Optimising Customer Service in the Context of a Digital Service

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Abstract

Organisations are aiming for a digitalisation strategy, in that sense, implementing a Customer Journey is an important technique that puts the customer in the centre of the relationship between stakeholders. An optimised customer journey adds value to the customer experience and the organisation. This dissertation presents the planning, conduction, and reporting of a Systematic Literature Review (SLR), on the topics of customer journey and digital services, it also conducts a descriptive case study where seeks to understand the importance of these concepts in the context of innovation and digital transformation.

The SLR was conducted to research customer journey (CJ) in the context of Digital Services, to understand its benefits, challenges, enablers, and inhibitors. For this purpose, the EBSCO and SCOPUS libraries were used to query, and selection protocol was applied to the returned results, yielding 21 articles. The findings revealed that CJ has a positive impact on organisations in aiding in the digitalisation process as well as improving the overall experience of the customer. The most reported benefits were better consumer segmentation using CJ techniques and an improved experience that adds simplicity and convenience to a digital service. Additionally, the articles have also revealed that the main enablers of CJ are data, technology, people, and culture. Understanding customer data allows for an understanding of people and tailoring services to their needs so that the appropriate technology can be applied. The more significant challenges of implementing an optimise CJ are the lack of knowledge skills and specialised personnel together with the need for an organised transformation within the organisation of the service provider. Lastly, this SLR has also identified major inhibitors such as the lack of a common modelling language for CJ mapping, the multiplicity of touchpoints and fragmented channels, and the legal liabilities that personalisation can bring regarding private data.

The research presented in the SLR process served as a mean to understand the need to model digital transformation in the organisations, so that optimised digital products and services can be developed and aid business to thriving with technology. With digitalisation of business processes, services and products, new challenges arise. Preparing for those challenges is paramount for success. This dissertation aims to model a real-life digital product - Key' n Go – from Europcar group using Archimate modelling language in order to understand the technology, the infrastructure, the main stakeholders and to suggest future improvements.

Keywords: Customer Journey, Customer Journey Mapping, Customer Experience, Digital Services, Digitalisation, Innovation.

Resumo

A transformação digital no seio empresarial é uma efeméride a que já nos habituamos, sendo cada vez mais frequente o estudo de novas formas de fazer negócio pela via digital. No seio organizacional de uma empresa é de fundamental importância, a constante melhoria na interação entre o cliente e organização. Nesse sentido, a implementação de técnicas inovadoras como - o *Customer Journey* e *Customer Experience* - implementadas através de um *framework* dedicado à inovação ajuda a concretizar um método que: implica mudança na orgânica empresarial, nos atores empresariais, nas tarefas por eles desempenhadas e nos processos de negócio.

Esta dissertação tem como objeto o estudo da implementação de uma *Customer Journey* e respetivos *touchpoints,* propõem-se a estudar a implementação do serviço digital - Key' n Go – no seio da empresa Goldcar e demonstrar como a digitalização no contexto empresarial transforma as organizações.

Esta dissertação tem por metodologia a Revisão Sistemática da Literatura (SLR) em que se expõem os conceitos de Serviço Digital e de *Customer Journey,* e o Estudo Caso descritivo em que o autor utiliza a linguagem modelar de arquitetura empresarial - Archimate - para analisar a realidade da empresa e estudar todas as suas transformações e o seu contributo para inovação e transformação digital.

A pesquisa apresentada demonstra a necessidade de modelar para entender a realidade empresarial, de forma a agir nas organizações de forma coerente. O estudo conclui que uma melhor modelação e planeamento conduzirá à necessária otimização de produtos e serviços digitais e à agregação valor.

Os resultados do estudo caso mostram, ainda, a importância fulcral dos dados na planificação e construção de uma Customer Journey e dos respetivos pontos de interação digital – *touchpoints* com o utilizador e da necessidade de estes serem feitos com pessoal qualificado e com a ajuda de técnicas que auxiliem no processo de inovação.

Palavras-Chave: Digitalização, Inovação, Serviços Digitais, Customer Journey, Mapeamento digital.

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Acronyms

AI – Artificial Intelligence
AMD – Automated Machine Desk
APP – Aplication
B2B – Business to Business
B2B2C – Business to Business to Customer
B2C – Business to Customer
CC – Customer Centricity
CE – Customer Experience
CJ – Customer Journey
CJM – Customer Journey Mapping
DNA – Deoxyribonucleic acid
DS – Digital Services
EA – Enterprise Architecture
EG – Exempli Gratia
GQM – Goal Question Metric Method
HR – Human Resources
HRM – Human Resource Management
IoT – Internet of Things
MIM – Mobile Instant Messaging
NPS – Net Promoter Score
Ops – Operations
RQ – Research Questions
SLR – Systematic Literature Review

1. Introduction

The aim of this chapter is to contextualise the research by presenting its motivation, its main objectives, the scope, and relevance for the community.

1.1 Motivation

With the advent of digitalisation, Customer Centricity (CC) and Customer Journey (CJ) are proved to be important features as it retains customers while providing a differentiated service. The optimisation of costs and the overall improvement of the Customer Experience (CE), thus, resulting in the expansion of digital products into services with several touchpoints and channels make a CJ possible.

Having this interest in mind the below study provided an opportunity to research through a Systematic Literature Review (SLR) and a Case Study. The motivations behind the SLR were clear and simple – use the scientific background in terms of literature and research, the knowledge of CJ and CE as grounds for the development of a exploratory case study concerning a particular product and reality within Europcar enterprise subsidiary, Goldcar and its digital service – Key' n Go.

Knowing that CJ can be defined as a sum of experiences whereby the customer will interact with an organisation through a digital and/or physical space in an environment full of multiple points of interaction that can be positive or painful. Moreover, CJ is an important technique to improve the relationship between the service provider and the customer, bringing benefits and challenges to both parties. A recent study from Accenture (2015) reported that improving and creating a strong customer experience is a leading management objective[1].

Through data analysis and study of customer behaviour, it is possible to identify a type of consumer personality and define preferences. A study developed by Takahashi [2] identifies two different types of consumer behaviour DNA used for digital marketing – the naturing type and the latent type. The latent type is strong interest-driven, though its consumer behaviour is very unlikely to change, on the other hand, the naturing type consumer is much more approachable to incentives. By getting to know consumers it is possible to target them and invite them to participate in our optimised digital experiences.

With the aid of scientific literature together with the in-house access to the organisation, its know-how proved essential in building and modelling a full-scale Enterprise Architecture (EA) – a multi-level architecture that revealed the organisation's business model, the applications that sustain the main functions of the business, its technology and infrastructure. Ultimately, this report will investigate and provide results in CJ done in the digital context and will seek to understand its role in the process of digitalisation and innovation.

1.2 Problem

The context of the problem is a car-hire company – Goldcar and the digital service – Key' n Go. This dissertation moves from a standpoint of SLR done on the topic of CJ and CE and uses the existing theoretical review as a ground to identify a problem in the relationship between the customer, the company, and a digital broker intermediary in a relationship Business to Business to Customer (B2B2C) and or Business to Business (B2B).

This dissertation illustrates in a case study, the organisational and system architecture of the traditional model of car hire, the AS-IS model of its digital service - Key' n Go, showing the lack of information exchange between the provider – Goldcar and the digital brokers (e.g.- Booking, Rentpalcars, etc.). This lacking of communication translates into a barrier for the customer using the service, resulting in customer dissatisfaction and ultimately, the loss of product value and its competitive advantage over rivals.

When analysing this problem broadly in the context of the digital transition patent today, it becomes clear that this problem happens in other contexts other than car-hire, and other organisations other than Goldcar. This problem occurs, whenever a digital product is sold by a broker and no communication happens between the provider, the brokers, and the customer.

This dissertation will only analyse and study the specific impact of the scoped problem in the context of the car-hire industry.

1.3 Objectives

The main objective of this dissertation is to illustrate the previously identified problem broadly. This was set to do by means of fully comprehensive views of the architecture of the Traditional model, the AS-IS model, and the Implementation Migration model of Goldcar organisation in a descriptive case study.

Secondly, this dissertation intends to illustrate and reflect on how ArchiMate as a modelling language can be used in the context of digitalisation and innovation of the business processes and the organisation itself. It will ultimately convey a comprehensive map for innovation at the enterprise level, describing in a practical way a transformation of services using touchpoints and an improved CJ.

Lastly, it will investigate the practical scenario presented in the case study and set the grounds for future TO-BE model architecture that will allow for future improvements and research in the field of digital services.

2. Research Methods

This section of the dissertation is dedicated to presenting the research methodologies that were used in the presented research – the Systematic Literature Review (SLR) and the Case Study.

2.1 Systematic Literature Review

An SLR or simply systematic review is a way to identify, evaluate and interpret the available scientific research in a particular field of study that is relevant to a particular research question, topic, or phenomenon of interest.

The presented definition of SLR was conducted following Kitchenham guidelines for systematic literature reviews [3]. The process is divided into three main stages - Planning the review, Conduction the review and Reporting the Review.

2.1.1 Planning the review

This is the initial phase of an SLR that starts with the identification of the need for a literature review[3]. There are two things that need to be defined - the problem and the motivation, without them, it is not possible to pursue the review in a correct manner.

The problem should be summarised by the researcher without being biased and the summary should be done in an informative way reporting all the existing information about a particular phenomenon [3].

The motivation should be clear in explaining the need that has arisen for the researcher to pursue and investigate the proposed subject and problem in an unbiased way [3]. It should be clear to the readers the reviewer's objectives for conducting the review, the sources that were used to identify the studies, the restrictions, the inclusion/exclusion criteria and how they were applied, the process of extraction of data and the way data was synthesised [3].

Kitchenham also refers to this phase as the phase of definition of the Research Questions (RQ). In the field of software engineering, there are different types of RQ that the researcher can use. A successful RQ assesses its effect in software engineering and the technological field, doing so by addressing the effects of the technology in the context of the research [3]. RQ can also be assessing the frequency or rate of adoption of technology, as well as question the adoption of technology, the cost and risk factors of its adoption, its impact, reliability, and cost models [3].

Lastly, a development of the review protocol is defined, a protocol is established by the researcher, and a search string and the databases are defined.

2.1.2 Conducting the review

The second phase of an SLR is the conducting phase, this is where the review is identified by means of a generated strategy. A primary search on the topic is conducted and previous literature reviews on the subject and other existing studies are identified. It is then conducted a trial search in different databases, using different terms derived from the RQ [3]. It is then important to review results and consult experts in the field of study to attain an approach on how to break down the RQ into a sophisticated Boolean search string that would produce good results [3].

Note that when conducting a review, it is important to test for publication bias. Publication bias can lead to systematic bias in a literature review. It is crucially important to scan grey literature, and conference proceedings and contact experts in the area to know if they know of any unpublish papers [3].

The inclusion and exclusion criteria used in the review should be based on the RQ, they should also be reliable to ensure a good classification of the studies and that they provide an answer to the proposed RQ [3].

The selected articles should be documented in a clear and detailed way, for the reader to assess the thoroughness of the review [3]. The search results should be documented and any change that occurs during the review process should be noted and reported [3].

In summary, when conducting the review, studies and SLRs are selected and their quality of them is assessed, papers are identified and obtained and finally, data is extracted and synthesized.

2.1.3 Reporting the review

The reporting is where the researcher communicates the results and findings in a formal format to the scientific community. According to Kitchenham, the results can be presented in the following formats:

1. Technical report, or inclusion in a section of a PhD thesis.
2. A Journal or Conference Paper.

Furthermore, the reporting of findings should consider adopting a strict structure appropriate for Journal and Conference reports [3]. Conference papers are usually limited in size, and therefore when reporting an SLR they should point to the technical report where the SLR was published. Note the difference between a technical report and that of a Journal or Conference Paper, is that both are formal documents and obey a formal format, though a paper is peered review where a formal technical report is not [3].

2.2 Case Study Research

A Case Study as Robert Yin defines [4] is a method of research to empirically investigate a contemporary phenomenon in a context of a real-life situation. There are different types of case studies, and each of them fulfils a particular purpose, there is the exploratory, the descriptive, the explanatory and the improving type. The guidelines for conducting and reporting a Case Study Research in the field of software engineering will involve going through the five stages that are explained in detail in the below sections:

2.2.1 Case Study Design

According to the guidelines [5], this is the phase where the planning of the case study occurs, and the main objectives are defined. For a case study to be defined it is important to define the following key elements:

- **Objective**—definition of what the research is trying to achieve, and of the type of case study research.
- **The case**— explanation of the case that is being put forward, which can literally be of any subject and/or field. In the field of Information Systems often the case is related to an organisation, business processes, products, individuals, or all of the above.
- **Theory**—definition and explanation of the framework of reference used in the research.
- **Research questions**—what RQ are going to be asked?
- **Methods**—enumerate the prime ways to collect data and define the method, in other words, the type of study research as "(…) in contrast to surveys and experiments, where subjects are sampled from a population to which the results are intended to be generalized. The purpose of the selection may be to study a case that is expected to be "typical", "critical", "revelatory" or "unique" in some respect[5]"
- **Selection strategy**— definition of the type of strategy to be adopted in the case – literal replication or theoretical replication [4]. Have a detailed strategy as to where to seek data [5].

2.2.2 Preparation for Data Collection

Under the guidelines for conducting a case study [5], the preparation for data collection can be of three degrees. Those degrees are identified and explained in the bellow paragraphs. In this section of the case study researchers should identify what type of degree should be used and further explain the methods used to produce research.

- **1st Degree Data Collection –** the collection is done by methods of direct collection. The researcher is in direct contact with the subject(s) and /or can retrieve data directly from the source. e.g.- (Interviews, Surveys, Focus Groups, etc.).

- **2nd Degree Data Collection –** the researcher collects data indirectly without being in contact with the subject(s), [5] in the field of Software Engineering collection can occur during a Software Project of Telemetry, where the tools of a Software are observed using video recording techniques.
- **3rd Degree Data Collection –** this type of data collection occurs when data is already widely available, and it is done through an independent analysis [5]. In the field of Software Engineering, this is done through a thorough analysis of the systems requirements, the system flaw reports or indeed that of organisation databases [5].

2.2.3 Collection of evidence

The collection of evidence depends on the type of degree of data collection previously defined, this is the stage of the research, where the researcher is responsible for the actual collection of data. According to the guidelines [5], they can take different types and forms. It is not possible, therefore, to mention all the types of data collection forms, though it is paramount to understand the main ones used in the field of Software Engineering.

Interviews

An interview can be conducted in two ways, either an individual interview where the researcher asks pertinent questions regarding the case in question [5] or a group interview where a series of questions are asked to a relevant group of subjects regarding the area/ subject of study. In both cases, the interview should follow guidelines for questioning based on both the area of research and the research questions.

Furthermore, with regards to the type of questions used in interviews they can be Open or Closed. As reported in the guidelines [5]. Open questions allow for a wide variety of answers and a broader discussion of the issues regarding the topic of research. Closed questions, on the other hand, are set for a limited answer or set of answers and are therefore more direct.

It is important to note the different types of interviews available for the researcher – Unstructured, Structured, and Semi-structured.

- **Unstructured Interview** – questions are formulated as general concerns and interests of the researcher [5]. The focus is on asking questions regarding the qualitative experience of a phenomenon, the interview type is exploratory, often this is a guided interview with different areas of focus.
- **Semi-structure interview** – questions are planned, though they are not necessarily asked in the same order as they were planned [5]. This means that the order of the questions and the development of the interview conversation depends on the way the conversation is handled.

To be certain that the essential questions are going to be asked the researcher often uses a list of questions. The researcher tries to accommodate qualitative and quantitative questions, and the type of study that uses this type of interview is the descriptive and exploratory type [5].

- **Structured Interview** - questions are planned and researcher preparation is required, questions are asked in the same order as they were planned and are often closed questions [5]. The type of study that uses this type of interview is of the type descriptive and exploratory.

Observations

Observations often provide a deep understanding of a subject; it provides answers to the research questions simply by observing the reality [5].

In the field of Software Engineering and Computer Science, the observation approach is used in the 1st and 2nd-degree data collection methods presented above [5]. Observation is a way of collecting data where action research or classical ethnographic studies apply [5].

In the observation method, the researcher can take part in the case and often is not only seen only as a researcher but as another participant of the study in question [5]. Its main role is to remain attentive and focus on the primary observation of a phenomenon/ subject or case.

The researcher can be of three types [5]:

- **Observing participant –** the other subjects of the study acknowledge that the researcher is taking part in the study and is observing for research purposes. There is high interaction of the researcher with the other subjects.
- **Normal participant -** the researcher is seen by other subjects of the study as another normal participant, meaning participants have no or low awareness that observation is taking place.
- **Researcher –** the researcher is seen only as a researcher, as someone that is there to observe a phenomenon. All the approaches and/or interactions with the research and the subject is made formally and are directed to the subjects, phenomenon or/ and organization.

Archival Data

Archival data can be of different types, shapes, and forms, some of the examples include – official documents, articles, organisational charts, meeting minutes, financial records, etc. When analysing archival documents for research it is important to understand the difference inherent in the quality of the data that is to be extracted.

There are qualitative data and quantitative data that can be extracted from documents. Qualitative data extraction is focused on organisational documents, charts, and minutes, whereas quantitative documents focus more on metrics and measures e.g. – records, charts, etc [5].

Proper extraction of data is needed to successfully interpret data relevant to the case study. This is truer because it might be that only part of the document that is being a consultant is relevant for the researcher's study, this means that an analysis is to be completed by the researcher before a decision is made on what data to include [5]. Lastly, when analysing multiple documents, it is important to make use of a managing tool for documents, so that all reference articles are organised and analysed swiftly [5].

Metrics

Metrics play an important role in the analyses of a particular subject, as they are the variable that determines the tendency of a particular case. Quantitative data is important to a case study, as it gives perspective to the different variables in place. Some case studies in the field of Software Engineering require quantitative data to be fully understood and analysed before they can be reported [5], for that to be successful it is important to have access to do a good collection.

In building a new case study metrics are collected and take a relevant role in a new field of study, where good quality metrics help in presenting a new argument or idea [5]. The source of collection for metrics are documents, data from previous studies, public and organisational databases, and many others.

Metrics can also be collected after the definition of goals, in that case, goals are defined by the researcher following a strict protocol – GQM (Goal Question Metric method), where goals are formulated, and questions are then redefined based on these goals and metrics are derived based on the question [5].

2.2.4 Data Analysis

After the collection of data for the case, the researcher is to produce an analysis. Data analysis can be of two types - qualitative analysis and quantitative analysis, both are conducted differently, and the researcher will always decide beforehand which type of analysis should be conducted.

Quantitative analysis

Quantitative analysis involves the use of any form of quantitative data. This includes descriptive statistics, correlation analysis, the development of predictive models and the testing of hypotheses for problem-solving [5]. It is imperative to understand the correlation that measures can bring describing

how a later process or activity is related to the current scope problem and an earlier process measurement [5].

Lastly, it is relevant to retain that quantitative analysis is to be used in a fixed research design scenario, meaning that should the scope of the research and/ or the research questions change the data that was previously retained will not be relevant for the new research [5].

Qualitative Analysis

Qualitative analysis is the type of analysis that is more commonly used in research as it is a more flexible method of analysis. This method can be adapted throughout the research and is aimed to derive from data conclusions and form a chain of evidence [4] According to Yin (2009), when using a chain of evidence, the reader of the case should be able to follow the derivation of the results and conclusions of the research [5].

When forming a such chain of evidence, it is critical to have a parallel analysis with data collection and the need for a systematic analysis technique [5]. There are several techniques in place for parallel analysis this dissertation will not go into detail about the different techniques in place. Though it is worth mentioning that analysis is paramount in parallel with data collection because of the flexible nature of the research. It is also important to understand that when insights are found during the analysis these can be added at any time without putting the entire research at risk.

An investigation of these new insights should take place and therefore new data should be collected and all the instruments that were used for collection should also be updated [5]. Moreover, to prevent the research from being biased by individual researchers the analysis takes great benefit from being conducted by multiple researchers, thus taking the different perspectives into consideration by merging them into a common analysis in a second step [5].

2.2.5 Reporting

Reporting the study is of great importance, simply because without reporting findings are not known by the scientific community.

The reporting stage of a case study communicates the findings, and it is the main source of judging its quality [5]. According to Yin (2009) reports have different audiences, it may be that the intention of reporting is to peer review the work of the researcher and in that case, the audience will be peer-researchers. On the other hand, if the work of the researcher is to affect change in policies, it might need to have policymakers as its main audience. Other audiences include research sponsors and industry practitioners [4]. The result of this disparity in the audience may result in the researcher producing different reports if the research needs to be presented to different audiences at the same time [5].

For reporting to the scientific community and to peer-reviewers alike it is important to take into consideration that the reporting stage should be [5]:

- Objective and define in simple words what the study is the topic and the problem of the study and the research questions. Note – if changes occur during the research the researcher should go back a report the changes [5].
- Assertive, meaning that the communication should be clear and easy to understand.
- Clear on what is on the path of inquiry, the reader should be able to tell what the researcher has done and how. In the case where multiple researchers exist the reader should be able to tell the difference between what parts were done by whom [5].
- Focus on providing evidence of the source of data, its correlations, and conclusions.
- Articulative in its conclusions.

Lastly, it is important to note that reporting should obey a strict structure according to the audience that it is reporting. Academic reporting of Case Studies focuses on having a linear-analytic structure, another type of reports may have a different structure.

3. Research Background

The below section of this report presents an overview of the topics that are fundamental for understanding the relationship between customer journey and digital services.

3.1 Digital Services

With the ubiquity of the internet, smart technology, and mobile devices, services are becoming the centre of a revolution, whereby the customer is put in the centre of the equation and service is tailored to their behaviour and needs [6]. Digital Services (DS) can be defined as a series of activities that provide value to a customer by a form digitally through a device and with the aid of technology. DSs are often personalized and tailored to customers and users.

These days with the advent of IoT there is a multiplication of devices and products that provide DS. As a result, there is now a vast offer of services available through a product. A good example of this is a smart TV, whereby a TV is no longer a means to watch a movie but a place where one can buy or subscribe to digital services such as streaming tv and other products.

The multiplicity of DS has changed the relationship between customers, manufacturers and retailers and is rapidly changing the way services are provided. Aunkofer argues that “in the future consumer goods will mostly remain a long-term investment” [6], the customer will focus on DS rather than on a new device full of features that they do not use.

It is therefore possible to assume that DS serve as a bridge between the provider and the consumer in an end-to-end transaction. Having said this, it is important to understand that there are important elements that take part in the chain of value of DS - the organisation that provides the service, its stakeholders and technology.

Figure 1 Chain the value of DS based on Aunkofer

3.2 Customer Journey

Today's technology such as the IoT – Internet of Things, the Cloud and Mobile Computing and others have allowed people to be interconnected digitally. It has also opened the doors for service providers in transforming their businesses into smarter organisations by evolving from product manufacturers to service providers. We are therefore witnessing a shift to a service delivery economy, consequently "the customer experience has become the main differentiator and thus turned into a management priority" [7]. In practice this means that selling a product to a customer is only the tip of the iceberg, the most profitable companies are now creating service offerings that interlink with one another in a comprehensive and interactive journey, making sure that customers are engaged and satisfied with the service and the company.

For that to happen organisations need to take advantage of their customer journey approaches and use it to analyse data processes. This can be done through an analysis of the data shadow of our smart products by "the identification of available customer data along the customer journey." [8]. as well as a complete analysis of the customer behaviour DNA [2].

Only then we can establish a pattern of human behaviour, categorise customers and prepare the customer journey mapping and digital campaigns [7].

> **Customer Journey Mapping (CJM**) is a technique that aims to understand the customer's decision process and experience by taking a customer's perspective and modelling his/her different steps. CJM facilitates innovation by proposing new or improved services.
>
> Heucher, M. (2019)

Once customers are categorised it is important to build up a CJM with a series of touchpoints whereby customers interact with a service provider via an agent, artefact, or platform. To do that it is important to understand the different stages of CJ. It is also important to act in a transversal way, thus ensuring that the customer is not only engaging in communication but establishing a relationship of trust and builds-up loyalty.

Lastly, it is important to refer that CJ has three main phases identified – the pre-purchase, the purchase, and the post-purchase phase. It is also important to remember that customer journeys can occur in three main environments – the traditional physical environment, mainly used by traditional retailers; the digital environment mainly used by big online retailers (e.g., Amazon, eBay, etc), and a hybrid environment known as phygital environment which involves a customer journey with touchpoints in both the physical and digital environments.

4. Systematic Literature Review

This section of the dissertation reports and describes the adopted SLR. It follows the guidelines for conducting a systematic review in the field of Software Engineering by Kitchenham. It is divided into three main sections - Planning, Conducting and Reporting the review.

Figure 2 presented below represents the three main steps that need to be adopted when conducting an SLR. Each of these steps is explained in full detail in section 2 of this dissertation.

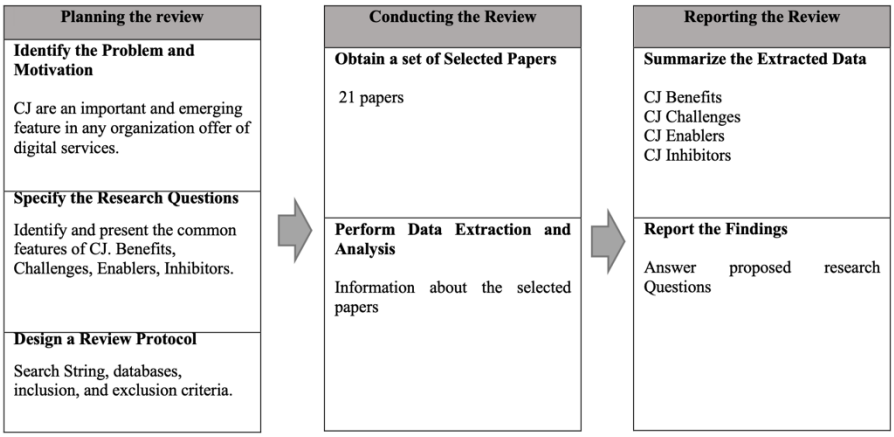


Figure 2 - The three main steps of an SLR

4.1 Planning

This section of the dissertation explains the process of SLR planning. It begins by explaining the Problem, the Motivations behind the research, and in specifying each RQ, the data source, and defining the search strategy.

4.1.1 Problem

With the multiplicity of digital brokers – online service re-sellers (e.g.- Booking, CarRentals, etc.) - customers might find it difficult to experience an optimised CJ provided by a third-party service provider. The lack of communication between the involved business parties makes communication between the nodes difficult and sometimes inexistent. Communication from a B2B perspective is paramount if CJ is going to work. The lack of it results in a customer being left unattended at a CJ touchpoint, and/or in the customer feeling deprived of the purchased digital service and in lack of the original experience.

This problem has a great impact on organisations, firstly it has a reputation impact, a customer left unattended is a customer that is likely to complain and/or leave a bad review on the online channels. Moreover, it is a customer that is unlikely to build a rapport with the service provider and indeed the

third-party service provider. Secondly, a bad reputation can also lead to a bad NPS – Net Promoter Score and can in time decrease the economic value of the company and the digital service.

To design a future solution for the research problem in future research, it is crucial to understand the ins and outs of the Customer Journey as a theoretical business concept, equally important is to understand the role of digital services in today's world. What examples exist in the literature that can contribute to better digital services? How can we define digital services? How can the Customer Journey contribute to a better Digital Service? And lastly, how can Customer Journey improve Customer Experience? These are some of the preliminary research questions that were used to initiate the initial literature search before defining the RQ presented below.

4.1.2 Motivation

The motivation for this SLR has its starting point in the problem above presented. The researcher wanted to understand the key theoretical points before presenting an actual solution for the research problem. By grasping the business theory, it is then possible to understand how technology can aid in bringing the organisations together in improving communication between nodes and leverage the bargaining negotiating power into improving communication, thus offering a better end-product for the customer.

Furthermore, it is in the research of CJ and Customer Experience that context is going to be given to developing a future prototype for an improved customer journey in a case study.

In summary, this review intends to investigate CJ in all its multitude and contextualise it with the notion of digital services. It has also the intention to discuss strategies for service optimisation future product development or improvement in future case study research.

4.1.3 Research Questions

This research intends to go beyond its main topic – The customer Journey. It needs to look forward and understand the benefits of using this technique, the challenges, its enablers, and its inhibitors. Having that in mind the following research questions were developed to get insight and knowledge of the research topic.

RQ1 - What are the benefits of implementing a customer journey in the context of a digital service?
RQ2 - What are the challenges of a customer journey approach?
RQ3 - What enables a digital service customer journey?
RQ4 - Which are the inhibitors of customer journey optimisation?

4.1.4 Data Sources and Search Strategy

After the need for a review was identified and established a research protocol was a selection of literature was made based on a search criterion found in Table 1. This resulted in a total of 181 articles.

4.2 Conducting

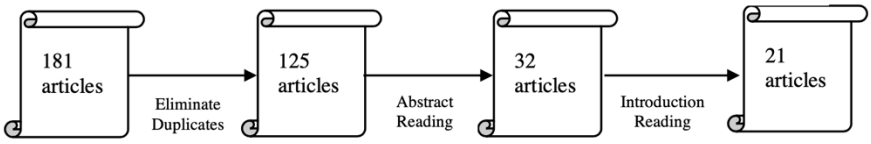
The second stage of an SLR consists in conducting the review, this is where the rigorous search criteria is defined, the extraction of articles occurs, and inclusion and exclusion criteria is defined, and a more accurate extraction is conducted. Table 1 below presents the search criteria and its results.

Element	Research Details
Source	EBSCO and SCOPUS
Search String	"customer journey" and digital and services
Search Strategy	Perform a search in the above databases by abstract/resume of scientific articles from academic journals, thesis, and conferences of the subject.
Results	131 in EBSCO + 54 in Scopus = 181 articles

Table 1 - Search Criteria

After following the above search criteria and finding the 181 articles, data extraction and synthesis occurred. Figure 3 presents the article filtering process, which yield a final number of 21 articles.

Figure 3. Article filtering process



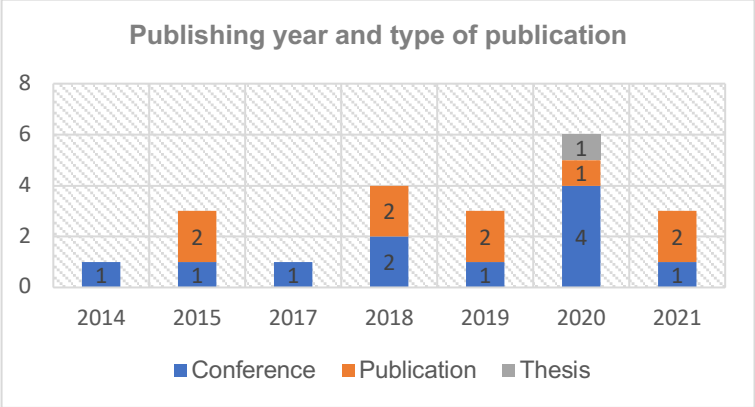
Inclusion and Exclusion Criteria – By using a well-known toll – Rayyan - to help identify and eliminate duplicate papers the following process was done. Firstly, all the titles and abstracts were read and categorised into three different categories – “accepted”, “rejected” and “maybe”. After that categorisation, 32 articles were left in the accepted category. Lastly, the introduction was read and a final number of 21 articles were categorised as accepted. In Table 2 below presents the full inclusion and exclusion criteria adopted in the conducting phase.

Table 2. Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
Articles of related subject area (Customer Journey, Customer Experience, Digital Services).	Articles of Paid access
Papers from Scientific Journals and Conference. Thesis and/or dissertations made about Customer Journey.	News articles about the subject
Full-text access.	Unknown Language

The below Figure 4 shows the relationship between year of publication and the type of publication admitted in this SLR.

Figure 4. Publishing year and type of publication



After looking at the relationship between year of publication and its type, Table 4 presents and illustrates the list of conferences where the articles were presented and published.

Table 3. Conferences

Conference	No. of Publications
International Conference on HCI in Business, Government, and Organizations	2
IEEE Conference on Commerce and Enterprise Computing, CEC	1
IEEE Technology & Engineering Management Conference	1
International Conference of Design, User Experience, and Usability	1
International Conference on Ongoing Research in Management & IT	1
Swiss Conference on Data Science (SDS)	1
CEUR Workshop Proceedings	1
International Joint Conference on Neural Networks	1

Lastly Table 5 lists the publishing Journals of the extracted articles according to the publisher and the number of publications.

Table 4. Academic Journals

Journal, Publisher	No of Publications
European Journal of Marketing	1
International Journal of Business Environment	1
IADIS International Journal on WWW/Internet	1
FUJITSU Science Technology Journal	1
GfK-Marketing Intelligence Review	1
Journal of Service Management	1
Journal of Service Theory and Practice	1
Journal of Marketing Education	1
Journal of International Marketing	1
The Canadian Journal of Library and Information Practice and Research	1
The TQM Journal	1

4.3 Reporting

This third and last phase of the SLR methodology presents the results from the analysis of each selected paper. It will also present information that allows a defined answer to the previously established research questions in section 4.1.3 of this dissertation.

4.3.1 CJ Benefits

Implementing a CJ in an organization can have multiple benefits for both the business and the customer. Firstly, it is important to understand that CJ changes the paradigm of most organizations as it transforms the business into a more service-based industry, cutting through cost as most of the interactions and touchpoints can be made through a digital channel, or at most in an omnichannel environment where there are physical and online touchpoints [9]. Omnichannel Customer Journey Mapping (CJM) includes multiple interactions through online, offline, and mobile touchpoints. The means of interactions and devices can vary alongside the CJ, a recent experience Mobile Instant Messaging (MIM) [10] plaid a key role as a sole way to interact with a customer through the various stages of the purchase, proofing that technology helps build a sense of trust and guidance throughout CJ.

Another major benefit of implementing CJ is that it offers customer-centricity through personalised service. Personalisation is made possible by collecting customer and usage data and marketing a

service based on this data. “Customers should be personally and directly addressed, and they should be able to select tailor-made customer service.”[6]. Having the customer at the centre of the decision-making process as an actor of decision improves customer experiences and adds value to the service provider as it helps build loyalty.

Lastly, due to the nature of CJ and the new technology tendencies that are incorporated (e.g., AI, Robotic and Data Analytica) customers make more knowledgeable and empowered decisions due to a wealth of readily accessible information [11]. It is safe to say that CJ contributes to technology innovation and the digitalisation process of organisations and corporations. Bellow Table 6 shows the full extracted list of benefits of implementing CJ techniques.

The below Table 6 presents a full list of benefits identified in the SLR.

Table 5. Benefits of implementing CJ

Benefits	Sources
Consumer Segmentation and customer-centricity – focus and understanding consumers	[2],[6] [7], [12], [13]
Customer Experience – Simplicity and convenience, building relationship with customers	[6],[7],[11],[12],[14]
Personalisation for the Business and the Customer – Personalised products and services	[6],[9],[11],[15],[16]
Service Access via Smartphone and m-commerce	[6],[9],[10]
Service differentiation- Online/ Offline and omniChannel	[9], [17],[18]
Servitisation – moving from product base to a service-based product	[6], [10] ,[14]
Cost reduction – saving operational costs	[13],[17]
Customer Journey as a data-value strategy	[8],[17]
Illustration of service improvements	[19],[20]
Increased level of Employee satisfaction – Customer Satisfaction	[6],[17]
Customer Satisfaction and Loyalty	[21]
Faster purchase decisions for consumers	[6]
Helping with sales and post-sales process	[14]
Implementation of Digital In-store Services	[9]
Increased Interactions with the company, products and services	[21]
Innovation and service improvement	[7]
New technologies (AI and Robots) provide the opportunity to integrate phygital and virtual touchpoints	[11]

4.3.2 Challenges of a CJ approach

It is important to understand the cultural context of the organisation that is implementing these CJ changes. Firstly, is the organisation's cultural background and an environment open to a shift in perspective? Are they open to redesigning the service offered to customers? Is the organisation competitive enough to engage with customers through CJ? Do they have the necessary knowledge skills and people to implement technological changes? Do they have the support of all stakeholders? (e.g. – Customers, Staff, shareholders, etc).

On the customer side, personalised customer service requires the necessary client segmentation, a customer categorisation and most of all the identification of the pain points or areas of future improvement. “Emotions are important for understanding where the customer is having difficulties, for identifying gaps in the customer experience and for exploring potential solutions” [17].

It is important to refer that CJM is easier in the context of B2C relationships. As “(…) the complexity of B2B transactions is increasing, with a growing number of stakeholders involved” [14]. Table 7 lists the challenges that were extracted from the reviewed articles.

Table 6. Challenges of implementing a CJ

	Sources
Budget constraints for implementation of Customer Journey strategy	[16]
The client is serviced with multiple products or services from the same organisation	[22]
Cross-Culture environment- may vary interactions with customers	[23]
Differentiation of customers through personalisation	[16]
Difficulty in contextualisation and Interpretation of Customer Data	[17]
Identification of pain points through the usage of CJM	[20]
Identify areas of improvement and adopt new customer Experience	[7]
Increased variety of media touchpoints in an omnichannel system	[24]
Involvement of different Stakeholders (e.g - staff, customers)	[17]
Involves competitive collaboration and design thinking	[22]
Lack of knowledge skills and people	[16]
Personalised customer Service	[6]
Redesign of the different service	[7]
Requires collaboration between departments and within an organisation.	[17]
Requires an organisational and operational transformation	[18]
Requires unification between Customer Journey and Customer Experience in an omnichannel service	[18]
Thrives in B2C context and it has difficulties in a B2B context	[14]

4.3.3 Enablers of a CJ

The digitalization process has already started, and it is very difficult to fall behind it. CJ and CJM fall into a strategy of digitalization of business processes whereby customer data is used to produce services, sales, and add value to the organisation through an omnichannel journey where services are tailored to the customer needs. Customer Centricity and the undivided requirement of understanding the customer and its needs is the main enabler to CJ as indicated in Table 8. Customer-centricity offers integrity as a strategy for empowering organisations and increasing trust. Gaining trust means essentially building loyalty and perceived usefulness to a service, as well as proactively crafting the customer experience to create distinctive product and service offerings [21].

Data, technology, people, and culture are also good enablers for CJ as they provide a solid ground for client knowledge and a holistic view of customer needs, and the services provided. “Data-driven organizations are 23 times more likely to acquire customers, six times as likely to retain customers, and 19 times as likely to be profitable as a result” [22]. Table 8 below presents a full list of CJ enablers.

Table 7. CJ enablers

Enablers	Source
Customer Centricity -Understanding Customer needs	[2], [6], [21]
Developing recommendations for service improvement	[19], [20]
Data, Technology, People and culture	[6],[8]
Driver for Digital transformation	[19],[15]
Trust	[6],[9]
Usage of customer data for profit	[17]
Perceived Usefulness - Easy to use strategy	[9]

4.3.4 Inhibitors of CJ

Amongst the main inhibitors of adopting a CJ approach are the lack of common terminology to fully understand the phenomenon and the similarity of terms in use. Often Customer Journey gets confused with the term Customer Experience or User Experience. These are interconnected terms, though represent different things. There is also the issue of a lack of common modelling language to properly map all the customer interactions and to better plan the CJ as described and reference in Table 9.

At the same time, data can also be the main inhibitor, because using data requires skills, know-how and qualified personnel to apply personalised techniques to a CJ. Personalisation may be also an inhibitor as it can be quite costly for a small business [16].

Finally, with personalisation techniques, and data analysis there is an associated risk of data privacy and the possible legal liability of its misusage [16]. Table 9 shows a full list of inhibitors that were extracted from the articles.

Table 8. Inhibitors of CJ

Inhibitors	Source
Lack of skills and know-how for utilising data, for consumer analysis and categorisation.	[21],[2]
Lack of a metric for cross-media exposure and CE	[24]
Lack of CJ Terminology and reference Literature	[12]
Lack of usage of a common Modelling Language for CJ Mapping	[7]
Misusage of personal data	[9]
Privacy Concerns- violation of perceived privacy. Gathering, Analysis, use of personal data	[9]
Personalisation of CJ can be expensive as it must be present in multiple channels	[16]
Legal liabilities for customer personalisation may occur due to the usage of personal data.	[16]
A major gap in the process of digitalization process in smaller-owner business	[25]
Multiple touchpoints and fragmented channels	[11]

5. Case Study Research

This section presents the result of a descriptive case study that illustrates and evaluates the role of ArchiMate tool in modelling the digital transition in the enterprise system architecture. The case follows the guidelines and procedures for case study design in the field of Information Systems and Software Engineering by Kitchenham. This section is subdivided into – Case Study Design, Preparation for Data Collection, Collection of Evidence, Data Analysis, and Reporting.

5.1 Case Study Design

This section scopes and presents the case itself, it also defines its main objectives. Secondly, it is where a background theory that supports the case is presented and the RQs are defined. Lastly, this section presents the method by which data is extracted and selected.

5.1.1 Case Objectives

The case study presented below has as its main objective the identification and evaluation of the role of ArchiMate modelling language for enterprise architecture in facilitating innovation and digitalisation of an enterprise and/or product.

A second objective is to illustrate and argue that ArchiMate modelling language can be of aid in a framework for innovation and in helping the digital transition of organisations by offering an overview and a path for the improvement of services, and processes that contribute to a better system architecture and to a digital enterprise.

5.1.2 The Case

This research is framed as a descriptive case study and it relied heavily on a partnership with the Europcar Group, specifically, with their low-tier car hire company Goldcar.

The well-known French car hire company Europcar has turned itself into an enterprise composed of different in-house organisations (e.g., Europcar, InterRent, Goldcar etc.), thus tackling different areas of the car hire industry and therefore gaining a significant and important share of the market. In December 2017 Europcar announced the acquisition of its Spanish counterpart – Goldcar [26]. The idea was to acquire a low-tier, entry-level car hire solution to gain a significant share of the low-cost market.

At the time this represented a significant challenge for Goldcar as it had to quickly adapt to new standards and improve results regarding its NPS– Net Promoter Score performance. A low NPS can contribute to driving customer trust levels down, making it more difficult to keep existing customers. To improve its NPS, Goldcar had to address the following main pain points:

- **Long Waiting Times** A problem that was felt more often at airport desks, especially in high season and/or in busy airports. Internal Europcar Reports indicated that queues have had waiting times of one, sometimes, even two long hours.

- **Hard-Selling Techniques**Due to the nature of the low-cost business model of car hire, Goldcar had to maximise its economic gains by training its staff in hard-selling techniques. This puts immediate pressure on customers making them feel uncomfortable at times. Sold items included car extras and other by-products to customers at the ticket desk (e.g., automated toll devices, extra insurance, children's car-seat, etc).

- **Insurance Coverage Problems**The lack of coverage of the insurance plans generated complaints as customers were subsequently charged for something that they thought had coverage of the insurance plan provided by the company.

To address the identified pain points, and the challenges of digitalisation, and to bring innovation into the enterprise, thus becoming more competitive in the market of car hire - Key' n Go was created – a digital service with a dedicated customer journey and customer experience. Details about the digitalisation process and the framework for innovation can be found below in section 5.1.3 of this dissertation.

In addition, the case underlines the communication gap that exists when dealing with third-party organisations such as digital brokers in B2B or B2B2C context. The lack of communication between parties makes it difficult for the customer to appreciate the customer experience and the customer journey. Therefore, due to the nature of the problem and to illustrate the identified pain points, the researcher presents a descriptive case model that reveals the detailed architecture in ArchiMate of the Traditional car hire model.

Secondly, the case intends to delineate today's architecture in an AS-IS model, representing the reality of the organisation as a whole and Key' n Go as a product today, and most importantly model in detail the transition from the traditional model into an AS-IS model using as reference the Integration Migration viewpoint based in the ArchiMate guide from OpenGroup.

Lastly, this case intends to prove that ArchiMate can fit in a framework for innovation that allows a greater view of a particular organisation, hence contributing a great deal to the digital transition.

5.1.3 Case Theory

This section will present the main theoretical background that supports the case. It will also present the framework of innovation that will be used in the case study.

Digitalisation Process of Goldcar

The implementation of Key' n Go simplified the process of car hire. It allowed for an improvement of the customer journey and a new customer experience for car hire. Its implementation not only improved the NPS and the levels of customer satisfaction but also modernised the entire service line in the industry.

Key' n Go Specifications

As previously mentioned, the market in which Goldcar operates is the low-tier and entry market, having usually a much younger and sporty audience, and therefore more prone to using digital tools and taking advantage of the digital market. Having this in mind, Key' n Go was defined as a hassle-free product. Provided that the customer pre-registers its details through the web or app (e.g.-Passport/ID Card and driving license) upon receiving the confirmation email with the details of the reservation.

In summary, Key' n Go is faster than the traditional way of car hire, it is also safer as it guarantees information integrity and finally, it is more convenient upon arrival at the airport. Also, important Key' n Go addresses the pain points mentioned in section 5.1.2.

Key' n Go Customer Journey

When customers purchase Key' n Go it is important to understand that they have a dedicated CJ that will influence their final experience and their overall feeling towards the organisation. A Customer Journey is a series of touchpoints, whereby the customer interacts with the company. Efficient customer Service is increasingly becoming an expectation from customers[13], it is also increasingly popular amongst big firms such as "KPMG, Amazon, and Google, now have chief customer experience officers, customer experience vice presidents, or customer experience managers responsible for creating and managing the experience of their customers"[1].

If we were to take the example of Europcar and its service at the airport with Key' n Go it is possible to identify the following touchpoints:

1. Reservation Touchpoint

- The reservation process can be done internally or by the means of digital brokers (e.g., Booking, Airline websites and other third-party agencies).

- All product reservations have two main channels – the app channel through any mobile device or the web channel. Additionally, existing customers can also use the phone to make an inline

reservation.

- Once the reservation is conducted a confirmation email is sent to the customer with the reservation number.

- An email is sent to the customer with a kind reminder that a registration process needs to be conducted.

2. Registration Touchpoint

- The pre-registration prior to arrival at the Automated Machine Desk (AMD) is mandatory, failing to do the pre-registration process may result in the customer being redirected to a traditional ticket desk agent.

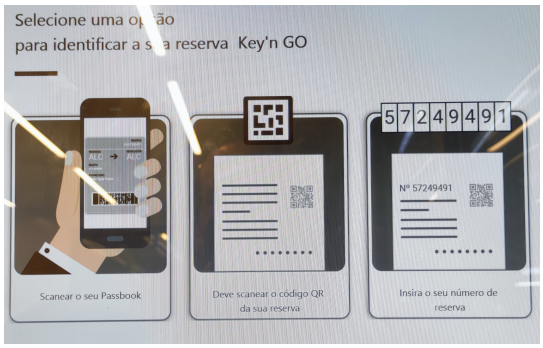
- Once the registration is completed Goldcar sends an email confirming the registration process and a passbook.

3. Collection Touchpoint

- Upon arrival at the airport terminal the customer has only to direct himself to an AMD.

- The AMD has three main ways of digitally showing its reservation – by scanning a passbook, by scanning the QR code of the reservation, or by manually inserting the reservation credentials.

Figure 5.. AMD Collection Touchpoint, Malaga Airport



- Once the reservation is found the AMD concludes the collection by dropping the key and printing the customer receipt.

- Lastly the customer makes way to the parking lot advised in the receipt and collects the vehicle. There is no need to conduct the usual inspection of the vehicle.

4. Returning Touchpoint

- To return the vehicle the customer has only to deliver the key into the key drop-off box situated near the collection point. Alongside the key is a keyring with a sensor that reads the exact time of delivery.

Figure 6.Key Drop off, Malaga Airport

- Upon finishing the delivery an agent will then collect the key from the box and check the levels of petrol and the state of the car.

- Within two hours the customer receives in the reservation email a detailed final invoice that may or not include extra charges (lack of fuel in the delivered vehicle, damage to the car, etc.).

5. Feedback Touchpoint

- Once the final invoice is received the customer is then invited in another email to give product feedback and to rate the provider this helps in improving the NPS.

5.1.4 Research Questions

The proposed case study will be reporting on findings regarding Key' n Go and its specific CJ. This is a service whereby a customer follows a digital path to hire a car and all the necessary steps are done digitally without the necessity of dealing with a physical agent, avoiding queues and delays.

The research will modulate Key' n Go in a context of a B2C, B2B, and B2B2C relationship. It will l identify the main business actors, and study customer behaviour and experience with Key' n Go. In addition, it will seek to understand how an optimised CJ can contribute to innovation, in the introduction of a digital product. The case proposed Research Questions (RQs) are the following:

RQ1 – What are the benefits of incorporating an optimised Customer Journey through a digital service?

RQ2 – What are the challenges of incorporating a Customer Journey in the context of a B2B relationship with brokers?

RQ3 – How can Customer Journey enable and excel as a digital service?

RQ4 – How to overcome the inhibitors of a Customer Journey?

RQ5. – Can CJ contribute to innovation and the set ground for the digitalisation of an organization?

5.1.5 Method

The presented case study is of descriptive nature, where the researcher aims to find more information regarding a phenomenon of any kind. In this case, the researcher is aiming to systematically describe the transitional process of digitalisation within Goldcar and study and describe the impacts that Key' n Go had on the organisation.

Moreover, the case studies and describes the enablers of CJ and the challenges of its application in a B2B or B2B2C environment.

5.1.6 Selection Strategy

All the materials used for data selection and extraction are aligned with the research topic and contribute to an in-depth investigation of the implementation of digital technology as a product/ service and for the study of innovation and CJ.

The units of analysis were selected based on the availability of information that could be qualified and transformed into a comprehensive ArchiMate diagram, and therefore provide quality to the research.

5.2 Preparation for Data Collection

The collected data for the case considers multiple viewpoints within Goldcar's organisation, the different roles and technical specifications of the product - Key' n Go. The conclusions drawn in the case derive from different sources of information, and the modelled view in ArchiMate represents solely a perspective defined through the interpretation of data.

The source of data collection is of the 1st degree, meaning that the researcher was in direct contact with the source of information, this is true in the interview and the observation.

There were three main ways to collect data for the case – Interviews, Archival Data and Observation. The idea was to use data as an important way to interpret and qualify an object that could be module in ArchiMate.

1. **Interview –** A series of individual interviews were conducted with senior management of Goldcar and Europcar. The interview took a descriptive path with questions being prepared in advance by the researcher. Though questions were not asked in the same order as they were prepared, the researcher allowed for open and closed questions in a semi-structure type interview.

2. **Observation –** an ethnographic observation took place at Costa Del Sol International Airport in Malaga where the researcher took part as a Normal Participant in the observation, meaning that other participants were not aware of the researcher's presence. The idea behind the observation was to go through all the customer touchpoints and fully understand CJ of Key' n Go.

3. **Archival Data -** The main source of archival data was articles extracted in the SLR included in this dissertation. Further extraction includes other relevant articles particularly - "Digital Transformation and Business Process Innovation – A car rental company case study" [28], where the authors map using BPMN the main business processes of a similar experience with Key' n Go in the sister company InterRent.

5.3 Collection of Evidence

The data for this case was collected in three different ways- interview, observation, and archival data.

Interview

The interviews for data extraction were organised in two sets of individual interviews, both were conducted for middle and top management positions within the Europcar group. The first interview was conducted with Germán Rico the Customer Experience Manager of Europcar Mobility Group, and the last interview was conducted with Paulo Pinto Head of Country Portugal at Europcar Mobility Group.

During the first interview, it was possible to identify the main business processes, the main roles within the organisation, the actors behind those roles, and the business function and look at the technical application that are currently in use within Europcar Group and the technological infrastructure that supports those applications.

The second interview focused on the product itself, the main advantages of using Key' n Go, its weaker points, flaws, and plans for future development of a Key' n Go 2.0. It was of particular importance the

retrieved information regarding the business intelligence side of Key' n Go, with special importance the relationship between the internal stakeholders, the company, and the customer (B2C), and lastly the difficult relationship between the company and the brokers (B2B and B2B2C scenarios).

The table presented below presents the main questions asked to the first interviewer.

Q1	What are the main Stakeholders (internal and external) of Goldcar?
Q2	What are the main business processes of Goldcar?
Q3	What are the main roles within the organisation? And Who is responsible for those roles?
Q4	What are the applications that support your business processes?
Q5	What is the physical infrastructure that supports the business?
Q6	How did Goldcar as an organisation changed with the introduction of Key' n Go?

Observation

The research conducted an ethnographic observation experience. Its aim was to understand the product and to have a full-on experience of the Customer Journey of Key' n Go. The experience took place in Málaga – Costa Del Sol International airport and had the researcher as a normal participant.

To fully test the product the researcher went through all the touchpoints of the Key' n Go CJ. Firstly, the booking was made using a desktop computer and throughout the CJ the Goldcar's mobile application was installed to manage the booking and to deal with the pre-registration process. In total the observer identified four channels of interface available- Website, Desk Counter, Mobile Application, and telephone.

Secondly, the observer identified the product value – hassle-free, there were practically no queues and no waiting time for customers using Key' n Go, good value for money, the product proposes full-coverage insurance and no waiting times at the pick-up points, faster and easy to use.

Lastly, the observer was able to try the Key' n Go machine available at the airport counters and test its usability.

Archival Data

An analysis of the relevant literature took place at the beginning of this dissertation having the researcher conducted an SLR about Customer Journey and digital services. The idea was to get to know the existing literature on the subjects of CJ, CE, and digital transition and to understand how CJ aids the process of digital transition and innovation.

It was also paramount to analyse literature outside the scope of the SLR, particularly important were the analyses of the factors that led to the digitalisation process of Key' n Go, the understanding of how the digital transformation was conducted in the Europcar group and some of the specific characteristics of the industry itself and the entire transformation process, as well as, to identify the type of innovation that was implemented. All of this was patent in the article "Digital Transformation and Business Process Innovation: A Car Rental Company Case Study"[27].

Further literature confirms the importance of the process of digitalisation and innovation, in the article "The digitalization of retailing: an exploratory framework retail sector", the authors confirm through an exploratory case study that digitalisation is important for the retail industry with findings suggesting that the retailing exchange in several ways including communications, transactions and distributions blurring the distinctions between a product and service [28]. In fact, the service driven mentality of today's industry is an important point to understand how CJ plays an important part in the future digital transition.

5.4 Data Analysis

This section presents the analyses, interpretation, and transformation of the collected data in the application of the ArchiMate Full Framework, which resulted in three different views – the Traditional Model, the AS-IS Model, the Implementation Migration Model and the TO-BE model. The presented views followed the OpenGroup 3.1 Specification [29].

All the presented views considered the experience of Key' n Go and its CJ as a method to improve the customer's experience and address the previously identified pain points. The views display the differences between the Traditional Model of car hire and the AS-IS Model with Key' n Go presenting an array of inside perspectives on the organisation.

5.4.1 ArchiMate a framework for innovation

There are different frameworks that can be applied to fully comprehend innovation, implement digital technology, and transform business processes.

The presented case study uses ArchiMate Full Framework to demonstrate, describe and illustrate Goldcar's organisation and to have an overview of the impact of the implementation of Key' n Go.
ArchiMate's Full Framework as described in detail in the OpenGroup ArchiMate 3.1 Specification guidelines [29] has its core in the three main layers patent in ArchiMate's Core Framework - Business, Application, and Technology. The core layers of the framework are fundamental when modelling an enterprise. However, when applying Archimate's Full Framework in the case study the research goes

beyond and contributes by modelling other layers, including – the Strategy layer and the Implementation Migration layer.

In addition, it is important to mention the relevant aspects of the framework these are:

- The Active Structure Aspect – as the name indicates represents the structural elements of the. architecture. e.g. - business actors, application components, and devices that display actual behaviour [29].
- The Behaviour Aspect – displays the behaviour components of the architecture. e.g. - processes, functions, events, and services performed by the actors [29].
- The Passive Structure – represents objects on which the behaviour is performed [29].

The picture below depicts and illustrates the dimension of the ArchiMate Full Framework according to the OpenGroup guidelines and the 3.1 specifications.

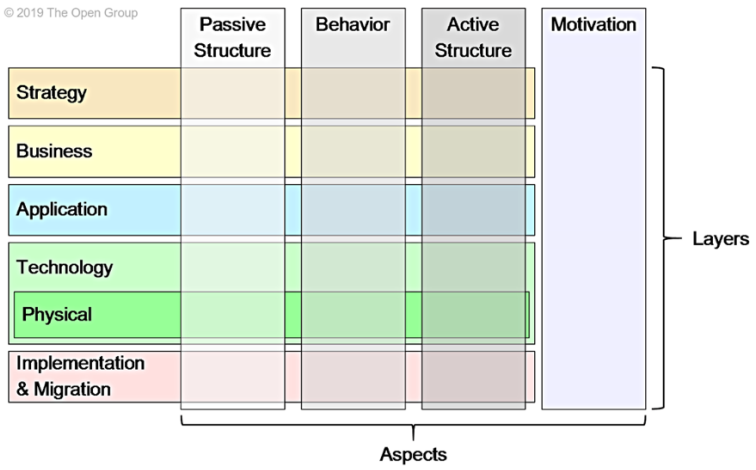


Figure 7. ArchiMate Full Framework, source - OpenGroup

5.4.2 Goldcar Traditional Model

The Goldcar Traditional model intents to mirror the reality of the organisation before the introduction of the product Key' n Go. It proposes an internal and external analysis that looks directly at Goldcar as a traditional organisation before the digitalisation process. Through this analysis it is possible to identify the stakeholders, business processes and their interrelations, the applications that support the processes and the technology that gravitates around it all providing integrity to the physical infrastructure. As a result, the Traditional Model proposes the following viewpoints:

Organisation Viewpoint

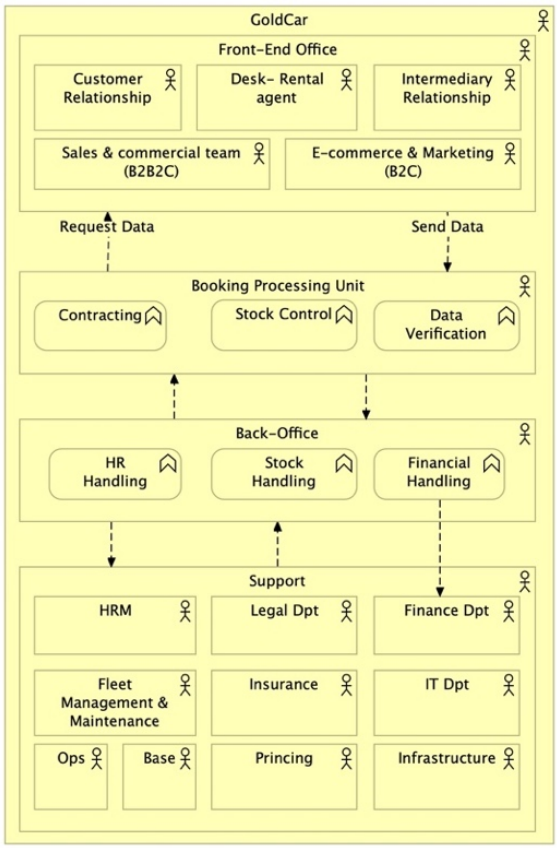


Figure 8. Goldcar Organisation Viewpoint

This viewpoint is aimed at the internal organisation of Goldcar. It identifies the main internal stakeholders, giving relevance to different departments involved in the focused business processes and their internal flow of communication. Figure 3 shows four main internal actors - the Front-End Office, responsible for customer engagement; the Back-Office that supports and requests important information for relevant activities; the Support Actor which gives internal and more specific support to other actors (e.g., allocation of HR, finance, and legal support, etc.).

Through this viewpoint it is also possible to understand the different functions allocated to each actor, for instead, the Booking Processing Unit actor has three main functions – it is responsible for Contracting, Stock and Finance Handling. The same happens with the Back Office actor that has HR, Stock and Financial Handling has its main functions. Furthermore, it is also important to observe the flow of communication between the actor function and the actor itself which is represented in this viewpoint by an arrow of flow relationship.

In conclusion, this viewpoint allows the understanding of the internal actors of the organisation their main functions and the flow of communication between them.

Actor Co-operation Viewpoint

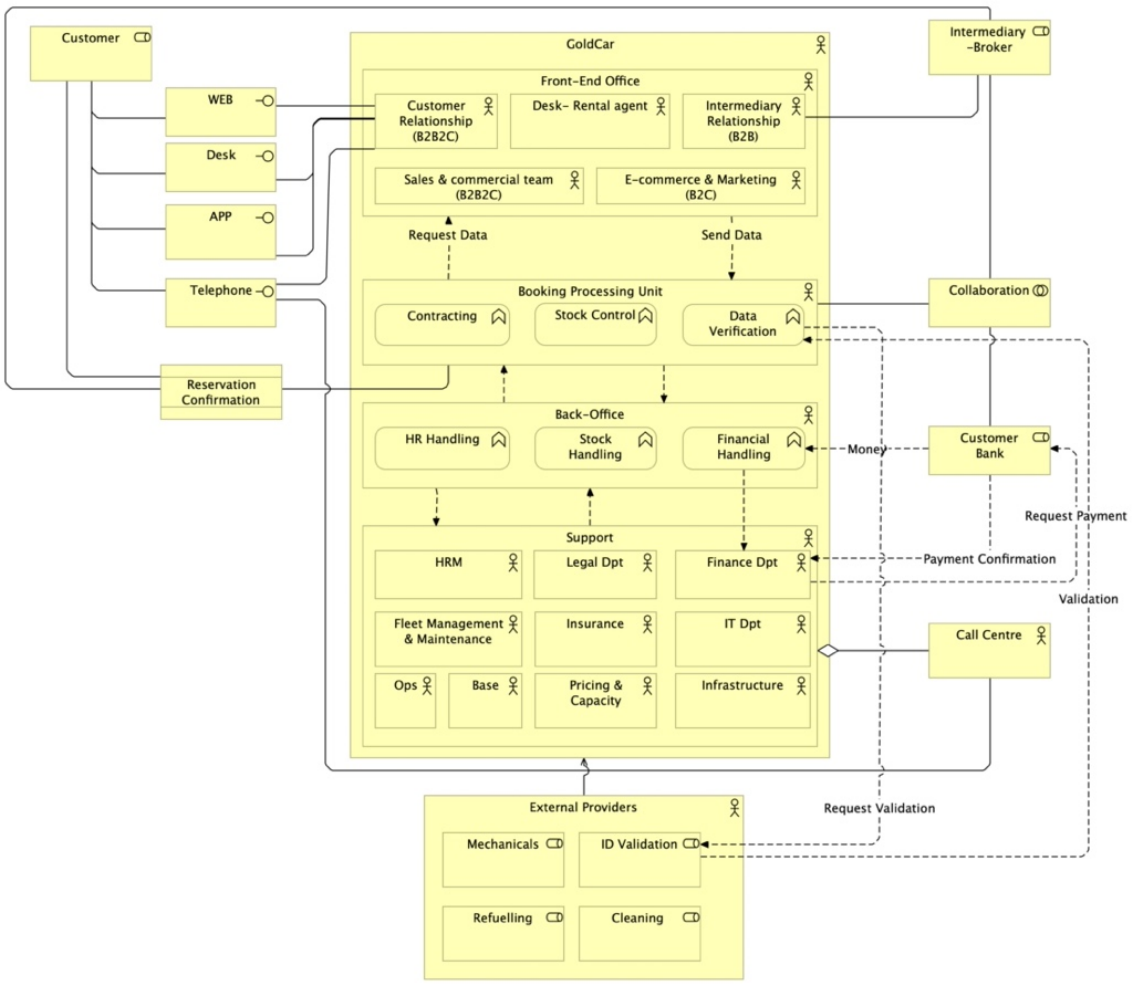


Figure 9. Goldcar Actor Co-operation Viewpoint

This viewpoint presents the internal and external stakeholders' relationships. At its core it is identical to the Organisation Viewpoint with regards to internal stakeholders, differentiating itself only by showing external stakeholders and their cooperation, associations, and aggregation, as well as, showing the relevant Business Roles, Business Interfaces, and Contract.

The first two important External Actors identified are – the External Providers (which can be subdivided into ID Validation, Mechanicals, Cleaning and Refuelling), and Call Centre that even though is an external actor works tightly with Support more specifically the IT Department. It is important to note that though the Call Centre plays a very important role in Goldcar's core business, the business can go on without the operability of the call centre and that is why an aggregation relationship is made between the Call centre and the IT Dept.

Secondly, the Collaboration presented in this viewpoint shows the relationship between the Customer Bank, the Intermediary Broker, the Back Office, and the Booking Processing Unit. This means essentially that no booking can go ahead until the necessary background check is done by the bank in

collaboration with the actor or role responsible for the booking. Furthermore, in this viewpoint it is possible to observe the request of funds for each transaction, this is an operation that can be done directly by Goldcar and the Customer Bank or by an Intermediary Broker and the Customer Bank.

Thirdly, through this viewpoint it is possible to observe the different interfaces used to hire a car (WEB, Desk, APP, and Telephone), all of these are active channels where the customer can hire a car, specifically through the web site, going to the airport desk, through the Goldcar's application for smartphones or simply by using the telephone and get in contact with the Call Centre.

Business Function Viewpoint

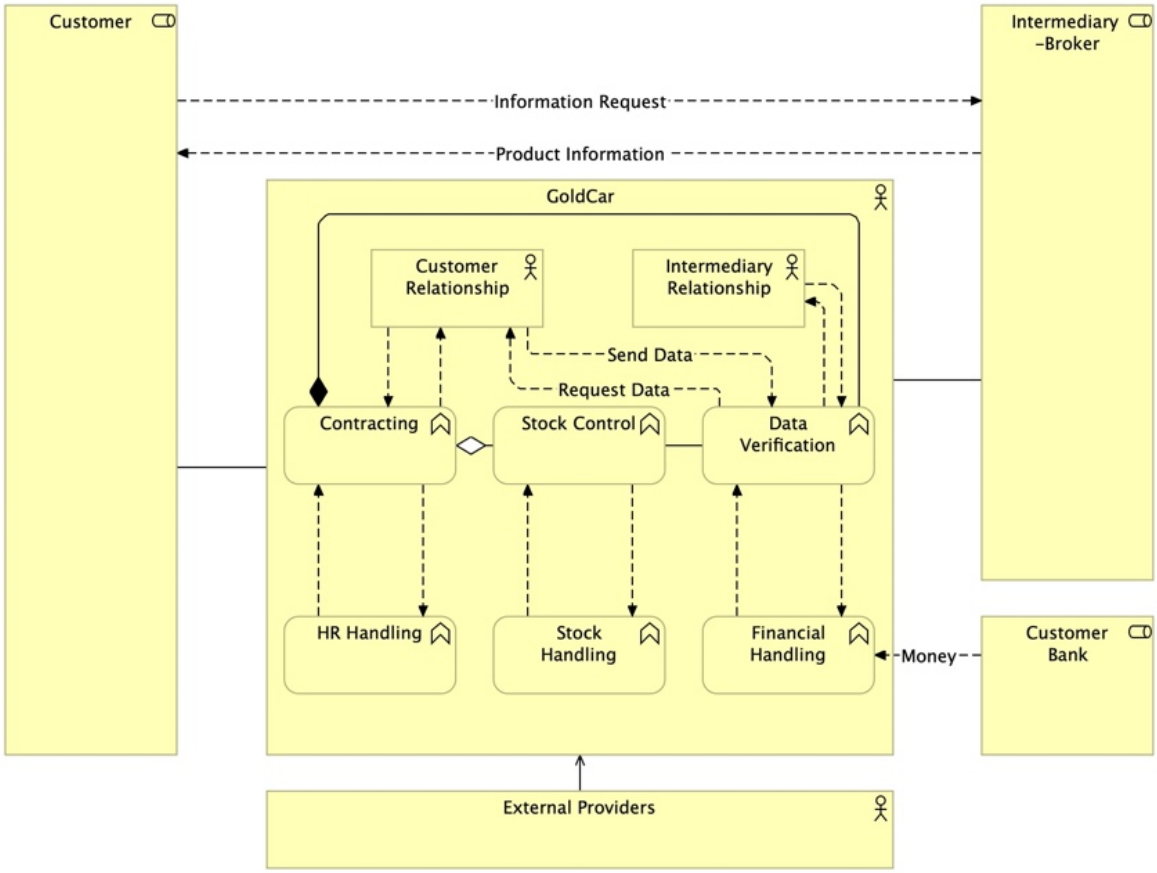


Figure 10. Goldcar Business Function Viewpoint

The above viewpoint represents the business functions of Goldcar and their relationships, it shows how they relate and how the information between the business functions, actors, and business role flows. Moreover, this viewpoint represents the most stable functions of the company in terms of its primary activity – car hire. Meaning that no matter the channel you use to hire a car these are considered to be the main business functions.

Through this viewpoint, it is possible to observe and understand how the three main functions – Contracting, Stock Control and Data Verification work. All these functions relate to both the Customer Relationship Actor and the Intermediary Actor and there is a composed relationship between Contracting

and Data Verification, representing a relationship of interdependency, or in other words, without Data Verification there is no Contracting.

Unfortunately, overbooking is a possibility and a day-to-day practice in the car hire business, there is an aggregation relationship between Contracting and Stock Control, which is intended to represent a relationship that can exist without the other, in other words, stock control is made and if there is no stock it is still possible to proceed with the contract and with the hiring process.

Secondly, to make a contract for a new hire there needs to be HR handling that is associated with a particular reservation and a particular contract. These are all types of personnel involved in a contract of car hire, from the gate agent at the airport, from the call-centre agent to the legal department that may revise a particular contract. All the HR personnel involved exchange information between them and the person responsible for contracting. The same happens with the Stock Handling function, which primarily handles stock and makes sure cars are ready and available to be rented and exchange information with the person responsible to control the stock.

Thirdly there is financial handling, a function that takes care of money exchange with the Customer Bank by receiving the associated payment confirmation and sending that information to the Data Verification.

Lastly, in this viewpoint, it is possible to once again understand how the information flows between the Customer and the Intermediary broker (in the cases that the booking is not made directly through a Goldcar Channel).

Business Process Viewpoint

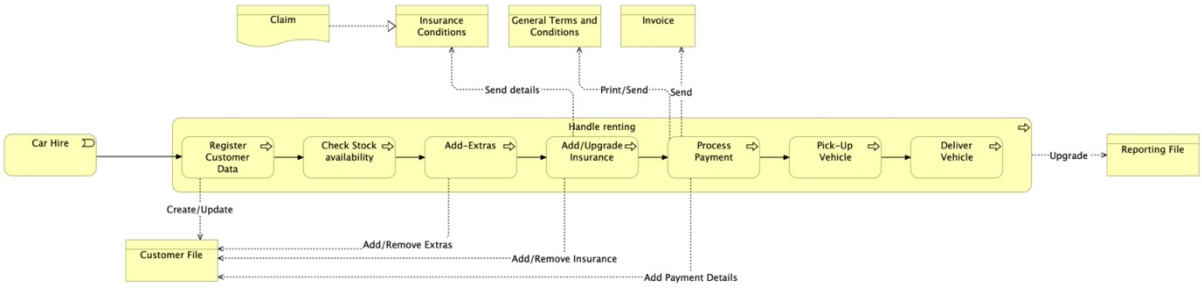


Figure 11. Goldcar Business Process Viewpoint

The main purpose of this viewpoint is to show a high-level detail of Goldcar's main business process and its sub-business processes. The main business process is Handle Renting, together with its five sub-business processes represent the main steps of car hire in Goldcar. The business process is triggered by an event Car Hire, in other words, every time a customer hires a car the process will start. The main process starts by registering all the related customer data and making sure that there is stock and availability of the wanted vehicle (note: if there is no stock the process will proceed regardless), all

this relevant data is then updated to a customer file. The process then continues at the desk once the car is picked up. At that time the customer can add or remove any relevant extras (e.g.- Children's Car Seat, Toll Payment Devices, etc.), the same happens with the insurance and payment details, every time there is a significant change in the booking this needs to be updated in the Customer File.

Aside from the customer file, there is also the file containing the General Terms and Conditions and the Insurance Conditions these are created every time the sub-process finishes. Therefore, once a decision is made by the customer to finalise its insurance (either by updating or deleting it) a file is created with the general terms of the acquired insurance program. Moreover, every time a payment is processed an Invoice file is created.

Once the Business Process is finished the Reporting File is then updated. The reporting file can be used by managers for business intelligence purposes.

Business Process Co-Operation Viewpoint

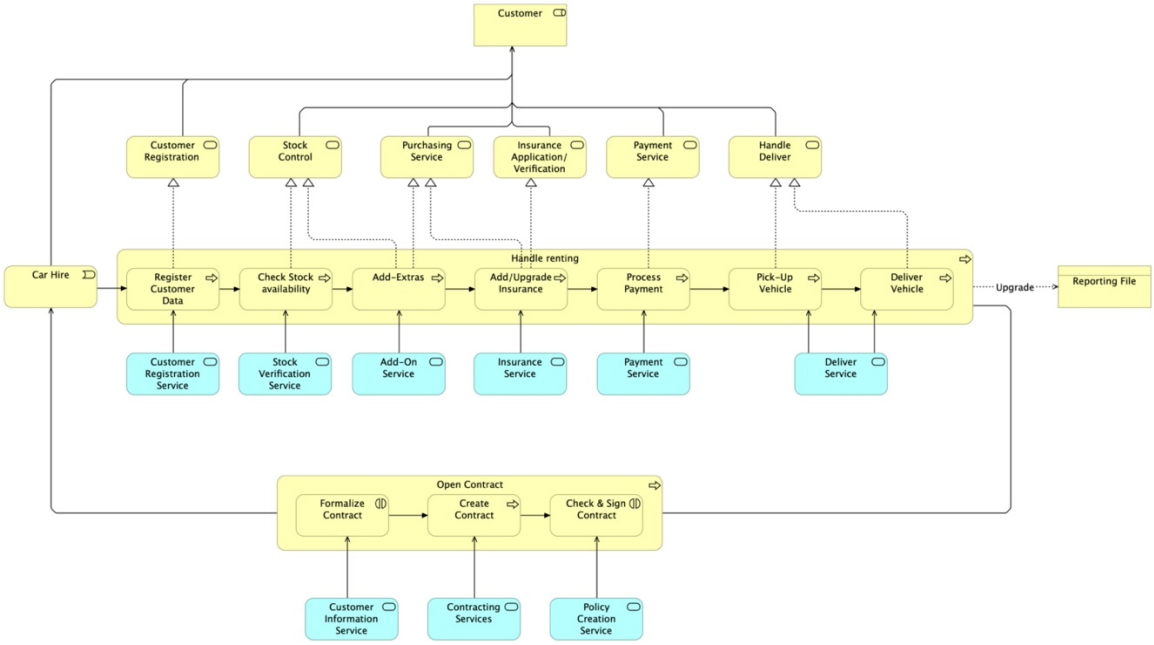


Figure 12. Goldcar Business Co-Operation Viewpoint

The Business Co-Operation Viewpoint is used to show the relationships between the main business processes of Goldcar. Aside from Handle Renting business process, there is another business process that occurs parallel with Handle Renting - Open Contract.

Open Contract business Process is composed of two business interactions (Formalize Contract and Check & Sign Contract) and one sub-business-process – Create Contract. It is important to refer that an Open Contract is a secondary business process that has a serving relationship with the car hiring process and ultimately the Customer. The two interactions that occur through the business process are associated with the relevant application service (e.g. – when formalising a contract, the interaction is

associated with a Customer Information Service, meaning that a customer can only hire a vehicle if the information is provided and subsequently check by an automated process.)

By having an overall view of the business environment, it is possible to provide managers at the operational level with detailed information on their responsibility in particular business processes and interaction. This viewpoint also shows what are the main business processes involved in the traditional process of car hire, as well as, showing the application services that support does process.

Product Viewpoint

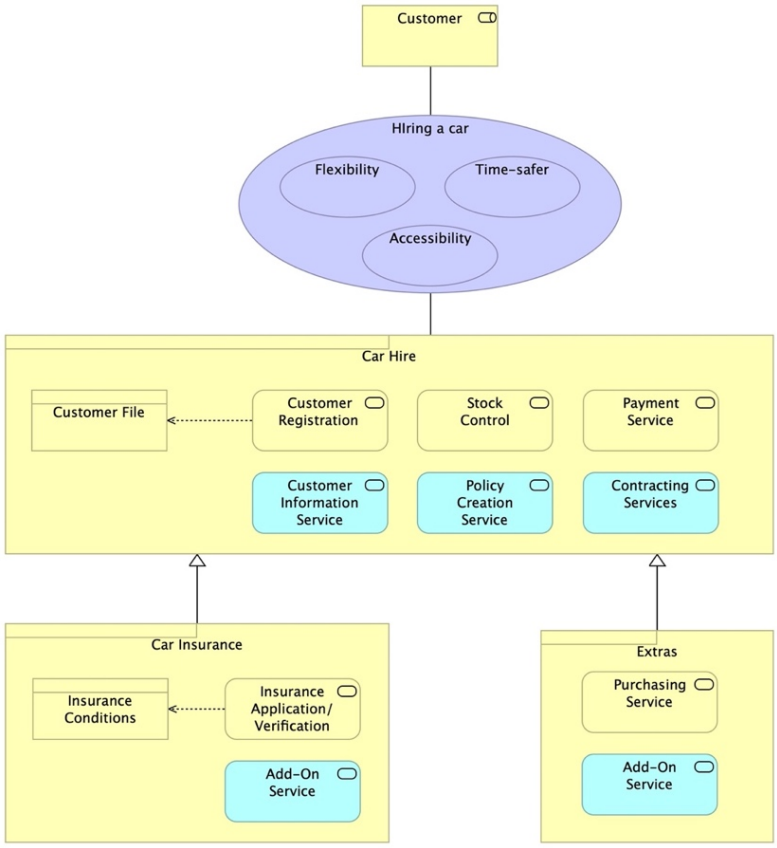


Figure 13. Goldcar Product Viewpoint

The main objective of the above viewpoint is to depict the value of the main product of Goldcar. It is important therefore to pay close attention to the offered value for the customer when hiring a car. Car hire offers – Flexibility, Accessibility, and is a Time- Safer between journeys on holidays or business trips. Moreover, the aim of the viewpoint is also to show the sub-products and the services associated with a particular product.

In the Traditional Model, there is indeed only one product available in Goldcar which is - Car Hire, though it is possible to identify two sub-products – Car Insurance and Extras. Note that both sub-products have a specialisation relationship associated with the main product, this depicts that it is not possible to have

Car Insurance without renting a vehicle and the same is true for Extras, Goldcar cannot rent a baby car seat if you are not renting a car with them. Within the products shown above observe that each of them has business and application services, as well as an associated business object. If we take Car Hire Product as an example, the object associated with a flow relationship is the Customer File, meaning that each Customer Registration is associated with the customer file, in other words, once the registration of a customer is processed the information is stowed in a customer file.

Application Co-operation Viewpoint

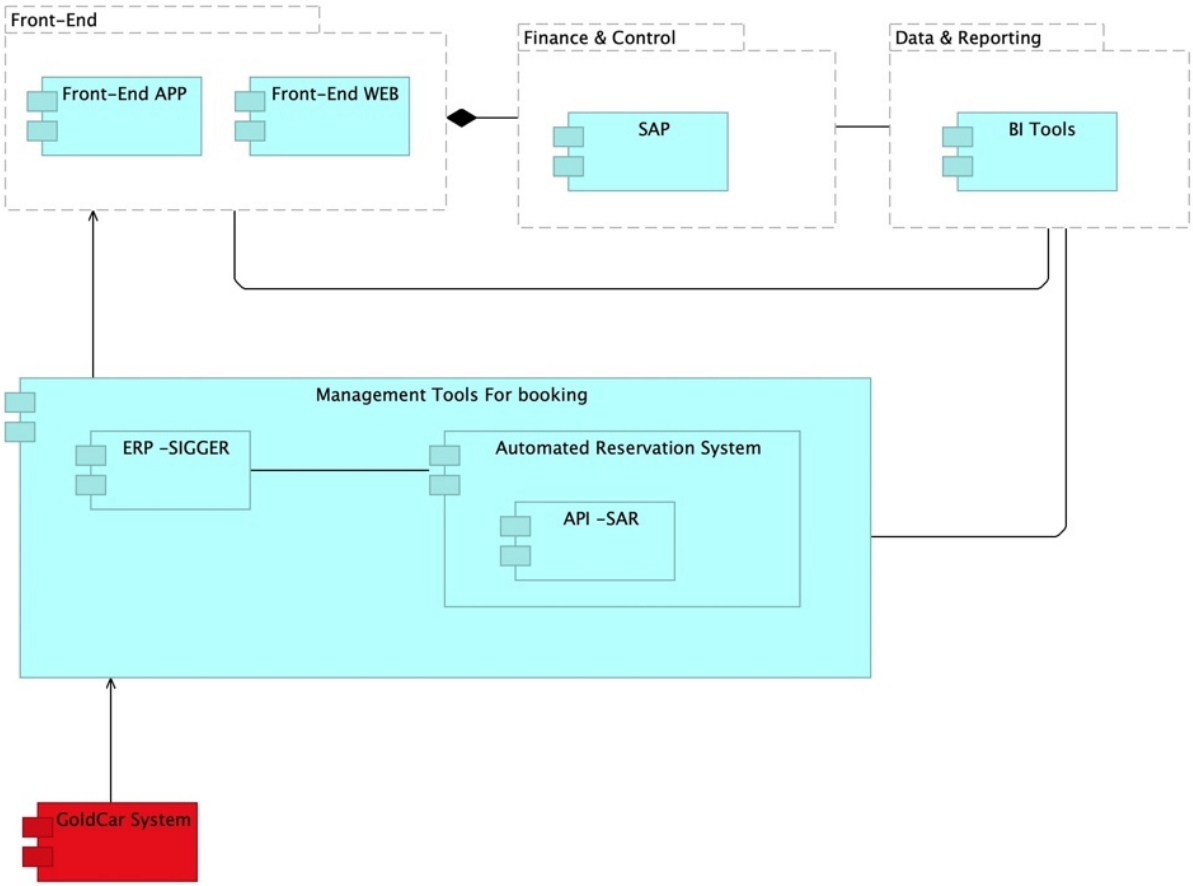


Figure 14. Goldcar Application Co-operation Viewpoint

The above Application Co-operation viewpoint describes the relationship between Goldcar's system applications and how they communicate between them. Essentially, it depicts the flow of information between groups of applications and describes the system architecture.

To fulfil its daily business Goldcar uses various systems and is the conjugation of them that provide the necessary backup for daily activities. There are four main groups of applications associated with each other with a serving relationship to the Goldcar System. Management Tool for Booking application serves the Front-End through two main channels – Application and Web that is composed of a Finance

and Control App using SAP as the main tool for corporate management and that is associated with Business Intelligence tool for Data and Reporting activities.

Application Usage Viewpoint

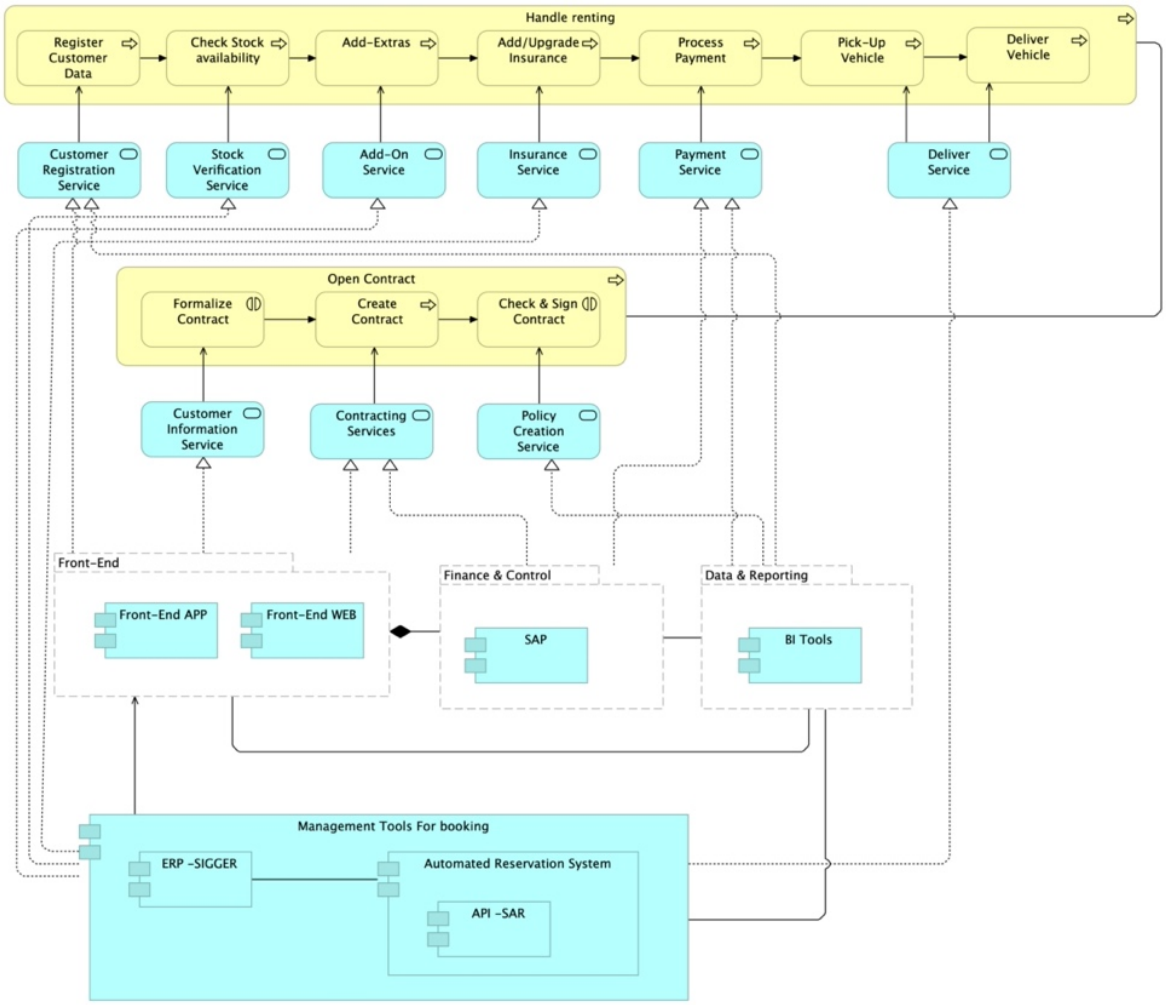


Figure 15. Goldcar Application Usage Viewpoint

The Goldcar Application Usage Viewpoint interconnects its applications with the two previously identified business processes. It is used to formally show dependency, describing how applications provide support to the business and showing in this case how business processes and application services connect with the APIs. Furthermore, it shows the serving relationship with an associated sub-business process making sure it is clear at what stage of the business the applications provide support.

By showing the realisation of a particular application to the associated application services we also understand what service the application provides support (e.g. – the Management Tools for Booking connect with Stock Verification, Add- On and Insurance application service that have also a serving relationship with the related business and sub-business process.).

Infrastructure Viewpoint

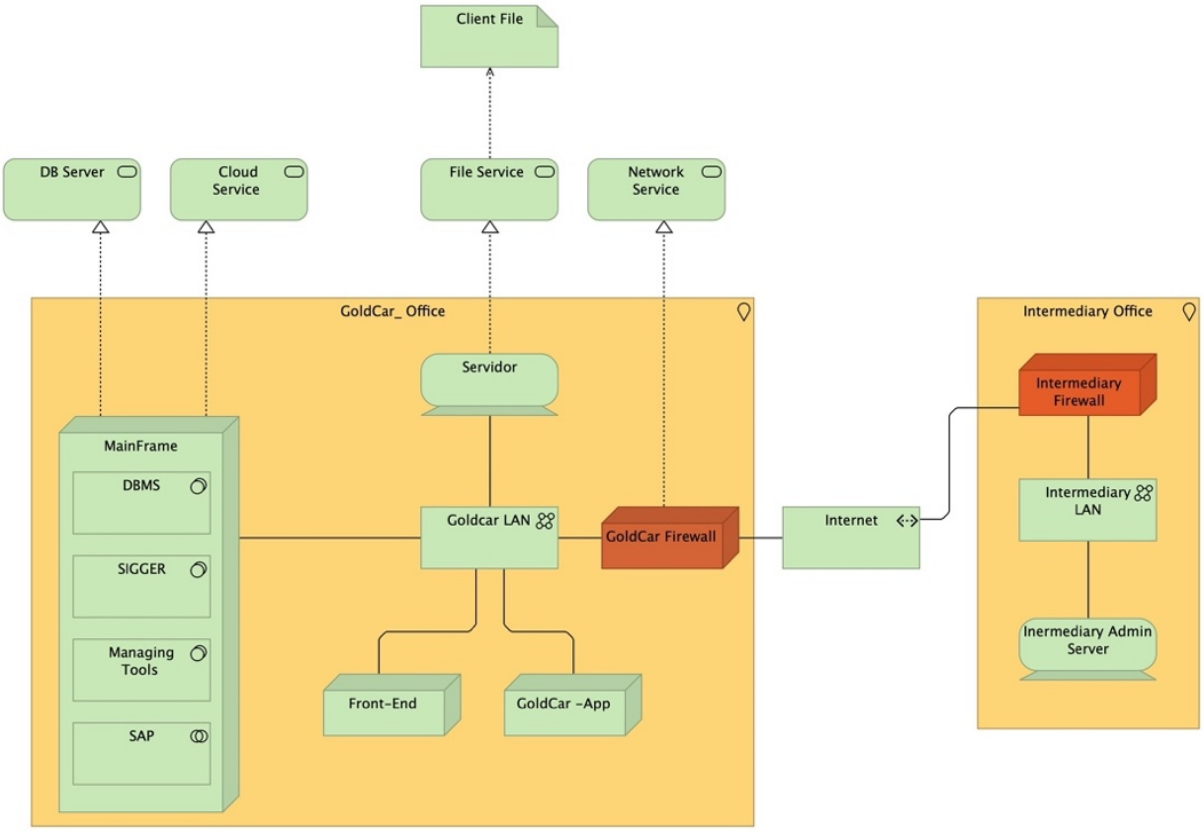


Figure 16. Goldcar Infrastructure Viewpoint

This infrastructure viewpoint shows the physical infrastructure that supports the Information System of Goldcar's main applications. Note that there are two main locations where business may develop – Goldcar's Office or the Intermediary Office as these are the two main actors that can provide bookings and increase the business activity. Note that the communication between these locations is pathed through the internet and that in each location entry point there is a firewall associated with the main LAN that then distributes the communication through the nodes.

Moreover, in the infrastructure viewpoint it specifically identifies the system software within Goldcar's mainframe node (e.g. – DBMS, SIGGER, Managing Tools and SAP) this is the core heart of the system where critical application infrastructure is located, and, therefore it is also visible the backup system of files through an internal and external DB server, as well as a Cloud Technology Service provider.

5.4.3 Implementation Migration Model for Key' n Go

The Implementation Migration model relates projects and programs to the architecture that they want to Implement, in the case of Goldcar, a decision has been made to implement a new product – Key' n Go. This is a product that not only solves previously identified issues with the Traditional Model such as long

waiting queues at the airport desk, hard and aggressive selling technics of the agents at the airport desk and finally problems related to the associated car insurance.

The Implementation Migration Model proposes the following viewpoints:

Project Viewpoint

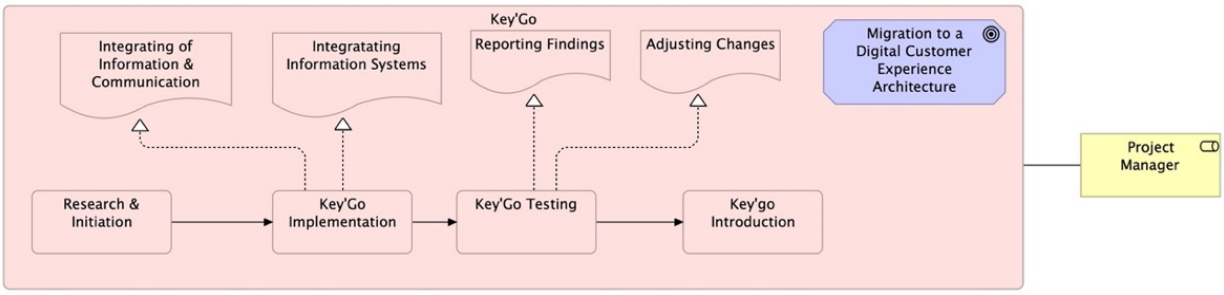


Figure 17. Goldcar Project Viewpoint

The above Project Viewpoint is primarily used to depict an architecture for change, in other words, it is a map for Project Managers to move from a baseline architecture (Traditional Model) to the target architecture (Key' n Go). Essentially it models projects to be managed through an existing timeframe by a Project Manager that has the role to manage, govern and deliver the target architecture.

As for every project, it is important to understand what our main goal is, and what the project intends to deliver. As noted in the viewpoint, the aim is – a migration to a digital customer experience architecture.

For that to be achieved there are four main working packages (series of actions) that need to occur – Research & Initiation, Key' n Go Implementation, Key' n Go Testing and Key' n Go Introduction. These actions occur sequentially, and only one is finished the next one can occur.

Another element that is present in this viewpoint is the deliverable of a particular work package. A deliverable intends to represent the outcome of a particular series of actions, as example, once Key' n Go's Implementation is completed then we would have integration of information and communication, as well as integration of information systems.

Migration Viewpoint

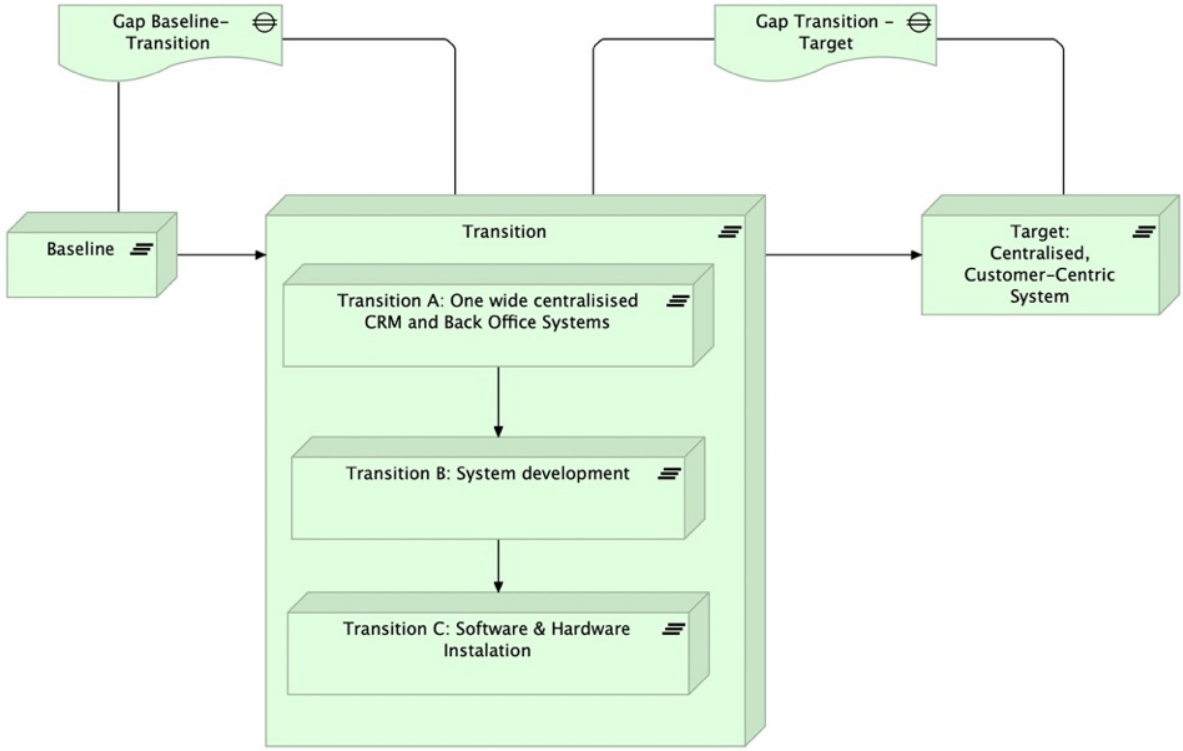


Figure 18. Goldcar Migration Viewpoint

The Migration Viewpoint entails an understanding of the different types of stable states that are represented in ArchiMate notation by a Plateau, in essence, each plateau represents a state, there are three states on the migration process of Goldcar traditional model to Key' n Go.

The first state is Baseline, which is indeed the project entry-point that is the Traditional Model.

Secondly, there is the Transition state, which entails three other sub-states - Transition A, B and C. To understand each sub-state, it is important to comprehend that each of these states is sequential, meaning that Transition B will only occur when Transition A occurs. In other words, to complete the transition state it is paramount to have first a wide centralised CRM and Back Office System to then move to System Development and finally to Software and Hardware Installation.

The last is state is target, essentially representing what we want to achieve after all the states occur which is to have a Centralised, Customer-Centric System – Key' n Go.

It is important to note that in-between states there is also a time gap, which can be considered a state between states an element associated with two plateaus that are there to represent the difference between two plateaus or the two states that is associated.

Integration Migration Viewpoint

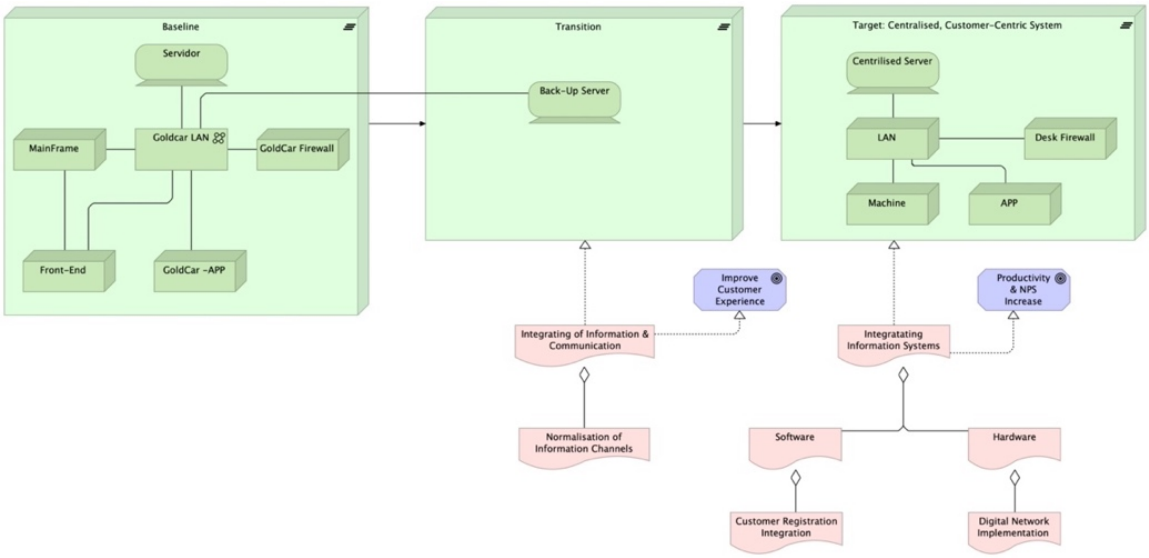


Figure 19. Goldcar Integration Migration Viewpoint

The above Integration Migration Viewpoint shows the relation between the project and the implemented architecture. It also goes into further detail to explain the evolution of each state's infrastructure.

If we start by looking at the baseline plateau, we quickly understand that the starting point is the traditional model architecture infrastructure of Goldcar, the aim of this implementation is to move from that type of architecture to a simpler one presented in the Target plateau. This is done by having two new nodes associated with Goldcar's LAN - Machine and APP, inherently meaning that the ways of interaction with the new product Key' n Go are done through mobile and/or a service desk machine present at airport counters. Another important detail that can be noted, is that through the airport desk where the product is going to be used there is no physical access to the company's mainframe in the target plateau. This is because there needs to be a path to connect the user at the desk with the mainframe at the central office.

On the second plateau, it is noted that all the data and relevant information is stowed in a backup server, meaning if there is ever occur problem all the information will be safeguarded. Moreover, if needs be to access data during the transition state this will be done through an association between the backup server and Goldcar's LAN and through there to the mainframe and then to the mainframe.

Undoubtedly, there is also a relation between the state of Transition and Target with its related deliverables, this is shown in the viewpoint by means of realisations associations. This illustrates for instead that in the state of transition there is an expected outcome and/ or series of actions, for example, the Integration of Information & Communication occurs with the goal to improve customer experience having then an aggregation relationship with the normalisation of information channels, essentially meaning that only through normalisation can the integration of information and communication be a reality.

5.4.4 Key' n Go (AS-IS)

The AS-IS model reflects the state of the organization right now where it is possible to hire a car through the traditional method and through Key' n Go, essentially Key' n Go works as a premium no-brainer product where the customer has access to premium coverage insurance, where there are no queues at the desk and where the picking up process is smooth and can be controlled digitally through various touchpoints in a mobile app.

It is paramount to understand that in ArchiMate modelling language it is only relevant to represent viewpoints and elements that are significant to the idea that needs to be transmitted to stakeholders and project managers alike. Nevertheless, to fully understand where the organizational changes that affected Goldcar and to fully comprehend the transition from a traditional model-based product to a digital one, this work is divided into two sections the sections where we show the viewpoints that do not affect any change for the organisation and the sections where changes were made.

Key' n Go AS-IS – Unchanged Viewpoints

The viewpoints presented below are the result of an unchanged reality:

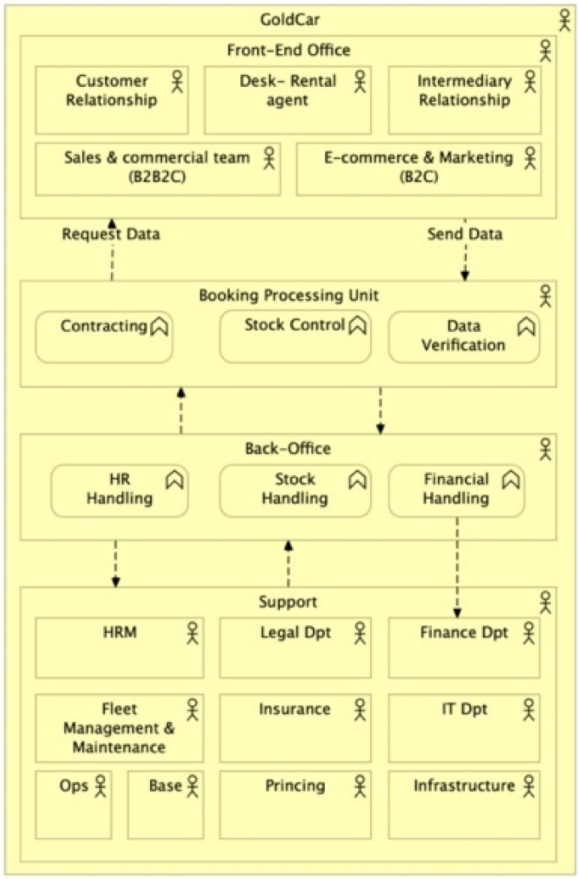


Figure 3. Goldcar's Organisational Viewpoint

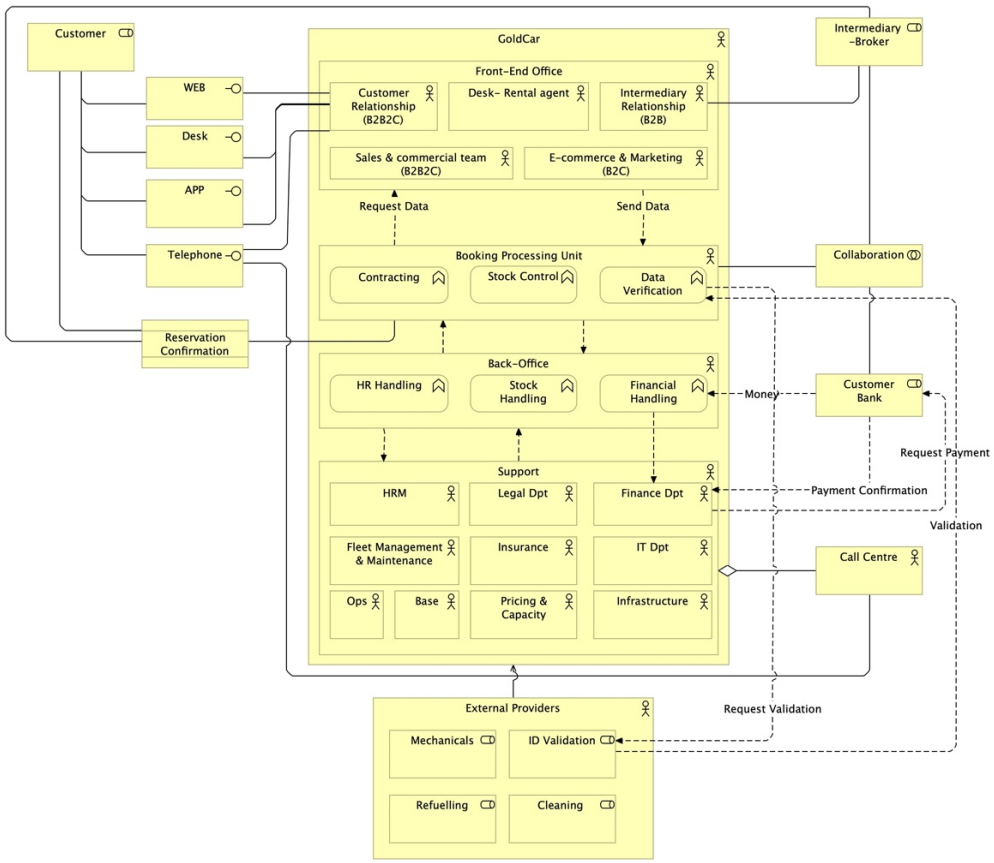


Figure 4. Goldcar's Actor Co-operation Viewpoint

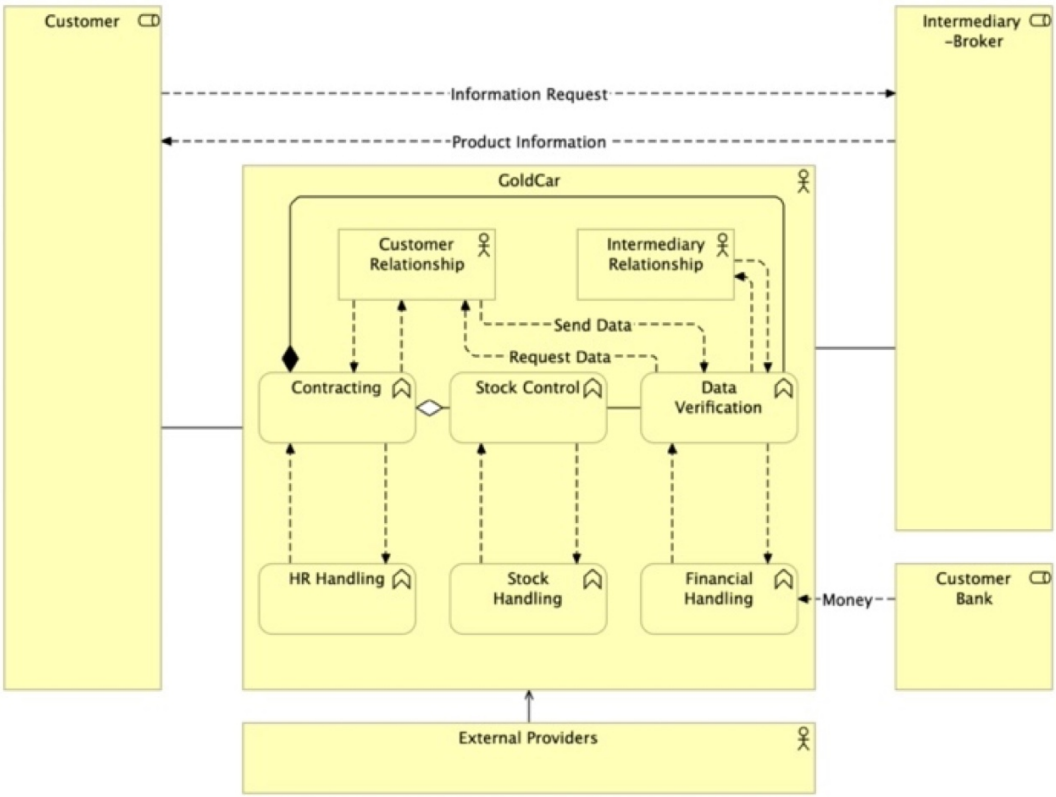


Figure 5. Goldcar's Business Function Viewpoint

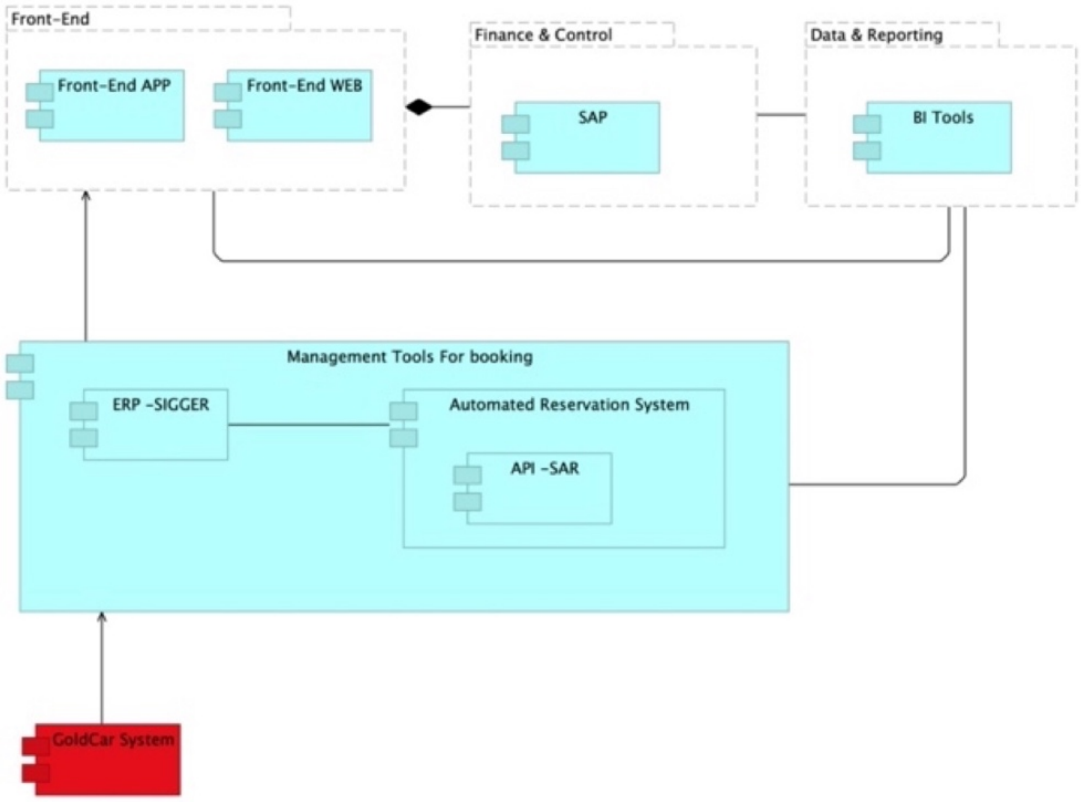


Figure 9. Goldcar's Application Co-operation Viewpoint

***Key' n Go* AS-IS – Changed viewpoints**

The viewpoints presented in this section, present changes to the enterprise, to the organisation itself, to the stakeholders and to all parties involved in the core business of Goldcar. It also shows how adopting simple changes to the organisation's practices, policies, integration of communications channels and of information systems can bring some surprising results to the organisation.

Furthermore, it is paramount to understand that the introduction of the product Key' n Go has brought the Goldcar organisation to a whole different level, as it launched Goldcar into a new digital era. Because Key' n Go is a smart product that has in its main core a digital journey with one aim and one aim only – improve customer experience and eliminate the previously identified pain points of the traditional customer journey. This is done by using mobile technology as the main touchpoint and/or channel for Key' n Go, thus eliminating the customer interaction with the desk agent at the airport counters.

The below viewpoints reflect and illustrate the changes that Key' n Go has brought to the organisation.

Key' n Go Business Process Viewpoint

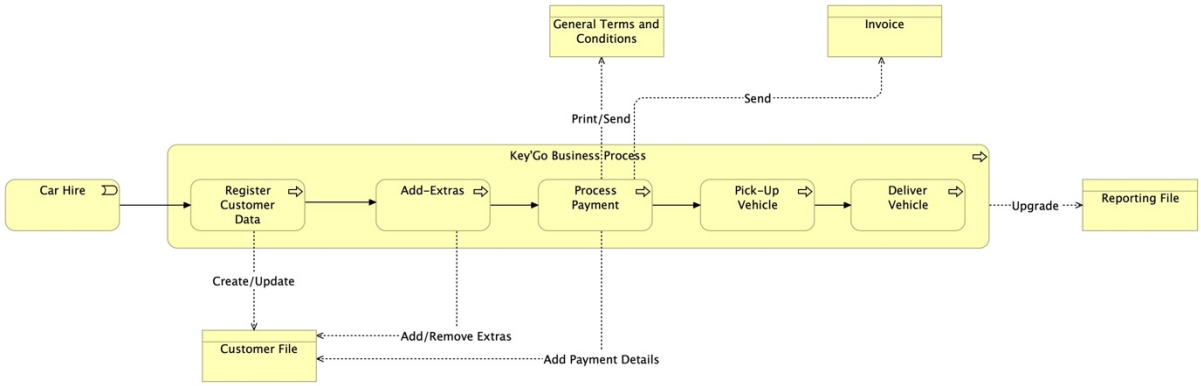


Figure 20. Key' n Go (AS-IS) - Business Process Viewpoint

When compared with the traditional model presented in this dissertation, it is important to understand the key differences presented in the main business process of Key' n Go. Note that the main goal of the Key' n Go digital product remains the same, as the one in the traditional model – hire a car – and doing so by following a set of steps represented here in the above viewpoint as sub-business-processes (e.g. – Register Customer Data, Add Extras and Process Payment).

Acknowledging this and knowing that within the realm of the low-tier business of Europcar, Key' n Go represents a premium product, and therefore the event of adding or removing car insurance is irrelevant and thus eliminated from the main business process. This is because the product itself already includes maximum coverage for all customers purchasing Key' n Go.

Secondly, it is worth noticing that within the General Terms & Conditions (presented in this viewpoint as an object representation) that are sent to the customer once the payment is processed there is a dedicated section where the customer can access details about insurance coverage.

All the other details of the Key' n Go Business Process remain the same. Note that Key' n Go and the Car Hire Business Process both exist in the AS-IS reality, essentially a customer can use Key' n Go to hire a vehicle or the traditional method.

Key' n Go Business Process Co-Operation Viewpoint

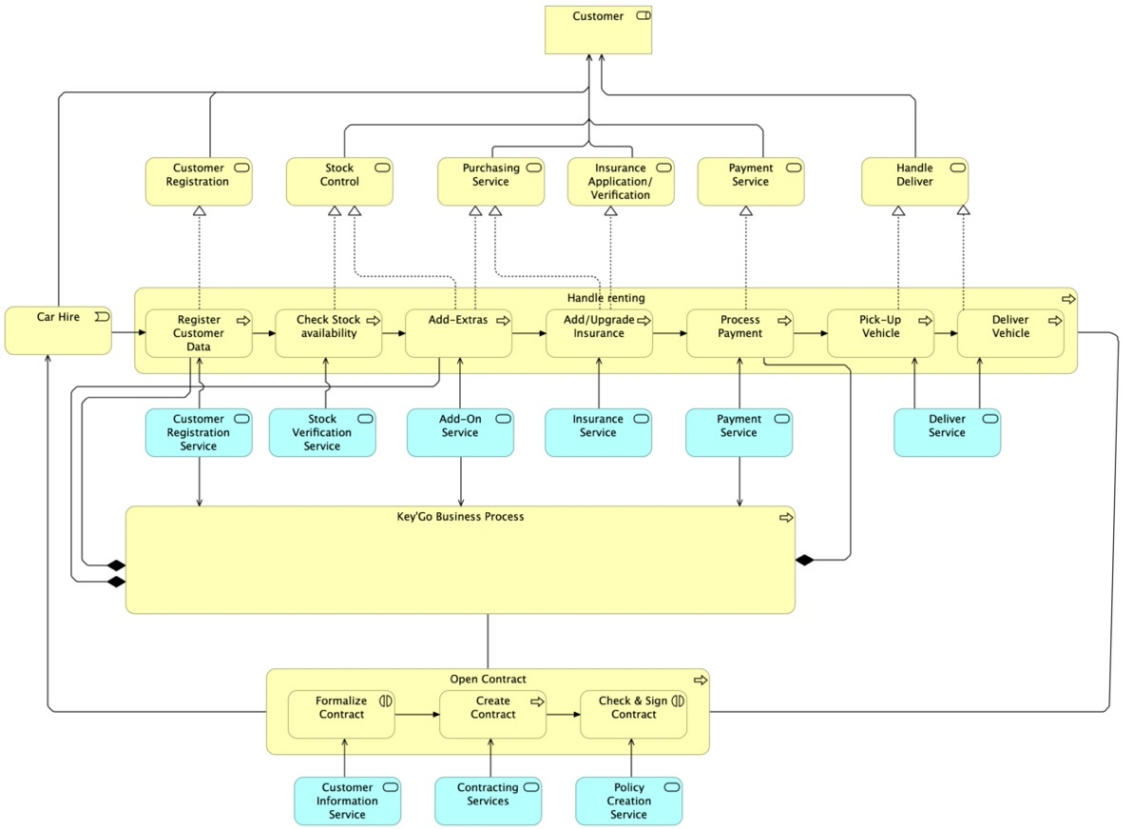


Figure 21. Key' n Go (AS-IS) - Business Process Co-Operation Viewpoint

Finally, it is important to understand that no matter what product you select either the traditional or Key' n Go, once all the necessary steps are concluded as well as the sub-business-processes the end result will always be that a contract will be open as a result of an association with both Key' n Go business process and Handling Renting with Open Contract Business Process. This association will ultimately serve the customer after an interaction touchpoint by means of a signature by the customer confirming the contract. As previously mentioned, the Business Process Co-operation Viewpoint shows how the different business processes interconnect with each other and most importantly relate to the application services of the applications that give support to the relevant business core of an organisation. In the case of Goldcar, it is important to understand that with the advent of Key' n Go there are only three application services as depicted in the viewpoint that serves Key' n Go Business Process – Customer Registration, Add-On Service, and Payment Service. This is due to the inexistence of services such as Stock Verification or Insurance application service in Key' n Go, firstly because Key' n Go is a product that is independent of the traditional product of car hire and therefore there is a limited number of these premium products that can be sold, hence there is no need to control stock; secondly, as previously considered Key' n Go has already the maximum insurance coverage possible as it is a packaged product.

Furthermore, it is noticeable in the above viewpoint that there are also three compositions that relate to three common sub-business-processes (Register Customer Data, Add Extras and Process payment).

These are the exact sub-business process presented in the Key' n Go Business Process viewpoint, denoting that no matter what product the customer selects the Traditional Car hire Product or Key' n Go there will always be the need for customer registration, there will always be the possibility of adding extras to the booking reservation and lastly, there will always be needed to process a payment.

Finally, it is important to understand that no matter what product you select either the traditional or Key' n Go, once all the necessary steps are concluded as well as the sub-business-processes the end result will always be that a contract will be open as a result of an association with both Key' n Go business process and Handling Renting with Open Contract Business Process. This association will ultimately serve the customer after an interaction touchpoint by means of a signature by the customer confirming the contract.

Key' n Go Product Viewpoint

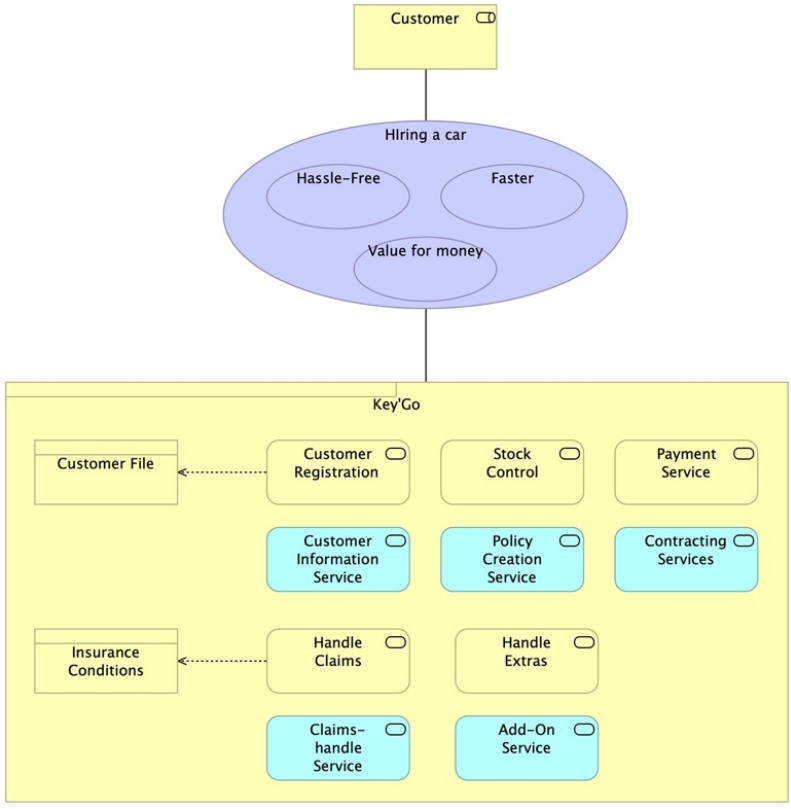


Figure 22. Key' n Go (AS-IS) - Product Viewpoint

When looking at what Goldcar sells – its product and the service provided to customers, we soon realise that there are differences between both the traditional car hiring process and Key' n Go. Depending on the way the service is provided the Customer Experience and the value can change. The main value of Key' n Go, is that it is a hassle-free product. There is no need for queuing at the counter's desks, meaning that it is also faster. It is also good value for money as it is a product that includes a premium insurance package. In essence, it is a product that is designed to cover all the needs of a customer

wanting to hire a car that specifically addresses the three main pain points previously address (long waiting queues, lack of insurance covering, and hard selling techniques by agents).

Observing Key' n Go (AS-IS) - Product Viewpoint not only we can see that it reflects the value previously mentioned in the above paragraph in the value notation – Hiring a Car. It also eliminates the specialization products presented in the Traditional Model Product Viewpoint presented in section 2.3.1.6. Essentially, the business services – Handle Claims and Handle Extras are included in the main product, therefore representing the package that Key' n Go is, rather than having two chunks of specialisation products that the customer can add or not to the booking, essentially should the customer require to handle a claim for instead there is no need to hassle as the sub-product is already included, meaning also that there will be no extra charge, making the customer journey more smooth.

It is important to refer that this small adjustment to the product service is what transforms the customer journey, optimising it to the customer needs by eliminating unnecessary touchpoints.

Key' n Go Application Usage Viewpoint

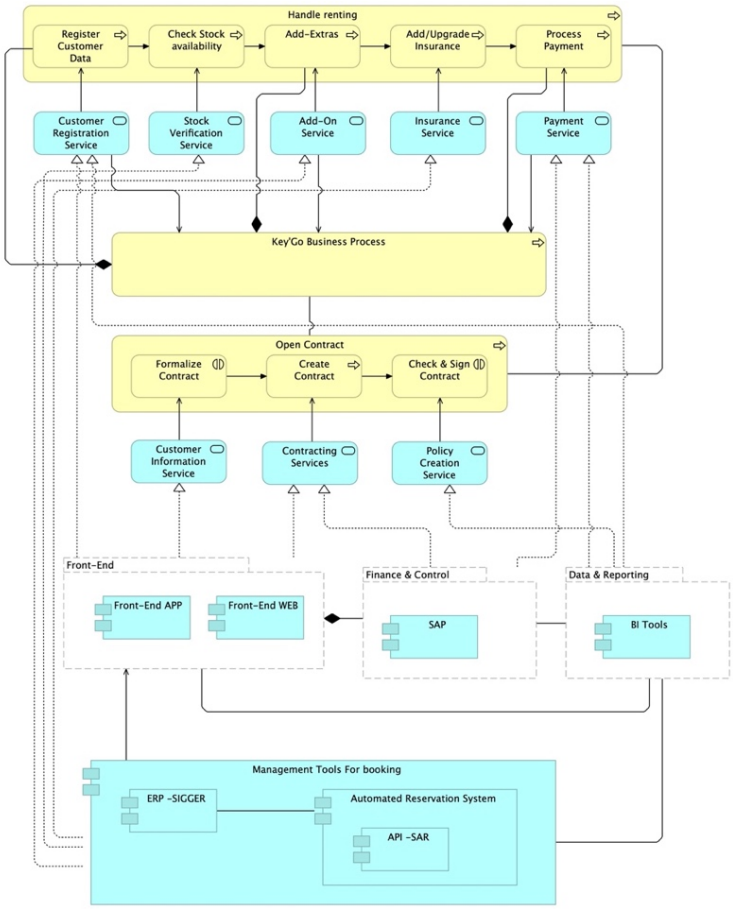


Figure 23. Key' n Go (AS-IS) – Application Usage Viewpoint

The Key' n Go (AS-IS) – Application Usage Viewpoint shows how Goldcar's applications, APIs and components connect with the application services that further support the business processes. The

important aspect here is to observe how the Key' n Go business process fits in with the API and all the application and application components, as well as understand how they support the business.

It is therefore important to understand what was previously mentioned in section 2.3.3.2.2, meaning that the Key' n Go business process is only served by three business processes aforementioned, each of these can have one or multiple realisation association(s) with an application component(s) or an application itself (e.g. – the Customer Registration application service has a realisation association or a logical link with the Front-End Group of application components, essentially being available in two channels of supporting the APP and the WEB.).

There is a further realisation association worth mentioning, which is the one linked with Manage Tools for Booking, this application needs to note any change that is made to the booking of a vehicle, including the addition of any extras, and thus the realisation associating with the Add-On application service is present in this viewpoint.
Lastly, it is important to understand the last realisation association with the application service Payment Service. Each time there is a payment confirmation this need to be noted in the Data & Reporting group of applications as well as needs to be associated with Finance and Control and associated with the Front-End APP and WEB applications.

Key' n Go Infrastructure Viewpoint

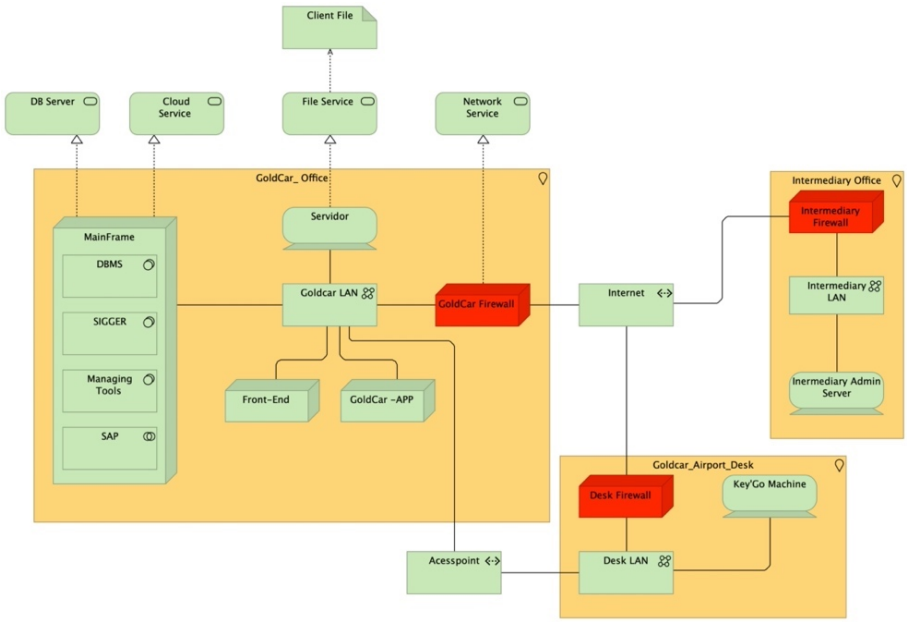


Figure 24. Key' n Go (AS-IS) – Infrastructure Viewpoint

The main difference with regards to the infrastructure viewpoint in the Key' n Go (AS-IS) – Infrastructure Viewpoint when compared with the traditional model is that it includes an extra location – Goldcar Airport Desk. In essence, this is one of the main customer touchpoints that is used when hiring a car through

Key' n Go. Here it is possible to observe the hardware in place, in other words, the Key' n Go Machine present at the counter and its connection with Desk LAN.

The Desk LAN on the other hand, is an entity that distributes the incoming communication from the internet, the Key' n Go Machine, and through an access-point that connects the machine directly to the Mainframe. In each location has a firewall layer that works as a gatekeeper to ensure a safe communication and trasactions.

5.6 Reporting

Following the analysis of data, this section reports on the findings of the case study by answering the proposed research questions.

The objective of this case was to describe and portray the phenomenon of digitalisation, and innovation, through the experience of CJ techniques. The case aims to unfold a real-life CJ experience scenario patent in Goldcar with its innovative product - Key' n Go, and thus show an example of digitalisation and innovation.

Using the ArchiMate Full framework the researcher developed three views that define three different momentums of the organisation - before digitalisation, the process of implementation of digitalisation and after the digitalisation process. The understanding of each momentum has proved essential in comprehending the organisation, its departments, the actors within the organisation, their roles, its stakeholders, and the technology that aids the business and its infrastructure.

The presented views also illustrate the problem with the CJ and CE of Key' n Go - the relationship with the brokers or digital intermediaries, is a relationship that provides bookings and revenue to the organisation, though it has a fundamental communication problem that makes CJ difficult at times. The communication problem is illustrated in both the Traditional Model View and in the AS-IS View in the Actor Co-operation Viewpoint. It is evident in that viewpoint that once the booking is completed the only communication made by the broker is to communicate the booking to Intermediary Relationship (B2B) actor and another one that is sent to the customer confirming the booking, The problem resides that in that communication does not explain to the customer that it is paramount do the pre-registration to continue to use the product. It is that lacking that causes customer dissatisfaction and that ultimately contributes to the downgrading of the NPS of the company.

Secondly, it is patent in the Implementation Migration View and in the Migration Viewpoint and the Integration Migration viewpoint that there is always a gap between the project baseline and the target. Meaning that any meaningful transformation takes time to develop, test and implement. This is true for the case of Key' n Go and true for any other process of the digital transition.

Lastly, through the presented views it is possible to observe that for the purpose of implementing a customer journey and its relevant touchpoints, there was no need to change the internal processes of the organisation. This is mainly because both the traditional model of car hire and Key' n Go still to this day run simultaneously, meaning that the only thing that needed to be added was a new business process to the Business Process Viewpoint and of course allocate the necessary resources to practically implement that within the company. This proves that a company with few resources investing solely in small infrastructure and improving its existing app could literally transform its service.

RQ1 – What are the benefits of incorporating an optimised Customer Journey through a digital service?

The identified benefits of CJ – Customer Journey include a customer experience that is holistic in nature and involves the customer's cognitive, affective, emotional, social, and physical responses to the retailer [1]. Taking the example of our case into practice, the involvement in the CE between the Goldcar and the customer happens throughout an optimisation of business processes depict in the Business Process viewpoint presented in the AS-IS view, this optimisation contributes to lowering the costs of transition from the Traditional model to the digitise model. This translates into bringing innovation to the company without drastically changing processes and the physical infrastructure that supports it.

Moreover, when comparing the Traditional Model view with the AS-IS view, we quickly realise that an optimised CJ such as Key' n Go benefits simply by addressing the identified pain points with an offered customised experience that inevitably drives the customer experience to good levels of NPS, thus building rapport in the online community.

The product value is another important benefit of incorporating a CJ in a product and/ or service. Observing the Product viewpoint in the AS-IS view and contrasting it with the Product Viewpoint in the Traditional model we can perceive the added value of the product that can be differentiated when compared with the traditional product. This itself brings flexibility to the organisation that can sell the traditional product to one segment of the market that is more conservative, a digital product to an audience that is apt to use digital and mobile technology.

The reviewed literature by Kojo I, Heiskala M, Virtanen J (2014) regarded that some of the benefits of a CJ experience include – customers buying into a service-process behaviour model, an improvement in service quality, an improvement in customer satisfaction, and an evolved Customer Relationship Management model [21].

RQ2 – What are the challenges of incorporating a Customer Journey in the context of a B2B relationship with brokers?

Implementing a CJ requires the handling of a few challenges. Firstly, it takes time to move from a Traditional Model of service to a target CJ with a centralised- centric system. If we looked at the model presented in the Integration Migration Viewpoint and take the implementation of Key' n Go as an example, we can quickly realise that between the baseline and the target there is a time constraint.

Secondly, it is important to understand that implementing good CJ, requires good project management skills to successfully integrate information systems, normalise processes, improve the service, test, and implement the service technology. These challenges are modelled in the Implementation Migration view of Goldcar and in its Project Viewpoint presented above, where the viewpoint concentrates on demonstrating the full length of the projects

Note: efficient project management, though reducing the project length can be time-consuming and might require specialised skilled management to correctly implement the transition to a customer-centric and innovative model of service.

RQ3 – How can Customer Journey enable and excel a digital service?

As regarded in "Customer Journeys: A Systematic Literature Review" [12], the concept of CE is shaped during the sum of the interactions between the customer and the service provider [12] this happens through a series of carefully planned touchpoints where the customer interacts with the service provider. To empower a digital service, it is of predominant importance to facilitate and capacitate the digital and physical touchpoints with the capacity to provide the customers with their exact needs and answers.

Any CE journey starts before and after the transaction of a service between the customer and the provider. Also, any CJ is composed of carefully planned touchpoints permitting a journey through different steps and points of contact (touchpoints). Another characteristic of a CJ is the desirable targeted service (e.g.- renting a car, receiving a package/ product, etc.), it needs to meet and even outdo the customer expectation [12]. Therefore, to excel in any digital service, it is advisable to enable good business processes and carefully think about the communication between internal nodes and stakeholders, and ultimately increase the quality of each touchpoint.

RQ4 – How to overcome the inhibitors of a Customer Journey?

The main inhibitor of a customer journey is the unpredictability of the stakeholders at each touchpoint. A service can have different actors, who then have different roles or different business partners associated with a service. The conjugation of multiple stakeholders requires coordination between parties to obtain fluidity in the journey. In conclusion, it is imperative that the customer goes through each touchpoint with satisfaction, this also guarantees the integrity of the service and organisation.

Looking at the example in hand, specifically the Organisational Viewpoint, we observe the key issue in the relationship between the broker and Goldcar. The lack of communication between nodes occurs due to the economic advantage that the broker has in withholding customer details and business intelligence relevant to the business and to Goldcar (e.g. - e-mail address). Without this information, the Journey cannot continue, and the circle of a transaction is interrupted.

To overcome the illustrated problem, it is recommended that both parties reach an agreement through a serious process of negotiation where it is demonstrated to both parties that both are to gain with the agreement. The economic argument of sharing information is valid, because both parties have more to gain when sharing this information, as client satisfaction would rise, the service will be better and the final perception of either the broker or Goldcar will remain intact. Having said this it is important that the service provider – Goldcar – manages to have good bargaining power to successfully demonstrate the value of working together.

RQ5. – Can CJ contribute to innovation and the set ground for digitalisation of an organization?

There is no significant model to implement Digital Transition (DT) and Innovation in the organisation, though it is evident that today's enterprises thrive with new forms of consumption with technology being incorporated into our daily life introducing new ways of conducting business [30] Business have move from traditional platforms that were technology dependent to mobile technology, where the transformation of processes is much more important [30]. As mentioned by Zhang, Xuejie, et al. (2020) when exemplifying the banking sector call centre activity, companies are increasingly competing for customer loyalty, with banks having call centres to build a sense of trust and increase customer support [13]. The problem arises when there is too much demand in the call centre and the customer must wait for hours, being this an identified pain point in that study. The authors argue that the solution is a personalised digital service. If drawn a parallel with the case presented in this study, Goldcar also addresses its pain-points using customise digital journey - Key' n Go - an answer and service optimisation. The service optimisation can be seen throughout the model ArchiMate architecture views developed with special emphasis in the AS-IS model.

The contribution of CJ to innovation reflects a model of user behaviour as it plays the essential role of mapping touchpoints that build an optimised service and subsequently the enterprise architecture that supports it. The authors Kojo I, Heiskala M, Virtanen J (2014) report on the evolution of self-reporting applications that study human behaviour that aid in tailoring user needs, referring that "CE pertains to customer satisfaction and loyalty has long been recognised by service organisations" [21]. Optimised services are at the centre of the engagement of customers in a personal, memorable, emotional, physical, and intellectual way of an experience-centric service [21], putting the CE at the centre of an equation that sets the ground for new processes, new services and an innovative enterprise.

6. Conclusion

This chapter concludes the research presented in this dissertation, sections include Communication, Findings, Limitations and Future Research.

6.1 Communication

Out of the developed research for this dissertation a paper was produced with the title – "Using ArchiMate for Optimising a Customer Journey in the Car Hire Industry - a Case Study". The paper was submitted and accepted to PoEM 2022 Conference – Models-At-Work for publication and is currently undergoing a review following the editors' advice.

6.2 Contributions

To produce findings this dissertation followed two different methodologies – SLR and the Case Study.

Firstly, when executing the SLR the main aspects and components of Customer Journey and Digital Services were defined. It was also possible to understand how to best implement a digital CJ in the context of digital services and in a more service-driven economy. The results of the SLR contributed to a better understanding of the main benefits, challenges, enablers, and inhibitors of a CJ.

The case study was conducted in a particular research context of a real-life enterprise – Goldcar. It used the reality of the organisation to depict its architecture, identifying the main business processes, the applications that support those processes and its infrastructure. It modelled the traditional model of business prior to digitalisation, the AS-IS model with the introduction of Key' n Go, and the implementation migration model.

From the research perspective, it was possible to retrieve that data has a very decisive aspect when it comes to getting to know the customer and their behaviour. Only by getting to know the customer, it is possible to tailor services and channel them in the appropriate manner, thus building a rapport and a sense of trust with an organisation. This may come with some associated risks of data integrity for the customers, and similarly, bring legal issues to the organisations involved as was identified in the SLR.

When it comes to CJ optimisation it is important to note that there is no common modelling language to map digital services, additionally, customer journey mapping requires highly skilled personnel for monitorisation and optimisation of business processes. It is therefore crucial to understand that CJ thrives in the context of B2C transactions as it places the customer first and optimises the provided service. Though the challenge occurs when there is an indirect transaction with the customer via a broker and/or digital broker a B2B2C relationship with the customer.

6.3 Limitations

The SLR that this research produced had its context as the main limitation. Most studies that were extracted reported a real-life situation where the application of CJ techniques and mapping was done not only in the digital context but also in the physical and phygital context, nevertheless, the customer experiences reported proved relevant and that is why some of those articles were included in the extraction. Furthermore, when conducting the search in the libraries EBSCO and SCOPUS a lot of the results that appeared were not from the scientific field and that was why the research for articles was broadened to two libraries instead of just one. The idea here was to have a broader perspective and a wide variety of selected articles.

A second limitation was found when modelling the architecture of Goldcar. That process relied heavily on interviews with managers and people who know the ins and outs of the company and its infrastructure, modelling was done according to their perspective, though a broader view could include different views from other stakeholders.

6.4 Future Research

Future research should concentrate efforts on the implementation of the To-Be reality and fully develop Key' n Go 2.0. For that to be done successfully it is necessary to follow a new Implementation Migration model with special emphasis on the new Project Viewpoint. During the implementation process, a trial should be proposed before full implementation to fully identify system flaws and to allow time for the suggestion of last-minute improvements.

Furthermore, a thorough evaluation of the implementation of the To-Be model should be conducted, using an analytical approach to try to understand if this implementation solved the newly identified pain points that led to the implementation of the To-Be model.

When implementing the To-Be model, the model automatically becomes the new AS-IS, therefore it is important to make efforts to fully develop the new To-Be model.

Lastly, future studies should reflect upon the role of Key' n Go in the digital era, its impacts on the car-hire industry, and the utility of Archimate modelling language as a tool to broadly identify organisational problems, and system flows and as a way to better organise the enterprise infrastructure.

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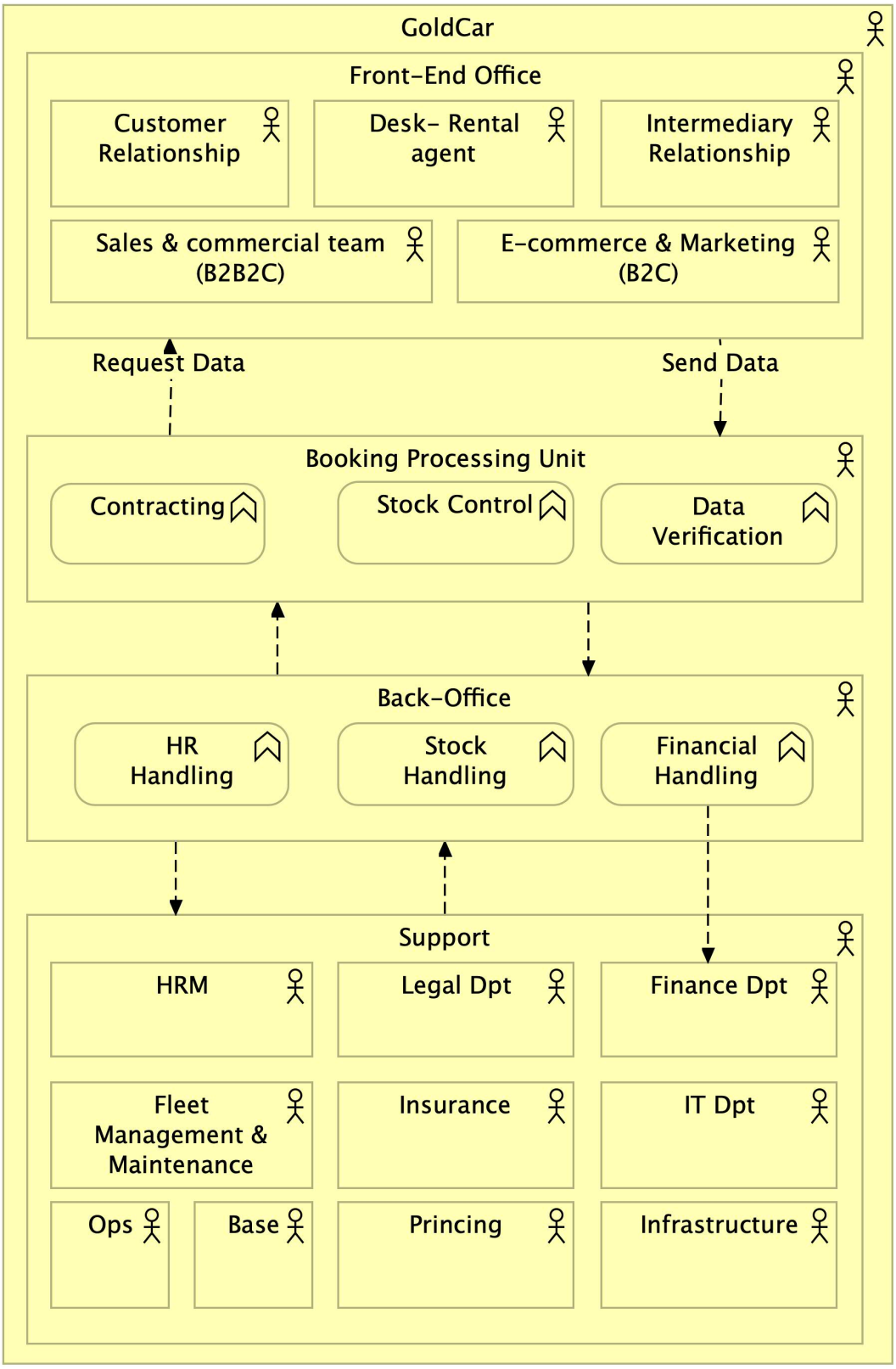
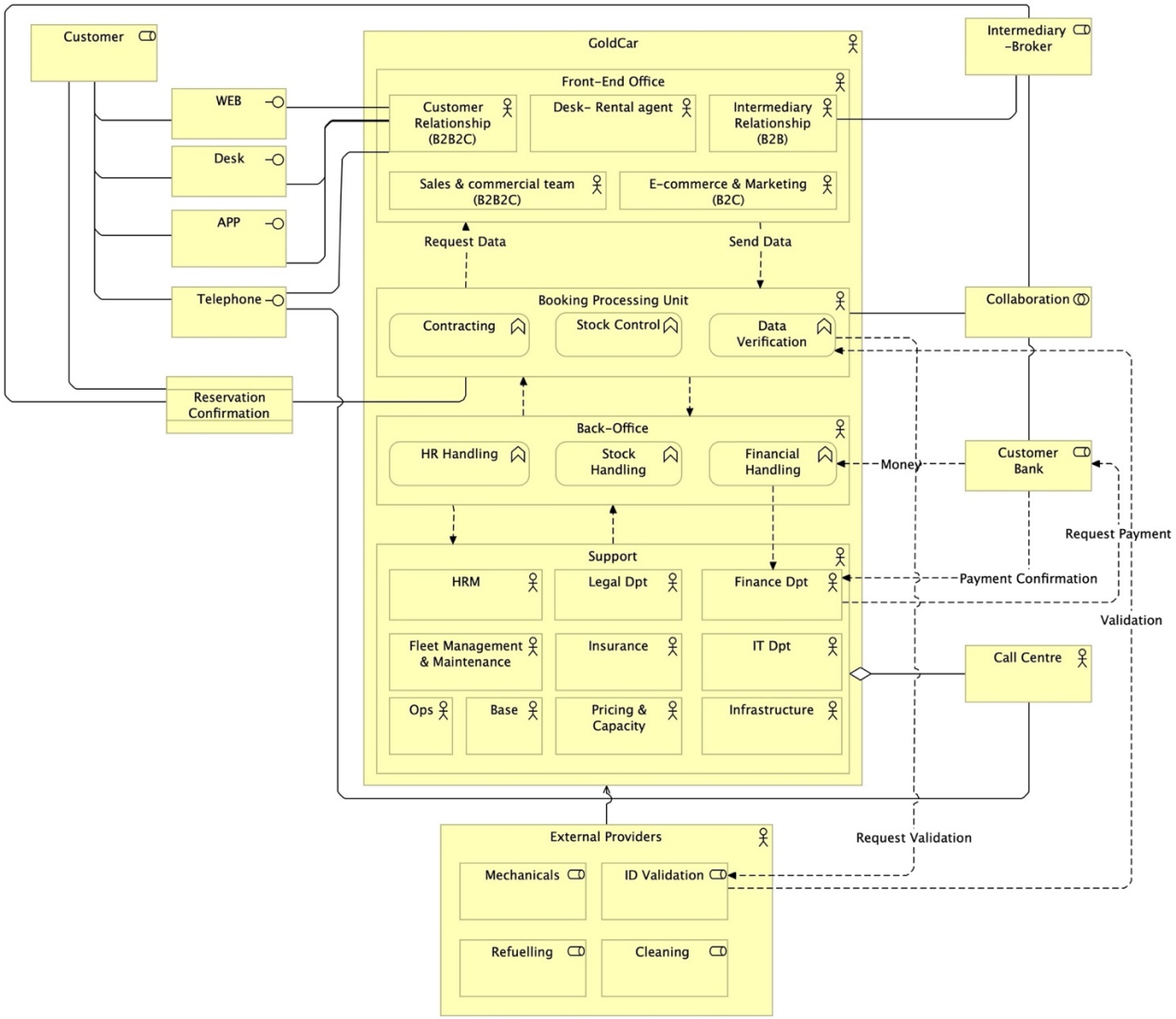
Appendix A – Viewpoints

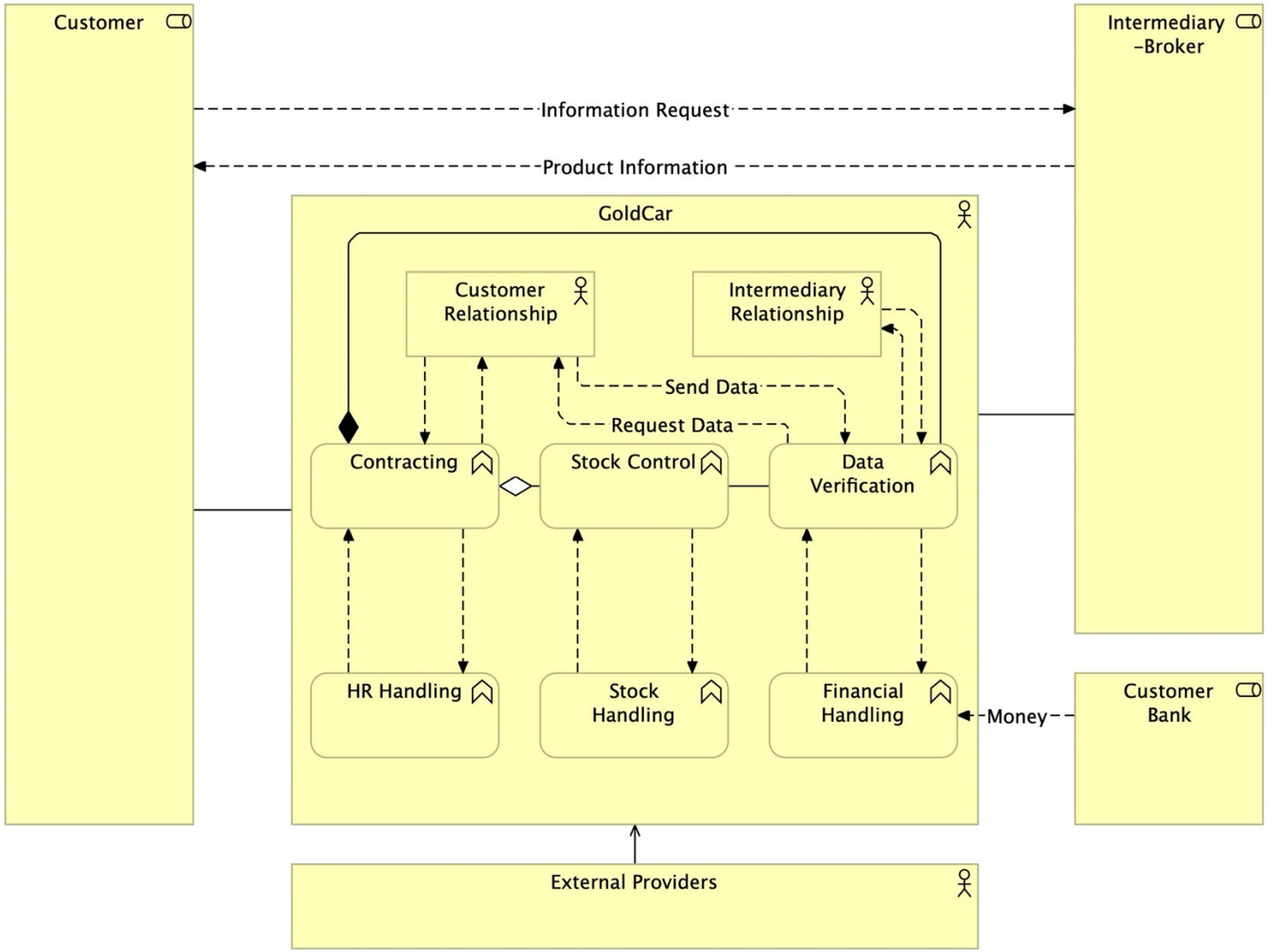
Traditional Model - Organisation Viewpoint



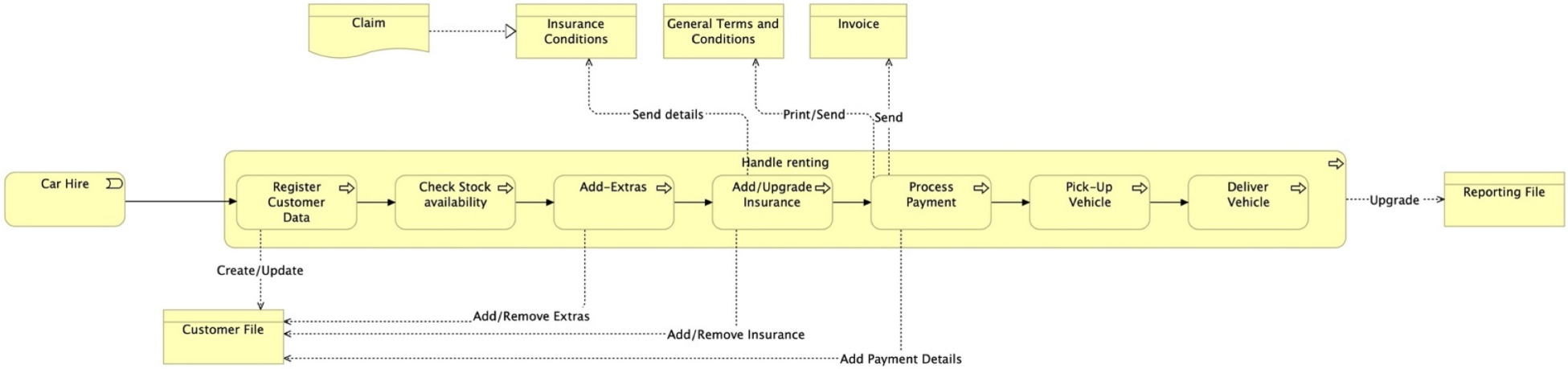
Traditional Model - Actor Co-Operation Viewpoint



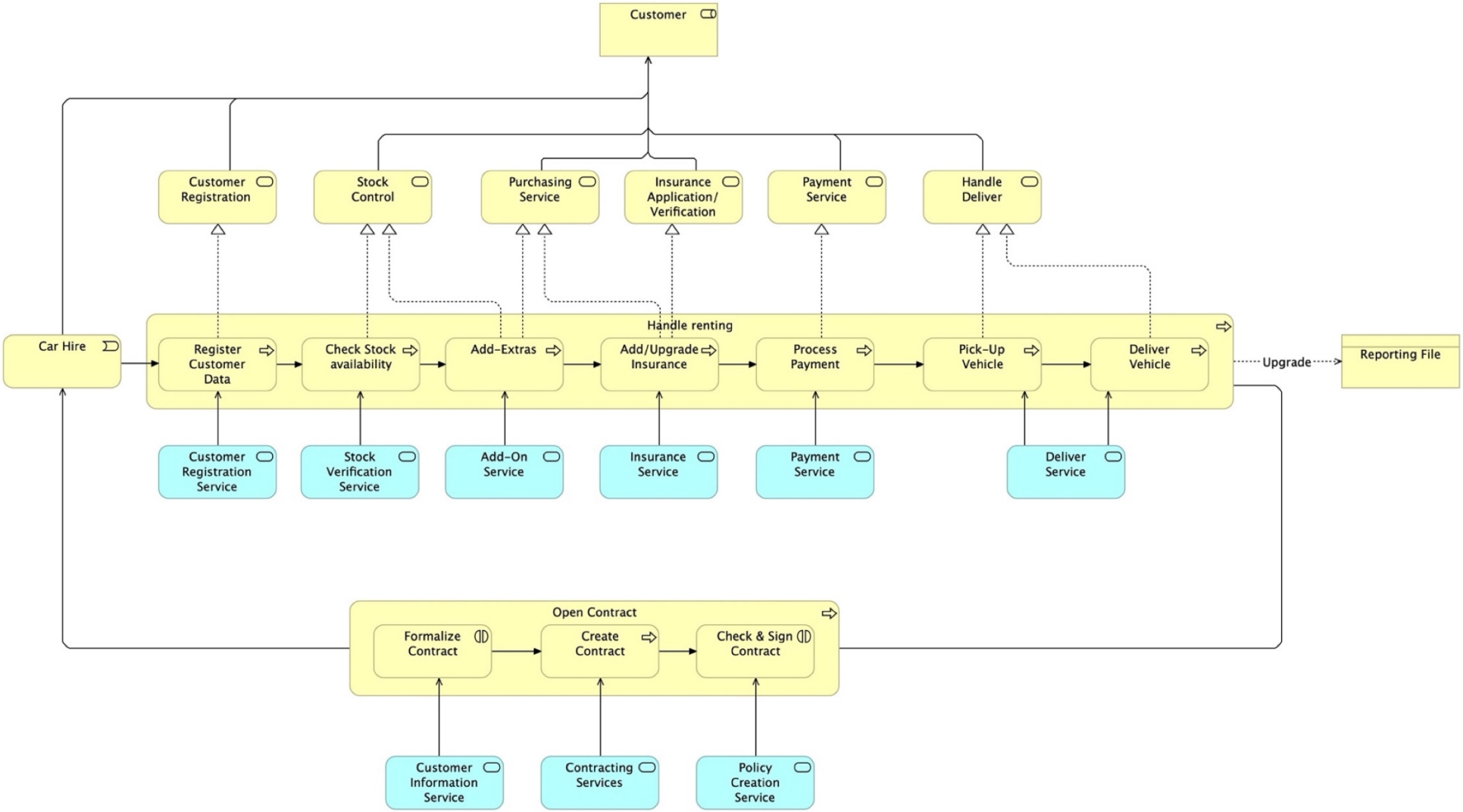
Traditional Model - Business Function Viewpoint



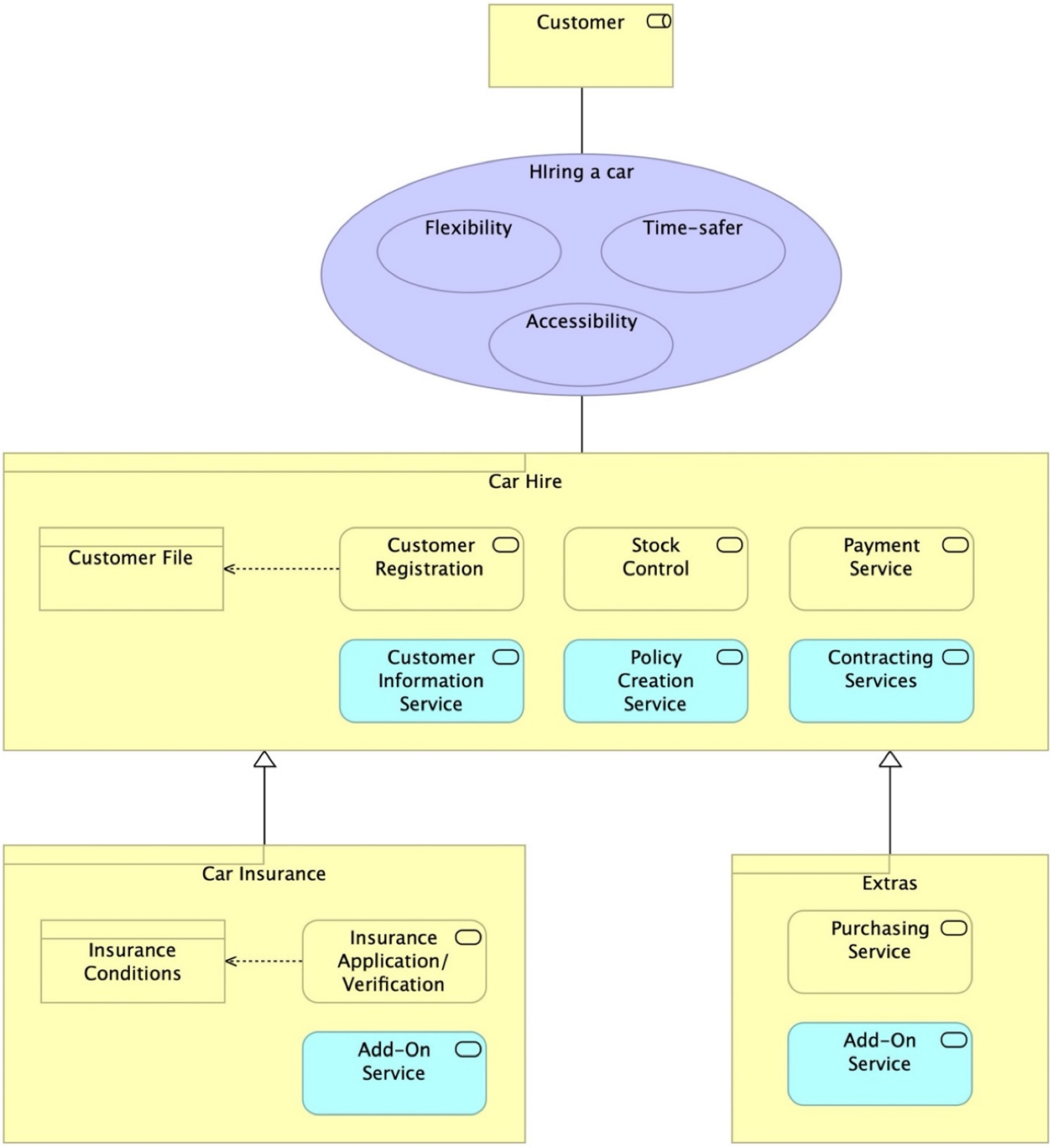
Traditional Model - Business Process Viewpoint



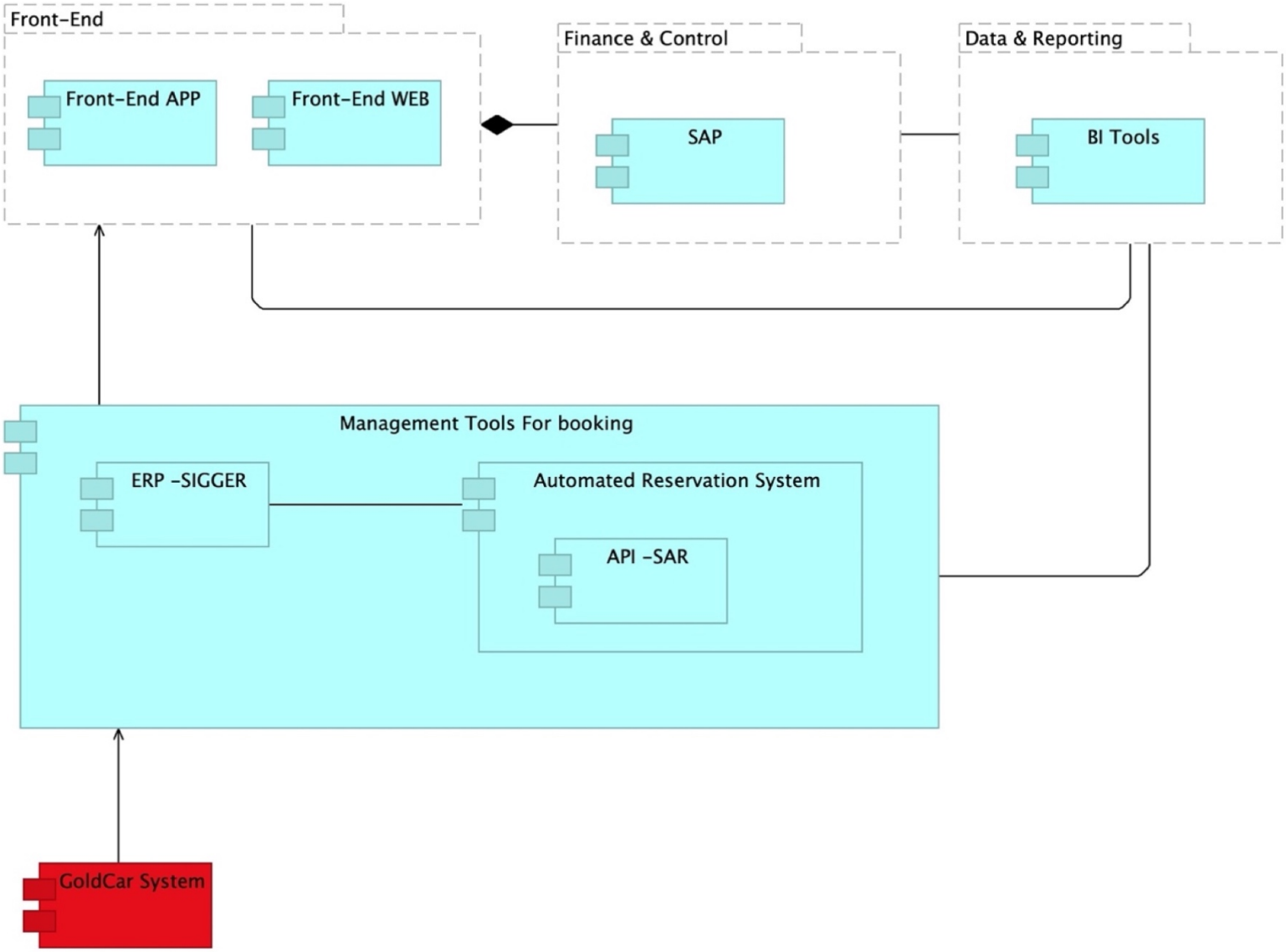
Traditional Model - Business Co-Operation Viewpoint



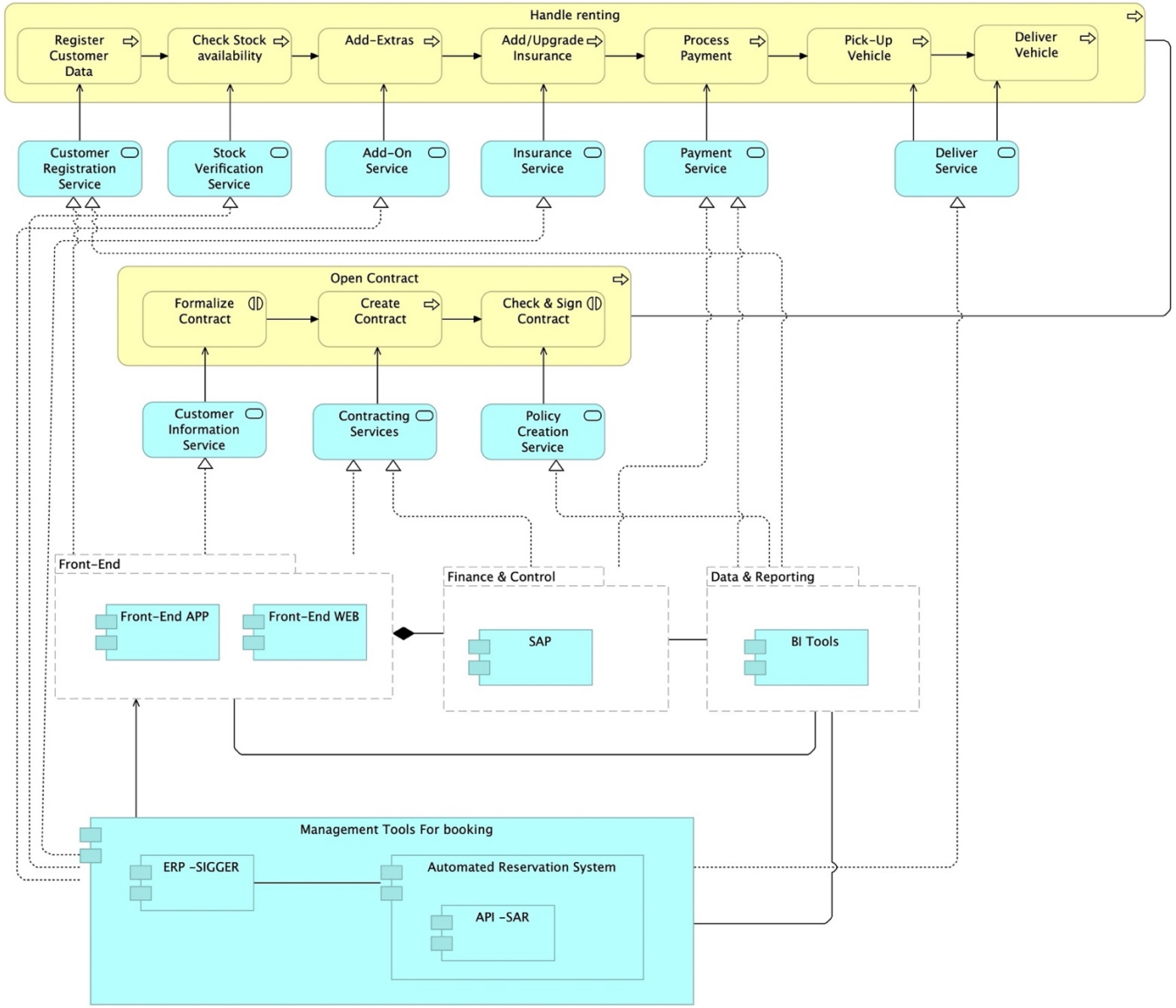
Traditional Model - Product Viewpoint



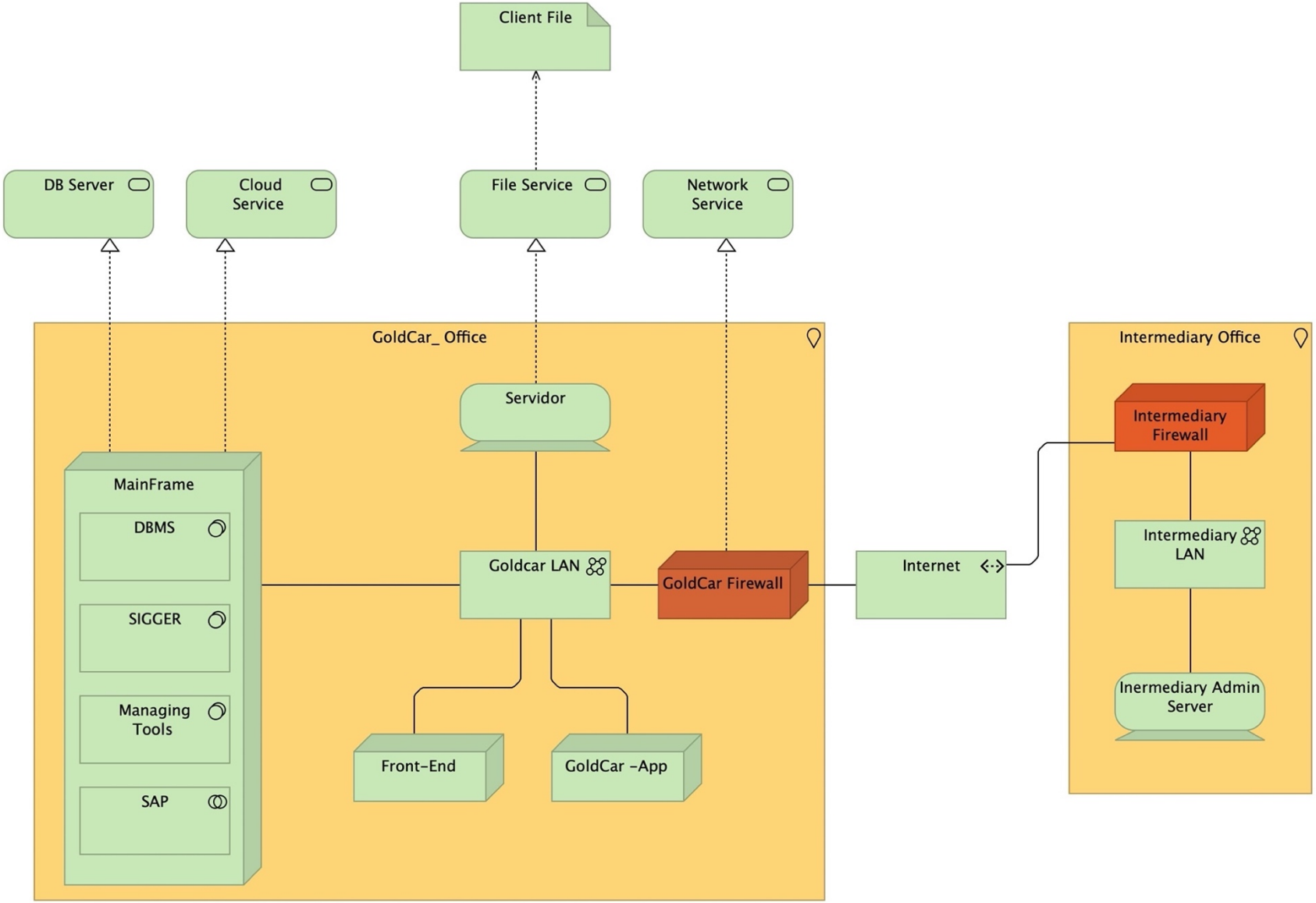
Traditional Model - Application Co-operation Viewpoint



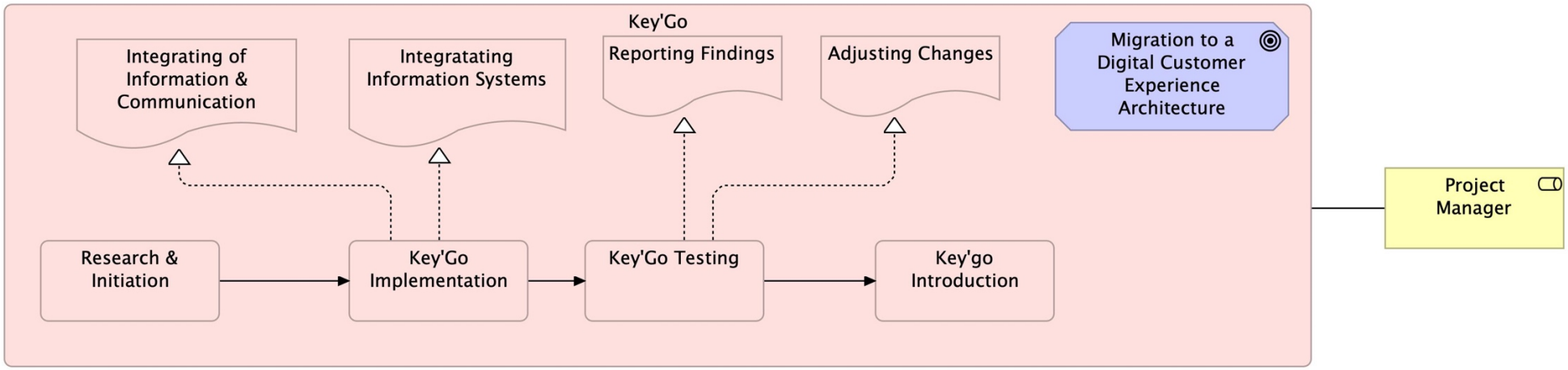
Traditional Model - Application Usage Viewpoint



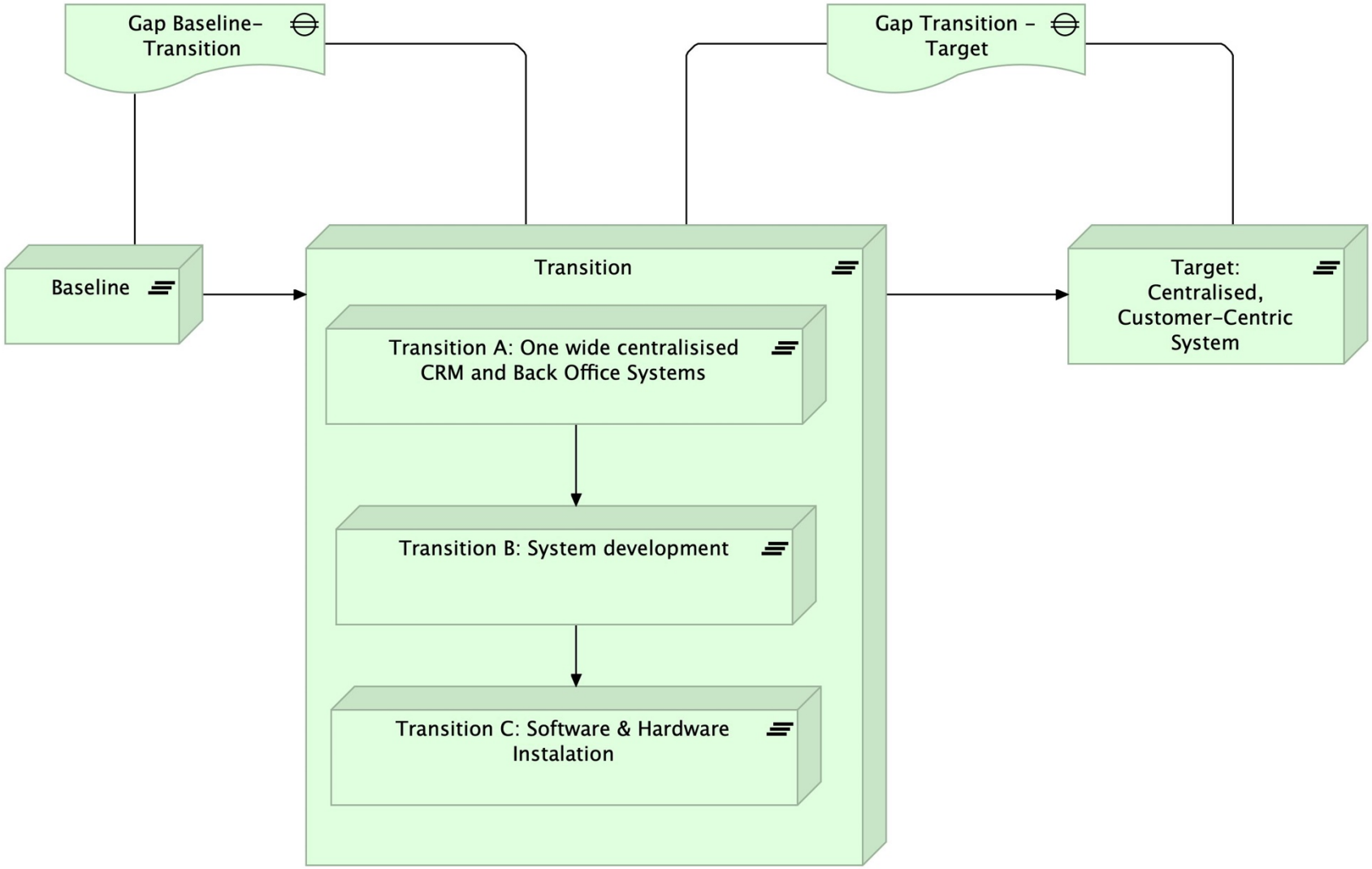
Traditional Model - Infrastructure Viewpoint



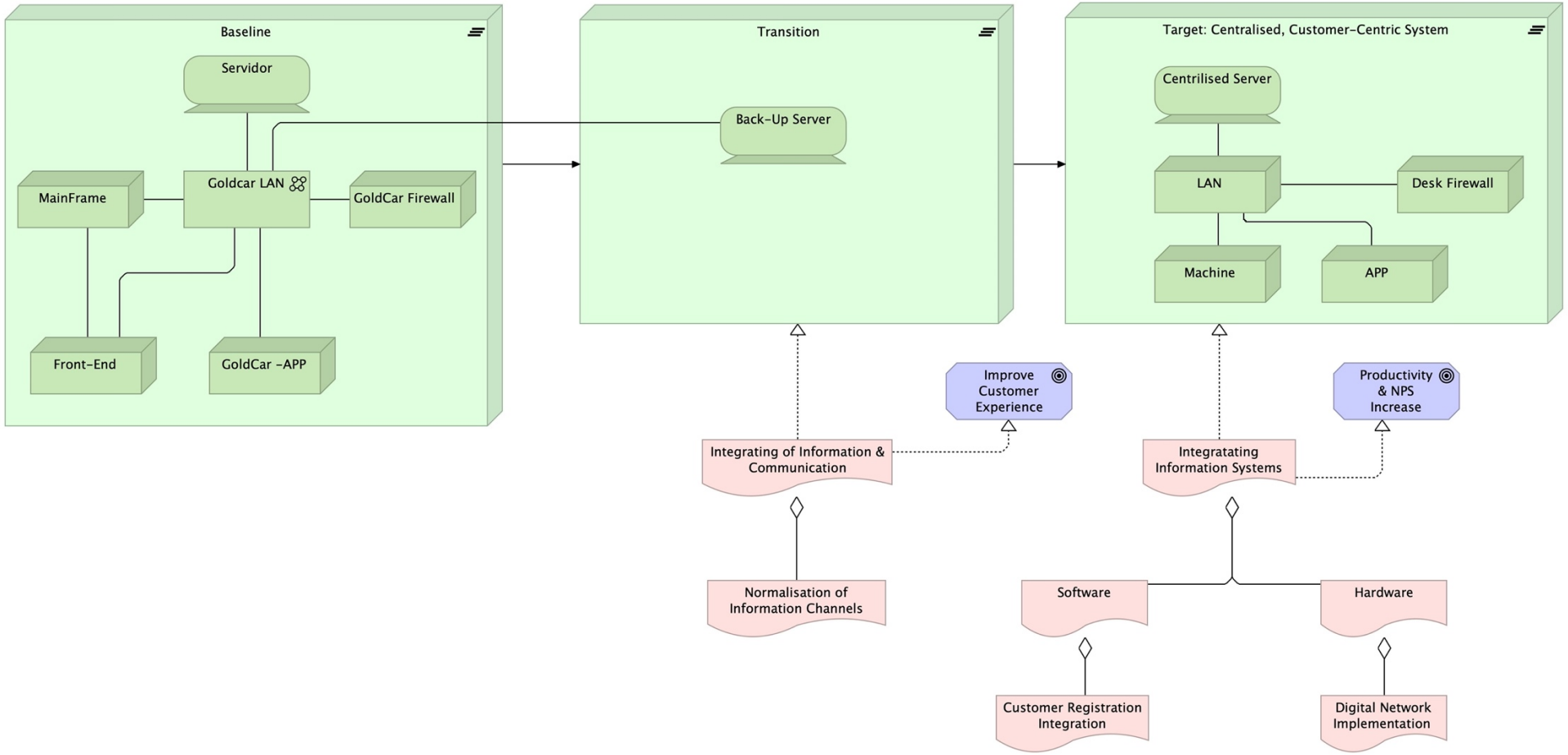
Implementation Migration - Project Viewpoint



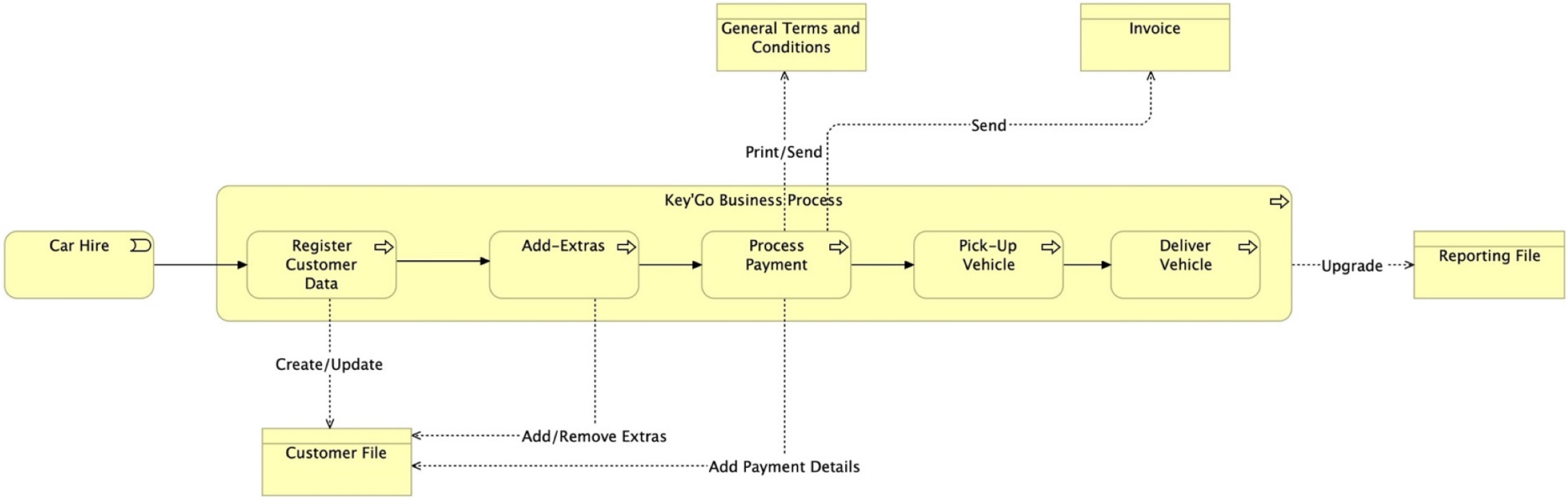
Implementation Migration - Migration Viewpoint



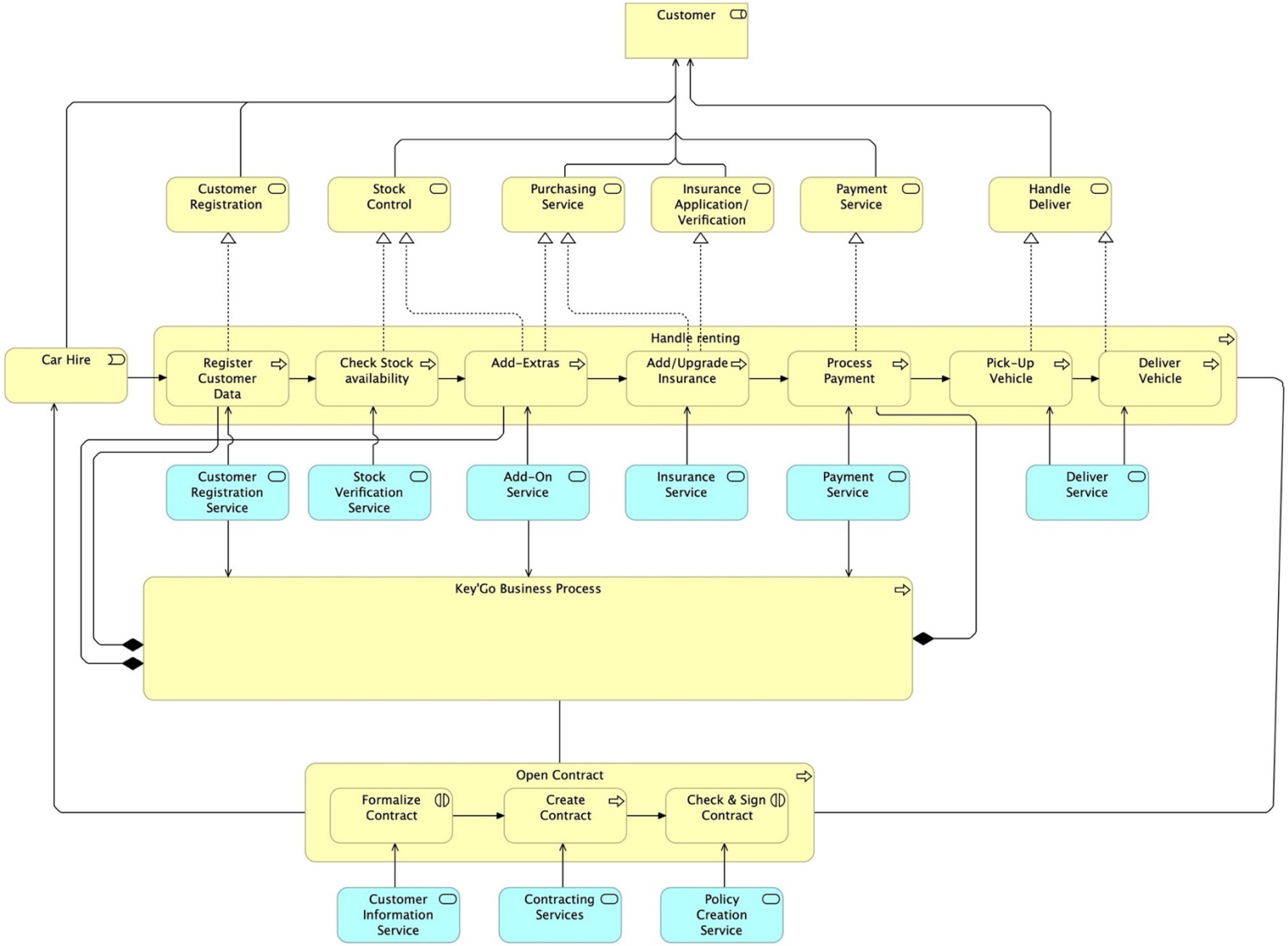
Implementation Migration – Integration Migration Viewpoint



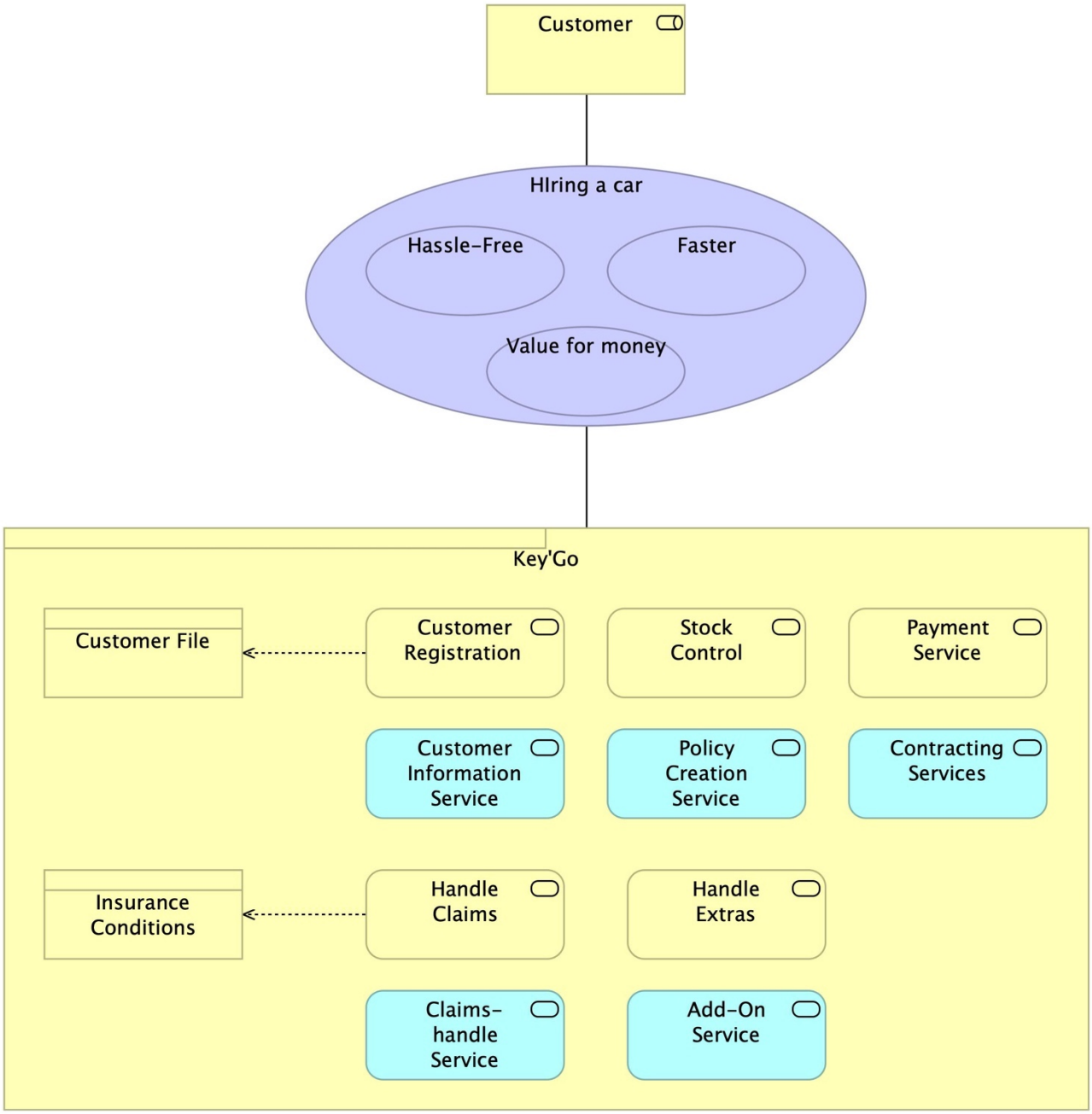
Key’ go – (AS-IS) Business Process Viewpoint



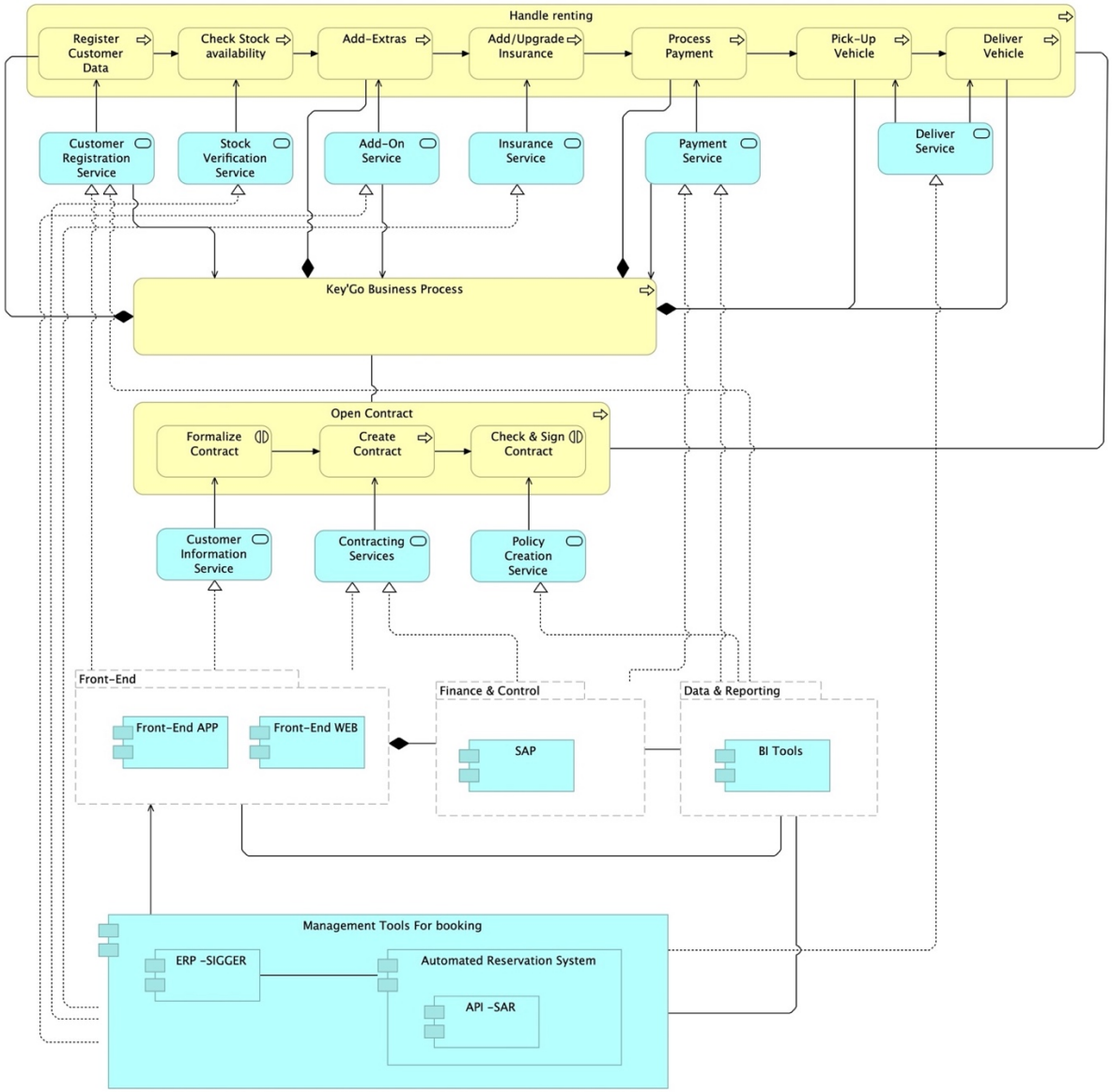
Key' go – (AS-IS) Business Process Co-Operation Viewpoint



Key’ go – (AS-IS) Product Viewpoint



Key' go – (AS-IS) Application Usage Viewpoint



Key' go – (AS-IS) Infrastructure Viewpoint