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SINCE 1911

noesis

# Surfing the Technological Wave from Portugal

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# Case Index

Definition of Noesis (from the Merriam-Webster dictionary)

**1**: purely intellectual apprehension:

**a** *Platonism* : the highest kind of knowledge or knowledge of the eternal forms or ideas —contrasted with *dianoia*

**b** *in Husserl* : the subjective aspect of or the act in an intentional experience —distinguished from *noema*

**2**: cognition especially when occurring through direct knowledge

## Synopsis

Founded in 1995, Noesis is a Portuguese consulting firm that provides services and solutions aimed at supporting its Customers to increase competitiveness, facilitate management, reduce costs and optimize processes. As a result of the company's strategic focus, at the beginning of 2016 Noesis was a leader in the Portuguese Quality Management market for the independent provision of software testing services, according to a study from IDC[1].

In the beginning of 2016, Noesis had more than 500 employees in its different locations: Lisbon, Porto, Coimbra, Brussels, São Paulo, Dublin and Rotterdam, ensuring the adequate answer to customer challenges in Portugal and international markets.

The company's outlook was positive, but the competition was increasing and interest rates were expected to rise in the nearby future. Having a substantial level of debt and two failed international ventures (Angola and Brazil), should Noesis continue to invest and grow at a fast pace, or take some time to consolidate its operations?

*Keywords*: Information Technology, strategy, technology, internet

[1] International Data Corporation (IDC) - global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets. With more than 1,100 analysts worldwide, IDC offers global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries.

## First Steps and Exponential Growth

Technology has gradually taken on a leading role in society. Starting from a very important position, yet restricted to the central systems of large organizations during the 60s and 70s of the last century, technology has passed into the domain of ordinary mortals with the advent of personal computers in the 1980s. The base was set for an important paradigm shift in the way we work, study and develop any type of social interaction.

It was in this environment of change that Noesis was born, during the period of the Internet boom in the 1990s. Closed networks gave way to a world wide open network in which distance was no longer an obstacle to interactions and information was always available. The impact of this change is still reflected in today's society and will be even more visible in the coming years. Noesis incorporated this change since its creation, not only into its offer, but also into its information technology services, in order to better address the business needs of its clients. In a highly competitive market in which the technological evolution is very fast, the company followed the fundamental tendencies with regard to business management. As a result of this strategic commitment and vision, Noesis integrated the group of the six largest IT companies in Brazil by the end of 2015. In Portugal, Noesis operated in the most diverse sectors of activity, from telecommunications to industry, banking and services, with a mean growth rate of 12 new corporate customers per year.

Noesis was created in 1995 – a company with a greek name for insight and knowledge. The blue colour of the slogan is supposed to signal confidence, trust and stability. Over the years, Noesis grew to the pace of technology itself; It was created practically at the same time as the portable MP3 players, and was consolidated with the Windows 95 operating system, which revolutionized the use of personal computers based on graphical interfaces. In 1998, Google was created, and seven years later it was Youtube's turn to surface. Noesis followed closely the technological advances in the world in the years to come. The software evolved, becoming faster and more effective, while at the same time, storage spaces became minimal and the wires eventually disappeared. Alongside the technological advancements, Noesis diversified its offering of solutions and IT services.

In 2007 Noesis created the areas of Software Consulting, Infrastructure Services, Quality Management and Business Solutions, through the consolidation of its know how. With a stable growth in Portugal, Noesis goes international in 2012, and opens offices in Brussels, Luanda and São Paulo. In 2013 it was already receiving both national and international awards, such as QlickView's partner of the year and the Elite partner award. Partnerships started being made with major companies, such as Violin (memory) and Fijitsu (Storage); while at the same time it launched the software testing center "Qfactory".

## Overview at the end of 2015

In 2015, Noesis' turnover recorded a growth of +16%. This result led Noesis to an overall revenue of 20.6 M €. International activities showed a strong growth in Europe (Belgium, Ireland and the Netherlands) and a cautious standing in Brazil and Angola (Noesis still had no physical office in Angola). Noesis main partners and clients by the end of 2015 were (notice that the most significant clients were big Portuguese firms):

| Main Partners | | Main Clients | | |
|---|---|---|---|---|
| Microsoft | OutSystems | NOS | EDP | AXA |
| Hewlett-Packard | CA Serviços | SONAE | Jeronimo Martins | Mercedes |
| Oracle | IBM | Autoeuropa | TAP | NORS |
| Qlikview | Visure Solutions | Unilever | SIBS | |
| FUJITSU | Violin | Galp | Hovione | |
| SAP | | Cofidis | ESPAP | |

Figure 1 – Noesis' main business partners and clients by the end of 2015

## Financial Statements

Noesis' financial statements are depicted next - Figure 2 portrays the balance sheet, Figure 3 displays the income statement and Figure 4 Noesis' capital expenditure (taken from the cash flow statements). The years 2012 to 2015 were taken into consideration, with the aim of providing a general overview of the yearly evolution of the company. All values were extracted from Noesis's public consolidated reports. Figure 5, shows Noesis' service revenues in Portugal, the rest of Europe (excluding Portugal) and outside Europe (Angola and Brazil).

Note that, according to Aswath Damodaran[2], the cost of equity is around 6,89% for the Information Services industry and for the Software (Systems and Applications) industry is around 7,93%. Since Noesis operates mainly within these areas, it is safe to assume a cost of equity of around 7% for this case. If needed, the WACC (Weighed Average Cost of Capital) can be extracted from the same source. Although not specified in the financial statements, we can assume that the marginal corporate income tax rate for Noesis was 22,5% (21% plus the municipality tax of 1,5%).

[2] Data from http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/wacc.htm

| ASSETS | 31/12/2015 | 31/12/2014 | 31/12/2013 | 31/12/2012 |
|---|---|---|---|---|
| **Non-current assets** | | | | |
| Non-current tangible assets | 319 823,58 € | 221 461,19 € | 168 111,76€ | 173 646,87€ |
| Non-current Intangible assets | 405 249,24 € | 606 161,56 € | 234 738,06€ | 173 646,87€ |
| Financial holdings | 333 770,25 € | 304 770,84 € | 276 027,56€ | |
| **Total Non-current assets** | 1 058 843,07 € | 1 132 393,59 € | 678 877,38 € | 239 530,14 € |
| **Current Assets** | | | | |
| Inventories | 300 906,32 € | | | |
| Clients | 4 947 117,98 € | 3 811 342,33 € | 7 985 479,37€ | 7 085 604,68€ |
| Factoring | | | -5 009 524,94€ | -4 503 034,41€ |
| State and other public entities | 85 391,48 € | 70 394,73 € | | |
| Shareholders / Partners | 326 927,56 € | 326 927,56 € | | 884 027,56 € |
| Other accounts receivable | 2 920 677,28 € | 1 878 241,77 € | 764 860,09€ | 459 858,05€ |
| Deferrals | 157 126,24 € | 221 019,12 € | 279 111,98 € | 158 002,28 € |
| Cash and bank deposits | 792 277,18 € | 1 617 960,36 € | 1 469 531,49 € | 997 731,43 € |
| **Total Current assets** | 9 530 424,04 € | 7 925 885,87 € | 5 489 457,99 € | 5 082 189,59 € |
| **TOTAL ASSETS** | 10 589 267,11€ | 9 058 279,46 € | 6 168 335,37 € | 5 321 719,73 € |
| SHAREHOLDERS' EQUITY AND LIABILITIES | 31/12/2015 | 31/12/2014 | 31/12/2013 | 31/12/2012 |
| **EQUITY** | | | | |
| Realized capital | 650 000,00 € | 650 000,00 € | 550 000,00 € | 550 000,00 € |
| Issuance premiums | 900 000,00 € | 900 000,00 € | | |
| Legal reserves | 110 000,00 € | 110 000,00 € | 110 000,00 € | 110 000,00 € |
| Other reserves | 68 955,25 € | | 431 322,19€ | 356 794,93€ |
| Transited results | | -41 756,14 € | -514 950,98 € | -514 950,98 € |
| Net income for the period | 474 191,79 € | 219 044,67 € | 41 872,65 € | 74 527,26 € |
| **TOTAL EQUITY** | 2 203 147,04 € | 1 837 288,53 € | 618 243,86 € | 576 371,21 € |
| **LIABILITIES** | | | | |
| **NON-CURRENT LIABILITIES** | | | | |
| Provisions | 27 416,15 € | 27 416,15 € | | |
| Financing obtained | 2 441 223,50 € | 1 235 308,67 € | 800 857,28 € | 1 009 918,17 € |
| **Total Non-current liabilities** | 2 468 639,65 € | 1 262 724,82 € | 800 857,28 € | 1 009 918,17 € |
| **CURRENT LIABILITIES** | | | | |
| Suppliers | 750 898,18 € | 1 022 442,55 € | 644 963,65 € | 668 336,96 € |
| State and other public entities | 1 805 896,96 € | 1 323 806,06 € | 1 421 830,35 € | 1 331 355,53 € |
| Shareholders / Partners | 26 927,56 € | 26 927,56 € | | |
| Financing obtained | 1 738 321,79 € | 2 223 045,38 € | 1 441 101,76 € | 643 963,82 € |
| Other bills to pay | 1 595 435,93 € | 1 355 892,56 € | 1 241 338,47 € | 1 091 774,04 € |
| Deferrals | | 6 152,00 € | | |
| **Total Current liabilities** | 5 917 480,42 € | 5 958 266,11 € | 4 749 234,23 € | 3 735 430,04 € |
| **TOTAL LIABILITIES** | 8 386 120,07 € | 7 220 990,93 € | 5 550 091,51 € | 4 745 348,52 € |
| **TOTAL EQUITY AND LIABILITIES** | 10 589 267,11€ | 9 058 279,46 € | 6 168 335,37 € | 5 321 719,73 € |

Figure 2 – Noesis Balance Sheet 2012-2015

| Income and expenses | 31/12/2015 | 31/12/2014 | 31/12/2013 | 31/12/2012 |
|---|---|---|---|---|
| Sales and services | 22 863 272,10 € | 20 610 167,90 € | 17 234 839,86€ | 15 402 735,38€ |
| Imputed gains or losses of subsidiaries, associates and ventures. sets | 8 340,10 € | 17 255,80 € | 0,00 € | 0,00 € |
| Work for the entity itself | | 460 332,33 € | 0,00 € | 186 361,93 € |
| Supplies and external services | -5 800 135,81 € | -5 637 395,68 € | -3 624 392, 98 | -3 317 434,39€ |
| Staff costs | -15 384 992,00 € | -14 428 365,18 € | -12 752 300,60 € | -11 178 249,48 € |
| Provisions (increases / decreases) | | -27 416,15 € | | |
| Other income and gains | 54 281,59 € | 25 331,62 € | 1 407, 19€ | 7 575,85 € |
| Other expenses and losses | -150 551,49 € | -68 877,77 € | -49 595,44 € | -67 546,49 € |
| **RESULTS BEFORE DEPRECIATION, FINANCING EXPENSES AND TAXES** | 1 590 214,49 € | 951 032,87 € | 809 958,03 € | 1 033 442,80 € |
| Expenses / reversals of depreciation and amortization | -271 096,80 € | -146 594,79 € | -132 173,15€ | -114 590,56€ |
| SGPS | | | -124 352,29€ | -237 370,39€ |
| Personnel Restructuring Expenses | | | | -250 335,11 € |
| **OPERATING RESULTS (BEFORE FINANCING AND TAXES)** | 1 319 117,69 € | 804 438,08 € | 553 432,59 € | 431 146.74€ |
| Interests and similar proceeds obtained | 15 512,54 € | 16 430,33 € | 265,07 € | 805,77 € |
| Interests and similar expenses incurred | -540 786,01 € | -511 699,81 € | -366 629,88 € | -244 026,36 € |
| **OPERATING RESULTS BEFORE TAXES** | 793 844,22 € | 309 168,60 € | 187 067,78 € | 187 926,15 € |
| Income tax | -319 652,43 € | -90 123,93 € | -145 195,13€ | -113 398,89€ |
| **NET INCOME FOR THE PERIOD** | 474 191,79 € | 219 044,67 € | 41 872,65 € | 74 527,26 € |

Figure 3 – Noesis Income Statement 2012-2015

| | 12/31/2015 | 12/31/2014 | 12/31/2013 | 12/31/2012 |
|---|---|---|---|---|
| CapEx | 235,980.20 € | 21,501.58 € | 145,492.83 € | 0 € |

Figure 4 – Noesis' Capital Expenditure 2012-2015

| Services Rendered | 12/31/2015 | 12/31/2014 |
|---|---|---|
| Travelling | 1,443,784.36 € | 1,226,846.17 € |
| Portuguese Market | 17,244,474.52 € | 17,230,636.19 € |
| European Market (excl Portugal) | 4,029,197.72 € | 2,144,975.01 € |
| Non-EU market | 145,815.50 € | 7,710.53 € |
| **Total** | **22,863,272.10 €** | **20,610,167.90 €** |

Figure 5 – Noesis' Service revenues by location 2014-2015

## Risk analysis at the end of 2015[3]

The significant risks identified by Noesis in its 2015 consolidated report were divided into two areas:

1. Commercial, Industrial and Environmental,
2. Financial Market

[3] Taken from the 2015 Noesis consolidated report

The first layer of risks (Commercial, industrial and environmental) was subdivided and described as:

- Top management - The company was dependent on its main managers and unit employees, whose exit could significantly affect economic and financial performance. Noesis implemented a skills and talent management system since 2010, aimed at actively pursuing the retention of its high potential employees, as well as preemptive replacement plans, aimed at allowing the companys to mitigate this risk. Since its creation, Noesis registered a significant reduction in the turnover of their key-managers. which translated into an effective management team and a strong adherence to the company's project.
- Technological evolution and technical skills - Noesis had an information base with the necessary skills profile, both qualitative and quantitative, to remain competitive. Noesis evaluated this information periodically, adjusting for changes any time they were needed in order to maintain a competitive level compared to its competition and the demands of its customers, as well as insuring that the quality of the services provided was set to high standards.
- Service Level Agreements - The company provided services and products with previously agreed and contractually defined service levels. This type of activity generated financial penalties for non-compliance. Noesis methodically monitored the projects during their execution, measuring their evolution based on the defined requirements. This was done in periodic control cycles, operating in the perspective of the technological risks of the proposed architectures and solutions, as well as the economic perspective, monitoring the impact of the associated short-term cash flows and the projects' overall profitability. Management control tools / dashboards had been developed that allowed the monitoring of processes associated with all the referred activities.
- Clients - Taking into account that the company's main clients were large and successful companies, the risk of insolvency of Noesis' clients was very small. Credit risks were followed closely by the Financial and Commercial areas, with special attention to the conditions of billing and payment of the main contracts. Noesis implemented a periodic customer review report on its contracts, profitability and account balances, as well as indicators of the weight of each client in total business revenue. By 2015, seven major customers accounted for about 50% of the billing volume, yet no customer exceeded more than 16.5% of total business volume.
- Competitiveness - The market of Information Technology and Services is constantly evolving and can be susceptible for periods of disruptive change, impacting social models and associated business environments. In order to mitigate this risk, Noesis adopted a prudent investment strategy and a philosophy of proximity with their customers, focusing on leveraging and increasing their effectiveness in the use of their differentiating factors in their business and competitiveness. Aligning its strategy with niches in complex technological ecosystems with close proximity to its customers, Noesis increased its technical competitiveness and its ability to perceive with greater assertiveness the market's evolution.
- Country - The bulk of the company's turnover was made in Portugal and in the European Union. Due to the socioeconomic context of Portugal at the end of 2011, Noesis started an internationalization plan in developing countries, where its offer could make more sense. By the end of 2015, the business volume outside Portugal represented 20% of the overall turnover, with greater concentration in the European Union. Brazil showed signs of uncertainty regarding its future development, which gave rise to a reduction of economic focus in that market, while activities in Angola were suspended until the country overcame its domestic problems. With regards to Noesis' activities in Europe, it was considered that the

country risk was mitigated, since Europe was essentially a broad set of independent economies.

- Suppliers - Noesis was not dependent on any specific supplier; its knowledge base transcended the technological needs used in each moment. In 2015, Noesis continued to focus on multinational manufacturers as a lever to its business, expanding its customer base both abroad and in Portugal.
- Environmental - As a service provider in the services sector and in the integration of technologies, Noesis was not exposed to any major environmental or industrial risk.

The second layer of risks (financial market risks) was the following:

- Liquidity - Noesis had improved its liquidity management and reporting by using:
    - 1) a financial planning method based on cash forecasts with different temporal horizons, both short- and long-term;
    - (2) the diversification of financing sources, issuing bonds, with their term structure adjusted to the purpose of the financed activity.

  The main goal of the company at this level consisted in increasing its financial autonomy to 35%, through the incorporation of net profits from the previous years in its equity, as well, as raising new equity capital . In 2015, this autonomy reached 25%.

- Interest Rates - The exposure of Noesis to interest rate risk originated on the financing of, both, operations and working capital. In case ofstrong interest rate volatility, Noesis would have to cover the consequences by introducing changes in sales prices. The loans were variable rate and indexed to the 6-month Euribor. As a rule, Noesis did not hedge its exposure to changes in interest rates through financial derivatives. Noesis periodically analyzed the past and future evolution of interest rates, together with the areas of its partner banks, to study financial instruments to protect them from the rise of interest rates if deemed appropriate (caps options). In Figure 6 we can see the bank lending rate evolution from 2008 to 2016, alongside its volatility – notice that Portugal was under a severe financial crisis during 2010-2014.


Figure 6 – Mean Bank lending rate, Portugal, 2008-2016 (source: Bank of Portugal)

In Figure 7 we can see Portugal's ever-increasing public debt evolution. Although all the austerity measures it was subject to during the 2010-2014 financial crisis, Portugal was never able to reduce the level of its public debt; but only to stabilize it and contain its growth to a small percentage of its GDP (Gross Domestic Product). In Figure 8 we can see the Portuguese GDP (below the public debt of over 200 B€), which had positive prospects of rising, due in part to foreign investment and the end of austerity measures.

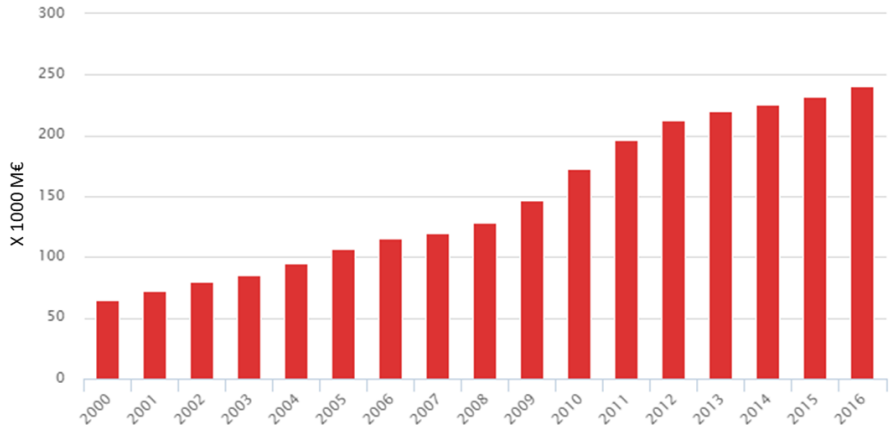


Figure 7 – Portugal Public debt evolution, 2000-2016 (source: Bank of Portugal)

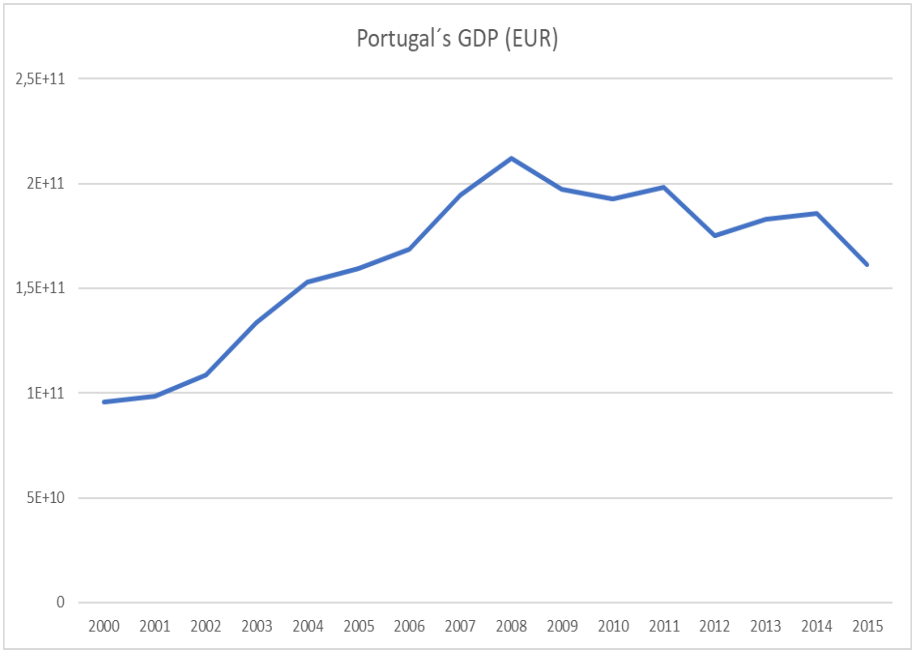


Figure 8 – Portugal's GDP (source: compiled data from http://www.worldbank.org/)

# Noesis' Business Areas and Growth Focus

This section will detail Noesis' main business areas and the business trends it identified to focus its growth on.

## Main Business Areas

Noesis had four major business areas:

1- **Software Development Services (SDS)** – Software consultancy and custom software development, including (alongside business partners): Business Intelligence (Qlik), Agile Solutions (Outsystems), Enterprise Solutions (Microsoft) and Entreprise Resource Planning (SAP).
   Its main competitors in this area were: Indra, Novabase, Infosistema, Do IT Lean, Roff, Reditus, Glintt, SAP, Capgemini and Everis.
   This Business area employed 78 workers in 2015.
2- **Infrastructure Services (IS)** – Management of the core technology and information support infrastructure, which included data storage, databases and access platforms for applications, cloud services and IT automation services.
   Its main competitors in this area were: Novabase, Totalstor, Tecnocom, Capgemini and Everis.
   This Business area employed 78 workers in 2015.
3- **Quality Management (QM)** - Noesis was the #1 provider of independent software test services in Portugal by the end of 2015. It included process implementation, tools and control procedures that were necessary to reduce the development time and promote quality increase.
   Its main competitors in this area were: Accenture, Everis, Novabase, WinTrust, Infosistema, Altran and Capgemini.
   This Business area employed 137 workers in 2015.
4- **Professional Services (PS)** – Outsourcing of specialized IT consultants including project managers and engineers specialized in many different areas.
   Its main competitors in this area were: Altran, Prime IT, Novabase, GFI, Indra, Everis, Olisipo, CGI, Do IT Lean and Capgemini.
   This Business area employed 159 workers in 2015.

## Main Business Opportunities

Noesis identified 5 main business trends that should be exploited to their fullest potential by its main business areas, namely: Cloud Services, Quality Management Software, Business Analytics, Mobility and IoT (Internet of Things). The way that the Business Areas impact on the opportunities is depicted in Figure 9. These main business opportunities will be described in more detail henceforth.

| IMPACT OF GROWTH FOCUS ON BUSINESS AREAS | | | | |
|---|---|---|---|---|
| GROWTH FOCUS | BUSINESS AREAS | | | |
| | SDS | IS | QM | PS |
| 1 - Cloud | ↗ | ↗ | ↗ | ↗ |
| 2 - Quality Management Software | X | X | ↗ | X |
| 3 - Business Analytics | ↗ | X | X | X |
| 4 - Mobility | ↗ | X | ↗ | X |
| 5- IoT | ↗ | ↗ | ↗ | X |

Figure 9 – Relationship between business areas and growth focus

## Cloud Services

This was the main growth focus, affecting all business areas. It was foreseen that in Portugal, the companies' budgets for cloud services would double from 2014 (22% of IT budget) to 2020 (43% of IT budget) – see Figure 11 for details. The growth rate of cloud services in Western Europe is depicted in Figure 12 (always with double digit growth %, though declining year to year, as would be expected), for different business areas.

Cloud services offer:

- Infinite and flexible computing capacity, eliminating storage space concerns and processing capacity.
- Cost reduction for companies and facilitates internationalization.

The main drivers identified by IDC (International Data Corportation) research were:

- Consumer-focused applications: increasing demand for interactive content by consumers would continue to press companies to increase the capacity of their IT infrastructure, in particular in the cloud;
- Adoption of cloud promoted new cloud services: as cloud adoption increased, so would new cloud services, based on the cloud platform (for example big data and cloud backup);
- IoT and other innovation accelerators: IoT, cognitive computing and robotics boosted cloud adoption, big data and social engines.

The main concerns with cloud services, according to IDC, were related to security and the integration of processes and applications.

### *The Cloud in Portugal*

IDC conducted a study to ascertain the level of cloud technology maturity between the median and large Portuguese companies, having surveyed 358 companies between October and November 2014. It concluded that:

- Only 14% of respondents are in advanced stages of cloud adoption, below average of 33% in Western Europe.
- 38% of companies included the cloud in their IT strategies.
- 17% of companies surveyed included the cloud in their business strategies.
- By 2014, only 22% of IT budget was directed to cloud services however this weight was expected to increase to 43% by 2020.

Figure 13 depicts the cloud usage in Portugal on its different stages (in use, implementing, analyzing and planning), alongside the type of associated services (Saas – software as a service; Paas – platform as a service and Iaas – Infrastructure as a service).

### Management and Quality Software

These are tools that allow the companies to observe, measure and assess their software in terms of complexity, productivity and risk. It includes software testing tools, as well as software quality auditing.

The main driving forces identified by IDC were:

- Mobility and emerging technologies: increasing demand for mobile technologies and networks requires companies to focus on environments exposed to access by customers;
- Policies to reduce costs in companies: due to economic constraints, companies seek quality software solutions that are flexible and cheaper, opting whenever possible for autonomous software solutions that do not require personnel for quality analysis;
- Risk reduction: companies seek to maximize their performance, and as such mitigating the risk associated with software problems is crucial;
- Open source software: the increase in the amount of open source software available and used stimulates the need to assess the quality of these software.

The success or failure of a solution made available to end users is directly associated with the emotional impacts it generates. Errors, unavailability or slow response times are among the most important factors to note. In order to avoid these critical impacts, quality services are essential throughout the application life cycle – these include the definition of requirements, the monitoring of environments and their technology, and finally, intensive testing.

Another important aspect of quality implementation is the drastic reduction of costs and time-to-market. Reducing the need for re-encoding due to development errors or non-compliance with the defined requirements, impacts aggressively in ownership costs.

### Software Business Analytics

This component deals with software whose main purposes are aggregation, management, organization, analysis, access and delivery of (both structured and unstructured) information. The main drivers identified by IDC were:

- Digital transformation: the digitization of the business promotes the development of new software (e.g. for data analysis and big data about internal processes and customers);
- Self-service and predictability: companies are looking for software that they can use by themselves and value applications that allow them to forecast the capacity of their business;
- Adoption of cloud and mobile applications accelerates the demand for new software.
- The high degree of maturity of the segment and the supply of open source software are potential threats to the growth of this segment.

With the increase in the amount of information made available and collected by the companies, the use of technological tools becomes essential to choose the right information, analyze it and allow for the agile visualization of the results, which is crucial for growth and business sustainability. The digitization of information and processes at a worldwide level makes this area of "data management" a strong bet in all markets and businesses. Big Data is the term used to identify this market need to deal with so much information available, to help with the companies' decisions. Since Noesis made an

early bet on analytics, using in-memory data management tools, it could impose itself in the national market as well as in Brazil as the best implementer of Qlik solutions in those regions.

In Figure 14 we can see the expected revenue growth in western Europe for information management platforms, alongside the expected growth revenues for BI (Business Intelligence) and analytics and other areas such as management, performance and applications. In Figure 15 we have the expected revenue growth for information management platforms in different countries, including Portugal. Notice that Portugal has the smallest expected growth, due to lagging in the widespread use of such platforms.

## Mobility

This area deals with technology platforms that companies adopt to develop and deploy mobile applications to their business, reaching out to their customers, employees and business partners. The main drivers identified by IDC were:

- Mobile applications: the increasing use of mobile applications in business, especially those used for contacting their customers and employees, promotes the adoption of technologies that allow the development of these applications;
- Cloud: Hybrid cloud platforms often rely on mobile applications, promoting the sales of development platforms for these applications;
- "Model-driven" development tools: evermore companies are betting on the development of applications in collaboration with end-users, particularly with their employees, thus requiring support in the development and maintenance of such applications.

In SDS-BI, the evolution of real-time analytical assessment of business data, has evolved so that all end users can use a tablet, or even their smartphone to view the results and make their decisions. Thus, the area now presents its customers with a 100% touch solution where they interact with their equipment transparently, forfeiting the need for a computer in their day to day.

In IS, mobility opens the indirect possibility of providing the infrastructure of the necessary platforms for the companies that want to derive to services such as “Product As a Service”, which basically allows end users to rent the access to servers where they can run their desired programs, and pay for its use. The area of IS makes it possible for these companies to provide such services to their customers.

### *Mobility in Portugal*

IDC did a survey to 361 average and big Portuguese companies in 2015, to assess their mobile technology maturity level. The main conclusions were:

- Only 17% of respondents were in advanced stages of adoption of mobile solutions, below of the average of 34% in Western Europe.
- Companies in the telecommunications, financial services and media sectors were in more advanced phases of adoption. On the contrary, companies in the industrial, retail, transportation and the public sector were still in an infant stage.
- Over 42% of companies had already adopted flexible working systems.
- 52% of companies planned to increase spending on mobility solutions.
- Most companies spent <10% of their IT budget on mobility.

- As companies move to more advanced phases of mobility, their investments shift from equipment purchases to applications.

Noesis had been very active in mobility, for all its service areas. The mobility vision for the QM area deals with software testing, both towards the interface, in terms of usability, as well as the security of data transacted between the mobile equipment and their application servers. From smartphones to tablets, among other less common equipment, it is necessary to ensure the correct presentation of data, safety and adequate response times to what the customer expects.

The other growing need is the shift of information systems to the Cloud, migrating from local infrastructures to servers and / or "As a Service" solutions in the Cloud. It is necessary to ensure that this move guarantees at least the same kind of 'experience' and use that users are used to.

In Figure 16 the expected revenue growth of corporate mobile applications development platforms in the EMEA (Europe, Middle East and Africa) is depicted, with declining double digit growth starting with 26% for 2015 towards 19% in 2019. In Figure 17 we have the Revenue distribution of corporate mobile application development platforms by regions of the world (with America and EMEA leading the numbers).

In Figure 18 we portray the expectations about the IT budget directed for mobile solutions (% of the inquired companies) - year 2014 /where 52% are expecting to increase their budget), and in Figure 19 the kinds of mobile solutions adopted in 2014 (% of the inquired companies), alongside their stages of development, are shown.

### IoT (Internet of Things)

This area includes hardware, software, connectivity and support. It deals with the systems used to implement and manage the IoT equipment's, alongside the information they generate. The main drivers identified by IDC were:

- The growth in the adoption of equipment with internet connection should be 5 to 10 times higher than that of traditional computers, creating the need to implement and manage the infrastructure that interconnects equipment and information processing software;
- Growth of the main IoT user sectors in the EMEA, namely transport, retail, health and well-being and energy.

The IoT (Internet of Things) alongside the Cloud are themes that are spreading well before concrete applications reach the normal market in effective terms. Noesis has prepared its offer in service areas to be at the forefront of this technology:

- The area of SDS – ES, in its asset management software product, has already prepared a version that contemplates physical equipment, so that the equipment communicates operating information such as: temperatures, weight, hours of use, among other information of the normal operation of the application servers, so that the equipment maintenance cycle is performed without human intervention.
- The QM area has prepared automated tests for the constant verification of the correct operation of these exchanges of information between equipment.
- SDS - BI dynamically analyses the statistical values of each device to verify and prevent future anomalies at an early stage, reducing the risk of failure at a later time.

In Figure 20 the IoT revenue by sector in the EMEA is displayed, for 2014 and 2019 forecast. In Figure 21 we have the Expected Compounded Annual Growth Rate of the IoT Revenue in EMEA by type of use, and in Figure 22 we have the expected IoT revenue growth rate in Western Europe, from 2015 to 2019 (notice again double-digit growth from 35% to 17%, in a descending manner throughout the years).

## Main Future Objectives

According to its consolidated statement report for 2015, Noesis had the following items as its main objectives for the 2020 horizon:

- Turnover level of about 45 Million €, of which 30% in the international markets,
- 800 effective workers
- EBITDA margin in the interval between 8% and 10% of total business volume.

### Opportunities and Threats

The Noesis action drivers and the matrix of policies shown in its strategic plan are aligned with the summary table below of "Opportunities and Threats" in the sense that they addresses fully all those challenges.

| Opportunities | Threats |
|---|---|
| Two-digit growth associated with demand from technological advances such as mobility, the cloud platform, social networks, the internet of things and the massive analysis of data associated with the previous factors (big data). | High investment levels to support market development are threatened by the financial constraints and/or extended payment practices from domestic companies. |
| Reduced current weight of these technologies in Portuguese companies – expected growth from 22% in 2014 to an estimated 43% in 2020. | The management of the company's fast growth to capture the main opportunities that are arising. |
| Portuguese companies currently spend less than 10% of their budget in information technology, but 52% want to increase purchases in mobile solutions. | Lack of specialized resources and leakage of know-how to other competitors. |
| Companies are starting to realize that quality management systems are a valuable assets in the war to gain competitiveness and market share. | The M&A (Mergers and Acquisitions) activity is high, meaning that the multinationals of the sector are concentrating evermore negotiating power. |
| The digital transformation of the market leads to the development of new software with faster development cycle needs, which link perfectly with Noesis' "Agile" offer. | |
| Portugal has a competitive cost-benefit ratio in Europe. | |

Figure 10 – Identified Opportunities and Threats for beyond 2015

## Case Questions

1. Noesis was based in Portugal, and once it gained some consolidation in its country, it started expanding abroad. However, some of the overseas ventures didn't fare well, especially in the former Portuguese colonies – why was that? Comment on Noesis' expansion strategy.
2. Did Noesis cover the main aspects in its "opportunities and threats" matrix?
3. Is Noesis' high investment and fast growth strategy something to maintain? If so, until when?
4. Is there any other technological area that you may think Noesis has been overlooking?

## Annex A – Supplemental Case Figures

In this annex we present all referenced figures from the text. The source for all of them was IDC (Worldwide Enterprise Mobile Application Development Platform Forecast, 2015-2019) and analysis from PwC (Pricewaterhouse Coopers).

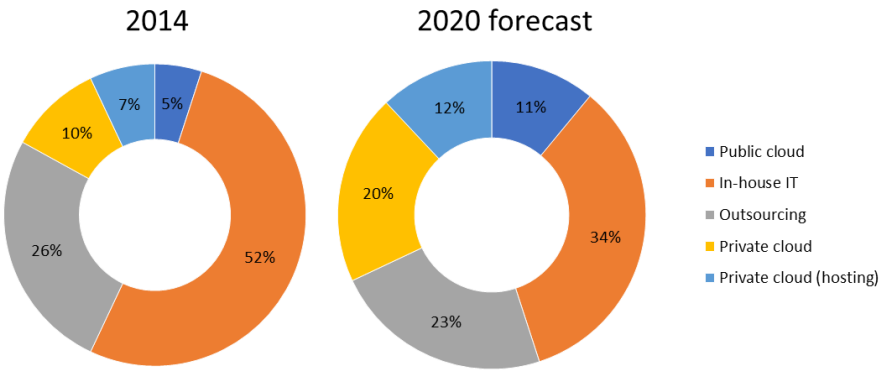


Figure 11 – IT Budget distribution of the Portuguese companies in 2014 and forecast values for 2020

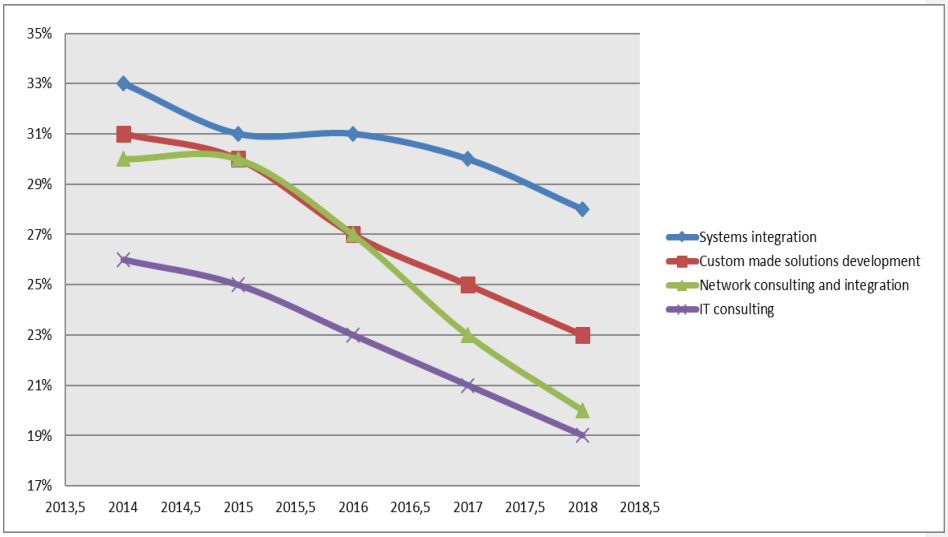


Figure 12 – Growth rate of cloud service revenues in Western Europe

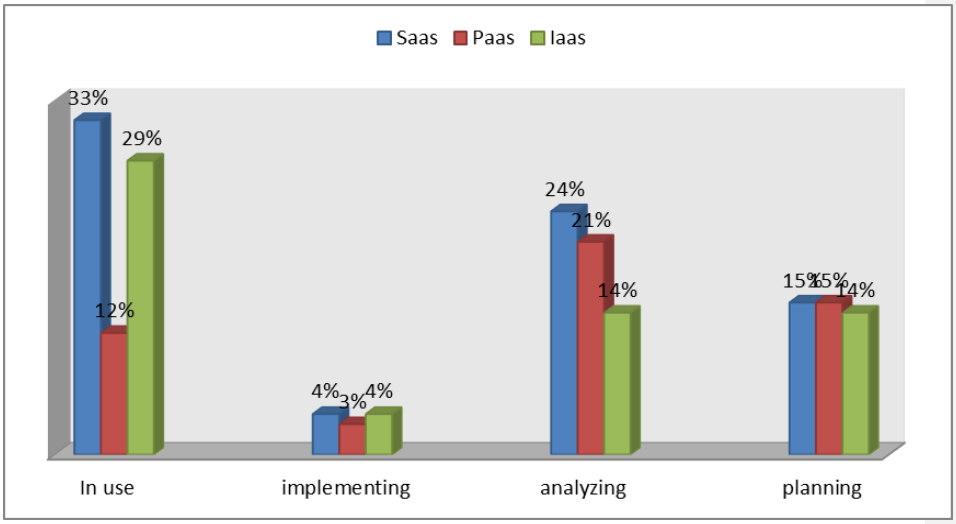


Figure 13 – Cloud usage in Portugal - 2014

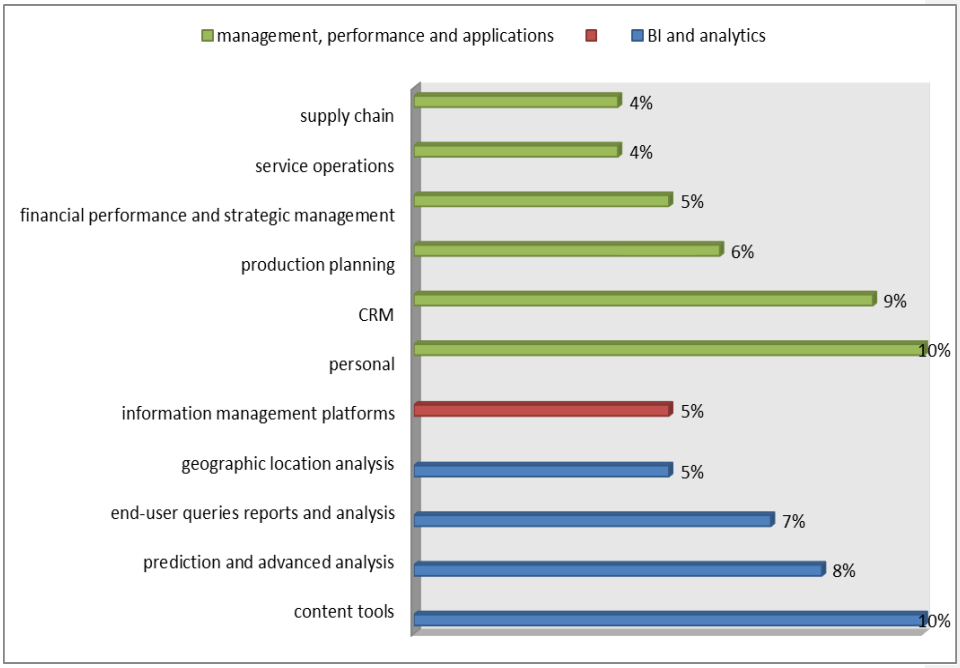


Figure 14 – Expected Revenue Growth on Western Europe for different fields

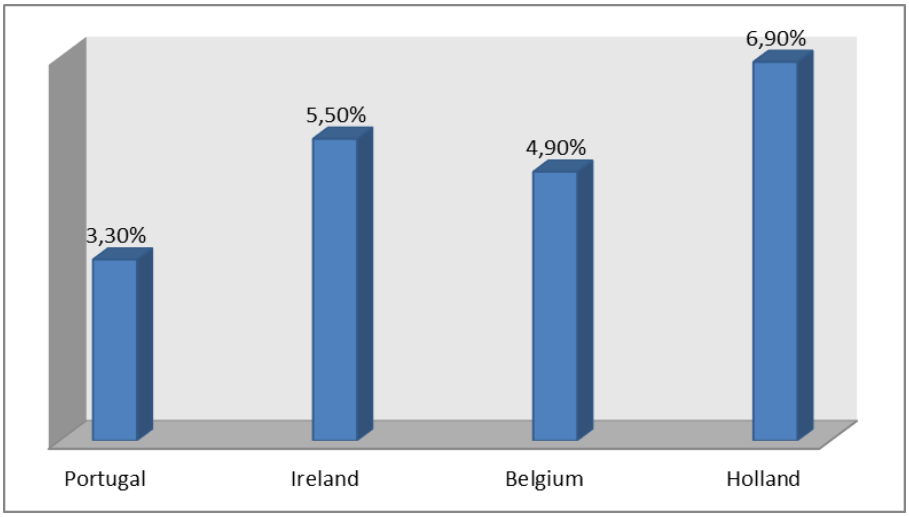


Figure 15 – Expected revenue growth by country, for information management platforms

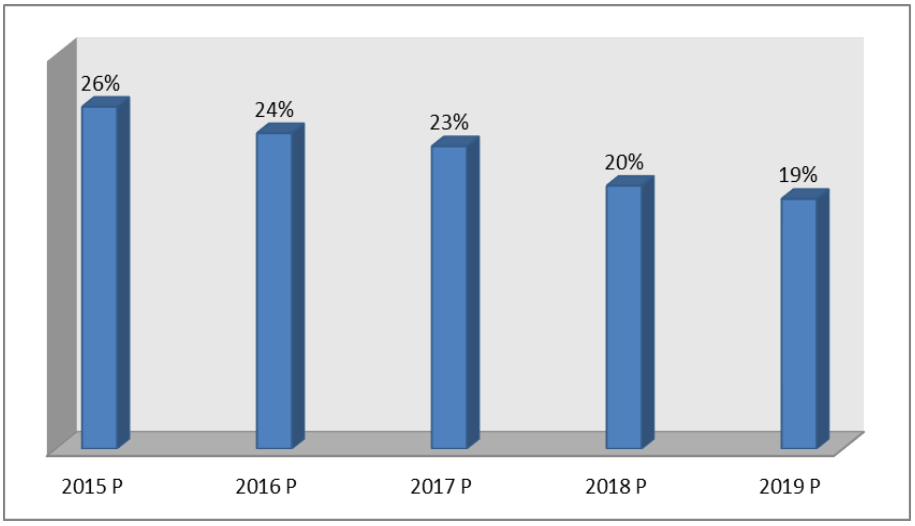


Figure 16 – Expected revenue growth of corporate mobile applications development platforms in the EMEA

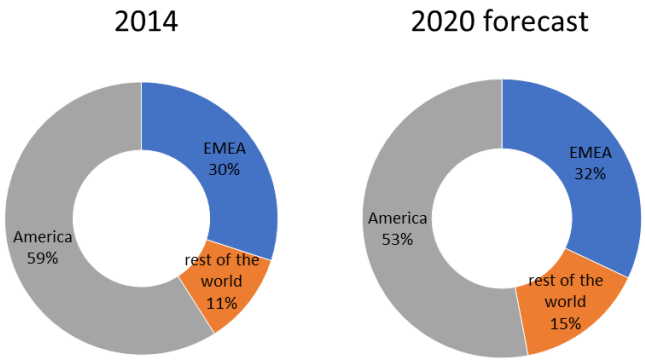


Figure 17 – Revenue distribution of corporate mobile application development platforms by regions of the world

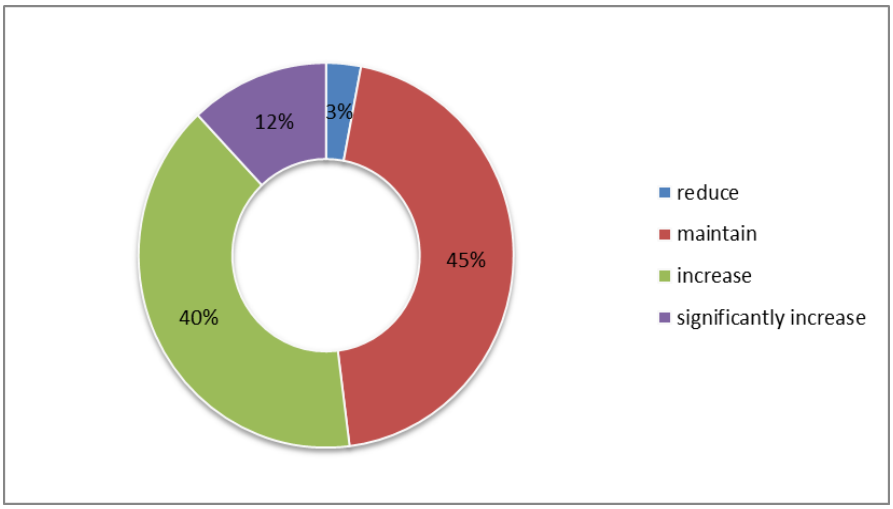


Figure 18 – Expectations about the IT budget directed for mobile solutions (% of the inquired companies) - year 2014

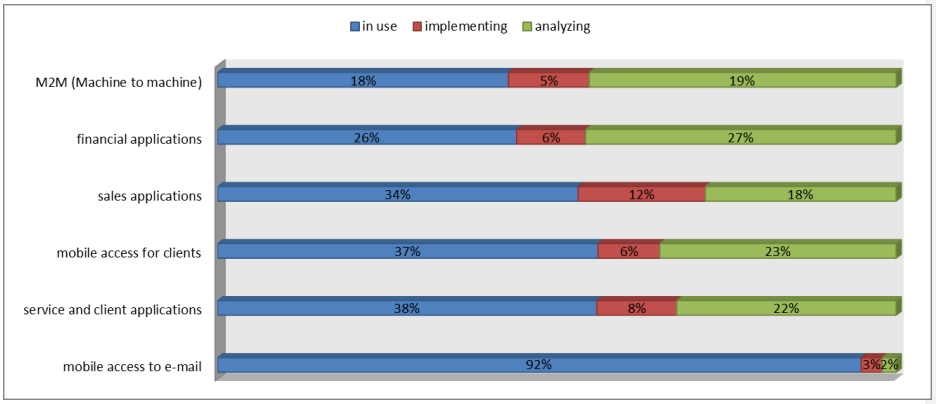


Figure 19 – Kinds of mobile solutions adopted in 2014 (% of the inquired companies)

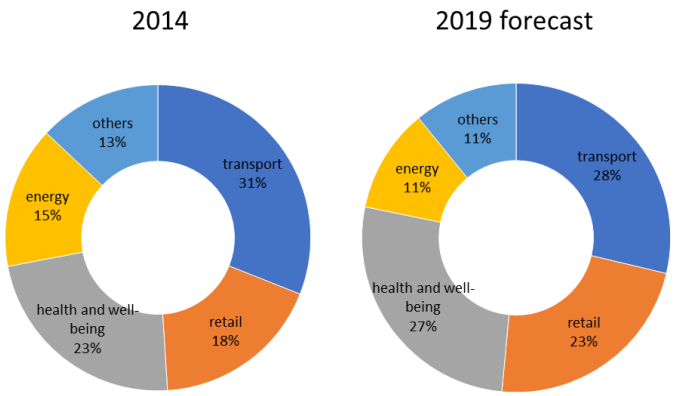


Figure 20 – IoT Revenue by sector in the EMEA


Figure 21 – Revenue of IoT in EMEA by type of use: CAGR[4] 15-19

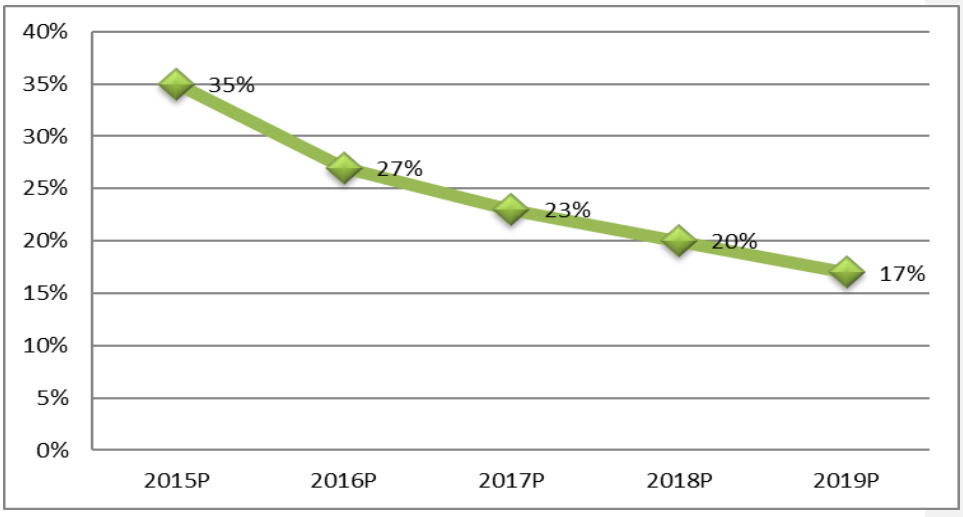


Figure 22 – IoT revenue growth rate in Western Europe

[4] Expected Compound Annual Growth Rate

## Annex B - About the authors

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Field Code Changed

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