1 – The Industry:

In a **historical perspective**, logistics started in ancient greece. Logistics actually comes from the word "logos," which means reason or rationality. The job of the first logisticians was actually to make sure the goods came to the right place at the right time. However, logistics as we know it today begun in the scenario of war, in the second world war. There was a growing demand to have shipments of goods to warzones that were hard to reach. And so after the war logisticians brought their knowledge and expertise from the war to the private sector in the 1950s. [11]

And thus the need for delivery and storage of goods grew larger and the individuals and businesses started expecting to get goods faster, cheaper and more flexible. And there the concept of RAM (Reliability, Availability and Maintainability) Logistics was born as a way to **fulfill the need for trust in the providing of products**. This allowed for global exports and development of some business models such as outsourcing became possible. The **added value delivered raised** tremendously as manufacturers, retailers and even private vendors **had now the possibility to sell to every part of the globe for relatively affordable prices in a relatively fast way**. [14]

This created a huge network of stakeholders, that by definition, support the the industry of logistics and transportation. These are, not only warehouses managers and workers of the supply chain industry but regular people like you and me that interact daily as customers. However the main **stakeholders** that drive this industry are the suppliers (these include companies such as DHL and CTT), governments, as these allow for the trade between nations and must always be accountable for the trade to happen. And lately environmental partners have been intervening with an active role in this industry.

The development of this industry allowed for an "everything readily available for relatively cheap" society we know and love today. And made possible realities such as online shopping (and the deriving expression of "Physical Internet" as online services have such a huge impact on the physical reality of this sector), exotic world wide products accessible in convenience stores, restructuring of the manufacturing process to cost effective and availability focus (for instance in the production of fabrics, where the production process literally goes around the world before reaching the store).

The most common business models in this sector in a business to business (B2B) perspective are:
- **LSP** (or Logistic Service Provider), these are freight forwarders. Usually 3rd and 4th party service providers who serve retailers, manufacturers and wholesalers
- **Carriers**, these are goods transported in bulk by trucking, rail, rea and even air. This type of freight differs from the first as they usually serve the companies who are LSPs, and serve as a type of broker. [8]
- **CEP** (or Courier Express Parcel) serve not only manufacturers but retailers and other companies as well. This is usually the most profitable business model among the 3.

On the other hand of the referred business models only CEP performs services in a Business to Consumer (B2C) segment. [1]

As we saw previously the growth of the internet had a high impact on this sector, but this is certainly not the only **role of IT** here:
- **Decision support systems** are an essential need for everyday use of organizations in the industry of logistics and transportation. Such uses can be: **Estimate demand, stock management**
- **Communicating** with **clients**, products and services **suppliers** as well as governments and tax collector authorities such as customhouses. It is increasingly important for the end user to know about the products and services being delivered. For instance, when I order a product from an online store I want to always know where the product I ordered is since it left the warehouse until it reaches my door.
- **Optimization of routes** is an increasingly important theme in the cost effectiveness of the hole process, as well as a way to help on the stakeholder decision making as well as the end user decision making (For instance will I buy this product with lower price or do I buy the more expensive other one with faster delivery?).

2 – The Present GRC

To assess the main generic concepts, frameworks and requirements for governance, risk or compliance (GRC) in the industry, the largest logistics company worldwide, DHL, and their practices are examined as a reference.

The primary goal of the compliance management system of DHL is to prevent possible violations or to detect them early so that appropriate measures can be taken. The continuous analysis of the Group-specific risk profile is of fundamental importance for the alignment and further development of the system. The focus here is on topics such as bribery and corruption, competition and antitrust law, and fraud and embezzlement. The results of compliance audits and findings from reported violations are also incorporated into the ongoing improvement and further development of the system. Regular training for employees and managers is a key component of the compliance management system, strengthening a compliance culture and raising the awareness of each individual for compliance issues. Managers are expected to live up to their role as role models and pass on the guidelines to employees and business partners. A total of approximately 240 regular audits by Group Internal Audit with a direct reference to compliance aspects are carried out each year. As a supplement to the Group's internal monitoring system, these audits support ongoing compliance activities, serve to identify further compliance risks and the continuous development of the Compliance Program. [2]

As a German stock corporation, Deutsche Post AG declares compliance with the German Corporate Governance Code (DCGK) on an annual basis. This Code presents essential statutory regulations for the management and supervision of German listed companies and contains internationally and nationally recognized standards for good and responsible corporate governance. [3] Concerning risk management, DHL developed their own software platform called DHL Resilience360. Customers besides DHL are for example BMW, Bayer and ZF. DHL Resilience360 is an innovative supply chain risk management software platform that helps businesses predict, assess and mitigate the risk of supply chain disruptions. DHL Resilience360's risk mitigation tools provide businesses with the information they need for supply chain visualization, trade compliance and to help provide near real time monitoring of incidents that have the capability to disrupt supply chains. [4]

The main tasks of data privacy management are to make employees and managers even more aware of the issue and to ensure that the Group Privacy Policy is applied throughout the Group.
Standardized data privacy controls have been implemented in the processes of all divisions with the aim of achieving additional transparency and comparability. In addition, there is a central process for reporting data privacy incidents.
Moreover, modules such as online seminars on various data protection topics, such as the secure handling of personnel or customer data, further raise employee awareness. For managers training on the Group Privacy Policy is mandatory. [4]

The most relevant ISO standards for the transportation and logistics industry are ISO 9001 (standard for Quality Management Systems) and ISO 14001 (standard for Environment Management Systems). DHL has received the external certifications ISO 9001 as well as ISO 14001 for its global management system.[5] Additionally, some other ISO standards might be relevant for logistics companies depending on their focus. ISO/TS 16949 describes the quality management system requirements for supply chain in the automotive industry. ISO 22000 defines requirements necessary for a food safety risk management system. ISO 13485 is a specific standard for medical devices. ISO/TC 104 is confined for the freight holders and specifies determinations in regards to delivery compartments, from their volume and measurements to the way toward stacking and emptying.[6] A standard concerning the whole supply chain is ISO 28000. The requirements of ISO 28000 include the examination of all important aspects in order to increase security throughout the supply chain. The areas affected are financing, production, information management, infrastructure for packaging, storage and the transport of goods between the various means of transport and delivery points.[7]

3 – The Vision:

In this section we propose a vision for an organization, taking into account the context given previously, some data gathered and mainly the knowledge acquired in the course. As of today the most profitable business model in the sector of Transportation and Logistics as a means to deliver goods is **CEP.** The focus of our business is in B2C due to the rise of e-commerce and the fast growing demand for low weight high value shipments to customers. The goal of the business is to provide reliable, fast and cheap deliveries in short distance transportation scenarios.

In the process of proposing a plausible vision for an organization, there is a clear need for defining the real challenges in an explicit way. In this section we chose to focus in short distance transportation. According to PWC [1], 38% of organizations have unresolved questions around data security and data privacy in connection with the use of external data. One possible solution to deal with this problem is to use IT standards, these not only allow for more efficiency and transparency but also enable collaboration horizontally. Additionally in terms of standards we aim to apply for ISO 9001, ISO 14001 and ISO 28000. This will provide us not only good guidelines on how to run the business but also, if obtained raise the value of the services. Additionally we propose a Blockchain based system to register transactions and lower cybersecurity risk.

One of the problems we propose to solve is that frequently multiple delivery attempts for the same shipment needs to be made, resulting in higher costs [10]. By designing a cost effective system based on Data analytics, we are able to output the cost of delivery accounting for several attempts and possible returns. This must be done using predicting techniques that allow for reverse engineering of choices. Over time we aim to shift from an agile approach to a more predictable and stable approach and apply for a first level maturitrity. To lower costs of delivery and dependability of customer time schedule, we will make several delivery lockers available throughout key regions in cities.

Another solution we propose to lower long term costs and unpredictability is full warehouse automation. **Autonomous logistics** makes it possible to make processes more efficient and to greatly reduce downtime and rest periods. State-of-the-art warehouse **robots** are used directly next to human workers without endangering their safety. And robots will also become decisive factors in the supply chain when loading and unloading delivery trucks. The use of **unmanned aircraft** such as drones will be important too. One example is the use of autonomous drones for parcel delivery. Especially in remote areas or in the rush hour traffic jams of the metropolises to cut on costs on the last mile delivery.

To take advantage of modern information systems and to allow for the proper development of the propositions described, we will implement an IoT network to be able to collect data on usage, but to provide better and clearer information to the customers about their deliveries. Through the **Internet of Things**, any object can be linked to any other via the network, can pass on data about its condition and thus trigger a reaction in another device. In networked warehouses, all objects transmit information about their current status and storage location, intelligent delivery solutions collect precise information about the delivery status of a package, and on the consumer side, intelligent refrigerators themselves trigger orders. To allow for the proper implementation and maintenance of this information system it will follow ISo/IEC 27001. [13] Moreover, we intend to optimize interaction between such systems by implementing an integrated management system.

To allow for a realistic development of this vision a clear governance framework will be implemented, so that every colaborator understands the accountability and can perform their job to their full capabilities and know when to call their superior for decisions. In an information security focus we intend for the organization to strive for high security standards, focusing on Confidentiality, Integrity and Availability. And that is why we follow a cybersecurity framework on the daily operations.
To comply with the proposals made we will implement a three line of defense system to account for assurance and internal and regular external auditing of our operations.

4 – The BMC:

Key Partners

- investors
- government, authorities
- certification bodies
- industry (e-commerce..)
- payment processors
- end users
- software & hardware provider (IoT, Blockchain…)
- ICT Research centers

Key Activities

- service management
- data management and analytics
- operation management
- integrating new tech (Blockchain & automation)

Key Resources

- vehicles (trucks, drones)
- infrastructure (warehouses, offices, lockers)
- delivery & warehouse robots
- personal (driver, researchers)
- IT know-how
- internet (5G)
- capital money

Value Propositions

- fast delivery
- high quality
- cheap price
- real-time monitoring (internal & external traceability)
- transparency (for use of standards, norms and certifications)
- process control flexibility
- smart decision support (data driven approach)
- resource efficiency (financial & environmental)
- highly scalable
- robustness
- eco friendly (no fossil fuels)

Customer Relationships

- customizable delivery
- customer service (personal, telephone and online support)
- customer feedback
- traceability, support
- data dashboard

Channels

- advertisement
- B2B marketing
- website, social media
- industry & research associations
- APP (for traceability, support, data dashboard)

Customer Segments

- mass market (individual customers & businesses)
- producer
- retailers

Cost Structure

- real estate infrastructure
- vehicle fleet
- software development
- operating cost (daily operation & maintenance)
- cost of data analysis and storage
- human resources salaries
- cost of certifications and auditing

Revenue Streams

- collection fee
- charge for use of storage
- packaging fee
- delivery fee
- data services fee
- brokerage fee

Sources:
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