everis

an NTT DATA Company

Tech Giants, Corporations and Disruptive Start-ups: The Truth of IoT Ecosystem

Report
November 2016

Connecting things
to transform the world

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Context of the report led by everis: The Truth Of IoT Ecosystem

Mankind has always been attracted to curiosity. Such curiosity has led us to achieve great discoveries such as the penecillin by Alexander Fleming or the graphene of Andre Geim. The non-conformism nature of humanity is what has carried us to the **technological revolution we are currently living** and to a point where we are dealing with new challenges.

All **industries are facing major challenges** due to increasing technological changes. New **IoT start-ups are entering in different sectors with disruptive business models and new capabilities.** The IoT market is rocketing, with more companies creating venture capitals to analyse and invest in disruptive start-ups. Taking as an example the commonly known tech giant group as "GAFAAs" (Google, Apple, Facebook, Amazon, Alibaba), we noticed that Google created its GV company in 2009, Alexa Fund from Amazon was created in 2015, and Alibaba Capital Partners of Alibaba was founded in 2008. However, **tech giants are also investing and invading the IoT field**, leveraging their digital capabilities and customer information.

everis has analysed the investments performed by venture capitals and it shows diversified patterns, the increasing interest and maturity of a wide variety of areas of IoT and **how corporations are expanding beyond their traditional business in search of disruptive opportunities.** The research also reflects valuable information about the **main trends and challenges emerging from disruptive start-ups** and which of them are redefining the IoT market and, consequently, all industries. Taking into account the important role of tech giants, the study analyses their current and potential roles, focusing on a group of tech giants and big corporations from all sectors.

This document aims to provide the reader with a wide overview of the maturity of the IoT worldwide as well as its current trends and how are start-ups, big corporations and tech giants taking part in this challenge.

everis will **has released the main results** of this research in the **IoT World Solutions Congress 2016.** The report has been conducted using **everis NEXT** (www.everisNEXT.com), the **world's largest B2B-ICT start-up repository,** that connects more than a million of the world's best entrepreneurs (start-ups) with innovative areas of corporations and influencers in order to face challenges together. It has developed a disruptive innovation framework focused on solving the main innovation challenges faced by big corporations to understand the state of the art of the innovation and to accelerate innovative projects.

everis NEXT is a tool that helps large corporations to drive the innovation processes and help them grow to the next level of innovation. In addition, the participation of our experts in IoT and highly experienced professionals in all business sectors have made possible the study, analysis and results of this report.

The context of the IoT market

The I**nternet of Things technology is here to stay for a long time**, and there are plenty of reasons to think so.

During the last years we have seen how information and communication technologies have evolved. Starting from the 90's when desktop computers appeared up to nowadays when we are surrounded by hand computers like smartphones, tablets or wearable technologies. Transistors have reduced their size and price, **people demand to be connected with everything, everyone and anywhere,** we can't live without our smartphone and for most business sectors, data is considered as the king for their strategies. Nowadays enterprises have perceived the need to **adapt to the new emerging technologies, such as predictive analytics and real time sensing,** to continue improving their performance and offering.

Due to the growing and competitive market of smartphones and computers the **production cost and size of these kind of technologies and devices has decreased amazingly without losing the computation power.** This has fostered the growth of the Internet of Things market offering. We have experienced the appearance of embedded computers and cheap microcontrollers such as Raspberry pi or Arduino. Nowadays software developments are not only for experts. Advanced artificial intelligence technologies is increasingly common and accessible for any developer. New kinds of network connectivity companies and protocols for easy-connect devices (things) have been created, such as the connectivity approach deployed by Sigfox company and the standardisation of the LoRa protocol.

This has allowed both, **ordinary people and SMEs to easily prototype their ideas into real projects, in a low cost and fast way.** Many of these projects have become great start-ups and, subsequently, big corporations, which now have the capability of attracting new customers, big partners, like corporations and tech giants, and capital funds to keep growing. A nice example of that is 3DR, in **Figure 1**, they started creating "low-cost" UAVs using Arduino and some recycled components of the Wii video game console. And now they are one of the best drone solutions providers for all kind of industries.

Figure 1
Start-up funding evolution from prototype to project (3D Robotic example)

The success of these technological solutions is a result of inexpensive, easy to understand, versatile and open products with a great community on the back. Tech giants, being aware of the success of these type of computers and emerging technologies, started to build their own “pop” microcomputers or open their private software libraries. For example, Intel developed the Edison Board or Google shared their machine learning platforms and software development kits, to be present in this market and to **engage creators, or more commonly called Makers, to use their boards and software in their solutions and projects.** This is a win-win position where start-ups can reach the market easily and tech giants and big corporations can attract new customers and explore new markets.

Let’s focus on the relationship between start-ups and big corporations. On one side, Big corporations have the advantage of knowledge and experience in the traditional market and their customers, and on the other side start-ups have the innovation component in their DNA. Combining efforts, they obtain very positive results to reach success. Start-ups grow and consolidate themselves and big corporations get fresh innovative services or products.

This relationship helps to **create a wide variety of new solutions and opportunities** in most of the business sectors, and attracts big venture capital funds to invest in IoT start-ups, with trustfulness, to help them keep growing and to expand over the world.

In chapter ‘The position of the start-ups and tech giants in this market’, we reflect where tech giants and capital ventures have been investing over the last 5 years.

The typology of funded start-ups is not only about hardware or integrated circuits. Tech giants have understood that IoT is not only about sensors (things) but it **is also about data, people, processes and how to connect them all together.** We see a great example of that in some of the top 10 start-up funding between 2014 and 2016 in **Figure 2**. They have invested in a diverse kind of technologies, like data integrators, predictive analytics, IoT platforms or cellular connectivity providers, like Sigfox (as we will see later in ‘The relevant role of the corporations’), to incorporate them in their strategies and to reach new market opportunities and customers.

Startup	Investors	Startup sub-sector
Magic Leap	Fidelity Investments, Warner Bros, Alibaba, JP Morgan Chase & Co, Google Ventures, Vulcan Capital, Qualcomm Ventures, Andressen Horowitz, Paul Allen, Kleiner Perkins Caufield & Byers, Qualcomm, Ev Williams	Wearables, Augmented Reality, Consumer Electronics, Software, Video
OneWeb	Qualcomm Ventures, Virgin Group, The Coca-Cola Company, Bharti SoftBank	Internet, Satellite Communication, Database
Motromile	Index Ventures, New Enterprise Associates, Mark Cuban, First Round Capital, China Pacific Insurance, Intact Financial Group	Internet, Auto Insurance, Mobile Apps, Insurance, Automotive
GizWits	Matrix Partners China, Juren Capital	Bluetooth-connected, IoT platform, smartphone, appliances and consumer electronics
View Glass	Madrone Capital Partners, Coming, New Zeland, Superannuation Fund (NZ Super Fund)	Intelligent windows
Alarm.com	Technology Crossover Ventures	Internet, Security, Internet of Things
RetailNext	August Capital, StarVest Partners, Qualcomm Ventures, Nokia Growth Partners, Activant Capital, American Express Ventures, Pereg Ventures, Siguier Guff & Company	Data Visualization, Analytics, Retail, Big Data, Manufacturing
Thalmic Labs	Intel Capital, Fidelity Investments, Amazon Alexa Fund	Wearables, Health Care, Consumer Electronics
SIGFOX	S K Telecom Ventures, Telefonica Ventures, Elliott Management, ENGIE (formerly GDF SUEZ), Air Liquide, NTT DoCoMo Ventures, Eutelsat	Wireless, Telecommunications, Internet of Things
Zscaler	Lightspeed Venture Partners, EMC, TPG Capital, Google Capital	Internet, Cybersecurity, Security, E mail, Cloud Computing, Cloud Security

Figure 2 Top 10 funding start-ups and associated investors between 2014-2016

Going over the global financing history in the different sectors of the IoT industry, we can understand the market behaviour until nowadays and how tech giants, big corporations and venture capital funds interact with the start-up ecosystem.

Tech giants always stay alert when a start-up creates and launches an innovative idea to the IoT market. If the idea or product matches with their strategies, they will be interested in providing them with some kind of seed funding or technological partnership to improve the product and help them in the pitch to market. A great example of that is the relationship between Google and MagicLeap. Both of them have a similar product and the same interests around the augmented reality field. On one hand, Google is working on the Google Glass and needs fresh ideas and knowledge to improve their product, and on the other hand, MagicLeap needs funding to improve their glasses. This situation brings to the interaction between tech giants and start-ups.

Thanks to that, **start-ups meet new relationships with big corporations to reach new clients and to polish the product to improve the market penetration.** From this point, they obtain more capital to carry on with these improvements and growing expectations with the help of the capital ventures.
One of the most important features to start investing in the IoT market is that we need to think that it is a very young market and it is maturing very quickly. **The best investments need to be performed now, as in a near future the market will be saturated and the opportunities will be less interesting than currently.**

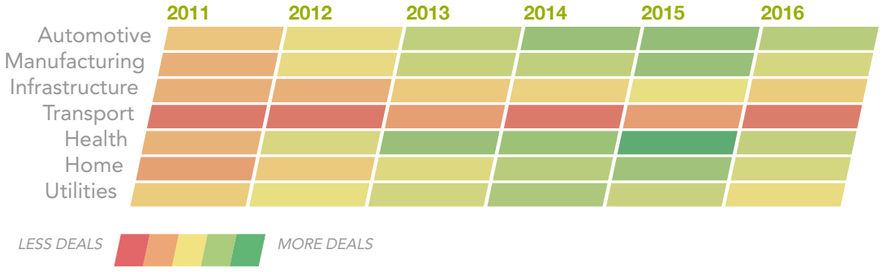


Figure 3 Deals per subsector and year

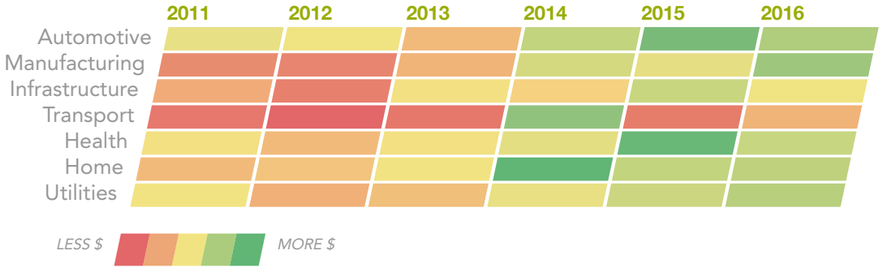


Figure 4 Deals total amount in $ per subsector and year

The **number of deals and investment amounts was very low between 2011 and 2013**, this means that there were **great opportunities to invest** at that time, **but with high risk. The IoT market was in its initial stages**, very young and with new emerging disruptive ideas and start-ups. The **IoT technology was in the technology trigger period.** During the next years, starting at 2014 we see a great change in the investment trends. So, we conclude from **Figure 3** and **Figure 4** that **some of the market niches are consolidated.** Take as an example the health industry, where a bunch of devices, services and processes have been developed to improve the citizen's quality of life, and every day we see new offerings and well positioned products. On the other hand, we find great opportunities in other sectors, such as manufacturing, transport or utilities, which can become the next hype of the IoT market, and where the **communication between all the market players will be a key factor to create innovative solutions and business improvements.**

It is not surprising to think that in the IoT market we find a whole lot of opportunities and good solutions for any business. We have seen that **big corporations, tech giants and start-ups are investing time, money and effort to achieve this technological revolution.** In this sense, **IoT** is not only about physical devices, but it **is also about how to manage data, engage users and improve processes**, as we mentioned before. This leads us to think that **the real value of the IoT market remains in the capacity of connecting all the components** involved in the value chain, **Figure 5**, in order to succeed.

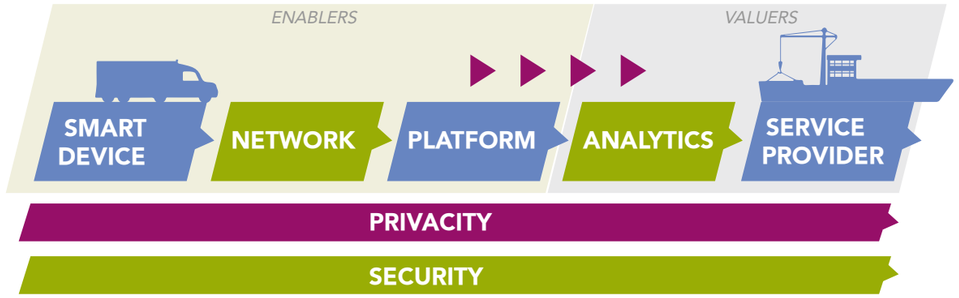


Figure 5 IoT Value Chain

All the business sectors have understood this message, and they know that it is a must to develop their strategies over this IoT value chain to keep growing and to be able **to compete in the near future markets.**

The key production factor has changed over the history to adapt to the "market trends". For example, in the medieval times the key factor to succeed was the land, and it was the landowners who set the trends. During the industrial revolution it was the capital, where the factories moved the world. **Nowadays the most valuable factor is the labour. For a start-up it is the initial labour, which is usually non-paid, that contributes to develop the idea that makes the difference with big corporations.**

Big corporations and all business sectors have seen the need to innovate and to adapt to this new revolution being part of this scenario as investors, partners or advisors, adopting this technology in their strategies, to improve their performance.

The Industry sector, for example, is making an update to Industry 4.0. This upgrade is designed to evolve the world of manufacturing by **bringing together machines, facilities, factories and networks** of the Industrial Revolution **with the digital information and communication technologies** of the Internet Revolution. Manufacturing is evolving to a **new level of organization and control with fully digital and networked models of product development, supply chain, production, delivery and service.** Providing customer-centric, seamless, and context-aware experiences that result in a sustainable competitive advantage.

The **focus of competition has shifted from product features to individualized experiences.** There is the need to deliver experiences designed to play by leveraging people, processes, data and the Social Network of Things across the entire value chain. In this context, it indicates that **size or economic strength** will not be enough to endure and grow, but **adaptability and innovation are the fundamental values.**

We are at the time when **the Information Technology (IT) world converges with the Operational Technology (OT) world**, powering the cycle of incorporating IT in the context of the industrial process.

The **automotive industry is undergoing a technological revolution where companies try to be innovative by definition and differentiate themselves from their rivals** in a very competitive market. For that, the **future technological trend is focused on the IoT technology.** This brings a competitive advantage for companies, creating new offerings **(see Figure 6)** based on very specific data of any costumer segment.

Figure 6 Automotive possibilities using IoT

On the other hand, **new trends and changes in the insurance sector are driving the search for disruptive strategies** that enable insurance companies to maintain their market position. Looking for this objective, **big data capabilities incorporation and new customer relationships forms, based on a two-way communication between the client and the insurance company are playing a crucial role. Services such as Pay As You Drive, car fleet management and electric car services gain importance.** The progress of the connected car requires manufacturers to offer a variety of digital services to all kind of customers, such as advanced diagnostics, telematics or **Global services.** But this has to be done **collaborating with vehicle manufacturers to enhance communication among cars.**

One of the benefits that the IoT can bring to the insurance companies relies on the Smart Home sector with rich data from **client knowledge** and **analysis of scenarios, future services and economic improvement of insurance products.**

Insurance companies face three main sources of innovation and their achievement will allow to respond to the challenges and needs of today's market, like new business models over collective and collaborative economy, new customer relationships, by customised insurances, and the use of technologies such as Big Data and Machine Learning.

Energy companies are trying to adapt their strategies too. They are dealing with major strategic changes in order to adapt to this new scenario. **Digital transformation, energy efficiency, the evolving role of customer and the incipient regulation evolution** are challenging the status quo of a sector that currently and in parallel is subject to important changes. Big corporations are dealing with major strategic changes in order to adapt to this new scenario.

The capabilities offered by IoT in the area of energy management generate a wide range of possibilities for the creation of new products and business models. Thus, **a lot of start-ups are appearing or evolving with innovative solutions**, as shown in **Figure 7**, which benefit energy companies as well as energy consumers.

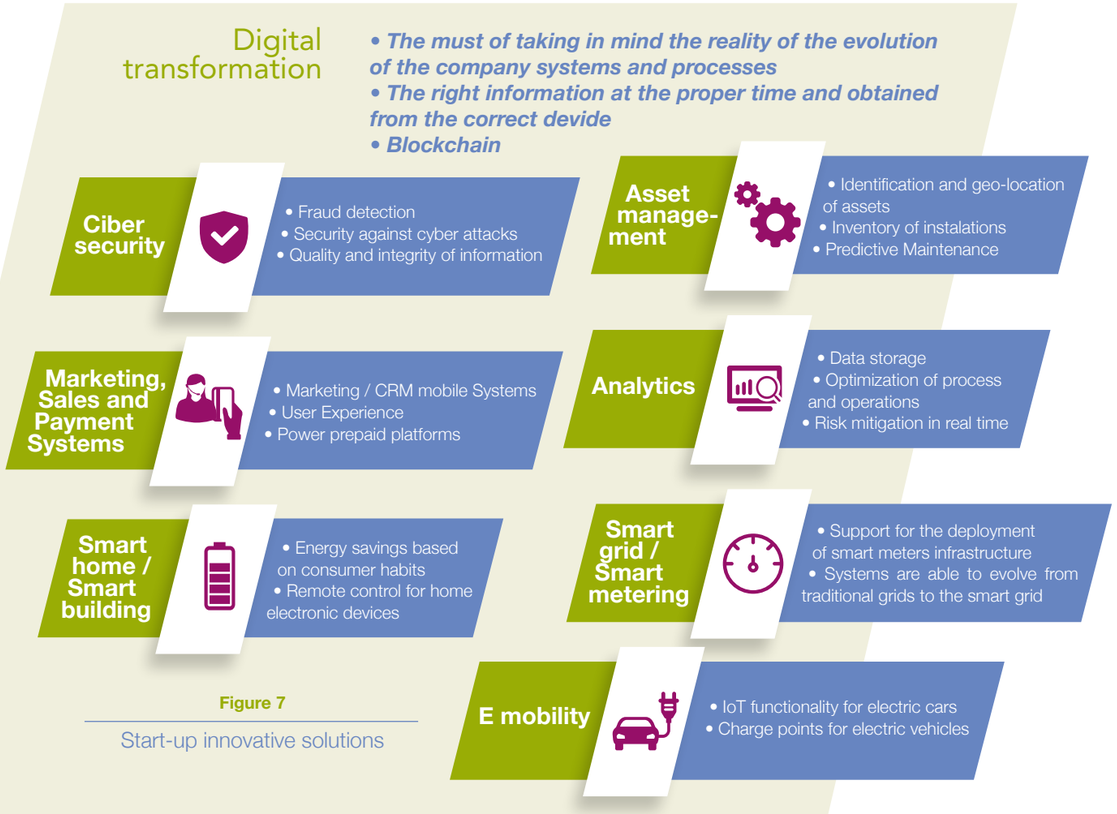


Figure 7
Start-up innovative solutions

In this context, as we mentioned before, we determine that there is a strong need to adapt and innovate from all actors involved in order to survive in this jungle.

Figure 8 Insurance disruptive start-ups of the ecosystem

The analysis of the market trends has been carried out by studying 13.000 IoT start-ups from which we have selected the best **2.300 start-ups created between 2005 and 2016** in all sectors. These **represent around 90% of the operations and amount of investment until 2016.**

By 2014 the Internet of Things technology was on the crest of the Gartner cycle, as shown in Figure 9 in the right. This technology was constantly on the media, everyone had heard about IoT and the expectations on this technology were very high.

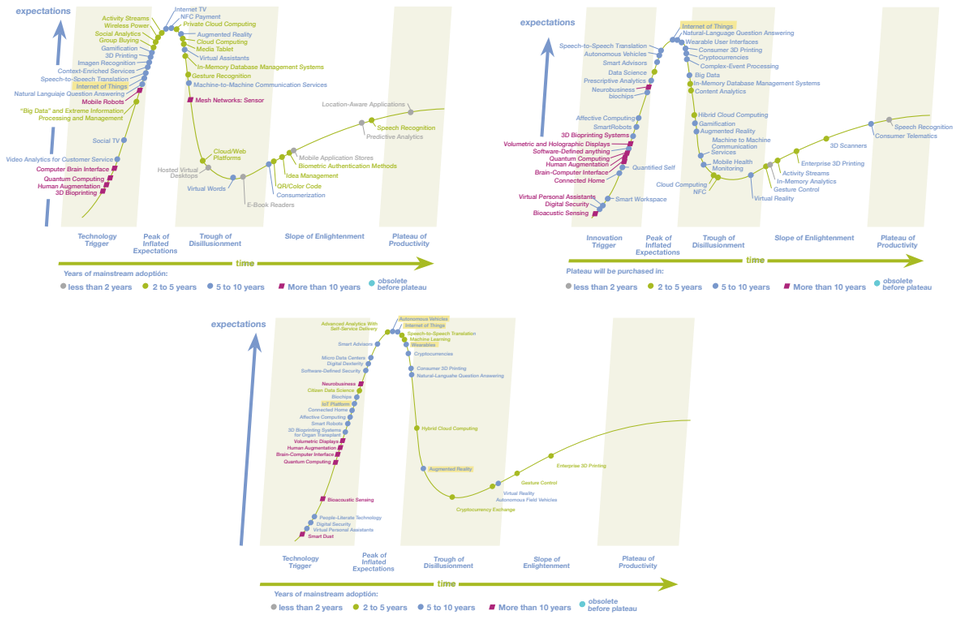


Figure 9 Gartner Hype Cycle for emerging technologies 2011, 2015 and 2015

2014 was also the year of the "Boom" on IoT start-ups investments. Tech giants and venture capitals began a race to acquire and invest in start-ups of this growing sector. **The total amount of investments in this year doubled the total amounts of 2013,** like we can see in **Figure 10**.

From **everis** we predict an increase over 18% on the total amount invested for the 2016 closing year compared to the previous year (Green label 2016). It seems like tech giants and venture capitals are not going to stop betting on this market during the next years.

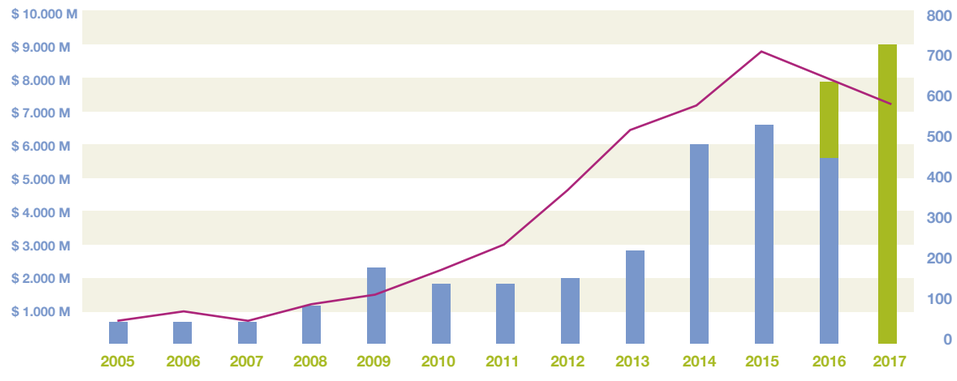


Figure 10 IoT start-ups Deals and Amounts

On the other hand we see that the **number of investment operations (#Deals) decreased in 2016,** regardless of the data of the last quarter of the year. Taking into account an extrapolation for the last quarter of the year, we see that **investment operations fell down by 9%.** This means that the investors are going to **perform fewer operations (Deals) but with larger amounts of investment in each deal.**

For 2017 we predict an **increase of 15% of investments compared to 2016 (Green label 2017 in Figure 10). And the number of the deals is going to decrease about 9% compared to 2016.**

This is good news, as it means that the **IoT market is reaching the maturity and consolidation stages and investors are confident** with their start-up portfolio. It is a great opportunity to invest in this kind of technology with lower risk compared to previous years.

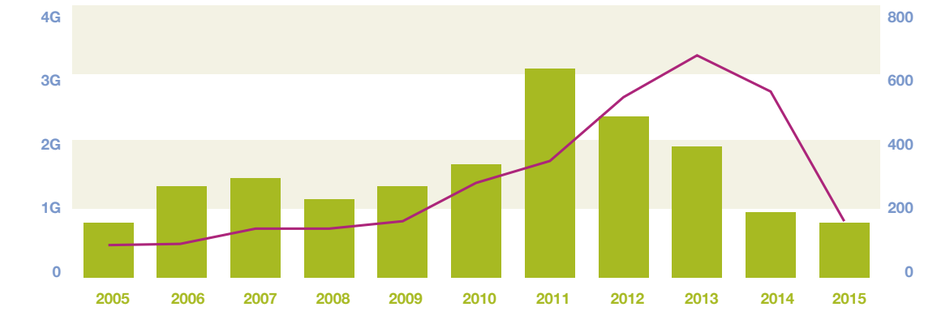


Figure 11 IoT start-ups total funding by founding year

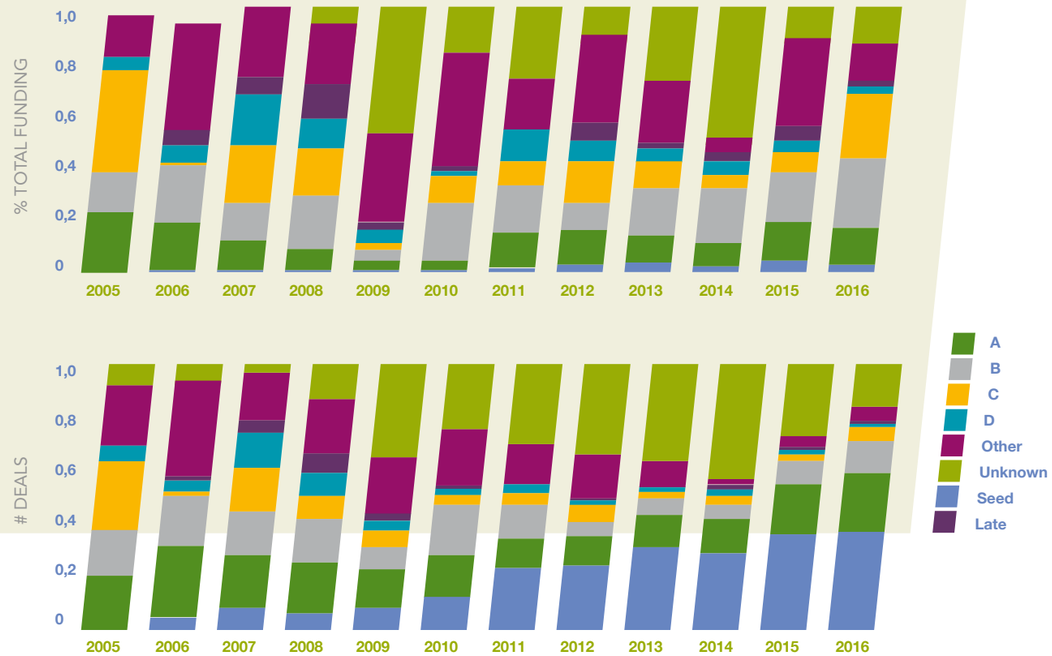
In **Figure 11** we conclude that the **total investment amount is concentrated in start-ups created before 2014.** We also observe a **peak on this start-ups created in 2011.** This is interesting, because the concept of the Internet of Things was in the "Technology Trigger" stage of the Gartner hype cycle of 2011, as we see in **Figure 9** in the left. A lot of emergent new ideas and start-ups started rising over the Internet of Things concept, but without a great visibility or clear market directions.

These start-ups have improved their products and business strategies over the last years to attract customers and investors, reaching good maturity stages. For this reason, the IoT investments are concentrated on the start-ups created in 2011, and **there is a high probability to see investments and acquisitions of IoT start-ups created between the years 2012 and 2014 in the near future.**

On the other hand we see that the number of start-ups created over the Internet of Thing sector has fallen sharply from 2013 to 2015. The reason for that is because **this market begins to diversify between these years and new sub-markets and concepts start rising over the IoT concept.** Taking a look the at **Figure 9** in the bottom we appreciate new concepts like IoT platform, UAV or Autonomous vehicles that are emerging separately to Internet of things since 2015.

Figure 12 shows that **the trend of investments is to make less late operations (Deals), like series B and C, but with a greater amount of investment in consolidated start-ups with products or services with more years of development,** like those companies founded before 2012. This is due to the fact that they have had the time to improve their ideas and the business strategy so VC and tech giants feel more confident to invest in these start-ups.

On the other hand we also appreciate that **investors still make investment operations of lower amounts in a number of start-ups that are in lower stages like seed or Series A, to explore and cover all possible market niches of the future.** This is a good strategy to support start-ups and to be always present in the innovation wave.



Stage	Description	Percentage
Pre Series A	Funding rounds for creating startups	50%
A	Funding stage to optimize the product	12%
B	Rounds to take the startup beyond the development phase	12%
C	Rounds to capital increase of successful businesses	6%
Late	Funding rounds for more established companies	12%
Exited	Funding rounds for successful companies	9%

Figure 12 Funding evolution by stage

After having analysed these graphics we have a clear idea of how the IoT market is going to behave over the next years. **The start-ups founded before 2013 are going to consolidate their business** and they are going to have a great impact on people, businesses and all sectors.

These start-ups in early investment stages, like seed or series A, are going to take advantage of the venture capital and tech giant late stages inversions in the near future to improve their products.

The new markets created around the IoT concept are going to grow and **tech giants, big corporations and capital ventures will be there surfing these innovation wave.**

In the near future, the border between products and services will disappear. Industries that only sell their products will offer complementary services derived from them. IoT will help in the transformation to a company adapted to customer. **Big corporations are investing in R&D to ensure their future performance, but they should pay attention to any start-up with new ideas, or tech giant's acquisitions, studying the impact on their products.** In **Figure 13** we have the total amount distribution investment in some of the industry subsectors start-ups. The investment trends are very positive, and it is not going to stop.

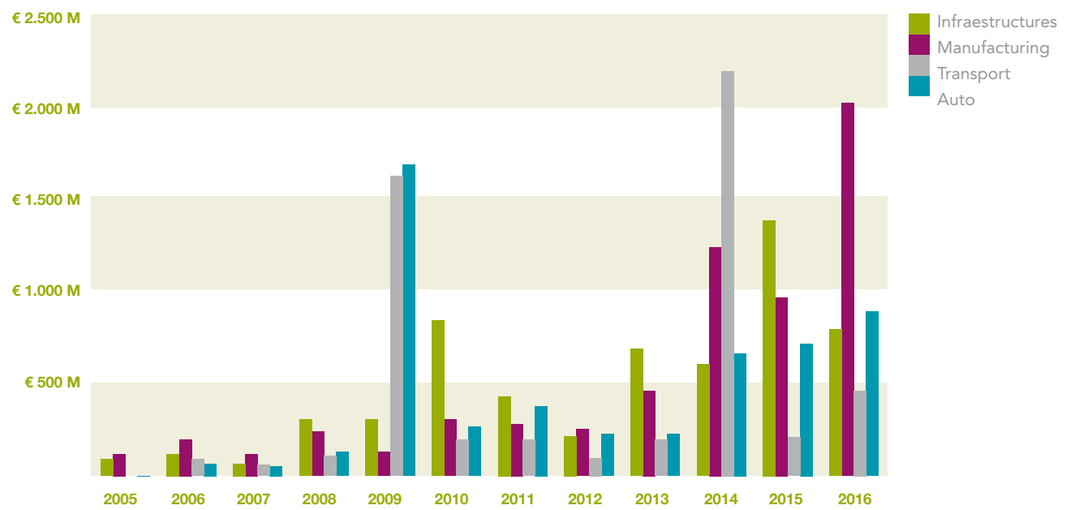


Figure 13 Total deal amount by industry subsectors

Also the insurance start-ups in the IoT field continue the rising trend marked in recent years, where investments were around US$4.8 billion corresponding to 435 operations, as shown in the **Figure 14**.

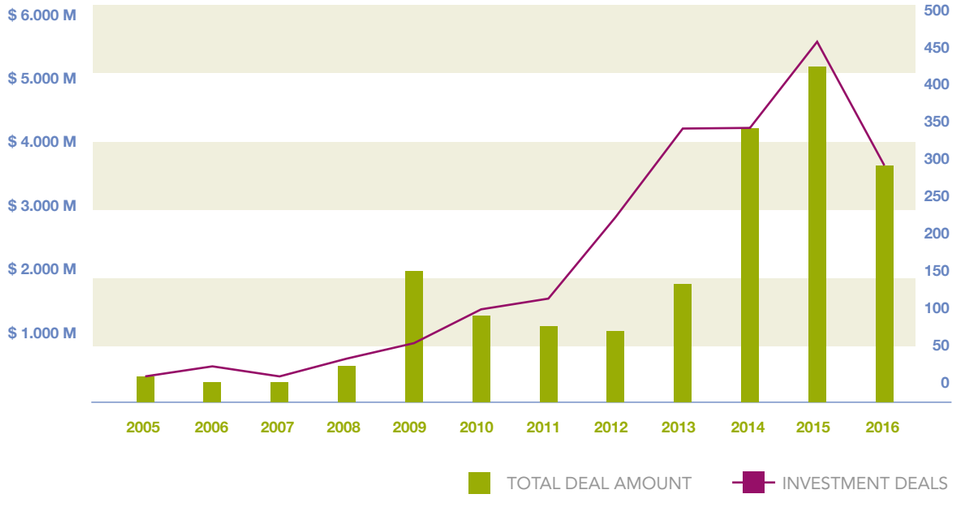
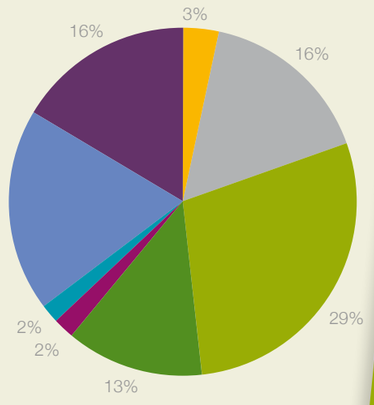


Figure 14 Total funding in insurance start-ups

The market is willing to invest in innovative business models and take risks in the insurance field. This explains why half of the **funding rounds in 2016 focused on stages A, C and slightly above the stage B (Figure 15),** meaning in funding rounds to take the start-up beyond the development phase.



Seed capital: financing round for launching start-ups
A: investment phase to optimize the product and user base
B: rounds to take the start-up beyond the development phase
C: rounds capital for successful business
D: financing for more established companies
Last stage: financing for more established companies
Other: venture capital debt, lans and more
Unlisted: non-public information

Figure 15 Funding rounds in 2016 on insurance start-upstart-ups

Soon we will see great inversions in new projects over the Connected Cars based on the analysis of driving habits and patterns, Connected home solutions based on energy management or enhances on safety, and Connected Health like prevention-oriented systems. One of the key players in the Utilities (Energy) transformation are **Tech Giants**. These large companies leverage their economic capabilities to **access to new technologies** that they cannot develop on their own, **to complement their solutions** already integrated in the sector or **to boost their presence in new business**, as it is shown in the funding strategies trends in **Figure 16**. **They identify innovative products and services** in start-ups integrating them into their suite, adding innovation per se, which they did not have before.

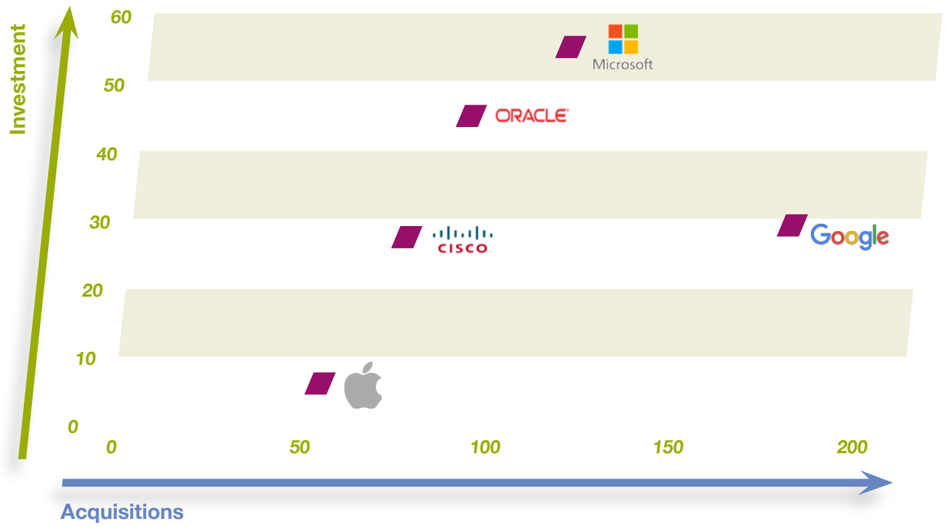


Figure 16 Tech giants funding strategies trends

Regarding to the IoT products and services created by start-ups in the energy field, approximately **59.9%** of them have **integrated hardware + software solutions** (smartmeter + measurement acquisition systems, IoT sensors + monitoring and operation systems). **33% of the start-ups choose software solutions that support other companies hardware systems.** Only **7.5% of them choose to develop hardware elements.**

Figure 17 Utilities IoT start-up product and services distribution

Regarding **business models, 87%** of the start-ups are based on a **B2B model** (Business to Business), 21% of them also have **B2C solutions** (Business to Consumer) and 7% of them expand the strategy of their business with other models such as **Consulting or Marketplace.** Only 13% of the start-ups focus on a **B2C model,** so just develop products which arrive directly to the client or the energy consumer.

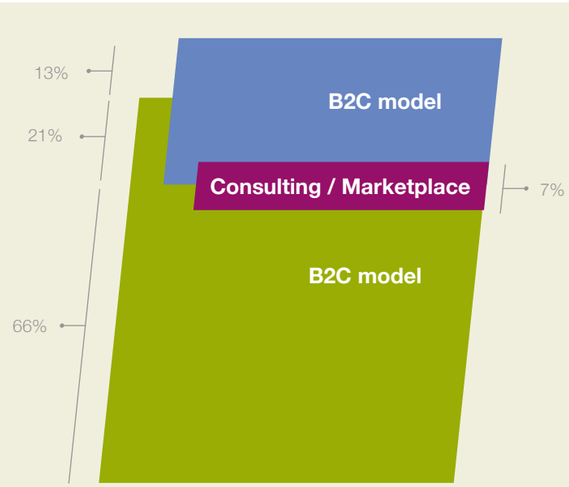
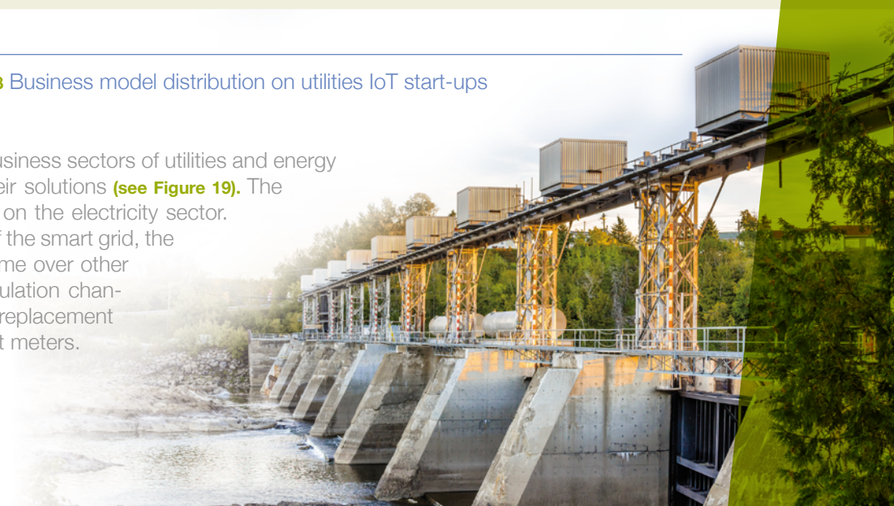


Figure 18 Business model distribution on utilities IoT start-ups

But let's take a look at the business sectors of utilities and energy where IoT start-ups offer their solutions **(see Figure 19).** The vast majority of these focus on the electricity sector. This is due to the evolution of the smart grid, the trend to use electricity at home over other energy sources and the regulation changes over this sector, like the replacement of electricity meters for smart meters.



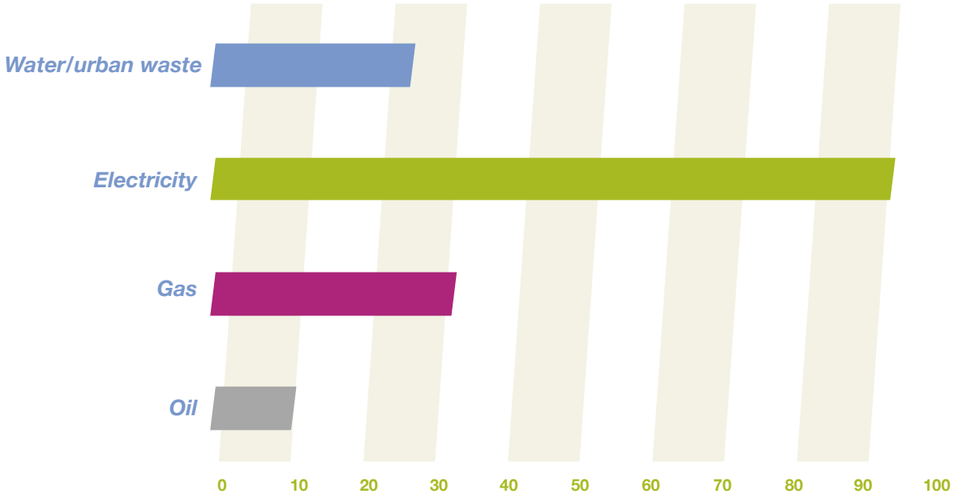


Figure 19 IoT start-up distribution on utilities and energy sector

So for **utilities**, we conclude that the **majority of IoT start-upstart-ups** in this field **centres their strategy on the electricity sector, using a B2B business model**, and over of the 60% of the solutions provided by these, solutions integrating hardware and software.

Analysing the IoT market expansion from a geographical point of view, in **Figure 20** we show that nowadays North America is the best player in this market. They have the majority of the best IoT start-ups in the world and they also have great funding opportunities for them.

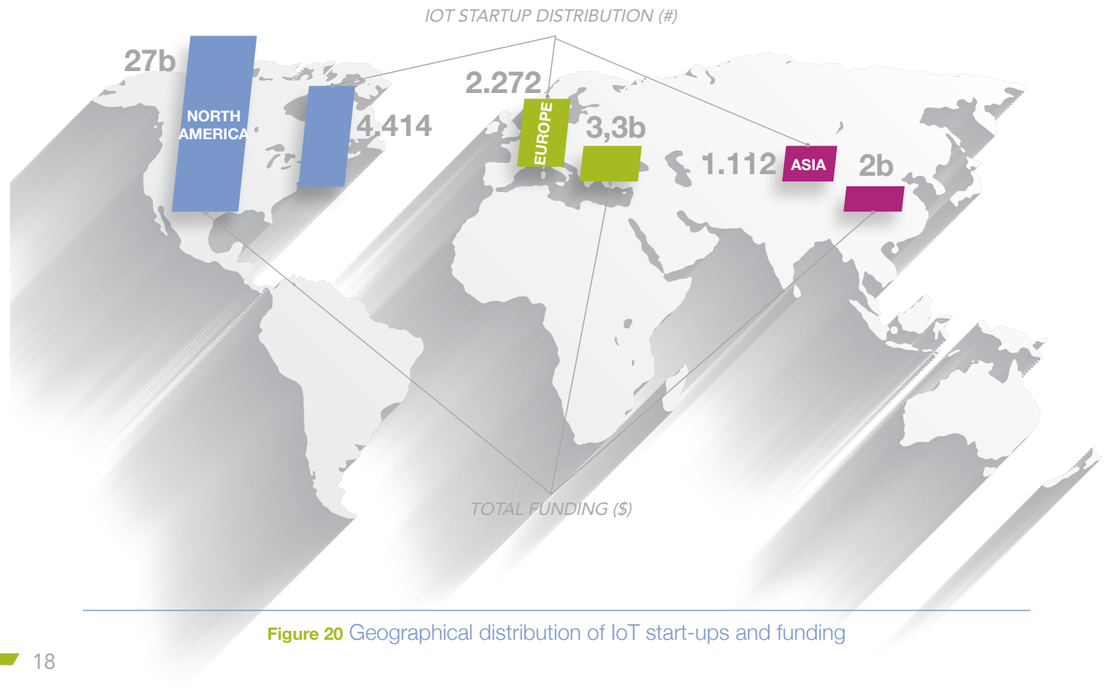


Figure 20 Geographical distribution of IoT start-ups and funding

Top	Continent	Country	#startups
1	NORTH AMERICA	United States	4028
2	EU	United Kingdom	604
3	ASIA	India	425
4	NORTH AMERICA	Canada	364
5	EU	Sweden	332
6	EU	Germany	181
7	EU	France	174
8	ASIA	Israel	166
9	OCEANIA	Australia	164
10	EU	Spain	130

EU	NORTH AMERICA	ASIA
1421	4392	591

Figure 21 Top 10 start-up distribution

Top	Continent	Country	Total Funding USD
1	NORTH AMERICA	United States	$ 26.599.973.237,90
2	EU	United Kingdom	$ 1.532.475.345,00
3	ASIA	China	$ 889.675.291,00
4	ASIA	Israel	$ 674.981.712,00
5	NORTH AMERICA	Canada	$ 632.438.001,00
6	EU	France	$ 548.018.443,00
7	EU	Switzerland	$ 282.769.724,00
8	EU	Germany	$ 269.961.182,00
9	ASIA	Taiwan	$ 191.000.000,00
10	ASIA	India	$ 179.157.799,00

EU	NORTH AMERICA	ASIA
$ 2.633.224.694,00	$ 27.232.411.238,90	$ 1.934.814.802,00

Figure 22 Top 10 funding geographical distribution

If we take a look at some industry sectors like Infrastructures, Transport, Manufacturing and Automotive over the geographical distribution of the start-ups, **Figure 23,** we have that USA and Europe have the majority of the start-up, and it is remarkable how Asia is growing in number.

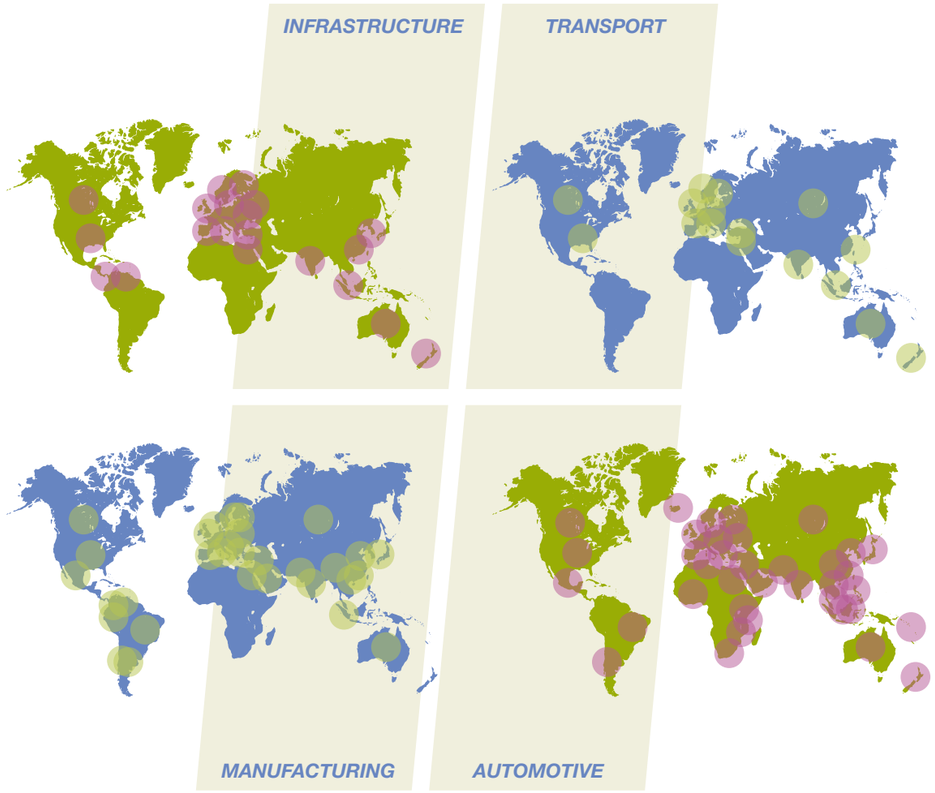


Figure 23 Geographic distribution of some industry sector start-ups

Following this trend, McKinsey Global Institute predicts for the next ten years that the 40 percent of the value of the IoT market will be generated by developing economies.

So far the we have seen that start-ups are penetrating the traditional market with a great impact, changing the business as we know it and the trends for the future will be in that direction. Tech giants, venture capitals and most big corporations have detected this situation and now they are showing their cards to be present in this game and to get performance improvements for themselves. The investments of tech giants are in application fields that are very different from their business strategies. This affects big corporations' business models, for example in the insurance or utilities sectors. A tech giant can be investing a lot of resources in a start-up with a revolutionary product that can compete with a traditional product of a big corporation. In the near future, we will see great collaborations and investments between big corporations and start-ups to reduce this gap.

The position of the start-ups and tech giants in this market

The path of innovation cannot be done alone. **Tech giants and big corporations have a heavy structure that do not allow them to follow the innovation path** as easily as start-ups can do.

They have consolidated business strategies and good positions in their market. A great amount of resources is invested in their R&D departments to face the challenge of innovation and to explore new ideas and solutions over their own products and services. But nowadays, thanks to technological advances and the low cost of technology anyone can try to start their "innovative" business creating a start-up.

Start-ups are very light in their structures, with few workers and few cash amounts. **Usually they have only one advantage and this is a bag full of great fresh ideas.** The problems come with the need to improve their products and when it comes the time to pitch to market. They need resources from somewhere to succeed and to create a good impact on society.

It is at this point when tech giants and start-ups start their relationship. **Start-ups get resources to continue creating and tech giants get the fresh ideas to incorporate them in their products to expand their market strategy.**

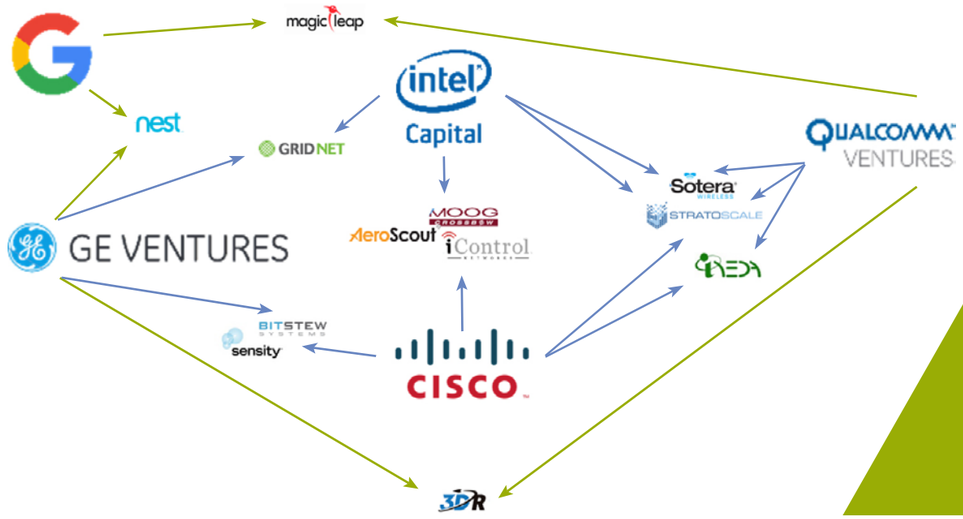


Figure 24 Business social graph

If we have a look at **Figure 24** we see a representative example of how tech giants are investing. For example, if we take the Cisco Systems case, which is a company dedicated to design, manufacture and sell networking equipment worldwide, we see how it is trying to explore new markets, like IoT with the investment in iControl, an IoT start-up that provides smart home solutions.

This is because the networking equipment market is saturated and consolidated since a long time ago, and they need to attract new clients to use their networks and to keep growing.

They are investing in different kinds of IoT sectors, ranging from automotive, UAV or industrial IoT to home sensors. This behaviour is not only for Cisco, we also see in **Figure 25** some of the latest investments by tech giants.

Figure 25 Geographic distribution of some industry sector start-ups

From this last picture, we analyse some of the most important start-ups to see why they are disruptive and interesting for venture funding **(Figure 26).**

	Solution	Impact
Gizwits	It provides a solution storage and computing cloud data for companies, as well as a rane of HW IoT solutions. Based on an open platform concept.	It has already developed solutions to provide services for automotive world (rents) and solutions for energy sustainability.
magic leap	Ensures augmented reality system with comfortable display and huge possibilities of comuting, accompanied by a system of open libraries.	The possibilities of augmented reality will impact in the world of construction and maintenance, as well as in the automotive industry.
RetailNext Comprehensive In-Store Analytics	Provides a system for obtaining information, Big Data storage ans analyisis os data for retailers.	Allow retailers take advantage of IoT possibilities and its connectivity with large manufacturing and distribution chains.
sigfox	System for coverage and data transmission for IoT.	In all industrial areas IoT solutions are needed to provide complete to coverage and cheaper HW solutions.
THALMICLABS	It develop wearables with IoT technology that can communicate with other elements, robots or connected objects.	The ability to control remote objects through gestures has many industrial applications
ZERO	Autopilot system for vehicles	In addition to directo application in automotive, driverless systems will impact manufacturing processes and logistics
3DR	Construction of drones and develop of SW.	Cost reduction in infrastructure, maintanance and various applications in the industry.
guavus	Big Data and analytics.	The correct analysis of data provided by IoT elements is a key factor.

Figure 26 Some of the most disruptive start-ups

Regarding the insurance sector we see that **start-ups** are the other crucial actors in the **digital transformation of insurance** enabling the creation of new products and business models based on the Internet of Things. This has led to the appearance of new start-ups that offer innovative solutions and the consolidation of existing ones, providing benefits for insurers and customers. **They are challenging the traditional business with a customised offering.** Compared to other non-digital companies, they are competing with light structure costs through the intensive use of technology and efficient use of resources. Additionally, they are operating under new business models that promote disaggregation of core processes and optimization of the actors in the value chain involved. In this new insurance environment, one of the **key actors in the transformation of insurance are technological giants.** These tech giants use their economic capabilities to access new technologies that they cannot develop on their own, to complement their solutions already integrated in the sector or to boost their presence in new business, opening the way to the development of new products and the redefinition of smart insurance policies.

Most of the times, the relationship between big corporations and start-ups ends up with a revolutionary new product or service and new business strategies for the big ones.

The relevant role of the corporations

The role of big corporations is different to tech giants. Big corporations invest in IoT start-ups to explore the market, using seed capital, and at the same time they are a great competitor, acquiring and investing in evolved start-ups to gain new customers and penetrate emerging markets.

Usually the strategy for big companies is to be the **integrators between the emergent and the classical markets.** In this way they can support these new players (start-ups) positioning their IoT products or services in the classical market. For example, a big company can sell its products using some IoT upgrade obtained from some innovative start-up idea. This is a win-win context for both.

Figure 27 shows the different funding stages of the start-up lifecycle. FFF stage corresponds to Family, Friends and Fools cash, and it is usually the initial phase of a start-up. Next comes Capital Stages, that help with the improvements of the product (Series A,B,C,D and E). Finally, the last stage is exit to the public market (IPO) where big corporations have the opportunity to acquire those start-ups already consolidated to help them increase their offering.

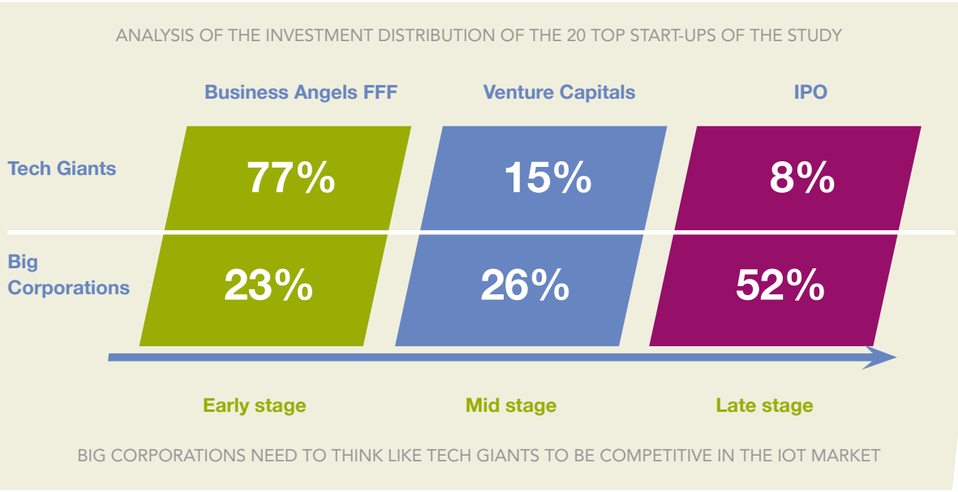


Figure 27 Funding stages

When a big corporation decides to invest, it usually begins using later stages ventures, as the series B, C or D. **They are interested in adding this new technological acquisitions to their offering as soon as possible.** In other words, they are very interested in start-ups or initiatives with some years of maturity and with products in advanced stages of development.

Sometimes corporations perform seed investments in initiatives that do not necessarily coincide with their business strategy. This is a good way to be present and to explore the markets of the future.

The difference between big companies and tech giants is in the risk they can assume.

Tech giants can invest a lot of resources in initiatives that apparently do not have much to do with their business. For example, looking at Google, their initial business was their internet search engine. But during the last years we have seen that they have invested in enterprises like Uber, Darpa (Advanced Robotics company) or blue bottle coffee (a coffee roaster and retailer enterprise). This situation happens because they invest thinking in long term future revenues and not only in the short term revenues. Somehow, they are trying to detect the possible future "unicorns" and put them in their start-ups portfolio ("stable of unicorns"). **At the end, tech giants like Google, Facebook or Apple, somehow started being "unicorns" and they know "how they smell".**

On the other hand, **big companies try to invest in initiatives with some business models closely-related to their own strategies.** Let's see the example of Bosch, a company that sells things like automotive pieces, power tools, security systems and home electronics. During the last years they have invested (Series B and C) in initiatives like Emperra (Bluetooth-enable insulin pen and a wireless blood glucose meter to monitor diabetes patients), Green peak technologies (RF chips for the Smart Home and the IoT) or Flybits (context-as-a-service platform). The offering of these start-ups is very close to the Bosch market. This relationship is great for both, start-ups can grow and keep creating innovative products, and Bosch can use these innovative ideas in their products and services to improve their costumers experience.

In **Figure 28** we see what is the behaviour of the industry, insurance and utilities IoT market. The trend is very similar to the global IoT context. For the next years we are going to see more consolidated start-ups working together with big corporations.

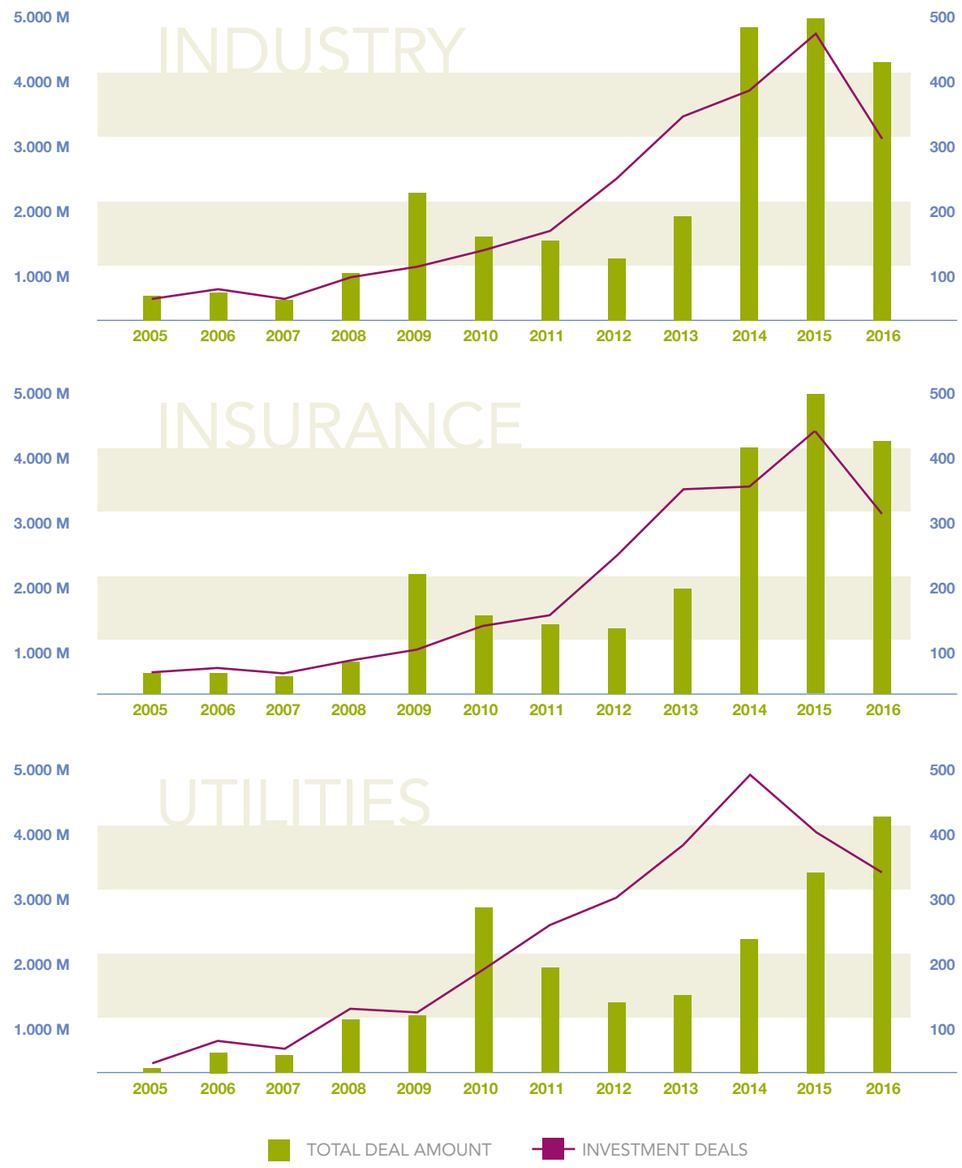


Figure 28 Total deal amount and investments industry (up) insurance (middle) and utilities (bottom) sectors

Next, at **Figure 29** we see how the quantity of deals in the industry, insurance and utilities IoT market is increasing every year, and it seems that it is not going to stop growing. This is due to the fact that tech giants, venture capitals and big corporations are always exploring the market, investing in fresh and innovative ideas.

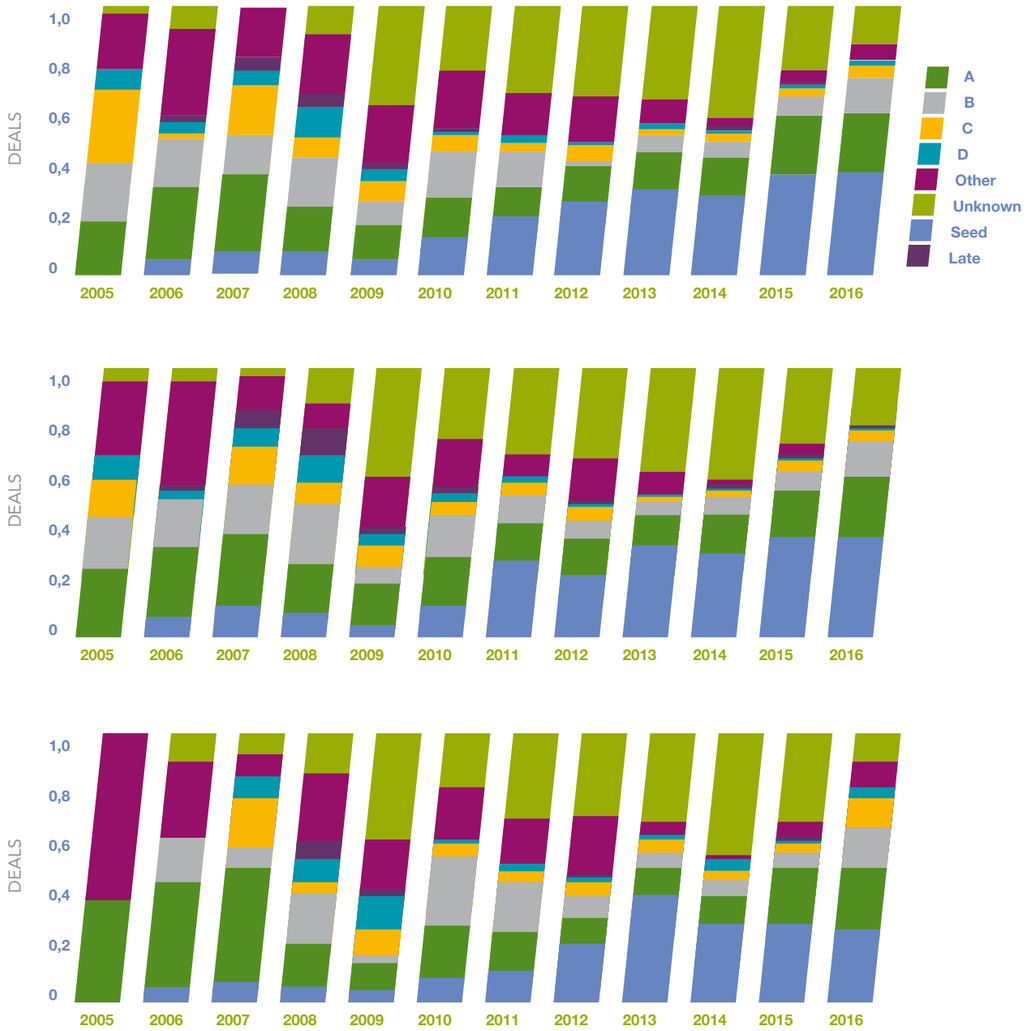


Figure 29 Deals evolution on Industry (Up) insurance (Middle) and Utilities (Bottom)

A great example of the relationship between big corporations, start-ups and tech giants is Airbus. They have good partnerships with start-ups and tech giants. More specifically, the **IoT – MUSTANG project** is an Airbus Defence and Space project that has created a partnership to launch the MUSTANG project for global connectivity. Combining terrestrial and satellite communication technologies, MUSTANG will enable devices to communicate worldwide. The project will be developed in partnership with **SIGFOX**, SYSMECA and CEA-Leti. It focuses on low-cost exchange of short messages in the fast-growing machine-to-machine (M2M) market, with the aim to develop an innovative hybrid terrestrial/satellite access solution for the Internet of Things (IoT) for seamless and ubiquitous communications across the globe.

Another interesting case is the Airbus Factory of the future. AirCyber-physical systems and big data enable a smarter, operator-centric production that allows operators and machines to collaborate in the same physical environment, according to Airbus. What is called “The factory of the future” requires the extensive use of a modular platform with a high level of abstraction based on commercial off-the-shelf modules. Smart devices are designed to communicate with a main infrastructure or locally with operators or other tools, but only when it is required to provide situational awareness and make real-time decisions based on local and distributed intelligence on the network Airbus uses industrial IoT to build a factory for the future.

Conclusion

It is a fact that **we are currently living a technological revolution.** In this sense, all sectors are facing major challenges; changing their business models, adopting new capabilities, developing new technologies and facing new customers' relationships. **This is the moment when the Internet of Things technology arrives and it is here to stay** for a long time. It has an enormous transformation power by itself and has to coexist with other disruptive technologies causing an impact at industrial, financial, commercial and social level.

The **fundamental values to endure and grow in the IoT market are** not in the size or the economic strength, but in the **adaptability and innovative capacity** of the companies. Nowadays, there are a lot of possibilities, ideas and technologies, so all the companies and sectors should be open-minded and look for alliances and partnerships. For example, with the appearance of connected cars the cost of the car insurance is adapting to offer customised insurance policies according to the different driving patterns.

Start-ups are entering this IoT market with a strong footstep. They have been able to adapt and innovate in this new era, building disruptive business models and new capabilities. The growing and competitive market of smartphones and computers has enabled the amazing decrease of the **production cost and size of these kind of technologies and devices without losing the computation power** and start-ups have been able to make the most of it.

However, the typology of funded start-ups is not only about hardware or integrated circuits. It is also about data, people, processes and how to connect them all together. This is why **tech giants and big corporations are not left behind.** These big structural companies are investing large amounts of money, time and resources to surf the innovation wave. Nowadays, big corporations have perceived the need to **adapt to the new emerging technologies** to continue improving their performance and offering. New relationships and partnerships are being built between tech giants, big corporations and start-ups to reach new clients and to polish the product to improve the market penetration.

The strategy for big corporations in the start-up ecosystem is to be the **integrators between the emergent and the classical markets. They are interested in adding these new technological acquisitions to their offering as soon as possible.** Whereas tech giants are more keen on investing in early and mid-stages of the start-ups life cycle. The **main difference between big corporations and tech giants in terms of investment is in the risk they can assume.**

While tech giants investing in early stages run a higher risk, they also have the opportunity to **influence on the product development.** On the other side, investing in later stages or even acquiring consolidated products, leads to a competence conflict. In this sense, **tech giants gain competitive advantage** with respect to big corporations. Big corporations **need to think like tech giants to be competitive in the future. Tech giants are now competing in the same market as the Big Corporations,** thanks to the start-up investments and acquisitions over these years.

As we determine from the study carried out in this report, 2014 was the year of the "boom" on IoT start-ups investments. Analysing the evolution over the next years, **we predict an increase over the 20% on the total amount invested in 2017** compared to the previous year. **The IoT market is reaching maturity and consolidation stages** and investors are confident with their start-up's portfolio. We **foresee a great opportunity to invest** in this kind of technology with lower risk compared to previous years.

After having analysed the funding evolution of start-ups by stage and year, the IoT start-ups total funding by founding year and the IoT start-ups deals amount, we can imagine how the IoT market is going to behave over the next years. **The start-ups founded before 2013 are going to consolidate their business** and they are going to have a great impact on people, businesses and all sectors.

To sum up, the **IoT market is starting to diversify** and new sub-markets and concepts are rising over the IoT concept. The markets created around the IoT concept are growing. Tech giants, big corporations and start-ups are adapting to this new situation in order to keep surfing the innovation wave.

attitude makes the difference

Juantxo Guibelalde
Partner at everis, an NTT Data Company

everis_IoT@everis.com

Argentina
Bélgica
Brasil
Chile
Colombia
EE.UU.
España
Italia
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Portugal
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