creative autonomy, the increase and diversification of sources for financing culture, polycentric cultural development, encouraging cultural participation and co-operation between the public and the private sector to increase efficiency, quality, employment and innovation.

The "Strategy of Cultural Development – Croatia in the 21st Century", drawn up in co-operation between the Ministry of Culture and a team of independent experts.

Rijeka, Croatian port city, is European Capital of Culture in 2020.

4.5. Montenegro

The location and geography of Montenegro make it a perfect candidate for the development of tourism which has been in almost constant growth since the second half of 20th century. Montenegro has the coast of 295 km, of which a quarter (72 km) are beaches, mountain and plain lakes, rivers and canyons, hills and mountains, which altogether enables it to develop both summer and winter tourism, making it possible to develop (along with the service industry) as the primary economic sector across the state.

Wood production and processing is one of the main industrial sectors of the central and northern regions, being covered in mountain forests with wood of good industrial quality. While Montenegro has a trade surplus of timber as a primary product, it lacks wood processing products. In order to improve the wood processing rates, the Government of Montenegro has declared wood production and processing a high priority economic cluster in Montenegro.

Construction and construction material industry is a very important economic sector for the whole of Montenegro, especially considering the actual and potential growth of tourism and the need for new tourist capacities. This sector comprises of construction of buildings, roads, tunnels and bridges and construction material digging and production.

Not being a country with a strong industry, Montenegro has over time developed quite diverse agriculture and basic food processing. Being an ecological state and considering international trends, each year more focus is being applied to organic agriculture and traditional food processing, complementing the tourist offer. Agriculture and food processing is also one of the main sectors assessed in Strategy on Sustainable Economic Development of Montenegro through Clustering, with the most detailed planning and analysis done.

The new sector, still in its beginnings, but showing great potential, is bottled water. Being a most-part mountain country, Montenegro is abundant with naturally filtered drinking water, but because of high

costs of starting this industry, only 8 factories have been established so far. Nevertheless, they still show significant impact on Montenegro GDP: 19,5 million € in 2011, over 3,2 billion € GDP, or somewhat over 0,6%, but with potential of over double growth.

Blue Growth

Following the period of steep decline in the maritime sector resulting from the sanctions in 1990-ies, Montenegro is now working on the restoration of this sector almost from scratch. Therefore, its priority objectives in this area are: recovery of the Montenegrin shipping industry, establishing routes with the trans-shipment centers and ports in the Mediterranean and rationalization of the port activities. Although Montenegro does not have a blue sea mobility strategy per se, still all its documents state the necessity to fully align the domestic legislation and the related activities to the ones of the EU.

In the field of maritime transport, from the point of policy of the Ministry of Transport, Maritime Affairs and Telecommunication, measures for improvement of safety and security will be undertaken, primarily by the adoption and implementation of the Law on Safety and Security of Navigation.

The Port of Bar, as practically the only commercial port in Montenegro, which carries out 95% of maritime transport, has capacities and development potentials (operative coast length, depth of aquatorium, connection with railroad and large area for expansion), which provides it significant regional status and an important part in the development of sea routes. In addition, the Port of Bar, as a modern port, with international reputation of a frequent port for trans-shipment of all types of cargo, provides great possibilities for further development of combined transport and connection of all regions, since necessary road-railroad infrastructure is located in its hinterland. In order to make use of its capacities, the construction of new and reconstruction of the existing terminals for combined transport at railroad stations Bar, Podgorica and Bijelo Polje is planned. Terminals will stimulate further development of combined (truck-railroad) transport at most important lines.

In terms of the development of nautical tourism through the construction of marina network, the basic marina network in Montenegro should consist of two big service marinas of the capacity 400-500 berths (marinas in Bar and Tivat), three standard marinas of capacity 100-300 berths (Njivice, Bigovo and Ulcinj) and two special ("VIP" and "eco") marinas (Kotor and Buljarica) with a smaller number of berths. In addition, there is a certain number of commercial berths in the existing ports, especially in locations that may attract more interest of sailors, such as Budva, Kumbor, Herceg Novi, Risan or Prčanj. Concerning revitalization of maritime economy in Montenegro, it is inevitable to provide a short background and review the planned activities related to AD "Crnogorska plovidba". Namely, at the beginning of 2004, the

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Government established this company, in order to intensify activities on more significant development of Montenegrin mercantile marine, which has, after international sanctions, run into unsolvable problems and almost lost all ships. However, without state guarantees or provision of funds for participation in the credit arrangement, it has not been possible to start with the revitalization of Montenegrin shipping up to now. With the intention of undertaking concrete steps in order to implement investment program of maritime economy revitalization, the Ministry of Transport, Maritime Affairs and Telecommunications has, in cooperation with the Ministry of Finance, prepared, and the Government has adopted the Elaborate on economic viability of investment in ship procurement for AD “Crnogorska plovidba”. The results of economic-financial analysis show that the investment program is feasible and financially sustainable. Through the implementation of the investment project in question, direct impact on improvement of foreign-trade balance will be achieved. The project is considered as an initiation of significant shipping development in Montenegro, with an aim to provide employment for sailors and connection with educational system. It implies that ships of this company will be completed with crew from Montenegro.

Skadar Lake represents an important economic potential, and valorization through the nautical tourism represents its fastest and most efficient valorization. One of the optimal possibilities for the valorization of Skadar Lake is the centralization of all activities through the entity National Park. Revitalization of the Port of Virpazar shall encompass the reconstruction of harbor capacities and opening of border crossing for international lake-passenger traffic in Virpazar.

Through the implementation of highest standards in the planning and projecting of transport infrastructure, as well as its use, the mechanisms of spatial and environment protection are provided. These issues particularly emphasize the protection of areas with high pollution sensitivity, and the ones that have particular importance for the development of Montenegro. Such areas are Montenegrin Seaside, national parks, canyons, mountain centers, etc. It is expected that the seaside tourism, in the following period, will be the key element of economic growth. The lack of physical town-planning and services already question this potential, while the other obstacle is the increase of the traffic intensity and “congestion” during the summer tourism season. In order to resolve this issue, a larger number of possibilities need to be considered, for example: activities regarding the construction of third lanes, construction of bypasses, establishing alternative directions with new traffic regimes, etc.

With respect to fisheries, this sector is small, without industrial fisheries, and is conducted along the Adriatic coast and in Skadar lake (freshwater fisheries). Montenegrin fleet at present consists of 128 vessels, out of which 20 bottom trawlers, 17 purse seiners and 91 in small commercial fisheries. The Strategy of development of fisheries and aquaculture of Montenegro gives an overall strategic framework

and identifies the key steps that Montenegro intends to take in order to prepare for full discharge of its obligations stemming from the Common Fisheries Policy. The document also contains the general visions of sector development and identifies some of its key potentials.

The strategic goal of creating the links with tourism shall primarily be achieved through development of coastal fisheries which product is mostly high-value white fin fish, as well as through development of farming. On the other hand, the strategic goal of creating the links with processing sector shall primarily be achieved through sustainable development of small pelagic fisheries and through development of farming capacities.

In order to reach these goals in the programming period, it is necessary to provide an adequate support to the sector and to focus on coastal infrastructure as well as control and surveillance. It is necessary to continue the efforts in informing the fishermen, farmers and processors on the requirements they shall face prior and upon the accession of Montenegro to the EU.

Possible sensitive or conflict issues regarding the sea and the coastal areas in Montenegro are partially linked with the issues of pollution and uncontrolled urbanization that could lead to the loss of biodiversity. Structural changes in habitats caused by waste deposits, mining, inadequate fishing methods and overall extraction of biodiversity also have an effect on degradation of underwater habitats. While drafting the management plans for certain fishing gears used in Montenegro particular needs of protection of environment shall be taken into account. The Strategy for development of fisheries of Montenegro is in line with the goals and the guidelines of the EUSAIR and in achieving the EUSAIR goals Montenegro sees significant development potentials of numerous elements of blue economy and blue growth. Further efforts shall be directed towards creation of necessary links between different administrative bodies and existing strategic guidelines, which is also in line with the main determinants of the approach to integrated coastal zone management in the Mediterranean.

Green growth

Energy policy of Montenegro, aligned with EU energy policy, defines three main priorities of the energy sector in Montenegro until 2030, as follows:

- Security of energy supply;
- The development of a competitive energy market and
- Sustainable Energy Development.

Based on the priorities set, Montenegro defines 20 commitments and objectives that will enable the development of the energy sector in defined priority directions, such as:

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- Energy efficiency is a priority in the energy policy of Montenegro:
 - a. Ensure the institutional conditions and financial incentives to improve the energy efficiency and reduce energy intensity in all the sectors, from production to the final energy consumption;
 - b. Montenegro will achieve the indicative target to increase EE, which represents a saving in the amount of 9% of the average final energy consumption in the country (excluding KAP) by 2018
- Harnessing renewable energy is a priority in the energy policy of Montenegro:
 - a. Creating a favorable environment for the development and use of renewable energy and achieving the national target for the share of RES in gross final energy consumption;
 - b. Continued research potential of renewable energy and study work on researching the possibilities of exploiting the remaining available RES potential;
 - c. Increasing the share of renewable energy use in transport with the aim of ensuring achievement of the share of RES in the overall consumption of energy in transport, in line with the obligations of the state;
- Improvement of heating and / or cooling of the objects: (i) by substitution of direct transformation of electric energy into heat and (ii) the use of new technologies that are acceptable from the standpoint of protection of the environment, which implies a greater use of renewable energy and the use of high-efficiency;
- Sustainable energy development in relation to environmental protection and international cooperation in this field, in particular the reduction of emissions of greenhouse gases;
- Encouraging research, development, transfer and application of environmentally sustainable new technologies in the energy sector; increase investment in education and scientific research projects and encouraging international cooperation in the field of ecologically sustainable new technologies in the energy sector, as well as the introduction of teaching in the field of energy in the educational system
- Montenegro has significant hydropower potential of watercourses, which was used for only 17% of the total theoretical hydro potential. The document, which is the national water management plan represents, in accordance with the Law on Water, water-based and water management master plan, adopted by the Government of Montenegro for a period of 10 years.

The waters of Montenegro share the waters of the Adriatic basin and the water of the Black Sea basin. In addition to the two existing hydropower plants, the Zeta River, Piva and Perucica, HE Piva, the potential for construction of hydro power plants with conventional river the Moraca, the Komarnica, the Lim and the Čehotina. In the basins of these rivers, there is a significant hydropower potential of the first, second or

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third flow for the construction of small hydro power plants. Currently, Montenegro has seven small hydropower plants (HPP) connected to the power system of licensed manufacturers.

As for windmills, currently there is one active windmill, Krnovo, which started its operation in 2007 and produced 113.617 MWh in the period January – September 2018. In addition, several companies have the approval to measure and explore wind potential in Montenegro. The construction of another windmill, Mozura, has been started and there are plans for the construction of the third one, Brajici.

There are no solar plants in Montenegro at this point.

The production of electricity in the period January – September 2018 was 2.873,4 GWh, which is cca 20% higher in comparison to the plan.

According to the directions contained in the Energy Law, the Government shall, through the Ministry:

- realize energy efficiency policies and encourage the conservation of energy resources;
- encourage and advise on energy efficiency and the rational use of energy;
- develop and promote incentives for the efficient use of energy and renewable resources;
- promote the increased use of renewable energy sources and alternative energy sources for generation in the internal market; and
- manage funds contributed for the purpose of energy conservation and energy efficiency.

One of the actions undertaken by the Government in this respect is the programme Energy Efficient Home, provision of interest-free bank loans for households: purchase and installation of modern heating systems (using biomass), thermo-isolation of buildings and installation of energy efficient facade joinery.

Creative Economy

So far the sector of creative economy has not been addressed although it has generally been recognised that this sector has potential. Currently, there is an ongoing project “Development of Cultural and Creative Industries as Part of a Sustainable Economic Sector in Montenegro” implemented by the Institute for Entrepreneurship and Economic Development, which focus is on determining of the economic effects of the sector, identification and promotion of best practices, improvement of entrepreneurial skills in the sector and the preparation of strategic guidelines for further sector development. The project is financed by the UNESCO Fund for Cultural Diversity and it is expected to be completed in February 2020.

Montenegro will choose Blue Growth as the topic of focus for the Data Hub.

4.6. Spain

Green growth

The green economy is and will be an essential element of economic growth, not a complementary or aesthetic aspect. As prices incorporate negative environmental externalities, the green economy will become even more meaningful.

In 2016, the Sustainable Development Goals (SDG) were approved by the General Assembly of the United Nations.

The SDGs include seventeen lines of action that must be addressed at the universal level to guarantee human dignity, with a temporary target to 2030.

Spain, as a country of the European Union, shares and assumes ambitious targets for reducing emissions, increasing the use of renewable energies and improving energy efficiency.

The development of the green economy in Spain involves:

- Recognize the green economy as a source of economic growth and prosperity
- Approve policies that promote the green bet
- Establish a stable, predictable and transparent regulatory framework
- Eliminate administrative obstacles and ensure institutional coordination Promote research, innovation and technology as a catalyst for growth
- Promote information and awareness
- Develop financing capabilities and eliminate barriers
- Move towards a low carbon economy with the contribution of all sectors
- Encourage public-private collaboration
- Review taxation to turn it into a tool to support green growth

The Aragonese green sector is currently integrated by 493 companies that directly employ approximately 23,960 workers, which could be added the number of indirect jobs that these companies promote, which remain, however, beyond the scope of this study.

The provincial distribution in Aragon of green companies is as follows: 77.11% of the companies are located in the province of Zaragoza, 14.16% in the province of Huesca and 8.73% in the province of Teruel. Regarding its location, although companies in the green sector are present throughout Aragon, the greatest concentration is in Zaragoza and in the districts of La Hoya de Huesca and Comunidad de Teruel, along with Monegros, Somontano de Barbastro and Valdejalón.

The analysis of the main activity of the green companies in Aragon in the value chain shows that 14.05% of them focus their activity on research, design and development; 29.75% is devoted primarily to manufacturing and / or production; 14.05% for transportation, installation and commissioning; 18.18% to the operation and maintenance; 4.96% for renovation, modernization, updating or dismantling and the rest, 19.01%, develop activities in more than one functional area, as detailed in the following graph.

Blue growth

Marine biodiversity in this region -which includes important economic hubs such as Barcelona, Marseille, Naples and Tunisia, and tourist destinations such as the Balearic Islands, Sicily or Corsica- is subjected to great pressure.

According to a recent report of the Joint Research Center, 50% of the biodiversity has been lost in the last fifty years. Besides, the recent increase in migrations from the south to the north, according to the Commission, has generated "certain concerns as regards safety and security".

The initiative is the result of several years of conversations between the ten countries of the western Mediterranean region: five member States of the EU (France, Italy, Portugal, Spain and Malta) and five member countries of the south (Algeria, Libya, Mauritania , Morocco and Tunisia).

Furthermore, it follows up on Ministerial Declaration on the Blue Economy, endorsed by the Union for the Mediterranean (UfM) on 17 November 2015, and it complements the MedFish4Ever Declaration, signed on 30 March 2017 by the ministerial representatives of the north and south coasts of the Mediterranean, including eight States of the EU (Spain, France, Italy, Malta, Slovenia, Croatia, Greece and Cyprus), for the preservation of fish stocks.²⁸

Aragon has no ports or exit to the sea.

Cultural and creative industries

The Cultural and Creative Industries (ICC) form an ecosystem that can benefit from favorable socioeconomic environments and the opportunities opened by technological change.

22% of the Spanish employed population is part of the so-called "creative class" and 5.7% of Spanish production originates in the "creative industries". Despite these data, generalist studies related to the creative economy in Spain are scarce.

²⁸

https://www.aragon.es/estaticos/GobiernoAragon/OrganosConsultivos/ConsejoEconomicoSocialAragon/Areas/Publicaciones/PROYECTOS/2014/NICHOS_EMPLEO_SOSTENIBLE_COMPLETO.pdf

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Despite their considerable potential and estimated to represent more than 3% of GDP and employment in the EU, the cultural and creative industries are undervalued and poorly recognized, especially as regards the possibilities of accessing the initial capital and financing.

Spain's priorities in the field of cultural and creative industries are:

- Address the new needs for qualifications promoting educational innovation.
- Support the mobility of artists.
- Reform regulatory frameworks in a coordinated manner with the Member States.
- Introduce policies and initiatives to encourage investment in cultural and creative industries and their access to the market.

The data indicate that between 2008 and 2014, the creative and cultural industries of Aragon have seen a marked reduction in their weight in the sector as a whole in Spain.

In the period between 2008 and 2015, Aragón lost 8.4% of its companies in the Cultural and Creative Industries (CCI) sector; That is, 319 companies have disappeared. As can be seen in Figure 10, the greatest fall in this figure occurred between 2008 and 2013, with a higher incidence between 2011 and 2013. In 2014 there was a small recovery, but in 2015 it returned to the levels of 2013. If we consider In the period 2008-2013, the loss of companies represented 8.6%, a very similar figure, with the disappearance of 324 companies.

The relative weight of the cultural and creative industries in the whole of the Aragonese business fabric has practically not changed in the period studied, since it has gone from 4% of the group of companies that existed in Aragon in 2008 to 3.8% in 2008. 2015

If these data are studied in relation to the population, the number of companies in the CCI sector for every ten thousand inhabitants went from 28.45 in 2008 to 26.24 in 2015.

Employment in the CCI sector has decreased by 24.21% in the period 2008-2014, while total employment in Aragon has decreased by 15.85%. Of the 99,100 jobs lost in the years of study, 3,101 correspond to the CCI.

In the analysis of the evolution of the relative weight of the different sectors of the Cultural and Creative Industries in Aragon and the way in which they evolve between 2008 and 2014, the one of the architecture is the one that returns to present a greater loss (8.8 points), followed by Advertising (3,2), performing arts (1,4) and books and press (0,7).

4.7. Slovenia

In the Slovene Smart Specialization Strategy, we have directly identified open data in Smart Cities and Communities pillar, but additional efforts need to be made to raise awareness on the importance of open data and their implementation, and to introduce open data in the other fields of operation.

Description of open data in the Smart Cities and Communities pillar:

- Development of globally competitive system solutions in the field of smart grids and IT networks with user solutions.
- Establishment of pilot projects (priority is in the field of energy and accessibility to electronic services and in the field of health, safety and modern public administration).

Focus areas: Open system solutions - IT platforms as ecosystems for hosting system applications

Technologies:

I.Cloud computing and mass data

II.The Internet of Things and the Internet of the Future

III.Capture and use earth observation data

The establishment of a national computer cloud - DRO, which was established in 2015 represents a good platform for providing access to open data and services. The importance of the new innovative development cloud is to be highlighted as a key platform for the development of application solutions that use open data and open services which will be systematically provided by eGovernment projects. The objective is to open opportunities, especially for small and medium-sized enterprises, as the integration and sharing of information within the public administration creates an opportunity for innovative new electronic services, mobile applications and consequently, the creation of new digital jobs in various fields. Opportunities for accessibility of ICT tools for the development and testing of future commercial applications are opening up. High synergy effects and complementarity with other areas of application S4 and investment in the OP from thematic objectives 2, 3, 4 and 11 (Strengthening research, technological development and innovation, increasing the competitiveness of small and medium-sized enterprises, supporting the transition to a low-carbon economy, improving the efficiency of public administration).

A SWOT analysis concerning Open data in Slovenia is included below:

STRENGTHS

- Small state administration and centralized evidences,
- Easy access to open data,
- Use and transparency of the OPSI - open data portal,
- Successful Implementation of Technological Clustering Projects

OPPORTUNITIES

- Opportunity to use data in economy and business,
- The creation and production of new services for citizens,
- Greater transparency of the policy

WEAKNESSES

- Lack of awareness of the importance of data,
- Certain public authorities do not know exactly how to use open data or what to do with this data,
- Portal features and sustainability,
- Awareness and increased use of digital competences

THREATS

- The delay in establishing a digital strategy,
- Insufficient use of open data in the economy,
- Data and metadata currency

4.8. Short description of the relevance of the Open Data in the green growth, blue growth and/or Cultural and Creative Industries in the ODEON area-Key Outputs

The goal of this section was to point out and strengthen all the existent potential in the Green Growth, Blue Growth and in Cultural Creative Industries and to ensure that Open Data/Linked Open Data utilisation will furthermore enable the development of an infrastructure among local authorities, educational and research centres and private SMEs with the aim of reinforcing the existing capacities.

Each Data Hub will become a part of a leading metropolitan centre for innovation research, production and export under ODEON Med Cluster. In order to do so, the Data Hub created in each country should utilise its competent scientific and technical human capital along with all the other capacities available.

5. Short description of the S3 of reference and list of main policies addressed to the Open Data, as well as the policies relating OD/LOD with the green growth, blue growth and/or Cultural and Creative Industries where applicable

According to Smart Specialisation Priority for the EU, the areas that should be monitored are:

- Manufacturing & industry
- Tourism, restaurants & recreation
- Sustainable innovation
- Agriculture, forestry & fishing
- Key Enabling Technologies

Below there are Some Key Figures concerning the EU strategy about RIS²⁹:

- 1. Over 120 smart specialisation strategies have been developed.**
- 2. Over EUR 67 billion available to support these strategies, under the European Structural and Investment Funds and national / regional funding.**
- 3. Expected achievements by 2020: to bring 15.000 new products to market, create 140.000 new start-ups and 350.000 new jobs.**

There is a great potential in developing RIS3 and focusing on economic development efforts and investments on each region's relative strengths and exploiting its economic opportunities and emerging trends, boosts its economic growth. Furthermore, RIS3 enhances the added value, impact and visibility of EU funding.

RIS3 requires smart, strategic choices and evidence-based policy making.

Priorities are set on the basis of a bottom-up entrepreneurial discovery process supported by strategic intelligence about:

- a region's assets (for each Hub in this case)
- its challenges

Competitive advantages and potential for excellence.

According to the each region's characteristics Open Data can be applied in order to maximize the benefits for all the participants.

²⁹ http://ec.europa.eu/regional_policy/sources/docgener/guides/smart_spec/strength_innov_regions_en.pdf

Key Outputs

Summing up the information collected by the contributors there are some sectors that are of great interest:

- Smart –Agrifood
- Sustainable Living
- Health – medicines
- Smart Manufacturing
- ICT
- Energy
- Environment and sustainable development
- Transport
- Mechanical engineering
- Materials - construction
- Tourism – Culture – Creative industries
- Smart and sustainable mobility
- Tourism, cultural industry and digital contents
- Furniture
- Lighting Tecnology
- Food processing
- Fashion
- Ecological transition and energy efficiency
- Risks, security and safety
- Health and food

6. Megatrends/trends identified and analysed consistent with the OD/LOD system

Analysing Megatrends is an issue of great importance, especially when the matter under investigation is the Use of Open Data/ Linked Open Data and in area of like the ODEON area where Europe meets Africa and Asia. As a result, many of the world's megatrends apply to this area without forgetting of course to take into account each region's special characteristics.

Therefore there has been a certain categorization concerning the megatrends into four (4) major Categories:

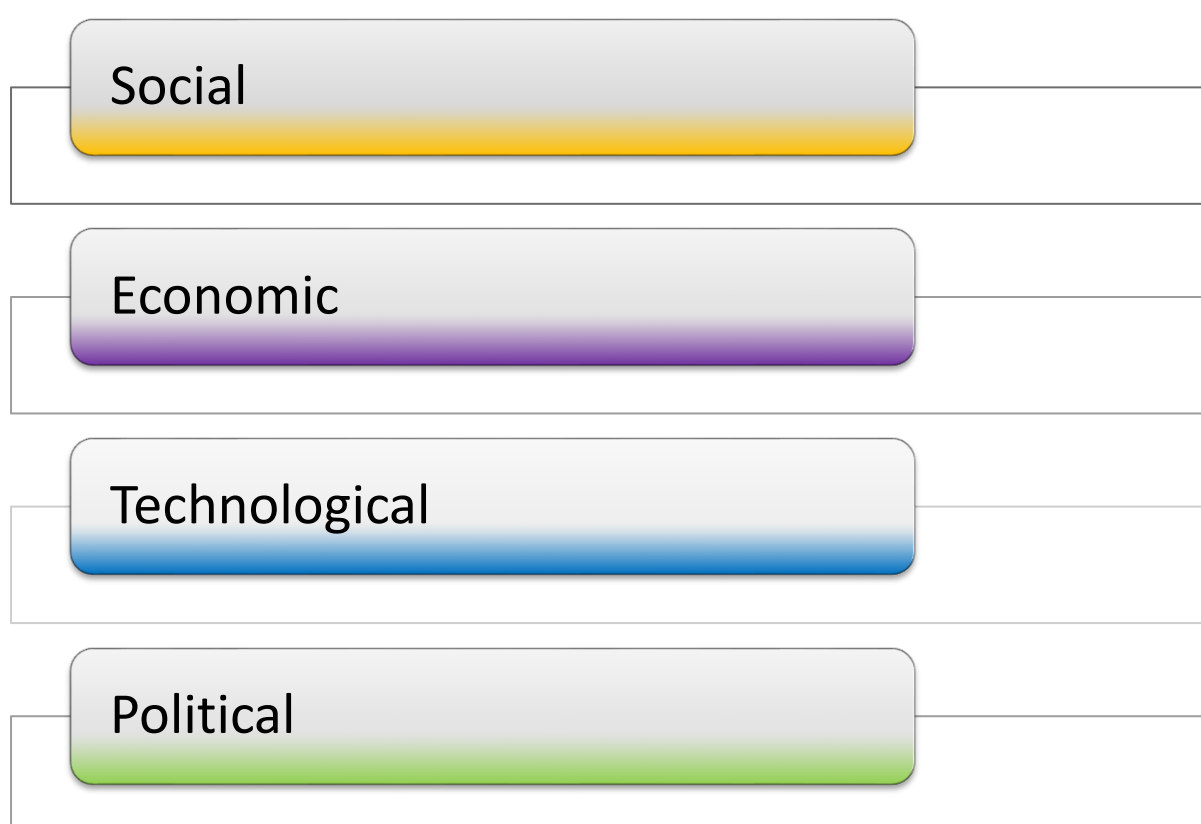


Table 14 List of Megatrends

For each category there are certain megatrends mentioned, which concern the whole area and of course for each Hub there are certain ones that match perfectly based on the information provided by the partners:

Social Megatrends

| |
|---|
| Social Megatrends of reference (ODEON) |
| Ageing Societies, labour and international migrations. |
| Urbanization. For the next 20 years, the earth's urban landscape will continue shifting towards the emerging nations. |
| Further need for weather forecasts, maps use of open data |
| Population accounted for 6.9 billion in 2010 and is expected to reach 8 billion in 2036, with 96% of growth coming from developing countries. (need for Big Data→Open Data) |
| Globalisation. Fragmented production,human mobility, knowledge circulation, growing internet users. |
| Gender Gap- intergenerational dialogue, urban vs rural |
| Income enequality, poverty, social and health innovation. |

Table 15 Social megatrends

Economical Megatrends

| |
|--|
| <p>Economical Megatrends of reference (ODEON)</p> |
| <p>Global economic focus moves East. China's contribution to world GDP is expected to rise up to 20% in 2030. (Nations of over 1bn population lead the world economy→Big Data use→Open Data)</p> |
| <p>Global trade liberalisation and integration will accelerate economic growth. (Breaking the rules concerning the Data will intensify the Open Data use)</p> |
| <p>Consumers expanding purchasing power. (Need for more information, further use of data)</p> |

Table 16 Economical megatrends

Technological Megatrends

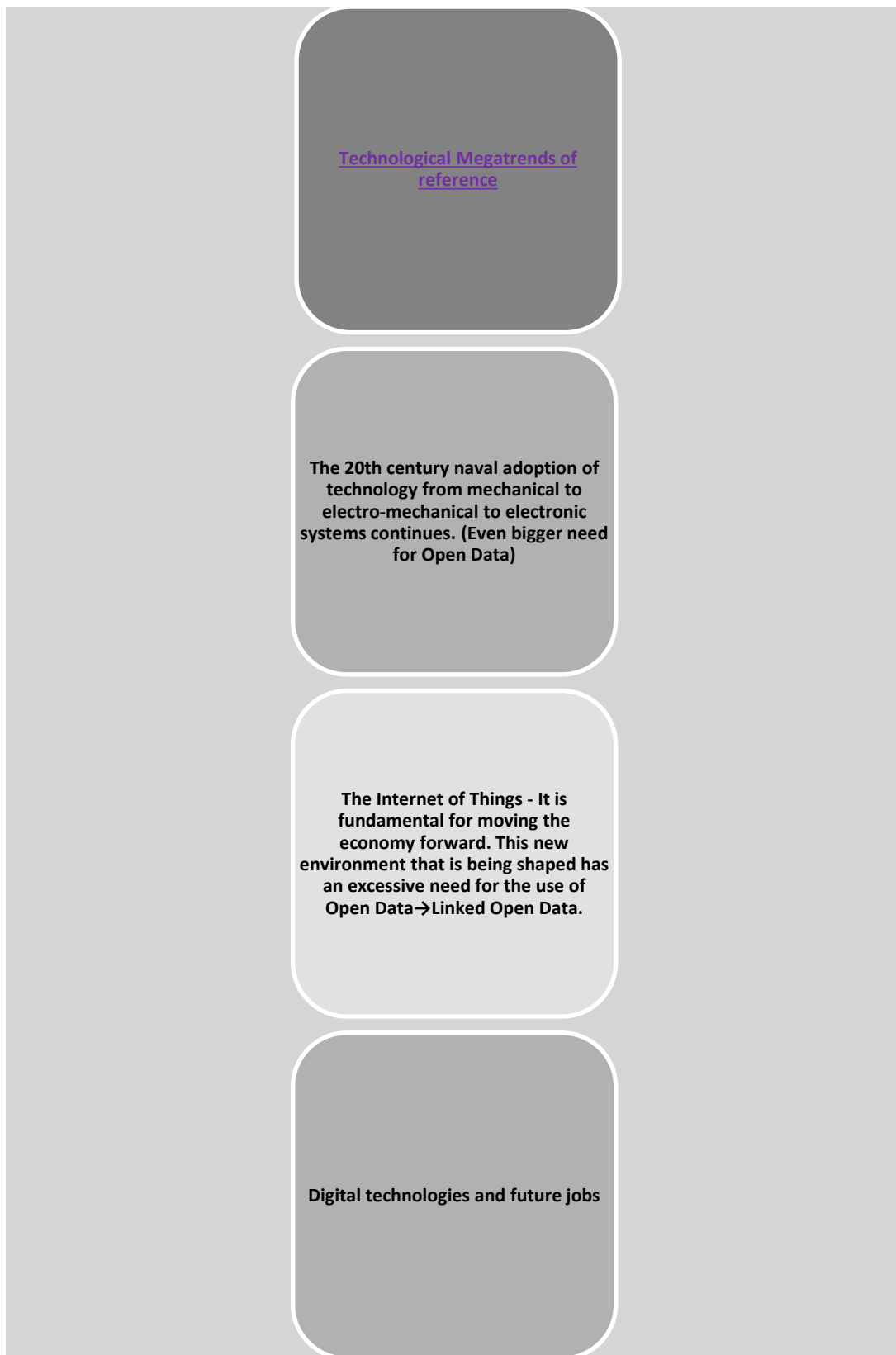


Table 17 Technological Megatrends

Political Megatrends

Political Megatrends of reference

Political stability has been an issue for the past years for all over the planet with Election issues having a great effect on the economy. Confidence in the political system that arises from the Open data use could become essential.

Privatization,- The extension of privatization, with the companies providing public services or sending jobs overseas has affected the way companies perceive the environment in the country they have been active in. (more need for big data/Open Data).

Role of governments: heavy national debt, regulation of lobbying, rise of Megacities, non-state actors, relation with science and innovation.

Table 18 Political megatrends

Key Outputs

The megatrends reported, actually concern every country/partner involved. In a new political, economic environment that is being shaped, in the era of Internet of Things there are many opportunities for development. ODEON Project has to deal with the challenge of having to convince the stakeholders involved (government, enterprises, people) to use furthermore Open Data.

Challenges set by these Megatrends should be dealt with. More specifically, each Hub will have to use Open/ Linked Open Data in order to deal with those challenges set by the country's own specific profile, while adapting to the new era's necessities.

Sources of data for the information on Mega Trends and Trends

Data concerning the Megatrends and trends was collected by the partners, as requested and since there seemed to be a common basis (due to the Mediterranean region's special characteristics) these were presented not per Hub, but for the whole ODEON Med Cluster.

7. Sectors Focus

In this section there will be a list of potential Sectors and Sub-sectors that a Hub might choose to concentrate its efforts concerning the Open/ Linked Open Data use.

Because of the characteristics that the countries of the ODEON area share, it is wise to present all the possibilities altogether based on the information sent by the contributors of this Deliverable D3.2.2. In the following table³⁰ there are indicative propositions:

| |
|--|
| Transport systems (including maritime and urban) |
| Knowledge intensive business services |
| ICT (green) |
| Eco-innovation |
| Nautical Tourism |
| Cultural Tourism |
| Blue technologies |
| Fishery |
| Construction Sector |
| Industrial waste |
| Smart sustainable mobility |
| Energy Efficiency |
| Security |
| Health and food |

Table 19 Possible sectors for Open data use

Of course, the list of these propositions is not exhaustive; however each Hub should focus on the ones that fit mostly to its characteristics.

³⁰ Blue Colour for Blue Economy, Green for Green Economy, Orange for C.C.I.

Key Outputs

There is a wide variety of activities that can be taken in order to achieve Odeon's goals. Throughout this section it has become quite clear that though there are a vast variety of sectors, each Hub should make the right choices in order to maximise the benefits.

From the data collected so far Tourism seems to be a Sector that almost everyone would like to see progress in. Open data so far have a great impact on tourism, so there is an open field for everyone to extent their use and take advantage of the potential there is.

Each Hub should take into consideration what other countries of similar characteristics are doing concerning the use of Open data and provide information so as to create a common ground on which the ODEON Med Cluster, HUBs, services and Platform will be built on.

8. SWOT analysis concerning the cooperation at the area level for the uploading and exploitation of OD/LOD data by Public and Private entities for the selected sectors/subsectors.

This section aims at identifying all these elements that could be a part of a S.W.O.T analysis and give the information needed in order to design the Strategy that concerns the building of the ODEON.

The Strengths, Weaknesses, Opportunities and Threats concerning the whole area that ODEON covers as a project, but after having taken into consideration the feedback that the Hubs have given.



STRENGTHS

- High Touristic Appeal
- Large Number of Universities & Public Research Centers
- High Concentration of Researchers
- Mandatory legislation about publishing OD
- Entrepreneurship culture
- Extensive use of OD in transport and infrastructure
- Continuous rise of ICT
- Good telecommunication infrastructure
- High internet Coverage
- High internet use
- Countries with Cultural Heritage
- Qualified workforce

WEAKNESSES



- Low level of Open Data use in education
- Low Private R&D Investments
- Possible problems of converting existing data
- Variety in countries' profile
- Complexity in funding
- Lack of capacity in networking
- In certain areas there are still Complex, Fragmented and Bureaucratic Regulation for Investments, Innovation & Entrepreneurship
- High Involvement of the Central Government in Regional Development (Institutional Competition)
- Open Data is not yet exploded, fully, by public or private organizations.
- There is still a big ignorance and lack of awareness of the potential of Open Data.
- Many local and regional governments are not correctly involved in the publishing of open data.
- Funding from governments for open data platforms.
- Skills needed for using open data platforms

OPPORTUNITIES



- Countries with long coastline – plenty of room for companies to offer maritime services and products that are in need of an extensive use of Open Data.
- Growing demand because of an increase in threats over the last decade, including piracy, illicit drug trafficking and terrorism
- Inclination to entrepreneurship and New technologies due to the financial difficulties
- New ways (such as the use of graph analysis and NLP) of finding value from datasets or datasets relations is an opportunity to face weaknesses.
- Technology innovators are aware of the potential of open data and receive the technological training and support needed to fully harness this.
- Develop innovative ideas and products that use data in developing countries
- New policies instruments in favour of clusters and enterprises networks

THREATS



- Unstable political environment
- Huge amount of datasets. Risk of difficulties in searching and finding the right datasets for any specific challenge.
- Increased competition by other players from Germany, United Kingdom, Italy, Israel, China, and Taiwan.
- Brain drain
- Dependence on EU funding / What happens after the funding.
- Possible new competitors
- Inability to transfer the project's results
- Open Data might ending up increasing the digital divide and socially inequality instead of reducing it.

9. Conclusions

The deliverable D.3.2.2 aimed at identifying all the topics concerning the potential use of the Open Data/Linked Open Data use in the Mediterranean area and providing directions in order that the ODEON Cluster, HUBs, services and Platform will be successfully implemented.

Each Data Hub that will be created has to take into consideration, the outcomes extracted from this analysis, concerning the Megatrends/Trends and the results of the S.W.O.T. analysis for its own benefit. These recommendations may be useful, in order to have progress in the extension of the Open Data/Linked Open data use, with multiplying positive effects on the economies of the countries involved. Innovation and entrepreneurship will be facilitated and SMEs will be able to grow beyond their national borders. Furthermore, the added value of the Open Data/ Linked Data exploitation will enable the creation of further cross-border economic activity.