Digital transformation in the biopharmaceutical sector based on omnichannel strategies, data, and technology.

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1. INTRODUCTION

Digital transformation is becoming increasingly essential for companies to remain competitive in today's business world. Consumers now demand a high-quality experience at every point of contact with a company through physical or digital channels.[1] This involves the integration of digital technologies into all areas of the company to improve efficiency, productivity, and customer experience, also enabling companies to collect and analyze vast amounts of data, which can be used to make more informed decisions and gain a competitive advantage. Companies can improve their decision-making efficiency and achieve better outcomes by utilizing data-driven insights. [2] [3].

Failing to adapt to the digital age can put companies at risk of falling behind in terms of efficiency, productivity, and competitiveness. [4]. In contrast, embracing digital transformation can help companies keep up with current trends, enhance efficiency and productivity, and deliver better customer experiences, which can increase the overall value of the company, resuming this, digital transformation is crucial for companies seeking to maintain their competitive edge in the modern business landscape. By adopting digital technologies and utilizing data-driven insights, companies can improve their operations, decision-making, and customer experiences, leading to greater success and growth, even the importance of managing the Omnichannel Customer Experience (OCE) to transact through live experiences and conversations with the social commerce offering. It emphasizes that this is crucial for retaining and growing customer relationships through the service offering.[5]

Takeda is a leading biopharmaceutical company that prioritizes delivering better health for people and creating a brighter future for the world. The company places a strong emphasis on taking responsibility for its patients, team, and the world, and it measures its progress continuously to ensure it stays aligned with its corporate philosophy and imperatives. The Digital, Data, and Technologies (DD&T) department plays a vital role within the company by managing data, digital services, and channels, and implementing technological and digital tools. Its functions include conceptualizing and designing innovative projects related to information technologies| and translating business needs into technology strategies through close collaboration with global, regional, and local teams. The DD&T department also works alongside cross-functional teams to manage suppliers and manage internal administrative tasks while fostering an agile culture by utilizing methodologies such as SCRUM. With the use of agile methodologies, the department can continuously improve its processes and strategies to achieve greater success in delivering better health for people and creating a brighter future for the world.[6]

This document is structured into several sections. The first section provides a brief description of the organizational context. The second section outlines the problem to be solved within the company and the objectives of the practical process. The third section provides information on the process of adaptive agile methodologies that were used to address the problem. The fourth section presents a detailed account of the results and their discussion. In addition to this, the document provides insight into potential future work and recommendations from the author. The closing section presents the conclusions of the work carried out.

2. OBJECTIVES

1. General

Enhance the digital skills of commercial teams in the organization by providing training that aligns with the global corporate goals and omnichannel strategies, improving the technical and digital capabilities of Takeda´s customer-facing teams using agile methodologies like SCRUM to define participation points and information fields.

2. Specific

1. Provide marketing and medical teams with clear information to enhance their understanding of the processes involved in designing digital strategies and leveraging data for various business factors enabling them to improve their comprehension and optimize their decision-making abilities.

2. Adapt communication channels within the organization by utilizing regional and local organizational content. This will ensure that the communication is tailored to the specific needs and preferences of each region and local, thereby enhancing its effectiveness.

3. Collaborate with cross-functional units of Takeda to establish multichannel training spaces that promote the development of digital and data skills, fostering universality in the processes, and ensuring that everyone has access to the necessary resources and training to enhance their skills.

4. Enable new channels to improve the omnichannel experience for Takeda customers supporting the organization in achieving the local objectives and the global vision

3. METHODOLOGY

1. Problem to be solved

Digital transformation can help companies address a wide range of business problems and challenges like Inefficient processes, where companies may have outdated, manual, or inefficient steps that lead to delays, errors, and increased costs, helping to streamline processes and automate repetitive tasks, resulting in increased efficiency and productivity, also the digital transformation can help companies to better understand and engage with customers through the use of data, analytics, and digital channels enhancing the customer experience to struggle and meet the evolving needs and expectations of customers.[9]

Companies may struggle to gain actionable insights from data, resulting in poor decision making and missed opportunities, so digital transformation can help companies leverage advanced analytics and data science to extract insights from data and make informed decisions letting apart the lack of data-driven insights and besides the difficulty in adapting to change rapidly to make improvements in sectors like markets, technologies, and customer needs, resulting in the increase of opportunities and gain market share, digital transformation can help companies become more agile and responsive to change, enabling them to quickly adapt and innovate whit the integration and prosecution across different departments, resulting in duplication of effort, communication breakdowns, and missed opportunities, where definitely digital transformation can help break down silos by implementing integrated systems and platforms that facilitate collaboration and communication, so solving overall a wide range of problems and challenges by leveraging new technologies and approaches to business, embracing digital transformation, companies can improve their efficiency, agility, and competitiveness in the market. [7] [8]

Agile methodologies refer to a set of project management and software development approaches that prioritize flexibility, collaboration, and continuous improvement was developed as an alternative to the traditional, linear approach to project management, which often led to delays, errors, and inefficiencies it emphasizes teamwork, communication, and rapid iteration. It encourages frequent feedback from stakeholders and end-users and prioritizes delivering work in short, iterative cycles, and involves the use of self-organizing teams, which are empowered to make decisions and adapt to changes as needed. Emerging as a response to the traditional "waterfall" approach to project management, which followed a linear sequence of steps, where each phase must be completed before moving on to the next one. In contrast, Agile methodologies promote an adaptive and collaborative approach, with a focus on delivering value to customers through frequent iterations and feedback loops doing an important focus on the development flexibility of each step, the Iterative development here the project is divided into smaller, manageable increments called prints, with a working product incrementally delivered at the end of each iteration. The collaboration where agile teams work closely together, including customers, business stakeholders, and team members, the empowerment of decisions, with a focus on delivering value to customers encouraging them to share all their ideas and contribute their expertise to the project. [7] [8]

Continuous Improvement is an important method to encourage teams to reflect regularly on their performance and identify areas for improvement. And finally, the delivering Value: Agile methodologies prioritize delivering a working product incrementally, with a focus on customer satisfaction and delivering value early and often. Overall, Agile methodologies provide a flexible, collaborative, and customer-centric approach to project management, enabling teams to respond to changing requirements and deliver high-quality products iteratively and incrementally. [8]

One of the most popular Agile methodologies is SCRUM, an iterative and incremental framework that emphasizes flexibility, collaboration, and continuous improvement. Involves a set of roles, artifacts, and events that work together to manage and control the project.

The three primary roles in SCRUM are the Product Owner, the SCRUM Master, and the Development Team. The Product Owner is responsible for defining the project vision, setting priorities, and managing the product backlog. The SCRUM Master is responsible for facilitating the SCRUM process, removing obstacles, and helping the team work effectively. The Development Team is responsible for creating the product increment, and they are self-organizing and cross-functional. In this project, we defined all the members of the team in order of our experience and personal skills. SCRUM methodology involves a set of artifacts, including the product backlog, the sprint backlog, and the product increment. The product backlog is a prioritized list of features, functions, and requirements for the project. The sprint backlog is a subset of the product backlog that the team commits to completing during a specific sprint. The product increment is the sum of all the completed product backlog items at the end of a sprint. [8] [9]

SCRUM methodology also involves a set of events, including the sprint, sprint planning, daily SCRUM, sprint review, and sprint retrospectives. The sprint is a time-boxed period during which the team completes the committed work. Sprint planning is a collaborative meeting where the team plans the work for the upcoming sprint. The daily SCRUM is a short meeting where the team shares progress, identifies obstacles, and plans for the day. The sprint review is a meeting where the team demonstrates the completed work to stakeholders. The sprint retrospective is a meeting where the team reflects on the previous sprint and identifies areas for improvement.

For a company like Takeda, it is important to increase the scope of information, the knowledge of digital strategies and their facilitation for the business units, the actors facing the client, and the essential elements within the operation of the company. For the development and implementation of strategies that increase digital adoption, the understanding of technological campaigns and the solvency of current challenges in terms of data and information management, the establishment of a workflow according to the global objectives of the company hand in hand with the use and implementation of agile methodologies as a baseline and the constant updating and improvement of the objectives necessary to obtain results that were settled internally. [11]

The qualitative data considered to monitor the progress of the project are of a limited nature within the company, but it is possible to determine its depth, specifically in terms of the agility of content creation and its dissemination. as well as the adoption of the strategies and the quality of their implementation. Limitations are defined in the disclosure of the same, but achievements achieved and approved by the project directives are established.

2. Project phases

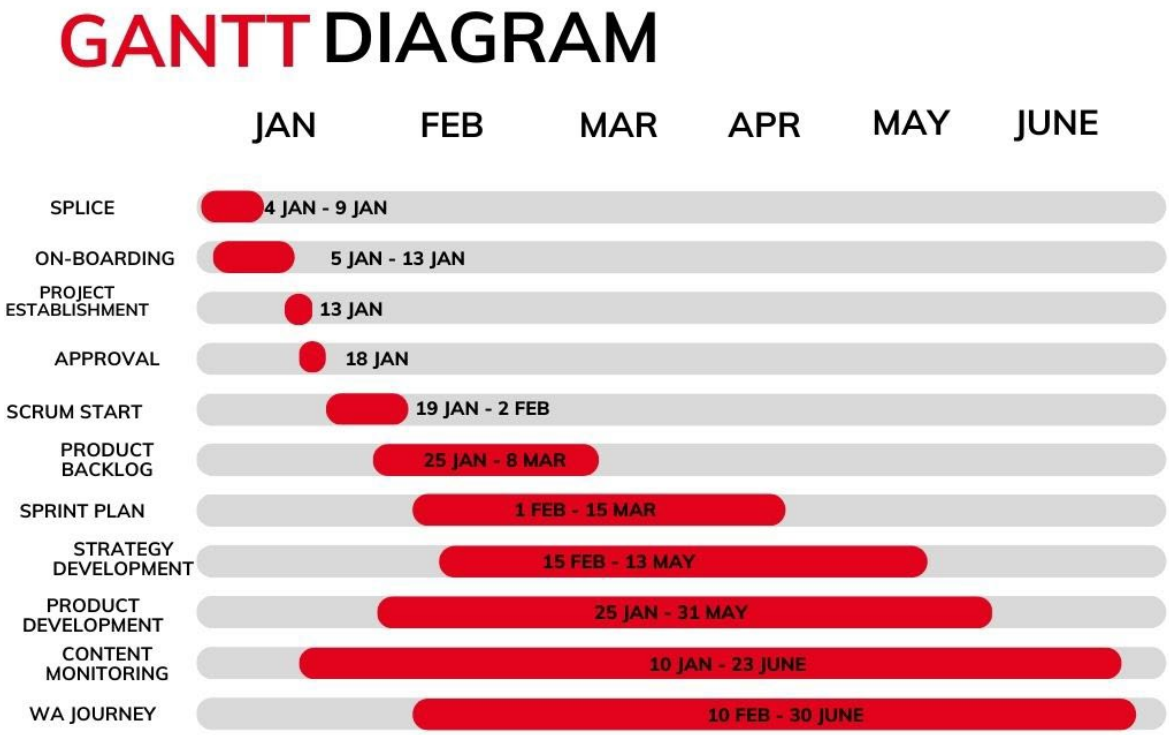

Figure 1. Gantt Diagram of Project Status [2]

Figure 1 shows the dates and times it takes for the development and implementation of each part of the project to be considered and carried out.

Splice refers to the first approach to the functions and tasks that are taken by the data, digital, and technology intern. The onboarding process is the strategy for appropriating all the definitions and knowledge of the company. The establishment of the project has been conducted by all the members of the team and following this was the approval of it. SCRUM started as the establishment of the product backlog where the functions and capabilities of the product have been selected. The strategy development started after the approval of the project owner and it´s been The development of the strategy began after the approval of the owner of the project and has been developed during the process of the internship, then, the development of the product is kept updated and aimed at the changes and adjustments required by the SCRUM master and during this process has been carrying out a follow-up of the necessary contents For the development of the product, as well as a plan for the implementation of a new communication channel for the dissemination of content according to the objectives established at the beginning of the project, was designed.

4. RESULTS

Implementing agile methodologies like SCRUM in a company like Takeda for digital transformation provided several benefits, including greater flexibility, faster time to market, improved collaboration, and better alignment with customer needs. Developing a SCRUM adoption plan for the company allowed for the creation of a detailed plan for adoption, including identifying the teams involved, selecting SCRUM Masters, and defining the training and support that was provided.

The training for employees in the SCRUM methodology was developed a few moments before the implementation of the project so no data was obtained in this regard, but in Takeda training was given to all employees involved in SCRUM ensuring that a clear understanding of the methodology and its benefits was considered.

This training could be provided through workshops, online courses, and coaching. Configure the SCRUM framework by creating a product backlog, defining sprint cycles, and establishing a clear definition of fact. In the selection and prioritization of the digital transformation project, the team identified the digital transformation projects that were implemented using SCRUM and adopted their prioritization based on their strategic value.

The recent establishment of a cross-functional team that included all the necessary roles within the department, such as a SCRUM Master adopted by the head of digital strategies at the location, a Product Owner entrusted to the project monitor, and a unique development team led by the intern that allowed to carry out the planning and reviews of the sprints. As a primary result, it's worth noting the holding of weekly sprint planning and reviews meetings that ensure teams work effectively and deliver value in each sprint cycle.

Regarding continuous improvement through periodic retrospectives to identify areas for improvement and the realization of the necessary changes, the reception of each of the implementations after the review and approval of those involved within the DD&T team is highlighted. Overall, implementing SCRUM at Takeda helps the company adapt to the changing needs of digital transformation by delivering value to customers more efficiently and effectively. [11]

Digital transformation is increasingly important in the biopharmaceutical sector because it enables companies to better interact with patients, healthcare providers, and other stakeholders through omnichannel strategies, data, and technology. Some of the key reasons why digital transformation is necessary for the biopharmaceutical sector relate to the change as they increasingly seek information about their health options and treatments online, they expect personalized, convenient, and engaging experiences from healthcare providers. Digital transformation allows biopharmaceutical companies to interact with patients through multiple channels and offers personalized experiences, in our case allowing a better understanding of the digital strategies and technological tools that the company must be able to land the methodologies and campaigns to always provide optimal approach by the representatives to the doctors of the panel that carries out the global objectives of the company for the patient.

During this brief period, there was an imminent need for decision-making according to data-driven information since large amounts of data are generated throughout the process of developing and marketing content, products, and medicines, but often difficulties in extracting information from this data.

Digital transformation allows companies to leverage advanced analytics and data science to gain insight into patient needs, treatment efficacy, and market trends under some proprietary frameworks that establish that the objectives set such as the disclosure of clear information to marketing and medical teams are involved in designing digital strategies in large As they managed to take advantage of the data to increase the understanding of what happened within the company and in terms of the creation and implementation of these campaigns, it was possible to take better instant decisions, in the medium term they show improvements and the review of progress and adoption for future work in the longer term is under consideration. [11]

In line with the regulatory framework for the ever-evolving company, with new requirements for data collection, analysis, and reporting, the ideal of digital transformation enables companies to comply with regulations while gaining insight into the safety and efficacy of their products. which is somewhat more complex to show in a project with a relatively short duration like the present one because the approval and regulation processes are even more isolated and lack enlightenment to most of the company's actors In addition, the increase in competition should be a differentiator facilitated by the digital transformation that although it lacks visibility, an increase in this factor is expected due to improving the delivery of innovative products and services, leveraging digital channels and creating new business models. Finally, establishing an imminent need for collaboration between organizations such as academia, healthcare providers, and patient advocacy groups and digital transformation enables businesses to collaborate more effectively by providing secure cloud-based platforms for data sharing and communication.

Overall, digital transformation has been essential for biopharmaceutical companies like Takeda as they want to stay competitive and deliver value to patients and other stakeholders, adopt omnichannel strategies, data, and technology within a biopharmaceutical company to improve patient outcomes, accelerate innovation, and create new business opportunities.

5. DISCUSSION

The user experience in the company as it refers to the quality of interaction and commitment that Takeda employees have with the various tools, applications and digital systems they use to perform their daily work, as it is the creation of easy-to-use, efficient and intuitive digital experiences that allow employees to work effectively, efficient and with minimal frustration, some aspects that stand out as results of the project in terms of an improvement in the user experience in the company can refer to the first intervention as User Research since with the understanding of the needs, objectives and weaknesses of the employees a short research was carried out about the users through personal interviews taken by the product developer, some surveys and usability tests disclosed internally to obtain information on how employees used digital tools and what their expectations were, therefore, once there was a deep knowledge of the needs of employees, it was possible to start designing digital tools that adapted to those needs involving the creation of prototypes of communication channels, wireframes and products that prioritized ease of use, efficiency, and user satisfaction. [7]

As for usability testing, once the digital tool is designed, the importance of performing usability tests is defined to ensure the satisfaction of the needs of the company and employees and that it is also easy to use, update and manage, which implies the observation of users while interacting with the tool, the collection of feedback and the proposal to make iterative improvements based on feedback.

As an ongoing process of improvement, this project is not proposed as one-time and implemented once, to ensure that Takeda's digital tools continue to meet the needs of employees, it is important to collect feedback and data on an ongoing basis and make iterative improvements based on that feedback to create digital tools that allow employees to work effectively, efficiently and with minimal frustration. By prioritizing user experience, improving employee satisfaction, productivity, and engagement, which leads to better business outcomes.

The use of digital technologies and tools to improve various aspects of the company's operations, including research and development, manufacturing, sales and marketing, supply chain management, and customer engagement are part of digital services that are or can be consumed during the development of corporate activities They can include a wide range of technologies, such as cloud computing, artificial intelligence, data analytics, virtual reality, and mobile apps, among others.

The research and development of some phases of the project allow digital services to help the company accelerate the drug discovery and development process by using machine learning algorithms and data analysis to analyze large volumes of data and identify potential drug candidates faster and more efficiently.

In terms of manufacturing, digital services can help improve our manufacturing processes by using smart sensors to monitor equipment performance, automation to reduce errors and increase efficiency, and predictive analytics to anticipate maintenance needs and avoid downtime.

Which is largely far from the real and concise part of the project since the results show an improvement and progress in the implementation of strategies but do not allow to see in such a short time an increase in the rates of sales and marketing to l not be able to interact with health care providers, Patients and other stakeholders by using digital channels to deliver personalized messages, targeted advertising and educational content, it is not yet fully possible to land the data needed to complete these advances, as well as in terms of supply chain management, optimization of our supply chain by using data analytics to forecast demand, track inventory levels and identify areas for improvement is also possible but is not considered as an achievable factor during the internship unlike the commitment to the customer since the best to patient participation through the use of mobile applications, portable devices and other digital tools promise and evidence that offering personalized health training, monitoring patient health and the establishment of a communicative medium where the reporting of adverse events and quality complaints and direct interaction with these business agents is ultimately allowed Improve various aspects of the company's operations, from research and development to customer engagement. [10] [11]

By embracing digital services, biopharmaceutical companies like Takeda can improve efficiency, reduce costs, and deliver better outcomes for patients and other stakeholders.

To summarize and conclude about the consumption of digital services in our company we refer to the business actors regarding the use of digital technologies and tools, the improvement in the operational aspects of the company, including the tools used for internal communication, project management, knowledge management, and other business functions, qualitatively captures a change in terms of internal communication through the use of tools already present such as instant messaging, videoconferencing, and collaboration software to facilitate remote work and improve work. facing the customer with the creation and establishment of a new corporate instant chat channel. [11]

In terms of project management and development, there is a slight improvement in our management capabilities using available tools such as task establishment and management software, which allow cloud-based storage and virtual whiteboards that facilitated collaboration, streamlined workflows, and managed resources effectively.

Similarly, in terms of knowledge management, we refer to how the use of tools such as software and applications for storage and dissemination of information and knowledge management, as well as document management and data analysis systems to store, organize and analyze information allowed an internal corporate training space in which access to information was guaranteed and a greater adoption and management of both strategies and the tools discussed above is evidenced and finally, the management of relationships with customers whether doctors or patients is also reflected in the consumption of digital services such as customer relationship management (CRM) software and the management and management of customer feedback and marketing automation to improve customer engagement, tracking customer interactions and analyzing customer data. [11]

In general, the use of digital services in our company related to commercial tools allowed us to improve various functions and business operations. By embracing digital services, we can improve efficiency, reduce costs, and deliver better outcomes for our employees and customers.

Overall, a digital toolkit for implementing digital transformation in the biopharmaceutical sector is a comprehensive set of services designed to help Takeda embrace digital technologies and implement digital transformation initiatives more effectively, to improve efficiency, reduce costs, and deliver better outcomes for patients and other stakeholders.

6. RECOMMENDATIONS AND FUTURE WORK

The work carried out during the semester refers to the establishment of a proposal for an approach to knowledge acquisition and appropriation of conceptual and technical references for the use of some tools and technological channels that the company currently has as constant use by employees and for the management and solution of business needs, as well as the implementation of the appropriate tasks, the optimal processes and effective skills to provide accompaniment and solve the needs of the various effective parts of each business unit.

Consequently and as mentioned in the results of the approach, it is proposed as the next steps of the project the implementation of training camps and information management to provide business units not only the opportunity to enrich the concepts but to achieve total adaptation and implementation of the optimal uses of the tools, It is proposed and defined as a fundamental conceptual path the incorporation of technological tools as co-workers and likewise the next step is the common good of them in a database or dissemination page that allows knowing both the skills, as the necessary steps for their use, Information on how to request access to applications and some useful tips on their use.

It is expected that the unit will continue to provide support to brands with the management and management of content and communications, the implementation of changes in online portals, and in the same way that the data and metrics management forces are grouped with the decisions of each business unit, and as a recommendation or modification to this work, shared documentation bases are suggested between units or even the creation of boxes. or warehouses of files, content, or images for joint use between units.

7. CONCLUSIONS

As a closing of the approach made, it is defined in wants to conclude with more than that SCRUM as the methodology chosen for the realization of the project establishes a reliable and effective method for the correct construction and progress of any project, since its concise bases manage to define an optimal framework for both a company like Takeda and for any other personal or business development.

Likewise, we want to establish a precedent within the organization in terms of establishing a method for acquiring knowledge and appropriating digital and technological capabilities and skills for the client and as internal functionalities. We want to define for future work a first step or approach to the implementation strategy and soak up each of the internal organizations towards the solid primary bases of adaptation to change referring specifically to digital transformation.

In the same way, it seeks to conclude that the global strategies were able to land and compose articulately within the organization establishing a campaign of dissemination and dissemination of content within a specific department for a specific brand, which for reasons restricted by the data privacy policy is not possible but that after the tests carried out a new communicative channel is established towards the doctors that will even allow to receive and report adverse events and incidents related to pharmacovigilance.

As a precursor to future work is the lack of realization during the semester of an established plan for training camps for all brands, to ensure the total understanding of all interested people within the organization in addition, spaces are proposed for the incorporation and implementation of this information by directives and business requirements.

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