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**THE ROLE OF ARTIFICIAL INTELLIGENCE  
IN ENHANCING CUSTOMER RELATIONSHIP  
MANAGEMENT – THE DUCATI MOTOR  
HOLDING CASE**

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# Introduction

In the context of the nowadays' rapidly evolving digital landscape, businesses are increasingly leveraging advanced technologies with the objective of maintaining their competitive advantage and enhancing the experiences of their customers. Among these technologies, artificial intelligence (AI) has emerged as a transformative force, reshaping various business domains across industries. The literature about the implementation of AI into customer relationship management (CRM) processes results to be still in its infancy stage, with very few and reciprocally isolated real case studies. However, researchers agree on the potential added value brought by the implementation of artificial intelligence technologies within CRM, and I believe this thesis could contribute to the research with an insightful case study that can eventually set a benchmark for future research in this field.

Nowadays, AI is surrounded by a considerable amount of hype due to the advent of generative AI chatbot like ChatGPT, Gemini, MetaAI and others. Nevertheless, to discover the real added value of AI, it is important to precisely identify the specific use cases in which AI could be used, as well as the specific types of algorithms and AI technologies which better suit those use cases. It is therefore difficult to determine a universal framework for the worldwide implementation of AI into CRM processes, as every firm is unique, and those firms could exploit the potential of AI in the most disparate ways. Thus, it is fundamental to identify past success cases about the implementation of artificial intelligence into the business processes to understand how other firms succeeded in the challenging task of implementing such a complex technology into their everyday processes.

CRM is a crucial activity for luxury brands and Ducati is no exception. Due to its market positioning in the premium and upper-premium segment, it is crucial for Ducati to be in the forefront of technological innovation for what is concerned with CRM, as it represents one of the key value adding activities. This thesis will therefore analyse the process of AI implementation into CRM systems of the Ducati business environment, focusing on each of the firm's CRM areas and delving into every use case of artificial intelligence posing no constraint of imagination, resources, or time. Only subsequently, after having identified these use cases, I will describe the possible roadmaps and pathways for the implementation of such technologies, either internally developed or outsourced.

# Chapter 1: State of the art of AI applied to CRM

This chapter will focus on understanding the key concepts related to Artificial Intelligence, with the aim of having a clear view of the state of the art in terms of AI applied to customer relationship management. After reviewing the existing literature about not only AI but also the surrounding fields of competence in subchapter 1.1, in 1.2 subchapter I will focus on some of the most relevant case studies of Artificial Intelligence, either predictive or generative, to understand how companies are managing the most recent wave of digital transformation and the ways it contributes to strengthen their competitive advantage.

## 1.1 Terminology and Literature Review

Artificial intelligence is a broad term, and it is nowadays surrounded by a considerable amount of noise. This creates confusion on the topic and sometimes different terms related to the AI field result to be used interchangeably while they are instead not synonyms of each other.

For this reason, the literature review will start with a brief terminology alignment in section 1.1.1 to set the frame of reference on which this thesis will be based. Subsequently, in 1.1.2 I will delve into the actual review of the literature regarding the field of research of artificial intelligence applied to customer relationship management, defining first the concept of CRM, and then analysing the different perspectives by which it could be intended. I will then analyse how different AI technologies could enhance the CRM processes in several ways and in various stages of the customer relationship. The literature review will follow the path traced by Ledro et al. (2022, p. 55)<sup>1</sup> regarding the three main subfield of research for what is concerned with artificial intelligence applied to customer relationship management: the first subfield of research refers to CRM information and knowledge base management. The second subfield of research delves into the specific artificial intelligence and machine learning techniques applied to CRM activities. Finally, the third subfield of research refers to the strategic implications of the first two points, reviewing the literature regarding the strategic management of the integration of artificial intelligence in customer relationship management processes.

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<sup>1</sup> [tinyurl.com/Ledro2022](https://tinyurl.com/Ledro2022)

### 1.1.1 Terminology

Since nowadays Artificial Intelligence (AI) is surrounded by a great amount of hype, sometimes the terminology related to it risks being misused, and people tend to confuse words or think that different concepts are overlapping when they are not. For this reason, it is necessary to go through a brief recap of the terminology about some of these key concepts related to AI.

First, “Artificial Intelligence” is a term which people often use when referring to generative AI. Although generative AI is a relatively new concept, AI traces back to the 1950 when Alan Turing, one of the founders of modern computer science, was one of the first to ever wonder whether machines could eventually imitate the human thinking (Turing, 1950, p. 433)<sup>2</sup>. In his article, Turing hypothesized the so-called “imitation game” (after which also the famous film directed by Morten Tyldum was named), a game in which machines try to imitate human thinking while human beings try to distinguish between machine-generated responses and human responses. Artificial intelligence could therefore be defined as:

“The oldest field of computer science and very broad, dealing with all aspects of mimicking cognitive functions for real-world problem solving and building systems that learn and think like people.” (Holzinger et al., 2019, p. 1)<sup>3</sup>

The most important distinction in the field of AI is the distinction between predictive AI and generative AI (or GenAI). Ramdurai (2023, p. 1)<sup>4</sup> defines generative AI as a subfield of AI which “focuses on developing systems that can generate novel and creative outputs, such as images, music, text, and more”. GenAI, in fact, leverages on deep learning techniques, particularly on generative models, to create new contents that resemble human-generated creations (Ramdurai, 2023, p. 1). The key characteristic of GenAI, which distinguishes it from predictive AI, is that the content produced by GenAI is new and unique, it is characterized by its novelty, hence the name “generative”.

On the other hand, predictive AI does not focus on generating original content, but rather on forecasting future events analysing the past data, identifying patterns, and making predictions based on those patterns. On a business perspective, however, it is not necessarily true that GenAI drives more value than predictive AI. In fact, both GenAI and predictive AI excel in their field of competence. Predictive AI is nowadays widely used to streamline the enterprises’ largest-scale operations which have already evolved to become systematic, and, because of that, it improves

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<sup>2</sup> [tinyurl.com/Turing1950a](https://tinyurl.com/Turing1950a)

<sup>3</sup> [tinyurl.com/Holzinger2019](https://tinyurl.com/Holzinger2019)

<sup>4</sup> [tinyurl.com/Radmurai2023](https://tinyurl.com/Radmurai2023)

business efficiency driving higher return on investment than GenAI (Siegel, 2024b)<sup>5</sup>. Just to give a numeric example, by implementing predictive AI in their delivery planning systems, UPS saves 35 million U.S. dollars per year in terms of 18.5 million fewer miles travelled, as many fewer cubic meters of emissions and 800.000 gallons of fuel saved (Siegel, 2024a)<sup>6</sup>.

Another pair of concepts often used interchangeably are “machine learning” and “deep learning”. Although they are both very strictly related, they are significantly different from each other. Janiesch et al. (2021, p. 685)<sup>7</sup> define machine learning (ML) as:

“(…) the capacity of systems to learn from problem-specific training data to automate the process of analytical model building and solve associated tasks” (Janiesch et al., 2021, p. 685)

ML can therefore be considered as the set of algorithms on which AI is based. Deep learning (DL), on the other hand, is a specific type of ML, as shown in figure 1. DL is characterized by the use of so-called neural networks to create algorithms capable of generating new content and, thus, DL is the set of algorithms on which GenAI is based.

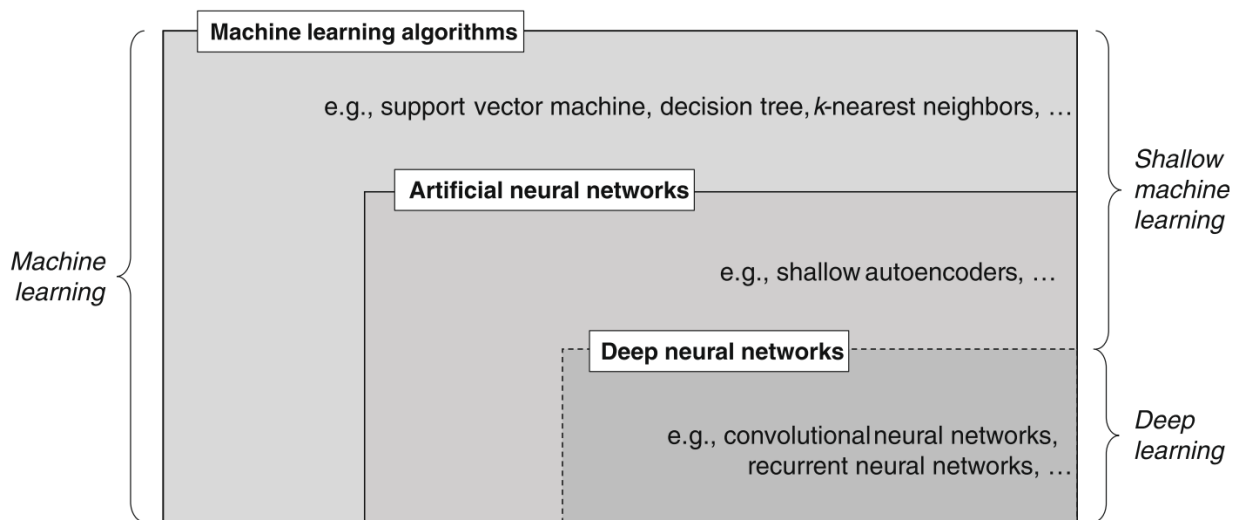


Figure 1: Venn diagram of machine learning concepts and classes (Janiesch et al., 2021, p. 687)

Neural networks (or artificial neural networks or ANNs) can be described as:

“Mathematical representations of connected processing units called artificial neurons” (Janiesch et al., 2021, p. 687)

In fact, neural networks consist in a set of artificial neurons (acting as nodes of the network) connected to each other transmitting signals in a way that mimics the principles of information processing in

<sup>5</sup> [tinyurl.com/Siegel2024b](https://tinyurl.com/Siegel2024b)

<sup>6</sup> [tinyurl.com/Siegel2024a](https://tinyurl.com/Siegel2024a)

<sup>7</sup> [tinyurl.com/Janiesch2021](https://tinyurl.com/Janiesch2021)

biological systems. Those artificial neurons are organised in two or more layers: an input layer receiving the information, an output layer giving the result, and zero or more hidden layers. Generally, a neural network with two or more hidden layers is defined as a “deep neural network” (Janiesch et al., 2021, p. 687)<sup>8</sup>.

AI developers make use of machine learning and deep learning algorithms to create AI models, namely programs trained on a substantial amount of data to autonomously understand and solve specific tasks. A particular type of such models are the large language models (LLMs). These models are trained to understand the relationship between words and therefore understand natural language and answer or act properly (Thirunavukarasu et al., 2023, p. 1936)<sup>9</sup>. LLMs are at the basis of the modern GenAI chatbots. For example, OpenAI developed the LLM called “GPT-4” on which ChatGPT and many other chatbots are based. Other examples of LLM are “Gemini” developed by Google or “Llama” developed by Meta.

Through tools like the before mentioned chatbots, users of AI can insert inputs into the LLMs and receive back a response as output of the model. The input is often called “prompt”, which is defined by Harvard University (2023)<sup>10</sup> as:

“The information, sentences, or questions that you enter into a Generative AI tool” (Harvard University, 2023)

To train and fine-tune a deep learning algorithm to achieve its desired level of accuracy, AI developers need to feed it with a huge amount of information. In fact, most AI models are trained with large public databases coming from different data sources available on the internet until they can understand a wide variety of topics and answer properly. Thus, another important topic which deserves attention is the concept of Big Data (BD). The literature review made by Fosso Wamba et al. (2015, p. 236)<sup>11</sup> suggests defining BD as:

“a holistic approach to manage, process and analyse 5 Vs (i.e., volume, variety, velocity, veracity and value) in order to create actionable insights for sustained value delivery, measuring performance and establishing competitive advantages” (Fosso Wamba et al., 2015)

However, while Big Data refers to large repositories of structured and non-structured information used for business intelligence, in the field of AI the data management system often takes the name and form of knowledge base (KB). Knowledge Bases are defined by Russell & Norvig (2002, p.

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<sup>8</sup> [tinyurl.com/Janiesch2021](https://tinyurl.com/Janiesch2021)

<sup>9</sup> [tinyurl.com/Thirunavukarasu2023](https://tinyurl.com/Thirunavukarasu2023)

<sup>10</sup> [tinyurl.com/HarvardUni2023](https://tinyurl.com/HarvardUni2023)

<sup>11</sup> [tinyurl.com/FossoWamba2015](https://tinyurl.com/FossoWamba2015)



195)<sup>12</sup> as a set of sentences, in which each one of them represents some assertion about the world and is expressed in a so called “knowledge representation language”. This language makes the sentences readable and processable for the machine enabling it to generate new sentences from the existing ones.

Therefore, the two key elements composing knowledge bases are a large data repository and a “language” to enable machines to understand and activate those data. In the field of AI, the large repositories are represented by so-called “data lakes”, i.e. a large cloud-based repository of structured (e.g., databases), semi-structured (e.g., JSON and CSV files) and non-structured data (e.g., text, audio, image files) (Dibowski & Schmid, 2021, p. 41)<sup>13</sup>. Without a way to give a meaning to those data, however, the data lake is rather a sterile data swamp. In fact, the previously mentioned language to translate those data for machine usability usually takes the form of a semantic layer that schematizes the connections and relations between objects in the so-called “ontology”. Nowadays, the most common approach for businesses in terms of setting up their knowledge base systems for AI implementation is represented using knowledge graphs on top of their semantic data lakes (Dibowski & Schmid, 2021, p. 41). As cited by Ehrlinger & Wöß (2016, p. 2)<sup>14</sup>, knowledge graphs (KGs) can be described in many ways, such as the following:

“A knowledge graph (i) mainly describes real world entities and their interrelations, organized in a graph, (ii) defines possible classes and relations of entities in a schema, (iii) allows for potentially interrelating arbitrary entities with each other and (iv) covers various topical domains.” (Paulheim, 2017)<sup>15</sup>

Due to their structure, KGs do not require enormous amounts of training data like machine learning and deep learning algorithms, and they offer a bigger potential for a multitude of domains and problems (Dibowski & Schmid, 2021). In fact, KGs improve findability and reusability of data enabling new types of software architectures, where the domain knowledge and business logic can completely reside on the knowledge graph level (Dibowski & Schmid, 2021).

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<sup>12</sup> [tinyurl.com/RussellNorvig2002](https://tinyurl.com/RussellNorvig2002)

<sup>13</sup> [tinyurl.com/DibowskiSchmid2021](https://tinyurl.com/DibowskiSchmid2021)

<sup>14</sup> [tinyurl.com/EhrlingerWoess2016](https://tinyurl.com/EhrlingerWoess2016)

<sup>15</sup> [tinyurl.com/Paulheim2017](https://tinyurl.com/Paulheim2017)

### 1.1.2 Literature Review

In their article regarding Big Data-enabled Customer Relationship Management, Zerbino et al. (2018, p. 821)<sup>16</sup> analysed five major perspectives under which CRM could be intended, following the definitions given by Zablah et al. (2004)<sup>17</sup>:

“CRM as a process. CRM is a macro-process that encompasses all the activities for pursuing a long-term, profitable, and mutually beneficial customer relationship; from a narrower perspective, it is a process limited to the management of customer interactions to establish and maintain durable worthwhile relationships.

CRM as a strategy. Firms should design and prioritize the investment of resources on relationship building and maintenance in line with the customer's lifetime value.

CRM as a philosophy. Customer loyalty, and thus profitability, requires a continuous understanding of customers' evolving needs for the best value delivering.

CRM as a capability. The potential, additional competitive advantage that CRM can provide is tied to the capacity of gathering knowledge on current and prospective customers, and to act upon it, for instance by proactively reshaping customer interactions.

CRM as a technology. Technologies for managing knowledge and interaction, linking front-and back-office functions, play a nonnegligible role in firms' relationship management efforts.” (Zerbino et al., 2018, p. 821)

They finally concluded that the process perspective results to be the most comprehensive and they proceeded to synthesize the previous definitions into one:

“CRM is defined here as: an ongoing process that involves the development and leveraging of market intelligence for the purpose of building and maintaining a profit maximizing portfolio of customer relationships” (Zerbino et al., 2018, p. 821)

Moreover, Reinartz et al. (2004, p. 295)<sup>18</sup> defined CRM as a process with 3 primary dimensions: relationship initiation, relationship maintenance and relationship termination. These dimensions, according to their analysis, are divided into 9 sub-dimensions, which will be analysed thereafter.

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<sup>16</sup> [tinyurl.com/Zerbino2018](https://tinyurl.com/Zerbino2018)

<sup>17</sup> [tinyurl.com/Zablah2004](https://tinyurl.com/Zablah2004)

<sup>18</sup> [tinyurl.com/Reinartz2004a](https://tinyurl.com/Reinartz2004a)

The extensive literature review conducted by Ledro et al., p (2022, p. 48)<sup>19</sup> regarding the connections between, and the implementation of AI in CRM have resulted in the identification of three specific subfields of research:

- 1) “Big Data and CRM as a database”
- 2) “AI and ML techniques applied to CRM activities”
- 3) “Strategic management of AI-CRM integrations” (Ledro et al., 2022, p. 48)

These three subfields of research could also be intended as the three stages of AI implementation in CRM processes within firms. Even though, as seen in the previous section, the concept of big data and databases seems to be already surpassed as the use of knowledge bases results to drive better results, it remains true that the business transition from a Data-driven strategy to an AI-driven strategy should start with the optimization of the information management within the firms. A fundamental step for joining the AI revolution is in fact represented by the integration of the information coming from various sources of structured and unstructured data, as well as the development advanced analytics systems such as the combination of data lakes and knowledge graphs. Subsequently, the implementation of AI into this CRM ecosystem should be addressed from a technological perspective, carefully analysing which AI techniques are the most suitable for the specific use cases for which AI will be used. Finally, the strategic part of the process is crucial for the actual implementation of AI into CRM. Once identified the use cases and technology to be implemented as well as the specific techniques, firms will have to face organizational and cultural changes related to it based on managerial choices, like make-or-buy decisions, the level of AI autonomy, or the project management itself.

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<sup>19</sup>[tinyurl.com/Ledro2022](https://tinyurl.com/Ledro2022)



Figure 2: Three-step strategy for AI implementation in CRM (Ledro et al., 2022, p. 59)

Considering the 5 different perspectives from which CRM could be intended, the first subfield of research analyses CRM from the point of view of a technology that stores and analyses the knowledge base about business prospects and customers rather than a process with the purpose of building and maintaining a profit maximizing portfolio of customer relationships. This subfield of research highlights two main themes: information management and social media (Ledro et al., 2022, p. 59)<sup>20</sup>.

The information management, or analytical process, focuses on the analytical part of CRM processes regarding collecting, organizing, and using information related to customers in order to get insights on customer behaviour (Chetty & Thakur, 2019)<sup>21</sup>. In line with this last topic, Zerbino et al. (2018)<sup>22</sup> have analysed the role of Big Data into each one of the 9 previously mentioned subdimensions identified by Reinartz et al. (2004), as shown in figure 3. Again, here the concept of Big Data could be substituted with the modern approach of knowledge base system without changing its potential application into CRM.

<sup>20</sup> [tinyurl.com/Ledro2022](https://tinyurl.com/Ledro2022)

<sup>21</sup> [tinyurl.com/ChettyThakur2019](https://tinyurl.com/ChettyThakur2019)

<sup>22</sup> [tinyurl.com/Zerbino2018](https://tinyurl.com/Zerbino2018)

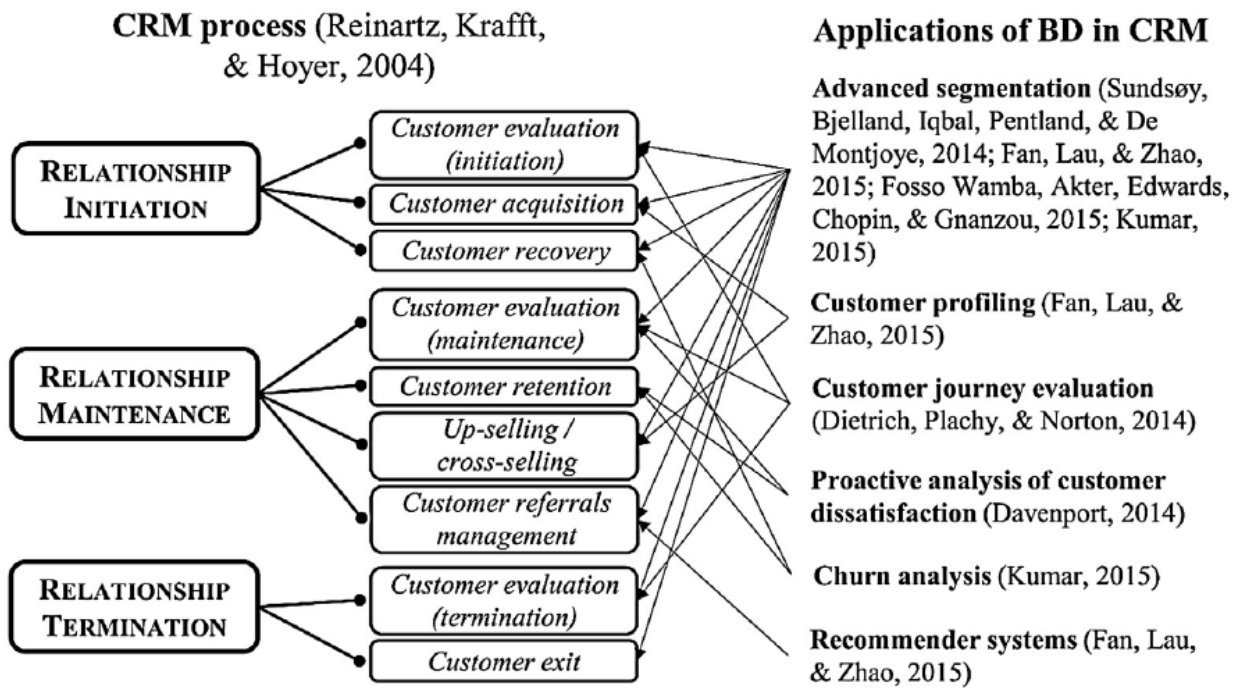


Figure 3: Potential impact of BD on CRM subdimensions (Zerbino et al., 2018, p. 821).

One of the most important applications of knowledge base management in CRM is therefore the enhancement of the segmentation process. In fact, the access to a great amount of structured and unstructured data and the analysis of the interrelations between the various entities represented in the knowledge graph enables firms to capture valuable insights and deliver a more precise and up to date customer segmentation and customer profiling. This has an impact in each major dimension of the CRM process as the customer segmentation shapes the way firms interact with customers. This new data management perspective enables firms' CRM to perform a more efficient and precise customer profiling and trace customer journeys in each of their steps. By doing so, firms can increase their performances in each step, including touch points, and they can also understand areas of improvement and best practices. With such applications, firms could also be enabled to highlight signs of customer dissatisfaction and improve churn analysis in order to reduce churn rates (Zerbino et al., 2018, p. 821).

The second main topic related to knowledge base management and CRM is about social media. In fact, another particularly important application is sentiment analysis on data produced by telecommunication and social media. Opinion Mining and Sentiment Analysis (OMSA) techniques

enable firms to capture valuable insights from data, categorize the opinions into different sentiments and in general evaluate the public's mood (Shayaa et al., 2018, p. 37807)<sup>23</sup>.

The second subfield of research identified by Ledro et al. (2022, p. 56)<sup>24</sup> consists in AI and ML techniques applied to CRM activities. In order to have a complete understanding of this subfield of research, the topic should not only be addressed from a technical standpoint, but also from a strategical and managerial one. Therefore, the second subfield of research and the third one regarding strategic management of AI-CRM integrations are strictly correlated with each other.

For what is concerned with the technical perspective of AI in CRM, although several examples of specific AI techniques applied to real-world cases exist, they result to be few and reciprocally isolated. Thus, the literature does not clearly provide a sort of big picture with which researchers and businesses can have a clear view of the possible techniques and their specific applications. However, this subfield of research contains articles comparing innovative AI techniques with long-established ones. Ledro et al. (2022, p. 57) identify the two most promising techniques as text mining and deep learning. While text mining results to be efficient in the fields of prevention of sales decreases and derivation of latent brand topics, deep learning techniques enable firms to explore the fields of opinion analysis, entity recognition and predictive modelling. In particular, those techniques could excel in some value-creating activities such as the identification of high-value customers, customers churn predictions, and customer lifetime value predictions.

Although it is important to deeply understand the nature of the technology involved, the strategical and managerial perspective of AI applied to CRM is perhaps the most interesting one to us. In this case, AI technologies are considered tools for the enhancement of CRM processes, which drive strategic decisions thanks to a consumer-centric approach and actionable insights (Ledro et al., 2022, p. 57). In this subfield of research, the literature debates the organizational and cultural changes that are required for the implementation of AI systems into the organization and analyses the processes involved in it. Due to the previously mentioned capabilities of AI and its numerous applications in estimating future trends, identifying high-value customer segments, customizing customer journey and so on, AI will have an increasingly significant role in driving managerial decisions within firms. One can think that AI technologies would eventually substitute humans involved in the analytical and decision-making processes. However, some argue that AI would instead save marketers and service agents time and effort spent in operative processes which will result in more time and effort to be dedicated to creative tasks and a generally improved prioritization of work (Campbell et al., 2020)<sup>25</sup>.

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<sup>23</sup> [tinyurl.com/shayaa2018](https://tinyurl.com/shayaa2018)

<sup>24</sup> [tinyurl.com/Ledro2022](https://tinyurl.com/Ledro2022)

<sup>25</sup> [tinyurl.com/Campbell2020a](https://tinyurl.com/Campbell2020a)

AI will therefore allow employees and managers to have better tools to engage, satisfy and retain customers. Another crucial strategic topic which should be carefully evaluated is the decision to internally develop a proprietary AI technology to be implemented in the firm's systems, or to rely on outsourcers with the technical capabilities and experience needed to achieve the strategic goals. The internal development should be considered crucial if the decision to implement AI in CRM processes results to be fundamental for maintaining the firm's competitive advantage and for developing knowledge in managing customer relationships (Ledro et al., 2022, p. 58)<sup>26</sup>. However, the outsourcing option should be taken into consideration as well because such projects could require way more resources and time than what firms could have internally, and they could eventually rely on external know how, experience and talents (Grover et al., 2018, p. 397)<sup>27</sup>.

Nevertheless, the field of research of AI applied to CRM results to be still in its infancy stage with very few case studies. However, the three most promising fields that could be the focus of future research are AI technology applied to customer journey, CRM enhancement through the use of chatbots and the implementation of IoT technologies together with AI to get valuable insights from customer behaviour (Ledro et al., 2022, p. 57). All these three AI technologies and their implementation into Ducati's CRM systems will be further analysed in chapter 2.

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<sup>26</sup> [tinyurl.com/Ledro2022](https://tinyurl.com/Ledro2022)

<sup>27</sup> [tinyurl.com/Grover2018](https://tinyurl.com/Grover2018)

## 1.2 Best Practices and Examples of AI applied to CRM

The present section of the thesis aims to collect a set of case studies which better align with the scope of identifying how Ducati could implement AI technology into its CRM systems. In particular, the Starbucks case refers to the implementation of an internally developed ML platform which enhances the performances not only of CRM processes, but also of other business activities such as shop logistics and staffing. Subsequently, the Lamborghini case delves into the collaboration between Lamborghini and Salesforce to build the digital ecosystem over which the CRM processes are grounded. These two cases are useful to compare different situations and how the two firms took different strategic choices: one to internally develop its proprietary AI platform and implement it in diverse business areas, while the other to rely on the services and technological capabilities provided by the leading company in terms of technology applied to CRM.

### 1.2.1 Starbucks Case

Ducati's top management, when referring to the objectives of the research about AI applied to CRM, cited Starbucks as a success case study in terms of AI applied to CRM systems. Starbucks is committed in becoming the number 1 company for the 1-to-1 relationship with their customers, and with its internally developed AI platform the firm became a pioneer in this field.

With more than 38.000 stores worldwide (Starbucks, 2023b)<sup>28</sup> and its leadership position in the at-home and ready-to-drink channels serving 300 million consumer occasions per week (Starbucks, 2022)<sup>29</sup>, Starbucks has access to a great amount of data about its customers. Considering the diverse nature of the sources of those data, including store positions, consumer preferences, payment methods and so on, and considering also the value of those information for the firm's business, the dataset owned by Starbucks results to be aligned with the previously mentioned definition of big data.

The Starbucks' so-called "digital flywheel strategy" started in 2011 with the launch of Starbucks' app. This app was initially intended to be used as a loyalty program, but it quickly turned into a real hub for customers to get information about menus, store locations, and opening hours. After almost a decade from its launch, the app accounted for nearly half of Starbucks' revenues, as reported by the firm's COO and group president Roz Brewer in an interview made by Yahoo Finance (La Roche, 2020)<sup>30</sup>.

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<sup>28</sup>[tinyurl.com/Starbucks2023b](https://tinyurl.com/Starbucks2023b)

<sup>29</sup>[tinyurl.com/Starbucks2022a](https://tinyurl.com/Starbucks2022a)

<sup>30</sup>[tinyurl.com/LaRoche2020](https://tinyurl.com/LaRoche2020)



The real game-changing innovation of Starbucks' digital flywheel strategy was introduced in 2019 when the coffee giant implemented in its CRM systems the internally developed platform called "Deep Brew". This platform consists in a machine learning-powered platform developed in collaboration with Microsoft, integrated with every firm's touch point and capable of personalizing the customer experience depending on numerous factors, such as not only past orders and consumer preferences, but also store location, real-time weather, temperature and more (Microsoft Developer, 2019)<sup>31</sup>.

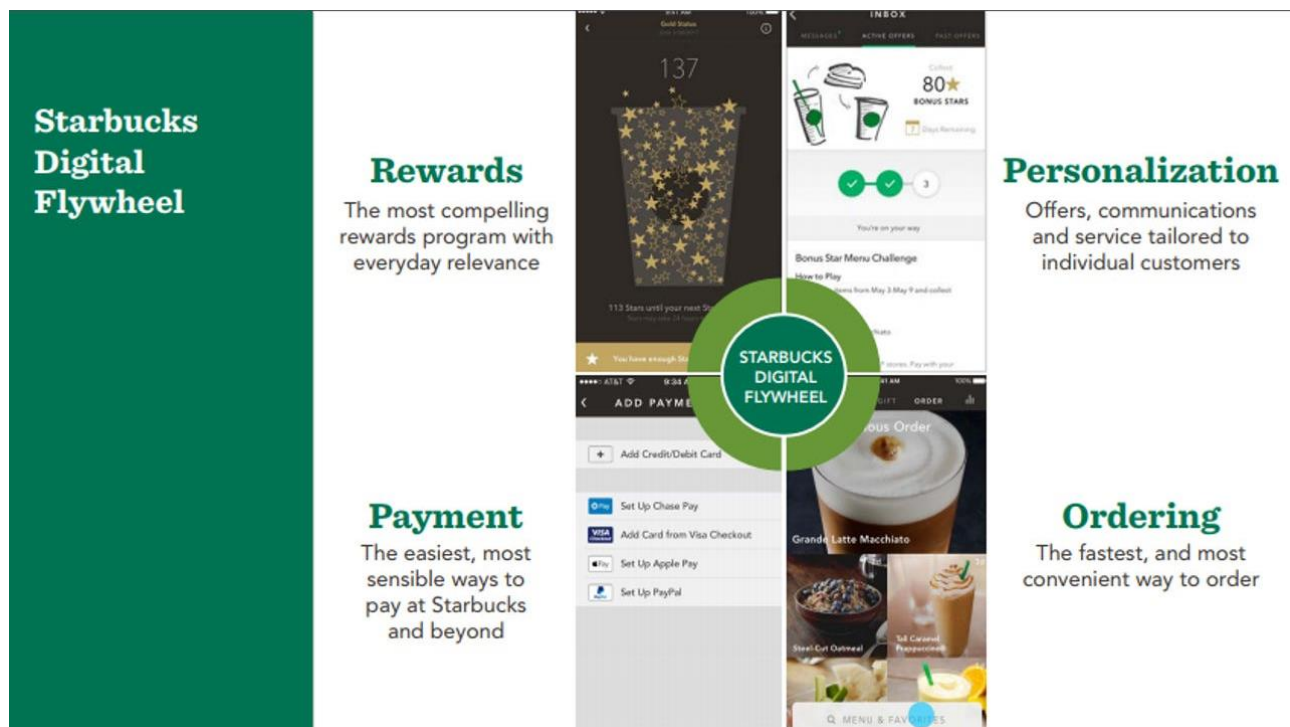


Figure 4: Starbucks Customer Digital Flywheel (Harvard Business School, 2020)

Starbucks' strategy was focused on implementing AI to enhance the performances of not only value-adding activities, but also non-value adding ones which, if at least partially automated by AI, could have saved time for the employees to pay more attention in fostering in-person relationship with the customers inside the coffee shops (Starbucks, 2020)<sup>32</sup>. Therefore, the major business areas in which Deep Brew was implemented were personalized recommendations, innovations and new product offerings, new store locations, inventory management, preventive maintenance and staff planning (Kotorchevikj, 2021)<sup>33</sup>.

The personalized recommendations area is the main value-adding activity in which Deep Brew makes the difference. As previously mentioned, the touch points of the firm, which could be the app itself but also the self-ordering kiosks or the drive-through stores, they all display personalized

<sup>31</sup> [tinyurl.com/MicrosoftDev2019](https://tinyurl.com/MicrosoftDev2019) (minute 5)

<sup>32</sup> [tinyurl.com/Starbucks2020a](https://tinyurl.com/Starbucks2020a)

<sup>33</sup> [tinyurl.com/Kotorchevikj2021](https://tinyurl.com/Kotorchevikj2021)

recommendations of product offerings. They do so by interacting with Deep Brew, which performs real-time data analysis and chooses the most appealing products for those customers based on their purchasing history and patterns, time of day, atmospheric weather and many more factors.

Deep Brew and the analytics coming from the Starbucks' Enterprise Data Analytics Platform (EDAP) are used also for new product development and product innovation. For example, by analysing customer insights from the in-home segment it came out that 43% of consumers don't add sugar to their tea and 25% don't add milk to iced coffees (Kotorchevikj, 2021)<sup>34</sup>. Thus, Starbucks developed two new variants of unsweetened iced tea K-Cups. The AI ecosystem is also used to understand potential opportunities of shop locations, based on revenue estimates generated with data regarding income levels, traffic, or competitor presence.

The in-store activities have witnessed an outstanding increase in efficiency thanks to the implementation of Deep Brew platform. The automatization of some key non value creating activities has improved the overall performances without necessarily affect the customer's perception of human touch in the in-store service. For example, Deep Brew has been used to automatize the inventory management of the coffee shops, supply chain logistics and replenishment orders (Starbucks, 2020)<sup>35</sup>. Another key aspect in which this platform has been fundamental within Starbucks' digital flywheel strategy is the implementation of Internet-Of-Things (IoT) sensors inside of the in-shop machinery in order to be able to schedule its preventive maintenance and never find employees unable to serve customers due to machinery malfunctions. Moreover, Deep Brew has been used also to predict customers' affluence inside stores and schedule the respective staff accordingly.

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<sup>34</sup> [tinyurl.com/Kotorchevikj2021](https://tinyurl.com/Kotorchevikj2021)

<sup>35</sup> [tinyurl.com/Starbucks2020a](https://tinyurl.com/Starbucks2020a)

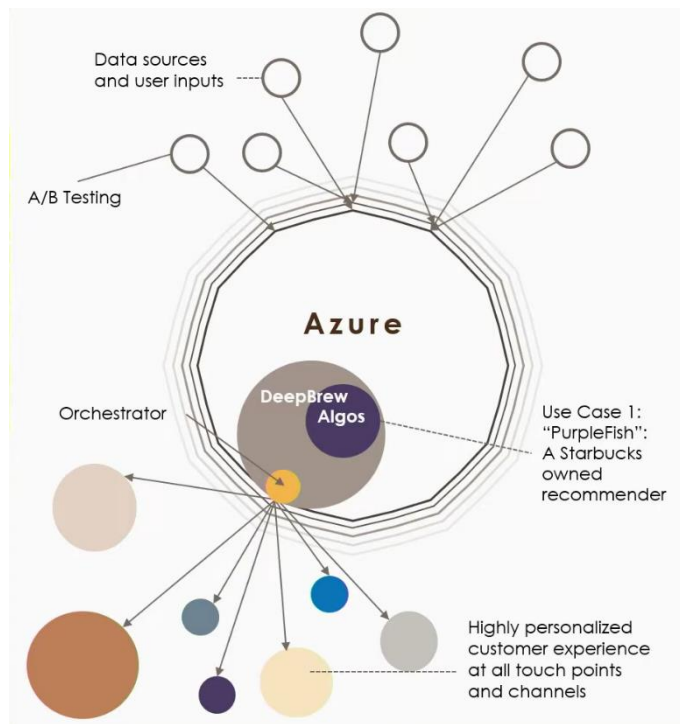


Figure 5: Starbucks' Deep Brew architecture (Microsoft Developer, 2019)

However, since Deep Brew has been built on machine-learning algorithms, and its implementation has been made in 2019, we can hypothesize with a high degree of confidence that the involved technology is based on predictive AI algorithms. In fact, most of the previously mentioned use-cases can be performed by analysing past events and identifying patterns to estimate future customer behaviours. In their reinvention plan announced in September 2023, Starbucks stressed the topic about strengthening and scaling its digital capabilities (Starbucks, 2023a)<sup>36</sup>. Their strategy aims to double their reward program members within five years and strengthen their partnership with Microsoft and Apple for the development of their digital infrastructure and ecosystem. We can therefore expect Starbucks to implement in the next years GenAI functionalities within the app and the stores which are nowadays unknown to the public.

One key strength point of Starbucks which made it possible to create and implement such technology is the huge amount of data accessible by the company. In fact, with that number of worldwide stores generating millions of transactions per week, Starbucks has been able to successfully train and precisely fine-tune the algorithms to be as efficient as possible. We can therefore recognize the AI-implementation pattern identified in the literature review, with big data as a database for AI, serving as the basis for AI technologies applied to CRM activities, which are ultimately used for the strategic management of AI-CRM integrations.

<sup>36</sup> [tinyurl.com/Starbucks2023a](https://tinyurl.com/Starbucks2023a)

## 1.2.2 Lamborghini Case



Figure 6: Volkswagen Group's brands belonging to the progressive brand group (Audi, 2024)

Being both Lamborghini and Ducati owned by the Audi Group, which is ultimately owned by Volkswagen Group, the two firms share many of their core brand values, which resulted in many occasions of synergy creation between the two companies. Within the Volkswagen Group's brand portfolio, Ducati and Lamborghini are both included in the "progressive" brand group, which inherits the positive brand associations arising from the Volkswagen and Audi brands, associated with quality, reliability and style, while at the same time being the core innovators of the group maintaining their own personality and heritage (Audi, 2024; Volkswagen Group, 2024a)<sup>37 38</sup>.

Among the brands present in the progressive brand group, which also comprehends Bentley and Audi itself, Ducati and Lamborghini are the two brands which share most of their core brand values and positive brand associations. Being both geographically located in the heart of the Motor Valley, the history of the two brands is inevitably grounded on common roots. In fact, brand values like style, design, racing, and performance orientation are at the basis of the brands themselves, together with their positioning in the premium and upper-premium sector of the automotive industry.

Synergies between these two brands embrace many distinct aspects of the business, such as product development and co-branding activities, which will be further deepened in subchapter 2.2 about Ducati's core principles. The two firms, however, collaborate with each other and with the parent groups to reciprocally innovate not only for what is concerned with their products' technical innovations, but also in the fields of any other business processes, CRM included.

<sup>37</sup> [tinyurl.com/Audi2024a](https://tinyurl.com/Audi2024a)

<sup>38</sup> [tinyurl.com/VWGroup2024a](https://tinyurl.com/VWGroup2024a)



Figure 7: Lamborghini Unica app (Lamborghini, 2024)

As mentioned by Lamborghini's Head of IT & Commercial Support Lorenzo Cavicchi in an interview by Madeline Bennett (2023)<sup>39</sup> Lamborghini's journey in the digital transformation of its CRM started in 2017 with the development of the mobile app called Lamborghini Unica. The naming of the app is not casual, in fact the reason why Lamborghini called it "Unica" is to differentiate itself from the competition. While major luxury brand used to have many different apps to manage various aspects of the customer journey, Lamborghini wanted to merge everything into one single app.

Thus, Lamborghini chose to partner with Salesforce for the development of this app, but the firm did so in an unconventional way. While most of the companies start their collaboration with Salesforce by choosing to firstly implement Sales Cloud, Salesforce's flagship service for the CRM processes, Lamborghini started with Salesforce Communities, also known as Community Cloud. With this service, Lamborghini was able to create branded online spaces for their customers, partners, and employees to collaborate and engage (Salesforce, 2024c). The firm then built the mobile app by implementing Heroku systems together with Salesforce Community Cloud. Heroku is a cloud-based Platform as a Service (PaaS) that allows businesses to build, run, and scale applications quickly and efficiently. Heroku has been acquired by Salesforce and it integrates seamlessly with Salesforce systems and clouds (Babin, 2023)<sup>40</sup>.

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<sup>39</sup> [tinyurl.com/Bennett2023a](https://tinyurl.com/Bennett2023a)

<sup>40</sup> [tinyurl.com/Babin2023](https://tinyurl.com/Babin2023)

The mobile app was then launched in 2018, and as mentioned during the 2018 Dreamforce conference (Bennett, 2023)<sup>41</sup>, its remarkable success convinced Lamborghini to build up a digital strategy focused on the enhancements of the Unica app that resulted in the current Lamborghini digital platform. Therefore, in 2019 the firm introduced Salesforce's Sales Cloud into the ecosystem, which enhanced the functionalities and completeness of the database. Subsequently, Lamborghini further enhanced the CRM technology at the basis of the app with the introduction of MuleSoft, serving as the new backbone of the whole infrastructure, followed by Marketing Cloud for the marketing communication automations, and Service Cloud for the enhancement of customer service (Bennett, 2023).

Nowadays, the Unica app offers numerous functionalities for Lamborghini cars owners. Some of these functionalities entail that users can directly connect the app to the car to check the mileage, keep track of their trips and their respective statistics, share them on Instagram, and get information about dedicated events and offers dedicated to them. For example, Cavicchi explains in his interview that one of these events was concerned with the customers driving their own Lamborghini in the snow with photographers capturing these scenes, and by the end of the day, with the help of Salesforce infrastructure, customers could already have their pictures downloaded onto their smartphone.

From the kickstarting of its digital innovation strategy, Lamborghini has always been at the forefront of digital innovation into CRM systems. In fact, the firm was also present at the 2019 Dreamforce conference to present a proof of concept about blockchain and then NFTs. However, Cavicchi reported that although both these modern technologies seemed to have the potential to disrupt the digital world, they both melted down quickly. Nevertheless, he also added that

“This (AI) trend is not going to melt down soon. This time it could really be the one technology that will change the way we work and live.” (Bennett, 2023)

However, Lamborghini has presented at Salesforce World Tour 2024 in Milan their collaboration to implement Salesforce's artificial intelligence systems into Lamborghini's CRM ecosystem with Einstein Copilot. Salesforce showed how Lamborghini, thanks to the implementation of Salesforce's Data Cloud module (whose functionalities will be further analysed in chapter 3), will be able to integrate data coming from diverse data sources within the Salesforce database. By doing so, Salesforce will enable Lamborghini to display in the customer's section an enhanced detailed summary of the key characteristics of the customer. Dealers and CRM operators will therefore find within the customer profile some of the main KPIs for Lamborghini's CRM, such as the level of digital engagement of the customer with the brand, or other calculated insights like the overall

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<sup>41</sup> [tinyurl.com/Bennett2023a](https://tinyurl.com/Bennett2023a)

customer satisfaction and the net promoter score. The aim of calculating those insights is to understand the customers' sentiment about the brand and to have useful data for an AI-based advanced segmentation process in which, by inserting a simple plain-language prompt into the Einstein Copilot chat assistant, Lamborghini would be able to generate a new customer segment to be targeted for any specific campaign.

When this solution will be implemented within the Salesforce ecosystem, Lamborghini will be able to access a wide range of data regarding the single customer or identify trends in customer needs or behaviour. One use case of this AI-powered system showed during the live demonstration at the event is the advanced dealer's portal. By accessing its dedicated interface, the dealer will have direct access to the AI-generated data regarding all its customers and to an alert page in which the dealer can instantly inspect any important notifications signalled by the system regarding customer cases or information.

For example, a potential customer of Lamborghini, after participating to the launch event of a new car model, could eventually decide to ask for a quotation on a car configuration made through the Lamborghini Unica app. By doing so, the selected preferred dealer would automatically be notified for a new potential sale opportunity right on the dealer's dashboard, with the possibility to see any change to the car configuration that the customer has done on it. The value added of AI in this system is that the dealer can now access the opportunity and, thanks to the specific customer's data as well as the data of the whole knowledge base and the various data sources connected to it, the dealer is now enabled to directly ask in plain language Einstein Copilot for up-selling and cross-selling opportunities. Being that information grounded on the Data Cloud system, Einstein copilot can suggest opportunities effectively, with suggestions also on how to deal with the customer. Moreover, the user-friendliness of this tool enables the dealer to apply those modifications to the car configuration just by telling the AI to do so.

Another interesting capability of such system is the possibility to check in real time the so-called buildability of the car configuration by automatically checking the compatibility of the car version with the configured accessories. Moreover, once the car configuration is completed, the dealer can also instantly check the time slot in which the car would be scheduled for its production, giving the customer an estimate of the time to delivery.

### 1.2.3 Ferrari Case



Figure 8: AWS powers Scuderia Ferrari (Amazon Web Services, 2022)

In 2021, Ferrari S.p.A. entered a partnership with Amazon Web Services (AWS) as the official cloud provider for the company, covering areas related to GT racing, Challenge series and road car businesses (Scuderia Ferrari, 2021)<sup>42</sup>. Moreover, Ferrari and AWS collaborated for the creation of a new fan engagement app called “Scuderia Ferrari”. While “MyFerrari” app is the one dedicated to car owners, Scuderia Ferrari app is dedicated to Ferrari motorsports fans, in which they can find latest news, exclusive contents and interactive applications about Ferrari Formula One and GT Series motorsports teams (Scuderia Ferrari, 2021).

Former Ferrari Formula One team’s managing director and team principal Mattia Binotto has explained the choice to partner with AWS as follows:

“We have chosen AWS because of its constant drive for innovation, the wide range of solutions for machine learning and its proven experience in supporting partners on a global scale. AWS is without equal in terms of its portfolio of cloud services, including computer vision and machine learning and we intend to exploit that to strengthen and speed up our ability to analyse data.” (Scuderia Ferrari, 2021)

Thus, Ferrari started experimenting with machine learning and artificial intelligence since 2021. However, only in 2024 AWS revealed to the public some insights related to the Ferrari’s use of AI in many business areas such as customer personalization and production efficiency. In particular, Ferrari was able to build a cloud foundation through AWS Fargate service, with a significant reduction of their infrastructure’s cost of ownership. Thanks to this infrastructure, AI application have been implemented for achieving 60% faster estimation of products’ lifecycle.

Ferrari also implemented AI in their customer experience. For example, LLMs and machine learning algorithms have been implemented into Ferrari’s online car configurator to enhance its speed and

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<sup>42</sup> [tinyurl.com/ScuderiaFerrari2021](https://tinyurl.com/ScuderiaFerrari2021)



allow customers to choose among millions of possible configurations 20% faster. Moreover, the car configurator is also enabling Ferrari dealers to find the right car configurations based on their clients' tastes and propose them successful up-selling and cross-selling opportunities (Amazon Web Services, 2024j)<sup>43</sup>.

Another AI implementation in Ferrari's CRM is related to a GenAI chatbot to assist after-sales professional and technicians. Combining Amazon Bedrock platform with LLMs such as Amazon Titan, Claude 3 and Llama, the firm has been able to create an internal comprehensive knowledge base and train the chatbot on its documentation, enabling it to classify and summarize customer care tickets, and answer commonly asked questions that help to reduce human error while improving productivity (Amazon Web Services, 2024j).

Furthermore, the successful Ferrari-AWS partnership enabled the implementation of AI for other business processes such as marketing, design, prototyping, product defects spotting, and other motorsport-related processes. Ferrari is then exploring cloud-based services that will enable the firm to meet its carbon neutrality commitment by 2030 (Amazon Web Services, 2024j).

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<sup>43</sup> [tinyurl.com/AWS2024j](https://tinyurl.com/AWS2024j)

#### **1.2.4 Luxury Fashion Case**

Being Ducati brand positioned in the premium and upper-premium segment of the market, it shares many aspects and brand associations with fashion luxury brands, especially for what is concerned with customer relationship management. Nowadays fashion luxury brands are implementing AI for CRM in numerous ways.

For example, an internationally recognized luxury fashion brand implemented predictive artificial intelligence for estimating key insights about their customers. In particular, those predictive algorithms were trained on structured and unstructured data about customer behaviour to forecast customers' lifetime value (CLV). CLV can be calculated in many ways, including risk-adjusted CLV calculations which take into considerations numerous factors including customer risks. CLV calculations will be further explored in subchapter 2.7 about Top Ducatisti.

Another key insight, that this fashion brand was able to derive from structured and unstructured data thanks to GenAI algorithms, is the estimation of the customers' current stage of the customer journey. By retrieving from the knowledge base data about customer interactions it is possible for AI to estimate how close a customer is from his or her next purchase, and derive business implications from that key insight that would have been ignored without this technological innovation.

By having access to these new key insights the firm was able, thanks to GenAI recap features, to summarize the key information about single customers into one single entity called "Golden Record". This new entity enabled the firm to target specific clients with tailored communication, based for example on their high propensity of purchase or on their risk of churn. Moreover, the predictive CLV calculation enabled the firm to increase the accuracy of CLV estimates, allowing it to concentrate efforts on the most strategic portfolio of high-value clients.

## **Chapter 2: The role of AI in enhancing Ducati's CRM**

This thesis has been prepared during my internship for preparation of my final dissertation at Ducati Motor Holding S.p.A. Thanks to this experience, I have been able to get a broad understanding of the internal CRM processes of this multinational enterprise operating in the automotive industry and, due to its positioning in the premium and luxury segment of the market, Ducati represents a true excellence in the field of customer relationship management. In this chapter, I will delve into the concept of CRM as intended by Ducati as well as the corporate culture surrounding the CRM environment. However, some of the information reported in this chapter come from internal sources which are therefore not present in the bibliography.

After a brief introduction of the past and present history of the firm in subchapter 2.1, in 2.2 I will describe some of the key concepts regarding the corporate culture in terms of customer relationship management which shape the CRM process.

Subsequently, I will analyse some specific CRM processes, describing their functioning and their importance within Ducati's CRM ecosystem, I will firstly describe in subchapter 2.3 the Ducati's CRM ideal customer journey and its various steps which shape the Ducati experience and drive customers towards loyalty. In parallel, I will delve into the contact plan, a comprehensive set of milestones and channels of communication that shape the customer journey and the Ducati experience itself, starting from the order of a new motorbike until the rest of the customer journey.

Then, in subchapter 2.4 I will describe the role of dealers into the Ducati ecosystem and the ways they deliver a consistent brand experience all over the world, guaranteeing a premium level of service for their customers.

Following that, in 2.5 I will describe the Ducati Official Clubs, their importance as experiential part of the Ducati customer journey, and their close link with the dealers to provide an upper-premium experience.

In subchapter 2.6 I will delve into the pivotal role of the MyDucati app as a one-stop shop area for all Ducatisti, in which they can access every aspect of the Ducati experience such as news on Ducati Corse, their Ducati Official Club, their Dealer and much more.

Subchapter 2.7 will be dedicated to the top Ducatisti segment, which is the one enclosing the highest-spending customers and therefore it deserves special treatment and attention due to its strategic implications.

Then, in subchapter 2.8 I will describe the role of NPS as the most important key indicator of Ducati's CRM performances with its pros and cons.

Closing the loop, subchapter 2.9 will be dedicated to the customer experience excellence, i.e. the customer care team which is fundamental for the support of many other Ducati's CRM processes.

For each one of these topics, I will then describe the respective use cases related to how the implementation of artificial intelligence could enhance their performance and efficiency, in order to achieve the goals set by the company and at the same time respecting the core brand values of Ducati as well as the corporate culture.

Those use cases will be created from a theoretical perspective, without constraints of time and resources, to highlight the potential added value of the implementation of AI in Ducati's CRM processes. I will assume that the implementation of AI into Ducati's CRM systems required the availability of the whole internal database as well as the connection of the data ecosystem with external sources such as social media, in order to be capable of collecting, storing and analysing data coming from different sources of structured and unstructured data. In this way, Ducati could access and leverage its internal knowledge base.

## 2.1 Ducati at a Glance

Antonio Cavalieri Ducati and his three sons, Adriano, Marcello, and Bruno founded Ducati in 1926 in Borgo Panigale (Bologna, Italy). At that time, the firm was named “Società Scientifica Radiobrevetti Ducati” and, as the name suggests, they were producing electronic capacitors for radio-communication devices.



Figure 9: First stone of the Ducati Factory, laid on the 1<sup>st</sup> of June 1936

The construction of the Ducati Factory in Borgo Panigale started in 1936 with the laying of the first stone, which has been extracted in April 2024, as showed in figure 9 in a picture personally taken at the Ducati Museum. The first stone still had the logo of the Società Scientifica Radiobrevetti Ducati (SSR), which is now the logo of Ducati Energia, a firm based in Borgo Panigale still producing electronic capacitors and now independent from Ducati Motor Holding. In 1944, during the second world war, the production plant has been destroyed by a bombing, and from its rubble the company started its reconversion to the production of motorcycles (Ducati Motor Holding, 2024c)<sup>44</sup>. The motorsports success of the Ducati motorcycles during the 60s and 70s shaped the Ducati brand image in the mind of the audiences and drove the company’s sale of street model which made the history of motorcycling (Lodi, 2024)<sup>45</sup>.



Figure 10: Francesco Bagnaia, 2 times MotoGP World Champion (Ducati Motor Holding, 2023)

<sup>44</sup> [tinyurl.com/DMH2024c](https://tinyurl.com/DMH2024c)

<sup>45</sup> [tinyurl.com/Lodi2024](https://tinyurl.com/Lodi2024)

As shown in figure 10, the winning trend still continues nowadays<sup>46</sup>. Ducati now represents the most successful brand in the history of motorbike race competitions, and the company has been growing steadily decade after decade. In particular, 2023 has been one of the most successful years in Ducati's history, with the achievement of winning the world title in the World Supersport, World Superbike and MotoGP championships.

With more than 58.000 motorcycles sold in 2023, Ducati is today the world market-leading company for high-performance motorcycles. The value proposition of the brand stresses the concepts of high-end, sophisticated, and technologically advanced bikes with distinctive design (Ducati Motor Holding, 2024a)<sup>47</sup>. While the majority of its production processes are carried out in Borgo Panigale, the company has expanded in geographical terms as well, establishing a distribution channel that counts a total of 790 dealers and service points, spread across 92 countries of the world and divided into ten subsidiaries representing the company, as shown in figure 11 (Ducati Motor Holding, 2024b)<sup>48</sup>.

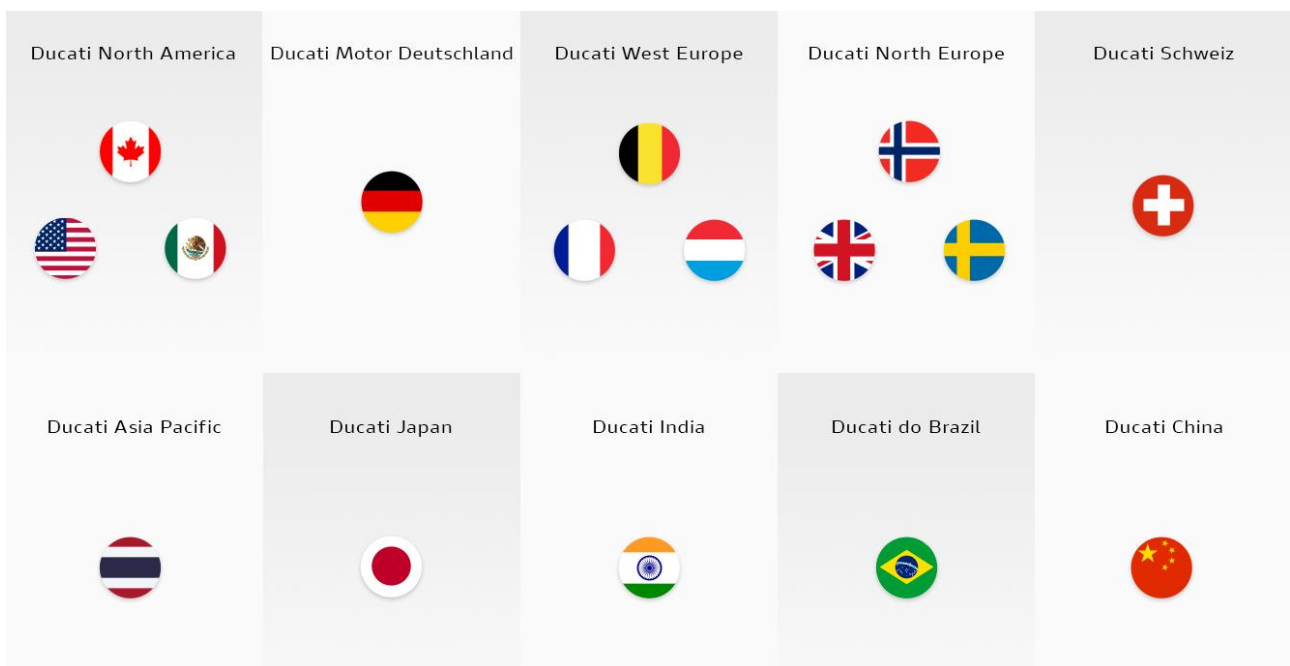


Figure 11: Ducati Subsidiaries (Ducati Motor Holding, 2024b)

<sup>46</sup> [tinyurl.com/DMH2023](https://www.tinyurl.com/DMH2023)

<sup>47</sup> [tinyurl.com/DMH2024a](https://www.tinyurl.com/DMH2024a)

<sup>48</sup> [tinyurl.com/DMH2024b](https://www.tinyurl.com/DMH2024b)

## 2.2 Ducati's CRM Vision, Mission, and Core Principles

The mission statement of the Ducati brand well represents its core values of style, sophistication, and performance (Ducati Motor Holding, 2024d)<sup>49</sup>:

“Ducati realizes the dream of every Ducatista by crafting motorcycles that are the purest expression of refined engineering (performance), sensual beauty, and unmistakable Italian style (style), with constant attention to the highest standards of quality (sophistication).” (Volkswagen Group, 2024b)<sup>50</sup>

The mission statement goes on highlighting that “technology and high performance are at the service of all motorcyclists eager to live an incredible experience on two wheels.” (Volkswagen Group, 2024b). Thus, the concept of technology at the service of high-end customer experience is well rooted in Ducati's corporate culture. In fact, Ducati's CRM has its own vision statement, which echoes such philosophy:

“Offer Ducatisti a Memorable Experience.”

This simple statement encloses two particularly important concepts, “Ducatisti” and “Memorable Experience”, which deserve to be further explored.

First, the concept of “Ducatisti” embraces not only Ducati customers, but a wide series of Ducati stakeholders and more. As reported on the corporate website by the curator of the Ducati Museum Livio Lodi (2024)<sup>51</sup>, which I have had the pleasure to meet during my internship at Ducati, Ducatista is the term which identifies a Ducati fan or a Ducati owner. Different from the term “Ducatiiani”, which refers to the stakeholders of Ducati brand before the '50s, a Ducatista is any Ducati fan which has been passionate about the brand subsequently to one of its historic or contemporary successes in the motorsport world, such as the first world championships in the '60s and '70s (like the first wins at the 24 Horas de Montjuic in Barcellona, or Imola '72 or the Tourist Trophy '78) until the more recent MotoGP and Superbike championships.

Within the Ducati internal environment, the terms “customer” and “client” take on meanings that slightly differ from the usual ones. The term “customer” for Ducati refers to an individual which purchases products and services based on price and value, an individual whose relationship is not necessary to make a sale and therefore it ends right after the transaction is done. On the other hand, “client” is for Ducati a person who purchases basing his or her choice on trust and experience, who has a personal relationship with the business and will have a longer time frame with the business. In

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<sup>49</sup> [tinyurl.com/DMH2024d](https://tinyurl.com/DMH2024d)

<sup>50</sup> [tinyurl.com/VWGroup2024b](https://tinyurl.com/VWGroup2024b)

<sup>51</sup> [tinyurl.com/Lodi2024](https://tinyurl.com/Lodi2024)

fact, within Ducati environment employees tend to always refer to customers as “clients” and Ducati’s CRM is actually the acronym of “Client Relationship Management”. For the purposes of this thesis, if not otherwise specified, I will continue to consider a customer as an individual who purchases a good from a company and a client as an individual receiving services or professional advice.

The second important concept mentioned in the Ducati’s CRM vision is the “Memorable Experience”. Not only, as stated in the general corporate mission, the Ducatista should live an incredible experience thanks to the top performances and the unique style of the motorbikes, but the treatment received by the customer right from the order should be memorable both on the bike and off the bike. This entails that for the customer experience to be memorable, it should exceed the expectations, and the customer should be enthusiast to promote the brand to others spreading positive word of mouth as an ambassador.

Ducati’s CRM has also developed its internal mission statement, which sets the general direction towards which the CRM team is aligned:

“Walking them through the whole lifecycle, delivering a consistent brand experience through all Ducati touch points”

In this mission statement, each word is carefully weighted and delivers a specific message. Firstly, the term “walking” suggests that every single customer should be guided through each step of its lifecycle, and nothing should be taken for granted. Regardless of the intensity of the engagement between the brand and the customer, the latter should be guided towards the following steps of the customer journey. The customer lifecycle is another key component of the mission of Ducati’s CRM, and it is almost overlapping with the concept of the customer journey. In fact, each stage of the customer lifecycle, from its initiation to the conclusion, corresponds to one of the previously mentioned dimensions of the CRM process (Reinartz et al., 2004, p. 295)<sup>52</sup>. The way Ducati’s CRM addresses each stage of the customer lifecycle will be deepened in the following subchapter about the contact plan.

Another concept which deserves to be further deepened is the Ducati’s CRM delivery of a “consistent brand experience”, which recalls the concept of incredible and memorable experience present in the CRM mission as well as in the corporate mission. Thus, together with the fact that the customer experience should be incredible thanks to the motorbike’s performance, and it should be memorable thanks to the surrounding services, the customer experience should be consistent with the brand image

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<sup>52</sup> [tinyurl.com/Reinartz2004a](http://tinyurl.com/Reinartz2004a)



itself. This implies that the level of service should stay high through all the customer lifecycle, and it should always be in line with the core values of style, sophistication, and performance.

Lastly, this brand experience concept should be delivered consistently through all the touch points through which the customer gets in contact with the brand. All the Ducati stakeholders should therefore be aligned with this mindset, so that the level of service can be consistently delivered by the corporate as well as by the dealers, the official clubs, the website, the events, the loyalty programs, the racing and driving experiences, and by the motorbikes themselves.

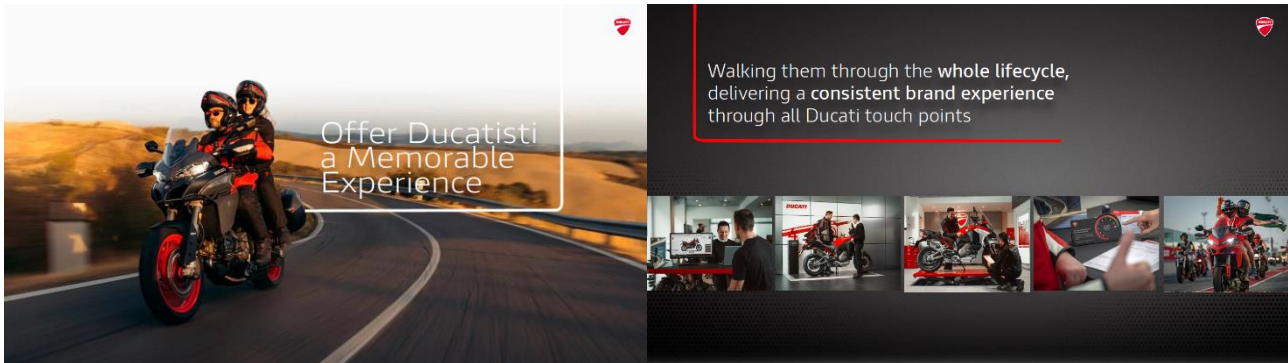


Figure 12: Ducati's CRM vision and mission

During my internship I had the opportunity to deepen some other particularly important concepts for Ducati's CRM, which are the ones highlighted in figure 13.

In the middle of the slide, the most visible concept is "human touch". Although the technological improvements and sophistication are at the core of Ducati's identity, the customer experience should never miss the feeling of human touch, as it would lower the perception of a premium service, and it would go against the principle of consistency with the brand positioning. At the same time, the concept of one-to-one stresses the direction of Ducati's CRM to achieve a fully personalized experience for each customer, and this will be one of the key principles that could be enhanced by the implementation of artificial intelligence within the CRM systems. These two principles, though, pose us in front of a trade-off between the need to automatize the personalization of the service provided using artificial intelligence technologies while maintaining at the same time the customer's perception of human touch. This trade off will be one of the key challenges that Ducati will face in the implementation of AI within their CRM processes.



Figure 13: Ducati's CRM keywords

“Raise The Bar” is the name of Ducati’s strategy started two years ago consisting of a brand positioning shift from the premium market to the upper premium market. The number of vehicles produced by the firm in one year, which has been less than 60.000 in 2023 (Ducati Motor Holding, 2024a)<sup>53</sup>, is considerably limited if compared for example to the Japanese competitors. With 4.8 million motorbikes (Arba, 2024)<sup>54</sup> produced in 2023, Yamaha produces in less than five days the same number of motorbikes produced by Ducati in one year. This fact witnesses the exclusivity and premium positioning of the Borgo Panigale’s brand. Shifting towards an upper premium positioning means to differentiate even more from the competition, developing even more exclusive motorbikes for the elite customers. Some examples of the application of this strategy are the co-branding initiatives made in the last years to develop limited edition motorbikes, such as the collaboration with other brands belonging to the Volkswagen Group and other luxury brands whose values are coherent with luxury, style, sophistication, and performance. Some examples of those limited-edition motorbikes are shown in figure 14, respectively the Diavel for Bentley, the Streetfighter V4 Lamborghini, and the Streetfighter V4 Supreme.



Figure 14: examples of Ducati limited edition models developed in collaboration with other brands

As reported by Fredric Marty in an interview with Maxime Loiseau, head of Ducati West Europe subsidiary (translated from French):

<sup>53</sup> [tinyurl.com/DMH2024a](https://tinyurl.com/DMH2024a)

<sup>54</sup> [tinyurl.com/Arba2024](https://tinyurl.com/Arba2024)

“...the brand belonging to the Audi group wants to position itself in the "upper premium" segment. A global strategy that notably involves a strengthened customer relationship maintained by involved distributors.” (Marty, 2023)<sup>55</sup>

Therefore, the positioning shift required Ducati’s CRM to raise the bar, hence the name of the strategy. The transition to an AI-driven CRM is part of this strategy as it’s consistent with all the Ducati values, with the only challenge of finding a trade-off between the customer’s perception of human touch and AI automation.

The concept of Membership will be further deepened in subchapter 2.5 about Ducati Official Clubs, while some other key concepts are so important that they are worth to be discussed in a dedicated subchapter, that is the case of Top Ducatisti in chapter 2.7 and NPS in chapter 2.8.

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<sup>55</sup> [tinyurl.com/Marty2023a](https://tinyurl.com/Marty2023a)

## 2.3 Customer Journey and Contact Plan

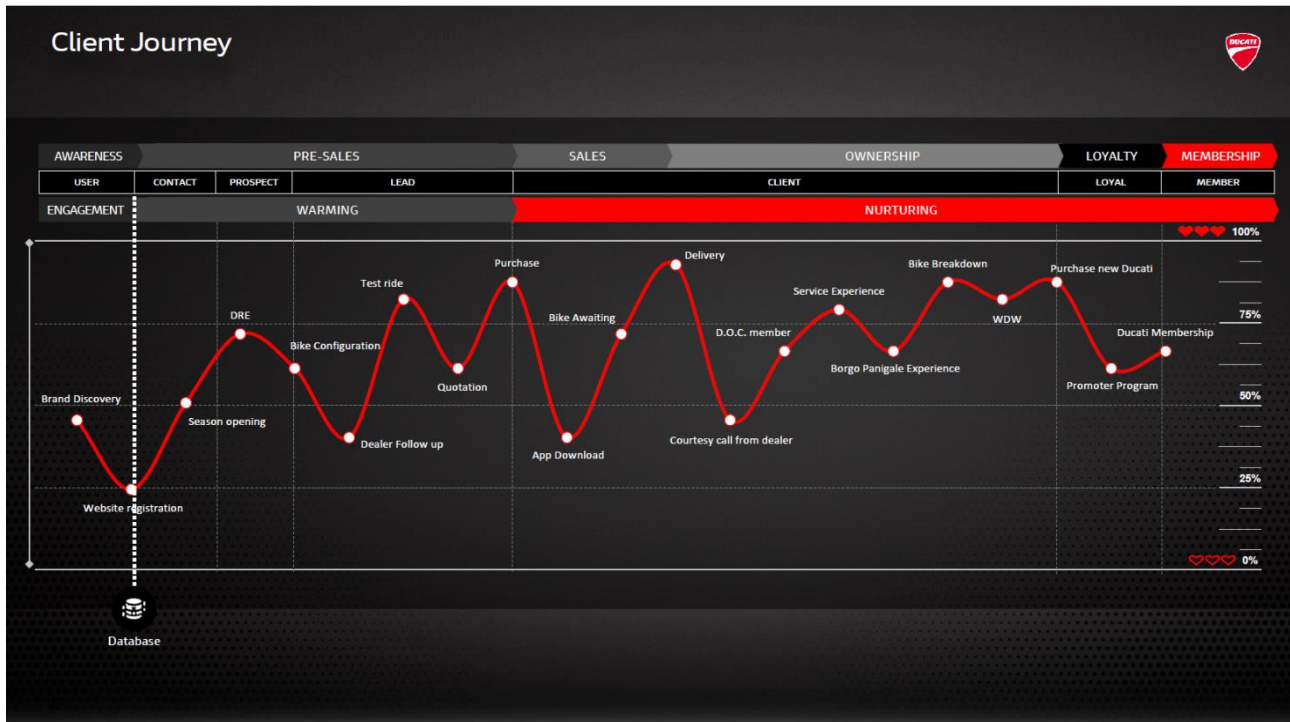


Figure 15: Ideal client journey

Figure 15 represents the ideal Ducati customer journey from its first contact with the brand to the actual purchase and the after-sale relationship management. As previously mentioned, the customer journey can be described following the CRM subdimensions ideated by Reinartz et al. (2004, p. 295)<sup>56</sup>. In fact, starting with the relationship initiation dimension, everything starts with the user's discovery of the brand. This could happen on any occasion such as an event, a MotoGP race on television, as well as just the sight of a Ducati motorbike on the street which made the future customer turn his or her head. Whenever the level of engagement is high enough to bring the user to register him or herself on the website, this becomes a contact and is therefore registered on the CRM database. From now on, the potential customer could take different paths towards the actual purchase, such as participating to the Ducati Riding Experiences (DRE) or book a test ride, or directly ask its nearest dealer for a quotation. These processes could lead the prospect to the final purchase, resulting in the completion of the customer acquisition subdimension phase, but sometimes it could also happen that after the quotation the potential customer does not move on to the next stage. Therefore, the so-called "sleeper leads" are contacted again by the dealer and/or by the company itself through phone or e-mail to conclude the deal. Thus, the customer recovery subdimension is completed.

From the moment of purchase starts the relationship maintenance dimension. This phase is where the majority of CRM activities take place. In this stage, the customer is walked through each stage of its

<sup>56</sup> [tinyurl.com/Reinartz2004a](http://tinyurl.com/Reinartz2004a)

lifecycle and the relationship between him or her and the brand is managed via the so-called contact plan, a series of pre-defined communications to be delivered to the customer in specific periods of their lifecycle.

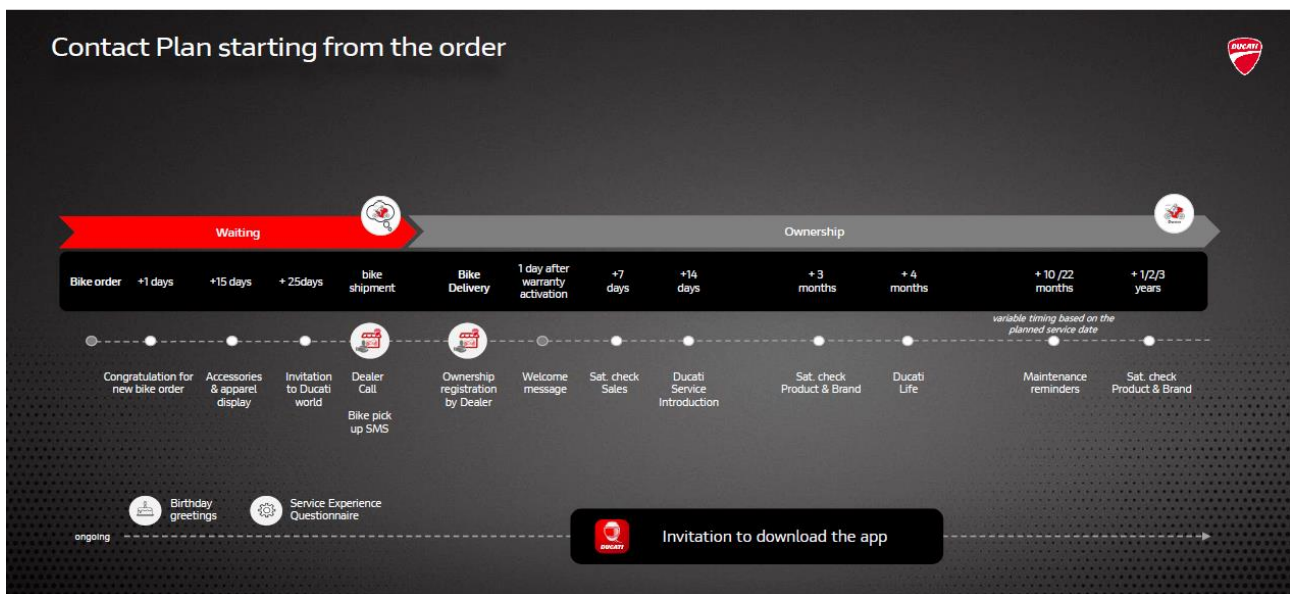


Figure 16: Ducati Contact plan

A critical stage of the customer relationship management is the so-called waiting management, which represents the period of time between the order and the actual motorbike delivery. Some may think that the length of this period should be as short as possible. However, the time dimension is a crucial driver of desire for luxury items like Ducati Motorcycles, especially after the “raise the bar” strategical shift towards an upper-premium positioning. In fact, as described by one of the most influential branding experts Jean-Noel Kapferer, luxury brands should be excellent in the challenging task to distribute rarity. The absence of rarity and the immediate access to luxury items inevitably dissipate the intrinsic desire of them, and so does the disappearance of the waiting time (Kapferer & Bastien, 2017, p. 77)<sup>57</sup>. The waiting time, however, is crucial also because the level of engagement between the brand and the customer is at its highest, due to the exceptional amount of hype around the novelty of the customer’s new purchase. For this reason, Ducati’s communication plan comprehends a considerably dense scheduling of messages, in which the customer is invited to discover the services surrounding its Ducati experience such as the digital services, the MyDucati App, the upcoming events as well as the possibility to participate to experiences reserved to customers such as the Borgo Panigale Experience and the before mentioned DRE. The waiting period is also an opportunity for cross-selling of complementary goods such as the motorbike accessories and branded apparel, which are displayed in most of these initial communications and available for purchase.

<sup>57</sup> [tinyurl.com/KapfererBastien2017](https://tinyurl.com/KapfererBastien2017)

Moreover, each communication is carried out by email, together with a corresponding push notification on the MyDucati app, and if the customer has not engaged with one of these contents after three days, he or she receives a reminder via SMS in order to recover the lost engagement.

As previously mentioned, the “raise the bar” strategy implies a strengthened customer relationship and an upper-premium level of service. For this reason, the customers who are lucky enough to purchase a limited-edition motorbike receive a special treatment right from the waiting period, with a dedicated communication plan, which is different for each limited-edition model. In the example shown in figure 17 it is displayed the dedicated communication plan for the customers who have purchased the Diavel for Bentley model. First, the welcome mail is fully personalized for the specific bike model, with reference to the dedicated exclusive apparel collection. Moreover, these customers receive an even more special treatment with customised services such as in this case the bike personalization in collaboration with the Ducati Style Centre (just for the owners of the 50 “Mulliner” version out of 500 total Diavel for Bentley produced), special contents on the MyDucati App like the interview with the designer, an authenticity certificate and a welcome gift at delivery.

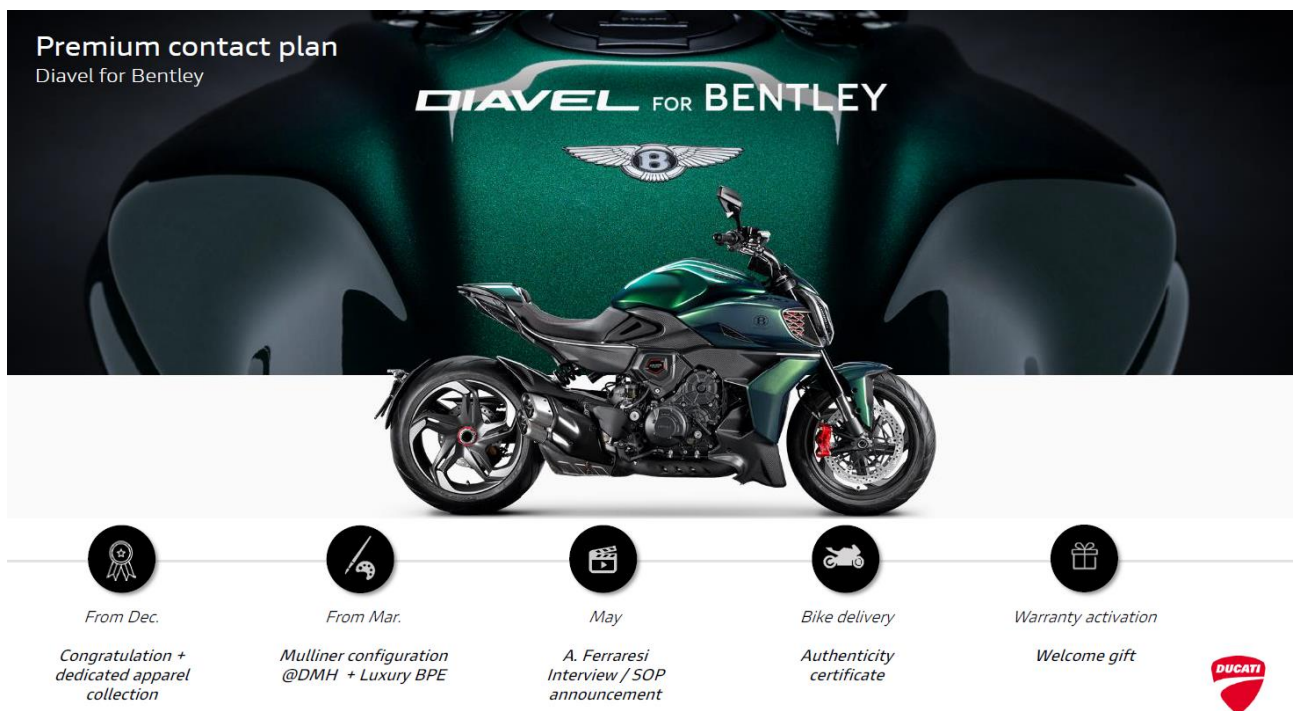


Figure 17: Diavel for Bentley dedicated communication plan.

Going back to the general contact plan, after the bike delivery the customer is constantly reached by personalized communication, depending on the purchased motorbike model and other personal characteristics. In particular, the customer is introduced to the Ducati service, as it’s a very important touch point with a high degree of engagement with the brand, and it’s a key moment for the customer relationship. Together with that, the customer receives periodic newsletters and communications

about upcoming events, as well as birthday greetings and invitation to download the app, if he or she didn't do it yet.

The contact plan can therefore represent the customer retention subdimension of the CRM process, and this leads the customer to the up-selling and cross-selling subdimension, which is represented in the customer journey by the shift towards the loyalty stage where he or she purchases a new Ducati. I have knowingly skipped the customer evaluation subdimensions as they could be seen as an overarching activity that covers the whole CRM process. In fact, in Ducati's CRM this phase is extensively performed using questionnaires, and the main goal is to capture the customers' net promoter score (NPS), which not only assesses the level of customer satisfaction, but also his or her likelihood to promote the brand to other individuals, spreading positive word of mouth. Therefore, not only NPS covers the evaluation subdimensions, but also the customer referral management subdimension of the CRM process. NPS, however, will be further analysed in its dedicated subchapter.

For what is concerned with the subdimension of the customer exit, Ducati is not yet able to track the precise number of lost customers. In fact, it is not possible to access the full database of changes of ownership worldwide. One of the possible sources of such information is the MyDucati App, where Ducati owners can autonomously declare they no longer own their motorbike as they have sold it or, more unluckily, the bike is no longer available. It is also possible that the new Ducati owner asks for his or her bike's certification of ownership, therefore updating the old owner's status. However, this system does not give Ducati's CRM the certainty of the number of lost customers leaving them without an accurate churn rate performance indicator.

### **2.3.1 AI Use Cases for Customer Journey and Contact Plan**

The first field in which I believe AI could potentially enhance the CRM systems, as previously described in figure 3 (Zerbino et al., 2018, p. 821)<sup>58</sup>, is the customer journey tracking and evaluation. In fact, having access to the internal database as well as external information, AI could match structured and unstructured data to reconstruct each customer's journey from the first contacts with the brand through social media until the membership phase, going through the attendance to corporate events, test drives, NPS evaluations, Ducati services and so on. In this way, Ducati would have access to a whole dataset of customer journeys, enabling a more accurate analysis and the identification of anomalies as well as churn rates in each step. Moreover, the data resulting from the journey tracking

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<sup>58</sup> [tinyurl.com/Zerbino2018](https://tinyurl.com/Zerbino2018)

can themselves become useful to other AI integration such as the advanced customer segmentation and the customer lifetime value estimates.

Still following the literature review, another fundamental use case, which I believe is crucial for the efficiency of any other use case, is the advanced AI-powered customer segmentation. Having access to so many data enables AI technology to become increasingly more accurate in creating homogeneous clusters of customers, with the capability to also give an accurate description of the key characteristics of those clusters and what are the key differences among them. Being one of the key goals of this project to get closer to a one-to-one relationship with the customers, I believe that it would be fundamental to perform an accurate segmentation of customers that will gradually increase the level of capillarity within the database, with the aim to adapt the customer journey and the surrounding services to the characteristics of each individual.

Strictly connected with the previous use case, GenAI technologies could be implemented to generate dedicated communications. Although the Ducati's contact plan is capable of reaching more than 70% of engagement rate through the different channels, communications are mostly standardized and there is little customization of contents. Through the use of GenAI, each communication, either via email, SMS or push notification on the app, could potentially be AI-generated and fully personalized. Various degrees of personalization are possible depending on the capillarity of the before mentioned segmentation. For example, nowadays communications are mainly personalized depending on the purchase history, i.e. the motorbike model purchased, the amount of money spent in the last years (identifying top customer) and so on. With advanced segmentation, GenAI could generate as many text alternatives for the specific communication as the clusters identified. Bringing this reasoning to extreme levels, it is hypothetically possible to increase the number of clusters until it matches the number of customers so to generate a personalized text for each individual, achieving the goal of one-to-one relationship with the customer.



## 2.4 Dealers

The Ducati business model implies a well-structured distribution channel. In fact, being the motorbikes produced mainly in Borgo Panigale facilities, while the rest is produced in the facilities situated in the Rayong province of Thailand, the company must rely in a dense network of dealers situated all around the world. In particular, Ducati can rely on a network of 720 dealers spread in 83 different countries. As previously mentioned, the dealers must guarantee a premium experience consistently with Ducati brand identity and its values. In fact, dealers are the ones with direct contact with the customers and they are responsible also for making them feel the human touch within the Ducati experience. For that reason, not only the dealers are trained for what is concerned with business processes and tools, but also on those soft skills which are fundamental to “raise the bar”.

To provide such premium experience, among the tools on which they are trained for there is also the access to Salesforce database. Having such tool at their disposal, dealers can easily access all the information they need about their customers, including their purchasing history, their past expenditure, their desired bikes, the quotations they have already asked, and much more. Through the access to Salesforce ecosystem, dealers are also enabled to not only contact customers through phone calls or email, but also to send them dedicated push notifications on the MyDucati App. The flow of data, however, runs also in the opposite direction, as dealers are also enabled to enrich the customer profile with updated info, contacts, and they can also input strategic analysis and reporting data such as the quotations and their possible rejection reasons.

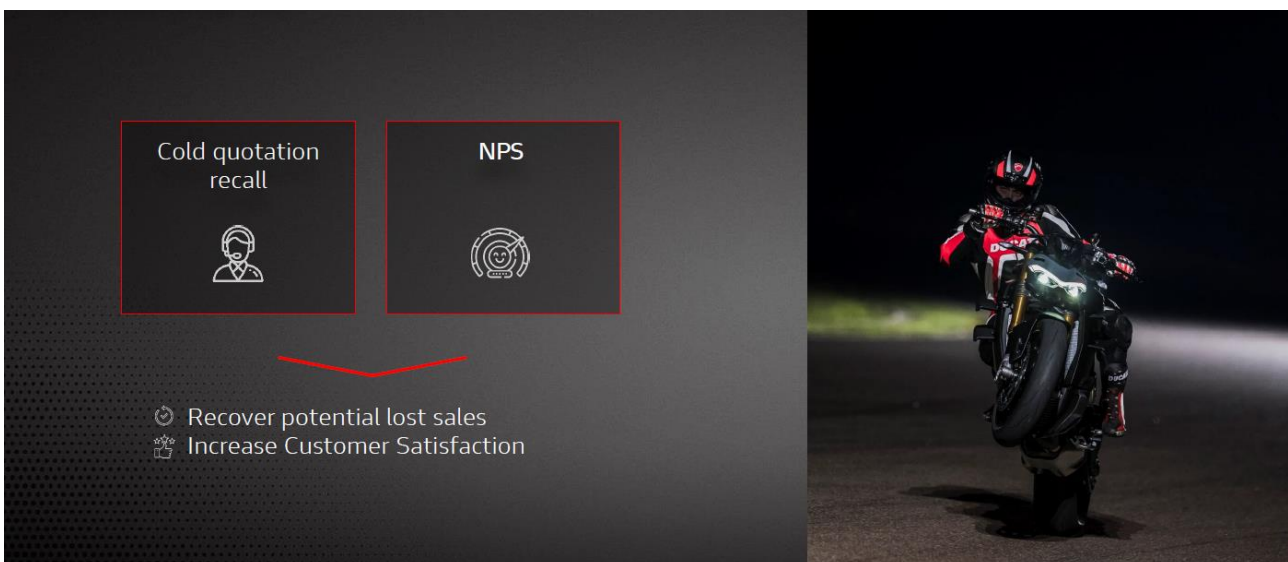


Figure 18: Quotations key role

The previously mentioned human touch is so important to Ducati because in the luxury sector what makes the difference are people. For this reason, to be consistent with the brand values, dealers are trained to also improve their soft skills such as their communication effectiveness, empathy,

transactional analysis, active listening, assertiveness, and resilience. This training is delivered so that dealers can manage various situations such as an angry customer, a discount request, or the management of a pre-owned motorbike.

As mentioned in figure 18, the introduction of the quotations into the CRM database has been a strategic improvement for two main CRM activities: first, the cold quotation recall consists in what has been previously described as the recall of the so-called “sleeper leads”, i.e. potential customers who have asked a quotation but did not finalize it yet. Having quotations on the database, dealers can easily access the list of opportunities and their related customer profile. Secondly, right after receiving the quotation from the dealer, the potential customer receives an email and/or a push notification on the app asking him or her to fill a questionnaire about its experience. If the NPS resulting from this questionnaire is low, the so-called “detractor” is signalled to the dealer as well as to the area manager and gets called right back by the dealer, which tries to recover the customer dissatisfaction. Both these activities have resulted in a significant customer recovery, and many previously dissatisfied customers ended up buying the motorbike after receiving such dedicated treatment.

#### **2.4.1 AI Use Cases for Dealers**

Although dealers have already access to a great amount of information regarding their customers, artificial intelligence could be implemented to create more accurate and on-point summaries, enabling each dealer to have a brief overview of the next customer he or she will have to deal with. Moreover, predictive AI could also be implemented to suggest up-selling and cross-selling opportunities, highlighting for example the recommended accessories, services, and apparel for the specific customer.

Hypothetically, taking the concept to extremes, AI could even be implemented to substitute a large number of activities done by the dealer, especially in the interaction with the customer. In fact, a chatbot could emulate the behaviour of the dealer and complete the sale itself using a simple user interface like the Starbucks’ self-ordering kiosk. However, in my opinion, dealers will have a significantly different role in the implementation of AI within the CRM processes. Since they are the ones with the most direct contact with customers, they will always be responsible for the human touch feeling, and they will guarantee the trade-off between AI automation and human behaviour.

Moreover, dealers will themselves be useful for AI as a data source, meaning that for each interaction between the customer and the dealer, either in person or via call, a summary of the conversation could be uploaded to the AI data lake in order to enrich the knowledge base, without the need to spend time to create and upload structured data.

The balance between human touch and the automation and efficiency brought by the implementation of AI does not imply that chatbots could never be used for a premium or upper-premium brand such as Ducati. It represents in fact a trade-off that should be carefully evaluated by the management from a strategic point of view. A potential solution to this trade-off is the human intervention for customer requests going beyond the chatbot's pre-defined boundaries or requests coming from strategic customers such as the ones with high CLV. However, this aspect will be further explored subsequently in the section dedicated to MyDucati App.

Thus, a hypothetical AI-based agent implemented in the app could be useful for customers both in case of a scheduled maintenance or in case of motorbikes malfunctions which requires service. For the first case, a predictive model could estimate the period of the next maintenance and remind the customer so that he or she can schedule the appointment accordingly. For the case of a motorbike malfunction, due to its higher level of urgency, having an AI-based agent integrated on the app which could give assistance 24/7 would significantly improve the customer experience. Hypothetically, a customer having such problems with his or her motorbike could describe the problem to the AI agent and provide also graphic media such as pictures and videos. Thus, the AI agent would be able to understand the problem faster than a human operator, thanks to information retrieval from the knowledge base, and subsequently forward the conversation to the dealer's team with all the information needed for taking action and deliver a fast and efficient intervention, including suggestions on how to respond to the customer and related knowledge base articles or files that could be helpful for the specific situation. Hypothetically, providing the AI agent with a higher degree of autonomy, it could autonomously calculate the time needed for the resolution of the customer's problem, check the dealer's availability, and schedule the appointment. Moreover, it could do so even when the dealer is closed.

While the use of automated AI agents in the dealer's front-end operations requires the resolution of such trade-offs, that is not the case for the dealer's back-end operations. In fact, as shown in the Lamborghini case in subchapter 1.2.2, AI could be also implemented for providing sales assistants drafts of their sales pitch for upcoming sales appointments, carefully tailored for each potential customer with personalized recommendation about motorbike configurations and accessories. Moreover, AI could personalize even more the customer experience providing suggestions on the best tone of voice to keep for each potential customer and giving an estimate of the time-to-market of the specific customer's configuration in order to give a proxy of his or her wait time until the delivery.

## **2.5 Ducati Official Clubs**

Another particularly important concept of Ducati's brand identity is the membership. Membership means that Ducatisti should feel part of a community, a family united by the passion for the brand and what it represents. Ducati fans are spread all around the world and many of them participate to independent clubs organising events and meetings to celebrate their passion for motorcycling and racing activities. Starting from 2022 Ducati officialised the Ducati fan clubs (Ducati Official Clubs or DOCs) all around the world, recognizing their activities and giving them tools and knowledge to enable them to spread even more the passion for the brand. Nowadays, Ducati can count on 350 official clubs spread in many different countries, which have been structured by the corporate to strategically cooperate with the dealers for business purposes. In fact, each DOC is associated to a dealer, and their relationship is reciprocally disciplined so that the club becomes the experiential counterpart of the dealer within its territory of competence. While the dealer represents the sales and service side of the customer relationship, the DOC represents the fun and family side of the relationship with the brand. Every DOC should be approved by a dealer which certifies and supports the activities organized by the DOC, but the dealer-doc ratio is not necessarily one to one.

DOCs performances are subject to their own KPIs. The most significant KPIs are their own NPS and the percentage of customers of the related dealer who are members of the club. In this way, Ducati can keep track of the most performing clubs and award the best ones in dedicated events like the World President Meeting and the World President Tour. In order to be able to better manage the members' subscriptions, renewals and participation to events, every DOC is equipped with salesforce access. In this way, Ducati can have access to the updated database of people who are subscribed to a club and therefore have a stronger relationship with the brand, including their participation to such events. Moreover, DOCs can send dedicated push notifications and messages to the club members in the same way dealers do, so that customers can be updated on the latest news from their DOC right through Ducati official channels like emails and the MyDucati app.

### **2.5.1 AI Use Cases for DOCs**

Similarly to what has been said for the dealers, the primary role of DOCs in the implementation of AI into CRM systems is data collection from the DOC members. In fact, DOCs have an even more direct relationship with the Ducati customer, and they are the closest example of a one-to-one relationship between the customer and the brand. Through summaries of the activities and members' surveys, DOCs can have a crucial role in updating the customer's profiles, generating useful information to be used for all CRM processes.

## 2.6 MyDucati App

MyDucati app is the mobile application developed by Ducati in which Ducatisti can interact with any aspect of the Ducati world. In fact, similarly to what has been done by Lamborghini with the Unica app, MyDucati app aims to represent a one-stop shop area for all Ducatisti, in which users can get in contact with not only their preferred dealer, but also DOCs, the e-commerce platform, the Ducati Corse racing teams, and much more. Through the MyDucati app, users can receive dedicated push notifications, which represent one of the main channels of communication between the company and its customers, and they can also access a wide variety of contents, like pre- and post-race insights from key Ducati Corse insiders or other commercial contents. The app users are logged into the app with their MyDucati profile, which is registered on the Ducati's Salesforce database and identifies a single customer. Ducati can therefore send push notifications and show contents either to the whole database of customers or a specific restricted target like for example the Top Ducatisti.

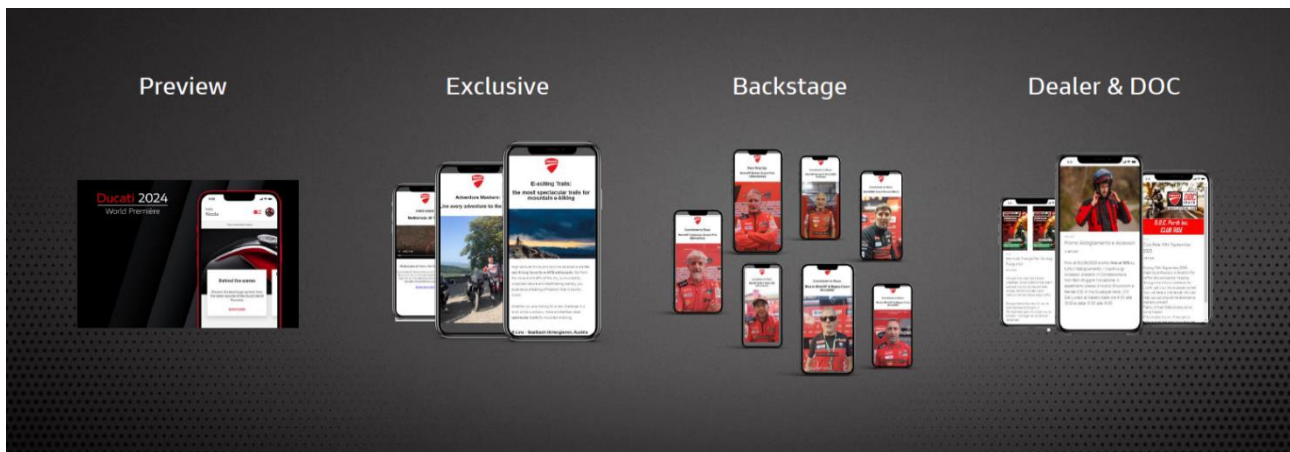


Figure 19: MyDucati app Editorial Plan

As shown in figure 19, there are several types of content published on the app. First, Top Ducatisti have access to exclusive previews of new Ducati models 24 hours before their launch. Secondly, some exclusive contents are specifically produced for the app and can be found only on this channel. Third, as previously mentioned, backstage contents from Ducati Corse are posted on the app before and after each MotoGP race. Finally, as anticipated in the previous sections, dealers and DOCs have the possibility to send dedicated notifications as well as creating and communicating events through this official channel, increasing the level of engagement between the customer and the brand.

One key function of the MyDucati app is the digital garage. In this section of the app, users can independently declare the ownership of their Ducati. Subsequently, in order to check if the user is the real owner of the motorbike, he or she must upload the vehicle's registration certificate and an identity document. These documents are then checked by the customer service staff and, if the data match, the motorbike results certified. While for the newest models this process is automatic, Ducatisti with

motorbikes purchased before the 2022 should declare their bike on the app and ask for its certification in order to visualize it. By doing so, they can access dedicated contents for their owned motorbike model. An example of such dedicated contents is the 916 census which I had the pleasure to work on. By certifying the ownership of a Ducati 916, Ducati 996 or Ducati 998, the owners of those iconic motorbikes would have access to exclusive contents reserved just for them, such as the original maintenance books, interviews to the designer of these models, and many other dedicated contents. This type of activity is useful for Ducati to periodically update their database. In fact, Ducati can autonomously register the motorbike ownership when a new motorbike is sold, but if a Ducati owner sells its motorbike the firm cannot access this information until the new owner declares and certifies such motorbike.

### **2.6.1 AI Use Cases for MyDucati App**

As previously mentioned, the trade-off between automation and human touch should be carefully evaluated on a strategic level. However, the advanced capabilities of nowadays' large language models, chatbots (or AI-based agents) are now blurring the differences between automated customer service and human intervention, sometimes outperforming human capabilities in fields like speech recognition and reading comprehension (Henshall, 2023; Kiela, 2023)<sup>59</sup> <sup>60</sup>. Thus, one of the most immediate use cases of artificial intelligence could be represented by the implementation of an automatic AI-based agent embedded in the app with which customers can openly chat with and have immediate information about any topic covered by the app. Some examples of the potential tasks performed by this AI agent are giving information about upcoming events, either organized by the corporate or by the DOC, helping the user discovering the app's capabilities like the user's profile or the digital garage, giving information about the user's latest orders and delivery time, answering questions about the user's motorbike or the desired one, and so on.

However, since chatbots are in contrast with the concept of human touch set by Ducati, the firm could set the guardrails of this hypothetical AI-based agent in order to allow it to only start the conversation, answer questions among a limited set of domains, and subsequently, if needed, seamlessly forward the customer to a human customer service operator or sales assistant to provide human touch. I believe this trade-off between digital innovation and human touch could be consistent with Ducati's strategy for several reasons:

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<sup>59</sup> [tinyurl.com/Henshall2023](https://tinyurl.com/Henshall2023)

<sup>60</sup> [tinyurl.com/Kiela2023](https://tinyurl.com/Kiela2023)

- Innovation is one of the core values of Ducati, and the efficiency of nowadays' AI agents can really enhance the customer experience providing detailed, updated, and personalized information in no time, at any hour of day or night, and in any human language.
- Once identified the nature of the customer need, the AI agent can choose to forward the request to a human operator providing him or her with a detailed summary of the case, a suggestion on how to respond, and a series of useful files or articles retrieved from the knowledge base which could help the operator to solve the case in a faster and more efficient way. This mechanism has been proved to significantly enhance the speed and percentage of case resolution (Brynjolfsson et al., 2023, p. 14)<sup>61</sup>.
- The frequency and level of human intervention could also be strategically set on a variable level, depending on the specific customer's preferences and level of service required. For example, when interacting with strategic customer segments such as high-CLV customers, the AI agent could forward the request to a human operator without even thinking of solving the issue by itself. In this way, the operators do not need to waste more time on repetitive and relatively easy tasks anymore, as they can be solved by the AI agent.

Another use case of AI applied in this context is the duplicates management. This topic is not just useful for the MyDucati app, but also for any other CRM activities. In fact, it can happen that sometimes an individual creates different MyDucati accounts due to many reasons, such as the registration made by the dealer and then subsequently made again by the user with a different email address. This creates duplicate accounts into the database which damage the data integrity creating dirty data. Duplicates management in Ducati is now performed mainly by the customer service staff, but it is a time-consuming activity. While Salesforce can highlight potential duplicate accounts when they have the same name and surname, or the same email address or the same phone number, the merging process is done manually by choosing what information to keep and what to discard. Artificial intelligence can significantly enhance the efficiency of this process by automatically merge the duplicate accounts. Another perspective with which AI can help overcoming the duplicates problem, however, entails the creation of a so-called “unified profile”, which is a new entity within the database that can get information from different profiles as well as different sources of information. With the creation of unified profiles, the information arising from duplicate accounts can even become an asset, thanks to the sources from which they come from. For example, if one of the two accounts belonging to the same individual is created by the dealer while the other is made by the user after the subscription to a Ducati event, the system can recognize that the first email address can mainly be used for the communication regarding the dealer, while the other can be used for news

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<sup>61</sup> [tinyurl.com/Brynjolfsson2023](https://tinyurl.com/Brynjolfsson2023)

related to events. The concept of unified profile will be further analysed in chapter 3, in the section dedicated to Salesforce Data Cloud.

Another process in which AI could make the difference is the bike certification process. The document scanning problem could be easily solved using an optical character reader (OCR) software. These OCR tools are built on machine learning algorithms; therefore, they are not as sophisticated as GenAI. However, the documentation provided by the customer for the bike certification, either identification documents or bike registration forms, comes from all over the world, with many different formats and alphabets. Therefore, the technology involved in such automatic documentation check could require a more advanced algorithm than the classic machine-learning based OCR scan.

In a purely hypothetical scenario, artificial intelligence could also be implemented to retrieve data and analyse customer behaviour depending on his or her bike usage. Assuming that in the future Ducati could be able to implement advanced IoT sensors inside their motorbikes, which are able to detect not only the frequency of bike usage but also the Ducati customer's driving style, real-time lean angles, acceleration and brake usage, AI could therefore be implemented to process these data and provide the customer driving suggestions and detailed usage analytics within the MyDucati app. Moreover, the app could also become a sort of motorbike dashboard with which the user could fine-tune the motorbike setup such as the engine and suspension mapping, the driving mode, and many other aspects to be able to achieve full personalization of the riding experience.



## 2.7 Top Ducatisti

Top Ducatisti is the term which identifies the highest-spending segment of Ducati customers. A top Ducatista is a Ducati owner which has spent in Ducati motorbikes, in the last years, an amount which is above a certain threshold set by the company. This threshold varies in time and can also take the form of the amount of money spent in one single motorbike. The top Ducatisti segment is therefore strategic for the company, as it results to be the most profitable one. However, I believe a reflection on the parameter with which those customers are selected would be necessary, as one can argue that the amount of money spent in Ducati is a limited indicator of the customer's lifetime value (CLV).

Gupta et al. (2006, p. 141)<sup>62</sup> define CLV as:

“The present value of all future profits obtained from a customer over his or her life of relationship with a firm.” (Gupta et al., 2006, p. 141)

CLV formula can therefore be calculated as defined by Gupta et al. (2004, p. 8)<sup>63</sup>:

$$CLV = \sum_{t=0}^T \frac{(p_t - c_t)r_t}{(1 + i)^t} - AC$$

Where:

$p_t$  = price paid by a customer at time  $t$ ,

$c_t$  = direct cost of servicing the customer at time  $t$ ,

$i$  = discount rate or cost of capital for the firm,

$r_t$  = probability of customer repeat buying or being “alive” at time  $t$ ,

$AC$  = acquisition cost, and

$T$  = time horizon for estimating CLV.

CLV can therefore be considered as the sum of all the future discounted cashflows from present and future customers within a certain period. Thus, CLV formula can also be used to calculate the CLV of every single customer. Despite that, the segmentation criteria applied by Ducati for calculating customer value and identifying the top customers appears to be more similar to a RFM model (Wei et al., 2010, p. 4199)<sup>64</sup>, in which customers are ranked based on the monetary value, the recency and frequency of past motorbike purchases. Although RFM models are implicitly linked to CLV due to their attempt to predict future customer behaviour, they have several limitations, and so-called CLV models resulted to be a superior choice for estimating CLV (Gupta et al., 2006, p. 142). For example,

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<sup>62</sup> [tinyurl.com/Gupta2006](http://tinyurl.com/Gupta2006)

<sup>63</sup> [tinyurl.com/Gupta2004](http://tinyurl.com/Gupta2004)

<sup>64</sup> [tinyurl.com/Wei2010a](http://tinyurl.com/Wei2010a)

recent studies performed between 2023 and 2024 show a tendency towards a consumer value evaluation performed with more dynamic and risk-aware strategies, such as advanced clustering algorithms, genetic algorithms and, with no surprise, Artificial Intelligence algorithms (Firmansyah et al., 2024, p. 11)<sup>65</sup>. These methods are able to estimate customer's risk-adjusted CLV with a high degree of accuracy by forecasting the potential customer's risk-adjusted revenues (RAR). In particular, hybrid methods integrating supervised and unsupervised AI algorithms such as artificial neural networks have been shown to have a high predictive power for estimating customer's RAR with a R-squared over 90% (Machado & Karray, 2022, p. 1)<sup>66</sup>.

Leaving the segmentation criteria aside for a moment, the declared objective of Ducati's CRM for the top Ducatisti segment is to make them feel part of the most exclusive Ducati elite building a close connection with the brand. This statement represents the Ducati intent to shift to the upper-premium segment. In fact, Top Ducatisti are typically the main target of reserved experiences and exclusive services:

- Top Ducatisti have the possibility to access new model's previews before their launch and they can also reserve the most precious limited-edition models with priority access. This is an excellent value adding activity as these models are usually sold out before they become available to those customers who are not top Ducatisti.
- Customers in this segment can also access exclusive events and experiences with tailored initiatives. For example, they can access tailor-made track sessions or group road trips, with the participation of major figures of the Ducati world like MotoGP racers or the company's top management. This generates high-level connections with the brand and among top Ducatisti. Moreover, they can also have a priority access to events with limited available places receiving a special treatment.

These kinds of special services are made possible also thanks to the synergies created with other high-end companies and luxury brands of the Volkswagen Group. For example, in 2020 Ducati produced a special edition of its Diavel 1260 inspired by the Lamborghini Sian, shown in figure 20 which at that time was newly released (Lamborghini, 2020)<sup>67</sup>. Lamborghini and Ducati worked together to organize and provide exclusive services and experiences for the customers of both those unique models, leveraging the synergies arising from the shared values and key aspects of both their brand identities.

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<sup>65</sup> [tinyurl.com/Firmansyah2024](https://tinyurl.com/Firmansyah2024)

<sup>66</sup> [tinyurl.com/MachadoKarray2022](https://tinyurl.com/MachadoKarray2022)

<sup>67</sup> [tinyurl.com/Lamborghini2020](https://tinyurl.com/Lamborghini2020)



Figure 20: Ducati Diavel 1260 Lamborghini and Lamborghini Sian

Another key aspect of the top Ducatisti management is the one-to-one relationship with the company's top management. Whenever a new communication should be delivered to top Ducatisti, some of them are directly contacted by the country managers or the holding's top management to deliver the sense of human touch and closeness to the brand. For example, the launch of a new limited-edition bike is the best example of such communication, for which each country manager calls their top customers and introduce them to the new motorbike, eventually concluding the pre-order.

### 2.7.1 AI Use Cases for Top Ducatisti

As previously mentioned, the main area of improvement for top Ducatisti management is the customer segmentation criteria. Assuming Ducati having access to data about not only recency, frequency and monetary value of purchases, but also to a wide variety of structured and unstructured data (like for example the customer journey tracking and evaluation described in subchapter 2.3) I believe there is a great margin of AI-based improvement in the accuracy of the calculation of customers' lifetime value. For example, hybrid methods could be implemented to adapt customer's value estimates to client behaviour and other inputs, driving customer relationship profitability and sustainability (Firmansyah et al., 2024, p. 11)<sup>68</sup>.

Apart from segmentation, AI could also enhance the customer experience of top Ducatisti as well. While the segmentation process could be enhanced through predictive algorithms, GenAI could be used to generate new ways of elevating the customer experience and making the top Ducatista feel

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<sup>68</sup> [tinyurl.com/Firmansyah2024](https://tinyurl.com/Firmansyah2024)

closer and closer to the brand. With GenAI, in fact, Ducati could be able to find occasions to reserve a special treatment to each single customer with tailor-made gifts and events. For example, being able to access unstructured data with the information that a top Ducatista has just adopted a new pet, Ducati could send the customer a special gift with the name of the pet and the Ducati logo on it. With access to such data, assuming its compliance with the regulations, GenAI could potentially generate many opportunities like that for enhancing the customer experience of a top Ducatista.

For what is concerned with the one-to-one relationship between the top Ducatista and the top management, GenAI could be implemented similarly to the previous point. In fact, having access to such big data, a hypothetical AI platform could generate suggestions for the top management about the ways to address such conversation. For example, the GenAI platform could suggest, for each call or contact with the top Ducatista, the tone of voice to keep, the topics to be covered, the details to be highlighted during the conversation and so on. Moreover, GenAI could also provide a summary of the past conversations so that top management could immediately remember each past interaction with them and eventually ask a follow up on past unsolved topics.

## 2.8 Net Promoter Score

Net promoter score (NPS) is perhaps the most important KPI for Ducati's CRM. This parameter, in fact, is intended not only as an index of customer satisfaction, but also as a system which enables the company to understand the customer needs and adapt products and services accordingly. The NPS measurement is indeed only the first part of the NPS system, which is useful to monitor the trend of customer satisfaction. From that measuring, the company is able to understand the meaning of such score and steer towards the direction indicated by the customer. Finally, the loop closes with the recovery of unsatisfied customers (detractors) and the harnessing of satisfied customers (promoters).

The NPS is a parameter which has been ideated by the Director Emeritus of Bain & Company Consulting Frederick F. Reichheld (2003)<sup>69</sup> in an article published by the Harvard Business Review. This parameter is the result of a set of simple surveys with one single question:

“How likely is it that you would recommend [company X] to a friend or colleague?”  
(Reichheld, 2003)

Respondents of this simple questionnaire are required to answer that with a quantitative answer, a number between one and ten, and their response is then used to categorize the customer as a promoter, a passive or a detractor. Promoters are respondents which have given a rate of nine or ten, detractors are the ones who scored between zero and six, while the ones who scored seven or eight are called passives. To calculate the NPS it is then sufficient to apply this simple formula:

$$(\textit{percentage of promoters} - \textit{percentage of detractors}) * 100$$

Reichheld (2003) asserted, in a quite simplistic way, that NPS is “the one number you need to grow”, assuming that it is the most important parameter for companies to be tracked and managed in order to grow. Although the vast majority of the literature could agree on the fact that positive word of mouth benefits the brand and the company while negative word of mouth is detrimental, many articles criticize the assertion that NPS is “the one thing” for company growth (Grisaffe, 2007, p. 36)<sup>70</sup>. In particular, Fisher & Kordupleski, (2019, p. 139)<sup>71</sup> criticize NPS on five major points:

- a) “NPS provides no data on what to do to improve;
- b) NPS focuses only on keeping customers, not on winning new customers;
- c) There is no such thing as a “passive” customer;
- d) NPS provides no competitive data;

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<sup>69</sup> [tinyurl.com/Reichheld2003](https://tinyurl.com/Reichheld2003)

<sup>70</sup> [tinyurl.com/Grisaffe2007](https://tinyurl.com/Grisaffe2007)

<sup>71</sup> [tinyurl.com/FisherKordupleski2019](https://tinyurl.com/FisherKordupleski2019)

e) NPS is internally focused not externally focused.” (Fisher & Kordupleski, 2019, p. 139)<sup>72</sup>

Although my previous statement asserting that NPS is perhaps the most important KPI for Ducati’s CRM could sound as saying that Ducati’s CRM focuses on achieving the highest result on that one score only, Ducati’s NPS processes embrace many different dimensions of the customer satisfaction, and its interpretation is far from the simplistic view of an average of the score of all respondents. In fact, NPS collection is made not just at one specific time after purchase, but it is also monitored during the whole customer lifecycle, in order to track any significant drop or increase and “steer” accordingly. Moreover, NPS questionnaires do not just ask a general overall satisfaction with the brand, they ask customers to rate their experience in that specific moment. In fact, figure 21 shows an example of the various customer journey’s checkpoints in which NPS is measured. As mentioned in the subchapter dedicated to the dealer, NPS is measured even before the sale, asking the potential customer to rate the dealer experience following his or her visit and after a quotation. These measurements do not track the NPS of the customer regarding the product itself, but rather, as shown in figure 21, the pre-sales service. Subsequently, NPS is measured right after the purchase, and in this case the customer is required to rate the purchasing process and the service provided by the dealer in this phase. Only after 3 months from the purchase the customer is required to rate the product and the brand themselves, and during the whole customer lifecycle the customer is also required to rate each motorbike service, the customer care services, and periodically the product and brand again. Moreover, NPS monitoring is also applied in other situations like events, DOC meetings, Global Dealer Conferences, Ducati Riding Experiences, and service and events dedicated exclusively to top Ducatisti.

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<sup>72</sup> [tinyurl.com/FisherKordupleski2019](https://tinyurl.com/FisherKordupleski2019)

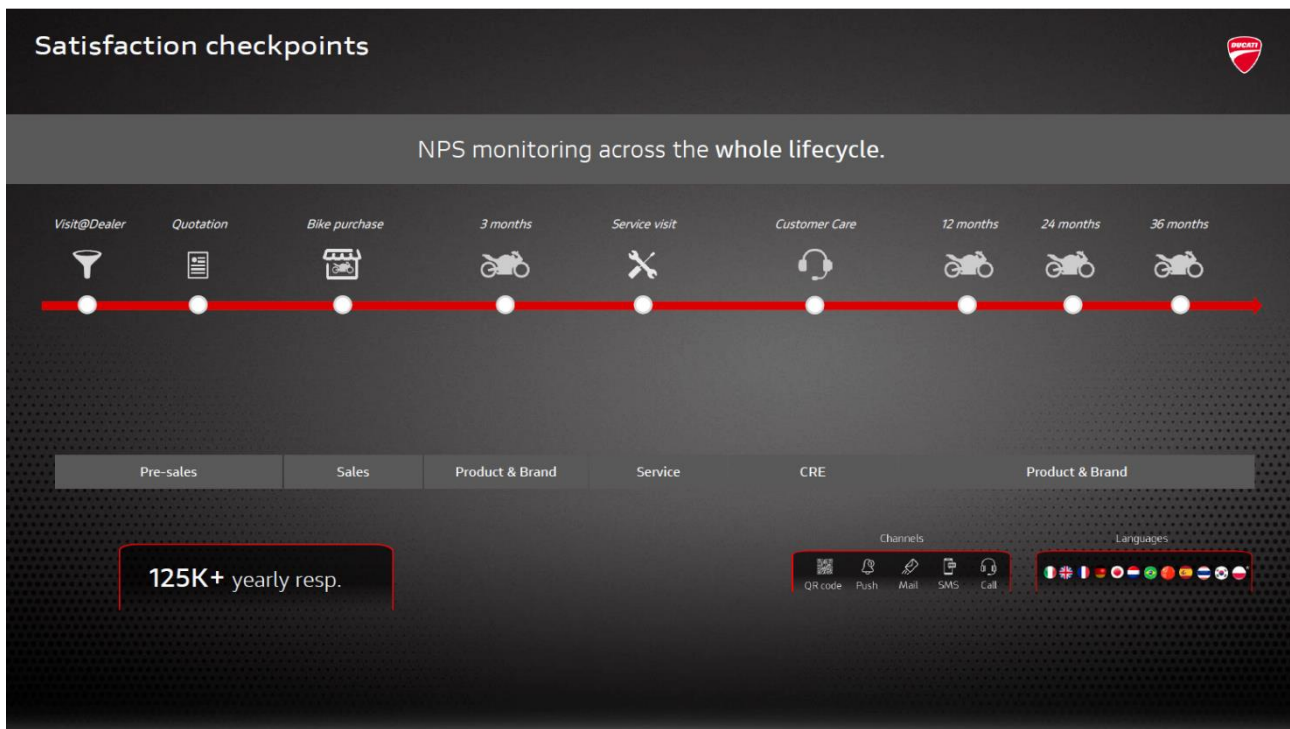


Figure 21: NPS measurement checkpoints

Whenever a customer answers the questionnaire with a score below 7, he or she is also required to state the detractor’s reasons as an open text answer, giving further details on what has gone wrong. After the submission of a low NPS score, the customer or lead is directly contacted by the interested business unit within 24 hours. Managers, supported by the customer care, try to further understand the detractor’s reasons, and resolve the situation to recover the NPS low score. This activity resulted to be a remarkable success with more than 80% of detractors recovered and a significant increase in customer satisfaction. A Ducati customer from the United States after receiving such treatment has left the following review:

“Ducati America has reached out to me, I really appreciate they're effort in helping resolve my situation. It's comforting to know your consumers concerns don't go unnoticed. Thank you for your attention on this, it means more than you know.”

Another Ducati customer from Italy left the following review:

“Despite the issues I had with my bike, the call I have received has showed an extraordinary attention to the customer”

This system overcomes most of the previously mentioned critics made by Fisher & Kordupleski, (2019, p. 139)<sup>73</sup> to the classic NPS (Reichheld, 2003)<sup>74</sup>. Regarding point a, the way Ducati tracks the

<sup>73</sup> [tinyurl.com/FisherKordupleski2019](https://tinyurl.com/FisherKordupleski2019)

<sup>74</sup> [tinyurl.com/Reichheld2003](https://tinyurl.com/Reichheld2003)

NPS does give data on what to improve, either implicitly with low scores in certain aspects of the lifecycles or explicitly with the detractor's reasons. Then, for what is concerned with point b, I believe NPS, as a customer satisfaction index, could be intended also as a proxy of positive word of mouth, ultimately resulting in customer advocacy and promotion and therefore it can give insights also on winning new customers. Point c refers to passive customers, criticizing their categorization assuming that they are customers who could easily leave for the competition (Fisher & Kordupleski, 2019). However, I believe the distinction between promoters and passives is that passives, unlike promoters, are satisfied customers which are not so loyal to promote the brand to others. In fact, the definition of passives made by Reichheld (2003)<sup>75</sup> is:

“Customers who are only passively satisfied but not enthusiastically loyal” (Reichheld, 2003)

For what is concerned with points d and e, I personally agree that NPS is an internally focused metric and gives little insights on competition. That is the reason why NPS is not the only, although it is one of the most important, KPI to track. Still, being CRM mainly an internally focused process, I believe NPS still remains the best indicator of performance for Ducati's CRM.

### **2.8.1 AI Use Cases for NPS**

From a technical standpoint, the surveys to collect NPS data are made with Qualtrics questionnaires, which eventually populate the Ducati Customer Experience Platform (Ducati CX Platform). This platform collects NPS scores and displays a dashboard in which CRM insiders can monitor all the statistics regarding the NPS, such as the average score of dealers, customer care, top Ducatisti, events, and so on. This platform contains also the detractor's reasons connected with all the low scores received and they are stored as a set of open texts within the database. Although Ducati is already working with Qualtrics' machine learning tools to categorize this large amount of unstructured data, which will be further analysed in chapter 3, a more advanced GenAI technology could hypothetically be implemented to support a more accurate sentiment analysis.

Moreover, the data about NPS stored in the Ducati CX platform represent a crucial asset in terms of information about the customers. Therefore, in a hypothetical database on which a Ducati AI platform is based, the connection with the CX platform would be fundamental to have access to such data and perform many other previously mentioned AI activities, starting from the journey tracking and evaluation, the advanced segmentation, but also the estimation of customers' CLV.

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<sup>75</sup> [tinyurl.com/Reichheld2003](https://tinyurl.com/Reichheld2003)



## **2.9 Client Relationship Excellence**

Client Relationship Excellence is the name given to the Ducati customer care team within the CRM department. Whenever a customer asks for support, the salesforce system generates a related customer case which is attached to a specific account of the database. The case is then assigned to an operator, which is in charge of solving the issue. For example, whenever an NPS questionnaire results in a score below seven, a new case is attached to the detractor's profile and the customer care staff is in charge for the detractor's recovery. Cases could be of various nature, such as an issue with the ticketing platform of an event organized by Ducati, or the request of the discount codes dedicated to DOC members, or any other customer's request which would need assistance by the customer care.

CRE staff handles numerous customer care cases per day, and the process of assigning the single case to an available operator is called "escalation process". This process requires a member of the CRE staff to manually handle the assignment of cases to the most suitable operator, depending on the nature of the requests and the specific operator's areas of competence.

For each case, the CRE staff can access the "knowledge base", intended not as described in the section 1.1.1 about terminology, but rather a section of Salesforce ecosystem which contains a series of articles that could be useful for case resolution. Thus, operators can read and understand the procedures which have been previously standardized for similar situations, or, alternatively, they can access the history of case resolutions for inspecting how similar previous cases have been solved by others. However, after solving a case, the operator who oversaw it should upload in the knowledge base a summary of the problem to be solved and the case resolution.

### **2.9.1 AI Use Cases for Customer Relationship Excellence**

The implementation of artificial intelligence into the CRE systems is perhaps the most intuitive to pursue. Firstly, for each case opened, both predictive artificial intelligence and GenAI can be used to enhance the operator's efficiency as follows:

- Predictive AI can collect and display the most relevant knowledge base articles to facilitate the case resolution, while at the same time GenAI could be implemented to instantly generate a possible solution for the specific case.
- An AI platform could provide to the operator a detailed summary of the customer's information as well as his or her past interactions with the brand, the customer's stage of his or her lifecycle, and many more information in one single automated dashboard, to help the operator to better address the case.

Moreover, GenAI could also be implemented to summarize the case resolutions so that it automatically generates new data to be uploaded onto the AI data lake. By doing so, the AI algorithms can then retrieve updated case resolutions increasing its accuracy and efficiency.

For what is concerned with the escalation process, artificial intelligence could be implemented to automatically assign cases to the best performing agent to increase case resolution performances. By having access to a vast amount of information about the customer's journey and past interactions with the brand, as well as information about past similar cases and operators' performances, AI could easily match the cases with the most performant agent, if available, or manage the cases' queue to minimize case resolution's time.

## 2.10 Use Cases Recap

This section is dedicated to a summary of all the previously mentioned use cases divided into the various Ducati's CRM areas. The purpose of this summary is to better organize the contents to set the basis for the following chapter dedicated to the effective implementation of those use cases within the Ducati ecosystem. Thus, the list of use cases of AI applied to Ducati's CRM processes can be summarized as follows:

CRM process	AI use cases
Customer Journey and Contact Plan	<ul style="list-style-type: none"> <li>• <b>Customer journey tracking and evaluation</b>, an AI-based tracking system that capture and evaluate each step of the CJ identifying churn rate and anomalies.</li> <li>• <b>AI-powered customer segmentation</b>, useful to adapt communication and customer journey to the unique attributes of customer segments, continuously increasing its capillarity to get closer and closer to a one-to-one relationship.</li> <li>• <b>Personalized communication</b>, Gen-AI text generation to differentiate communications among customer segments, ultimately creating a different text for each customer.</li> </ul>
Dealers	<ul style="list-style-type: none"> <li>• <b>More accurate customer summary</b>, predictive models could increase the precision of customers' overviews and provide a summary of the past interaction between the customers and the brand.</li> <li>• <b>Opportunities enhancement</b>, predictive AI could display real-time up-selling and cross-selling opportunities.</li> <li>• <b>Dealers as a source of data input</b>, dealers could be fundamental as a data source for the other AI implementations, uploading onto the database unstructured data about each interaction with customers.</li> <li>• <b>Service appointment enhancement</b>, through the AI agent described in the MyDucati App section, service appointments could be scheduled in a more efficient way, even when the dealer is closed.</li> </ul>
Ducati Official Clubs	<ul style="list-style-type: none"> <li>• <b>DOCs as a source of data input</b>, similarly to dealers, DOCs could be fundamental to collect data about customer experiences organized by the DOCs and their impact on the customer journey.</li> </ul>
MyDucati App	<ul style="list-style-type: none"> <li>• <b>Automatic AI agent assistant on the app</b>, a Gen-AI agent could be implemented on the app for assisting the users on any topic related to the</li> </ul>

	<p>customer experience, from information about new models until service scheduling and DOC events organization.</p> <ul style="list-style-type: none"> <li>• <b>Duplicates management</b>, predictive AI could automatize the merging activity of duplicate accounts, enhancing the quality of the database.</li> <li>• <b>Automatic motorbike certification process</b>, OCR and AI systems could be implemented to automatize the certification process.</li> <li>• <b>AI and IoT for driving experience personalization</b>, IoT sensors could provide data for AI-powered generation of driving suggestions and full personalization of the driving experience within the app.</li> </ul>
Top Ducatisti	<ul style="list-style-type: none"> <li>• <b>CLV calculation improvement</b>, the segmentation criteria to select top Ducatisti could be improved with neural network models to estimate CLV.</li> <li>• <b>Generation of new ways to elevate the customer experience</b>, GenAI could highlight opportunities to provide dedicated services and experiences to every single top Ducatista, based on his or her specific available data.</li> <li>• <b>Enhancement of the one-to-one relationship with top management</b>, similarly to what could be done for dealers, GenAI could provide accurate customer's summary to be consulted before any interaction between the top management and the customers.</li> </ul>
Net Promoter Score	<ul style="list-style-type: none"> <li>• <b>AI for sentiment analysis</b>, detractors' reasons and NPS data could be used to generate more advanced and accurate sentiment analysis.</li> <li>• <b>Ducati CX Platform as AI data input</b>, the data contained in the CX platform could enhance the AI capabilities in other activities such as CJ analysis and segmentation.</li> </ul>
Customer Experience Excellence	<ul style="list-style-type: none"> <li>• <b>Knowledge base inspection and resolution suggestion</b>, AI could generate a summary of the most relevant articles in the knowledge base and automatically provide a resolution suggestion for the case.</li> <li>• <b>Automatic case summary</b>, GenAI could be implemented to enrich the knowledge base after each case resolution uploading an automatic summary.</li> <li>• <b>Automatic escalation process</b>, AI could match cases to the most suitable operator based on the nature of the case and the operators' areas of competence.</li> </ul>

# Chapter 3: Strategic Pathways for Ducati’s AI Transition

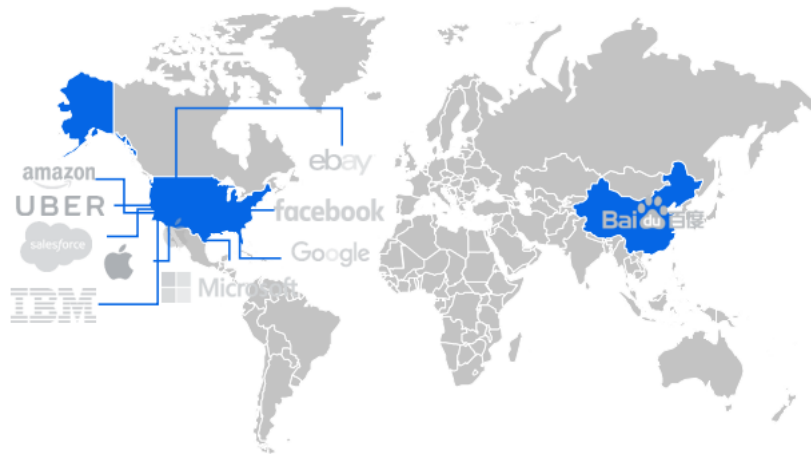


Figure 22: Location of leading AI companies (Statista, 2024, p. 175)

Comparison of leading AI companies (Statista, 2024, p. 175) <sup>76</sup>		
Company	Revenue (bn US\$)	Key AI Areas
Amazon	574.8	Text-to-speech, computer vision, deep learning, NLP
Apple	383.3	Machine learning
Baidu	19.0	Machine learning, robotics
eBay	10.1	Predictive analytics, cloud-based AI, big data
Facebook	134.9	Language technology, machine learning, computer vision
Google	307.4	Machine learning, deep learning, automotive industry
IBM	61.9	Machine learning, cognitive architectures
Microsoft	211.9	Machine vision, machine learning, healthcare
Salesforce	34.9	Machine learning, analytics
Uber	37.3	Voice and image recognition, machine learning, automotive industry

While in the previous chapter I have analysed the possible use cases for AI implementation within the Ducati’s CRM processes without any constraint of resources, time, capabilities or experience, in this chapter I will analyse the possible ways Ducati could realistically implement AI technologies for the realization of the previously mentioned use cases. Due to its synergies with Lamborghini and other brands of the Volkswagen Group previously analysed in section 1.2.2, which are currently using Salesforce to manage their CRM activities, one solution for Ducati is to collaborate with Salesforce to seamlessly implement their own AI technologies within the already existing Salesforce ecosystem. Due to its leading position in the sector and the low potential switching costs for Ducati in the case of implementing such technology with Salesforce infrastructure, I will analyse in depth some of the

<sup>76</sup> [tinyurl.com/Statista2024](https://www.tinyurl.com/Statista2024)

key features of the solutions provided by Salesforce and their role in the implementation of AI in Ducati's CRM activities.

Although Salesforce could hypothetically cover most of the use cases identified in chapter 2, the solutions to implement AI into Ducati's CRM are not limited to Salesforce's tools and services. In fact, as seen in the introductory part about the success cases of Starbucks, Ferrari and major luxury fashion brands, other leading AI companies offer tools and services compatible with the scope of this thesis. In particular, the analysed cases highlight the success of companies which have chosen to implement their AI strategy by relying on the services provided by Amazon Web Services and Microsoft Azure to develop custom solutions tailored to the specific business context. In this chapter I will then focus on the solutions provided by those three big players to analyse how their services could match the need of Ducati's CRM for the implementation of AI tools and applications.

Moreover, I will add a brief reflection on another opportunity for Ducati's CRM which is the Bi-Rex consortium. Bi-Rex is a competence centre based in Bologna, Italy, which Ducati is part of, and it could act as an accelerator of internal competences in the field of AI for a better and faster AI transition.

Finally, I will conclude with an analysis of the possible strategies and approaches for the AI implementation within Ducati's CRM, which will take the form of a make or buy choice, analysing pros and cons of each alternative with a detailed description of the key aspects to be considered.

### 3.1 Salesforce Einstein on Marketing Cloud

Before delving into the tools and technologies Ducati could implement in their systems for the enhancement of its CRM, I believe it is necessary to understand what are the AI technologies that the firm currently owns and has access to. Although there are other company's departments using different AI technologies, Ducati's CRM has access to Salesforce's Einstein on Marketing Cloud. Einstein on Marketing Cloud module is different than Salesforce's Einstein Copilot on many levels. While Einstein on Marketing Cloud is a predictive AI enhancing Marketing and CRM activities exclusively on Salesforce's Marketing Cloud module, Einstein Copilot represents the Salesforce's transversal GenAI assistant, which can help operators on the whole Salesforce ecosystem in many different ways which will be further analysed in subchapter 3.3.

Although Ducati has access to the Einstein predictive AI capabilities, the company is not currently exploiting its full potential. However, Einstein does not specifically solve the AI use cases as described in the previous chapter, but I believe it is worth to be mentioned as it can improve the firm's CRM systems without any further investment in terms of capital or time.

Similarly to Starbucks' Deep Brew platform described in section 1.2.1, Einstein is capable of providing personalised product recommendation within company's communication channel. In particular, by setting up the database of products sold, Einstein can automatically insert into email communication and web pages personalised product recommendation to create up-selling and cross-selling opportunities (Salesforce, 2024g)<sup>77</sup>. However, this technology is limited to these two channels of communication and cannot be implemented for example in the use case of dealer's opportunity enhancement as described in section 2.4.1. Moreover, the database set up process of this system is not hustle-free as it requires time and effort to make it fully operational.

Another capability of Einstein is the so-called content selection. Similarly to the previous use case for products, Einstein can do the same for other types of content such as news, media, blog posts and so on. The tool can in fact estimate the best performing set of contents to be displayed to the customer in email and web communication channel in order to maximize open rates and clicks. The so-called content testing tool, instead, is used to conduct A/B testing and multivariate tests on those contents to analyse their performances (Salesforce, 2024g).

Engagement scoring and engagement frequency are other two interesting Einstein features. The first one analyses a specific target audience and provides estimates on their future engagement with the communication they are targeted by. The second one, instead, keeps track of the audience's

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<sup>77</sup> [tinyurl.com/Salesforce2024g](https://tinyurl.com/Salesforce2024g)

engagement to identify the level of contacts' saturation due to the excessive communication, and highlights the contacts at risk of burn out to avoid newsletter unsubscription and churn rates. Messaging insights, on the other hand, analyses the real performances of those communications and highlights anomalies with respect to the previous estimation, in order to identify any unexpected event which caused an increase or decrease of the audience's engagement (Salesforce, 2024g)<sup>78</sup>.

Lastly, Einstein's send-time optimization analyses the target audience and provides customised send-times for each targeted customer in order to maximise the communication's open rate. This Einstein capability has been tested by Ducati, but it did not provide any significant increase of open rate.

Some of these previously described Einstein tools require a time-consuming set-up process and specific know how for exploiting their full capabilities, and the value added by those tools is sometimes arguable. In fact, taking product recommendations as an example, it is a tool which is better suited for an e-commerce type of business, where the number of products to be sold is significantly higher than Ducati's ones. Perhaps it could be used by Ducati for cross selling opportunities regarding accessories and apparel, but being them strictly connected to the purchased bike, such a complex AI technology would be inefficient as it would be sufficient to link those items to the specific bike and display them to the respective bike owners.

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<sup>78</sup> [tinyurl.com/Salesforce2024g](https://tinyurl.com/Salesforce2024g)



### 3.2 Salesforce Data Cloud for database enhancement

The database contained into the Salesforce ecosystem represents the backbone of all the Ducati's CRM processes. With the advent of GenAI, Salesforce has introduced numerous enhancements of its modules, especially for what is concerned with the so-called Data Cloud module. As of now, Ducati has not implemented this system in its business but, with the innovations brought by Salesforce's AI technology called Einstein 1, Data Cloud represents a fantastic opportunity for the enhancement of the Ducati's internal database.

Data cloud is a data platform which enables the Salesforce ecosystem to communicate and gather data also from external data sources and data lakes (Salesforce, 2024h)<sup>79</sup>. With Data Cloud, external data could trigger actions and workflows within the Salesforce ecosystem and seamlessly integrate them with the CRM processes. In this way, the company is enabled to unify the whole enterprise dataset bringing together both structured and unstructured data, enabling the creation of an internal comprehensive knowledge base.

As mentioned in the literature review, having access to a wide range of data is key for the implementation of artificial intelligence, as its value is a consequence of the quantity and quality of the data given to it to fine-tune the models and algorithms. Therefore, Data Cloud represents the most direct path for Ducati to seamlessly integrate all the company data enabling any AI technology to have access to it and "feed" the algorithms.

The enhancements made by Salesforce to Data Cloud after the implementation of Einstein 1 AI into the system include the automatic recognition of the nature of unstructured data as shown in figure 23<sup>80</sup>. By giving context to those unstructured data, they become accessible and actionable for the whole CRM system.



Figure 23: Einstein 1 data contextualization example (Salesforce, 2024i)

<sup>79</sup> [tinyurl.com/Salesforce2024h](https://tinyurl.com/Salesforce2024h)

<sup>80</sup> [tinyurl.com/Salesforce2024i](https://tinyurl.com/Salesforce2024i) (minute 22)

Another key strength of Salesforce's Data Cloud is that having the data within the Salesforce Database ensures that AI can access and be trained with customer's data without security issues, thanks to the so-called trusted layer implemented by Salesforce into Data Cloud. Consequently, any AI algorithm running on the basis of Data Cloud database will be trained with real company data ensuring a better accuracy with respect to public AI models such as GPT or Llama.

By connecting various data sources, Data Cloud can automatically match those information with the customers they belong to. By doing so, the system does not add these information to the customer's account as intended in Sales Cloud, but rather connects all the information to a so-called

"unified profile". As anticipated in section 2.6.1 when talking about the problem of duplicates management, the unified profile is a comprehensive record that aggregates all interactions and data related to a user (Lee, 2023)<sup>81</sup>. As unified profiles can comprehend data from different accounts, they represent a possible solution to the problem of duplicates management, transforming duplicate accounts from something to be deleted from the database to a resource.

Thanks to the Salesforce's foundational metadata layer integrating all Salesforce applications, Data Cloud can hypothetically get access to every company's touch point, such as the website, the social media pages and so on, and collect all the data regarding the single customers. With those data, Salesforce can therefore display for each customer an engagement feed with all the interactions he or she had with the brand, as shown in figure 24 (Salesforce, 2024h)<sup>82</sup>. This engagement feed coincides with the use case of customer tracking mentioned in section 2.3.1, as it literally tracks all the sources of customer engagement. Data Cloud itself, however, does not perform an evaluation of the customer journey. The capability of Salesforce's built-in AI to evaluate customer journeys will be further evaluated afterwards.

For what is concerned with the use cases of AI applied to CRM concerning the enhancement of customer summaries for dealers, which has been highlighted in section 2.4.1, Data Cloud could provide a viable solution. In fact, by connecting all the company's touch points and creating unified

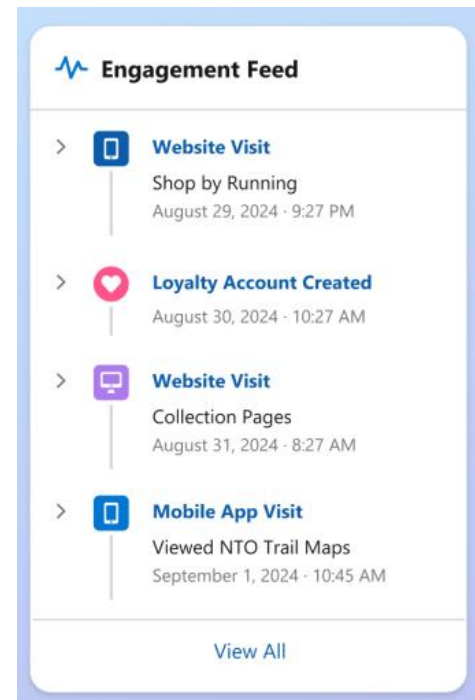


Figure 24: Salesforce's engagement feed

<sup>81</sup> [tinyurl.com/Lee2023a](https://tinyurl.com/Lee2023a)

<sup>82</sup> [tinyurl.com/Salesforce2024h](https://tinyurl.com/Salesforce2024h)

profiles, Data Cloud can generate detailed customer dashboards to summarize all the key aspects of the customer in one single screen, as showed in figure 25<sup>83</sup>. This dashboard can be useful for dealers to understand the current situation of the customer and better manage the relationship with him or her. The dealer can in fact inspect the activity feed to understand the level of engagement of the customer with the brand. For example, the dealer can act differently in the case of a customer who has just attended a DOC event, or in the case of a customer who has just opened a customer care case for a problem reported on the motorbike. Moreover, Implementing Einstein Copilot together with Data Cloud, the dealer can directly ask the conversational GenAI chatbot to help him or her to understand what tone of voice to keep, or to identify potential up-selling or cross-selling opportunities. Similarly to the use just described for the dealer, the same tool can be used in the same way also by top management in their one-to-one relationship with the top Ducatisti customers as described in section 2.7.1. However, this tool is not capable of automatically highlight the customers for whom there is an occasion to elevate the customer experience until this specific information is directly asked to the chatbot.

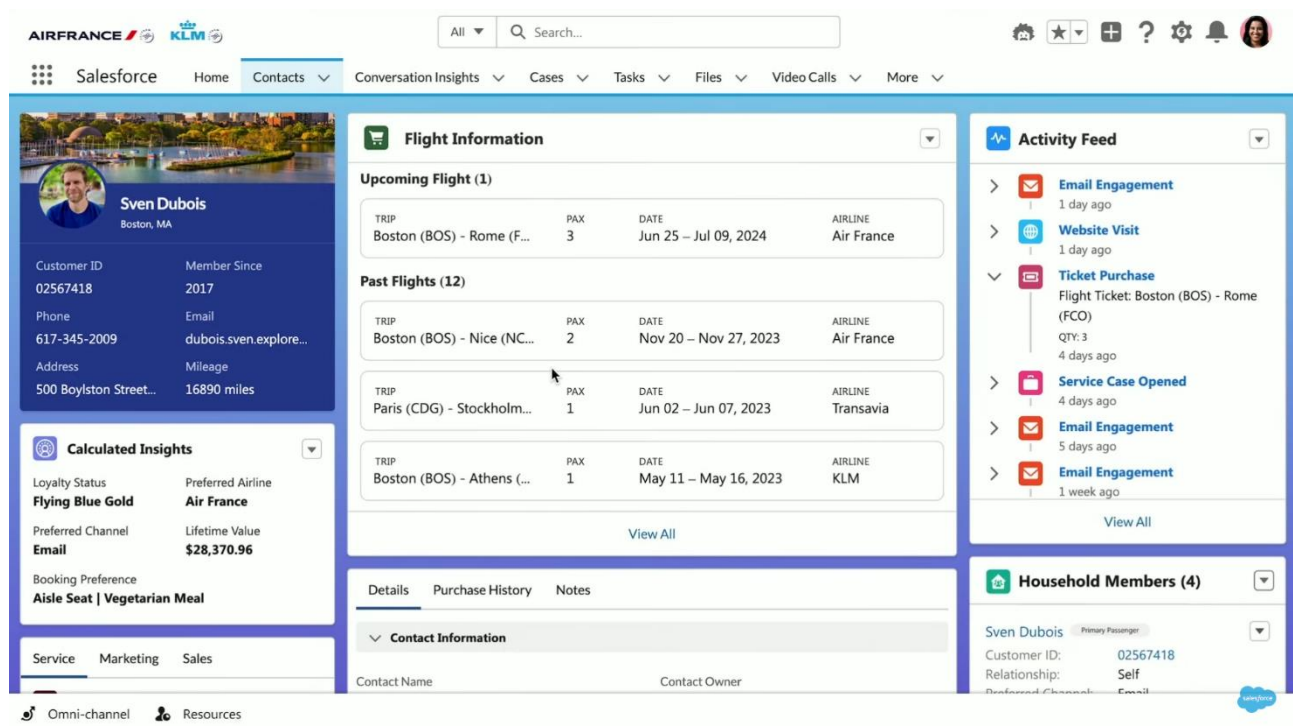


Figure 25: Data Cloud enhanced client dashboard (Salesforce, 2024i)

Data Cloud module also enables an automatic customer satisfaction metric, called customer CSAT, which represents an alternative to NPS for the customer’s satisfaction measurement. However, as shown in the demonstration on Salesforce’s website (Salesforce, 2024h)<sup>84</sup>, the CSAT score is the

<sup>83</sup> [tinyurl.com/Salesforce2024i](https://tinyurl.com/Salesforce2024i) (minute 1:01)

<sup>84</sup> [tinyurl.com/Salesforce2024h](https://tinyurl.com/Salesforce2024h)

result of a survey sent to the customer whenever a customer case is closed. Therefore, in the calculation of this index, there is no sign of the use of artificial intelligence to calculate customer satisfaction. Nevertheless, as said before in section 1.2.2, during the Salesforce World Tour in Milan, the live demonstration about the Lamborghini case displayed custom calculated insights that could be added to the customer's summary to customize the main KPIs. Lamborghini added a custom metric called "overall customer satisfaction" and the customer's NPS score. Hypothetically, by implementing a custom model with the use of Salesforce's Einstein 1 platform, it would be possible to train an AI model to calculate the CLV of each customer based on a more advanced algorithm having access to the whole Data Cloud database, and this would cover the use case of CLV calculation described in the section about Top Ducatisti.

Moreover, in the same way it would also be possible to implement custom models for the calculation of any other KPI such as customer satisfaction indexes and sentiment analysis scores. For example, a custom AI model could inspect data coming from NPS questionnaires, detractor reasons and many other sources to generate a new advanced sentiment analysis, covering also the use case described in the section dedicated to NPS.

For what is concerned with the Ducati's CX platform as a source of data input, instead, Data cloud provides a series of connectors developed with MuleSoft for data integration between platforms. It is then possible to connect the Qualtrics-based Ducati CX Platform with Salesforce Data Cloud in a seamless way, covering also the second use case described in the NPS section.

A more complex application of custom models is concerned with the previously mentioned evaluation of the customer journey. In fact, having access to the information contained in the engagement feed, a custom model could be able to predict and estimate the stage of the customer's lifecycle in which every single customer is currently in, and subsequently analyse customer's paths and trends to evaluate the performances in each step of the customer journey.

To sum up, Salesforce's Data Cloud module unlocks numerous potentialities, especially those regarding the retrieval and processing of data for the generation of contents or key insights. Thus, Data Cloud Module results to be fundamental for the implementation of other Salesforce's AI technologies such as Einstein Copilot or the newly introduced Agentforce suite. In fact, as highlighted during the 2024 Dreamforce (Salesforce, 2024k)<sup>85</sup>, Data Cloud provides the data lake and semantic layers for the functioning of all the other AI implementations.

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<sup>85</sup> [tinyurl.com/Salesforce2024k](https://tinyurl.com/Salesforce2024k) (minute 25)

The key advantages for Ducati, in the case of choosing to implement this solution, include the low switching costs due to the already existing Salesforce infrastructure within the business environment and the operators' familiarity with user interfaces and Salesforce's integrated tools. Moreover, since other companies belonging to the Volkswagen Group are already implementing those technologies, previously mentioned synergies could be exploited for maximizing their outputs and Ducati could take advantage of the group's bargaining power to enhance the commercial conditions for accessing such technologies. By doing so, Salesforce's tools could ultimately solve many of the identified use cases at a lower cost than the one required for implementing multiple self-made tools.

On the other hand, partnering with Salesforce for the implementation of this technology implies some disadvantages as well. First, although it provides firms with multiple personalization tools, the architecture of the data infrastructure and data security management will be outsourced to Salesforce with little control over it. Then, the technological progress in case of partnership with Salesforce would mean that the company would highly depend on the capabilities of this partner to promptly adapt to the fast-changing technological improvements, especially for what is concerned with AI, and other internally developed solutions would depend on Salesforce's connectivity capabilities for their seamless system integration.

### 3.3 Salesforce Einstein Copilot



Figure 26: Einstein Copilot capabilities summary (Salesforce, 2024i)

Einstein Copilot is the GenAI tool developed by Salesforce to be able to assist CRM professionals across every Salesforce’s module. It is a conversational AI tool that is grounded on the Data Cloud knowledge base, whose capabilities are summarized in, but not limited to, the ones showed in figure 26<sup>86</sup>. Einstein Copilot, as shown in figure 27, is displayed as a chat box within the Salesforce interface in which any operator could interact with the conversational AI to perform any given task. Einstein Copilot and Data Cloud Module represent a powerful AI ecosystem which could be useful for many other use cases identified in chapter 2.

Firstly, within Sales Cloud, Einstein Copilot can be used to automatically generate segments. These segments could represent static or dynamic audiences to be targeted for specific communications. A CRM operator could therefore simply insert a prompt in the Einstein Copilot chatbot asking to generate a segment with the required characteristics, and it creates it almost instantly, saving a considerable amount of



Figure 27: Einstein Copilot user interface (Salesforce, 2024i)

<sup>86</sup> [tinyurl.com/Salesforce2024i](https://tinyurl.com/Salesforce2024i) (minute 32)

time to the operator and increasing the efficiency of this process. However, this segment creation differs significantly from the use case of market segmentation described in section 2.3.1. In fact, Einstein Copilot does not perform a proper cluster analysis on the customers' database giving the operator the most homogeneous clusters, but rather requires him or her to describe the segments he or she wants to generate based on pre-determined characteristics.

For what is concerned with the use case regarding the implementation of IoT and AI to provide full insights about the vehicles within the MyDucati app as described at the end of section 2.6.1, the real time demonstration made by Salesforce during the Salesforce World Tour Boston 2024 (Salesforce, 2024i)<sup>87</sup> about Aston Martin could provide an example on how to implement such technologies. During the live demonstration, Salesforce showed how it is possible thanks to Einstein 1 Studio to fully customize the customer experience based on telemetry data coming from the vehicle itself. In fact, in the example made by Salesforce not only Einstein Copilot was able to catch telemetry alert from a customer, but also to autonomously act to fix the problem. Once identified a sudden drop of the vehicle's health score, by analysing the telemetry data Einstein was able to identify the problem, order spare parts, check the service point availability and schedule the appointment, as shown in figure 28.

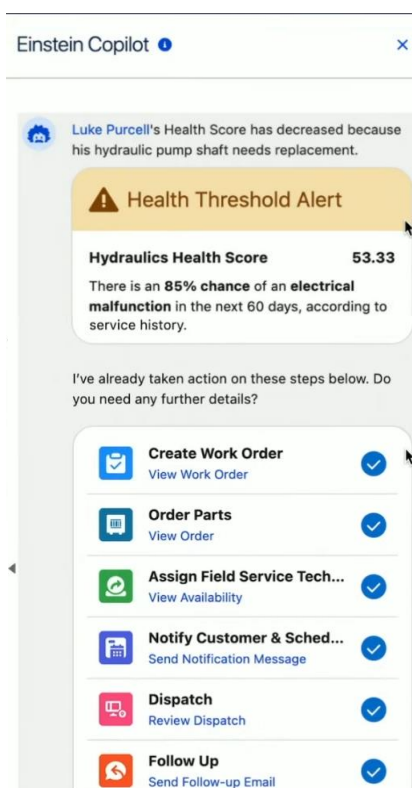


Figure 28: Einstein Copilot automated workflow (Salesforce, 2024i)

Combining Einstein technology with Data Cloud, moreover, it would be possible to reach an unprecedented level of personalization of the customer experience and engagement. For example, Salesforce in its website shows how its partnership with the Formula One brand has enabled the latter to reach and engage with fans in a completely new way thanks to the implementation of Einstein AI technology. In fact, by implementing Einstein Copilot together with Data Cloud, Sales Cloud and Service Cloud, it was possible for Formula One to better manage the sales and service operations with success. Matthew Kemp, Formula One's Senior CRM and Customer Operations Manager reported that Formula One has improved processes, templates, speed of resolution, tooling and how the teams navigate through the system (Salesforce,

<sup>87</sup> [tinyurl.com/Salesforce2024i](https://tinyurl.com/Salesforce2024i) (minute 49)

2024f)<sup>88</sup>. By doing so, the company was able to achieve 86% of first contact resolution also thanks to automated chatbots and improving the overall customer satisfaction from 70% in 2018 to 88% in 2022 (Salesforce, 2024f). However, these capabilities could already be outdated due to the recent introduction of Salesforce's Agentforce suite which will be further explored in the next subchapter.

Implementing Einstein Copilot on Service cloud, in fact, means enabling the service team to access a complete AI-based overview of the previously mentioned customer's history, sentiment and general statistics, with the possibility to directly chat with Einstein Copilot to generate in real time personalized suggestions on how to solve the specific case and how to better engage with the customer to match his or her expectations. Moreover, it is possible to also summarize calls and interactions with customers directly from the Einstein Copilot interface so that the knowledge base and the AI algorithm can continuously improve with time. Those AI functionalities are in fact perfectly matching the first two AI use cases highlighted in section 2.9 about Customer Relationship Excellence.

Back to the Formula One example, the implementation of Einstein Copilot and Data Cloud enables the firm to also personalize the communication and engagement between the brand and the customer. By connecting every single touch point with the database, such as the events, mobile app, marketing emails, race-day pop-up stores and social media, Formula One was able to then send personalized communications based on customers' data, such as follow-up emails with references to the events attended by the customer, his or her engagement history, past purchases and recommendations about their favourite driver's merchandise (Salesforce, 2024f). However, in this case GenAI is not used for adapting the text of communications for 1-to-1 relationship, and therefore it does not cover the use case highlighted in section 2.3.1 about use cases for customer journey and contact plan.

The key advantage of Einstein Copilot is its seamless integration with Data Cloud knowledge base for retrieving accurate information in no time and for helping professionals in their daily operations. In general, the possible applications of Einstein Copilot together with Data Cloud infrastructure cover a wide range of Ducati's use cases for the back-end operations. However, the implementation of Einstein Copilot is not as easy as a plug-and-play software, but it rather requires a considerable effort in terms of data infrastructure and learning curves to build the necessary technology and skills to fully utilize all of its capabilities. Moreover, the recent Salesforce innovations brought by the introduction of Agentforce could surpass the efficiency of Einstein Copilot enhancing its already existing technology and capabilities.

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<sup>88</sup> [tinyurl.com/Salesforce2024f](https://tinyurl.com/Salesforce2024f)



### 3.4 Salesforce Agentforce

Agentforce represents for Salesforce what is called by the company “the third wave of artificial intelligence” (Salesforce, 2024i)<sup>89</sup> consisting in the advent of coordinated and autonomous AI agents. With this technology implementation, companies can create numerous AI agents specialized in specific tasks and trained on the company data to fully understand the business context and answer in natural language. In fact, Agentforce AI agents, as well as Einstein Copilot, are grounded on the Data Cloud platform for data retrieval and natural language processing. Those AI agents can be built in a relatively straightforward way by using natural language and without the need of coding capabilities, and they have access to many pre-existing tools like flows and prompt templates (Salesforce, 2024a)<sup>90</sup>.

The most immediate application of this technology within Ducati’s CRM is the implementation of an AI agent integrated in the MyDucati App as described in section 2.6.1. Ducati could in fact train an AI agent to be competent on any topic related to the app to assist users to better navigate and discover the MyDucati ecosystem, and subsequently also give this agent the capability to communicate with dealers and DOCs ecosystem to manage all the commercial and experiential aspects of the Ducati customer experience, matching also the AI use case about service appointment enhancement as described in the Dealers’ subchapter. What makes this technology particularly suitable for those use cases is its possibility to solve the trade-off between AI automation and customer’s sense of human touch. In fact, the agent builder tool enables the company to set agent’s guardrails on its areas of competences, over which the agent is obliged not to answer the instructions given by the user in the prompt or, more effectively, escalate the request to a human operator.

Intuitively, the same AI agent, or a separate one, can be trained to function as a proper customer care operator having access to the company’s comprehensive knowledge base. Those agents, as reported by Salesforce during its Dreamforce conference of September 2024 (Salesforce, 2024k)<sup>91</sup>, are capable of handling customer care requests through multiple channels such as emails, text messages or even phone calls. As demonstrated by Salesforce during the live demonstration of the Sachs case at Dreamforce, those agents are able to handle phone calls with a very high degree of efficiency, answering in natural language without the need to press numbers on the phone’s keyboard or go through annoying pre-defined conversations. Those chatbots are then able to almost eliminate the usual sense of talking to a robot which is typical of past customer care chatbots, thereby effectively blurring the difference between artificial intelligence and human intervention. Thanks to the

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<sup>89</sup> [tinyurl.com/Salesforce2024i](https://tinyurl.com/Salesforce2024i) (minute 8)

<sup>90</sup> [tinyurl.com/Salesforce2024aa](https://tinyurl.com/Salesforce2024aa)

<sup>91</sup> [tinyurl.com/Salesforce2024k](https://tinyurl.com/Salesforce2024k) (minute 50)

integration with Data Cloud platform and the natural language processing capabilities, those chatbots are able to answer to clients' requests in a fast and accurate way, delivering punctual information with the adequate tone of voice and being able to autonomously act to conclude the requests given by the customer.

However, it would be risky to completely rely on those agents for Ducati customer care as they could have problems when facing complex cases or customers requiring special attention. Thus, to balance chatbot automation and human intervention, guardrails could be set to limit those agents to handle the routine tasks and cases so to let the human operators concentrate on the most complex cases which require a higher level of attention.

The main advantage of Agentforce innovation consists of its improvements with respect of Einstein Copilot platform, enabling the creation of multiple agents specialized in specific areas of competence and capable of retrieving relevant information from the internal knowledge base in a fast and reliable manner. Due to its nature to be fully customizable, the capability of this technology to be adapted on the firm's identity and processes is then virtually infinite, therefore representing a very powerful tool for firms to scale their AI technologies also in the long-term view. Nevertheless, although this technology is displayed with a good-looking user-friendly interface, the implementation of this technology is everything but easy. The skills and competences required to exploit the full potential of this technology are extremely high and represent one of the major obstacles to the implementation of such AI tool. Another major obstacle is the initial investments both in terms of buying the access to the service from Salesforce and creating the internal infrastructure to run the service. Moreover, the operating costs of these technologies should be carefully evaluated, as the possible volumes of conversations with Agentforce could be significant and Salesforce pricing starts from 2 US dollars per conversation (Salesforce, 2024j)<sup>92</sup>.

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<sup>92</sup> [tinyurl.com/Salesforce2024j](https://tinyurl.com/Salesforce2024j)

### 3.5 Amazon Web Services

Although Ducati's organization is already structured to work within the Salesforce ecosystem for its CRM, it would be wrong to consider it as the only alternative for AI solution provider. In fact, as shown in subchapter 1.2 about the business cases, firms approach the implementation of AI in their CRM ecosystem in many ways and partnering with different suppliers. In particular, the highlighted cases showed the choice of the analysed big firms to partner with three main players for AI technologies: Lamborghini chose Salesforce, Ferrari chose Amazon Web Services (AWS), and Starbucks chose Microsoft Azure. While Salesforce AI is built for being used in CRM processes, AWS and Azure represent some of the largest players on the AI market nowadays, covering a considerably wider amount of use cases across all industries. In this subchapter I will focus on the AWS tools and technologies that could be used for implementing AI in Ducati's CRM systems and processes.

For what is concerned with the creation of a comprehensive corporate knowledge base, AWS offers a widely used service called Amazon Simple Storage Service (Amazon S3). This service offers the possibility to store structured and unstructured data with extremely high performances in terms of data availability, scalability, and security (Amazon Web Services, 2024d)<sup>93</sup>. One of the main use cases of this service is the creation of a business data lake connected with a wide variety of data sources and processing technologies. As reported by AWS, by using Amazon S3 to store data and AWS Lake formation for the data lake security management, it is possible to build a data lake with AWS technologies in days rather than months (Amazon Web Services, 2024h)<sup>94</sup>. By integrating these services with a technology that unifies data from various sources and analyses them to create a semantic layer it would be possible to build a comprehensive business knowledge base. This last step could be done with the AWS Redshift, a service that enables the firm to easily retrieve information from its data lakes and process it to enable AI functionalities.

Once the Knowledge base is created, AWS offers many different alternatives to build, run and manage AI projects. Amazon SageMaker is the service that enables firms to build machine learning models (also called foundation models) from scratch and deploy them in business projects in brief time. The peculiarity of this service is the possibility to fully customize those foundation models with advanced techniques and integrate them with other AWS services to allow a flexible architecture (Amazon Web Services, 2024e)<sup>95</sup>. For example, as described in section 1.2.3 about the Ferrari case, by using Amazon

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<sup>93</sup> [tinyurl.com/AWS2024d](https://tinyurl.com/AWS2024d)

<sup>94</sup> [tinyurl.com/AWS2024h](https://tinyurl.com/AWS2024h)

<sup>95</sup> [tinyurl.com/AWS2024e](https://tinyurl.com/AWS2024e)

SageMaker Ferrari has been able to implement a chatbot which can classify and summarize customer care tickets and answer commonly asked questions (Amazon Web Services, 2024j)<sup>96</sup>.

Although Amazon SageMaker allows firms to fully customize their own AI models to match their needs, to exploit the full potential of the technology it also requires firms to autonomously train those models. The platform supports various algorithms and frameworks to do so, but this process requires an extremely high level of technological skills to be fully exploited. A valid alternative to partially dodge this skill obstacle is the service called Amazon Bedrock, in which firms have access to pre-trained foundation models from leading AI companies such as AI21 Labs, Anthropic, Cohere, Meta and more (Amazon Web Services, 2024a)<sup>97</sup>. Moreover, this service is “serverless”, meaning that the client firm does not need to bear any infrastructure costs for what is concerned with internally managed servers. While Amazon Bedrock allows firms to develop AI projects with less resources in terms of time and monetary expenses than using Amazon SageMaker, the use of pre-trained foundation models implies also less control over the AI behaviour. Depending on the projects’ features and requirements, it could become necessary for firms to use Amazon Bedrock to also fine-tune models and develop retrieved augmented generation systems to avoid hallucinations and mistakes of the AI, but this requires again more time, specialized skills, and competences. For example, Ferrari’s car configurator, as mentioned in the Ferrari case section, is built on Amazon Bedrock by using foundation models including Amazon Titan, Claude 3, and Llama, but they have been fine-tuned on the corporate documentation in order to avoid AI mistakes and hallucinations.

AWS, however, offers also another service that enable firms to develop AI tools and application with an even shorter time to market, which is called Amazon Q. Amazon Q is the Gen-AI based conversational chatbot which is integrated into AWS ecosystems for helping business professionals and programmers leveraging companies’ internal data (Amazon Web Services, 2024c)<sup>98</sup>. This service can be divided into two separate types of conversational chatbots: Amazon Q business and Amazon Q developer. As reported on the official website, Amazon Q business is described as follows:

“Amazon Q Business is a generative AI-powered assistant that can answer questions, provide summaries, generate content, and securely complete tasks based on data and information in your enterprise systems. It empowers employees to be more creative, data-driven, efficient, prepared, and productive.” (Amazon Web Services, 2024i)<sup>99</sup>.

On the other hand, Amazon Q developer is described as follows:

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<sup>96</sup> [tinyurl.com/AWS2024j](https://tinyurl.com/AWS2024j)

<sup>97</sup> [tinyurl.com/AWS2024a](https://tinyurl.com/AWS2024a)

<sup>98</sup> [tinyurl.com/AWS2024c](https://tinyurl.com/AWS2024c)

<sup>99</sup> [tinyurl.com/AWS2024i](https://tinyurl.com/AWS2024i)

“Amazon Q Developer assists developers and IT professionals with all their tasks—from coding, testing, and upgrading applications, to diagnosing errors, performing security scanning and fixes, and optimizing AWS resources. Amazon Q has advanced, multistep planning and reasoning capabilities that can transform (for example, perform Java version upgrades) and implement new features generated from developer requests.” (Amazon Web Services, 2024c)<sup>100</sup>

Thus, while Amazon Q developer is the AI assistant for developers and IT professionals, Amazon Q business is the conversational AI assistant enabling fast retrieval of information from the internal business knowledge base. This concept of conversational AI helping business professionals in their daily job resembles the previously described capabilities of Salesforce’s Einstein Copilot and Agentforce. In fact, with Amazon Q it would be possible to cover the same AI use cases identified for Einstein Copilot and Agentforce thanks to its wide adaptability to the business concept.

For example, having access to the internal business knowledge base, the Amazon Q assistant could provide an exhaustive customer summary for dealers, generate sales pitches, and provide in real time suggestions for up-selling and cross-selling opportunities to the sales assistant. The most interesting capability of Amazon Q Business, however, is its possibility to directly develop AI applications using this chatbot with Amazon Q Apps. With this service, a business professional could build and deploy fully operational AI apps and tools without writing a single line of code, simply chatting in natural language with Amazon Q. This solution, within the AWS’ services portfolio, represents the most streamlined way to develop those AI implementations with a minimum cost in terms of time and resources.

In order to recap the various possibilities that AWS offers to build and deploy AI tools for businesses and, in our case, in their CRM systems, the pros and cons of the three previously discussed tools could be summarized as follows (Amazon Web Services, 2024g)<sup>101</sup>:

	<b>Amazon Q Business</b>	<b>Amazon Bedrock</b>	<b>Amazon SageMaker</b>
<b>Time to market</b>	Fastest	Medium	Slowest
<b>Control</b>	Low	Medium	High
<b>Key Features</b>	Configure applications and data sources with no code.	Use API calls to call a range of hosted foundation models.	Full control over training, inference, and hosting.  Range of end-to-end ML tools.

<sup>100</sup> [tinyurl.com/AWS2024c](https://tinyurl.com/AWS2024c)

<sup>101</sup> [tinyurl.com/AWS2024g](https://tinyurl.com/AWS2024g)

The previously discussed AWS services, if applied to Ducati's CRM ecosystem without any constraint of time and resources, could hypothetically cover every AI use case thanks to their possibility to develop custom applications grounded on the firm's comprehensive knowledge base system. From a simple AI assistant suggesting customer care operators how to deal with the next client to a more complex AI chatbot integrated on the MyDucati App and connected with IoT sensors within the motorbike, AWS provides the necessary tools and infrastructure to build, test and run these implementations. However, constraints of time and resources do exist, and although AWS offers services with various degrees of complexity and time to market, developing those AI solutions with AWS infrastructure requires anyways a significant investment in terms of time and capital expenses needed for developing the necessary know how and expertise.

From the Ducati perspective, choosing this approach rather than relying on Salesforce services is a choice that can be approached as a make or buy choice. From one hand, Salesforce offers services which are already fine-tuned and designed to be applied in the CRM environment, with a relatively easy implementation and low initial switching costs for the firm. On the other hand, the choice of developing those AI implementations with AWS infrastructure means, as previously mentioned, building the internal knowledge and expertise required for handling the complexity of those tools. Thus, AWS would require considerably higher switching costs for Ducati to implement those AI tools, but at the same this solution would give the firm full control over the technology and a higher degree of flexibility and agility to adapt to market changes. Thus, choosing AWS would mean for Ducati a higher initial "sacrifice" in terms of time and resources, but it would potentially deliver a higher competitive advantage in the long run.

### 3.6 Microsoft Azure and OpenAI

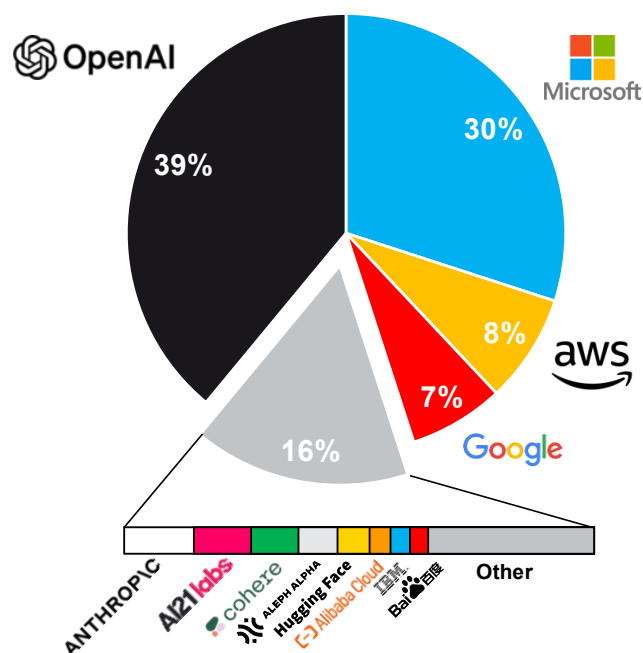


Figure 29: Market share of leading vendors of foundational models and platforms (Fernandez, 2023, p. 24)

As reported in figure 29<sup>102</sup>, Microsoft is one of the biggest players in the AI market in terms of foundational models and AI platforms. Moreover, considering also the fact that Microsoft is by far the biggest shareholder of OpenAI with a 49% stake (Bass, 2023)<sup>103</sup>, the aggregated market share of Microsoft and OpenAI results to cover more than two thirds of the market. Microsoft Azure offers a wide variety of tools and services, such as hardware solutions, cloud infrastructure, computing power, and more than two-hundred other services (Microsoft, 2024d)<sup>104</sup>. Similarly to AWS, Azure offers all the necessary tools and technologies to successfully develop and deploy artificial intelligence projects. With Azure Data Lake, as the name suggests, firms can store and analyse all the necessary structured and unstructured data to form their internal data lake (Microsoft, 2024c)<sup>105</sup>. Then, Azure AI Search is the service that allows firms to create a retrieval augmented generation system enabling them to efficiently retrieve coherent data from the data lake to be processed by the AI models to answer properly. These two services enable firms to develop a secure, compliant, and responsible AI basing their models on sophisticated retrieval strategies (Microsoft, 2024a)<sup>106</sup>. The wide connectivity resources of Azure services allow a seamless integration of those AI tools and implementations with external data sources. Next, Azure AI studio is the suite of services that enable users to choose among

<sup>102</sup> [tinyurl.com/Fernandez2023a](https://tinyurl.com/Fernandez2023a)

<sup>103</sup> [tinyurl.com/Bass2023a](https://tinyurl.com/Bass2023a)

<sup>104</sup> [tinyurl.com/Microsoft2024d](https://tinyurl.com/Microsoft2024d)

<sup>105</sup> [tinyurl.com/Microsoft2024c](https://tinyurl.com/Microsoft2024c)

<sup>106</sup> [tinyurl.com/Microsoft2024a](https://tinyurl.com/Microsoft2024a)

a wide variety of foundation AI models or develop and fine tune own models. AI studio simplifies the development and improve the efficiency of AI projects by using a single unified API and safeguarding the apps and contents with custom filters and controls over it (Microsoft, 2024b)<sup>107</sup>.

So far, the resources and tools that Azure offers do not differ significantly to what is possible to develop with AWS. However, the main competitive advantage of Microsoft Azure is its possibility to choose, among a wide variety of models, also OpenAI GPT models to be implemented in its AI studio. The comparisons between LLMs are difficult to perform and they should take into consideration the purpose of the specific application. For this reason, those comparisons usually take the form of pros and cons of each model rather than giving a net distinction of which one is absolutely the best. However, OpenAI models (GPT) are often considered as a superior choice, with slightly higher performances than the LLMs developed by Anthropic (Claude), which are instead available in the AWS ecosystem (Artificial Analysis, 2024)<sup>108</sup>.

Apart from the competitive advantage of offering OpenAI models for AI applications, there is not a clear answer to the question “should Ducati choose to rely on the services offered by AWS or by Microsoft Azure?”. In fact, the pros and cons of both solutions should be carefully evaluated by IT experts and the comparison of those two solutions goes beyond the scope of this thesis. However, it is important to note that due to the wide portfolio of solutions provided, both AWS and Azure represent a viable solution to develop Ducati’s own AI technology internally and meet the requirements of any CRM’s use case. However, both approaches imply a significant initial switching cost in terms of development of the necessary infrastructure, competences, and expertise for fully exploiting the AI possibility and deliver valuable solutions.

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<sup>107</sup> [tinyurl.com/Microsoft2024b](https://tinyurl.com/Microsoft2024b)

<sup>108</sup> [tinyurl.com/ArtificialAnalysis2024](https://tinyurl.com/ArtificialAnalysis2024)



### 3.7 Bi-Rex Competence Centre

As previously mentioned, one of the biggest challenges of the implementation of AI in Ducati's CRM, regardless of the chosen infrastructure and service provider, is the development of the internal know how, competences and expertise which are necessary to exploit the full potential of artificial intelligence. In the specific case of Ducati's CRM, a potential accelerator of this process is the Bi-Rex competence centre. Bi-Rex is a consortium based in Bologna in which Ducati is a partner of, along with 61 players including Universities, Research Centres and Companies of excellence operating in various sectors. The acronym Bi-Rex stands for Big Data Innovation and Research Excellence and is one of the eight national competence centres founded by the Italian *Ministero delle Imprese e del Made in Italy* (Bi-Rex, 2024)<sup>109</sup>.

The aim of this consortium is to support companies in their digitalization and innovation processes, facilitating the flow of technologies and best practices between national firms and research institutions. Bi-Rex offers its members to develop open innovation projects and access their so-called Pilot Line, an advanced production line where to test new technologies in a digitally interconnected environment.

So far, Ducati's collaboration with Bi-Rex has been limited to the research and development processes for what is concerned with electric powertrains and e-mobility innovations (Canè, 2022)<sup>110</sup>. However, the ways Ducati can exploit the synergies with the consortium and its partners go beyond the mere engineering aspects of the firm. In fact, the presence of a collaborative space for top-tier research institutes and pioneering companies in the field of Big Data and artificial intelligence make Bi-Rex an interesting opportunity for Ducati's CRM as well, especially for what is concerned with the test and experimentation of AI projects within the CRM processes.

Thanks to a collaboration between Bi-Rex and Ducati's CRM and IT team, it would be possible to partially overcome the knowledge and experience gap that act as an obstacle for the before mentioned AI implementations, partially lowering the switching costs in the choice of developing internally the necessary AI technology.

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<sup>109</sup> [tinyurl.com/BiRex2024](https://tinyurl.com/BiRex2024)

<sup>110</sup> [tinyurl.com/Cane2022](https://tinyurl.com/Cane2022)

### 3.8 Strategic Management of AI Implementation in Ducati's CRM

Having analysed the ways AI could enhance Ducati's CRM as well as the viable solutions to implement AI in the identified use cases, it is now possible to summarize the possible strategies and approaches that Ducati could adopt to start its AI transition. By taking into consideration the possible providers and the ways the AI use cases could be addressed, the first big choice for Ducati results to be very similar to a make-or-buy choice. Ducati is in fact called to choose between two scenarios. The first one implies that Ducati would rely on the AI services provided by Salesforce, which are already fine-tuned and designed to be used for CRM purposes. The second scenario would be for Ducati to build its own AI technology relying on the infrastructure offered by AWS or Microsoft Azure, which guarantee a higher level of control over the technology and a greater personalization of the AI tools to better address the present and future use cases.

In the first scenario, as previously mentioned, Ducati makes what sounds like the most straightforward decision, that is to rely on the already existing Salesforce infrastructure and buy the services needed to implement the newest technologies right into the system. This solution leverages not only the already existing infrastructure, but also the internal know how and expertise in using the Salesforce tools for the CRM processes. By acquiring the Salesforce's Data Cloud, Einstein Copilot and Agentforce modules, Ducati would be enabled to implement artificial intelligence for most of the identified use cases as previously described. Due to the already existing infrastructure and know how, this solution is the one which implies the lowest switching costs for the company. The implementation process, in this case, would in fact consist in adding the new Salesforce modules to the already existing infrastructure, without re-designing it from scratch. Moreover, the technologies and tools provided by Salesforce are already designed for CRM usage and the Data Cloud grounding enables the firm to easily adapt those predefined tools to the business context.

While the solution of relying on Salesforce's services for the implementation of AI is the less costly in terms of initial effort, the implementation of those modules is far from being a plug-and-play solution. Implementing Data Cloud module as well as training Einstein Copilot and Agentforce AI would realistically take months to become fully operational and a significant investment in terms of new competences and skills is required to exploit the full potential of this technology. Another critical point of choosing this solution is the operative expenses that it would imply. For example, the starting price for accessing Data Cloud module starts from 108.000€ yearly, plus the necessary add-ons as described in the Salesforce website (Salesforce, 2024d)<sup>111</sup>. Einstein Copilot implies as well significant operational costs which vary based on the required functionalities, for example the price of Einstein

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<sup>111</sup> [tinyurl.com/Salesforce2024d](https://tinyurl.com/Salesforce2024d)

for customer service working across all channels is 150€ per user per month, plus 2€ per self-service conversation (Salesforce, 2024e)<sup>112</sup>. Agentforce is priced similarly to Einstein Copilot starting at 2 USD per conversation (Salesforce, 2024j)<sup>113</sup> and 100 USD per user per month for the AI app development platform (Salesforce, 2024b)<sup>114</sup>. Another significant weakness of relying on Salesforce services is the lack of control over the technology involved. Despite the wide possibilities of personalization offered by the Salesforce platforms, Ducati would have no control over the architecture behind those tools and over their functioning. Moreover, choosing this supplier also means relying on Salesforce for the future digital innovation involved in it, accepting the risk that Salesforce technology could become outdated if the company could not keep the pace of future innovations.

The alternative to the Salesforce “buy” solution would be for Ducati to “make” their own AI technology and implement that into its CRM processes. As previously mentioned, different technology providers offer services for developing the necessary infrastructure to enable the creation of custom AI tools. This thesis analysed the suite of services provided by the two biggest players in this field: Amazon Web Services and Microsoft Azure. Both these providers offer valuable solutions for the development of any kind of tool and integration for the successful implementation of AI in the Ducati’s CRM processes. The distinction between which one of these two providers is technologically speaking the best choice for Ducati should be carefully evaluated by IT experts and it goes beyond the scope of this thesis. However, having analysed the types of services provided by both firms, Microsoft Azure is the one that provides more fundamental services such as the basic AI infrastructures with a wider range of personalization choices, while AWS offers also more agile and ready-to-use tools such as Amazon Q Business apps.

The alternative of internally developing those necessary AI tools implies several pros and cons. Starting with the cons, as previously mentioned, this solution implies a significantly larger amount of initial switching costs for Ducati, requiring the firm to completely redefine and transform their infrastructure to be adapted to the AWS or Azure frameworks. The costs attributed to the access to the platform itself do not play a significant role in the total switching costs in this case, as the pricing structure of those platforms depends heavily on the effective usage rather than on a fixed amount per year (Amazon Web Services, 2024f)<sup>115</sup>. The biggest part of the switching costs, though, is represented by time and human capital expenses invested in developing the necessary infrastructure, knowledge,

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<sup>112</sup> [tinyurl.com/Salesforce2024e](https://tinyurl.com/Salesforce2024e)

<sup>113</sup> [tinyurl.com/Salesforce2024j](https://tinyurl.com/Salesforce2024j)

<sup>114</sup> [tinyurl.com/Salesforce2024b](https://tinyurl.com/Salesforce2024b)

<sup>115</sup> [tinyurl.com/AWS2024f](https://tinyurl.com/AWS2024f)

and expertise to fully exploit the full potential of AI tools, including the external sources of those resources such as specialized consultancy firms.

Switching to the pros, this solution would enable Ducati to have full control over the technology involved, giving the firm the necessary agility to easily adapt their AI infrastructure to future scenarios and create new AI tools for newly identified use cases. By having this full control as well as the competences and expertise needed, it would be possible for Ducati to develop and implement any AI tool, without being constrained to what is possible to do with Salesforce tools. Moreover, it is reasonable to believe that this solution would drive lower operational costs than relying on Salesforce's services, as the outsourced services are reasonably paid more than the mere infrastructure over which to build the AI tools. Just to give an example, while Salesforce Agentforce conversational AI costs around 2 dollars per conversation (Salesforce, 2024j)<sup>116</sup>, a similar technology developed with Azure running GPT-4o model would cost around 0.16 dollars per conversation (Oliver, 2024)<sup>117</sup>, and a similar tool developed on AWS based on Llama 3 would cost around 0.8 dollars per conversation, according to AWS<sup>118</sup> and OpenAI<sup>119</sup> pricing (Amazon Web Services, 2024b; OpenAI, 2024). Furthermore, these operational costs could be spread among a wider range of activities and processes, because the developed infrastructure would be useful not only for CRM use cases but also for marketing, production, purchases, supply chain, finance and so on.

However, the choice of developing Ducati's AI infrastructure internally could be addressed in different ways. The first approach requires the strategic development of a comprehensive business knowledge base that would serve as the foundations for the identified use cases. By developing this solution, Ducati could then create new AI tools on top of that to exploit the fast retrieval of data from the knowledge base and develop the previously explained use cases. For example, the same knowledge base could be used from a customer care AI tool that summarizes the cases, escalates them, and then suggests case resolutions based on the information contained in the knowledge base, eventually updating the existing data with the new information. At the same time, a separate AI tool connected to the knowledge base could detect the change of a customer care status and automatically re-calculate the CLV of the connected customer depending on his or her satisfaction. Moreover, another AI tool could simultaneously re-estimate the stage of the customer journey he or she currently is and move him or her to a different customer segment.

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<sup>116</sup> [tinyurl.com/Salesforce2024j](https://tinyurl.com/Salesforce2024j)

<sup>117</sup> [tinyurl.com/Oliver2024a](https://tinyurl.com/Oliver2024a)

<sup>118</sup> [tinyurl.com/AWS2024b](https://tinyurl.com/AWS2024b)

<sup>119</sup> [tinyurl.com/OpenAI2024a](https://tinyurl.com/OpenAI2024a)

This strategic approach would create an AI ecosystem in which different players and tools interact proactively to better manage the relationship with the customer, and at the same time it would give Ducati the full control over the AI technology involved in it to eventually enhance even more these processes by developing other tools on top of the already existing ecosystem. Although this solution enables Ducati to have the highest level of agility to adapt to future scenarios, it still requires a considerable initial investment for the development of this ecosystem.

However, a different approach of the “make” alternative could be taken into consideration. In fact, not all the AI use cases require an underlying comprehensive knowledge base infrastructure to retrieve data from, as they can be developed as stand-alone tools, allowing the firm to avoid part of the initial investment on the underlying infrastructure. For example, the duplicates management use case explained in the section regarding MyDucati app simply requires to define the rules to automate the merging process of duplicate accounts and a little training of the LLM to identify the so-called “fuzzy names” like nicknames or abbreviations of personal data. Similarly, the automation of the bike certification does not require a comprehensive knowledge base, but rather an AI model or simply an OCR system that is capable of recognizing data from images and checking their correspondence among different document formats. Other use cases that do not require an extensive infrastructural background are the sentiment analysis explained in subchapter 2.8, the automatic case summary explained in subchapter 2.9 and the automatic escalation process explained in the same subchapter.

All these previously mentioned use cases could be addressed by Ducati as proofs of concept (POC), i.e. stand-alone projects to test the capabilities of AI that can eventually become fully operational as they are. This approach allows the firm to quickly start testing the capabilities of AI and get fast positive results from the implementation of AI into its CRM. The firm may choose this approach for each use case, developing a stand-alone project whenever a new use case is identified. However, this solution may get less agile than expected when the projects become more complicated and when they require to be integrated with each other. For example, the customer care cases knowledge base as intended in subchapter 2.9 could be developed as a POC project together with the other use cases for the customer care. Then, when the firm will eventually decide to develop a new separate tool for the calculation of the CLV which takes into consideration also the case history, this would imply the integration between these two separate systems, and this could cause inefficiencies from the informatic point of view due to their different development.

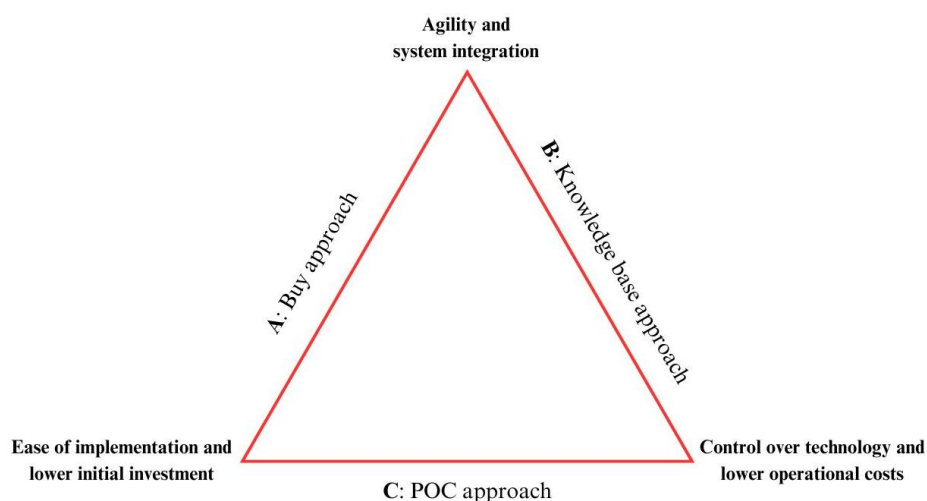


Figure 30: Trilemma of the possible approaches

Thus, summarizing the pros and cons of the make or buy options, I propose to visualize the possible choices as a so-called trilemma, i.e. a choice among three favourable options, only two of which are possible at the same time. As shown in figure 30, the buy approach, which consists of relying on the Salesforce’s services for the Ducati’s AI transition, implies the advantage to be relatively easy to be implemented with respect to the knowledge base approach, with the advantage of lower initial investments in terms of time, competence and expertise development within the firm. Moreover, at the same time the buy solution implies also the advantage of being relatively agile for the firm in the context of future new scenarios and use cases, due to the integration of tools within the salesforce ecosystem and the possibility to create and customize AI tools to be adapted to the business environment. However, as previously mentioned, this solution does not allow the firm to have full control over the technology involved, outsourcing to Salesforce the design and innovation processes, bearing the risks of becoming outdated and limiting the functionalities to adapt the technologies to the Ducati’s business context.

Then, the knowledge base approach is the previously mentioned strategic make approach implying an underlying knowledge base which serves as fundamental basis for all the other AI implementations. In this case, Ducati would have a great level of agility and integration between the various AI systems and tools, enabling the firm to easily adapt to future scenarios also thanks to the full control over the technology involved. Moreover, it is reasonable to add that, although this solution does imply a significantly higher initial investment, the future operational costs would be lower, due to the lower costs of the infrastructure and the possibility to spread costs among different business functions generating economies of scale.

The third and last approach, implying the development of multiple stand-alone AI tools, inherits the advantage of a lower initial investment, if compared to the knowledge base development, and the

control over the technology which characterizes the make alternative. However, the multiple POCs could eventually imply a low level of future agility due to the different architecture of those separate tools, especially when those tools become more and more complex and information demanding.

Another important topic which deserves attention when making this choice is represented by the risks attached to the data governance and data security. The European Union Artificial Intelligence Act (also known as AI Act) regulates data governance of artificial intelligence in a way that respects fairness, accuracy, transparency, and privacy (European Commission, 2024)<sup>120</sup>. Although Ducati's implementation of AI does not represent a high-risk activity for the European law, it must be compliant with several rules regarding the transparency of data for what is concerned with AI-generated content. While most of the analysed use cases fall within the minimal risk applications and therefore do not require any specific limitation, AI applications interacting with clients such as chatbots and agents are labelled as limited risk. Those applications require the user to be clearly informed that he or she is interacting with a machine so they can take an informed decision to continue or step back (European Commission, 2024).

Another risk which should be taken into consideration is the security of the customer's data that are processed by the AI system. Data breaches nowadays represent a serious threat for firms, especially for the brand reputation and the quality of customer relationships. In the choice of relying on a partner like Salesforce for the implementation of AI, the so-called lock in (i.e. the dependency of a firm on a certain partner for products and services) would be higher and matters like data security and data governance would be partially outsourced to the vendor. On the contrary, internally developing AI tools would mean for the IT department to face important choices of data governance and data protection.

The representation of the possible choices and the consequent managerial implications as exposed in this chapter, however, simplify a situation that is significantly more complex, and it should therefore be carefully evaluated in every detail. For these reasons, I will not try to derive which one of these solutions would be the best one for Ducati's CRM, as this is a choice that should be taken at the C-suite level after analysing all the possible scenarios. My study is therefore limited to the analysis of pros and cons of these approaches, with the aim of structuring the information contained in this thesis that will eventually become useful for the Ducati's top management when called to make this choice.

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<sup>120</sup> [tinyurl.com/EuropeanCommission2024](https://tinyurl.com/EuropeanCommission2024)

## Conclusions and Limitations of the Thesis

This thesis analysed the existing literature about AI applied to CRM, considering that the state of the art of this topic is still in its infancy stage, with few and reciprocally isolated real case studies. For this reason, the analysis continued with best practices and success case studies which are related to the luxury and automotive sector. In particular, the case studies highlighted how companies approached in different ways their AI transition, relying on diverse solutions including Microsoft Azure for Starbucks, Salesforce for Lamborghini, and AWS for Ferrari. These cases also highlighted some of the most important AI use cases in CRM which have been subsequently applied to the Ducati's business environment.

This thesis' goal was to contribute to the research in this field with an insightful case study about AI transition, analysing the Ducati's point of view within the luxury automotive sector. Thus, to deepen the role of AI in enhancing Ducati's CRM, the thesis went on by defining the core business values of the firm and of the Ducati's CRM itself, highlighting core principles such as the sophistication and technological improvement, the human touch, the importance of customer satisfaction, the strategic goal to "raise the bar" and the focus on top Ducatisti.

Then, all Ducati's CRM areas have been analysed in detail to highlight the main processes and to identify the most important use cases for which artificial intelligence could enhance the efficiency and quality of outputs. This process has been possible thanks to my internship period within the Ducati's CRM team, during which I have been able to deepen not only the processes regarding the CRM areas, but also the underlying core aspects of the surrounding corporate culture. The research highlighted several AI use cases, summarized in subchapter 2.10, covering all areas of Ducati's CRM and revealing the high potential of this disruptive technology.

Those use cases have set the basis for the subsequent chapter, which focused on the possible pathways for the implementation of AI tools and technologies in Ducati's CRM. After analysing the main technology providers and understanding the ways those services could be used to implement AI for the identified use cases, I have described the possible approaches for the strategic AI transformation within Ducati's CRM. Ducati's top management will be called to make a choice that takes the form of a make or buy choice, either relying on Salesforce's infrastructure and AI technology or creating its own AI ecosystem based on the AWS or Azure infrastructure.

This thesis, however, is not intended to give a general framework for the implementation of artificial intelligence in CRM processes as it has been written to be applied to the specific Ducati motor Holding case. In fact, the thesis has been written following the steps traced by the Ducati top



management and CRM team in the path towards the AI transition and it reflects my personal experience during the internship. Moreover, the identified use cases and the possible solutions to implement AI in Ducati's CRM aim to be as exhaustive as possible but are limited to the ones which I and the Ducati Team have been able to identify during the previously mentioned internship period. Thus, other AI use cases could exist both in the present and the future. The corporate information contained in this thesis is also confined to what I have been authorized to disclose, in accordance with the internship agreement.

Although the identified Ducati's CRM processes and use cases reflect my personal experience within the firm, the proposed strategic pathways for AI implementation do not necessarily represent Ducati's actual decisions or the approaches followed in their AI transition. As previously mentioned, these choices are made at the C-suite level and my conclusions are intended to support the CRM team and top management in making well-informed decisions.

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