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Improving the Business Automation offer of a technology consulting company in Portugal

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Life is a journey.

Enjoy the ride.

Abstract

The world of Business Automation has been developing gradually over the decades. Now, the drive for automation is both inevitable, and irreversible. Business Automation ultimate goal is to incorporate technology and agile methodology to build automated processes that will maximise business performance. The field seeks to enhance agility, increase efficiency, optimize employee productivity and upgrade customer experience. With technology mature enough to scale, Business Automation became a natural pillar of any digitisation journey. This research intends to explore the Business Automation domain, by understanding how it can lead Digital Transformation and identify opportunities to improve a Business Automation offer of a technology consulting company in Portugal.

This study was carried out using a Double Diamond methodology, a well-known creative and flexible process, with a clear roadmap, and it incorporated both quantitative and qualitative data, with case studies analysis and semi-structured interviews. The author aimed at quantitative research to serve as the foundation for the qualitative approach, to accomplish credible solutions to respond to the research questions.

Besides confirming the evolution Business Automation had taken so far, this study explored three improvements to the service concept of the Business Automation offer of a technology consulting company, allowing it to develop a more solid practice, both from a sales and an implementation perspective, focusing on strategic targeted customers.

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List of Abbreviations

AI – Artificial Intelligence

BOLD – BOLD by Devoteam

BPA – Business Process Automation

BPM – Business Process Management

CoE – Centre of Excellence

CRM – Customer Relationship Management

EMEA – Europe, Middle East and Africa

HMW – How Might We

IT – Information Technology

k€ - Thousands of Euros

M€ - Millions of Euros

ML – Machine Learning

NLP – Natural Language Processing

OCR – Optical Character Recognition

PaaS – Platform as a Service

POC – Proof of Concept

ROI – Return on Investment

RPA – Robotic Process Automation

SME – Subject Matter Expert

1 Introduction

The drive for automation is both inevitable and irreversible (Forrester, 2020). However, Business Automation is an area that has not been widely studied. The actual concept of Business Automation is somewhat unclear and it falls short on standardization, as it is placed halfway through the Business Process Management literature and the new Robotic Process Automation trend - software robots that replicate human repetitive tasks. Still, we came to the conclusion that Business Automation takes a step beyond that perspective, by being a concept that stresses what is most important, the Business. The ultimate goal is to maximise business performance.

The challenge to consider in this research focuses on balancing the conflicting need to capture concepts relevant to the human organizational experience and, at the same time, adequate at the level of scientific theorizing (Gioia et al., 2013), while still coming up with solid answers and feasible solutions for the proposed research questions.

The project was developed in a rapidly growing technology consulting company looking to improve its offer regarding Business Automation, BOLD by Devoteam.

1.1 Project Background

BOLD by Devoteam (BOLD) is a Portuguese technology consulting company focused on developing and delivering innovative technologic solutions, resulting in added value for its clients' businesses (BOLD by Devoteam, 2021). BOLD has more than 800 employees spread across Portugal - with offices in Porto, Aveiro and Lisbon - and a reported revenue of 37M€ in 2020. Its solutions are based on highly technical and specialized knowledge, which combines creativity, agility, and design. BOLD's offer could be described as follows:

- Cloud & DevOps: the design, development, and adoption of a solid cloud foundations on which all the digital solutions and platforms of business are based.
- Software Engineering: the development of web and mobile software and internal business applications, with specialized agile teams that embrace customer experience.
- Digital Workplace: the implementation of collaborative tools in organizations, as well as strategy definition for cultural and internal transformation necessary to increase efficiency and make significant gains in remote productivity.
- Management Consulting (MC): the practice of helping organizations to improve their performance within the following scope:
    - Business Process & Automation: optimising and automating solutions that increase efficiency through Business Process Modelling (BPM) and Robotic Process Automation (RPA).
    - Data & Analytics: boosting decision making by optimising data assets and creation of a data driven culture.

In September 2018, Devoteam, a French multinational group, acquired 58% of, back then, BOLD International and added Portugal to its vast EMEA presence. In 2020, with more than 8500 workers in 18 different countries, the group reported a turnover of 760€M. Devoteam is a global leading player in Digital Transformation with more than 25 years of experience

connecting business and technology. Its main goal is to solve issues and produce results through business transformation strategies, create high-performance products and remarkable experiences, enhance customers' digital journeys, and provide the means to their continuous innovation. They combine the power of selected leading technology partners, such as Google, Microsoft, AWS, Salesforce and Service Now, with an innovative multidisciplinary approach to drive large-scale, platform-enabled transformation. Their approach is based in six strategic domains:

- Digital Business & Products: build innovative business models and outstanding digital products.
- Data-driven Intelligence: turn data into actionable insights and drive tangible business outcomes.
- Distributed Cloud: harness the power of cloud technology at scale to foster business agility and trigger sustainable growth – speed up innovation, streamline operations and optimize costs.
- Business Automation: leverage technology to build automated processes that maximise business performance.
- Trust & Cybersecurity: embrace digital lifecycle while maintaining a 360º enterprise resilience with a better management of risks and cybersecurity threats.
- Sustainability: become a responsible digital company ready to turn society and planet's demands into business opportunities.

Since the merger, BOLD has been adjusting its offer (Figure 1), aligning it to the group's strategic domains. After achieving a quite mature and successful proposition regarding Digital Business & Products, Data-driven Intelligence and Distributed Cloud, BOLD is trying to solidify and improve its Business Automation value proposition, since it was the least developed area at the time, both due to the lack of in-house knowledge and its large scope.

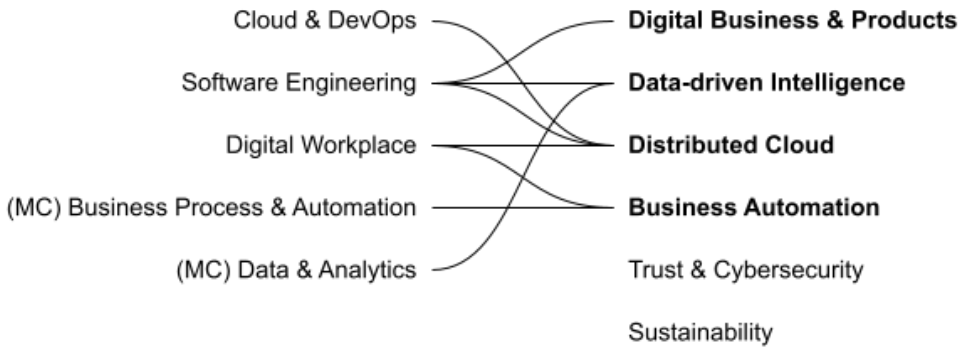

Figure 1 - BOLD's Offer Adjustment

Devoteam's vision of Business Automation relies on a concept that incorporates technology and methodology to build automated processes that will maximise business performance. Relying on digital platforms and their technology ecosystem, the offer leverages a new generation of enterprise-grade software automation tools and seeks to enhance agility, increase efficiency, optimize employee productivity, and upgrade customer experience. Its value proposition comprehends four different dimensions in order to streamline processes, connect people, break down silos and increase business agility.

Each of the dimensions is supported by multiple technology partners, which allows Devoteam to have the flexibility to present the best solution to any customer. The four dimensions are described below, as well as the associated partner technology solutions.

1. Digital Platform: "*Empower the enterprise with a digital platform*". Adopt best-in-class platforms to boost growth, enable people to be more effective and connect with clients like never before: leverage data and technology to better know customers, improve sales and marketing targeting accuracy, and provide great customer service.
    - Technology partners: ServiceNow and Salesforce.

As the first stream of the Business Automation offer within Devoteam, the focus is to leverage the power of a platform at scale and benefit from the access to centralized information and a myriad of programs and native applications coming together to address specific business needs. With a one-platform vision, the clients can benefit from an end-to-end service with clear focus on user experience, workflow automation, and process simplification, starting small and expanding through continuous innovation. Partners like ServiceNow and Salesforce, with Now Platform and Customer 360, respectively, help Devoteam deliver efficiency and effectiveness to its customers. Without delving too much into detail, Table 1 below briefly summarizes both the purpose and capabilities of each solution.

Table 1 - Digital Platform Value Proposition Technology Partners

Partner: ServiceNow	***Partner: Salesforce***
Partner Headline: We make the world of work, work better for people.	Partner Headline: We bring companies and customers together.
Platform: Now Platform	Platform: Customer 360
Platform Headline: The cloud platform for work.	Platform Headline: Unite all your teams around your customer.
Brief Description: Deliver cross-enterprise digital workflows that connect people, functions, and systems to accelerate innovation, increase agility, and enhance productivity.	Brief Description: Connect to customers in a more intelligent way by uniting sales, service, marketing, commerce, IT, and analytics.

2. Intelligent Automation: "*Accelerate business transformation with Intelligent Automation*". Combine the power of Robotic Process Automation (RPA), Machine Learning (ML) and Artificial Intelligence (AI) to expand the possibilities of process automation to cover all areas of the enterprise.
    - Technology partners: UiPath, Blue Prism and Automation Anywhere.

Here, Devoteam aims at accelerating business transformation by implementing Intelligent Automation at scale to foster a process mindset that will drive basic digitization as well as improve "digital readiness" amongst customers. In short, with ML and AI technologies, these solutions understand which enterprise processes can be automated - from financial to human

resource ones - and, through "robots" able to mimic human behaviour, these tasks can be done in less time and with zero errors. As major benefits, Devoteam highlighted cost reduction, better compliance, speed increase - in terms of productivity and time to market - and innovation boost. Bridging business and IT, next generation Intelligent Automation technologies, such as the ones delivered by Devoteam's partners UiPath, BluePrism and Automation Anywhere, are enterprise ready and easy to use for people without an engineering degree. With manual processes being error prone and mundane tasks being uninspiring, not only are these automation initiatives helpful in providing significant relief in the risk and compliance domain, but by "taking the robot out of the human" more time is given back to do business and innovate.

Table 2 - Intelligent Automation Value Proposition Technology Partners

Partner: UiPath	***Partner: Blue Prism***	***Partner: Automation Anywhere***
Partner Headline: End repetitive tasks. Unleash your potential.	Partner Headline Unify your human and digital workforces. Free people to do great things.	Partner Headline: Go be great.
Platform: UiPath Platform	Platform: Intelligent Automation Platform	Platform: Automation 360
Platform Headline: Become a fully automated enterprise.	Platform Headline: Everything you need to build an enterprise-grade digital workforce in one platform.	Platform Headline: The world's only cloud-native, web-based platform for end-to-end automation.
Brief Description: UiPath Platform combines the core RPA capabilities of building, managing, and running robots with tools for process discovery and analytics to report a clear business impact.	Brief Description: Intelligent Automation Platform is a business-developed, no-code automation platform that pushes the boundaries of RPA to deliver value across any business process in a connected enterprise.	Brief Description: Automation 360 is a single, integrated platform that transcends front-office and back-office technology siloes to automate business processes across all systems and applications, including both SaaS and legacy apps.

3. Low-Code: "*Digitize business with low-code*". Instil innovation with new ways of application development that will push productivity further while optimizing costs and modernizing IT.
    - Technology partners: OutSystems and Microsoft.

As of Low-Code, the goal is quite clear: produce more, and fast. The primary objective of these modern application platforms is to increase productivity and reduce skill-set requirements, providing more capabilities by requiring smaller and less specialized teams of developers. Low-Code allows companies to develop their own tools without needing a huge

Information Technology (IT) development team. Besides, by investing in such platforms, clients can decrease total cost of ownership, since there's no need to replace legacy systems over and over again, due to future-proof architecture from players like OutSystems and Microsoft, listed below.

Table 3 - Low-Code Value Proposition Technology Partners

Partner: OutSystems	***Partner: Microsoft***
Partner Headline: Build applications fast, right, and for the future	Partner Headline: Empowering others
Platform: OutSystems Application Platform	Platform: Microsoft Power Apps
Platform Headline: The modern application platform for the software that makes the difference.	Platform Headline: The world needs great solutions. Build yours faster.
Brief Description: Using visual, model-driven development, AI-powered tools that improve the entire application lifecycle, and a cloud-native platform, you can quickly and easily build, deploy, and manage the software that makes a difference.	Brief Description: Increase agility across your organization by rapidly building low-code apps that modernize processes and solve tough challenges.

4. Collaboration: "*Upgrade employee experience with modern collaboration tools*". Empower people with a modern workplace so they can maximize their productivity and collaborate easily.
    - Technology partners: Google and Microsoft.

COVID-19 accelerated the working from home reality for tons of businesses. The workplace tools should offer the flexibility to work from anywhere, on any device in a seamless way. To address these needs, Devoteam built the stream Collaboration, to offer the best possible employee experience to its customers workforce. By offering modern digital tools that everyone knows from their private life, such as Google Workspace (ex-G-Suite) and Microsoft 365 (ex-Office 365), the workforce will be empowered and, consequently, be more productive. On the other hand, the companies will be able to keep attracting and retaining talent and ensure long-term success.

Table 4 - Collaboration Value Proposition Technology Partners

Partner: Google	***Partner: Microsoft***
Partner Headline: Do the right thing.	Partner Headline: Empowering others.
Platform: Google Workspace	Platform: Microsoft 356
Platform Headline: Do your best work, all in one suite.	Platform Headline: Your productivity cloud across work and life.
Brief Description: Everything you need to get anything done, now in one place.	Brief Description: Connect and empower every employee, from the office to the frontline worker, with a Microsoft 365 solution that enhances productivity and drives innovation.

In this section, the goal was to briefly present the current state of the company, BOLD, and the group, Devoteam, regarding the Business Automation offer. With this information, we were able to proceed to the next section and better understand the problem description and the research questions.

1.2 Problem Description and Research Questions

Until recently, enterprises worked on clearly delimited markets, whose actors, rules, and trends they were familiar with. Those days are gone. Digital Transformation, globalisation and the accelerated development of consumer expectations have been deal-changers. Besides, geopolitical, political, environmental, societal, health and economic crises plunge the world into an era of great uncertainty. Competition and global difficulties can emerge from anywhere and challenge everything at any time. Once finite, the business game has now become infinite (Sinek, 2020), and the goal is to keep playing.

The COVID-19 pandemic, for example, was an unprecedented event in every sphere of human life. As the situation evolved, governments and communities drew on their reserves of resolve and resilience to cope with and mitigate the crisis. At the same time, the coronavirus outbreak caused structural changes within enterprises and in the world of work. Some behaviours and changes adopted during the pandemic will remain with us and affect both the workforce and work itself. Automation has been a major force reshaping work since long before the pandemic; but now it's taking on a new urgency in the context of business risk and resiliency. Businesses need to regain control of their digital agenda to thrive in this ever-changing world.

This research intends to explore the Business Automation domain, by understanding how it can lead the Digital Transformation and how a technology consulting company can improve its offer in Portugal, through the case of BOLD by Devoteam. BOLD, the Portuguese company is part of the multinational group Devoteam, already investing heavily in this domain. The questions presented below will conduct the study on different stages and the work developed will be focused on answering them, supported by quantitative and qualitative research.

1.2.1 Can Business Automation lead Digital Transformation?

Companies have been automating processes for decades. Traditionally, this job was limited to engineers and was done on a case-by-case basis. However, new, innovative technologies are now mature and enterprise ready. Combined with the right methodologies, they became very powerful and scalable, with the potential to transform businesses. Companies' futures depend on their ability to embrace digital's new rules of business, so they can become leading digital companies and rule as such. In a world characterized by volatility, uncertainty, complexity and ambiguity, the need for resiliency and adaptability is bigger than ever and Business Automation can help increase both resiliency and adaptability by completely rethinking the articulations of the organizations, the ways of working and the collaboration between humans and technology.

From production to customer service, the imperative is the same: always do better, ever more quickly. At the same time, companies must transform themselves and adopt the digital model essential to their lasting success. Their challenge is to successfully reconcile these two objectives, now and in the future.

However, attempting to drive digital transformation on top of inefficient and ineffective processes will not only fail but also expose companies' operational warts to the world. One critical response is aligning process initiatives with digital transformation goals, moving from the traditional goal of cost reduction to one of digital business transformation and customer experience (Forrester, 2020). Companies' quest for efficiency should not affect their capacity to transform themselves, but it should on the contrary be the motor and vector of everyday change. The first question we will try to answer is "Can Business Automation lead Digital Transformation?".

1.2.2 How Might We improve the Business Automation offer of a technology consulting company in Portugal?

With its Business Automation domain, Devoteam implements end-to-end automated ecosystems which exploit the power of platforms to strengthen agility, increase operational effectiveness, improve client experience, and optimise the productivity of collaborators. These platforms allow the aggregation and activation of a wide-ranging ecosystem, increased opportunities, greater innovation, and easier redeployment. Because of their capacity to capture the client relationship and benefit from the network effect, platforms are largely responsible for this development, but they also represent the business configuration best suited to benefiting from this new environment. Through technology, business performance changes dimension.

For its part, Devoteam refers to this domain as Business Automation, to stress that what is at stake is - above all - business. It is not about implementing this or that technology, but rather improving the functioning of the company and rendering it both more efficient and more agile. We came to the conclusion that Business Automation is a hybrid discipline which is not defined by the technologies that it implements, but by the business objectives it proposes to attain. As evidence of this, it is known that not all businesses have the ability to centralize everything on a single huge platform. They all should, however, adopt the principles of such platforms to remain in control of their destiny, providing their suppliers and collaborators with a meeting and exchange point, a mine of easily accessible services and opportunities.

The future role of BOLD by Devoteam is to put the power of the new tools at the disposal of the business managers, and to help them imagine, design, and implement solutions appropriate to their issues, their industry sector, their organization, and their maturity.

As described in the previous section, Project Background, Devoteam breaks down this strategic domain into four value propositions, right after identifying four priority goals for companies to which Business Automation particularly helps. This correlation between Business Goals and Value Propositions is synthesised in the Table 5.

Table 5 - Business Goals and Value Proposition Correlation

Business Goals	***Value Proposition***
To decompartmentalise, fluidify and interconnect activity and to improve client experience, by anticipating their expectations, streamlining their trajectory, and boosting service quality.	**Digital Platform:** adopt the most advanced platforms to accelerate growth and boost the effectiveness of teams, and ultimately establish an unprecedented relationship with the clients.
To accelerate Digital Transformation by bringing IT and core businesses closer together, and by favouring their collaboration.	**Intelligent Automation:** combining the power of RPA, AI, and ML to extend the possibilities of automation of processes at every dimension of the company.
To digitize the core business by giving customers the possibility of developing the applications they need rapidly and at less cost.	**Low-Code:** stimulating innovation through new approaches to software development which simultaneously allow increased productivity, cost optimisation and IT modernisation.
To unlock the potential of collaborators by adopting a more fulfilling workspace and freeing them from tedious tasks, boosting creativity.	**Collaboration:** empowering the staff with a modern working environment, so that they can be more productive and collaborate easily.

This work seeks to understand the feasibility of implementing the full scope of Devoteam's Business Automation offer in Portugal, by comparing and analysing the European and Portuguese markets, through desk research, and interviewing Subject Matter Experts (SME) from both BOLD and Devoteam. The second question we will try to answer is "How Might We improve the Business Automation offer of a technology consulting company in Portugal?".

1.3 Dissertation Outline

The present dissertation is structured in eight chapters:

The first chapter presents the company, as well as the problem description and the research questions.

The second chapter covers the literature review focused on some of the main topics around Business Automation. It will allow any reader to have a knowledge base and a better overall understanding of the field.

The third chapter characterizes the problem in further detail. This chapter will cover an exhaustive description about the current state of the company, introducing the associated challenges.

The fourth chapter explains the methodology adopted in the development of the dissertation. This chapter describes how the information was collected and how it was analysed to accomplish the research needs.

The fifth chapter presents the unstructured findings of the research, while the sixth chapter synthetises the insights into opportunity areas to be furthered developed.

The seventh chapter proposes three solutions for the identified topic of the dissertation and explores the main takeaways.

The eight and last chapter concludes the report and addresses potential future topics to be developed.

2 Literature Review

The present chapter will be focused on the state of the art of some of the most relevant technology concepts for the project development. The purpose of the journey towards Digital Transformation is to reap digital benefits such as productivity improvements, cost reductions and innovation. Digital Transformation is concerned with the changes that technologies can bring about in a company's business model, products, processes, and organizational structure (Hess et al., 2016) and it requires not only making them more efficient but creating or unlocking new value for customers.

With this research project, an investigation was carried out to better understand the concepts of Business Automation and Digital Transformation. While the terms are often used interchangeably, we hope to prove that Business Automation is a means to an end, and the desired end is Digital Transformation.

The concepts present in this chapter are focused on the diverse technologies within the Business Automation domain and highlight the journey of this quite recent field. They are shown in the selected order, on purpose, to capture the evolution of what started as Business Process Management and is, for now, at the Hyperautomation stage.

2.1 Business Process Management

Business Process Management (BPM) is the discipline that combines knowledge from information technology and knowledge from management sciences and applies it to operational business processes (van der Aalst, 2013). With BPM, an organization can align its business processes to its business strategy, leading to effective overall company performance. It involves any combination of modelling, automation, execution, control, measurement, and optimization of business activity flows, also called workflows, in support of enterprise goals (Chakraborti et al., 2020).

The traditional way of business process development was by creating a detailed model of a business process in question, acquiring an IT-system to support it, and then implementing it in the organizational practice (Bider & Jalali, 2016). Moreover, today there is an abundance of BPM systems. These systems are generic software systems that are driven by explicit process designs to enact and manage operational business processes (van der Aalst, 2013) each in. The result is a plethora of languages and tools, with no consensus on concepts and their implementation.

The field itself has lost somewhat consistency due to a seemingly endless sequence of proposed industry standards (Ter Hofstede et al., 2010) once they miss consolidation of well-understood and well-established concepts and practices. It is frequently the case that BPM vendors opportunistically become involved in the creation of proposed standards to exert or maintain their influences and interests in the field.

BPM standards tend to deal with complex concepts, yet they are never properly defined and all-too-often not informed by established research. Nowadays many domains of interest to the BPM community are characterized by ever-changing requirements, unpredictable environments and increasing amounts of data that influence the execution of process instances. Under such dynamic conditions, BPM must increase its level of automation to provide the reactivity and flexibility necessary for process management (Marrella, 2018).

2.2 Business Process Automation

Business Process Automation (BPA) seeks to improve the efficiency of business processes in terms of cost, resources, and investment through automating the management of relevant information and data, the time spent by team members, and the execution (Chakraborti et al., 2020). BPA is defined as the automation of complex business processes and functions beyond conventional data manipulation and record-keeping activities, through the use of advanced Artificial Intelligence (AI) technologies, like Machine Learning (ML). However, end-to-end process automation has not been widely adopted in enterprises due to business users' lack of trust in such technology and limited accessibility, and customization capabilities (Rizk et al., 2020).

To automate processes, it is vital to have a correct understanding of the operation of the Business Processes. BPA demands not only advancement in computer and software engineering technologies, but also parallel matching methods in management science. At the end of the day, business processes allow all the different parts of an organization to work together efficiently and effectively.

2.3 Robotic Process Automation

Robotic Process Automation (RPA) is a fast-emerging form of Business Process Automation technology and has recently been the main driver of the Digital Transformation with its lightweight approach to Automation. RPA uses software robots to replicate human tasks, providing a virtual workforce to automatize manual, repetitive, and error-prone processes (Geyer-Klingeberg et al., 2018). RPA software robots perform routine business processes by mimicking the way that people interact with applications through a user interface - in other words, it automates the mouse-click (Rizk et al., 2020), by following simple rules and business logic to make decisions. Entire end-to-end processes can be performed by software robots with very little human interaction, typically to manage exceptions.

Implementing an RPA requires a costly manual analysis of the tasks performed by the users either by observing their behaviour, which does not scale when there are hundreds of processes, or through careful analysis of process-related documentation, which can be outdated (Chakraborti et al., 2020). Successful RPA implementation requires effective training of the robots and continuous monitoring of their performance, but above all, knowledge about the potential for automation. Finding opportunities to automate tasks that are more complex than routine repeatable tasks require the use of structured and unstructured data from event logs, which are commonly available in today's information systems. This can be obtained by process mining techniques.

2.4 Process Mining

Process Mining is a process management technique which helps users figure out business processes in a fast and objective manner by automatically visualizing actual process flows (Park & Kang, 2016). It synergically combines model-based and data-oriented analysis techniques to obtain useful insights (Janes et al., 2017) and analyse what really happens within its business processes, including undesired process patterns, bottlenecks, and compliance issues. This technique provides new means to discover, monitor, and improve processes in a variety of application domains. The growing interest in Process Mining is strongly related to the huge amount of data that is now being recorded by organizations,

meaning more and more event logs, thus, providing detailed information about the history of processes (van der Aalst et al., 2012). This creates an increasingly consistent basis for improvement and innovation of business processes in competitive and rapidly changing environments.

Through its visual reconstruction of the actual flows of business processes, practitioners can discover process models from data, compare expected and actual behaviours, and pave the way to automate business processes. Process Mining essentially enables Digital Transformation by identifying improvement potential with respect to key success factors like efficiency, speed, agility, and compliance (Geyer-Klingeberg et al., 2018).

2.5 Artificial Intelligence

Artificial intelligence (AI) is a branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. Most definitions of AI revolve around "simulation of intelligent behaviour by computers". Russell & Norvig (2009) defined it as the designing and building of intelligent agents that receive precepts from the environment and take actions that affect that environment. Systems using AI match or surpass human-level performance in more and more domains, leveraging rapid advances through most industries.

Despite that, to understand how AI is disrupting the job market, note first that computers often automate part of a job rather than an entire job. For this reason, it is useful to think of a job as a set of tasks (Levy, 2018). The central premise is that, given certain constraints in information processing, AI can deliver higher quality, greater efficiency, and better outcomes than human experts. At the same time, the availability of information has increased and continues to increase significantly. These trends provide strong evidence that the baseline for competitiveness stands on the information and problem-solving capabilities of an organization. Consequently, finding ways to apply AI to firms' processes should be of considerable interest to managers, since it has the potential to create better ways for firms to respond to their increasingly competitive environment and manage the growing amounts of information around them (Haefner et al., 2021).

The most impressive capabilities of AI, particularly those based on Machine Learning (ML), have not been diffused widely yet. More importantly, like other general-purpose technologies, their full effects will not be realized until waves of complementary innovations are developed and implemented. The adjustment costs, organizational changes, and new skills needed for successful AI can be modelled as a kind of intangible capital (Brynjolfsson et al., 2017).

2.6 Machine Learning

Machine Learning is a subfield of AI that represents a fundamental change from the first wave of computerization (Brynjolfsson et al., 2017). Recent rapid progress in ML has been driven largely by an approach called deep learning, especially those involving image and speech recognition, Natural Language Processing (NLP), and predictive analytics (Brynjolfsson et al., 2018).

Historically, most computer programs were created by meticulously codifying human knowledge, step-by-step, mapping inputs to outputs as prescribed by the programmers. If modelling were limited to deductive instructions - modelling tasks where we can articulate the information-processing structure - automation would have a relatively small reach. However,

ML allows computers to model tasks where part or all of the information processing is unconscious and so opens a much wider set of tasks to potential Automation (Levy, 2018). ML systems use categories of general algorithms (e.g., neural networks) to figure out the relevant mapping on their own, typically by being fed very large data sets of examples. By using these ML methods leveraging the growth in total data and data processing resources, machines have made impressive gains in perception and cognition, two essential skills for most types of human work (Brynjolfsson et al., 2017).

2.7 Intelligent Process Automation

The rule-based algorithms for RPA robots therefore set its limitations on the tasks that are subject to Automation (Bellman & Göransson, 2019). This issue has been identified by both academia and the market, which has enabled the rise of Intelligent Process Automation (IPA). Simply put, IPA combines RPA with AI and ML to deliver powerful tools that can mimic human interaction and make advanced decisions based on the outputs of those robotic inputs. While RPA tends to focus on automating repetitive and, many times, rule-based processes, IPA achieves more complex automation by using AI to minimize human-dependent training and automating more complex tasks that entail decision making (Chakraborti et al., 2020).

IPA addresses two major constraints of RPA robots. Firstly, unstructured data cannot be processed by regular RPA robots. And secondly, higher-order decision making is impossible in regular RPA-robots (Mohanty & Vyas, 2018). Both can be handled by methods within the field of AI. Because AI simulates types of human intelligence, Automation can process higher-function tasks that require some level of reasoning, judgment, decision, and analysis. RPA is a good initial step in the quest for full IPA implementation (Bellman & Göransson, 2019). Before an organization attempts to fully deploy IPA, it should have simplified the processes in a consistent way with RPA to avoid having to implement costly techniques on a process that needs to be reworked.

2.8 Low-Code

Low-Code is a set of tools that enables quick development of business applications with minimum effort, through drag and drop interfaces and blocks of pre-built modules (Waszkowski, 2019). The low-code programming is based on different approaches like visual modelling, model-driven development, and automatic code generation, making development easier so that even people without programming skills can develop applications on their own (Phalake & Joshi, 2021).

Businesses need to change at a rate that can keep up with competitors, vendors, and the modern consumer’s expectations. In fields defined by tight margins and intense cost competition, companies constantly need to be at the forefront of innovative Automation to stay competitive and operate as efficiently as possible (Waszkowski, 2019). Included in the Business Automation domain, for reducing time and cost of building business applications that will sustain organizations’ Automation efforts, this rapid development of general-purpose, process-based, web and mobile applications offers compelling productivity gains such as portability across vendors, cost reduction and speed-of-delivery benefits. Low-Code is expected to be responsible for more than 65% of application development activity by 2024 (Vincent et al., 2019).

2.9 Hyperautomation

A term defined by Gartner (2019), Hyperautomation takes the concept of Intelligent Process Automation and extends it to include additional applications and platforms, bringing together several components of process automation, integrating tools and technologies that amplify the ability to automate work. Hyperautomation not only refers to the tasks and processes that can be automated, but also the level of automation. It builds on the success of RPA tools and addresses their limitations, similarly to IPA, and pushes it even further. Although not the main goal, it often results in the creation of a digital twin of the organization, allowing organizations to visualize how functions, processes and key performance indicators interact to drive value. This "digital twin organization" then becomes an integral part of the Hyperautomation process, providing real-time, continuous intelligence about the organization and driving significant business opportunities (Gartner, 2019).

Briefly, Hyperautomation is an end-to-end automation accomplished by harnessing the power of an ecosystem of multiple technologies (Eisner, 2020):

- Technologies for identifying and prioritizing automations - ex: Process Mining, Task Mining, Process Analytics, etc.
- Technologies for reducing the effort and cost of building automations - ex: RPA, Low-Code, PaaS (Platform as a Service), Intelligent Business Process Management Suites, etc.
- Technologies for extending automation capabilities - ex: AI, ML, NLP, OCR (Optical Character Recognition), Chatbots, etc.

Hyperautomation provides organizations with a framework for expanding on, integrating, and optimizing enterprise automation. It is often referred to as the next major phase of Digital Transformation (Eisner, 2020).

While no company can encompass the full scope of Hyperautomation, Devoteam's offer focuses on the four dimensions: Digital Platforms, Intelligent Automation, Low-Code and Collaboration, which, from the Hyperautomation definition, relate mostly to Platforms as a Service, Intelligent Process Automation and Low-Code solutions.

3 Problem Characterization

This section describes with further details the problem that this study aims to address. This project arises when the company, BOLD, understands the need to adapt to Devoteam's Business Automation extensive offer, and, consequently, possibilities for improvement.

BOLD has traditionally been an extremely technology-driven company. Considered as an engineering powerhouse within the group, BOLD has been leveraging its technical expertise by focusing its operation almost exclusively in the technology implementation of projects. As most companies operating across the Technology sector in Portugal, BOLD has highly specialized resources and knowledge in different domains. When a customer, locally or abroad, requires that knowledge, the company provides it through a technical implementation outsourcing delivery model. Besides, since Portugal still is, somehow, a low salary market when compared to most of Europe, it created a competitive edge in applying an offshoring model for other European countries, and other entities of the Devoteam group.

However, in Business Automation, the added value comes from a different approach, much more related to Business Consulting, than to technology itself. It is said that this field is not purely Business nor purely IT. In this new category, there is a need to cross fertilize deep knowledge around technologic platforms with deep knowledge around business processes.

Devoteam is a mid-size premium consulting group (Devoteam, 2021), that had already been through the maturing process of the Business Automation domain. For many years, Devoteam entered its clients in one way which was the IT Department, much like BOLD. We can confirm just that by looking at the most used platform in Devoteam's 25 years of existence: ServiceNow. ServiceNow is a platform that provides technical management support, such as IT service management, to the IT operations of large corporations, including helpdesk functionalities. Still, in the last few years, the tendency has been to invest not only in multiple technology partners, but mostly on the time spent in understanding the client's pain, creating an overall better offer regarding the business needs, to achieve a more integrated consulting practice.

Devoteam's mission is to help large and complex companies become more digital and take control of their own digital agenda, in order to gain a competitive edge. To achieve that, a strong offer within the Business Automation domain, loosely defined in terms of the technology itself, was needed. Their goal is to instil business agility, regardless. With experience, Devoteam is now able to help companies change their mindset, by being closer to the business leaders and realizing their operational efficiency and customer experience dreams with a great set of Automation tools; not only by implementing them, but by helping the customers in all the decision-making process. Business Automation lets customers leverage new apps - to enable new capabilities, redefine business processes, drive up productivity, cut costs, generate new revenue, etc, - on top of legacy systems, embracing risk.

After being acquired by the latter, BOLD's objective is to bring up Business Automation as a service, with a structured offer, and to provide customers with differentiated value and go a little further than supplying customers with valuable resources. To address the identified challenge of improving the Business Automation offer in Portugal, a Double Diamond methodology was followed. This methodology is described in the next section.

4 Methodology

The selection of methodology should be adequate to answer the selected research questions (Marshall, 1996). The aim of this research was to study the Business Automation offer in Portugal and suggest a set of possible improvements for BOLD practise, the Portuguese entity of Devoteam's group. There are not many companies in the world that provide this service, however, Devoteam is one of them. As such, the desk research followed a case study methodology, focused on Devoteam's success stories. Additionally, BOLD's client database was also carefully analysed to identify possible investment opportunities. Combining this data collection with semi-structured interviews with Subject Matter Experts, we were equipped to deep dive in the Double Diamond methodology, a flexible process that helps to define a clear roadmap and incorporate user feedback from the beginning. The two diamonds represent a process of exploring a theme more widely or deeply - divergent thinking - and then taking focused action - convergent thinking. They serve as a visualisation of a creative process that responds to the user's needs. In this case, a way of coming up with feasible solutions to improve the Business Automation offer in Portugal.

4.1 Double Diamond revamped (Nessler, 2016)

The methodology chosen was the Double Diamond revamped (Nessler, 2016) as described in Figure 2, inspired by the British Design Council's Double Diamond and IDEO's human-centred design ideology. The British Design Council was established by Winston Churchill's wartime government in December 1944 to support Britain's economic recovery, and now, 75 years later, it aims to inspire new ways of thinking drawing on design tools and techniques, encourage public debate and inform government policy (British Design Council, 2021). IDEO on the other hand, is a global design company, with more than 700 employees, considered the early leaders of human-centred design (IDEO, 2021).

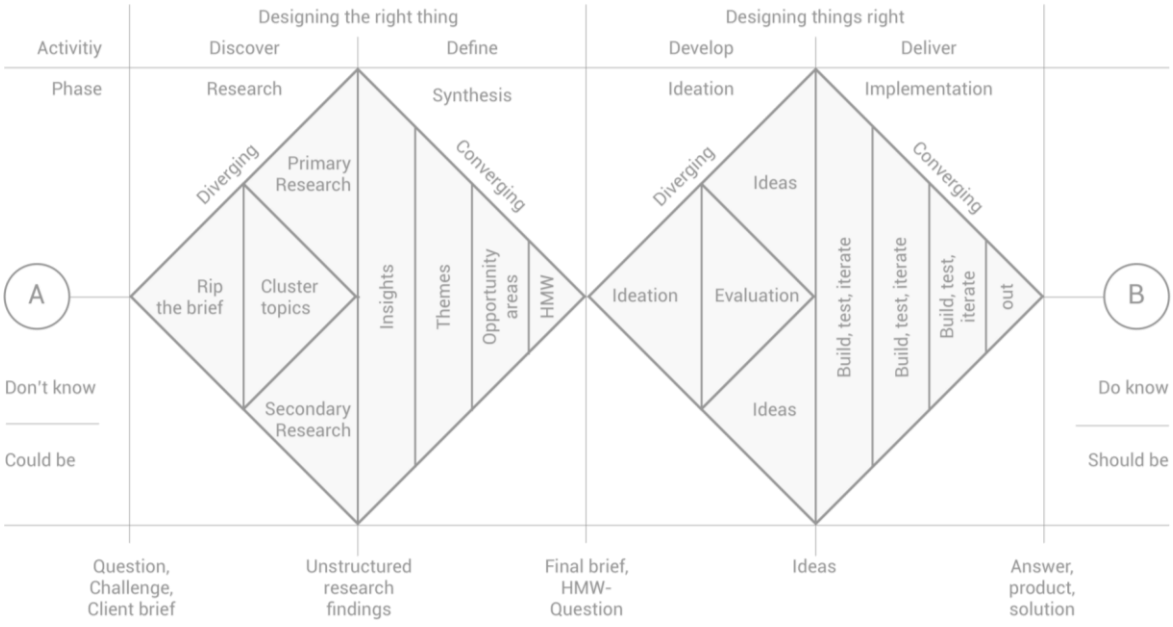

Figure 2 - Double Diamond revamped (Nessler, 2016)

The starting point A, commonly known as phase 0, is where the research is built upon. In this paper, we've identified Business Automation as the problematic or the research area. The phases of this process are either diverging or converging, meaning that during a diverging phase, we try to open up as much as possible without limiting ourselves, whereas a converging phase focuses on condensing and narrowing our findings or ideas. Although it is not as linear as the diagram suggests, the Double Diamond methodology is a structured design approach to tackle challenges in four distinct phases:

1. Discover – Research – "*insight into the problem*" (diverging). The first diamond helps people understand, rather than simply assume, what the problem is. This first phase involves a great deal of research and analysis to achieve clustered topics of unstructured findings in the next step.
2. Define - Synthesis – "*the area to focus upon*" (converging). The insight gathered from the discovery phase can help to define the challenge in a different way. After achieving opportunity areas, it is necessary to create a strong 'How Might We' (HMW) question that makes a tangible statement of what is to be done.
3. Develop – Ideation – "*potential solutions*" (diverging). The second diamond encourages people to give different answers to the clearly defined problem, seeking inspiration from elsewhere and co-designing with a range of different people.
4. Deliver – Implementation – "*solutions that work*" (converging). Delivery involves testing out different solutions at small-scale, rejecting those that will not work and improving the ones that will.

The four phases of the Double Diamond may be simplified and merged into two main stages of the process:

- Stage 1 — Doing the right thing (Diamond 1 — Discover and Define)
- Stage 2 — Doing things right (Diamond 2 — Develop and Deliver)

It is important to have the research questions defined since the beginning of the study, even if they were not the final ones, which will help to have a focus (Voss et al., 2002). For this paper we've identified Business Automation as the research area, in order to answer, "Can Business Automation lead the Digital Transformation?", and that was the goal of Stage 1.

It was assumed that the focus of this paper would be on the three first phases, due to time constraints, and its main objective was to come up with possible solutions for the HMW question, co-created with Subject Matter Experts.

4.2 Data Collection and Analysis

In the end, the intention of this research is to study the Business Automation domain in Portugal. With the quantitative research serving as the foundation for the qualitative research, the author is aiming at an approach that leads to credible interpretations, within the scope of inductive reasoning (Gioia et al., 2013). Following Gilbert (2008) perspective, the author tried to use quantitative data to discover association and to use a qualitative approach to effect a complex research design.

4.2.1 Quantitative Research

Quantitative research is referred to as the process of objectively collecting and analysing numerical data, and is viewed as scientifically objective, and rational (Carr, 1994; Denscombe, 2010). There are not many companies in the world that provide a Business Automation offer, however, Devoteam group, which is present in 18 countries around EMEA, is one of them. As such, the quantitative research focused on a case study methodology, regarding success stories of Devoteam's Business Automation implemented projects from 2017 to 2020 as well as BOLD's 2021 client database. Data visualization dashboards were created to facilitate the process of finding patterns, averages, understand causal relationships and generalize results.

4.2.2 Qualitative Research

Considered as an interpretative science (Weber, 1978), the responsibility of the researchers in qualitative research is high. Besides, this type of analysis allows for ambiguities and contradictions in the data, which reflect social reality (Denscombe, 2010). As qualitative research is often designed at the same time it is being done (Van Maanen, 1998), it requires highly contextualized individual judgements. This was also to some extent true for this study, since the author has been working with the organizations involved for several years.

The qualitative research on this paper was based on semi-structured interviews with Subject Matter Experts - the informants - that validated the previous analysed data and gave crucial inputs to achieve the final conclusions. This approach allows to use open questions (see APPENDIX A: Semi-Structured Interviews Script), admitting the possibility of the informants to extend the topic and explore deeper details that can be relevant for the research (Charmaz, 2006). The objective was to explore, not interrogate, once it was possible to go back and forward within a topic. Besides, this type of interviews allows to ask about individual opinions and feelings, validate perspectives and use observational skills for the discussion (Charmaz, 2006). These conversations happened remotely, due to the COVID-19 pandemic, and extended for 60 minutes. The interviews were recorded, with the proper permissions of the informants, to be later transcribed and analysed. The experience had a major impact on the conclusions.

5 Discover - Research

Business Automation, in general, is not an extremely studied field, mainly for its novelty. In this research more than 70 success cases across Europe were studied, with information, overall, complete, which helps to prevent observer bias and confers external validity to the paper. For effectiveness purposes, desk research was applied at this stage.

The goal was to understand opportunity areas for Business Automation in Portugal. At first, it is important to question the initial brief by challenging every part of it and evaluating fields of interest. Before diving into research, two topics were created, to limit the scope and promote better reasoning:

- 2017-2020 Devoteam's Business Automation Projects, to understand existing capabilities in the group as well as European market tendencies.
- 2021 BOLD's Client Database, to compare with the previous data and understand possible investment opportunities, by identifying Portuguese market tendencies as well.

A great deal of work has been done in homogenizing the information from both data sets. The foundation for the study included core customer information, such as: the industry where they operated; size - in number of employees; and annual turnover, for the year the project was completed - in millions of euros. This was transversal to the two topics, being most of the information pulled straight from annual reports or press releases. When this wasn't possible, the author would identify three estimations from different well-known sources, and if they were all within the same range, the value would be assumed as feasible and included in the study, otherwise, the value would be considered null, without impacting the statistics.

By streamlining the data to the same data fields (Table 6; Table 7), it was possible to create cohesive data visualization dashboards. The author considered clients with more than 1,000 employees or with more than 10 million euros of revenue as Large Enterprises, and the rest as Small and Medium Enterprises.

Table 6 - Client Size Data Fields

Client Size (Employees) - Range	***Client Size (Revenue) - Range***
1 - 200	0 - 10 M€
201 - 1,000	11 - 100 M€
1001 - 10,000	101 - 1,000 M€
10,001+	1,001 - 10,000 M€
	10,000+ M€

Table 7 - Client Industries

Client Industries	
Agriculture	Public Sector
Chemical	Retail
Finance & Insurance	Technology
Health & Pharmacy	Telecommunications
Manufacturing	Transportation
Non-Profit	Utilities
Professional Services	

Four interactive dashboards were created: two to analyse Devoteam's Business Automation Projects – one by percentage of total projects delivered and one by percentage of total deal sizes (=signings); and two to analyse BOLD's Client Database – one by percentage of total clients and one by percentage of total signings.

First, the author streamlined both datasets (see APPENDIX B: Devoteam's Business Automation Projects (2017-2020); APPENDIX C: BOLD's Client Database (2021)) into Google Sheets Data Models. These were then pulled to the Google Data Studio tool through Google Connectors, to create the Data Sources that would sustain the interactive dashboards, named Reports (Figure 3). With Google Data Studio it was possible to easily manipulate the visible information to better support the study and to perceive correlations, highlight patterns and note deviations, ending the Discover - Research phase with a huge pile of unstructured findings. A relevant aspect on this phase of the research was the author's perspective to the treatment of the data. For the creation of effective dashboards, there is a need to clearly define its purpose. The dashboards highlight valuable client information as well as its interaction, making it possible to crossover information between industries, sizes and, on the Devoteam's case, the projects details, such as value proposition and technology, for instance.

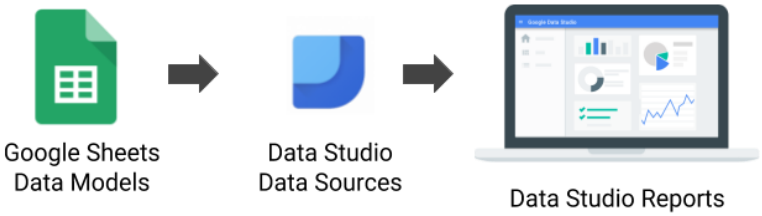

Figure 3 - Dasboards Creation Process

5.1 Devoteam's Business Automation Projects (2017-2020)

Data from Devoteam's internal sales site and Business Automation pre-sales decks was collected, and almost 100 case studies were analysed. By selecting only European robust cases, a Devoteam database was created with clean and informative data on 72 cases. The author opted to include cases only with information considered complete: with both Client and Value Proposition defined; and with at least two out of four relevant statistics - Technology Partner, Deal Size, Project Time and #FTE (number of consultants that made up the team, commonly known as Full-Time Equivalents).

The data used had the following limitations:

- 72/72 projects with client size and industry data, as well as value proposition.
- 59/72 with client revenue data.
- 49/72 with financial data, up to 32,2M€ in signings, averaging 656,4k€ per deal.
- 50/72 with consultants' team data, averaging teams with 4,9 FTE per project.
- 70/72 with time data, averaging 88,86 weeks per project, close to 1 year and 10 months.

The interactive dashboards presented in Figure 4 and Figure 5, helped to analyse all the information gathered. Following the Double Diamond methodology, the next step was to organize the huge pile of unstructured research findings into clusters, from which the author highlights the ones present in Table 8

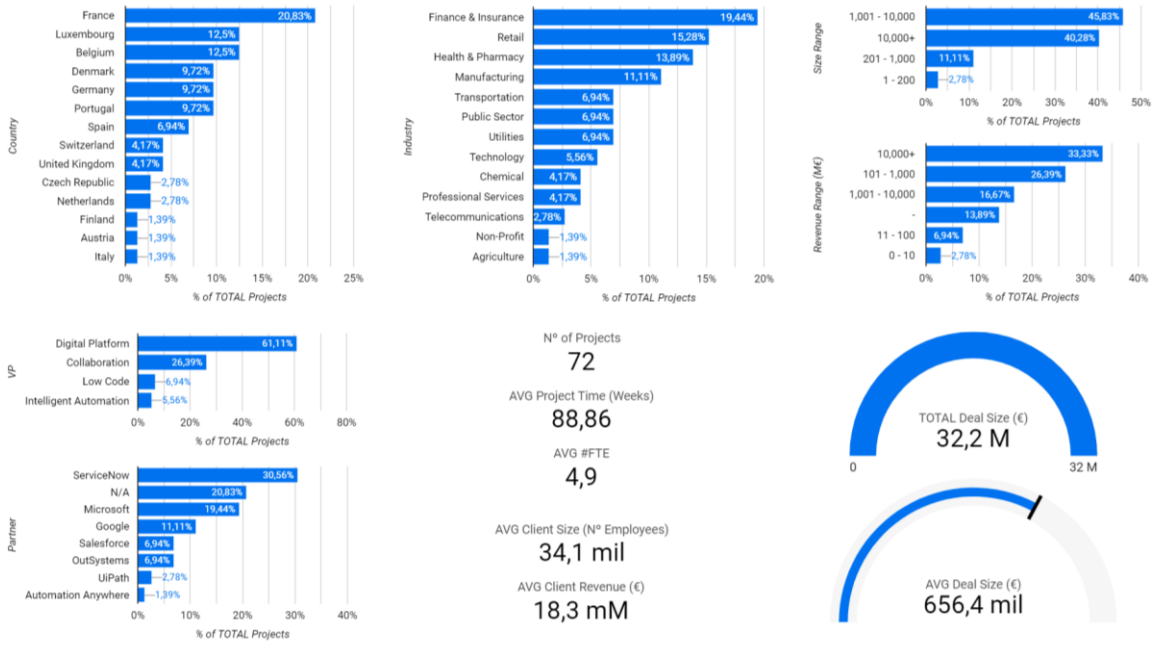

Figure 4 - Devoteam's Business Automation Projects by % of Total Projects

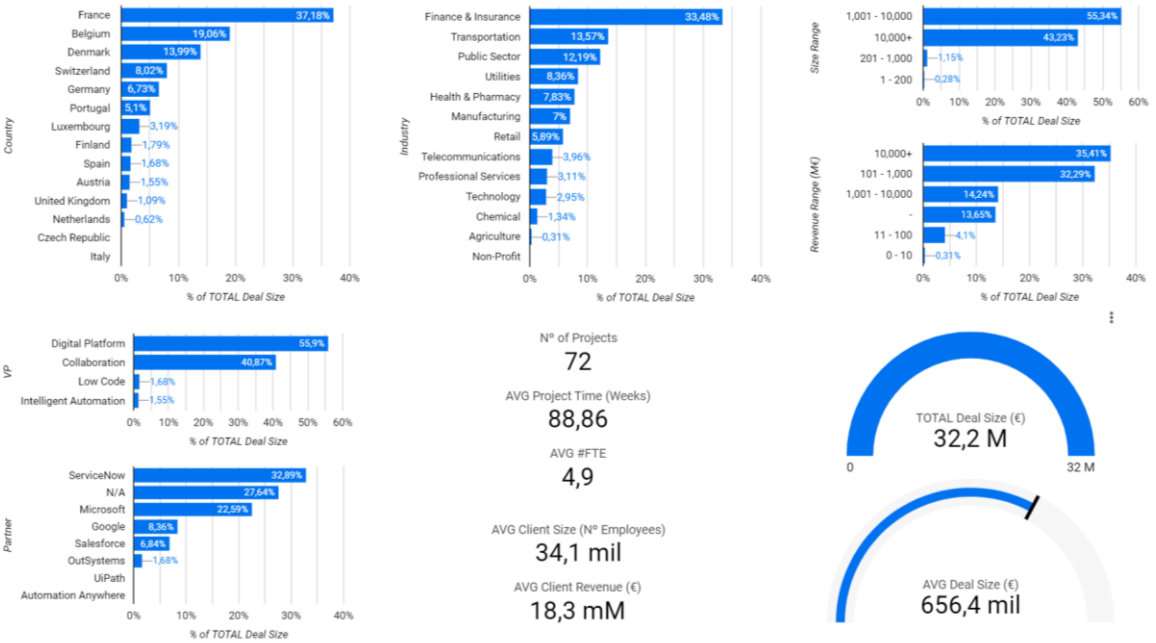

Figure 5 - Devoteam's Business Automation Projects by % of Signings

Table 8 - 2017-2020 Devoteam's Business Automation Projects Findings

Clustered Topic	***Unstructured Findings***
Client Size (Employees)	Devoteam's Business Automation average client size is 34,100 employees. (=Large Enterprises)
	Clients with more than 1,000 employees tend to be more receptive to these initiatives. Over 85% of the projects delivered were amongst this size range, being also the clients with the largest deal size average and percentage of total signings, close to 99%. (=Large Enterprises)
	Clients with more than 10,000 employees represent more than 40% of both total projects and total signings, averaging almost 1.25x better deals. (=Large Enterprises)
Client Size (Revenue)	Devoteam's Business Automation average client revenue is 18,300 million €. (=Large Enterprises)
	Clients with revenues bigger than 10,000M€ are topping the percentage of total projects and total signings, both above 30%, averaging deal sizes of over 900k€. (=Large Enterprises)
	Clients with revenues bigger than 100M€ represent more than 80% of the registered signings and 75% of the total projects delivered. (= Small and Medium Enterprises + Large Enterprises)
Client Industry	The industries with the greatest adherence to Business Automation, between 2017 and 2020, were Finance & Insurance, Retail, Health & Pharmacy and Transportation, representing nearly 60% of the total projects delivered.
	Finance & Insurance, alone, represents nearly ⅕ of the total projects delivered and more than ⅓ of the total Business Automation revenue analysed.
Devoteam's Value Proposition	Digital Platform is the most implemented Value Proposition with more than 50% on both total projects delivered and total signings, with ServiceNow as its go-to Technology partner, with ⅓ of representativeness by itself. Most of these projects were delivered in the Finance & Insurance sector. The top countries were France, Luxembourg, and Denmark.
	Collaboration is the second most implemented Value Proposition with more than ¼ of the total projects delivered, but averaging 100k€ more on deal size when compared to Digital Platform. With O365 and G-Suite respectively, Microsoft and Google had more than 70% on both indicators. Most of these projects were delivered in the Manufacturing and Retail sectors. The top countries were Belgium, Spain and France.
	100% of the Low-Code projects were delivered in Portugal, with the OutSystems technology. BOLD, the Portuguese entity for Devoteam, was the only partner of the technology until 2020, which confirms the information. The average deal size was 6x lower than the overall average, but the average project time is over 5.5x quicker than the overall average.
	Intelligent Automation is the less studied Value Proposition. The top countries were Denmark, France, and Belgium.
BOLD Outlook	Portugal's top industry was Health & Pharmacy, followed by Retail. No project was delivered within the Intelligent Automation scope.

5.2 BOLD's Client Database (2021)

As for the second cluster, raw client information was collected through BOLD's Customer Relationship Manager (CRM). Following the same guidelines as the previous section, a BOLD database was also created and explored with the following limitations:

- 118/118 active clients, with up-to-date size and industry data.
- 89/118 with client revenue data.
- 118/118 with sales data, adding up to 48,75M€ in revenue, averaging 413,1k€ in signings.

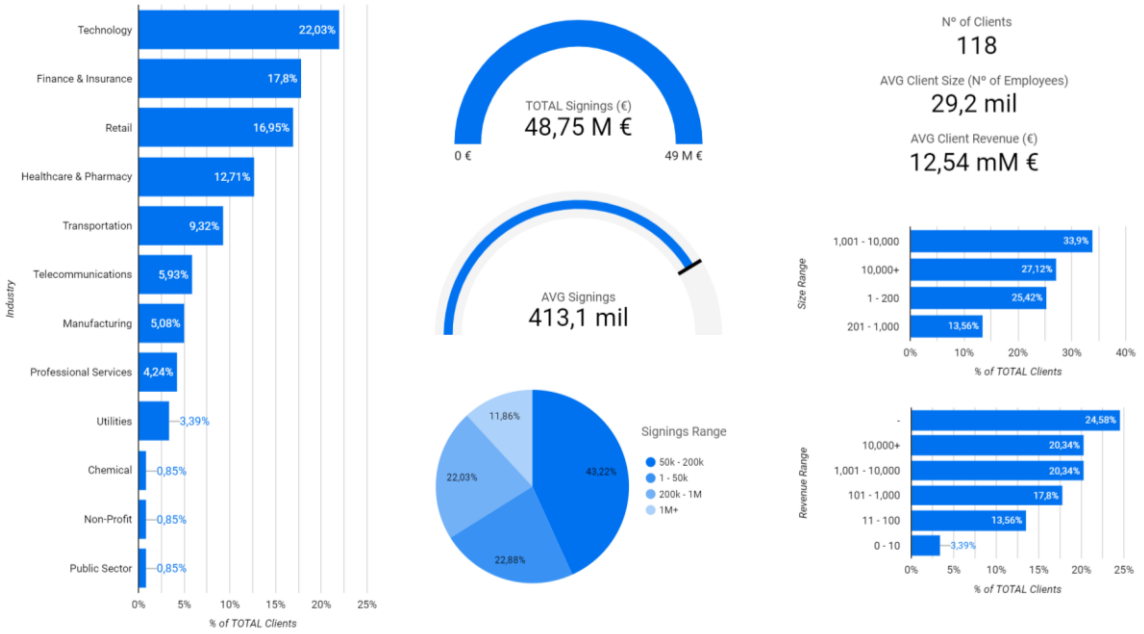

Figure 6 - BOLD's Client Database by % of Total Clients

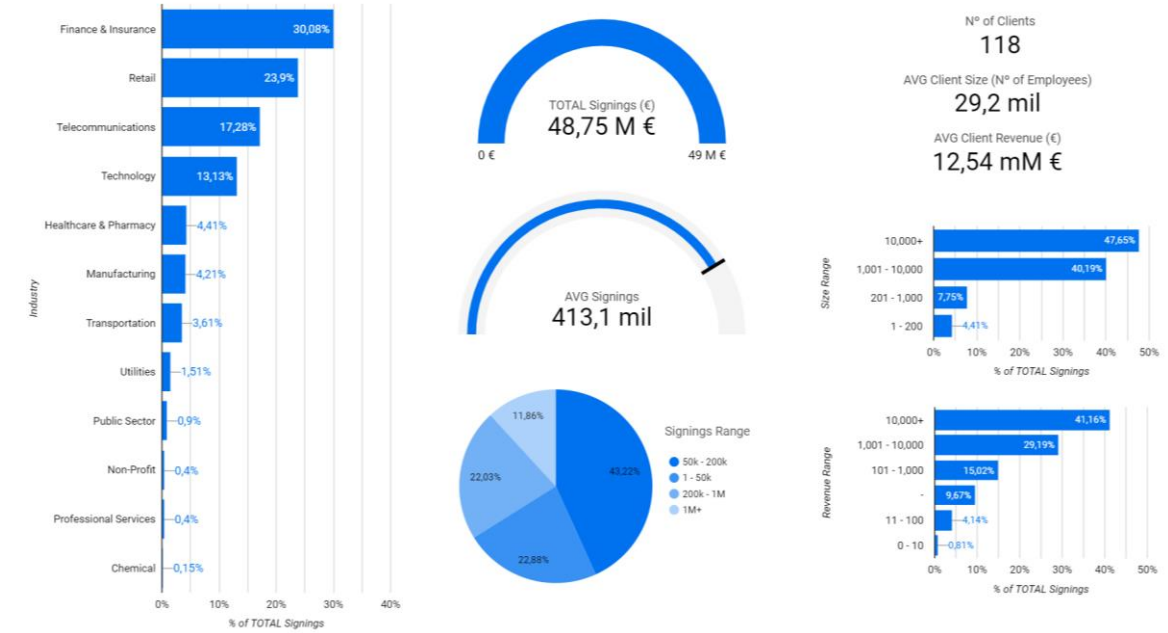

Figure 7 - BOLD's Client Database by % of Signings

As well as in the previous section, two dynamic dashboards were created (Figure 6 and Figure 7), and the findings were segmented within the same clustered topics, as seen below in Table 9, for an easier comparison and Opportunity Areas identification.

Table 9 - 2021 BOLD's Client Database Findings

Clustered Topic	***Unstructured Findings***
Client Size (Employees)	BOLD's average client size is 29,200 employees (=Large Enterprises)
	Clients with more than 1,000 employees represent more than 50% of BOLD's client base and more than 85% of the total signings. (=Large Enterprises)
	Clients with more than 10,000 employees represent more than 25% of total clients, 45% of total signings, averaging 1.75x better deals. (=Large Enterprises)
Client Size (Revenue)	BOLD's average client revenue is 12,540 million €. (=Large Enterprises)
	Clients with more than 1000M€ in revenues represent more than 40% of BOLD's client base and 70% of the total signings. (=Large Enterprise)
	Clients with more than 100M€ in revenue represent more than 55% of BOLD's client base and 85% of the total signings. (=Small and Medium Enterprises + Large Enterprises)
	Clients with more than 10,000M€ in revenues represent more than 40% of total signings, averaging 2x better yearly signings than the overall. (=Large Enterprises)
Client Industry	Finance & Insurance is the industry with the biggest percentage of total signings (~30%) and the second best in average yearly signings with almost 700k€ per client (~1.7x bigger than the overall's). It is also the industry with more clients within the 1M€+ signings range, followed by Retail and Telecommunications.
	Retail (23.9%) and Telecommunications (17.28%) complete the top 3 in percentage of total signings. The top 3 represents more than 70% of total signings. Adding up the Technology industry, the value goes up to almost 85%.
	Even though more than 20% of BOLD's clients are from the Technology industry, meaning this is the sector with the most clients, they represent less than 15% of the total signings and average less than 50% of the overall signings average.
	Telecommunications is by far the most profitable industry in terms of yearly average signings (1.2M€), by having almost 3x the overall average, almost 2x the Finance & Insurance and almost 5x the Technology ones. More than 70% of Telecom clients fit in the 1M€+ range.
BOLD Outlook	⅔ of BOLD clients buy less than 200k€ a year, representing only 12% of the total signings. ⅓ of BOLD clients buy more than 200k€ a year, representing 88% of the total signings. Clear 80/20 rule.
	Only 14 out of 118 clients (<12%) are within the range of 1M€+ in signings, representing more than 60% of the total signing and averaging yearly signings of 2.2M€ (5.5x bigger than the overall).

These findings were now ready to be synthesized and defined, in the following section.

6 Define - Synthesis

The moment of synthesis arrived. To make sense of the findings, there was the need to summarise the research, cluster learnings and similarities to themes and, above all, build opportunity areas. Despite that, it was time to start concluding on the first research question.

6.1 The Original Research Question

After carefully analysing the data, and synthesizing the research, the author believed that he was able to answer the first research question, that originated this entire project. After all, more than 70 success stories were studied with some of the biggest clients of the world. However, the flexibility of the Double Diamond methodology allowed the semi-structured interviews to take place, just before formally entering the second stage of the process (see APPENDIX A: Semi-Structured Interviews Script). Here, Mikkel Kristiansen's, Devoteam's Group Business Automation Director, and Pedro Campos', BOLD's Business Automation Director, inputs, were crucial to understand and confirm Business Automation leading position regarding Digital Transformation.

As of Mikkel's experience, companies that started to work, for instance, with technologies like RPA or Low-Code, were building new apps much faster, optimising time-consuming processes, and paying time back to the businesses. What is perceived then is that this forces the companies to reinvent their operating model and slowly drives a culture change that will lead a transformation programme. A company started to focus on delivering quicker, changing its culture, and having a process and productivity mindset instead. This new category of fast paced, easy to use technology, started to make the author believe that Business Automation could actually lead Digital Transformation.

Besides, following Pedro's perspective, the first can play a double role on the second. This means that Business Automation works as a trigger that ignites or reignites customer transformation programmes. On one hand, a role in a company that is designing its Digital Transformation journey and should definitely consider the impact of Automation in their business operations. The customer should look at all the technologies mentioned so far, like RPA, Low Code, or others, and how they can be used to facilitate this process. On the other hand, and perhaps most important, a role in a company that failed in the past. According to Deloitte (2020), 70% of transformation efforts fail. By bringing Business Automation to one specific area or department, it is easier to succeed, and when you leader does so, he or she proves the value of Business Automation to other areas and bring onboard people from other departments, building up the interest and, therefore, reigniting the Digital Transformation journey.

Combining both perspectives to the reliable cases of multiple companies already reaping the benefits of Devoteam's Business Automation offer, through the four value propositions – Digital Platforms, Intelligent Automation, Low-Code and Collaboration – the author could only assume that Business Automation can lead Digital Transformation.

6.2 Insights to Opportunity Areas

The main goal of the research was to understand if Business Automation can lead Digital Transformation and use a Double Diamond methodology to answer a more specific question which later became "How Might We improve the Business Automation offer of a technology consulting company in Portugal?". In this phase, the objective was to build on the previous work and narrow the possibilities to find opportunity areas for the improvement of the offer in Portugal.

The Business Automation practise in Portugal is quite recent. Until 2019, BOLD only had local capabilities within the Low-Code and Collaboration value propositions, and both emerged through company acquisitions: Outfit, in 2017, and Versão Integral, in 2014. Outfit team later became the Center of Excellence (CoE) for the OutSystems Low-Code technology and Versão Integral consultants helped solidify both Cloud and Collaboration competences. From the quantitative data, the author was able to validate this information, once roughly 70% of the projects delivered in Portugal were within the Low-Code value proposition – making BOLD the top performer in this area across the Devoteam group – and 60% of the Business Automation signings were due to the Collaboration domain. Taking this into consideration, BOLD is not mature in the other two dimensions: Digital Platform and Intelligent Automation. This was considered an Opportunity Area to investigate.

The most studied topic at this stage was the type of client. Portugal has the lowest gross domestic product (GDP) per capita from all Devoteam's geographies. Still BOLD reality was very similar to the overall Devoteam's Business Automation practice regarding clients' size and industries, being the top results for each category the same (Table 10).

Table 10 - BOLD and Devoteam Findings Correlation

Top Client Size (Employees) range for BOLD and Devoteam
1,001 to 10,000 employees (=Large Enterprises)
More than 10,000 employees (=Large Enterprises)
Top Client Size (Revenue) range for BOLD and Devoteam
1,001 to 10,000 M€ (=Large Enterprises)
More than 10,000 M€ (=Large Enterprises)
Top Client Industry for BOLD and Devoteam:
Finance & Insurance
Retail
Health & Pharmacy
Transportation

Even though there is a place for Business Automation in every company, regardless of their size, it was easily noticeable that bigger companies, known as Large Enterprises, were most likely to invest in Digital Transformation programmes. The association, backed by Mikkel Kristiansen, between the diffusion of Business Automation and the size of a given company can be made for a couple of factors:

1. Necessity. As the company grows in number of employees, due to higher demands, the process's complexity increases as well. The way to battle it is with fine tuning and automation. (*Employees related*)
2. Innovation. Bigger revenue means bigger investment capacity, which, in turn, means more possibilities to thrive and strive to be market leaders. Having this opportunity is something that usually drives Business Automation. (*Revenue related*)

Regarding the industries, the time that a given industry enters and really starts utilising and realizing Business Automation potential depends on the overall basic level of digitisation. As an example, the Finance & Insurance industry was clearly leading the charts both in number of projects and in amount spent per project. This is easily perceived when understanding that Finance is digital at its core: from bank accounts to transactions. Its digital maturity and allowed the industry, for instance, to be way ahead in terms of Robotic Process Automation (Madakam et al., 2019). Besides, financial institutions tend to have a great investment capacity.

It is believed that software is dominating the world, which, in essence, means that all companies, regardless of their industry, size, organisational distribution, will need to think and act like a technology company. Rephrasing it, because clients and end customer expectations are driven by a lot of technology companies, such as Apple, Amazon, Google, Facebook, Microsoft, etc, all companies will need to take control and own their digital agenda. Customers want personalized assistance, quick action and are expecting this from every company or institution that they interact with. Now that automation technologies prices are going down, multiple end customer-facing companies are investing heavily in the field. Therefore, industries like Retail, Health & Pharmacy and Transportation, which have a tremendous customer pressure to deliver, have also been pushing their digital agenda, and, consequently, the Business Automation agenda. These client findings, and industry segmentation, were considered as huge Opportunity Areas and were later explored in the Stage 2 of the Double Diamond.

By realizing the similarities between BOLD and Devoteam, it could be interesting to take a step back and work towards understanding the steps the multinational group had taken so far, to improve the Business Automation offer Europe-wide. Taking advantage of the semi-structured interviews with Business Automation Directors from the group, a retrospective overview and consequent analysis was made.

The priority at Devoteam has been to create a leadership community to develop a global and unified Business Automation offer, sustained in a Business Consulting approach, instead of the traditional technical implementation outsourcing model. Secondly, there has been an effort in trying to map the knowledge Devoteam had across each entity. The group invested heavily in promoting its Resource Management Operational Model locally in every geography. This model, represented in Figure 8, promotes a better alignment between demand and supply in terms of resources – the consultants. The model helps the projects staffing process, centring it at the Resource Management Unit, fostering the resource allocation and talent management. By mapping every consultant’s technical skill and experience, a certain entity has a clear vision of its capabilities, bringing the delivery management strategy a level higher. This model was implemented in Portugal in 2019. The third and final step was to establish strong partnerships with many leading technology vendors - mature enough to scale, and flexible enough to be customisable. This allowed to bring more value to the customer discovery than the technical implementation itself.

These were also considered massive Opportunity Areas and were further developed in the Develop – Ideation phase.

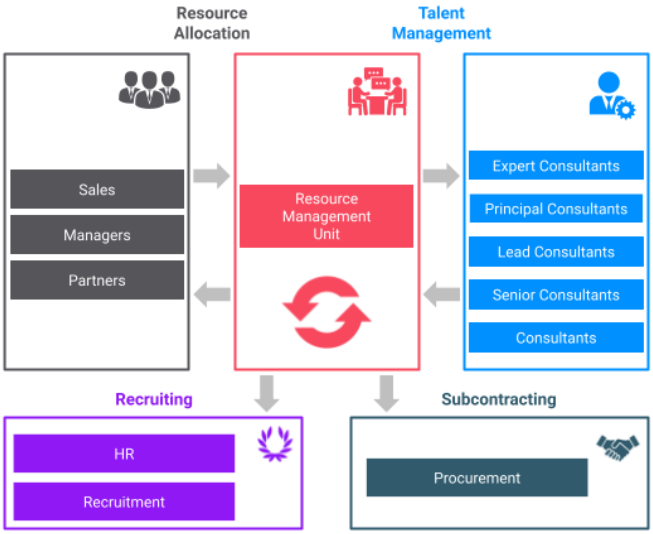

Figure 8 - Resource Management Operational Model

6.3 The 'How Might We' (HMW) Question

As a result of the first diamond, a more clarified brief came up and Opportunity Areas existed. From the client and industry segmentation to the noted similarities between BOLD and Devoteam, it was time to try and answer the second research question: "How Might We improve the Business Automation offer of a technology consulting company in Portugal?".

7 Develop - Ideation

The fundamental part of this work is to support and transform the way services are developed and delivered. After achieving an inflection point with the HMW question, it was time to start the Ideation phase, the fun part. Picking up on the Insights and Opportunity Areas from the Stage 1, the approach for the Stage 2 of the Double Diamond methodology should be made with an open mind, building upon flowing ideas. It was possible to divide two moments: the Ideation and the Evaluation, focusing on ending up with a small number of ideas to later build and test, in order to find the best solutions to the initial question or problem.

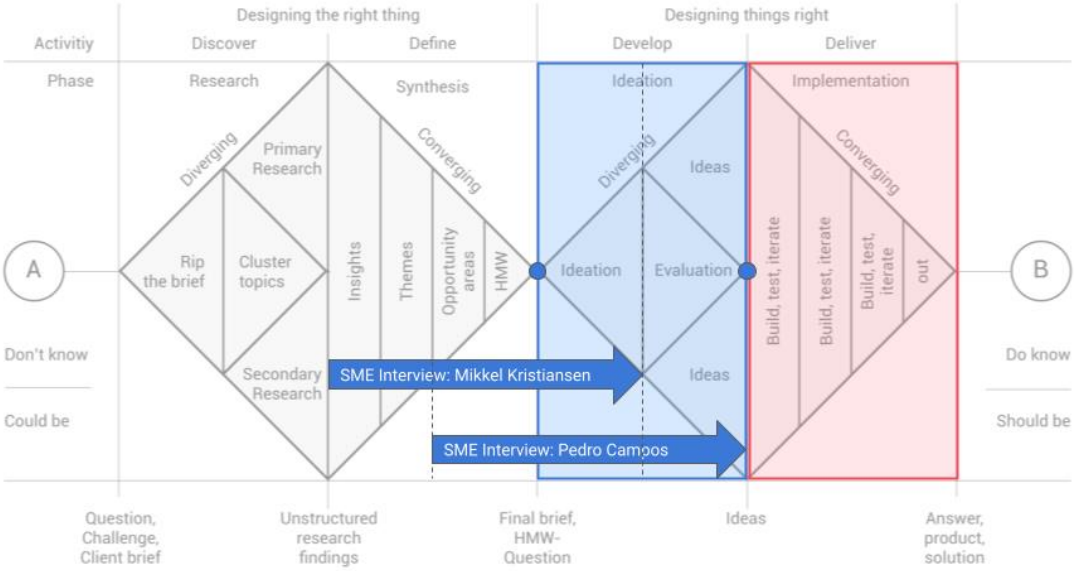

Figure 9 - Double Diamond: Stage 2

As a human-centred approach, the second diamond (Figure 9) starts with collaboration and co-creation, getting inspired by what others are doing (Design Council, 2021). The Ideation phase objective is to explore new service concepts. The service concept is the set of benefits that the service offers the customer (Edvardsson et al., 2002). After several iterations with the SMEs, it was possible to conclude three final improvements to the service concept of the Business Automation offer of BOLD by Devoteam – nurtured, empowered, and sustained by both Mikkel Kristiansen and Pedro Campos.

7.1 Apply a Business Consulting - technology agnostic approach

Devoteam's Business Automation offer helps companies become more digital in order to gain a competitive edge. When approaching a customer, the focus should be entirely in its operation's needs, regardless of the solution to be implemented. Devoteam's recent efforts to partner up with multiple leading vendors across the four value propositions – Digital Platform, Intelligent Automation, Low-Code, and Collaboration – have to do with becoming technology agnostic. This approach brings more knowledge and flexibility, meaning more possibilities to engage with customers, which ultimately translates into more won deals.

Most technology consulting companies operating in Portugal focus on the implementation of a specific solution. This approach leads companies to really push and adjust their service offer to the client's needs, forcing the implementation of a specific technology which may not be the most suitable solution, whether due to price, complexity, implementation time, scalability, or other factors. With its technology agnostic positioning, Devoteam is stressing the most important fact which is understanding the business. It is not possible to withdraw the word business from Business Automation and there is no Business Automation without diagnosis and action planning. Only after this assessment should companies investigate the technology and its implementation. So, when looking at Business Automation, the goal is to open the scope a little wider and look outside the traditional perspective. There is also a need to engage with other fields like Data, Cloud, Cybersecurity and so on and so forth, not by being components of Business Automation, but by being elements that can leverage Business Automation inside an organisation. That's why it is extremely important to look for the full ecosystem.

A clear example of a stiffer approach is BOLD's current Centre of Excellence (CoE), which is solely focused on the implementation of the OutSystems Low-Code technology. Since the CoE is not very involved in the sales process, more difficulties arise when the decision criteria are not aligned with BOLD's portfolio solution. On a perfect scenario, where the interests of the clients are perfectly in sync with the service offering, a CoE focused entirely on a specific technology solution might bring efficiency and standardization. On a less perfect scenario, BOLD would be either imposing a solution that may not be adequate or losing a deal due to lack of flexibility.

The proposed improvement for the Business Automation offer at BOLD by Devoteam is to have a differentiated mindset, starting with its sales process, and achieve a Business Consulting – technology agnostic approach. Building on Devoteam's efforts to have a diversified solution portfolio, BOLD's objective should be first to challenge, analyse and evaluate all possible alternatives, and only after, assist in the technical implementation, shifting away from the traditional model.

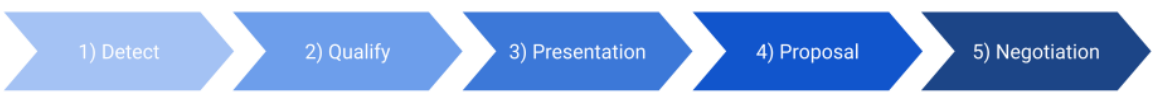

Figure 10 - BOLD Sales Process

The current internal sales process has five steps before a deal is closed, as shown in Figure 10. Usually, a lot of time is invested in the third and fourth steps – Presentation and Proposal – but distant from the customer, with few moments to assess, analyse and co-create. The third step is typically a pitch of a specific solution that solved a similar case in the past, followed by a solid proposal for the technical implementation.

Figure 11 - Consulting Process (Kubr, 2002)

The typical Consulting Process (Kubr, 2002) presented in the Figure 11, includes well-structured diagnosis and action planning stages, and strong feedback cycles to the customer, aiming at an in-depth analysis of the problem and evaluation of solution alternatives.

The author suggests investing more time understanding the business, by applying the created framework presented in Figure 12, reflecting a more agile attitude in the sales process to achieve a more integrated consulting practice.

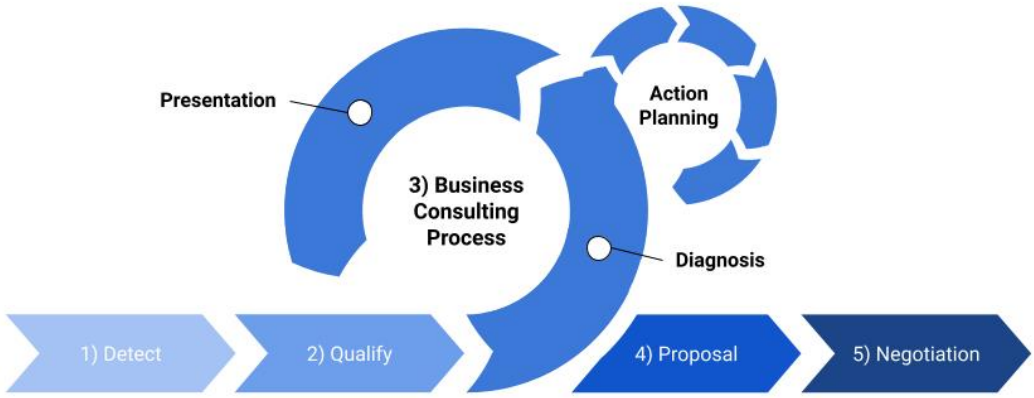

Figure 12 - Business Consulting – technology agnostic approach

With a Business Consulting – technology agnostic approach, the goal is to deeply analyse the problem, by iterating and planning close to the customer, before proposing the final solution. Instead of just selling technology, the objective is to actually solve the client's problem, regardless of the technology solution itself. It might be a little nerve wracking from a sales perspective, once it won't take weeks to close a deal, but months. However, once the company succeeds, it would be a much more strategic sale. In the end, BOLD will start working closely with the business decision makers instead of meeting the IT departments to streamline a couple of processes, which will bring much more added value for the long run.

7.2 Expand the Resource Management Operational Model Europe-wide

In terms of the international market, since Portugal still is cheaper than the large majority of the other geographies at Devoteam, there is an obvious competitive edge for both BOLD and Devoteam to work in Portugal, or better said, from Portugal. However, since the added value relies much more on Business Consulting, and less in the technical implementation, the Centre of Excellence (CoE) approach typically doesn't work in the Business Automation domain. Even though COVID-19 showed that work can actually be done from anywhere, Mikkel Kristiansen said that he is yet to see a successful business case regarding offshoring Business Automation to typical leaders in technical services like Asia or South America, because of the increased complexity in communication, the clear difference in work methodologies and time-zone barriers. BOLD, however, is part of a group that has the same guidelines across Europe, with entities in the same time zone and strong communication lines. The train of though was to build on BOLD's offshoring experience and enable the Business Automation consultants to work as an extended delivery capacity for group-wide projects, instead of working with fully dedicated CoEs – a typical case of technical implementation outsourcing.

The proposed improvement is, then, to expand the Resource Management Operational Model from a local perspective to a Europe-wide one, as shown in Figure 13. This would translate into an efficient use of resources distributed across all regions, taking full advantage of Devoteam's integration. For a given won project, it should be possible to allocate consultants from Portugal and/or from whichever country, building balanced teams, to leverage cost and pricing efficiency and delivery effectiveness. In the end, by maximising the already implemented Resource Management Operational Model, the Business Consulting - technology agnostic approach would not be disembodied, and the Business Automation offer in Portugal would still be built upon the previous mentioned proposition.

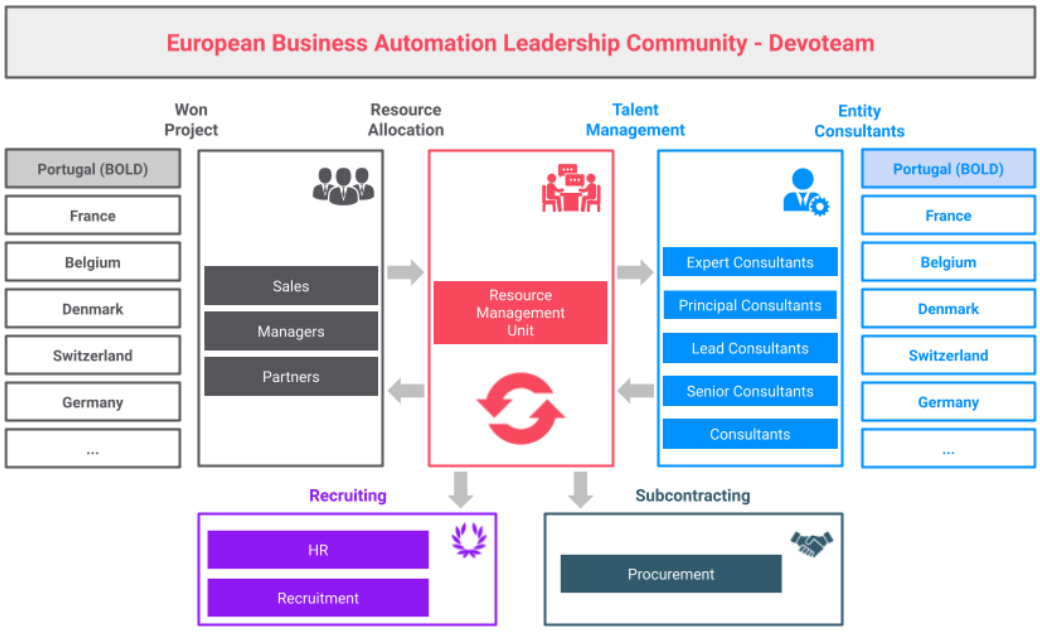

Figure 13 - Resource Management Operational Model / Europe-wide

As mentioned earlier, in the Define – Synthesis section, BOLD is still not capable to deliver end-to-end transformation projects across all Business Automation dimensions, due to lack of experience and resources. While Portugal, through BOLD, could be a major driver for the improvement of Low-Code and Collaboration dimensions across Europe, in return, it would receive strong assistance in the less developed Intelligent Automation and Digital Platform ones. A great benefit of this improvement suggestion is that BOLD could then approach its Portuguese clients with a supported background from Devoteam's experience, being able to offer the full scope of the Business Automation domain, by mixing the necessary national and international resources. This virtuous circle of continuous support from all entities within the Devoteam group will allow a sustained growing practice for Business Automation in Portugal. With this approach, BOLD would not only participate in the technical implementation phase, but it would have its consultants working in the most diverse and robust projects, bringing more in-house competences across all the four Business Automation dimensions, and ultimately growing the offer in Portugal. Furthermore, in times like these, it would allow BOLD another very important thing, which is talent retention. The Technology sector has the biggest turnover across all industries and remains one of the most persistent challenges facing organizations (Booz, 2018). The top two reasons for employees to disengage with its employer concern with job-related factors, such as job satisfaction, performance and autonomy, and perceived organizational factors, like pay, promotability and perceived job alternatives (Joseph et al., 2007). By acting as an extended delivery capacity, BOLD would benefit from a wider flexibility and could allocate its very best resources to the very best projects, nationally and internationally, creating engaging and challenging environments. This would allow to address possible lack of opportunities for career advancement and tackle turnover intention.

7.3 Follow a Strategic Prioritization Matrix across the Portuguese market landscape

The data suggests that the biggest deals in volume and the biggest number of deals at BOLD have been with the Large Enterprises. The largest companies invest more and are digitally more advanced than Small and Medium Enterprises, as seen in the second phase: Define - Synthesis. The main reason is because the bigger a company is, the more competitive is the landscape they need to work with. Large Enterprises have more complex processes and are heavily regulated, needing compliance, so there is nothing better than having automation solutions fully auditing the end-to-end organization. Still, BOLD has been working with both Large Enterprises and Small and Medium Enterprises for a reason, according to BOLD's Business Automation Director: every large company started small. And there's nothing better than doing this growth journey with a customer, says Pedro Campos. In Portugal, makes sense working with the Largest Enterprises, for the greatest deals, but also working with Small and Medium Enterprises, with high growth potential, and seek partnerships that will translate into high Return on Investment (ROI) in the long run. However, there should be a strategy to support this approach and its effort allocation.

In terms of industries, Finance & Insurance, Retail and Telecommunication, are within the top both on Business Automation general investment and on BOLD's clients ranks. This clearly means that a continuous push should be made to keep the deals cycle healthy with clients from these sectors, due to its high growth. An Opportunity Area, later confirmed by Mikkel Kristiansen and Pedro Campos, is to invest heavily in the Healthcare & Pharmacy and Transportation industries, tremendously successful across Devoteam entities in France, Denmark, Netherlands, Belgium and Luxembourg. Together, these sectors represent more

than 20% of BOLD's clients, yet only 8% of total signings with less than 4M€ in revenue for BOLD in 2021. Their average signing is around 150,000€ – almost three times less than the overall BOLD average. Besides, more than 60% of these clients have more than 1000 employees and more than 55% have more than 100M€ in revenues, statistics that have been proved to be extremely important when figuring out companies that invest in Business Automation. Even though there is not much quantitative ratios to back it up, the Energy & Utilities industry was highly recommended by both SMEs, from their recent experience, once it has been dealing with tremendous regulation pressure and risen customer experience expectations, meaning that if the study was to be made in one or two years, it would probably figure in the ranks.

After a careful analysis of BOLD's client type, and a co-creation moment with the SMEs, the last improvement suggestion for the Business Automation offer in Portugal is to follow a Strategic Prioritization Matrix (Figure 14) across the Portuguese market landscape, based on return and growth factors. The goal is to quickly determine the amount of effort to be putted in each customer, either a new or an existing one. The Finance & Insurance, Retail, Telecommunication, Health & Pharmacy, Transportation and Energy & Utilities industries were considered the Top Industries, with high growth potential. Other industries were considered with low growth potential. There was also a division between Large Enterprises and Small and Medium Enterprises on its predicted ROI, being the first classified as high and the latter as low.

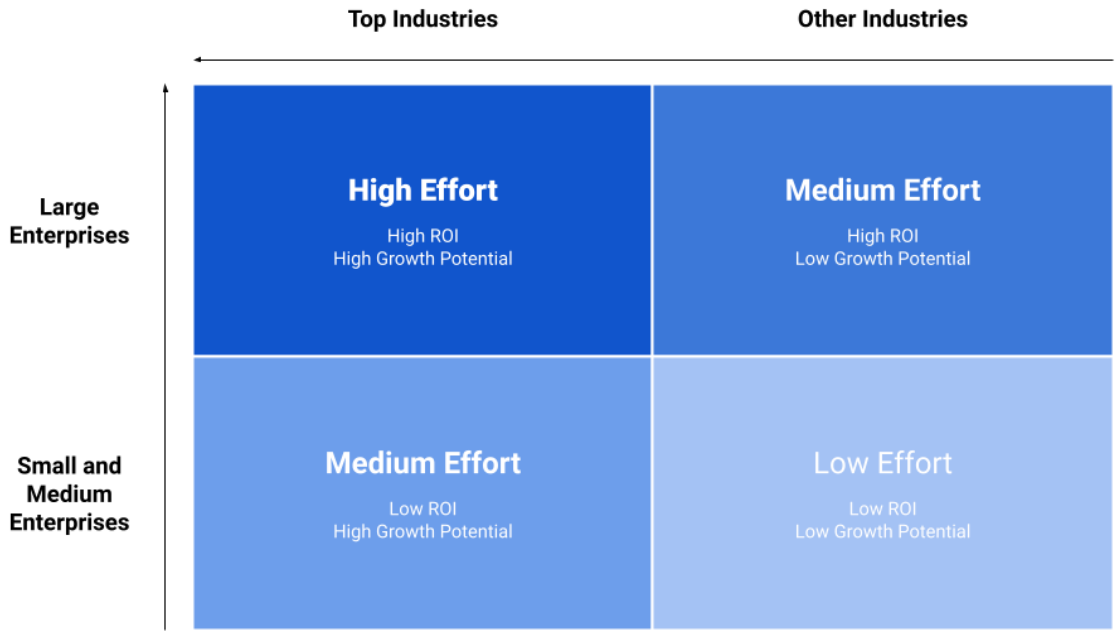

Figure 14 - Strategic Prioritization Matrix

Wrapping it up, BOLD has the capability to attract large and small and medium customers, from several different industries, with distinct understanding of Business Automation potential. In fact, nowadays, BOLD has been receiving much more inbound leads, than outbound ones, for the first phase of the sales process. As such, the improvement recommendation is to shift BOLD's focus into strategic clients, that are either large or with a tremendous growth potential, to drive a continuous investment cycle in Business Automation. It is expected that this matrix brings greater clarity in decision making.

8 Conclusion

The main goal of this study was to develop improvements to the service concept of the Business Automation offer of BOLD by Devoteam, a technology consulting company. To address this challenge, a Double Diamond methodology was used, and two research questions were defined. A thorough study both on quantitative and qualitative data was carried out in order to understand if Business Automation can lead Digital Transformation and to achieve three co-created strategies to improve BOLD's Business Automation practice in Portugal.

The first of the two conclusions, answers the question "Can Business Automation lead Digital Transformation?". The author concluded that yes, Business Automation can lead Digital Transformation. Why? Because it is a disruptive business and technology approach, that provokes and pushes a lot of stable structures, which forces companies to rethink and redefine existing paradigms such as organization-wide processes, Data, Cloud, Cybersecurity, and so on. Business Automation means looking at everything that the business needs to perform and to execute, to fulfil its mission, its vision, or its strategic goals, and in the end, improve their use of technology on that. To support these statements, there were truthful, recent sources of how more than 70 companies from a variety of industries and multiple sizes were backing up their Digital Transformation journeys with Business Automation initiatives. Besides, two semi-structured interviews with Digital Leaders were conducted, making it possible to perceive that Business Automation is a natural pillar of any digitisation journey and that the technology is now mature enough to scale. Companies are, now, ready to reap the benefits from Business Automation initiatives around Digital Platforms, Intelligent Automation, Low-Code and Collaboration.

The second and last conclusion answers the question "How Might We improve the Business Automation offer in Portugal?" by suggesting three co-created strategies aiming for a short-term impact in BOLD' performance. These were supported by the analysis of BOLD's client database and Devoteam's Business Automation success cases.

1. Apply a Business Consulting - technology agnostic approach.

   This improvement suggests starting to better understand clients pain points with a more agile attitude in the sales process, without restraining possible solutions to a specific technology vendor. Here, a space for a more in-depth problem analysis and alternative evaluation is promoted which stimulates a profound relationship with the client, as the solution is co-created instead of pitched. With the action planning iteration being done closely with the customers, the goal is to solve their problems, and support them in their transformation journey, rather than just selling a technical solution.

2. Expand the Resource Management Operational Model Europe-wide.

   The second suggestion is expected to improve not only the offer in Portugal, but across all entities of the Devoteam group, by maximising a previous effort on mapping local consultants' capabilities. This proposal implies an expansion of the Resource Management Operational Model for a Europe-wide integration, to achieve a more efficient and effective delivery across every project, regardless of the country where it was won.

In BOLD's specific case, the main benefits would be an organic knowledge increase, greater alignment with the group's practice and the possibility of offering the full scope of the Business Automation domain to its national clients.

3. Follow a Strategic Prioritization Matrix across the Portuguese market landscape.

   The third suggestion tackles one of BOLD's underlooked problems. With a rather simplistic matrix, the author believes that it can potentially improve customer segmentation and its effort allocation, by bringing focus to clients with the greatest investment potential. With an extensive analysis of the existent data, both from Devoteam's success cases and BOLD's client's database, the author realized that certain industries are most likely to push their digital agenda, and consequently back Business Automation initiatives. In addition, the size of a company is also perceived as an important decision factor, as Large Enterprises face more regulations, more complex processes, and higher costumer expectations, making them natural investors in the Business Automation domain.

The results obtained enable BOLD by Devoteam to explore a more integrated practice, within different moments of a Digital Transformation project. The conclusions offer a basis to work on a better Business Automation service to strategic targeted customers, both from a sales and an implementation perspective.

In conclusion, this study highlighted and sustained the importance of Business Automation and contributed by presenting the three aforementioned strategies which aim to improve the Business Automation offer of a technology consultancy company in Portugal.

Meanwhile, some limitations were found during the project development. Being a project developed internally, with a non-direct relation with clients and partners, it did not allow to explore relevant external considerations. Although BOLD and Devoteam are leaders and fast-growing technology companies, it would be interesting if the information could be compared with other different practical examples.

Furthermore, the time frame of this research was not enough to develop and measure the improvements suggested during the project development. For future work that can still be developed, a proposal that could be gradually addressed is the implementation of one, two, or all three strategies to obtain concrete metrics for an insightful analysis of its service concept success.

Given the Technology sector's nature, considered as ever changing, it may also be relevant to engage in a more in-depth study regarding the solutions across the different Business Automation dimensions. Every valid assumption made by the author, the Subject Matter Experts, or the literature today, might not be pertinent in a short period of time. As such, a fundamental theme that should be considered as future work is the strategic selection of partners taking into account the constant evolution of the field.

Finally, the author believes that this study can potentially motivate others to develop future work within the Digital Transformation area in Portugal.

References

Bellman, M., & Göransson, G. (2019). Intelligent Process Automation : Building the bridge between Robotic Process Automation and Artificial Intelligence. In *undefined*. KTH Royal Institute of Technology.

Bider, I., & Jalali, A. (2016). Agile business process development: why, how and when—applying Nonaka's theory of knowledge transformation to business process development. *Information Systems and E-Business Management*, *14*(4), 693–731. https://doi.org/10.1007/s10257-014-0256-1

BOLD by Devoteam. (2021). *Boldint.com*. https://www.boldint.com

Booz, M. (2018). *These 3 Industries Have the Highest Talent Turnover Rates*. LinkedIn Talent Solutions

British Design Council. (2021). *DesignCouncil.org.uk*. https://www.designcouncil.org.uk/

Brynjolfsson, E., Mitchell, T., & Rock, D. (2018). What Can Machines Learn, and What Does It Mean for Occupations and the Economy? *AEA Papers and Proceedings*, *108*, 43–47. https://doi.org/10.1257/pandp.20181019

Brynjolfsson, E., Rock, D., & Syverson, C. (2017). *Artificial Intelligence and the Modern Productivity Paradox: A Clash of Expectations and Statistics*. https://doi.org/10.3386/w24001

Carr, L. T. (1994). The strengths and weaknesses of quantitative and qualitative research: what method for nursing? *Journal of Advanced Nursing*, *20*(4), 716–721. https://doi.org/10.1046/J.1365-2648.1994.20040716.X

Chakraborti, T., Isahagian, V., Khalaf, R., Khazaeni, Y., Muthusamy, V., Rizk, Y., & Unuvar, M. (2020). From Robotic Process Automation to Intelligent Process Automation: – Emerging Trends –. *Lecture Notes in Business Information Processing*, *393 LNBIP*, 215–228. https://doi.org/10.1007/978-3-030-58779-6_15

Denscombe, M. (2010). *The Good Research Guide For small-scale social research projects* (4th ed.). Open University Press.

Devoteam. (2021). *Devoteam.com*. https://www.devoteam.com

Edvardsson, B., Gustafsson, A., Johnson, M. D., & Sandén, B. (2002). *New service development and innovation in the New Economy*. Studentlitteratur.

Eisner, M. (2020, August). *What Is Hyper-Automation?* Process Maker.

Forrester. (2020). *Forrester Predictions 2021*. Forrester

Gartner. (2019). *Top 10 Strategic Technology Trends For 2020*. Gartner.

Geyer-Klingeberg, J., Nakladal, J., Baldauf, F., & Veit, F. (2018). *Process Mining and Robotic Process Automation: A Perfect Match* (J. Geyer-Klingeberg, J. Nakladal, F. Baldauf, & F. Veit (eds.)). International Conference on Business Process Management, Industry Track Session. https://www.researchgate.net/publication/326466901

Gilbert, N. (2008). Getting away from numbers: Using qualitative observation for agent-based modeling. *Advances in Complex Systems*, *11*(2), 175–185. https://doi.org/10.1142/S0219525908001556

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking Qualitative Rigor in Inductive Research. *Organizational Research Methods*, *16*(1), 15–31. https://doi.org/10.1177/1094428112452151

Haefner, N., Wincent, J., Parida, V., & Gassmann, O. (2021). Artificial intelligence and innovation management: A review, framework, and research agenda. *Technological Forecasting and Social Change*, *162*, 120392. https://doi.org/10.1016/j.techfore.2020.120392

Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for Formulating a Digital Transformation Strategy. *MIS Quarterly Executive*, *15*, 123–139.

IDEO. (2021). *IDEO.com*. https://www.ideo.com/

Janes, A., Maggi, F. M., Marrella, A., & Montali, M. (2017). From zero to hero: A process mining tutorial. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, *10611 LNCS*, 625–629. https://doi.org/10.1007/978-3-319-69926-4_55

Joseph, D., Ng, K. Y., Koh, C., & Ang, S. (2007). Turnover of information technology professionals: A narrative review, meta-analytic structural equation modeling, and model development. *MIS Quarterly: Management Information Systems*, *31*(3), 547–577. https://doi.org/10.2307/25148807

Levy, F. (2018). Computers and Populism: Artificial Intelligence, Jobs, and Politics in the Near Term. *Oxford Review of Economic Policy*, *34*(3), 393–417. https://doi.org/10.1093/oxrep/gry004

Madakam, S., Holmukhe, R. M., & Kumar Jaiswal, D. (2019). The Future Digital Work Force: Robotic Process Automation (RPA). *Journal of Information Systems and Technology Management*, *16*, 1–17. https://doi.org/10.4301/S1807-1775201916001

Marrella, A. (2018). What automated planning can do for business process management. *Lecture Notes in Business Information Processing*, *308*, 7–19. https://doi.org/10.1007/978-3-319-74030-0_1

Marshall, M. N. (1996). Sampling for qualitative research. *Family Practice*, *13*(6), 522–526. https://doi.org/10.1093/FAMPRA/13.6.522

Mohanty, S., & Vyas, S. (2018). How to compete in the age of artificial intelligence: Implementing a collaborative human-machine strategy for your business. *How to Compete in the Age of Artificial Intelligence: Implementing a Collaborative Human-Machine Strategy for Your Business*, 1–229. https://doi.org/10.1007/978-1-4842-3808-0

Nessler, D. (2016, May). *How to apply a design thinking, HCD, UX or any creative process from scratch*. Digital Experience Design.

Park, S., & Kang, Y. S. (2016). A Study of Process Mining-based Business Process Innovation. *Procedia Computer Science*, *91*(Itqm), 734–743. https://doi.org/10.1016/j.procs.2016.07.066

Phalake, V. S., & Joshi, S. D. (2021). Low Code Development Platform for Digital Transformation. *Lecture Notes in Networks and Systems*, *190*, 689–697. https://doi.org/10.1007/978-981-16-0882-7_61

Rizk, Y., Isahagian, V., Boag, S., Khazaeni, Y., Unuvar, M., Muthusamy, V., & Khalaf, R. (2020). A Conversational Digital Assistant for Intelligent Process Automation. *Lecture Notes in Business Information Processing*, *393 LNBIP*, 85–100. https://doi.org/10.1007/978-3-030-58779-6_6

Russell, S., & Norvig, P. (2009). *Artificial Intelligence: A Modern Approach* (3rd ed.). Prentice Hall Press.

Sinek, S. (2020). *The Infinite Game*. Portfolio Penguin.

Ter Hofstede, A. H. M., Van Der Aalst, W. M. P., Adams, M., & Russell, N. (2010). Modern business process automation: YAWL and its support environment. In *Modern Business Process Automation: YAWL and its Support Environment*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-03121-2

van der Aalst, W. M. P. (2013). Business Process Management: A Comprehensive Survey. *ISRN Software Engineering*, *2013*, 1–37. https://doi.org/10.1155/2013/507984

van der Aalst, W. M. P., Adriansyah, A., De Medeiros, A. K. A., Arcieri, F., Baier, T., Blickle, T., Bose, J. C., Van Den Brand, P., Brandtjen, R., Buijs, J., Burattin, A., Carmona, J., Castellanos, M., Claes, J., Cook, J., Costantini, N., Curbera, F., Damiani, E., De Leoni, M., … Wynn, M. (2012). Process mining manifesto. *Lecture Notes in Business Information Processing*, *99 LNBIP*(PART 1), 169–194.

https://doi.org/10.1007/978-3-642-28108-2_19

Van Maanen, J. (1998). Qualitative Studies of Organizations - John Van Maanen - Google Livros. In *The Administrative Science Quarterly*. SAGE Publications.

Vincent, P., Iijima, K., Driver, M., Wong, J., & Natis, Y. (2019). *Magic Quadrant for Enterprise Low-Code Application Platforms*. Gartner

Voss, C., Tsikriktsis, N., & Frohlich, M. (2002). Case research in operations management. *International Journal of Operations and Production Management*, *22*(2), 195–219. https://doi.org/10.1108/01443570210414329

Waszkowski, R. (2019). Low-code platform for automating business processes in manufacturing. *IFAC-PapersOnLine*, *52*(10), 376–381. https://doi.org/10.1016/J.IFACOL.2019.10.060

Weber, M. (1978). Economy and Society: An Outline of Interpretive Sociology. In *University of California Press*. University of California Press.

APPENDIX A: Semi-Structured Interviews Script

Name: _____

Function: _____

Brief presentation of the study goals and methodology used.

1. You've been in the Technology industry for more than __ years. Can you briefly describe your career and what drew you to Business Automation?

_____

_____

2. Why did you accept the position at _____ (BOLD/Devoteam)?

_____

_____

3. Your mission was to build the practice of Business Automation. What was Business Automation's state at _____ (BOLD/Devoteam) back then?

_____

_____

4. What were the main priorities in building the offer?

_____

_____

5. What have been the main challenges?

_____

_____

6. What's _____ (BOLD/Devoteam) Business Automation perspective for the future?

_____

_____

Presentation of Devoteam's Business Automation projects dashboard and selected insights.

7. What's your opinion on these insights? Is there anything particularly relevant?

_____

_____

Presentation of BOLD's Client Database dashboard and selected insights.

8. What's your opinion on these insights? Is there anything particularly relevant?

_____

_____

9. What are the main differences between Portugal and other European markets?

_____

_____

10. Picking up on your experience, How Might We improve the Business Automation offer of BOLD by Devoteam in Portugal?

_____

_____

11. Can Business Automation lead Digital Transformation? Why? How?

_____

_____

APPENDIX B: Devoteam's Business Automation Projects (2017-2020)

Project	Size Range	Revenue Range (M€)	Industry	Country	Year	Project Duration	Value Proposition	Partner	#FTE	Deal Size
1	201 - 1,000	-	Utilities	Portugal	2018	10	Low Code	OutSystems	4	50 000,00 €
2	1 - 200	-	Health & Pharmacy	Portugal	2018	24	Low Code	OutSystems	7	90 000,00 €
3	1,001 - 10,000	1,001 - 10,000	Transportation	Luxembourg	2019	52	Digital Platform	ServiceNow	3	115 000,00 €
4	1,001 - 10,000	101 - 1,000	Technology	Denmark	2019	72	Digital Platform	ServiceNow		400 000,00 €
5	1,001 - 10,000	101 - 1,000	Transportation	Denmark	2020	156	Digital Platform	ServiceNow		4 000 000,00 €
6	1,001 - 10,000	11 - 100	Manufacturing	Belgium	2019	156	Collaboration	Microsoft	3	600 000,00 €
7	1,001 - 10,000	101 - 1,000	Retail	United Kingdom	2019	20	Digital Platform	ServiceNow		150 000,00 €
8	201 - 1,000	101 - 1,000	Finance & Insurance	Spain	2018	156	Digital Platform	ServiceNow		
9	201 - 1,000	101 - 1,000	Finance & Insurance	Denmark	2020	104	Digital Platform	N/A		
10	1 - 200	0 - 10	Technology	Luxembourg	2020	156	Digital Platform	Microsoft	3	
11	1,001 - 10,000	10,000+	Retail	Portugal	2018	52	Digital Platform	ServiceNow	6	100 000,00 €
12	1,001 - 10,000	101 - 1,000	Health & Pharmacy	Portugal	2018	12	Low Code	OutSystems	4	150 000,00 €
13	1,001 - 10,000	101 - 1,000	Health & Pharmacy	Portugal	2018	16	Low Code	OutSystems	4	150 000,00 €
14	201 - 1,000	0 - 10	Agriculture	Portugal	2018	16	Low Code	OutSystems	6	100 000,00 €
15	1,001 - 10,000	1,001 - 10,000	Manufacturing	Germany	2020	32	Collaboration	Google	2	500 000,00 €
16	1,001 - 10,000	101 - 1,000	Retail	Germany	2018	24	Collaboration	Microsoft		175 000,00 €
17	10,000+	10,000+	Professional Services	Switzerland	2020	20	Digital Platform	ServiceNow	1,5	
18	1,001 - 10,000	1,001 - 10,000	Finance & Insurance	Spain	2019	52	Collaboration	Google	2	250 000,00 €
19	1,001 - 10,000	10,000+	Manufacturing	Luxembourg	2019	260	Collaboration	Microsoft	2	
20	10,000+	10,000+	Retail	Denmark	2020	416	Digital Platform	ServiceNow		
21	1,001 - 10,000	101 - 1,000	Transportation	Belgium	2018	52	Digital Platform	Microsoft	2	
22	1,001 - 10,000	101 - 1,000	Health & Pharmacy	Germany	2020	52	Digital Platform	ServiceNow	6	600 000,00 €
23	10,000+	10,000+	Finance & Insurance	France	2020	144	Digital Platform	N/A	2	
24	10,000+	10,000+	Finance & Insurance	France	2020	156	Collaboration	Microsoft		4 000 000,00 €
25	10,000+	10,000+	Retail	Belgium	2020	104	Digital Platform	N/A	4	900 000,00 €
26	10,000+	10,000+	Retail	Spain	2018	52	Collaboration	Google	5	160 000,00 €
27	10,000+	10,000+	Retail	Spain	2018	4	Collaboration	Google	1	10 000,00 €
28	1,001 - 10,000	-	Health & Pharmacy	Luxembourg	2017	28	Digital Platform	ServiceNow	3	150 000,00 €
29	10,000+	10,000+	Finance & Insurance	France	2019	64	Digital Platform	ServiceNow		2 700 000,00 €
30	1,001 - 10,000	101 - 1,000	Finance & Insurance	Luxembourg	2017	52	Digital Platform	N/A		500 000,00 €
31	1,001 - 10,000	101 - 1,000	Finance & Insurance	Luxembourg	2018	32	Digital Platform	Microsoft	4	200 000,00 €
32	1,001 - 10,000	101 - 1,000	Chemical	Belgium	2020	52	Digital Platform	N/A	12,5	
33	10,000+	10,000+	Utilities	France	2020	104	Digital Platform	ServiceNow	5	
34	201 - 1,000	11 - 100	Finance & Insurance	Luxembourg	2019	56	Digital Platform	ServiceNow	1	60 000,00 €
35	1,001 - 10,000	10,000+	Finance & Insurance	Luxembourg	2019	52	Digital Platform	N/A		
36	1,001 - 10,000	-	Health & Pharmacy	Switzerland	2019	28	Digital Platform	ServiceNow	7	180 000,00 €

Project	Size Range	Revenue Range (M€)	Industry	Country	Year	Project Duration	Value Proposition	Partner	#FTE	Deal Size
37	10,000+	1,001 - 10,000	Manufacturing	Germany	2017	24	Digital Platform	Salesforce	2	
38	10,000+	10,000+	Finance & Insurance	Italy	2021	156	Digital Platform	ServiceNow	6,5	
39	1,001 - 10,000	-	Public Sector	Belgium	2020	30	Collaboration	Microsoft	4	120 000,00 €
40	1,001 - 10,000	1,001 - 10,000	Health & Pharmacy	Portugal	2017	20	Collaboration	Google		1 000 000,00 €
41	10,000+	10,000+	Retail	France	2020	156	Digital Platform	Salesforce	3	
42	10,000+	10,000+	Retail	France	2020	156	Digital Platform	Salesforce	1	
43	10,000+	1,001 - 10,000	Technology	Germany	2019	72	Digital Platform	ServiceNow	5	550 000,00 €
44	1,001 - 10,000	-	Non-Profit	Luxembourg	2019	156	Collaboration	Microsoft	2	
45	1,001 - 10,000	1,001 - 10,000	Health & Pharmacy	Denmark	2020	52	Intelligent Automation	Automation Anywhere		
46	1,001 - 10,000	11 - 100	Manufacturing	Belgium	2020	24	Intelligent Automation	N/A		500 000,00 €
47	10,000+	10,000+	Telecommunications	France	2021	780	Digital Platform	N/A		700 000,00 €
48	10,000+	10,000+	Transportation	France	2019	20	Digital Platform	Microsoft		200 000,00 €
49	10,000+	10,000+	Health & Pharmacy	Netherlands	2018	16	Digital Platform	ServiceNow	6	200 000,00 €
50	201 - 1,000	11 - 100	Health & Pharmacy	Netherlands	2020	104	Digital Platform	Google	14	
51	1,001 - 10,000	-	Public Sector	Belgium	2020	260	Collaboration	N/A	24	2 500 000,00 €
52	1,001 - 10,000	-	Public Sector	Belgium	2020	260	Collaboration	N/A	7	1 200 000,00 €
53	1,001 - 10,000	101 - 1,000	Finance & Insurance	Austria	2019	104	Digital Platform	ServiceNow	5	500 000,00 €
54	10,000+	10,000+	Manufacturing	Czech Republic	2020	104	Digital Platform	N/A	2	
55	201 - 1,000	11 - 100	Finance & Insurance	France	2020	24	Digital Platform	Microsoft	3	160 000,00 €
56	10,000+	10,000+	Chemical	Spain	2019	104	Collaboration	Google	1	120 000,00 €
57	1,001 - 10,000	1,001 - 10,000	Retail	United Kingdom	2017	24	Digital Platform	ServiceNow		200 000,00 €
58	10,000+	1,001 - 10,000	Telecommunications	Finland	2017	104	Digital Platform	ServiceNow	6	575 000,00 €
59	10,000+	10,000+	Utilities	France	2019	52	Collaboration	Microsoft	7,5	1 300 000,00 €
60	10,000+	1,001 - 10,000	Transportation	France	2019	16	Collaboration	N/A	1	50 000,00 €
61	1,001 - 10,000	101 - 1,000	Finance & Insurance	Switzerland	2020	156	Digital Platform	N/A	14	2 400 000,00 €
62	10,000+	1,001 - 10,000	Utilities	Germany	2020	52	Digital Platform	N/A	2	140 000,00 €
63	1,001 - 10,000	101 - 1,000	Manufacturing	France	2019	20	Collaboration	Google		650 000,00 €
64	10,000+	-	Public Sector	Denmark	2019	10	Digital Platform	ServiceNow	10	100 000,00 €
65	10,000+	-	Public Sector	Denmark	2020	-	Intelligent Automation	UiPath		
66	10,000+	10,000+	Manufacturing	Czech Republic	2019	104	Digital Platform	N/A	3,5	
67	10,000+	10,000+	Professional Services	France	2020	36	Digital Platform	Salesforce	8	1 000 000,00 €
68	1,001 - 10,000	101 - 1,000	Retail	Germany	2018	24	Collaboration	Microsoft		200 000,00 €
69	201 - 1,000	101 - 1,000	Technology	United Kingdom	2019	6	Digital Platform	ServiceNow		
70	1,001 - 10,000	101 - 1,000	Chemical	Belgium	2019	104	Collaboration	Microsoft	3,5	310 000,00 €
71	10,000+	1,001 - 10,000	Utilities	France	2020	52	Digital Platform	Salesforce	4	1 200 000,00 €

Project	Size Range	Revenue Range (M€)	Industry	Country	Year	Project Duration	Value Proposition	Partner	#FTE	Deal Size
72	10,000+	10,000+	Professional Services	France	2019	-	Intelligent Automation	UiPath		

APPENDIX C: BOLD's Client Database (2021)

Client	Industry	2021 BOLD Signing (ACV)	Signing Range	Size Range	Revenue Range (M€)
1	Finance & Insurance	5 823 301 €	1M+	10,000+	10,000+
2	Retail	4 763 217 €	1M+	10,000+	10,000+
3	Finance & Insurance	3 463 185 €	1M+	10,000+	10,000+
4	Telecommunications	2 405 357 €	1M+	1,001 - 10,000	1,001 - 10,000
5	Retail	2 009 682 €	1M+	1,001 - 10,000	1,001 - 10,000
6	Telecommunications	1 930 949 €	1M+	10,000+	10,000+
7	Technology	1 918 811 €	1M+	201 - 1,000	-
8	Telecommunications	1 527 905 €	1M+	1,001 - 10,000	1,001 - 10,000
9	Manufacturing	1 395 936 €	1M+	10,000+	10,000+
10	Finance & Insurance	1 376 128 €	1M+	1,001 - 10,000	101 - 1,000
11	Retail	1 222 367 €	1M+	10,000+	1,001 - 10,000
12	Telecommunications	1 199 539 €	1M+	1,001 - 10,000	101 - 1,000
13	Telecommunications	1 026 501 €	1M+	1,001 - 10,000	1,001 - 10,000
14	Retail	1 022 607 €	1M+	1,001 - 10,000	1,001 - 10,000
15	Technology	959 105 €	200k - 1M	1,001 - 10,000	101 - 1,000
16	Technology	805 552 €	200k - 1M	1,001 - 10,000	11 - 100
17	Retail	724 600 €	200k - 1M	10,000+	1,001 - 10,000
18	Finance & Insurance	657 906 €	200k - 1M	1,001 - 10,000	101 - 1,000
19	Technology	576 113 €	200k - 1M	201 - 1,000	-
20	Healthcare & Pharmacy	555 162 €	200k - 1M	1,001 - 10,000	1,001 - 10,000
21	Finance & Insurance	518 908 €	200k - 1M	1,001 - 10,000	1,001 - 10,000
22	Finance & Insurance	514 004 €	200k - 1M	1,001 - 10,000	1,001 - 10,000
23	Transportation	500 710 €	200k - 1M	1,001 - 10,000	1,001 - 10,000
24	Retail	497 286 €	200k - 1M	1,001 - 10,000	101 - 1,000
25	Utilities	479 484 €	200k - 1M	10,000+	10,000+
26	Retail	466 860 €	200k - 1M	10,000+	1,001 - 10,000
27	Healthcare & Pharmacy	457 185 €	200k - 1M	1,001 - 10,000	101 - 1,000
28	Public Sector	440 094 €	200k - 1M	1,001 - 10,000	101 - 1,000
29	Technology	424 858 €	200k - 1M	10,000+	10,000+
30	Finance & Insurance	419 976 €	200k - 1M	10,000+	1,001 - 10,000
31	Finance & Insurance	375 624 €	200k - 1M	1,001 - 10,000	101 - 1,000
32	Retail	304 810 €	200k - 1M	10,000+	10,000+
33	Healthcare & Pharmacy	300 000 €	200k - 1M	1,001 - 10,000	1,001 - 10,000
34	Manufacturing	277 144 €	200k - 1M	1,001 - 10,000	101 - 1,000
35	Transportation	276 220 €	200k - 1M	201 - 1,000	11 - 100
36	Telecommunications	270 392 €	200k - 1M	10,000+	10,000+
37	Finance & Insurance	263 340 €	200k - 1M	10,000+	10,000+
38	Finance & Insurance	236 504 €	200k - 1M	1,001 - 10,000	101 - 1,000
39	Finance & Insurance	233 319 €	200k - 1M	1,001 - 10,000	1,001 - 10,000
40	Transportation	209 196 €	200k - 1M	10,000+	10,000+
41	Transportation	196 876 €	50k - 200k	1,001 - 10,000	1,001 - 10,000
42	Technology	196 706 €	50k - 200k	1 - 200	-
43	Non-Profit	196 349 €	50k - 200k	1 - 200	11 - 100
44	Finance & Insurance	174 570 €	50k - 200k	1 - 200	-
45	Technology	173 876 €	50k - 200k	201 - 1,000	-
46	Technology	156 950 €	50k - 200k	1 - 200	0 - 10
47	Transportation	155 200 €	50k - 200k	1 - 200	-
48	Manufacturing	149 913 €	50k - 200k	1,001 - 10,000	-
49	Utilities	144 210 €	50k - 200k	201 - 1,000	101 - 1,000
50	Healthcare & Pharmacy	142 576 €	50k - 200k	1,001 - 10,000	11 - 100
51	Manufacturing	130 576 €	50k - 200k	1,001 - 10,000	1,001 - 10,000
52	Healthcare & Pharmacy	129 536 €	50k - 200k	1,001 - 10,000	-
53	Technology	125 488 €	50k - 200k	10,000+	10,000+
54	Healthcare & Pharmacy	123 040 €	50k - 200k	10,000+	1,001 - 10,000
55	Retail	120 036 €	50k - 200k	1,001 - 10,000	101 - 1,000
56	Finance & Insurance	118 970 €	50k - 200k	1,001 - 10,000	-
57	Retail	118 404 €	50k - 200k	10,000+	1,001 - 10,000
58	Finance & Insurance	115 368 €	50k - 200k	1,001 - 10,000	101 - 1,000
59	Healthcare & Pharmacy	109 184 €	50k - 200k	1 - 200	-

60	Technology	102 110 €	50k - 200k	201 - 1,000	-
61	Retail	101 240 €	50k - 200k	201 - 1,000	-
62	Technology	100 088 €	50k - 200k	1,001 - 10,000	-
63	Transportation	98 937 €	50k - 200k	10,000+	10,000+
64	Technology	96 992 €	50k - 200k	1 - 200	-
65	Transportation	95 340 €	50k - 200k	1,001 - 10,000	101 - 1,000
66	Professional Services	91 965 €	50k - 200k	1 - 200	-
67	Technology	91 488 €	50k - 200k	201 - 1,000	101 - 1,000
68	Transportation	87 580 €	50k - 200k	201 - 1,000	11 - 100
69	Retail	86 644 €	50k - 200k	1 - 200	-
70	Technology	84 930 €	50k - 200k	1 - 200	0 - 10
71	Utilities	83 944 €	50k - 200k	1,001 - 10,000	11 - 100
72	Healthcare & Pharmacy	77 215 €	50k - 200k	201 - 1,000	0 - 10
73	Manufacturing	76 912 €	50k - 200k	10,000+	1,001 - 10,000
74	Finance & Insurance	76 912 €	50k - 200k	1 - 200	0 - 10
75	Transportation	75 920 €	50k - 200k	1 - 200	11 - 100
76	Chemical	72 750 €	50k - 200k	1,001 - 10,000	101 - 1,000
77	Technology	70 840 €	50k - 200k	1 - 200	11 - 100
78	Healthcare & Pharmacy	70 193 €	50k - 200k	10,000+	10,000+
79	Technology	68 468 €	50k - 200k	10,000+	10,000+
80	Technology	67 583 €	50k - 200k	1,001 - 10,000	101 - 1,000
81	Technology	65 780 €	50k - 200k	10,000+	10,000+
82	Telecommunications	62 744 €	50k - 200k	201 - 1,000	101 - 1,000
83	Finance & Insurance	62 196 €	50k - 200k	1 - 200	11 - 100
84	Retail	59 846 €	50k - 200k	1,001 - 10,000	10,000+
85	Healthcare & Pharmacy	58 696 €	50k - 200k	1 - 200	11 - 100
86	Technology	58 400 €	50k - 200k	1 - 200	-
87	Retail	57 248 €	50k - 200k	201 - 1,000	11 - 100
88	Finance & Insurance	56 672 €	50k - 200k	10,000+	10,000+
89	Technology	56 580 €	50k - 200k	10,000+	10,000+
90	Technology	50 600 €	50k - 200k	1 - 200	-
91	Professional Services	50 000 €	50k - 200k	1 - 200	-
92	Finance & Insurance	48 720 €	1 - 50k	201 - 1,000	101 - 1,000
93	Finance & Insurance	48 720 €	1 - 50k	1 - 200	-
94	Transportation	43 264 €	1 - 50k	10,000+	1,001 - 10,000
95	Technology	40 848 €	1 - 50k	1 - 200	-
96	Finance & Insurance	40 799 €	1 - 50k	10,000+	1,001 - 10,000
97	Finance & Insurance	40 000 €	1 - 50k	10,000+	10,000+
98	Retail	39 753 €	1 - 50k	1 - 200	-
99	Healthcare & Pharmacy	34 626 €	1 - 50k	1,001 - 10,000	1,001 - 10,000
100	Technology	34 594 €	1 - 50k	1 - 200	11 - 100
101	Healthcare & Pharmacy	32 875 €	1 - 50k	1,001 - 10,000	-
102	Technology	32 480 €	1 - 50k	201 - 1,000	11 - 100
103	Healthcare & Pharmacy	32 225 €	1 - 50k	1,001 - 10,000	10,000+
104	Technology	30 360 €	1 - 50k	1 - 200	-
105	Utilities	30 093 €	1 - 50k	10,000+	10,000+
106	Professional Services	28 523 €	1 - 50k	1 - 200	-
107	Manufacturing	21 190 €	1 - 50k	10,000+	10,000+
108	Transportation	20 420 €	1 - 50k	1 - 200	-
109	Healthcare & Pharmacy	16 631 €	1 - 50k	10,000+	1,001 - 10,000
110	Professional Services	15 369 €	1 - 50k	201 - 1,000	11 - 100
111	Retail	14 400 €	1 - 50k	1,001 - 10,000	101 - 1,000
112	Healthcare & Pharmacy	12 800 €	1 - 50k	201 - 1,000	101 - 1,000
113	Retail	11 250 €	1 - 50k	10,000+	10,000+
114	Technology	11 000 €	1 - 50k	1 - 200	11 - 100
115	Retail	11 000 €	1 - 50k	1 - 200	-
116	Retail	11 000 €	1 - 50k	1 - 200	-
117	Retail	11 000 €	1 - 50k	1 - 200	-
118	Professional Services	10 000 €	1 - 50k	1 - 200	11 - 100