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In the last 7 years, Portugal has seen a tremendous evolution in its entrepreneurial and innovation ecosystem. Today, Portugal is appearing in the mapa mundi of innovation as a place to build vibrant entrepreneurial ventures. International investors are starting to look at the Portuguese E&I landscape. True Ventures, Union Square ventures, Cisco Capital, Google Ventures, e.ventures Sapphire Ventures, Verizon Ventures, Octopus Ventures, Index Ventures, Accel Partners amongst other global, top tier investors are becoming more and more intertwined in the national ecosystem. And that's great news in a fragile, young ecosystem such as Portugal's.

In spite of this positive evolution, there have been few attempts to actually map out in a systematic form, emerging scale ups from Portugal. Existing reports seem to lack consistency and tended to be fundamentally biased.

EIT Digital – as a pan European network whose goal is to address the digitization challenges in Europe, has shifted its E&I efforts from start-ups to scale-ups. And this positioning makes a lot of sense. By leveraging the strengths of individual European geographies and focusing on pan European synergies, EIT Digital wants to help scale the most promising ventures "made in and from Europe".

In this context, BGI has partnered with EIT Digital in order to produce the most comprehensive, impartial and up to date report on scale-ups from Portugal. Some of the highlights include the fact that more than 75% of financing to scale ups comes from outside Portugal. The implications of such finding are important. In the last 5 years, the top 25 scale-ups have raised close to €150 Mio and created close to 900 high skilled jobs. These are just some of the bottom line outcomes of this 2017 report. Many other critical insights were drawn from this high value, independent and systematic analysis of which BGI's team is extremely proud of to have conducted.

We hope you will be as excited as we are about these ventures' future! 10th October 2017
EIT Digital is a leading European open innovation organisation that brings together a partnership of over 130 top European corporations, SMEs, start-ups, universities and research institutes. EIT Digital invests in strategic areas to accelerate market uptake of research-based digital technologies and to bring entrepreneurial talent and leadership to Europe.

EIT Digital is a Knowledge and Innovation Community of the European Institute of Innovation and Technology (EIT). EIT Digital headquarters are in Brussels with co-location centres in Berlin, Budapest, Eindhoven, Helsinki, London, Madrid, Paris, Stockholm, Trento and a hub in Silicon Valley.

www.eitdigital.eu
Building Global Innovator Accelerator is a deep innovation global accelerator based in Lisbon (Portugal) with operations in Cambridge (USA). BGI was born from the MIT Portugal Innovation and Entrepreneurship Initiative (IEI) – launched to support Portugal’s goal to strengthen its capacity in business education, technological innovation and entrepreneurship. The initiative is a collaboration between the Instituto Superior de Ciências do Trabalho e da Empresa – Instituto Universitário de Lisboa (ISCTE-IUL), MIT Deshpande Center for Entrepreneurship Center, and MIT’s School of Engineering.

Ventures that are selected to join the BGI accelerator have access to significant resources, opportunities of mentoring by sector experts (over 200), training and entrepreneurial development. In 8 batches BGI has accelerated 126 new ventures, with a survival rate of 75%. BGI alumni have created 727 high tech jobs, and raised over €111 Million. These results have led Hot Topics to designate BGI as one of the most influential accelerators in the world (2015) and Fundacity to pick BGI as one of the top 20 accelerators in Europe (2014).

More recently, BGI has been strengthening its ties with the European Institute of Innovation and Technology, in 2 Knowledge Innovation Centres (KIC’s), namely, EIT Digital and EIT Climate-KIC. Some of our alumni are now valued at several hundred million euros, and exits are expected to follow soon.

As a start-up’s accelerator, BGI provides a program for start-ups where they have personal weekly mentorship during 6 months with Business Angels and 3 bootcamps, with expert coaching - 2 in Lisbon, Portugal and 1 in Boston, USA. Furthermore, it provides its start-ups with access to a network of investors, corporate, potential partners through invitation only events. All in all, BGI looks for the best funding opportunities for each start-up. The start-ups that integrate the program are chosen through a very competitive selection process, eventually accepting 8-12 start-ups from a yearly application pool of 200. The technological Verticals BGI is focused on are:

- **Medical Devices & Health Care** - Medical technologies and health-related technologies. Medical devices, processes for the medical industry.
- **Smart Cities & Industry 4.0** - Technologies involving smart cities, sensors, the Internet of Things, or that can be applied in a large-scale industrial context
- **Enterprise IT & Smart Data** - Cloud applications, big data, analytics, and other forms of software directed towards a B2B positioning.
- **Water Economy** - Any technology, ranging from chemicals to patrolling drones, that involves the ocean and its ecosystem
Our Data Partner

Racius.com is a product of Nexperience Lda, created in 2012 with the aim of providing online business information in an easy way, using the team’s know-how from 15 years of web experience. Find out more at www.racius.com

Our Publishing Partner

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Produções Gráficas
Digital Print

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Francisco Frias Graphic Production is a graphic production company, founded in 2011. The company has been increasingly innovating, in order to have a service of excellence in the area of business cards and small printing. Find out more at www.francisofrias.com

Our Distribution and Dissemination Partners

Our Institutional Partners

ISCTE - IUL
Instituto Universitário de Lisboa
EXECUTIVE SUMMARY

This dynamic Scale-up report is a ground-breaking study of the top 25 emerging Start-ups in Portugal, which will continuously be updated upon validation of new data. We arrived at the top 25 by considering the total funding received and total revenues of all start-ups with Portuguese origin, with less than 5 years of operation (i.e. between 2011 & 2016). This report takes a data driven approach at understanding key elements within the Portuguese start-up ecosystem. Some of these elements include funding structure, investor profiles, economic impact and start-up business models, among several others. By taking a look at these elements we identify opportunities, shortcomings and provide recommendations where relevant.

The report starts with explaining our methodology and then proceeds to describe the 25 Portuguese start-ups we consider as emerging according to set criteria. These 25 Portuguese start-ups cut across 4 major application verticals namely; Information and Communication Technology (ICT), CleanTech & Industrial, Consumer & Web and Medical & Health IT. These top 25 start-ups are representative of “what it takes to be successful” within the Portuguese entrepreneurial ecosystem. The report goes on to showcase a deeper analysis of these 25 start-ups and the verticals in which they are in, with the intent of illuminating a pattern. The section that follows takes a macro approach, by evaluating the Portuguese start-up ecosystem against relevant benchmarks such as the USA and European start-up ecosystem. Moreover, we engaged start-ups who are at the forefront and have a first-hand understanding of the ecosystem in Portugal, by conducting structured interviews. We present in the report some of the responses from the interviews, especially regarding the challenges and opportunities within the ecosystem, as the start-ups perceive them. In the same vein, we present timely advice given by Start-up founders to new entrepreneurs. In addition to using a data driven approach, the report attempts to be transparently informative. In this spirit, the report presents detailed profiles of the top 25 start-ups to provide better insights on what these companies stand for. We also briefly highlight other promising start-ups in a Top 40 list.

Our recommendations address issues that cut across a variety of stakeholders in the Portuguese start-up scene such as investors, start-ups, accelerators and the government. This report however, encountered setbacks such as insufficient data and irrelevant measurement metrics, amongst others. What makes this report special however, is the quantitative and qualitative approach we have taken in its preparation. The audience for this report include the investment, entrepreneurship and innovation communities in and outside Europe. We conclude that the Portuguese start-up ecosystem - despite its challenges, has a promising outlook for growth and development. Below are some highlights of the conclusions within this report:

- Most of the top emerging start-ups in Portugal are either technology based or technology enabled. CleanTech & Industrial, ICT and Consumer & Web appear to be the most promising verticals in Portugal. The Portuguese CleanTech industry, in particular, may be poised to lead the European CleanTech industry in the next decade.
- Portuguese start-ups are majorly funded by international sources, thereby posing a potential threat to talent retention, profit conservation and business development within the Portuguese start-up ecosystem.
- Portuguese start-ups contribute significantly to employment generation, and are characterised by highly qualified but affordable human resources. In addition, there are scarce female founders in the Portuguese start-up ecosystem.
- Portuguese investors are very active in regard to the number of investments deals but lack experience in investing in tech start-ups (i.e. in terms of mentoring start-ups and providing valuable business networks). They also appear to be relatively risk averse.
- Several Portuguese start-ups with less than five years of operation are already generating significant revenues. These revenues are forecasted to increase in subsequent years.
- There are still significant challenges to starting and managing a business in Portugal, as a result of government bureaucracy, numerous government regulations and fees and high business start-up costs. There are also insufficient funding sources and rounds for Portuguese start-ups.
- Successful Portuguese start-ups have accredited their success to the source of funding and a great team. Also, Portuguese start-ups are increasing their survival rate.
- Accelerators and incubators have a significant role in developing the Portuguese start-up ecosystem.
WHAT IS THE PURPOSE OF THIS REPORT?

- This report was prepared by credible stakeholders, as a tool to maximize potential opportunities and minimize drawbacks in the Portuguese start-up ecosystem.
- This report is also an avenue to reach out to a wider entrepreneurship and innovation community, in and outside Europe. This is for the purpose of encouraging strategic partnerships, which have the potential to create positive opportunities for employment generation and economic growth.
- In addition, we are creating value to Portuguese start-ups by providing a platform to celebrate advancements and achievements within the start-up ecosystem.
- By identifying the most promising Portuguese start-ups, we are providing them with visibility to our partner EIT Digital, and other European bodies that aim at developing Portuguese economy through investment in innovation.
- Finally, as a consequence, we produce a guide for future entrepreneurs and other players interested in understanding the current Portuguese scenario, which will in turn help them run their activities more efficiently.

WHO IS THIS REPORT FOR?

- This report is for entrepreneurial and innovation oriented organizations seeking to understand the landscape of the start-up ecosystem in Portugal and Europe, with the intention of initiating strategic partnerships.
- This report is also for Investors seeking to survey the opportunities and threats within the Portuguese start-up ecosystem.
- Finally, It is for new entrepreneurs, start-up enthusiast as well as SME’s, especially in the field of technology.

WHERE DID OUR DATA COME FROM?

The report relies on both primary and secondary data sources via structured interviews and exclusive online databases respectively. In regard to primary data sources we interviewed start-up founders, relevant stakeholders and start-up experts within and outside Portugal. With respect to secondary data sources we made use of Racius.com’s database for corporate and financial information. We also made use of databases from Crunchbase Pro, AngelList and our in-house data reporting tool BGI VentureKickr. We complemented these sources by obtaining further information from PitchBook, Bloomberg, Informa D & B, Findthecompany.com, Owler.com, LinkedIn, company press releases, company websites and company social media platforms.

This report is dynamic and subject to change due to the continuous variation in and availability of data. Because of the dynamic nature of the report, we are relying on the start-up community which includes but is not limited to; start-ups, investors, research institutes and journalists, to help verify the data and provide relevant contributions. Our goal is to present a report truly representative of the Portuguese start-up ecosystem; in essence a report of the start-up community, for the start-up community and by the start-up community. We also emphasize that there is a bias in the reporting because of unavailability of some data. Nonetheless, the report has been designed to identify trends and not absolute values.

WHAT IS OUR METHODOLOGY?

This report makes use of descriptive analyses to evaluate and illustrates trends, deficits and opportunities. We started this study by analysing a population size of 386 Portuguese technology companies founded between 2011 and 2016. Likewise, the period of data analysis is 5 years, which is in line with our current definition of an emerging start-up. The population size was reduce to 40 start-ups (hence the Top 40 list) by evaluating the start-ups against the following criteria/variables;

The companies must fall into any of the following verticals; ICT, Medical & Health IT, CleanTech & Industrial, Consumer & Web; must have received funding greater or equal to 500,000 USD or must have generated significant total revenues equal to 250,000 USD or greater, within the period of analysis. We streamlined
the sample further with our current BGI rank methodology to determine the Top 25 Portuguese emerging start-ups (PES).

Variables/criteria used for the analysis are defined as follows;

An emerging start-up – Any company founded in Portugal between the 1st of January 2011 and 31st of December 2016. i.e. any company that has been operating for less than or equal to 5 years.

Application Verticals – The study relied on 4 major verticals, and they are ICT, Medical & Health IT, CleanTech & Industrial and Consumer & Web. It is important to note that the categorization of our focus start-ups is flexible, and therefore open to various interpretations as many of the start-ups have characteristics that cut across these verticals. However, for simplification, we relied on the most prominent features of each focus start-up for categorization. These application verticals were chosen because they appear to have the most traction with investors and are representative of the critical mass in Portugal.

- **ICT** – Which stands for information and communications technology is defined as “all devices, networking components, applications and systems that combined allow people and organizations (i.e., businesses, non-profit agencies, governments and criminal enterprises) to interact in the digital world”.[1] As an example, any venture primarily leveraging Internet and/or emerging Communication Technologies in the core of their offering; typically B2B models.

- **Medical & Health IT (LS/Medical)** – “This refers to the application of organized knowledge and skills in the form of devices, medicines, vaccines, procedures and systems developed to solve a health problem and improve quality of lives.”[2]

- **CleanTech & Industrial** – “refers to any process, product, or service that reduces negative environmental impacts through significant energy efficiency improvements, the sustainable use of resources, or environmental protection activities. Clean technology includes a broad range of technology related to recycling, renewable energy (wind power, solar power, biomass, hydropower, biofuels, etc.).”[3] Industrial is a component of this vertical and comprises of start-ups related “to producing goods used in construction and manufacturing”.[4]

- **Consumer & Web** – This refers to all services, products and processes that help in connecting sellers and buyers over the Internet. This category focuses on ventures that leverage on digital business models such as marketplaces to connect consumers to businesses. Typically working on traditional sectors (clothing, fashion, consumer goods, FMCG, etc).

**BGI Rank Methodology**

1. The Top 25 start-ups (and also the Top 40) in this report were ranked based on three factors: total funding (TF), total revenue generated (TR), and capital turnover ratio (CR) from 2011 to 2016. The rankings were limited to these factors for simplicity, to help accurately represent each start-up and to compensate for any differences in vertical characteristics.

2. A standardized score (z-score) was first calculated for the chosen factors (i.e. TF, TR & CR) for each start-up. This z-score evaluates the distance from the mean using standard deviations and allows each of the start-ups to be compared with each other.

3. Weights were then assigned to each factor for each start-up. The objective of the weighting process was to indicate the importance of each factor in the ranking. The importance of each factor was determined as a matter of practical relevance. The weights when summed are equal to one. However, before weights were assigned to each factor (i.e. TF, TR & CR), we took into consideration technology intensity or time to develop technology. Which we have ‘proxied’ by the time it takes to generate revenue.

4. The weighting process was based on industry research which led to some of our assumptions; we assumed that technology companies usually take longer to generate revenue because they have larger capex values, in order to develop their technology. Given our period of analysis (i.e. 5 years) we assumed the average time to develop technology to be two years after year of foundation. We also assumed that the time to develop technology was dependent on the vertical, i.e. some start-ups in a vertical were more likely to generate revenue more quickly than others. Taking this assumptions into consideration we divided our final start-up sample (i.e. Top 40) into two categories. The first category included start-ups that have been operational for 3 years or more. While the second category included start-ups that have been operational for 2 years or less.
   a. In the first category, weights were only assigned to the TR z-score of start-ups who started generating significant revenue (≥ 30k USD) in their third year of operation. Start-ups in this category who started generating significant revenue in years exceeding the third year
received lesser weights. We essentially ignore the revenues generated in the first 2 years of operation for start-ups in this category.

b. In the second category, weights were assigned only to the TR z-score of start-ups who generated significant revenue (> 10k USD) in either the first or second years of operation. Start-ups in this category who generated significant revenues in the first year received greater weights than start-ups who started generating revenue in the subsequent year.

c. By following this process, we produced a score that takes into consideration year of operation and time to market, which we term the “Time Weighted Revenue Score”.

5. We go further to assign final weights (step 3) to the “Time Weighted Revenue Score”, TF z-score and CR z-score, which we sum up to produce the rank score. In general, total revenue received the largest weight followed by total capital raised and then capital turnover ratio.

6. We then ranked the start-ups based on the final rank score to determine the hierarchy of the Top 40 and consequently the Top 25 Portuguese emerging start-ups.

Following the above steps, we have the resulting algorithm;

\[ W_T \times (z\text{-score of Total revenue}) = \text{Time Weighted Revenue Score} \]

\[ W_1 \times (\text{Time Weighted Revenue Score}) + W_2 \times (z\text{-score of total funding}) + W_3 \times (z\text{-score of capital turnover ratio}) = \text{Rank Score} \]

Given \[W_1 + W_2 + W_3 = 1\]

This report makes use of the United States and Europe as benchmarks for many of the analysis. It is assumed that the United States is a leader in start-up ecosystems, while benchmarking Europe provided a macro outlook to the analysis. In addition, Germany, Spain, Italy, France and the United Kingdom were used as basis for comparison.

All of the financial figures are reported in US dollars (USD) except otherwise stated, in order to stay in tuned with our data sources and for simplicity. At instances where currencies were converted the exchange rate of 1 Euro to 1.108702 USD was used, which is the average exchange rate value in 2016. Some data (e.g. Total revenue) was deliberately not presented for confidentiality reasons, however such data was used aggregately. The data on total revenue and capital was the sum of all total revenue and capital received from the foundation of each start-up (i.e. from 2011 - 2016).
TOP 25 PORTUGUESE EMERGING START-UPS & VENTURE ECOSYSTEM
Table 1 lists the top 25 Portuguese emerging start-ups for 2017 in alphabetical order. The table showcases the total funding each start-up has received since it was founded, in addition to their respective application verticals. A more detailed profile of the Top 25 PES can be found in later sections of this report.

<table>
<thead>
<tr>
<th>Company</th>
<th>Headquarters</th>
<th>Year Founded</th>
<th>Total Funding (Million $)</th>
<th>Application Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>360Imprimir</td>
<td>Portugal</td>
<td>2013</td>
<td>4.59</td>
<td>Consumer &amp; Web</td>
</tr>
<tr>
<td>Aptoide</td>
<td>Portugal</td>
<td>2011</td>
<td>4.91</td>
<td>Consumer &amp; Web</td>
</tr>
<tr>
<td>ASAP54.com</td>
<td>UK</td>
<td>2013</td>
<td>8.27</td>
<td>Consumer &amp; Web</td>
</tr>
<tr>
<td>B-Parts</td>
<td>Portugal</td>
<td>2011</td>
<td>0.89</td>
<td>Consumer &amp; Web</td>
</tr>
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<td>Bitmaker</td>
<td>Portugal</td>
<td>2012</td>
<td>1.37</td>
<td>ICT</td>
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<tr>
<td>Codacy</td>
<td>UK</td>
<td>2013</td>
<td>6.5</td>
<td>ICT</td>
</tr>
<tr>
<td>code for all</td>
<td>Portugal</td>
<td>2015</td>
<td>-</td>
<td>ICT</td>
</tr>
<tr>
<td>Coimbra Genomics</td>
<td>Portugal</td>
<td>2013</td>
<td>1.90</td>
<td>LS/Medical</td>
</tr>
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<td>Eneida</td>
<td>Portugal</td>
<td>2012</td>
<td>1.55</td>
<td>CleanTech/Industrial</td>
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<td>Portugal</td>
<td>2014</td>
<td>3.03</td>
<td>ICT</td>
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<td>Portugal</td>
<td>2011</td>
<td>1.02</td>
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<td>Landing jobs</td>
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<td>2013</td>
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<td>Consumer &amp; Web</td>
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<td>Muzzley</td>
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<td>2012</td>
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<td>Consumer &amp; web</td>
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<td>Portugal</td>
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<td>LS/Medical</td>
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<tr>
<td>Petapilot</td>
<td>Portugal</td>
<td>2014</td>
<td>0.50</td>
<td>LS/Medical</td>
</tr>
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<td>Petsys Electronics</td>
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<td>2013</td>
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<td>TalkDesk</td>
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<td>24.45</td>
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<td>TTR</td>
<td>Spain</td>
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<td>Consumer &amp; Web</td>
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<td>2012</td>
<td>2.66</td>
<td>Consumer &amp; Web</td>
</tr>
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</table>

Table 1. Top 25 Portuguese Emerging Start-Ups

From table 1 we observe a significant number of start-ups do not have their headquarters in Portugal (28%). This observation is a strategic move by the start-ups to exploit several opportunities in terms of accessing larger markets and pools of capital (access to financing). Several of these start-ups still have strong ties to Portugal by maintaining their core development team, which consist of engineers and other technical personnel. Other locations are usually comprised of a marketing oriented team. Nevertheless, it is worthwhile mentioning the impressive physical presence of the Top 25 PES in other locations, given their short lifespan (Fig 1). In terms of physical presence, the Top 25 are located in all major continents except Africa.
Table 2 shows the rankings of the top 25 by our rank methodology, total funding received, total revenue and capital turnover ratio (total revenue divided by capital raised). This ratio can be a proxy for innovation / technology intensity, i.e. ventures that require more financing to get to market and start generating revenues. Such ventures are often associated with high technology, high growth and natural high risk.

Table 2: Start-up Rankings by BGI rank methodology, Total Funding Received, Total Revenue and Capital Turnover Ratio (Arranged alphabetically)

<table>
<thead>
<tr>
<th>Company</th>
<th>BGI Rank</th>
<th>Rank by Total Revenue</th>
<th>Rank by Total Funding</th>
<th>Rank by Capital Turnover</th>
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</thead>
<tbody>
<tr>
<td>360Imprimir</td>
<td>5</td>
<td>3</td>
<td>9</td>
<td>7</td>
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<td>Aptoide</td>
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<td>2</td>
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<td>5</td>
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<td>ASAP54.com</td>
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<td>B - Parts</td>
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<td>9</td>
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<td>Bittmaker</td>
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<td>Landing jobs</td>
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</tr>
<tr>
<td>Zaask</td>
<td>13</td>
<td>10</td>
<td>15</td>
<td>14</td>
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</table>
Table 3, 4, 5 & 6 show the rankings of our focus start-ups within their application verticals. These tables allow
the start-ups to be ranked among their peers. These tables include all start-ups from the Top 40 PES and other
start-ups to look out for (Please see Annex).

<table>
<thead>
<tr>
<th>Company</th>
<th>BGI Rank</th>
<th>Rank by Total Revenue</th>
<th>Rank by Total Funding</th>
<th>Rank by Capital Turnover</th>
<th>Application Vertical</th>
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</thead>
<tbody>
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<td>7</td>
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<td>16</td>
<td>16</td>
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Table 3: Top Portuguese Emerging Start-ups in the ICT Vertical

<table>
<thead>
<tr>
<th>Company</th>
<th>BGI Rank</th>
<th>Rank by Total Revenue</th>
<th>Rank by Total Funding</th>
<th>Rank by Capital Turnover</th>
<th>Application Vertical</th>
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<td>1</td>
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<tr>
<td>Aptoide</td>
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<td>2</td>
<td>3</td>
<td>3</td>
<td>Consumer &amp; Web</td>
</tr>
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<td>Consumer &amp; Web</td>
</tr>
<tr>
<td>TTR</td>
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<td>11</td>
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<tr>
<td>Zaask</td>
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<td>6</td>
<td>5</td>
<td>7</td>
<td>Consumer &amp; Web</td>
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<tr>
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<td>7</td>
<td>10</td>
<td>6</td>
<td>Consumer &amp; Web</td>
</tr>
<tr>
<td>Mygon</td>
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<td>9</td>
<td>12</td>
<td>6</td>
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<tr>
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<td>Consumer &amp; Web</td>
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<tr>
<td>Indie Campers</td>
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<td>13</td>
<td>13</td>
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<td>Consumer &amp; Web</td>
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</table>

Table 4: Top Portuguese Emerging Start-ups in the Consumer & Web Vertical
### Table 5: Top Portuguese Emerging Start-ups in the Medical & Health IT Vertical

<table>
<thead>
<tr>
<th>Company</th>
<th>BGI Rank</th>
<th>Rank by Total Revenue</th>
<th>Rank by Total Funding</th>
<th>Rank by Capital Turnover</th>
<th>Application/Vertical</th>
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<tr>
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<td>3</td>
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<tr>
<td>iM3DICAL</td>
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<td>2</td>
<td>6</td>
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<tr>
<td>Perceive3D</td>
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<td>1</td>
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<tr>
<td>Coimbra Genomics</td>
<td>4</td>
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<td>3</td>
<td>4</td>
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<td>NuRise</td>
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### Table 6: Top Portuguese Emerging Start-ups in the CleanTech & Industrial Vertical

<table>
<thead>
<tr>
<th>Company</th>
<th>BGI Rank</th>
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<th>Rank by Total Funding</th>
<th>Rank by Capital Turnover</th>
<th>Application Vertical</th>
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<tr>
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<tr>
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<td>CleanTech &amp; Industrial</td>
</tr>
<tr>
<td>5 sensesinfood</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>CleanTech &amp; Industrial</td>
</tr>
<tr>
<td>Streambolico</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>CleanTech &amp; Industrial</td>
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ANALYSIS OF TOP 25 PORTUGUESE EMERGING STARTUPS (PES) AND APPLICATION VERTICALS

Funding Overview of the Top 25 Portuguese Emerging Start-ups

In terms of the origin of financing of the top 25 PES, as we see in Fig.2 the vast majority (75%) comes from outside Portugal. Fig. 3 depicts a breakdown in terms of total funding (Domestic vs. International) for each start-up. We not only observe a significant gap between the top 3 start-ups and the rest of the group in terms of total funding, but we also observe that in the top 3, the proportion of financing coming from Portugal is much lower. Indeed, the top 3 emerging start-ups according to the rank by total funding collectively receive approximately 76% of the entire share of international funding by the top 25 PES.

The apparent role of international funding in the Portuguese venture ecosystem is an indication of the potential of Portuguese start-ups globally. It is also indicative of the potential contribution Portuguese start-ups will have in these technology based application verticals. Based on some of the interviews we conducted, it appears many Portuguese Start-ups are more inclined to receive investment from abroad than domestically, for a number of reasons such as: the inexperience of Portuguese Investors in certain industries, access to international markets and access to international contacts and partnerships in specialized business fields. These reasons are non-financial benefits that Portuguese Investors seem not to be providing enough of, at the current moment. This view is expressed in the words of Muzzley’s, co-founder Domingos Bruges “there is a difference between money and smart money” and smart money is what start-ups are looking for. It should be noted however, that this opinion may not be representative of the entire Portuguese start-up ecosystem as can be seen in Fig.4. Further analysis show that, even though the total funding received by the Top 25 PES is collectively dominated by international funding, 44% of these start-ups are funded entirely from domestic sources (Fig.4).
From fig. 5 we observe that majority (96%) of all funding is acquired through dilutive (Equity) means, which has several advantages. Some of which include reducing the burden of expansion and the opportunity to benefit from VC’s network. The major disadvantage to relying significantly on international funding, acquired especially through dilutive means is the greater possibility of economic leakages. In the context of this report, economic leakages refer to exits in income, profit and other business resources from the Portuguese economy, that otherwise could have been used to develop the Portuguese start-up ecosystem. In other words economic leakages lead to the loss in additional investment for boosting the Portuguese Start-up ecosystem. The Top 25 PES have collectively raised a total of about USD 146 Million (i.e. approx. 29 Million annually). Application verticals leading in total capital raised are ICT and Consumer & Web (Fig. 6). We also observe from fig. 7 that ICT and Consumer & Web benefit the most from international funding (approximately 80%). These observations are most probably because of the ease to scale digital businesses globally. Software ventures typically have lower CAPEX compared to hardware ventures (e.g. LS/medical and CleanTech & Industrial). In addition, the training time and access to training needed to generate skills useful in these verticals (i.e. Consumer & Web and ICT) are relatively
shorter and easier to obtain. Hence, they are relatively less risky and consequently more attractive to investors.

We observe from fig.8 that Medical & Health IT (LS/medical) benefits the most from Non-dilutive funding (38%). As mentioned previously, this may be as a result of the amount of risk attached to this vertical such as, the numerous regulations they have to meet, alongside the time it takes to develop the technology. Because of the strong R & D components commonly associated with ventures in this vertical, they are often eligible to several non-dilutive funding opportunities. For example, at least over half a billion euros in grants has been budgeted by the European Union to fund opportunities in this vertical between 2016 and 2017 alone. [10]
Investor Overview of the Top 25 Portuguese Emerging Start-ups:

Although majority of funding in the Top 25 PES is international (fig.2), we observe from fig.9 that there is a greater number of domestic investors (over 40%). The implication of this is that there is a smaller number of international investors investing greater amounts of money, while there is a greater number of domestic investors investing relatively smaller amounts of money. This observation may be representative of the risk averseness of domestic investors towards the focus application verticals.

Fig.10 illustrates the percentage share of investors of the Top 25 PES by type. The data shows that venture capitals have the greatest proportion (82%), followed by Angel investors (16%) and then accelerators/incubators (2%). There is an opportunity for accelerators/incubators to increase their share of investments as they are often in the best position to evaluate the strengths and weaknesses of the start-ups.

Table 7: Most Active Investors of the Top 25 PES

Consistent with our observation in fig.9, table.7 lists the most active investors of the Top 25 PES by virtue of the number of their investment deals.

An analysis of the number of investment deals made by the investors of the Top 25 PES shows that, of all the investment deals made by these investors globally, the Top 25 PES received a share of 3%, as seen in fig.11. This is an indication of the need to increase the number investors in Portugal, backed by our observation in fig.31.

From fig.12, there appears to be similarities between the average funding round and the average funding received in the application verticals of the Top 25 PES. We observe that Medical & Health IT and CleanTech & Industrial have the lowest average...
funding rounds (i.e. 1) as well as the least average funding received. Similarly, Medical & Health IT and CleanTech/Industrial also have funding rounds lower than the total average of funding rounds (Approx. 2) of all application verticals. These observations highlight an important threat to the Portuguese start-up ecosystem in regard to funding. Because less funding rounds imply less funding received (fig.12), which may inhibit start-ups ability to scale-up quickly.

Revenue and Expenses Overview of the Top 25 Portuguese Emerging Start-ups:

We observe from fig.13 that the proportion of total revenue to total funding is greatest in CleanTech & Industrial, followed by Consumer & Web. Although, it is expected that that ICT and Consumer & Web will generate revenues more quickly, there might be an opportunity for CleanTech & Industrial to be more profitable. Fig.13 also shows that the proportion of total revenue to total funding of all application verticals is about 23%. This observation is further indication of the technology intensity of the Top 25 PES. Typically venture capitalists operate on a 10-year horizon investment cycle, with most expecting an exit at the end of the 5th onwards. At the 10th year, all shareholdings are sold. The fund is liquidated and the proceeds return to the partners of the fund. The deeper the technology intensity, the longer the time it takes to generate significant revenue after a period of time depending on the technology intensity. With an average of 3.36 years of operation, the Top 25 PES have on average generated revenues over 1.2 Million USD, suggesting a positive outlook for scaling up. The five biggest earners in the Top 25 in descending order are Uniplaces, Aptoide, 360Imprimir, Talkdesk, and Unbabel. We observe a steady increase in TR over time in fig.14, and using a simple linear forecast, the TR of the top 25 is expected to increase significantly in subsequent years. In terms of absolute values, fig. 15 shows that Consumer & Web generates the most revenue, followed by ICT. We can also see that Consumer &
The Top 25 PES generate 81% of their total revenue domestically as seen in fig.16. There is therefore an opportunity for these start-ups to improve their total revenue figures by entering international markets, hence the need to scale-up.

On the other hand, fig.17 shows that a significant portion (40%) of the expenses of the Top 25 total is international. This could be due to costs of imported specialized equipment, cost of running secondary offices abroad, etc. This is consistent with our observations in Table 1 and Fig.1. Furthermore, continued increase in foreign expenditure may pose threats to economic growth in Portugal.

The average monthly cash burn of all verticals is 115,000 USD (fig.18). We see that Consumer & Web has the largest average monthly cash burn (145,000 USD), followed by ICT (118,000 USD). This could be mostly as a result of their high employment generation capabilities (fig.19).

**Employment of Top 25 Portuguese Start-ups:**

Fig.19 describes the employment generating potential of the Top 25 Portuguese emerging start-ups. The data shows they have collectively employed close to 700 people, which is approximately 140 people per year. It takes on average for all application verticals an investment of 210,000 USD to create and maintain a job for 5 years (fig.20). We further observe from fig.20, that Health & Medical IT requires more capital per employment generated, followed by ICT. CleanTech & Industrial is however significantly lesser than the total average. These observations follow the fact that Health & Medical IT and ICT are capital intensive because of the high cost of equipment, R & D and training.

A more detailed look at the salary of employees in the Top 25 PES shows a steady increase in the average salary up to the point where it almost equals the average salary in Portugal. This steady increase is as a result of increases in total funding and total revenue over time. These wages are expected to increase in the years following.
Fig. 22 and 23 describe the business models prevalent within the Top 25 PES. We observe that there is a greater proportion of B2B (62%) players than B2C (38%) in general. We further observe that there are larger B2B and B2C players within the CleanTech & Industrial and Medical & Health IT verticals respectively. There are a number of reasons for these observations. Firstly, Portugal has good infrastructures (e.g. good IT infrastructures, good transport network, etc.) that might help start-ups support other businesses around the globe successfully. Secondly, complexities of networking and costs associated with marketing in the B2B market space are relatively less, thereby attractive to newer start-ups. Also, these may be representative of the relative small market size in Portugal, which is an incentive for start-ups to globalize their business or scale to other markets. The relative ease of scalability and limited risks within the Consumer & Web Vertical encourages the growth of B2C players.

PORTUGUESE START-UP AND VENTURE ECOSYSTEM OVERVIEW.

From fig. 24 we observed that Portugal ranks lowest in the total amount of funding it has received in all application verticals, within the last 5 years, however the narrative is slightly different when taking into account the population. It can be observed from fig. 25 that Portugal ranks higher (13 USD) than Italy (8 USD) in total funding per capita. In any case, America appears to be leading the pack with an astonishing value of 541 USD followed by the UK with 53 USD. The significant difference between the US and Europe is as a result of the long entrepreneurship culture in the US, investors attitude to risk, as well as multiple and significant financing options for start-ups (fig. 30).

ICT appears to have the largest share if investment in all countries except Portugal (Fig. 26). In Portugal, CleanTech & Industrial appear to have the greatest share of investment. This proportion is much greater

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Note: There are discrepancies in the funding data relating to Portugal in fig. 24 as a result of incomplete data from our data source (Crunchbase). We however, intend to showcase a trend and not absolute values.
when compared to America and Europe. There is therefore an opportunity for Portugal to be a world leader in the CleanTech & Industrial vertical given the right environment. We also observe that ICT, Consumer & Web and Medical & Health IT have the largest share of investment in Spain, Germany and France respectively.

Portugal has the second highest proportion of start-ups to be currently operational, the first being Italy (Fig.27). Portuguese start-ups rely significantly (64.7%) on dilutive funding (Fig.28), which may be a basis for the high operating status in most verticals. Although there is no real evidence to show that funding structure affects the operating status of start-ups in the Portuguese start-up ecosystem, fig.29 shows a trend between equity and operating status that appear very similar.

Furthermore, in regard to funding, fig.30 shows that there is no subsequent funding beyond seed funding in Italy, Spain and Portugal when compared to other benchmark countries. Countries with subsequent funding (Series A, etc), generally raised more capital. We also see from fig.31 significant gaps between Portugal and benchmark countries in regard to number of investors and founders from 2011 to 2016. In this period, there were about 189 tech investors in Portugal, which is about 0.86% of all European investors. The number of technology investors in Europe is 3 times smaller than the US. Consequently, there is therefore a significant gap in investment between Portugal and Europe, and similarly between Europe and the US.

Accumulatively, we observe that the number of new start-ups has consistently increased from 2011 (fig.32). This observation is corroborated by the start-up’s density (fig.33) where each year there is an average of 8 new start-ups per 100 firms.
Following this trend also, is the number of new founders per 100,000 people, as can be seen in fig.34. Fig.32 further shows that there is a significant contribution to employment generation by the constant increase in investors, founders and start-ups.

From fig.35, we observe that the proportion of male founders is significantly greater than female founders. The representation of females in the start-up scene appears to revolve around 20%. The global average of female founders is 16%. 
Table 8 describes the ease of doing business in Portugal as compared to our benchmark countries. According to the World Bank Portugal is ranked 25th, which is higher than France, Spain and Italy but a long way from the United Kingdom and the US. Fig.35 is from the global entrepreneurship monitor and it describes some important characteristics that foster entrepreneurship. Portugal ranks highly when it comes to having public, commercial and legal infrastructure which validates Portugal’s high ranking in the World Bank’s ease of business index (Table 8). However, we observe some of the shortcomings, such as unfavourable tax laws and high level of government bureaucracy. Other significant shortcomings of the Portuguese entrepreneurship enclave include poor entry regulation and insufficient internal market dynamics. Overall Portugal ranks well as it exceeds the global average in 8 out of 12 metrics (fig.36).

<table>
<thead>
<tr>
<th>Country</th>
<th>Ease of Doing Business Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>7</td>
</tr>
<tr>
<td>United States</td>
<td>8</td>
</tr>
<tr>
<td>Portugal</td>
<td>25</td>
</tr>
<tr>
<td>Germany</td>
<td>17</td>
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<tr>
<td>France</td>
<td>29</td>
</tr>
<tr>
<td>Spain</td>
<td>32</td>
</tr>
<tr>
<td>Italy</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 8: World Bank’s Ease of Doing Business Index

Fig.37 and 38 illustrate the global entrepreneurship development index, similar to the global entrepreneurship monitor described in fig.35, however with different metrics. Fig.37 and 38 show almost similar results to fig.36, by indicating Portugal’s entrepreneurship outlook. As can be seen specifically from fig.36 Portugal exceeds even the UK in terms of start-up skills and internationalization / globalization. This may explain the interest of a significant number of foreign investors in Portugal. When compared to other benchmark European countries, we observe from fig.38 that Portugal performs significantly well especially in the following areas; Internationalization, process innovation, start-up skill, cultural support and risk acceptance. We also observe that Portugal relatively performs averagely in areas such as competition and technology absorption. Moreover, it can be observed that Portugal performs relatively poorly in areas such as networking and risk capital amongst others. These indexes are not absolute and are only inclinations to what areas need to be set as priorities, when developing change/improvement strategies. Finally, a look into Gross Domestic Expenditure on R & D in our benchmark countries, we observe from fig.38 that Portugal is not spending nearly as much as other technology leaders like the US and Germany. The implications of this is the significant gap in technological advancements between Portugal and technological leaders.
CONCLUSIONS
Given the available data and analysis, we arrive at the following conclusions:

**Funding, Revenue and Expenses:**

The top 25 Portuguese emerging start-ups have collectively raised a total of 146 Million USD (i.e. 29 Million/year). Application verticals leading in total funding are ICT (79.44 Million USD) and Consumer & Web (57.49 Million USD). There is a significant funding gap between the two leading verticals and the other verticals (i.e. Medical & Health IT and CleanTech & Industrial). This gap can be explained by the relative ease of scaling the leading verticals in funding, hence their attractiveness to investors.

There were approximately 209 investment deals in the Top 25 PES, which makes up about 3% of the global investment deals made by the investors of the Top 25 PES. This follows the huge gap that exists in the number of investors between Portugal (0.86% of all European investors) and the benchmark countries. There is an opportunity to increase investors and investment deals in Portugal.

The highest average funding round is approximately two (2), which is often seed funding. This may be representative of the inability of Portuguese start-ups to receive funding beyond seed round (i.e. Series A, B, etc). Lesser funding rounds may be inhibiting the ability of Portuguese start-ups to scale more quickly. Portuguese start-ups rely mostly (75%) on international funding for growth, which has the added benefit of indicating high demand potential and encouraging a global outlook for those supported ventures. On the other hand, the major disadvantage is the potential for economic leakages.

There is a greater number of domestic investors with lesser investment values/funding as opposed to lesser number of international investors with greater investment value/funding. This may be representative of the risk averseness of Portuguese investors with respect to technology start-ups.

Most of the funding received by Portuguese start-ups (74%) is dilutive - via equity instruments. These instruments reduce the burden of expansion for start-ups, but may have negative implications in terms of control (recapitalisation needs may be more frequent). This may also be indicative of the unavailability of other, more sophisticated funding options for start-ups, such as government financing in form of loans, quasi-equity instruments, etc.

Leaders in total revenue generation in the Top 25 PES are Consumer & Web and ICT. These leading verticals appear to generate revenue more quickly (1 year) than Medical & Health IT and CleanTech & Industrial (2-3 years). This is because of the high technology intensity attached to the lagging verticals.

The total revenue generated over an average of 3.36 years of operation by the Top 25 PES is over 1.2 Million USD and is forecasted to increase significantly in the next 2 years. There is a clear path for growth set for the Top 25 PES.

There is room to scale the Top 25 PES to international markets as only 19% of their total revenues was obtained internationally. On the other, there are significant (40%) international expenses made by the Top 25 PES. Consistent increase in foreign expenses may pose threats to economic growth in Portugal. Average cash burn in the Top 25 PES is 115,000 USD. Portugal may be setting up to become a B2B hub due to its skilled engineers and often bilingual labour force. This is because a significant proportion (62%) of the Top 25 PES are B2B players.

There is a huge gap in technological advancements in Portugal consequence of the gross domestic expenditure on R & D, when compared with technology leaders like Germany and the US.

**Portuguese Start-up and Venture Ecosystem:**

ICT is the global leader among the verticals in terms of capital raised (USD 25.7 Billion), except in Portugal.

In Portugal, the vertical with the highest capital raised is clean tech/industrial (USD 71.5 million). Similarly, & Industrial is significantly larger (48%) than presumed world leaders in clean tech/industrial such as USA (18%) and Germany (5%). This does not come as a surprise given Portugal’s good offer/pool of qualified engineers and geographical and climate features.

Using Europe as a benchmark, Portugal’s total funding per capita (USD 13) is below the average (USD 53). However, Portugal is ahead of other tech leading countries such as Italy when total funding per capita is concerned.

The business ecosystem in Portugal is relatively good and is ranked within the top 25 of the World Banks ease of business index. This is also evident by the proportion of start-ups still operational in...
Portugal (97%), which is significantly high when compared to benchmark countries. However, Portugal does not yet have an IPO and has a small proportion of start-ups that have been acquired (less than 2%) within the period of analysis. Although there is a steady increase in the number of start-ups in Portugal over time. There is a significant gap between the number of start-ups in Portugal and its European counterparts (i.e. the benchmark countries). This number of start-ups in Portugal is 1.4 times lesser than the European average.

Contribution of Portuguese Start-Up Ecosystem to Economic Growth:

Start-ups have significantly contributed to employment generation in Portugal (Over 5000 jobs created). The vertical with the greatest positive impact on employment generation in Portugal based on the top 25 is Consumer & Web (360 jobs), followed by ICT (290 jobs). There are no strong evidences of a correlation between total capital raised and total employment generated. Although Portugal's financing is based mostly on equity investments, there is no strong evidence to show the relationship between its financing option and the status of its start-up. However, there is a descriptive pattern that suggest that it does. There are significantly newer male founders (on average 80% per year) than new female founders (on average 20% per year) in the Portuguese start-up ecosystem. The global average for female founders is about 16%.

Portugal exceeds the global average in 8 out of 12 metrics in the global entrepreneurship monitor, showing its strength especially in the availability of excellent physical infrastructure. In comparison to leading benchmark countries Portugal's GDP expenditure on R & D is small. There is therefore a limit to the expansion of innovation.

In the next section, we will explore the opportunities and recommend strategies to enhance the Portuguese start-up ecosystem.
Portuguese start-ups have a high survival rate and this could be due to a number of factors such as, culture, investment structures, accelerators and incubators. These are all indications of the positive outlook of the Portuguese ecosystem, which may encourage further and larger investments in Portugal. The start-ups contribution to employment generation is highly significant. Start-ups may therefore be used as a tool to drive economic growth and reduce unemployment rate. The ratio of start-ups to the number of employees according to the top 25 PES is approximately 1 to 30, which is a positive outlook within the Portuguese start-up ecosystem as well as Portugal’s economy.

There is a consensus on the quality of talent in Portugal especially in engineering, there is therefore an opportunity to solidify the consistency of this quality talent and encourage its growth through a variety of measures that cut across education, employment incentives and recruitment activities among others.

There is an opportunity to improve upon the ease of business in Portugal and access to a variety of capital options by reducing government bureaucracy and encouraging start-up oriented government policies. One of the major challenges to the Portuguese start-up ecosystem is that it is not globally visible. There is insufficient information about the strengths of running a successful business in Portugal.

A major limitation to writing this report was access to data. There is no central database or relevant metrics to measure the start-up ecosystem in Portugal. If there are any, they are highly decentralized and hard to integrate. This is antithetical to the fact that Portugal has good infrastructures and skill to enable collection and integration of its start-up ecosystem data.

**Key Recommendations:**

**Female entrepreneurship inclusivity:** Programs primarily directed at female entrepreneurs should be encouraged by the government and private stakeholders. This could be through trainings, familiarization events and access to finance. Stereotypes about gender and entrepreneurship need to be broken down through aggressive campaigns.

**Review of entrepreneurship education:** In addition to establishing gender sensitive trainings, there needs to be a renovation of the education system in Portugal. These renovations should include making courses more hands on than being theoretical. Also, there should be emphasis on digital skills and its application in whatever field of study. Furthermore, there should be strategic links via mentorship and internship programs between students, teachers and field experts (i.e. entrepreneurs, professionals, etc.) so as to generate industry relevant and specific skills. Finally, avenues to encourage entrepreneurship or create start-ups at secondary and university level should be established.

**Increase incentives in relevant areas:** Increased incentives to Clean-Tech start-ups and companies in Portugal, through tax cuts and subsidies, increase in R&D investment, higher scholarships and grants at the university level for students in Clean-tech. Implementing policies that promote competition within the Clean-tech industry. Creating infrastructures that fuel demand for Clean-tech initiatives. Similar initiatives should be facilitated for other application verticals too. More specifically, researchers should be motivated through relevant incentive schemes such as increasing their royalties, so they can focus on what is important to them, which is research and development. In addition, mechanisms to network business managers, investors and entrepreneurs to new technologies being developed at various research institutions should be encouraged.

**Strengthen domestic investors:** More flexible financing framework for Portuguese investors. Increased government support of Portuguese venture capitalists. For example, the government may set up a fund where they can match the investments made by a Portuguese venture capital. Implement policies that encourage financing of start-ups, such as tax cuts to Portuguese venture capitals. Creating platforms that improve the network between Portuguese venture capitals and star-ups. Specifically, there should be easy to obtain certification programs for investors and business angels. Certified investors may then have access to financial guarantees from the government and a collaborative network of investment institutions. It is essential to ensure that investor network platforms are not redundant but collaborative and vibrant. These network platforms may be in the form of investor mentorship programs or training programs specifically for investors.

**Leverage on the role of accelerators and Incubators:** Increase in accelerators role in investing in start-ups. Strategic partnerships between government,
investments funds and accelerators. Increased funding for accelerators and incubators in Portugal. On the issue of partnership, there should be mechanisms that link investors directly with acceleration programs. For a variety of reasons several investors may be unavailable for investor training, etc as described above and they might not need to because of the role of accelerators and incubators. Accelerators and incubators are more inclined to know the intricacies of the start-up ecosystem and may be able to provide two things to investors and start-ups; 1.) Right investment to start-up match and 2.) “On the job“ training for both investors start-ups. It is important therefore for government and relevant stakeholders to implement policies that support the growth and strengthen the networks of accelerators.

**Improve visibility of the Portuguese business ecosystem:** The Portuguese business environment should be advertised more aggressively highlighting the strengths of the economy to encourage business survival. In addition, there should be consistent effort to reducing the government bureaucracy by introducing e-government technologies and removing irrelevant processes. There should be a consistent decrease in language barriers within government agencies that deal with foreigners (i.e. Investors and entrepreneurs). Furthermore, the burden of administrative requirements to new start-ups should be reduced by incorporating efficient processes with simple yet sophisticated checks and balances. Finally, there should be in existence a start-up liaison office/department that provides all information to and interacts with start-ups on behalf of the Portuguese government.

**Improving funding opportunities/options for start-ups:** Increase funding and funding rounds for start-ups in Portugal by implementing the recommendations provided above. Also creating alternative capital options to equity such as interest free loans up to a certain amount for seed funding or at the achievement of business milestone. For example, the government may establish a credit fund that would give additional funding to start-ups that have met goals such as number of employees, revenue after 2 years, number of customers, etc.

**Rewarding employment generation:** Increased incentives for start-ups with greater potential of employment generation through fiscal schemes. Encouraging immigration of high skilled workers and entrepreneurs to Portugal by reducing immigration requirements and costs. According to Kaufman foundation, an increase in immigration is correlated to the growth of the start-up ecosystem of any country, using the USA as a case study. Also, reducing regulations to start a business in Portugal, will be essential in encouraging start-up growth.

**Create platforms to monitor and measure progress:** Relevant stakeholder including the government should develop universal but relevant metrics to measure and monitor the performance of the Portuguese start-up ecosystem. Leveraging on the ICT infrastructure and skills present in Portugal, there should be a centralised database containing these metrics with easy access for certified players in the start-up ecosystem.
FACTORS FOR BUSINESS SUCCESS BY START-UP FOUNDERS

The Right Attitude: Several start-ups suggested that having the right attitude goes a long way in making a business successful. Having the right attitude consists of several components; Start-ups need to have a focused approach in achieving their objectives (Carlos Pina Teixeira, CEO, Eneida.io); Start-up founders have to be persistent and be prepared for uncertainties (Vasco Varela, CEO, PETsys Electronics); they also need to manage their expectations, according to Luis Pedro Martins the CEO of Zaask “People need to manage expectations because they need to be prepared for all the obstacles and have the capacity to prevail over them”. He added further that start-up founders “should not be too happy when things go right and should not be too sad when things go wrong”; finally, when stuck, founders should be willing to ask for help (Andreia dos Reis, Marketing Manager, Landing.jobs).

Do your Research: Start-ups need to do some background work before they venture into their desired business. There is a need to get the right information from the right people, as this would filter all the noise associated in the start-ups desired industry. Marco Barbosa CEO, eSolidar suggests talking with entrepreneurs that have done what you want to do. In case start-ups someone, who has done exactly what they want to do, they need to talk with someone else at least from the same Perceive3D).

The Quality of the Team: About 50% of those we interviewed agreed that having a good team was crucial to the success of their business. They suggested that a quality team should have the following characteristics; be competent and skilful, have the highest knowledge about technology, have significant level of experience in the business field of interest, should be diverse in regard to their expertise, and should have the capacity to break market barriers e.g. through knowledge of multiple languages, etc. According to Joao Magalhaes the co-founder of Code For All “having a strong core team...Good Experience with balanced and different expertise...helped our business grow”. Similarly, in the words of Edmund Ovington, VP Partnership at Unbabel, “if you become excessive about only hiring exceptional people, you will automatically be closer to success. If you are going to focus on another things, focus on hiring the right people and use their talent”.

The Quantity & Quality of Partnerships: A significant number of the interviewee’s mentioned that the quality and the quantity of their partnerships played a significant role in their business success. They describe quality of partnership as the knowledge, experience and relevant connections that is brought along with a partnership agreement. The quality of the partnership is dependent on the amount of value added to a business. While the quantity of partnership was simply defined as the number of partnerships. According to the CEO of Eneida.io, Carlos Pina Teixeira “the type and quality of partnerships especially with research and development institutes such as universities was key alongside partnerships with stakeholders in the industry". In addition, Sonia Martins, the Operations Manager of Coimbra Genomics highlighted that their large range of international contacts was instrumental in helping them create value for their business. Moreover, according to Paulo Cunha, the Co-Founder and CEO of Shiftforward quality partnerships may come in the form mentors and Investors.

Create a Great Product: About 20% indicated that one of the keys to their success was as a result of the quality of their product and the needs their product met. It was highlighted that to create a great product, entrepreneurs need to listen carefully to their customers. In order to listen carefully, Euclides Major the co-founder of GuestU advices start-ups to spend the most time with their clients as much as possible. The product must also be highly relatable to the client. One way to engage clients according to Francisco Belo, CEO of Passworks is to start selling as soon as the technology has been developed, so as to get real feedback. In addition, the product must fit the scale of the problem or at least attempt to address the scale of the challenge. Finally, they suggest that having a strong social impact factor goes a long way to improving the chances of success of a business especially in Portugal. This view point is expressed in the words of João Magalhães, co-founder of Code For All “having a strong social impact factor by solving problems close to communities and solving a variety of problems by adapting solutions to different needs helped us grow”.

Innovative Technology: The start-ups also shared the view that the innovation of the technological component of their product or business added great
value to their success. According to João Amaro, VP Business Development at Perceive3D “The innovative nature of what we are doing in industry is important”. The start-ups added that being first to innovate and protecting the innovation via patents was also instrumental, as further expressed by Vasco Varela, the CEO of PETsys Electronics.

**Market Adaptability and Focusing on your Market:**
After start-ups have completed their research, it is important for them to focus on the market. Domingo’s Burgos Co-founder of Muzzley advises start-ups to test the market as quickly as possible in order to know what works. “When you know about your market it is important to adapt to the market”. The ability for start-ups to adapt under changing circumstances was further emphasized. In the words of Sonia Martins, Operations Manager at Coimbra Genomics, “Being able to adapt the product to market demand. Being able to listen to what customers want” was essential to their survival. Tandem with market adaptability is the ability of the start-ups to be persistent and resilient; according to Luis Pedro Martins the CEO of Zaask, “the resilience and capacity to adapt to new learnings, obstacles and issues. The Capacity to surpass all the problems we had in the start of the company” made them who they are today.

**Great Work Ethic:** Having a good work ethic was also highlighted as an important factor in business success. Some of the interviewed start-ups implied that having an excellent work ethic translates into developing a great product and provides assurance for investors. Some start-ups emphasized that the dedication to the day-to-day activities had a strong role in developing the business.

**Ability to take risk:** Finally, the start-ups suggested that the ability to try new things was essential to success. They indicated that for start-ups to take risks, they have to be bold and confident. Fundamental to taking risks is to accept that not everything works, and there are times for failure, but start-ups should learn from their mistakes

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**WHAT ARE THE OPPORTUNITIES IN PORTUGAL?**

**Best Talent:** All interviewed start-ups almost unanimously agreed that Portugal has great and promising talent especially in the field of science and engineering. They suggest that the high quality of talents is as a result of the universities and the educational system in Portugal. Also, there is a hunger for knowledge and self-development that majority of young individuals have in Portugal. Furthermore, a significant number of talents in Portugal speak multiple languages, which is relevant when trying to enter new markets. Finally, they suggest that Portuguese workers have the ability to persevere and to adapt to changing situations.

**Good Quality of Life:** A significant proportion of the interviewee’s agreed that what new investors and entrepreneurs should look forward to in Portugal is the high quality of life. Many of the start-ups believe that Portugal has good quality of life for the following reasons; the weather is conducive especially for outdoor activities, which generally translates to a healthy lifestyle; Living in Portugal is relatively affordable and safe; there is good transportation infrastructures, which makes labour mobility easier; Portuguese people are generally hospitable and diverse; there is a huge cultural history and heritage. They suggest that all these characteristics make work-life balance more attainable and starting a business less stressful.

**Beneficial Market Environment and Position:** Because the Portuguese market is relatively small, many of the start-ups believe that it is the perfect place to be explorative by trying new things, testing prototypes and adapting models where necessary. In addition, being part of the European Union opens Portugal to a variety of cross country benefits as a result of relatively limited trade barriers. Furthermore, large corporations in Portugal are getting more involved in the start-up ecosystem by supporting several ventures, therefore spurring more innovation. There is a significant number of early adopters of new technology in the Portuguese market.

**Value for Investment:** Many of the start-ups believe that there is a mind-set for product development and problem solving in Portugal, which creates an entrepreneurship environment complementary to investment. Also, because Portugal is relatively affordable, not a lot of capital is needed for investment when compared to other parts of the
Also in terms of financing, many of the start-ups are of the opinion that entrepreneurs cash will last longer in Portugal. The taxes are not so different from other European countries with tax benefits for foreigners. Finally, it is easier to invest because there are limited number of start-ups competing for investments.

**WHAT NEEDS TO BE IMPROVED IN PORTUGAL?**

**Improve Ecosystem Experience and Maturity:** According to Paulo Cunha, the Co-Founder and CEO of Shiftforward, “there needs to be significant start-up maturity leading to an exit” which would lead to a transfer of knowledge to upcoming start-up. This view is corroborated by the co-founder of Code For All Joao Magalhaes, “there needs to be large and more frequent exits so as to pass on their experience and possibly to re-invest”. Majority of that start-ups agree that there are no short cuts to maturing the Portuguese start-up ecosystem. “The ecosystem needs to run its natural course and go through all the process of maturing” (Joao Magalhaes, CEO, Code For All).

Furthermore “Create an environment to get relevant feedback in terms of market validation, product development, etc. Create opportunities to enter into international value chains via acceleration programs, etc. There need to be long term partnerships with stakeholder organizations” (Carlos Pina Teixeira, CEO, Eneida.io).

Finally, “the number of incubators is a lot therefore adding a lot noise to the ecosystem. There is therefore a need to learn. There is a need to be more selective in what is being done in the ecosystem” (Luis Moutinho, Co-Founder and CEO, NuRise).

**Improve Ecosystem Marketability:** There is a common sentiment shared among several of the interviewed start-ups, which is that the Portuguese ecosystem is not visible enough and therefore certain steps need to be taken to improve the status quo. In the words of Francisco Belo, CEO of Passworks, “Entrepreneurs need to be more aggressive and professional in the way they build the business, how to raise money. We need to know how to sell technology to different sectors”. The presence of the Web Summit has put a positive spotlight on Portugal (João Amaro, VP Business Development, Perceive3D), however there needs to be a significant increase in large entrepreneurship conferences (Marco Barbosa, Co-Founder and CEO, eSolidar). On the issue of improving visibility Vasco Varela, the CEO of PETsys Electronics suggests that “we should develop our start-ups until the moment they are visible in the market”.

**Improve Funding Opportunities:** Improving funding opportunities in Portugal appeared to be the area where most interviewees where most concerned about. According to Sonia Martins, Operations Manager at Coimbra Genomics, “Portuguese Investors need to take more risks. They “also need to engage more with the international community. And to invite international experts on their board. They should also be willing to listen and learn and adapt new methods of investments”

João Amaro, VP Business Development, Perceive3D advocated for more access to domestic capital, which still does not solve the problem of bringing money into Portugal. He suggested an aggressive increase in awareness campaigns to tackle this issue.

Improving opportunities also requires diversifying investment in different industries so as to encourage the growth of multiple start-ups at the same time. According to Diogo Ferreira, Co-Founder and CTO of Streambollico, “in the US, they try to invest in many sectors to develop a bigger economy. The investors should try to invest in more areas as in the US”.

Many of the start-ups suggested that there is also a need to bridge the gap between traditional Portuguese investors and new technology investors. Investors need to hire experienced entrepreneurs and co-invest with international investors (Marco Barbosa, Co-Founder and CEO, eSolidar).

In regard to how investments should be managed, Carlos Pina Teixeira, the CEO of Eneida.io had the following to say, “there is a need for a large pool of patient capital because it takes time for B2B companies to grow i.e. investors have to recognize that their investments are long term”.

**Manage Expectations:** According to Luis Pedro Martins the CEO of Zaask “We are already doing a great system for an ecosystem that is only 5 years old. The challenge is to keep the work and the effort and be careful with the expectations just because the ecosystem is rising now. There should be a balance between the expectations and Portugal should not forget the learnings from the previous 5 years just because there weren’t any exits”.
ANNEX

LIMITATIONS OF THE REPORT

The major limitation of this report is access to accurate data, as there were several omissions in the data set that may lead to reporting bias. Also, the willingness of interview subjects to provide sensitive information was also a barrier. It is therefore essential for strategic collaboration between stakeholders to share data on the start-up ecosystem, for better referencing.

ACKNOWLEDGEMENTS

Although writing this report was challenging in many regards, there are several individuals and organizations we would like to thank, who made it possible to complete this report;

Firstly, we would like to thank EIT Digital as a whole; EIT Digital as the leading European digital innovation and entrepreneurial education organisation driving Europe's digital transformation was supporting the data collection and writing of this report. Through the ARISE outreach programme and intensified activities in Portugal, mainly their partnership with BGI, EIT Digital has put Portugal’s scale-ups in the focus of their attention. More specifically, we would like to thank Thomas Kosters and Alex Pouline for their invaluable support.

We also want to thank our data partners Racius.com for giving us access to their vast database. Their support made it easier for us to compile data critical to our analysis. They have made our report more credible.

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We also want to thank the following individuals in no particular order for their contributions via interviews, panel discussions and data validation;

Edmund Ovington (VP Partnership, Unbabel), Pedro Trinite (Co-Founder, Transactional Track Record (TTR)), Domingos Bruges (CEO, Muzzley), Euclides Major (Founder & CEO, GuestU), Marcelino Moreno (CTO & Head of Product, GuestU), Daniel Kisluk (Head of Marketing, Aptoide), Joao Paulo Rodrigues (CEO, youbeep/Xhockware), Joao Claro (CSMO, youbeep/Xhockware), Andreia dos Reis (Marketing manager, Landing jobs), Luís Vieira (Co-Founder, B-Parts), Alexandra Vieira (Veniam), Luis Pedro Martins (CEO, Zaask), Diogo Ferreira (Co-Founder & CTO, Streambolico), Francisco Belo (Founder & CEO, Passworks), Sónia Martins (Operations Manager, Coimbra Genomics), Marco Barbosa (Founder & CEO, eSolidar), Paulo Cunha (Founder & CEO, Shiffforward), João Amaro (VP Business Development, Perceive3D), Ricardo Vilares (CEO, Mygon), Carlos Pinto Teixeira (CEO, Eneida.io), Vasco Varela (CEO, PETsys Electronics), André Rodrigues Pereira, (General Manager for Portugal, Uniplaces), João Ribeiro (Marketing manager, Uniplaces), Francisco Ferreira Pinto (Partner & Executive Director, Busy Angels). Fabio Pianesi (Research Director, EIT Digital), Miguel Fontes (Startup Lisboa), Sara Oliveira (Lead UX, Defined Crowd), Maria Francisca Beija (Operations Manager, James), Valter Pinho (CEO, Petapilot), José Paulo Esperança (Chairman, BGI).

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Goncalo Amorim (Executive Director; Editor-in-Chief), Sofia Fernandes (Head of marketing & Communication; Project Manager & Editor), Otitooluwa Dosumu (Marketing Research Manager; Data Analysis & Reporting), Andreia Pinho (Communication Manager; Communication and Partnership), Claudia Carocho (Marketing Intern; Data Collation), Diogo Nunes (Software Developer), Francesco Carmine Carbone (Marketing Intern; Infographics, promotional concept video editor & Report layout design), Mihajlo Milenkovic (Marketing Intern; Graphic design & web design).
REFERENCES


16. Startup Genome, Global Startup Ecosystem Report 2017, 5th April, 2017
Company name 360imprimir  
Business model B2B  
Domestic Funds ($) 4.6M  
Company Description
360imprimir is an one stop shop that provides marketing products and services and the company was founded in Portugal in 2013. Within three years, 360imprimir has expanded to three more countries, Spain, Mexico and Brazil, in order to reinforce its presence in Europe and also introduce their services to the Latin America market. 
Their main goal is to change the way that small and medium enterprises develop their marketing strategies and they do that by offering a high-quality printing service at a guaranteed low market price and trough marketing services, like design services. 
Through a revolutionary method, customers can order their marketing products and the production will be completed between 24 and 48 hours. In addition, 360imprimir’s website tools allow customer to create customized products without the need for any technical skills.

Accelerator or Incubator Instituto Pedro Nunes
Contacts jorge.correia@360imprimir.pt
Website 360imprimir.pt

Social media
Company name: Aptoide

HQ: Portugal

Business model: B2C&B2B

Company size: 50

Industry: Software

Domestic Funds ($): 910k

Int'l Funds ($): none

Vertical: ICT

Company Description:

Founded in 2011, Aptoide is the first social Android App Store. With over 150 million users, 4 billion downloads and 1 Million Apps, Aptoide is an open source platform that enhances the app content discovery experience through social interaction, tailored recommendations and the opportunity for users to create and share their own personal stores.

Aptoide also provides customized white-label App Store solutions for developers, OEMs, Telcos and Integrators, through which they can upload and distribute their Android Apps. Today, the Aptoide App Store is available for mobile, TV and VR devices and is accessible in over 40 languages.

Aptoide is headquartered in Lisbon and has offices in China and Singapore.

Awards/Recommendations/Achievements:

4 billion downloads | 150 million users | 850.000 Apps & Games

Investors:

E-ventures, Gobi Partners, Golden Gate Ventures and Portugal Ventures

Accelerator or Incubator: Instituto Pedro Nunes

Major Competitors: Google play store

Contacts: +351217960320 - press@aptoide.com

Website: aptoide.com

Social media:
Company name  ASAP54.com  HQ United Kingdom
Business model  B2C  Company size  29  Industry  Fashion
Domestic Funds ($)  830k  Intn'l Funds ($)  none  Vertical  Consumer & Web

Company Description
Asap54 is an app that provides customers information about items of clothing based on photos the customer has submitted. Asap54 is an app that helps you find clothes that you like around you in the physical world. You take a picture of them with your phone, and let the app find you that exact piece, along with a bunch of others that are similar. Think of it as “Shazam” for fashion. ASAP54 combines image recognition with keyword search to transform customer's inspiration into ‘shoppable’ items. ASAP54’s innovative image recognition detects colour and patterns to match user submitted images with products that can be purchased instantly. In addition the simple keyword search allows users to explore and shop products, people and trends in one simple click.

Awards/Recommendations/Achievements
Techcrunch Battlefield Europe 2013 - Runner up

Investors
E.ventures, Ceyuan Ventures, Novel TMT Ventures and QVentures

Other Fun Facts
The ‘54’ in the brand name was inspired by the infamous New York night club studio 54

Contacts  support@asap54.com  Website  asap54.com

Social media
Company name  Bitmaker        HQ  Portugal
Business model  B2C        Company size  10        Industry  Software
Domestic Funds ($)  1.37M        Int'l Funds ($)  none        Vertical  ICT

Company Description
BITMAKER Software presents itself with an ambitious project, whose goal is to specialize in
the design phases of architectures and development of enterprise software projects,
according to a logic of Software Factory and Software Outsourcing.

The team is composed of people who have been working together for several years, with a
strong technical capacity and a high level of experience in the development of large projects
for first-rate entities in the area of service provision at the national level.

Investors  UPTEC

Contacts  hi@bitmaker.rocks  -  +351 22 030 1524        Website  bitmaker-software.com
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**Company Description**

B-Parts is an online platform aimed at professionals in the automotive repair sector and only dedicated to the commercialization of reusable parts. B-Parts is a unique online Catalog Solution with Guarantee of Compliance on All Products. Restricted Group of Certified Suppliers in products and processes. All products are verified by a team of specialized technicians.

**Investors**  
Private Group of BA and Portugal Ventures

**Accelerator or Incubator**  
UPTEC

**Contacts**  
geral@b-parts.com - 22 032 7775

**Website**  
b-part.com
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**Company Description**

Mygon is the most complete local guide, with a website and smartphone app that provides information, photos, reviews, pricing menus and promotions from thousands of restaurants, SPAs, hairdressers and other local services. Currently, Mygon works with more than 2,000 merchants all over Portugal, and has more than 3,000 active promotions.

For users, Mygon is the go-to app before making any purchase at a local store, because they will find information and promotions not available on other websites or mobile apps, while for merchants Mygon provides a very simple way to attract new customers in low peak periods, only paying per client received.

**Investor** Portugal Ventures  
**Website** mygon.com  
**Social media**

![Social media icon]
<table>
<thead>
<tr>
<th>Company name</th>
<th>Codacy</th>
</tr>
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<tbody>
<tr>
<td>HQ</td>
<td>Portugal</td>
</tr>
<tr>
<td>Business model</td>
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<td>Company size</td>
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<td>Industry</td>
<td>ICT</td>
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<td>Int'l Funds ($)</td>
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</tr>
<tr>
<td>Vertical</td>
<td>ICT</td>
</tr>
</tbody>
</table>

**Company Description**

Codacy is an automated code review application that includes static analysis functionality for Python, Ruby, PHP, Java, JavaScript, Scala, Swift, TypeScript and other programming languages. Codacy integrates closely with Git, a distributed version control system. Members of a software development team can review each other’s modifications, from the web browser, as part of the code review process. All modifications are checked post commit and given code quality ratings. These code quality ratings assess the properties of codes across several dimensions, such as security and duplication, accuracy, complexity, coding style and other metrics. The platform also parses logs from code coverage tools and presents the evolution of code coverage side by side with the other software metrics. With Codacy, developers save up to 50% of the time spent on code reviews, so they can focus on what matters most and ship features faster. Codacy automates the repetitive stuff (static analysis, code style, coverage, complexity and duplication checks, etc.), and helps improve code quality, security, maintainability, ship code faster and save hours of work weekly. It integrates into users development workflows, so they maintain control of the quality of their code, and reduce technical debt throughout their sprints. Codacy is free for public, open source projects, and has a paid plan for private repositories. Codacy is configurable: users, can define and enable or disable patterns. It integrates with GitHub, Bitbucket, JIRA, YouTrack, Heroku, HipChat and Slack. Codacy also offers an Enterprise version that runs in the clients’ servers and integrates with Jenkins, GitHub Enterprise, Bitbucket Server and GitLab.

**Accelerator or Incubator**

Ativar Portugal Startup

**Website**

codacy.com

**Contacts**

+351 216 062 033 - team@codacy.com

**Awards/Recommendations/Achievements**

Over 25,000 developers and thousands of organizations rely on Codacy to implement code quality standards across the board, and foster the adoption of development best practices. Listed in the "The Hottest Startup Cities" by WIRED. Winner of PITCH Beta startup competition at the Web Summit 2014.

**Investors**

Caixa Capital, Amilar venture partners (formerly Espírito Santo Ventures), Faber Ventures, Henrique Castro, JOIN Capital and Seedcamp

**Social media**

![Link to the company's social media](fin)
We are code down to the bone and we will do whatever it takes to reach our goal. Our motto? Code Ergo Sum: helping the universe to ride the digital tsunami, teaching children and grown-ups to program the present, looking to the future.

Code For All focuses on two main areas:
• Adults: we were born out of the observation of a contemporary paradox: on one hand an extremely high youth unemployment rate, and on the other hand an enormous employment opportunity in the information technology sector. Over 14 weeks, we’re transforming unemployed people into junior developers and putting them back on the job market.
• Juniors: we want to show all the children of the world the marvellous world of programming, teaching them how to code, to think and solve problems. We have developed a personalised computer science-learning platform with content based on the United Nations Sustainable Development Goals that is used by both teachers and students in the classroom.

Other Fun Facts
Students are required to dance anytime they come late for classes.

Contacts helloworld@codeforall.io
Website codeforall.io
Coimbra Genomics develops clinical decision support systems based on a patient's whole genome sequence. Our aim is to bring individualised medicine to the desktop of every doctor. We develop tools that bridge genomic knowledge and medical practice, making it easy for any physician to make important decisions adapted to each patient’s genetic makeup. Our software platform, ELSIE, allows physicians to consult their patients’ genome sequence through standardized queries, and quickly obtain easy-to-read reports with information relevant for clinical decisions. We provide a simple, scalable and secure way to perform personalized medicine. Coimbra’s technology can be used by any physician, regardless of previous knowledge in genetics, without stopping patient flow or requiring learning on the spot. Its extreme flexibility allows coupling to any sequencing technology, integration into existing IT systems and compliance with different legal and logistic requirements. The system also allows the matching of clinical and genetic data to unveil valuable genome-phenome correlations.

**Awards/Recommendations/Achievements**
2nd eHealth Promisse 2015, Digital Health Venture Forum 2015 winner

**Investors**
Critical Ventures, Portugal Ventures

**Website** coimbra-genomics.com

**Contacts** +351231410890 - info@coimbra-genomics.com

Social media
Eneida.io has developed a Collaborative Energy IoT Platform for the remote and online Optimization of the Low Voltage Network (DeepGrid®).

The Low Voltage Network is key for having a better, carbon-free, World. It is key for having a rapid penetration of distributed solar and wind energy resources and of electric vehicles, but also for having a quality, secure, affordable, energy supply. As we believe that we have to do Better with Less, so we can have a better World for Everybody, we need to optimize the LV Network utilization to use fully what we have. That’s why we developed DeepGrid®.

The DeepGrid® platform includes low cost, security audited, smart sensors, and respective software and data analytics, for a significant improvement in Quality of Service, Energy Efficiency, Asset Productivity/Investment Optimization, and in the integration of Electric Vehicles and Distributed Energy Resources in the LV Networks. The DeepGrid® solution can also be used for Modelling, Network Management and Planning. Eneida.io’s DeepGrid® solution gives DSOs full control and visibility over their Low Voltage Network, at a much lower Total Cost of Ownership.

Eneida is an innovative SME, founded in 2012 in Coimbra (Portugal), with a strong relationship with the city’s University. As a spin-off from a Portuguese engineering company, for over 6 years before its foundation, Eneida was an R&D department in its mother company, specialized in the development of industrial smart sensors and wireless networks.

**Awards/Recommendations/Achievements**
Selected for InnoEnergy Boostway Program/Selected startup at ENEL Start Up Summit

**Accelerator or Incubator** Instituto Pedro Nunes

**Contacts** +351239111180 - marketing@eneida.io

**Website** eneida.io
GuestU's mission is making traveler's life easier, more personalized and more exciting by deploying technology in hotels & apartments! GuestU provides a dream amenity for hotel guests while helping hotels increase their online reviews by 30% and get data analytics on their guests' behavior in-destination. GuestU Phone is being deployed in various hotels such as Pestana Palace 5*, 1908 Hotel, Pestana CR7 5* and Alma Lusa 4* under a subscription-based model.

GuestU is a technological platform that enables hotels to increase guest satisfaction, improve online reviews and drive revenue based on data-driven recommendations for in-stay experience. GuestU’s flagship solution is the GuestU Phone - a smartphone running an operating system that can be personalized, branded and controlled by any hotel. The phone provides guests with free internet, voice calls, a city guide and internal service requests being a dream amenity for travelers.

The GuestU phone creates a memorable experience for hotel guests and tourists by helping them interact with the hotel facilities and services as well as the city in which they are in.

The GuestU phone is a ‘wow’ factor in the hospitality industry. It provides amazing guest engagement and satisfaction. Most guests are using the GuestU phone for over 70 minutes per day and their average total score is 9.0 out of 10 (with a reply rate of 45%). It’s consistently one of the most used hotel amenities.

In addition GuestU works with top retail brands that aim to advertise to tourists and are able to efficiently communicate with them via the GuestU Phone at the right time in the perfect location.

In the near future, GuestU aspires to equip every hotel room with a GuestU phone.

Awards/Recommendations/Achievements
Eye For Travel TDS NYC Summit 2014 finalist, GuestU has partnered with over 300 properties across 32 countries, 15,000 rooms and apartments available on GuestU platform.

Guests are using the GuestU phone for approximately 70 min a day.

Highlighted in Fortune magazine and New York Travel Times as one of the best travel solutions and CIO REVIEW 2017 as a top hospitality service provider.

Contacts  +351 916 764 007 - joana.taborda@guestu.com

Social media
<table>
<thead>
<tr>
<th><strong>Company name</strong></th>
<th>iM3DICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HQ</strong></td>
<td>Portugal</td>
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<tr>
<td><strong>Business model</strong></td>
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</tr>
<tr>
<td><strong>Vertical</strong></td>
<td>LS/Medical</td>
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</tbody>
</table>

**Company Description**

i-medical offers diagnostic imaging teams a comprehensive SaaS system enabling review and reporting from any screen including mobile. i-medical optimizes image-based clinical workflows, with no costs for upgrades, scaling or maintenance. Get full mobility, accessibility and scalability. i-medical works in all environments (LAN, WAN and mobile), to support the creation, review and reporting on individual patient images and records. With an intuitive interface, i-medical offers complete centralization and distributed, role-based access to image-based diagnostic workflows. i-medical’s solution offers users control at each step of the imaging diagnostics. Users easily manage and execute workflows, with full access to the information they need at each stage, and full control over timing. i-medical's platform runs without software installation or ongoing maintenance costs. It's the first application on the market to offer pay-per-use pricing. Pay as you go, and only for the volume you require. i-medical’s solution adapts to your needs and growing scale.

**Investors** Portugal Ventures, Adventure Investments and Pathena

**Contacts** geral@i-medical.com - +351 220 944 775

**Website** i-medical.com

**Social media**
Company name: Landing jobs
HQ: Portugal

Company size: 33
Industry: Human Resources

Domestic Funds ($): 1M
Int'l Funds ($): none
Vertical: Consumer & Web

Company Description
Landing.jobs is a candidate-driven tech careers marketplace. They are dedicated to matchmaking great tech talent with great opportunities. They treat their community members like people, and not just another entry on a database. They help users do a career review before they successfully deploy their next job. Behind the scenes, they are an international bunch of technologists and (the good side of) recruiters based out of Lisbon, Barcelona and London. Their mission is to build nothing less than the top destination for tech professionals who want to advance their careers. They not only want to make tech recruitment a less painful process, they want to make it worth your while.

Other Fun Facts
Everyone at the office rings a bell every time a candidate lands a job

Investors: Portugal Ventures, Best Horizon
Accelerator & Incubator: Startup Lisboa

Contacts: wegotyourback@landing.jobs - +351 211306 637
Website: landing.jobs

Social media
Muzzley is a B2B platform for consumer IoT monetization. Their core competence is based on allowing customers to build consumer IoT solutions that could be monetizable using IoT devices and more specifically, IoT data. Muzzley was born in 2012 when co-founders Domingos Bruges and Eduardo Pinheiro realized their curiosity for how interacting with the world around them through smart phones will become a solution to benefit everyone with connected devices, but it will soon loose it’s hype by the lack of meaningful use cases. The idea evolved into an platform that uses IoT devices and data to build meaningful use cases and, moreover, allow their customers to have successful consumer IoT monetization strategies. In order to create a reliable product, the team invested approximately 2 years into research and development, thereby creating a platform that is unique and driven by relevant data. Muzzley’s competitive advantage is based on not only being a consumer IoT solution composer, but also a platform that leverages the data generated by the same. Over the years Muzzley has evolved significantly and its transformation is symbolic of market adaptation. Muzzley is currently cashflow positive, working with tier 1 customers on the Insurance, Telecom and Utilities industries.

Awards/Recommendations/Achievements
- Prémios Novos 2013 - Categoria Internet, Best Android App (3rd Place) - Aptoide Awards, Portugal Digital Awards (Muzzley Sonae), BES Leadership Silicon Valley 2012, Startup Lisboa Undressed,

Investors
- Armilar Venture Partners (formerly Espi-rito Santo Ventures), Plug and Play and Portugal Ventures

Accelerator or Incubator
- Building Global Innovator (BGI), Startup-Lisboa, Plug and play, 500 startups

Other Fun Facts
- To the ones visiting our office, we suggest you shout out loud "Muzzley power" and see what happens next... 😊

Contacts
- support@muzzley.com press@muzzley.com

Website
- muzzley.com

Social media
Company name Perceive3D  HQ Portugal
Business model B2B  Company size 8  Industry Health Care
Domestic Funds ($) 2.78M  Intn’l Funds ($) none  Vertical LS/Medical

Company Description
P3D builds on advanced knowledge in computer vision to deliver innovative software systems for Computer-Aided Orthopedic Surgery (CAOS) that combine intelligent video processing with augmented reality to enhance surgeon’s capabilities in arthroscopy and open surgery.

P3D’s first product, the in.sight, improves visualization by applying several image enhancements and manipulations. The in.nav is a revolutionary new concept for Computer-Aided Orthopedic Surgery (CAOS), being the first solution ever for computer guidance and navigation during arthroscopy. Moreover, and unlike current technologies for CAOS, it does not require additional capital equipment, it is easy to use causing minimum disruption to the established surgical workflow, and it has 10x more metric accuracy. These advantages make the in.nav also an appealing proposition for navigation in open surgery for which there are already CAOS systems.

Awards/Recommendations/Achievements
Seal of Excellence from European Commission, received grant from Horizon 2020 SME Instrument Phase 2 funding, 3rd Edition Finalists of Building Global Innovators

Investors Portugal Ventures
Accelerator or Incubator BGI, IPN, UTEN Global Startup Program

Contacts +351239406474 - general@perceive3d.com  Website perceive3d.com
Company name PETsys Electronics  HQ Portugal
Business model B2B  Company size 15  Industry Micro electronics
Domestic Funds ($) 1.9M  Int'l Funds ($) none  Vertical LS/Medical

Company Description

The technology (for early cancer detection) offered today by PETsys Electronics, S.A. stems from ten years of R&D development involving a number of public, private and individual partners. The R&D PET-Mammography Consortium (involving approximately 40 people from 10 research institutions), and assembled in 2003, was responsible for the technological solutions (i.e. electronics, mechanics, image reconstruction) that gave birth to two Clear-PEM prototypes. These systems allow unmatched image resolution and sensitivity for breast imaging using PET tracers. PETsys - Medical PET Imaging Systems, S.A. was incorporated in 2008 to bring the Clear-PEM scanner technology to market. PETsys Electronics, S.A., setup by PETsys Systems SA in 2013, builds up on this expertise to propose state-of-the art solutions for the PET detectors of the future.

Awards/Recommendations/Achievements
Three “Seals of Excellence” from the European Commission; Selected for WebSummit2016; Accumulated sales exceeds 1M€.

Investors Portugal ventures  Website petsyselectronics.com
Contacts +351 966002882 - info@petsyselectronics.com

Social media
Company name: Talkdesk  
HQ: USA  
Business model: B2B  
Company size: 168  
Industry: Software  
Domestic Funds ($): none  
Int’l Funds ($): 24.5M  
Vertical: ICT  

**Company Description**

Talkdesk is the world’s leading cloud-based call centre software solution. The easy-to-use out-of-the-box call centre software solution helps growing businesses improve customer satisfaction, while simultaneously reducing customer support costs. Using Talkdesk, businesses can create an entire call centre in the browser in 5 minutes. Unlike other outdated and costly solutions that require a long setup and big upfront investment, Talkdesk requires no phones, no hardware, no coding and no downloads - all that is needed is a computer and an internet connection. With one click, Talkdesk integrates with Salesforce, Zendesk, Shopify, Infusionsoft, Olark and others to provide comprehensive information about customers. Talkdesk also automates tasks so that when a new contact calls, a new contact is created in the integrated business tools. When a call is missed, an email is sent with the call data, voicemail recording and transcription.

**Awards/Recommendations/Achievements**

“One of the fastest growing start-ups in silicon valley” – Forbes 30 Under 30

**Investors**

500 startups, Alex Khein, Draper Fisher Jurvetson (DFJ), Salesforce Ventures and Storm Ventures

**Accelerator or Incubator**

BGI, IPN, UTEN Global Startup Program

**Competitors**

Bitrix24

**Contacts**

+351 308 806 998 - support@talkdesk.com

**Website**

talkdesk.com
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<thead>
<tr>
<th>Company name</th>
<th>Petapilot</th>
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<tr>
<td>Business model</td>
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<td>Industry</td>
<td>FinTech</td>
<td>Vertical</td>
<td>ICT</td>
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**Company Description**
PETAPILOT develops software for analytics and digital audit services. The company operates in businesses, government, and institutional markets and the branches of the company are located in Portugal, Luxembourg, France, and Austria. It develops products and technology platforms for data analysis with high variety and volume, mainly business intelligence solutions, big data, cloud computing, and fraud detection. The main product of the company is Colbi, an analytical tool of commercial and financial information, with high scalability and performance. The Colbi serves a number of sectors ranging from government financial regulation, consultancy companies, industry, distribution and services.

PETAPILOT is a Portugal-based company that was founded in 2014 by Valter Pinho.

**Investors** Ask Capital
**Contacts** contact.center@petapilot.com
**Website** petapilot.com

**Social media**

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We can help you on your Big Data Approach

2014
Company name: Transational Track Record
HQ: Spain

Business model: B2B
Company size: 11-50
Industry: Information service

Domestic Funds ($): 2M
Intn'l Funds ($): none
Vertical: ICT

Company Description:
TTR - Transactional Track Record is a premium online service that helps transaction professionals grow their business in Spanish- and Portuguese-speaking regions globally by delivering exclusive forward-looking intelligence and business opportunities as well as announced, completed and cancelled transactions across every industry sector. TTR is established in the market as a platform for Lead Generation and Market Intelligence on: Mergers & Acquisitions, Private Equity, Venture Capital, Equity Capital Markets, Acquisition Finance, Asset Acquisitions

Awards/Recommendations/Achievements:
2,000 new intelligence alerts in last 12 months, Internationally awarded (CODIE 2013 - New York)

Other Fun Facts:
At the beginning, the two co-founders bought a recording camera and interviewed all the key players in their market to get feedback about their business. Also there is a celebration every time they close a deal with a client

Investors: Portugal Ventures
Website: ttracecord.com

Contacts: +34 91 279 87 59 - trackrecord@TTRRecord.com

Social media
Unbabel is accelerating the shift towards a world without language barriers by enabling trustworthy, seamless and scalable translations between companies and their customers. International businesses trust Unbabel's enterprise platform to open up and grow new markets by harnessing the power of Artificial Intelligence and a global community of mobile linguists. They develop state-of-the-art technology which has a direct impact in their business, improving translation quality, the selection of translators and in predictive translation. They are at the forefront of innovation in Artificial Intelligence for Natural Language Processing, Machine Translation and Deep Learning. Backed by Notion Capital, Google Ventures, Caixa Capital and Y Combinator, Unbabel is helping customers like Pinterest, Skyscanner, Under Armour, Trello and Oculus VR to understand and be understood. Unbabel takes pride in hiring the best talents in order to achieve its goals. In the nearest future Unbabel aspires to become the largest translation layer of the world.

**Awards/Recommendations/Achievements**
Prémios Novos 2013 - Categoria Internet, Best Selected by YCombinator 2014, Most Innovative Startup - TAUS 2015, Co-Founder of the Year - UP AWARDS 2015 and Global award for the best estimator.

**Investors**
Adeyemi Ajao | Amino Capital | Caixa Capital | David Peterson | Digital Garage | Elad Gil | Faber Ventures | FundersClub | Investo | Kevin Rose | Klaus von Sayn-Wittgenstein | Matrix Partners | Notion Capital | Raymond Tonsing | Rob Emrich | Roger Dickey | Ryan Petersen | Shilling Capital Partners | Urizen Ventures I | Wefunder | Workday Ventures | Y Combinator | Young Guo

**Accelerator or Incubator** YCombinator  
**Major Competitor** Google translate, FDL, LingoHub

**Other Fun Facts**
Unbabel organizes a monthly team surfing trip

**Contacts** community@unbabel.com  
**Website** unbabel.com

Social media
Company name: Uniplaces  
HQ: Portugal

Business model: B2C  
Company size: 137

Domestic Funds ($): 200k  
Int'l Funds ($): 28.6M

Industry: Multiple  
Vertical: ICT

Company Description
Uniplaces is creating a trusted, global brand for student accommodation. Uniplaces is a fast-growing student accommodation platform, helping millions of students around Europe to find and book their accommodation when going abroad. Whether you are going for a semester abroad or doing an internship or project in a different country, you can easily find and book a place to stay through the Uniplaces platform (www.uniplaces.com). Properties on Uniplaces are fully verified by their team. They take professional photos of every room and write complete and detailed descriptions so that there are no surprises when booking a place.

Awards/Recommendations/Achievements
Best Digital Brand 2016, 30 under 30 Europe 2017

Investors
Shilling Capital Partners, Alex Chesterman, Atomico, Caixa Capital, Octopus Ventures, Rob McClatchey, Start-Up Chile, Sweet Capital Ltd and William Reeve

Accelerator or Incubator: Startup-Lisboa

Major Competitor: Spotahome, HousingAnywhere, Student.com

Contacts +351 21 114 39 39 - partnerships@uniplaces.com  
Website: uniplaces.com

Social media
Company name: Veniam
HQ: USA

Company size: 65
Industry: Wireless

Domestic Funds ($): 430k
Intl Funds ($): 29.5M
Vertical: Clean Tech & Industrial

Company Description
Veniam is building the Internet of Moving Things. We turn vehicles into Wi-Fi hotspots and build city-scale vehicular networks that expand wireless coverage and collect terabytes of urban data. Veniam’s game-changing solutions are composed by hardware, software and cloud components that deliver managed services to intelligent transportation systems in New York and Singapore, as well as in the world’s largest network of connected vehicles, which includes taxis, waste collection trucks and the entire public bus fleet in Porto, Portugal, offering free Wi-Fi to more than 500,000 active customers. Veniam takes pride in moving massive amounts of data between vehicles and the Cloud reliably, flexibly and cost effectively. Reliably because they process data locally and send it over many different kinds of networks (incl. V2X mesh). Flexibly because their vehicle-to-cloud APIs provide all applications with easy and secure access to the right data at the right location at the right time. Lowest cost because their offload traffic to less congested and therefore cheaper networks and locations.

Awards/Recommendations/Achievements
Over 600,000 Unique users, over 30 million Km’s of connected vehicle data, over 8.1 million internet sessions. Veniam was lauded in 2016 and in 2017 by CNBC as one of the 50 most forward-thinking companies in America. Other awards include Winning Demonstration CableLabs Innovation - Showcase Summer 2015, TU Automotive Award 2016 Winner, CNBC 2016 Disruptor 50 & CNBC 2017 Disruptors 50, 15 Fierce Winner, Gartner 2015 CoolVendor, Wireless Scale-up Award, Wi-Fi industry awards 2015 Winner, Red Herring Winner 100, BGI venture competition winner and Innovation Award NOS.

Investors
Building Global Innovators (BGI), Verizon Ventures, Orange Digital Ventures, Cisco Investments, True Ventures, Yamaha Motor Ventures, Cane Investments LLC, Union Square Ventures and Liberty Global Ventures.

Accelerator or Incubator: Building Global Innovators (BGI), UPTEC

Contacts: +1 415 470 33 49 - info@veniam.com
Website: veniam.com

Social media
Wizdee is a leading company in natural language processing, machine learning and semantic search. Our mission is to empower everyone with easy access to data. Wizdee developed a technology that allows users to freely explore data by themselves just by dictating or typing queries in a search box using everyday language. Wizdee’s search engine interprets your queries, analyses information from your data assets and returns answers in seconds. You can easily access information anytime, anywhere and from any device, increasing companies speed and productivity.

Investors Portugal ventures, Novabase
Accelerator or Invubator IPN

Contacts info@wizdee.com
Website petsyselectronics.com
CHANGING THE WAY WE SHOP EVERY DAY

Xhockware is a startup company focused on developing innovative retail solutions. We want to change the way people shop worldwide through mobile technologies, bringing the online commodity to the physical store.

Company name  Xhockware       HQ  Portugal
Business model  B2B       Company size  11-50       Industry  Retail
Domestic Funds ($)  2.1M       Int’l Funds ($)  2M       Vertical  ICT

Company Description
Xhockware is a start-up offering innovative retail solutions. YouBeep, Xhockware’s first product, is a mobile shopping & checkout solution based on two components, a patented pluggable device, compatible with any retailer POS (legacy systems included) and a mobile app.
For retailers, YouBeep is the solution to add value and grow business. Access to meaningful insights, optimized operations, sales increase, compatible with loyalty programs and digital coupons. Mobile payments are enabled via YouBeep. Worth to mention, there's no integration effort and no CAPEX required.
For shoppers, YouBeep provides a unique shopping experience. Shoppers can whizz through the checkout 70% faster than before, have control over their entire shopping journey from home until final payment. Personalized promotions in real time based on previous and present behaviour maximize customer satisfaction.
YouBeep is publicly available at 5 leading retailers – Lidl, Pingo Doce (JM), Jumbo (Auchan), Continente (Sonae) and Leroy Merlin with spectacular results.

Awards/Recommendations/Achievements
Road 2 Web Summit / Innovation prize in the "Troféus Luso-Franceses 2016"/ Shortlisted in Innovation & Trail Awards RBTE 2016 & 2017

Investors
Busy Angels, Portugal Ventures, P2020 & HORIZON 2020

Accelerator or Incubator  UPTEC

Contacts  +351 220 731 338- info@youbeep.com       Website  youbeep.com

Social media
Company name: Zaask  
HQ: Portugal

Business model: B2B2C  
Company size: 11-50  
Industry: Human resource

Domestic Funds ($): 2.7M  
Int’l Funds ($): none  
Vertical: Consumer & Web

Company Description
Zaask is an online marketplace for local services, leader in the Iberian market. Zaask’s platform helps clients accomplish their personal projects by introducing them to the right professionals, where and whenever they need them. At the same time, it helps companies address the often unpleasant experiences involved in hiring services. These unpleasant experiences usually involve making several phone calls, low availability of service individuals, poor quality as well as unaffordable prices. Zaask hopes to create an ideal experience such that, whenever a professional is needed to in any type of service, there is a quick response with a variety of well referenced options to choose from. Zaask’s platform operates in three simple steps: 1. Customers inform them of the professionals they need and zaask introduces relevant professionals, 2. Customers have the opportunity to compare professionals by estimated budgets, customer reviews, experience, etc. 3. Customers hire their choice professional.

Awards/Recommendations/Achievements
+11,000 service requests monthly, +250,000 customers and +65,000 professionals in 20 cities in Portugal and Spain

Investors
Busy Angels, Faber Ventures, Portugal Ventures and Shilling Capital Partners

Accelerator or Incubator: UPTEC  
Competitors: Starofservice, Armut and YouDo.com

Contacts: +351 211 450 355 - info@zaask.com  
Website: zaask.com

Social media
The following start-ups did not make the top 25 PES given our current methodology, however in conjunction with the top 25 some make it to the top 40 Portuguese Emerging start-ups. Please see the Top 40 PES rank at www.scaleupportugal.tech. Please, note that the start-ups are listed in no specific order.

**5ensesinfood** develops and commercializes functional food ingredients for the food and drinks market. The company has developed an innovative fermentation technology that produces food ingredients exempt from free microorganisms, which allows the extension of the shelf life of foods, as well as additional nutritional benefits.

**Codeplace** is the best place to develop your coding skills with a comprehensive list of specially curated tutorials and books, to turn you into the best coder possible. Codeplace’s mission is to build the most complete developer learning platform.

**eSolidar** is a platform not only for charities to raise funds but fundamentally to diversify the options available for them to fundraise and reach new audiences. We use e-commerce as the vehicle for giving charities multiple sources of revenue, generating a long-lasting and innovative difference throughout the sector.

**ExInUs** is a start-up company that provides subscription-based services and solutions for corporate fleet management, car insurance and mobility management. We offer innovative telematics solutions that can change the way the vehicle is driven and save billions of euros to the consumer, corporations and countries.

**Friday** brings together a wide range of design, engineering, certification and marketing competencies focused on creating technologically advanced nautical and water related leisure devices and equipment.

**GetSocial** is a content analytics platform that helps marketers measure, promote and amplify their best content.

**Liquid** is an automated growth marketing for mobile apps like no other. It gives you the ability to automate the communication with your mobile app users in a meaningful and timely manner.
**MYGN** is the most complete local guide, with a website and smartphone app that provides information, photos, reviews, pricing menus and promotions from thousands of restaurants, SPAs, hairdressers and other local services.

**NU-RISE** develops nuclear radiation sensors and equipment for industry, research instrumentation and medical applications. NU-RISE initiated in-vitro trials of a new device for in-vivo and real-time dosimetry, solving the lack for radiation monitoring in prostate brachytherapy.

**Passworks.io** is an online platform that allows brands to create mobile wallet marketing content for mobile wallet Apps, meaning digital passes, such as coupons, loyalty cards, store cards, event tickets, boarding passes, among others.

**Prodsmart** is real time process tracking for production lines and job shops. They turn any production line into a digital smart factory. Their Manufacturing Execution System (MES) turns smartphones and tablets into sensors to collect process data directly from the shop floor, eliminating paper and providing real time analytics that allow for waste reduction and efficiency improvements.

**ShiftForward** enables businesses in the online advertising industry to build and run their own ad technology as a way to gain a competitive advantage and maintain strategic control, unavailable with closed full-stack solutions.

**Streambolico** significantly improves wireless communication to and from mobile devices. They believe network coding can bring a tremendous impact to the mobile communication ecosystem, by improving performance while reducing costs.

**SWORD Health** is a company on a mission to solve the most important problems in healthcare systems, with a passion not only for creating new technologies, but fundamentally for reinventing industries.

**TURFLYNX**’s vision of a mobile-robot and information-based future has resulted in our first product: the F315 autonomous triplex fairway mower. They currently work in the development and marketing of robotic solutions for golf courses and sports fields using mobile robotics technology.

**Indie Campers**’ mission is to enable the freedom of movement, inspiring and connecting explorers worldwide with unforgettable European destinations.
Defined Crowd is an intelligent data platform for Artificial Intelligence and Machine Learning. They offer efficient data pipelines to collect, process and enrich training data by combining crowdsourcing, tools and machine learning capabilities to accelerate enterprise machine learning training and modeling.

Tradiio is a music app for web and mobile which blends streaming with direct-to-fan recurring payments for artists. Artists can then monetize their fan base through inviting them to join their Circle (beta), where they can

James is a one-stop shop for Credit Risk Management, that allows you to easily create, validate, deploy, and monitor regulation-ready, high-performing predictive models.