

A Comparison Between Nordic and Mediterranean Start Up Ecosystems: Economic Sectors, Business and Pricing Models

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Marisa Abreu Gonçalves
Departamento de Engenharia Mecânica e Industrial
Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa
Caparica, Portugal
maa.goncalves@campus.fct.unl.pt

Antonio Grilo
Departamento de Engenharia Mecânica e Industrial and UNIDEMI
Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa
Caparica, Portugal
acbg@fct.unl.pt

Aneesh Zutshi
Departamento de Engenharia Mecânica e Industrial and UNIDEMI
Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa
Caparica, Portugal
aneesh@fct.unl.pt

Abstract

A startup ecosystem is a set of interconnected entrepreneurial actors, entrepreneurial organizations, universities, public sector agencies, financial bodies, and entrepreneurial processes, which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment. Over the last 5 years we have witness to the emergence of the digital start up entrepreneurship phenomenon, with an exponential growth on the number of active startups. This paper sets to analyse if start ups in Nordic and Mediterranean ecosystems have different choices in terms of economic sector, business model and the pricing model. We have analyzed the Mediterranean region constituted by Lisbon, Madrid, Rome and Athens and the northern region constituted by Malmo, Stockholm, Amsterdam and Helsinki. The study used the database of F6S, the leading online platform for the startup community with over 490 000 registered startups, having analyzed a total of 5573 start ups. The study concludes that there are clear common trends in both Nordic and Mediterranean regarding business models (mainly B2C) and pricing models (mainly Freemium), but low communality regarding economic sectors.

Keywords

Entrepreneurship, Economic Sectors, Business Models, Pricing Models, Startup, Ecosystems

1. Motivation

Since the late 1980s, we have witnessed many studies examining the consequences of entrepreneurship in terms of economic performance. This literature is generally restricted to two units of observation – the firm (or establishment) and the region. It is clear that an increased economic performance by firms and regions will positively affect aggregated economic growth at the country level. A sizeable body of literature analyzing the impact of entrepreneurship on economic performance at the level of the firm (or establishment) emerged. These studies typically measure economic performance in terms of firm growth and survival (Audretsch, 1995; Caves, 1998; Davidsson et al., 2006; Sutton, 1997).

A smaller body of literature developed linking measures of entrepreneurial activity for regions to the economic performance of those regions (Acs & Armington, 2004; Audretsch & Fritsch, 2002). Studies considering the impact of entrepreneurship on performance where the country is the unit of observation are notably scarce, despite the efforts of the Global Entrepreneurship Monitor (GEM) research program (Reynolds et al., 2005). In recent years the EU Member States have encouraged this phenomenon, through financial support (Dee et al., 2015), startup events, entrepreneurial education, online platforms, business angels, investor groups, incubators and accelerator. In face of the exponential growth of startups developed

in European startup ecosystems, we believe it is important to analyse these ecosystems by geographical regions (Nordic region and Mediterranean region) analysing choices in terms of economic sector, business model and the pricing model. Our three research questions were defined as:

- What are the differences amongst European countries Startup Ecosystems with regards to the Economic Sectors?
- What are the differences amongst European countries Startup Ecosystems with regards to the Business Models?
- What are the differences amongst European countries Startup Ecosystems regards to the Pricing Models?

Although this phenomenon has been studied and investigated over the years, this research work is still lacking, since it reconciles characteristics of startups by European startup ecosystem.

2. Literature review

2.1 Business Models

According to Cohan (2014) a business model explains which consumer pain your startup chooses to relieve, why the solution works better than competing ones and how big a wedge a company can drive between what customers are willing to pay and the costs. For this research work, we considered three types of business model. Business to Business or B2B applies to those companies who want to market their goods or services exclusively to other businesses and not to final consumers. Provides the gateway for an enterprise's employees, managers, customers (clients) and all trusted suppliers and trading partners to access electronic data applications and all information they need (Akoh, 2001). B2B is described as the form of relationship with the company on the side of supplier and another business company on the customer side. This business company could be represented by sole trader, company, or institution. (Kumar & Reinartz 2012, s.261). According to Brad Shorr (2013), B2B customers are typically buying on behalf of a business or for a business, which means more than one person may be involved. Another business model is Business to Consumer or B2C, where consumers are completely in control of what they are going to buy, with a different buying process, with consumers learning about the product or service, make a decision, and buy. Finally, Customer to Customer (C2C), is a business model that facilitates the transaction of products or services between customers (Eliane J. Hom, 2013).

2.2 Pricing Models

New businesses often start either from a market vision or from a technological capability. In both cases, the initial idea must be exploited with the aid of a business model (Chesbrough & Rosenbloom, 2002) through value creation and capture activities (Teece, 2010; Zott, Amit, & Massa, 2011). However, practice often shows that not every business model is designed and employed for the purpose of exploitation and growth from the beginning (Massa & Tucci, 2013). For this research work, we considered three types of pricing model: Freemium, Premium and Subscription. During the Internet boom in the early years of 2000s, a vast number of websites attracted Internet surfers by offering them with large amounts of free information ranging from news, business data to sports statistics. However, the once well-sold revenue model of offering free content to secure advertisement revenues yielded rather disappointing results for most of the e-service providers. Increasingly, advertising revenues alone were insufficient to meet the bottom-line needs of a company for survival (Addison 2001, Dewan et al. 2003, Turban et al. 2002). Forced by the harsh business reality to seek alternative sources of revenue, many of these web operators have begun charging users a subscription fee for access to online information and/or services (Olsen 2001, Goldman 2001, Prasad et al. 2003, Taylor 2001). Instead, free content is mainly used primarily as a marketing ploy: a complementary trial period is strictly used for purposes of enticing customers to subscribe to a service or buy a product online. Alternatively, some sites attract customers by offering a limited amount of free content. They then hope to convince their customers to shift to a variety of "premium," fee-based content (Outing, 2002). Freemium model (a mix of "free" and "premium") has been gathering steam since 1994 when Esther Dyson, a prominent technology analyst, envisioned a world where intellectual property would cost nearly nothing to distribute. According to Teece (2010), Freemium has become one of the most prominent ways to earn money – giving a majority of users access to a basic version of the offering while charging few for a premium product or service.

According to Emma Butin (2014) Freemium is no longer perceived as really free. We live in an era where companies want much more in return for providing us a free a product. In today’s world, a free use of product is understood as “free of cash payment,” not free from other payments. We do pay for “Free”, but with other means; with information for example, often valued much higher than a cash payment. When companies offer a product at a “freemium”, they’re hitching a ride on the use of the word “Free”. They expect users have the product for assessment purposes. But user’s basic conscious understanding is that they pay for “Free.” Alas, the problem of Freemium/Premium is rooted when companies use the word “freemium.” By doing so, they inadvertently ask users to change their acquired belief of the word “Free”. Once users use the Freemium version of the product, it is in their mindset that they paid for it. When companies are attempting to upgrade us to their premium package, suddenly a shift of mindset is not really received favorably. This is because we already paid with our information and maybe also shared our knowledge. When a company wants us to take real dollars out of our pockets, a premium price seems expensive and maybe even unfair. It’s not about the price. It is the shift of the quid pro quo consciousness that occurs.

2.3 Startup Ecosystem Definition

According to Mason & Brown (2014), a startup ecosystem is a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of ‘blockbuster entrepreneurship’, number of serial entrepreneurs, degree of sellout mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment.

2.4 Models of Entrepreneurial Ecosystems

There are now a number of models of entrepreneurial ecosystems. In recent years a particularly influential approach has been developed by Daniel Isenberg at Babson College who has started to articulate what he refers to as an ‘entrepreneurship ecosystem strategy for economic development (2011a, p.1). He identifies six domains within the entrepreneurial system: a conducive culture (e.g. tolerance of risk and mistakes, positive social status of entrepreneur); facilitating policies and leadership (e.g. regulatory framework incentives, existence of public research institutes); availability of dedicated finance (e.g. business angels, venture capital, micro loans); relevant human capital (e.g. skilled and unskilled labor, serial entrepreneurs, entrepreneurship training programs); venture-friendly markets for products (e.g. early adopters for prototypes, reference customers), and a wide set of institutional and infrastructural supports (e.g. legal and accounting advisers, telecommunications and transportation infrastructure, entrepreneurship promoting associations).

The startup ecosystems have a critical role in the startups themselves and, direct and indirectly in the local and global economy. According to Motoyama and Watkins’ research article for the Kauffman Foundation (Motoyama & Watkins, 2014). The authors affirmed there are four types of connections enabled by the ecosystem: connections between entrepreneurs; connections between support organizations; connections between entrepreneurs and key support organizations; and miscellaneous support connections.

Table 1 – Connections enabled by the ecosystem (Motoyama & Watkins, 2014)

Entrepreneur-to-Entrepreneur Connections	These connections are extremely important and valuable. The entrepreneurs can support, train and practice with each other, they can build a learning community among them, and by observing their peers they can provide important feedback to each other’s businesses.
Support Organizations-to-Support Organizations Connections	There are organizations that attend other’s events, or jointly organize events, some organizations have shared board members, and organizations sometimes share the same strategic view and long-term goal.
Entrepreneur-to-Support Organizations Connections	The support that is more public and observed is the connection between the young entrepreneurs and their businesses, and the support organizations. It is here identified two forms that the support organizations have to assist the entrepreneurs: 1) a broad form, which is comprised of supports such as mentoring and connecting; and 2) a

	functional form, which encompasses assistance in the business model, pitch practice and incubation, for example
Miscellaneous Support Connections	Interactions that go beyond entrepreneurs and support organizations to include other miscellaneous entities in the ecosystem. These connections is mainly comprised by periodic entrepreneurship-oriented events, and other miscellaneous organizations. The ultimate goal of these connections is to connect entrepreneurs, that otherwise might not meet, mostly through open events where entrepreneurs have the opportunity to interact with its peers.

2.5 Global Startup Ecosystem

Throughout the world, there are several ecosystems with various industries, but definitely that an ecosystem stands apart from all other: Silicon Valley. Silicon Valley is one entrepreneurial ecosystem of those few places in the world whose name has become shorthand for an entire industry. For half a century, this cluster of suburban communities in northern California has produced successive waves of globally significant innovation in electronics and computer technology, and been an incubator for countless entrepreneurial enterprises and a generator of astounding levels of wealth (O'mara, 2006).

The Silicon Valley's success has spawned a powerful creation mythology whose iconic figures are quirky but brilliant "garage entrepreneurs", a type embodied by HP founders William Hewlett and David Packard, who began their company in a Palo Alto garage in 1939. Nowadays, it's seen as mainly a mecca for startups, but in many ways it is the coexistence of large firms as Google and other powerful and successful companies, which provide markets for startups' offerings, a source of human capital, and often expertise, along with startups that make the ecosystem viable.

According to the Global Startup Ecosystem Ranking (Herrmann *et al.*, 2015), the startup ecosystem's top 20 is composed by the following: Silicon Valley (U.S.A.); London (U.K.); Los Angeles (U.S.A); Tel Aviv (Israel); Berlin (Germany); Boston (U.S.A); Chicago (U.S.A.); New York City (U.S.A); Amsterdam (Netherland); Seattle (U.S.A.); Austin (U.S.A), Paris (France); Singapore (Republic of Singapore); Vancouver (Canada); Sao Paulo (Brazil); Montreal (Canada); Bangalore (India); Toronto (Canada); Sydney (Australia) and Moscow (Russia).

As described in Figure 2, where the startup ecosystem's top 20 ranking is depicted, North America leads with ten ecosystems, Europe contributes with six ecosystems, while Asia presents three ecosystem, and Latin America with only one ecosystem in the top 10. From this analysis it's possible to conclude that the largest startup ecosystems are located mainly in North America and Europe, with the North Americans showing a higher entrepreneurial development than its European equivalents. This development is even more perceptible when analyzing the total exit volume in 2013 and 2014. Silicon Valley dominates the global scene with an astonishing 47.3% of the value of all startup exits in the top 20, while the North American ecosystems total 72% of the total exit volume, against the more modest 26.6% registered by the European ecosystems. However, by analyzing at the value volume evolution over the last three years, it is possible to claim that the global ecosystem landscape is maturing, with non-Silicon Valley ecosystems of the top 20 capturing 14% more of the exit value volume.

Looking at the relative growth rates of exit value based on a 2013-2014 two year moving average, depicted in Figure 3, one can see that Canada showed no growth, while US's ecosystems registered a 46% growth in their exit values, its European counterparts showed a much more notable growth, growing a 314% rate, whereas Latin America ecosystems grew 209%, Asia-Pacific grew 99%. As for the exit value, it grew much faster in the top European ecosystems than in the top U.S.A ecosystems: 4.1x in Europe against 1.5x in the US, yet the exit values are still on average 82% higher in the U.S.A than in the European ecosystems.

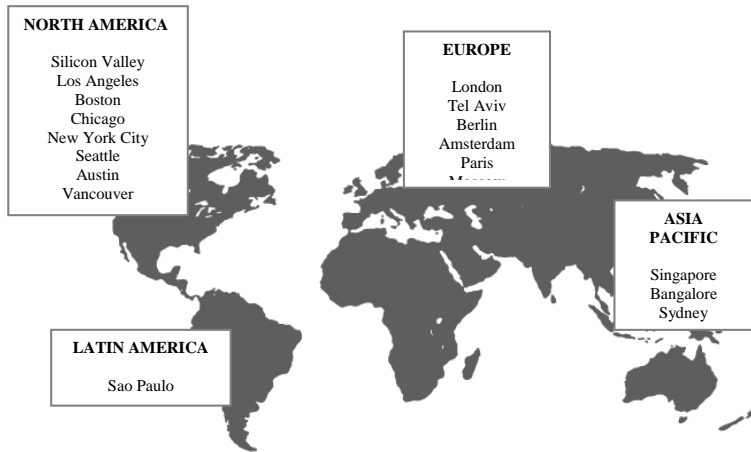


Figure 1 – Top 20 Startup Ecosystems (adapted from: Herrmann et al., 2015)

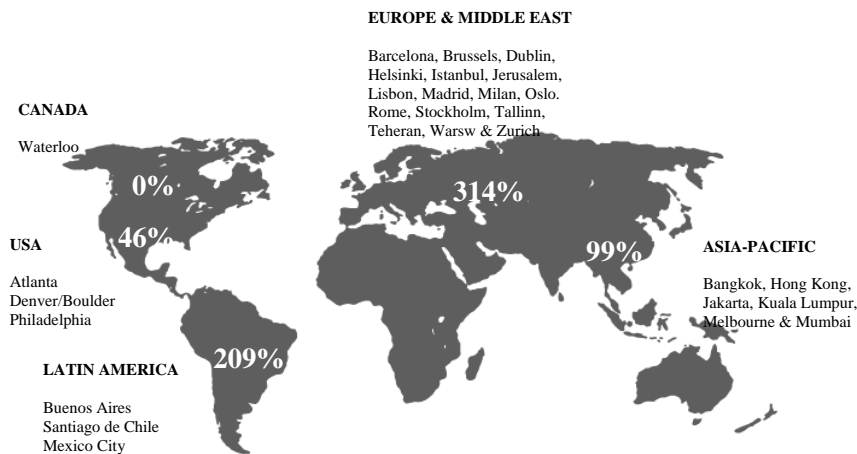


Figure 2 – Global relative growth rates of exit and runners-up (adapted from: Herrmann et al., 2015)

3. Empirical Analysis and Results

With the aim of studying the trends of the entrepreneurial ecosystems, with a focus on the economic sector, business model and pricing model and to realize if the cities belonging to the different European regions, we started to analyze if there are significant differences between European Startup Ecosystem with regards to the Economic Sectors, as the initial literature review did not clarify this. According to Nesta, there is no preference regarding the choice of business model. Actually, opinions differed on whether to focus on B2B or B2C ventures, and some managers suggested additional categories such as ‘B2startup’ i.e. where a startup’s initial customers are other startups. The majority had a focus on B2B; 90 per cent of Hub:raum’s startups were B2B. Rocket Internet is a notable exception: 70–80 per cent of its startups were B2C. In this sense, we intend to find out which is the predominant model in each ecosystem studied in order to understand the current preferences.

We also decided to analyze if there are significant differences between European Startup Ecosystem with regards to the Business Models. Based on the literature study conducted earlier in this research, we concluded that studies uncover that pricing models "Freemium" and "Subscription" are very common in business models of startups. Thereby, we intend to continue these studies, adding value to study various European ecosystems and identify the pricing models most used.

Lastly, we questioned if there are significant differences between European Startup Ecosystem with regards to the Economic Sectors. The present study aims to add value, particularly studying each European ecosystem, giving more detailed information.

3.1 F6S Platform

F6S is the leading online platform for the startup community. In this platform startups grow together through startup programs, deals, jobs, discussion and events. Actually, it is the home for founders and startup programs globally with over a hundred thousand jobs and talent looking for jobs, thousands of startup organizations, 490 000 startups and millions in free founder benefit and founders apply to accelerators, pitch investment funds, post or apply for jobs, get free deals and grow every day. Currently, 99% of accelerators choose startups on F6S, about 1.3 million founders use F6S benefits. With this platform it is possible to connect people with startups that need talented people and about 132 432 users are looking for opportunities at recruit talent. Data from F6S platform was the data source for our analysis of the ecosystems.

3.2 Sample Selection and Characterization

For the selection of the case studies, we decided to have samples from the eight European ecosystems, and we wanted to analyze if the business models, pricing models and economic sector differ according to the maturity of the ecosystems. Indeed, northern countries have typically more matured ecosystems and Mediterranean countries typically less mature. Thus, we decided to divide the set into two subsets: the Mediterranean region constituted by Lisbon, Madrid, Rome and Athens and the northern region constituted by Malmo, Stockholm, Amsterdam and Helsinki.

As mentioned previously the online platform F6S was a central tool for data collection, to know the background the startup ecosystem. Only were selected digital startup and each one was characterized by economic sector, business model and pricing model. The Table 2, represents the total number of startup logged on the platform.

Table 2 - Research startup ecosystem participants

STARTUP ECOSYSTEM	NUMBER OF STARTUPS
Amsterdam – Netherlands	1192
Athens – Greece	525
Helsinki – Finland	558
Lisbon – Portugal	619
Madrid – Spain	1420
Malmo – Sweden	78
Rome – Italy	648
Stockholm - Sweden	533

3.3 Data Analysis Results

The data analysis results will be presented and discussed, based on the collected data from the online platform. The main objective is to identify digital startups and then analyze them to identify the economic sector, its business model, and its pricing model - the key factors of the research.

3.3.1 Economic sector dimension

Madrid is the capital of Spain and the largest ecosystem of this study. According to F6S platform there are about 1 420 startups registered, which makes this ecosystem requires special attention, since it is the largest ecosystem in the Iberian Peninsula. Currently, there are 30 different economic sectors, which with the Top 10 being: Education, Lifestyle, Social Networking, E-commerce, Travel & Tourism, SaaS, Data & Analytics, Health/Medical, Finance and Entertainment.

Amsterdam, in the Netherlands, is the European newcomer, entering in the ranking at 19th with more than 1 900-2 600 tech startups and the 5th highest Growth Index of the top 20, according Global Startup Ecosystem Ranking (Herrmann et al., 2015). In the online platform F6S are registered 1 192 startups and currently, there are 32 different economic sectors, with the Top 10 being: SaaS, E-commerce, Travel & Tourism, Fashion, Food & Beverages, Education, Data & Analytics, Lifestyle, Health/Medical and Media.

Rome, capital of Italy and the third largest ecosystem of this study. According to F6S platform there are about 648 startups registered and currently, there are 24 different economic sectors, with the Top 10 being: E-commerce, Food & Beverages, Gaming, Entertainment, Travel & Tourism, Media, Sports, Health/Medical, Social Networking, Lifestyle, Finance, Education and Automotive;

Lisbon, in Portugal, where according to F6S platform there are about 619 startups registered and currently, there are 24 different economic sectors, with the Top 10 being: SaaS, Education, Travel & Tourism, Social Networking, Data & Analytics, Entertainment, E-commerce, Fashion, Food & Beverages, Lifestyle and Consulting.

Helsinki, the capital of Finland and the fifth largest ecosystem of this study. According to F6S platform there are about 558 startups registered and currently, there are twenty four different economic sectors, with the the Top 10 being: Lifestyle, Media, Health/Medical, Gaming, Music, Jobs & Recruiting, Data & Analytics, Travel & Tourism and Education;

Stockholm, capital of Sweden, has according to F6S platform 558 startups registered and currently, there are seventeen different economic sectors, with the Top 10 being: Health / Medical, Gaming, SaaS, Enterprise, Social Networking, Media, Food & Beverages, E-commerce, Lifestyle and Education;

Malmö, is the 3rd largest town in Sweden, and it is the smallest ecosystem of the present study. There is no need to highlight the 10 most powerful sectors in the ecosystem, because there are only 7 different economic: Social Networking, Health/Medical, Travel & Tourism, SaaS, Media, E-commerce and Computer Networking.

Athens is the capital of Greece and the seventh largest ecosystem of this study. According to F6S platform there are about 525 startups registered and currently, there are 17 different economic sectors, with the Top 10 being: SaaS, Travel & Tourism, Media, Entertainment, Data & Analytics, E-commerce, Social Networking, Lifestyle, Sports, Gaming, Marketing, Health/ Medical and Food & Beverages;

In tables 3 and 4 is presented the Top 5 economic sectors of each region. The main economic sectors in the Nordic region are SaaS and Health / Medical. The large number of startups in these areas may be justified by the largest R&D and S&T ratios. This unique combination of high-end research, education, innovation and technology makes it stand out in the European Union. These ecosystems are characterized by the most dynamic places for startups in ICT, Mobile, Biotechnology, Cleantech and Design. Nordic culture is also highly concerned about wellness and health and in this sense, several startups are responsive to local needs. In these countries there is a very positive energy between big companies and the government to stimulate the entrepreneurial ecosystem, thus increasing the number of startups from year to year.

Table 3 – Top 5 –Nordic region

	AMSTERDAM	HELSINKI	STOCKHOLM	MALMO
1	SaaS	Lifestyle	Health/Medical	Social Networking
2	E-commerce	Media	Gaming	Health/Medical
3	Travel & Tourism	Health/Medical	SaaS	Travel & Tourism
4	Fashion	Gaming	Enterprise	SaaS
5	Food & Beverages	Music	Social Networking	Media

The Mediterranean region is characterized by the strong presence of startups in the SaaS and Data & Analytics industries, likely motivated by the technological companies. For example, Lisbon concentrates a

large number of companies with a high degree of technology and R&D. As in the Nordic region, the tourism in this region has increased and complements the incentives made by low-cost companies, justify the growing number of startups in this economic sector. It is important to note that the service provided by these startups are a strong complement to the successful visit to the city, as they make known a set of information such as, museums, hotels and restaurants. Other economic sectors that stand out are education and entertainment. This region has large universities campuses that aim to develop with large investments being done, making them more challenging for students of high school and university students.

Table 4 – Top 5 – Mediterranean region

	MADRID	ROME	LISBON	ATHENS
1	Education	E-commerce	SaaS	SaaS
2	Lifestyle	Food & Beverages	Education	Travel & Tourism
3	E-commerce	Gaming	Travel & Tourism	Media
4	Social Networking	Entertainment	Social Networking	Entertainment
5	SaaS	Travel & Tourism	Data & Analytics	Data & Analytics

To conclude, the presentation of a map Figure 3 with the Top 5 in each of the regions.

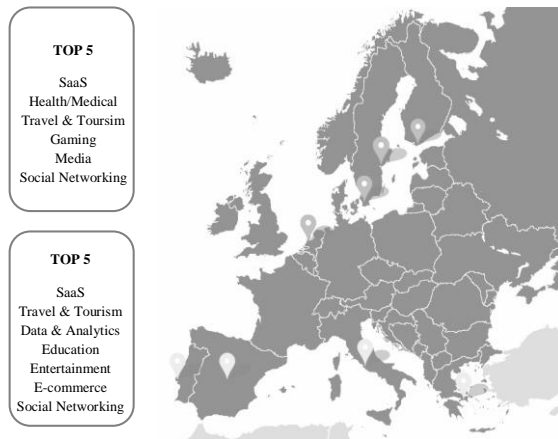


Figure 3 – Summary of Top 5 in Nordic and Mediterranean regions

3.3.2 Business Model dimension

Regarding to business model, the predominant business model in the Nordic Region is the B2C model, second the B2B and at last, C2C. The percentage difference between the choice of B2C and B2B model is very low and the trends are very homogeneous across the Nordic region ecosystems (exception being Malmo). In the Mediterranean region, the most selected business model by the startups is the B2C model, followed by B2B and finally C2C, but the percentage of importance of each business model is much more heterogeneous across the ecosystems. More information about the business model of the startup ecosystems is presented in Figure 4.

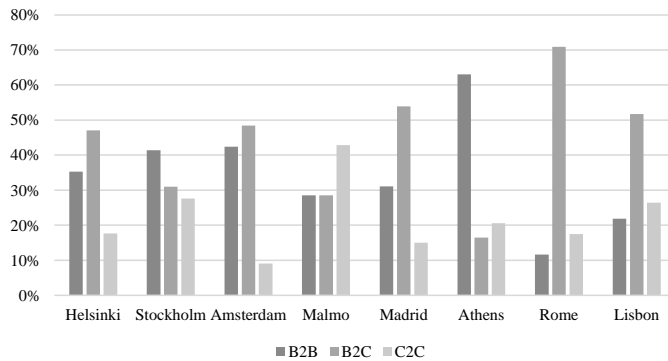


Figure 4 – Summary of Business Model

3.3.3 Pricing Model dimension

Similarly, the study was conducted to determine the most widely used pricing model in the two geographical regions under study. According to the online platform F6S, the pricing models that are the most selected by startups in these regions are the "Freemium" and "Pay per use", following the "Subscription" model. More information about the pricing model of the startup ecosystems is presented in Figure 5.

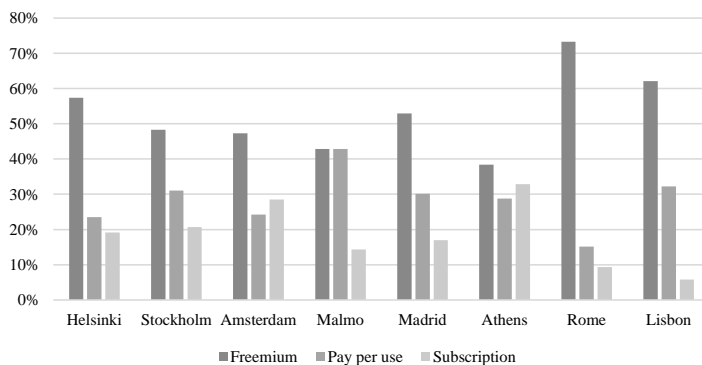


Figure 5 – Summary of Pricing Model

4. Concluding remarks

The aim of paper was to analyse and understand if there are trends and differences across European Startup ecosystems, considering the more mature nature of Nordic ecosystems and the less matured ecosystems of Mediterranean countries. We have analysed the ecosystems considering different economic sectors, business models and payment models. The main economic sectors in the Nordic region are SaaS and Health / Medical, and in the Mediterranean ecosystems have a strong presence of startups in the SaaS and Data & Analytics industries. Common to both regions is the importance of Travel & Tourism. With regard to business models, undoubtedly, that this study highlights the B2C model, in the majority of ecosystems, and in general there are no major differences between Nordic and Mediterranean ecosystems, though the difference between B2C and B2C in the Nordic countries is much smaller than in Mediterranean countries (the exception being Athens). Finally, there is a general homogeneity regarding the selected pricing model to complement business models, with the "Freemium" model clearly standing out, followed by "Subscription" model. Hence, there are clear common trends in both Nordic and Mediterranean regarding business models and pricing models, but low communality regarding economic sectors.

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