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# Analysis of the Dissemination Index of the Information of the Different Players of the Entrepreneurial Ecosystem in the Valencian Community

Gabriela Ribes-Giner and Javier Navarrete-Garnes \*

Faculty of Business Administration and Management, Universitat Politècnica de València, Camino de Vera, s/n 46022 Valencia, Spain; gabrigi@omp.upv.es

\* Correspondence: javier.navarrete.511@gmail.com

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**Abstract:** The main objective of this research is to calculate the diffusion index of entrepreneurship to the different actors of the entrepreneurial ecosystem. For this, 57 organizations, both private and public, belonging to the entrepreneurial ecosystem of the Valencian community have been analyzed. Among the results are stresses the importance of the optimal use of information and communication technology in current and future generations, as well as the dissemination of entrepreneurship. In addition, the best practices carried out by the different agents of the entrepreneurial ecosystem have been identified.

**Keywords:** dissemination index; entrepreneurship; entrepreneurial ecosystem; diffusion; Valencian community

## 1. Introduction

Over the past few years, a growing interest in related matters with entrepreneurship have been registered (Sullivan and Meek, 2012), and it is an essential element for the economic development (Audretsch et al. 2007). The truth is that entrepreneurship is one of the main drivers of innovation, competitiveness, and economic growth (Carvalho et al. 2017).

The small and medium-sized enterprises (SMEs) have become relevant in the global economy, and they are considered as the backbone of the European economy. In fact, in 2015, almost 23 million SMEs generated 3.9 trillion euros in added value, and employed 90 million people (Muller et al. 2016).

The main objective of the paper is to change the minds of the entities related to entrepreneurship (public and private) and let them see the shortcomings they have when it comes to spreading entrepreneurship through their websites and the importance that this implies on economic regional growth and the potential available in the community to exploit an opportunity for growth not only economic but also social. For this, a quantitative analysis is provided to the Valencian society about the state in which the entities are in diffusion of entrepreneurship and in what aspects they have to improve to strengthen their position and create a reference entrepreneurial ecosystem.

The success of entrepreneurship depends largely on the ecosystem. It is the duty of public leaders and policy makers to design and implement a virtuous cycle of entrepreneurship (Park 2001; Pages and Poole 2003). In terms of social implication, greater collaboration levels, information, and innovation exchange will promote the creation of prosperous entrepreneur ecosystems (Maroufkhani et al. 2018).

Moreover, certain contemporary studies reveal the close existing relationship between the promotion of entrepreneurship spirit and the economic growth (Minniti 2012). However, the ability

of this region to benefit from entrepreneur effects, will depend mainly on the different institutional agreements and their social structure, as well as on their ability to convert knowledge in regional growth throughout its diffusion (Nevado et al. 2018).

The strength of an entrepreneurial ecosystem lies in allowing different organizations and entities to share resources, knowledge, and learning opportunities (Muldoon et al. 2018). Actually, the access to knowledge has become a key element for innovator enterprises, which are limited by resources from their beginnings (Oviatt and McDougall 1994).

A key element in the current society is that digital ecosystems have become an important research topic. The users, who previously were seen as interacting technologists that directly interacted with digital technologies, have changed radically to be anyone who has access to digital technologies, such as smartphones (Internet of Things, broadband, etc.) (Sussan and Acs 2017). Moreover, the users, which previously were seen as technologists who interacted directly with digital technologies, have change radically to be whoever with access to digital technologies, such as the mobile phone, due to the ease of use of the devices (Internet of Things, broadband, etc.) (Sussan and Acs 2017).

The digital technologies are creating countless entrepreneurial opportunities which are producing a new generation of start-ups. In fact, growth opportunities increase rapidly, thanks to technological advances such as internet in mobile phones, artificial intelligence, and cloud computing (Du et al. 2018).

An example of these technological advances is the growth and variety in the use of social networks, which have encouraged SMEs to realize about their ambitions and commercialize the product, service, or brand faster and easier (Crammond et al. 2018). The application of social networks reconfigures and actualizes processes of small companies, in relation to the capture, retention and exploitation of market information (Manfreda et al. 2015).

Usually, digital innovation overcomes the resource limitation of a single organization, so innovations can provide a platform to provide diverse resources and facilitate collaboration (Du et al. 2018).

In this way, it can be affirmed that technology currently offers an effective way to interact with their interest groups, through the Internet, providing them a new way to disclose information (Bonsón and Escobar 2004). The dissemination of information throughout the Web pages is increasingly adapted by both private and public institutions, since it allows them to be closer to citizens, offering bigger and better understanding of population's needs (Nevado et al. 2018). Both public administrations and diverse private institutions that promote entrepreneurship make efforts to implement innovation, and improve and promote different services with respect to entrepreneurship through the Internet (Wimmer 2002). Hence the interests to know if the different organizations of the ecosystem are exploiting the potential of information and communication technologies (ICT) with the objective of supporting entrepreneurship and disseminate the information at the regional level (Nevado et al. 2018; Tilson et al. 2010).

It is important since both local administration and private institutions in a region play a key role in economic and social development through the empowerment of business creation as well as the usage of new technologies, internet mainly, which result a key element in this time to facilitate the transfer of information. Under this perspective, arises the objectives of this research, which are on one hand analyzing the different private and public agents web pages of the entrepreneur ecosystem in the Valencian community and studying the entrepreneurship diffusion provided in the Valencian community, and on the other hand, identifying good practices, as well as the precariousness of information and communication system with the environment of these institutions.

Throughout the article, a theoretical academic base will be provided for the analysis of the state of the entrepreneurial ecosystem in global terms, as well as the methodology that will be used for the study of the entrepreneurship disclosure index through the websites of the entities related to entrepreneurship in the Valencian community. Subsequently, the results of the entrepreneurship index obtained for each of the indicators used will be presented, based on the Carvalho et al. (2017), the index according to the typology of the entities analyzed, the results depending on the province the entities

belong, and an analysis of the good and bad practices carried out in relation to the dissemination index through the websites of these entities. Finally, a discussion chapter on the results and conclusions reached after the study will be presented.

## 2. Theoretical Background

In the academic section, an exponential increase has been generated about the belief that entrepreneurship is a key aspect in the economic development of a region (Arenal et al. 2018), until assuming that 21st century has supposed a change from an economy based on the industrial production to a knowledge-based entrepreneurial economy. Moreover, in the last decade, the amounts of research have increased in which it is affirmed that those start-ups with highest growth are the main responsible for the increase in employment in the region studied (Autio and Rannikko 2016).

Nevertheless, there are still several difficulties in understanding the dynamics of entrepreneurship on economic development and its competitiveness, and favoring its appearance and development (Prashantham et al. 2017). First, a framework to define it as a dynamic and complex phenomenon developed in a given environment does not exist. Moreover, exist several difficulties to quantify the conditions offered by a place for the proliferation of high impact entrepreneurship (Henrekson and Sanandaji 2014).

The term 'ecosystem' has its origin in biology, referring to natural environment and its elements. The Real Academia de la Lengua Española defines 'ecosystem' as "the community of living beings which vital processes are interrelated between them and are developed according to the physical factors in an environment".

In this case, the ecosystem concept has been assumed from the management point of view by Moore (1993). This author argues that in the modern competitive context, companies must be part of an intersectoral ecosystem in which they develop, evolve, and innovate together. In this way, in business, as well as in nature, it is transformed from a chaotic way into a more structured one with its different agents acting among themselves (Nicotra et al. 2017).

As it can be appreciated, the concept 'entrepreneurial ecosystem' emerges to show the complexity of entrepreneurship in a specific place, taking into account the influence of interactions among the agents that participates, compete, and cooperate. For that reason, Isenberg 2010, defines the ecosystem as "the set of individual elements, which appropriately combined and supported, conform an optimal environment for innovation".

Therefore, an accurate definition about entrepreneurial ecosystem could be "the set of interdependent factors coordinated between them in the way it allows entrepreneurship" (Nicotra et al. 2017). Moreover, these factors make of the ecosystem an adequate habitat for the spread of economic activities. This concept is the adequate background to study interdependence and the connections between the different actors that interact in the economic complex system, such as individuals, organizations, entities, public institutions, and all the stakeholders in a regional context.

Government institutions and their efficiency are important factors that affect the entrepreneurial ecosystem. In the case of inefficient public institutions, it can generate the increase in harmful, unproductive, and destructive entrepreneurship, which will have a negative impact on regional economic development (Dvoulety 2018).

If users have the chance to interact among them, they can understand the situation in a collective way, negotiate rules, encourage trust, and exercise control over the behavior of others (Dietz et al. 2003). That is, personal interactions between users can increase the likelihood that attitudes towards social behavior prevail instead of short-term opportunism (Ricciardi and Sabrina 2018).

Transparency is essential to encourage positive behaviors. If a user perceives the system lacks mechanisms that make user behavior visible, such user will probably assume that others users are taking advantage of this opacity by behaving opportunistically, and may feel justified in doing the same (Ricciardi and Sabrina 2018).

In this way, it is observed a relevant link between the dissemination index and organizations' transparency, both private and public scope. In this case, organizations' transparency and a higher index value will generate a bigger approach of users and an increase in participation, which consequently would entail a positive impact on the economic development and the entrepreneurial ecosystem.

The study focuses mainly in the analysis of those regional institutions in the Valencian community, which are directly involved in the entrepreneurial regional ecosystem and interact between them and the different actors in the environment. Such entities are those private organizations that support and develop directly entrepreneurship, providing knowledge, finance and support, among other things, as well as public entities that strive to nurture both start-ups and entrepreneurs to carry out their projects, and finally that group of institutions dependent on public universities that support and provide a large amount of resources to companies and entrepreneurs with the aim of providing help throughout the life cycle of their projects.

These entities are a part of the Valencian community ecosystem, but interact with other factors of the surrounding that make it possible to generate a competitive and quality entrepreneurial ecosystem, thanks mainly to collaborations and interactions between the agents, to develop innovation, increase the economic development of the region, and boost economic activity.

### 3. Methodology

In order to carry out this analysis of web pages from different organizations in the Valencian community, a methodology by [Carvalho et al. \(2017\)](#) has been adopted. This study is composed of 49 indicators, grouped in 5 dimensions, as seen in the Table 1, which has been extracted from the questionnaire proposed for the analysis carried out by [Carvalho et al. \(2017\)](#).

**Table 1.** Dimensions for the assessment of the indicators from the disclosure index (source: [Carvalho et al. 2017](#)).

DIMENSIONS	DEFINITION	NUMBER OF INDICATORS
Dimension 1	General Information	10
Dimension 2	Resoruces and support to the entrepreneur	12
Dimension 3	Active entrepreneurship	10
Dimension 4	Digital entrepreneurship	6
Dimension 5	Disclosure and communication with the entrepreneur	11
<b>Total of indicators</b>		<b>49</b>

Each one of these indicators will be evaluated with 1, in case it meets such indicator on the Web, or with a 0, in case it does not comply.

With the collected information in each indicator, according to its value, a grouped disclosure index is prepared for all the institutions analyzed according to indicators, as well as by dimensions, by provinces (Castellón, Valencia, and Alicante) and by sector typology, which means if they are entities directly related to the university, public or private organizations.

To obtain the disclosure index by dimension, the expressions below have been used, where A = value of the indicator, M = total number of indicators, D = total number of indicators by dimension, IDO = disclosure index by organization, and IDOD = disclosure index by organization and dimension.

$$IDO = \frac{\sum_{i=1}^M (A_{ij})}{M} \cdot 100$$

$$IDOD = \frac{\sum_{i=1}^D (A_{ij})}{D} \cdot 100$$

Following are the 49 indicators used for the development of the research, which have been slightly adapted in order to effectively carry out the analysis effectively, as certain insights differed from the original. (shown as Table 2).

**Table 2.** List from the 49 indicators according to the dimension (source: [Carvalho et al. 2017](#)).

DIMENSION 1: GENERAL INFORMATION	1	There is a statement of the maximum authority about the importance of entrepreneurship and economic development
	2	Priorities and strategies to achieve are included in this statement
	3	Events, achievements and failures by the entity are included
	4	There is a map of the web itself
	5	There is an internal search engine for easy navigation
	6	There is a possibility to hear the page
	7	There are links to social networks
	8	There is a list of companies in the region
	9	Key economic data is published, like GDP or the unemployment rate
	10	It reports on strategic issues or reasons to invest in that municipality
DIMENSION 2: RESOURCES AND SUPPORT TO THE ENTREPRENEUR	1	There is a cabinet or organ in support of the entrepreneur
	2	The rules for creating a business are available
	3	A reference to a physical space for the start of the activity is available
	4	Information is published about procedures to be followed for creating a business
	5	There are specific objectives and measurable targets for increasing business activity
	6	Information about entrepreneurship is disseminated, including social entrepreneurship and its impact on the economy
	7	Reference is used for useful contacts
	8	Specific needs for young people, women and other target groups are recognized
	9	It reports on tax incentives for investment (financing solutions venture capital)
	10	There is information on the protection of knowledge, brand etc.
	11	It reports on formalities for creating enterprises
	12	Reference is made to the time and cost of starting a business
DIMENSION 3: ACTIVE ENTREPRENEURSHIP	1	Mechanisms such as multi-stakeholder forums to promote dialogue on entrepreneurship
	2	There are tutorials available to help start a business
	3	There are courses available to develop the skills of entrepreneurs
	4	There are contests, prizes or similar events to publicly recognize entrepreneurs
	5	Offers services to help business creation in compliance with regulatory requirements
	6	There is clarity on priorities and the type of project that the municipality wants to encourage
	7	Days of exchange of experiences and best practices are held
	8	There are educational programs for entrepreneurship in younger schools
	9	It has vinculation with an incubator companies nest or municipal technology park
	10	There are initiatives to encourage SR in companies

Table 2. Cont.

DIMENSION 4: DIGITAL ENTREPRENEURSHIP	1	There is awareness of capacity development campaigns in the use of ICT and digital economy
	2	The municipality facilitates support to improvement of technology in small businesses
	3	Ability to make administrative procedures, permits, online licenses
	4	Online monitoring of processing status and incidents of the posed proceedings
	5	There is a citizen mailbox or a section for complaints, suggestions
	6	There is a platform for business exchange, enterprise portals, trade fairs, business associations and clubs
DIMENSION 5: DISCLOSURE AND COMMUNICATION WITH THE ENTREPRENEUR	1	There is a specific area for entrepreneurs
	2	It is accessible on the web and easy to identify
	3	Investment opportunities are disclosed
	4	It reports on developments as new approved projects, news highlights . . .
	5	There is a space for user satisfaction to improve support cabinets
	6	There is a space for users to express your reviews
	7	A Municipal Bulletin is published related to business news
	8	It reports on what it takes to start a business
	9	It spreads or publicity is given to new companies recently created
	10	There is a relationship to the university or community college
	11	Campaigns are conducted to promote entrepreneurship

## 4. Results

### 4.1. Results of the Dissemination Index

After applying the previously commented methodology, and after analyzing each one of the 49 indicators of the chosen private and public entities, from the entrepreneurial ecosystem of the Valencian community, the obtained results are seen throughout the section. Notably, these organizations have been selected after an exhaustive analysis in different websites related with entrepreneurship, the assistance to symposiums and diverse training material provided by several involved entities in the entrepreneurial ecosystem in the Valencian community, being able to carry out a filtering and an election as faithful as possible to the reality of the Valencian ecosystem.

First of all, it is presented a grouped analysis of the set of studied entities with its corresponding dissemination index according to the sectorial typology, which means if it is a public or private institution, or if it is an entity directly related with a university. The values of the dissemination index are shown in the following table.

It can be observed (Table 3) as the dissemination index in the Valencian community, for public organizations, the average is 37.6%, by 39.7% in private institutions, and 39.1% for those entities that have direct relationship with public universities.

Table 3. Global dissemination index by type of entities (own source).

	UNIVERSITY ENTITIES	PUBLIC ENTITIES	PRIVATE ENTITIES
TOTAL DISSEMINATION INDEX	39.1%	37.6%	39.7%

In most of the organizations, the dissemination index is low, as the average does not even pass the 40% of the indicator. This makes visible the deficiencies suffered in the Valencia community when communicating the different initiatives about entrepreneurship through the websites.

Just 11 out of 57 entities institutions overcome the boundary of 50% in the dissemination index in the Valencian community. What is more, none of those 11 entities reaches the 60% of the dissemination index.

In the case of those 11 entities that reach 50% in the index, it could indicate that good practices regarding the dissemination of information are being carried out to promote entrepreneurship through the internet, given the comparison with the rest of the entities that fail to exceed that value. However, it is not entirely true, since they are slightly above the minimum level the index should reach (50%), without exceeding the 60% barrier of the index in any of the cases. Therefore, it will be important for these organizations to take measures to become one of the reference entities in this task, which would be vital for the near future and present owing to the presence of new technologies in current society.

Regarding the rest of institutions that do not exceed 50% of the index, which should be a minimum requirement, there is an urgent appeal for immediate actions in all areas, as it is one of the main ways entrepreneurs will go in search of information to undertake in their region. Nevertheless, they are going to find difficulties to carry out this search or contrast information efficiently. Moreover, it should be noted the precarious situation in which the Valencian community is in terms of the use of information and communication technologies.

The table above shows the entrepreneurship index grouped for all the analyzed institutions for each one of the 49 indicators used in the study, which allows us to observe in which of the different indicators it would be necessary to improve and carry out urgent measures to reverse the situation. The indicators marked in red are those that obtain less than 25% in the index. The following is formed by those who have less urgency than the indicators of the previous set, but it is recommended that improvements should be made in short term in order to exceed at least the 50% (light orange). The third group (white color) is formed by those indicators that should be interesting to take into consideration to improve in the near future, but with lower urgency than the previous group (light orange), since at the moment they exceed the minimum threshold of 50%. Finally, in green, it is comprised those indicators in which the diffusion is being carried out correctly through the websites, and are those above 75%.

From the 49 used indicators, it can be observed (Table 4) that 19 of them are in emergency levels, which are below 25% of the index level. Among the 49 indicators, 13 indicators obtain a value between 25% and 50%, that should take action to optimize in the short term. Also, 13 indicators are between 50% and 75%. Finally, 4 indicators manage to exceed 75% of the index value, which represents the ones being used properly.

**Table 4.** Results of the indicators of the dissemination index classified in urgency (own source).

DIMENSION	N° INDICATOR	INDICATORS' DESCRIPTION	DISSEMINATION INDEX VALENCIAN COMMUNITY
DIMENSION 1: GENERAL INFORMATION	1	There is a statement of the maximum authority about the importance of entrepreneurship and economic development	44%
	2	Priorities and strategies to achieve are included in this statement	47%
	3	Events, achievements and failures by the entity are included	30%
	4	There is a map of the web itself	19%
	5	There is an internal search engine for easy navigation	56%
	6	There is a possibility to hear the page	4%
	7	There are links to social networks	86%
	8	There is a list of companies in the region	53%
	9	Key economic data is published, like GDP or the unemployment rate	5%
	10	It reports on strategic issues or reasons to invest in that municipality	16%

Table 4. Cont.

DIMENSION	N° INDICATOR	INDICATORS' DESCRIPTION	DISSEMINATION INDEX VALENCIAN COMMUNITY
<b>DIMENSION 2: RESOURCES AND SUPPORT TO THE ENTREPRENEUR</b>	1	There is a cabinet or organ in support of the entrepreneur	96%
	2	The rules for creating a business are available	14%
	3	A reference to a physical space for the start of the activity is available	61%
	4	Information is published about procedures to be followed for creating a business	37%
	5	There are specific objectives and measurable targets for increasing business activity	63%
	6	Information about entrepreneurship is disseminated, including social entrepreneurship and its impact on the economy	23%
	7	Reference is used for useful contacts	60%
	8	Specific needs for young people, women and other target groups are recognized	16%
	9	It reports on tax incentives for investment (financing solutions venture capital)	63%
	10	There is information on the protection of knowledge, brand etc.	14%
	11	It reports on formalities for creating enterprises	23%
	12	Reference is made to the time and cost of starting a business	7%
<b>DIMENSION 3: ACTIVE ENTREPRENEURSHIP</b>	1	Mechanisms such as multi-stakeholder forums to promote dialogue on entrepreneurship	63%
	2	There are tutorials available to help start a business	5%
	3	There are courses available to develop the skills of entrepreneurs	51%
	4	There are contests, prizes or similar events to publicly recognize entrepreneurs	54%
	5	Offers services to help business creation in compliance with regulatory requirements	95%
	6	There is clarity on priorities and the type of project that the municipality wants to encourage	56%
	7	Days of exchange of experiences and best practices are held	63%
	8	There are educational programs for entrepreneurship in younger schools	32%
	9	It has vinculation with an incubator companies nest or municipal technology park	44%
	10	There are initiatives to encourage SR in companies	21%



Table 4. Cont.

DIMENSION	Nº INDICATOR	INDICATORS' DESCRIPTION	DISSEMINATION INDEX VALENCIAN COMMUNITY
<b>DIMENSION 4: DIGITAL ENTREPRENEURSHIP</b>	1	There is awareness of capacity development campaigns in the use of ICT and digital economy	54%
	2	The municipality facilitates support to improvement of technology in small businesses	53%
	3	Ability to make administrative procedures, permits, online licenses	28%
	4	Online monitoring of processing status and incidents of the posed proceedings	21%
	5	There is a citizen mailbox or a section for complaints, suggestions	9%
	6	There is a platform for business exchange, enterprise portals, trade fairs, business associations and clubs	19%
<b>DIMENSION 5: DISCLOSURE AND COMMUNICATION WITH THE ENTREPRENEUR</b>	1	There is a specific area for entrepreneurs	44%
	2	It is accessible on the web and easy to identify	35%
	3	Investment opportunities are disclosed	46%
	4	It reports on developments as new approved projects, news highlights . . .	88%
	5	There is a space for user satisfaction to improve support cabinets	4%
	6	There is a space for users to express your reviews	9%
	7	A Municipal Bulletin is published related to business news	16%
	8	It reports on what it takes to start a business	21%
	9	It spreads or publicity is given to new companies recently created	30%
	10	There is a relationship to the university or community college	35%
	11	Campaigns are conducted to promote entrepreneurship	47%

This corroborates with what was previously highlighted about the poor dissemination of entrepreneurship throughout the websites in the vast majority of institutions in the Valencian community. In fact, just 17 out of 49 indicators are capable of exceeding 50%, which means a 35% of the total. On the other hand, it can be observed a total of 32 indicators in emergency levels, which do not exceed the 50% of the indicator. This allows us to observe the precarious situation in which the entities of the region in charge of disseminating and promoting are, which negatively affects the entrepreneurial ecosystem.

Proceeding to separate the different organizations studied according to the province (Valencia, Alicante, or Castellon), taking into account that certain entities act in all three places at once. From these results, we obtained the disclosure grouped index for each one of the provinces analyzed, as well as the disclosure index by dimension for each one of the regions, as shown in the following table.

From the analysis we carried out, it can be seen (Table 5) that the province of Valencia is located as the main nucleus of entrepreneurship in the Valencian community, with a total of 44 entities (77% of the total); while in the province of Castellón, only 11 organizations are available to study, and 14 in Alicante. This demonstrates the development of the province of Valencia in entrepreneurship, regarding to the other provinces. However, when extracting the averages of the disclosure index in each one of the three areas, it is obtained that in Valencia, the disclosure index is 37.5%, for a 37.4% in obtained for Castellón, and 42.9% in Alicante.

**Table 5.** Results of the disclosure index by province and dimension (own source).

	CASTELLÓN	VALENCIA	ALICANTE
D1 INDEX: GENERAL INFORMATION	34.5%	34.5%	40.7%
D2 INDEX: RESOURCES AND SUPPORT TO THE ENTREPRENEUR	43.2%	36.6%	45.2%
D3 INDEX: ACTIVE ENTREPRENEURSHIP	44.5%	47.7%	51.4%
D4 INDEX: DIGITAL ENTREPRENEURSHIP	25.8%	28.8%	31.0%
D5 INDEX: DISCLOSURE AND COMMUNICATION WITH THE ENTREPRENEUR	33.1%	30.6%	40.9%
TOTAL DISCLOSURE INDEX	37.4%	37.5%	42.9%

Valencia, despite having a bigger network of entities that support and encourage entrepreneurship, it does not obtain positive values, since its average disclosure index is below the average in Alicante and practically identical to Castellón rate, highlighting that this happens with a greater number of entities, and that not all of them participate directly in entrepreneurship, but they have it as a secondary service, but it shows that entrepreneurship is not being disseminated in the most efficient and adequate way, so it is urgent that this route of dissemination of entrepreneurship should be improved to create a more consistent entrepreneurial ecosystem, not only in the region of Valencia, but also in Alicante and Castellón, since none of them exceed 50% of the indicator.

In addition, regarding to the province of Valencia, it should be noted that the efforts made in promotion of digital entrepreneurship are certainly scarce, since only 28.8% is obtained in the value of the disclosure index in such a dimension, making it the worst-rated of the five.

On the other hand, it is obtained that the greatest efforts regarding the dissemination of entrepreneurship through the websites in the province of Valencia are focused on active entrepreneurship, the best rated in this case with a 47.7%. This means that events are carried out with stakeholders, competitions are held to promote entrepreneurship, and services are offered for the creation of companies. However, the obtained values are far from the optimal values, which should reach at least 50%.

Regarding the province of Castellón, it is obtained that the dimensions with highest valuation obtained are those of providing resources and support to the entrepreneur, and that of active entrepreneurship, which achieve a 43.2% and a 44.5% respectively, demonstrating that—even in the best valued dimensions—not enough effort is being devoted to effectively promoting and disseminating entrepreneurship through the websites. As for the dimensions that get the worst rating, it is about digital entrepreneurship, as in the province of Valencia, with 25.8%. Really alarming figures given the importance of digitalization sector and the use of new technologies in society.

In the province of Alicante, region in which better results are obtained, it is repeated as in the cases of Valencia and Castellón that the dimension with worst values achieved is digital entrepreneurship with 31%. However, it is the only province in which one of the five dimensions analyzed exceed the value of 50%, specifically in active entrepreneurship with 51.4%. This shows that in this aspect good practices are being carried out and that it should continue to be improved so that entrepreneurs can be well informed and can participate in the different events that make them promote and develop professionally.

Except in digital entrepreneurship, the Province of Alicante presents values above 40% of the index. This indicates that from those entities, good practices are being carried out that in the future can differentiate them from the other two provinces, which can generate a greater entrepreneurial intention and activity, which can lead to greater economic growth.

In Table 6 the numbers of habitants and total entities analyzed for each province are provided. When studying the relation between habitants by entity, it is obtained that Castellon is the province with a better ratio, as there are 52,445 habitants per institution related with entrepreneurship. The province of Valencia obtains a similar ratio (57,909 habitants per entity), still owning almost five times Castellon's population. Regarding the Province of Alicante, it is the worst in this relation, as it obtains a ratio of 131,000 habitants per entity, more than double than in Castellon and Valencia.

**Table 6.** Relation of population and number of entities by province (source: Instituto Nacional de Estadística).

	<b>CASTELLÓN</b>	<b>VALENCIA</b>	<b>ALICANTE</b>
POPULATION (Number of habitants)	576.898	2.547.986	1.838.819
NUMBER OF ENTITIES	11	44	14
HABITANTS PER ENTITY RATE	52.445	57.909	131.344
Nº OF ENTITIES THAT OVERCOME 50% IN THE INDEX	0	7	3
PERCENTAGE OF ENTITIES THAT OVERCOME 50% IN THE INDEX	0%	16%	21%

Stand out that entrepreneurship dissemination observed in Castellón is really precarious. Not just because it is the region with the lowest rate, but because it does not present a single entity that exceeds 50% of the indicator, while in Valencia, 7 institutions exceeds this value, and 3 out of 14 organizations analyzed in Alicante.

Therefore, it is necessary that province of Alicante to increase the number of entities that support and encourage entrepreneurship, both in the private and public sectors and that administration provides more efforts and resources to try to reverse this situation. Population numbers are certainly high, while only 14 entities have been analyzed, that is, three more than in Castellón, having more than triple its population. This indicates that Alicante, despite the high potential available to create a powerful network of entrepreneurship with a greater number of entities that may also be connected with its two quality public universities is not making enough efforts in this regard, and is wasting an opportunity for considerable economic growth and development. As for the province of Castellón, it is observed as its strategic point for entrepreneurship development is in the capital, Castellón de la Plana, where there is a public reference university, as well as a greater concentration of population in the surrounding municipalities.

Regarding the province of Valencia, it can be observed as a powerful network to develop entrepreneurship, which supposes a positive aspect for the region. However, regarding to dissemination index, it is possible to observe that entrepreneurship is not being disseminated adequately through the Internet and social networks, which means ICT are being vaguely developed in the region. In fact, a total of 44 studied entities, just 7 exceed 50% of the index, but none of them reach 60%. Therefore, it is needed an improvement in this ambit, as the future is linked to the development of these good practices, and despite having an ecosystem full of actors, it is not enough if these does not know how to reach potential users adequately.

Referring to the entities that exceed 50% of dissemination index, it has to stand out that it is necessary that they keep on improving in this areas and not being stuck in this value, but this indicator supposes an inflection point to grow exponentially and offer potential entrepreneurs what they really are looking for and satisfy their needs.

#### 4.2. Results of the Study of the Practices

In reference to the good practices that are being carried out, it shows how institutions are making good use of social networks. They are publishing information through them with the objective of reaching the users and new generations. A clear example of a support of entrepreneurship in the community. They are providing services to help the creation of businesses accomplishing the current regulatory requirements, an aspect that should continue to be implemented in order to keep users informed and updated. A specific area can be highlighted where pending news or approved projects are published, with the objective of keeping the population informed and raise awareness of what is happening around them. It also offers information about the different new businesses and projects that are going to be developed or are currently being carried out, with the objective they are encouraged to and motivated to take the initiative to start their new project.

Nevertheless, regarding the aspects that are most relevant, due to the urgency to correct them, an absence of information about the economic situation of the region has been identified, a key element

for people who wish to carry out these kinds of practices in this area, making them aware of the situation they are going to find, both benefits incentivized and motivated to take the initiative to start their new project. Difficulties, as well as the lack of information about strategic aspects for investing in the region, are key factors both for recruitment and retention of talent and that should be exploited to a greater extent given the beneficial characteristics found in the Valencian community, such as the good weather throughout the year, cultural aspects, gastronomy, talent pool, etc.

It also observes the lack of information about the rules that have to be followed to create a business, characteristic to take into account for every entrepreneur when launching a business. The absence of the information is highlighted about the absence of information about social entrepreneurship along with the impact it generates on the economy, an element that is becoming increasingly important in society and that can be key to the creation of any type of business today and in the future.

It should be noted that one of the indicators that may be more relevant obtained extremely low values. This is the case of the one who refers to the time and cost of starting a business, which obtained 7% of the 57 entities analyzed, some mention is made in this regard. This can suppose a serious mistake, since it is necessary for potential entrepreneurs to be aware of what this type of initiative entails, given that it is one of the main problems of entrepreneurship. In addition, in the event that the entity is able to offer services that help reduce both the aspect of time and cost, they will obtain a competitive advantage in the market compared to other organizations, as well as allow users to be aware of certain difficulties, keeping them informed to the maximum and avoiding future confusion.

Other negative aspects are the next ones: there are few organizations in which there are tutorials to help entrepreneurs to start a company, which could be of great added value for entrepreneurs to be able to orient themselves. The absence of initiatives to encourage corporate social responsibility, a factor that is gaining strength and that can be vital today and in the coming years. In the communication section between entrepreneurs and institutions, there is little emphasis on the use of complaint and suggestion mailboxes, places to offer their comments or express their satisfaction, when it is an important feature that can help improve the entity since more trust is generated with other entrepreneurs who may be interested in carrying out this type of practice.

There is little relevance to inform about what it takes to start a business, a fact that would help the potential entrepreneurs to place themselves and see each other in advance in this situation, illustrating what they might come up against during the development of this initiative. It highlights the absence of online supervision and a platform to promote business exchange, business portals, etc., that can generate a network with the objective of creating new alliances, collaborations, knowledge exchange, etc.

## 5. Conclusions

The extracted results from this analysis could help various organizations, and in this way they could implement specific public policies and take measures to improve their development and the diffusion of information, since the number of people connected to social networks and ICT is increasing. In this way, ICT will be a strategic channel to develop and communicate with the different stakeholders in the near future.

It is concluded that the Valencian community presents a large number of deficiencies with regards to the diffusion of entrepreneurship through the organizations' websites. In fact, some precariousness and low efficiency has been observed in this respect, since it is not being adequately improved if one wishes to have a reference in the entrepreneurial ecosystems both nationally and internationally.

Therefore, throughout the document, certain elements with low potentiation are presented inside the autonomous environment that can be seen as possible improving opportunities for growth and the correct development of entrepreneurship in the community.

The potential of the ecosystem in the Valencian community is high. It has been greatly developed in the city of Valencia, and there are opportunities for growth in the province of Alicante, in cities such as Alicante, Elche, and Alcoy, given their large population of them; also in the province of

Castellón, mainly in Castellón de la Plana that has a large population, and a public reference university (Universitat Jaume I).

Therefore, the opportunity to create new entities related to entrepreneurship in these areas, together with a considerable improvement in the dissemination of relevant information on entrepreneurship through the web, will generate a highly developed ecosystem, which together will produce a greater economic growth in the region.

However, the diffusion on entrepreneurship is simply the tip of the iceberg. The solution and the improvement of the entrepreneurial ecosystem in the Valencian community does not only include the improvement of the disclosure rate of each of the entities that comprise it. It is just a small step, which in line with the creation of new entities to support entrepreneurs, taking government measures, developing information, increasing collaboration between entities, and many other factors, can create a highly effective ecosystem in the community that brings added value to the society as a whole.

Definitely, stone to stone, the ecosystem in the Valencian community has to begin optimizing, and the use of ICT—such as social networks, the Internet, cloud computing, among other elements—result and will be key in its development given the strength that news technologies charge in current society. For this reason, the improvement in the dissemination index about entrepreneurship through the websites of the entities, can be the first stone towards the path of economic improvement and enrichment of that region, since, as irrelevant as it may seem, the importance of the dissemination of entrepreneurship can be decisive if you want to obtain an entrepreneurial ecosystem reference and quality in the region, which must be in line with the rest of actors that compose it and with society.

## 6. Discussion

This chapter discusses the most relevant findings found after obtaining the results on the disclosure index through the websites of the entities of the Valencian community, whether public or private.

From this paper, we highlight the importance of the optimal use of information and communication technology in the current generations and those to come, as well as the entrepreneurship diffusion. According to the results of the index, it can be observed under which factors the Valencian community is carrying out good practices or which improvements are necessary if a reference ecosystem is needed. A comparative of the situation is developed for each of three provinces (Valencia, Castellón, and Alicante). Finally, possible improvements have been identified that could develop entrepreneurship efficiently, which can generate a larger economic growth in Levante region.

Throughout the study, it can be seen how the diffusion of entrepreneurship through the digital platforms of the entities that form the entrepreneurial ecosystem is really precarious, since the levels reached, both in individual indicators and in those that have been grouped, they are especially low, mainly those that should be more important as they are: availability of rules for creating a business, information about social entrepreneurship and its impact on the economy, formalities for creating enterprises, time and cost of starting a business, initiatives to encourage SR, among others.

All this is reinforced through a study published by the Generalitat Valenciana (2016), which is the highest public institution of the Valencian community, in which a SWOT analysis is carried out about the entrepreneurship situation in the community in 2016. After analyzing the SWOT and the results obtained through the disclosure index, it can be seen how, first, the public administration is not carrying out the necessary efforts to develop entrepreneurship in the region, as it was noted that it should be his duty by Park (2001) and Pages and Poole (2003), and that it is a key piece for the development of the economy not only at European level as previously noted by Muller et al. (2016), but also at the national level. An indication that it is not being carried out is that, after presenting said SWOT analysis in 2016, the vast majority of weaknesses identified by the administration were again found in a study conducted independently in 2018.

Among these shortcomings detected through the disclosure index and that are shared with the SWOT analysis, it should be remarked that the necessary procedures for the creation of companies are not identified, which leads to confusion for the user, the social economy being completely forgotten, a

lack of coordination between the actors, a lack of means, a lack of coordination of the Generalitat which is visible when analyzing the index for public institutions, absence of awards for entrepreneurship from the entities, lack of involvement through the CSR, the absence of reference events, absence of training and monitoring programs for entrepreneurs, a lack of support to promote digital platforms, and that relational capital is not valued by the administration. These are some of the 113 weaknesses identified by the administration that are reinforced when performing the disclosure index analysis, so the message is confirmed. The development of the entrepreneurial ecosystem in the Valencian community is not appropriate and the public administration and private entities have to make coordination effort among themselves and develop basic aspects like ICTs that, year after year, become more important in our environment.

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