Controlling the Workforce for the Delivery Support Team in a Luxury E-commerce Industry

Miguel Ângelo Teixeira Duarte

Master's Thesis

Supervisor at FEUP: Prof. Dr. Gonçalo Figueira

Company's Supervisor: Eng. Nuno Carvalho

U.PORTO
FEUP FACULDADE DE ENGENHARIA
UNIVERSIDADE DO PORTO

Master in Industrial Engineering and Management

2017-06-26

"Numbers have an important story to tell. They rely on you to give them a clear and convincing voice".

Stephen Few

Abstract

The present dissertation has the main objective of developing tools for the measurement and control of the tasks performed by a team responsible for the Delivery Support services. Due to the fact that luxury e-commerce companies have been growing at a fast pace over the years, the quality of the services provided become more and more demanding. With the number of orders increasing continuously, there is also an increase on the number of issues related with the delivery of goods. Hence, this project was created to build new reporting tools that can help Farfetch's Delivery Support team improve performance.

After a quick analysis of the previous reporting, many doubts arose concerning the veracity and consistency of the data. Hence, some of the old KPIs were redefined and combined with new ones in order to create a set of new dashboards able to offer the team better performance reports. These reports are able to cover the performance of all the agents, individually and collectively, offering multiple visualization features and different time-perspectives: weekly, daily and hourly. With the new tools, it is possible to offer quality insights for agents, supervisors and managers, enabling players to make decisions on both operational and strategic levels based on the numbers provided by the dashboards. All the reports developed during this dissertation have automatic refresh scheduling and are available for all the members of the team working on four different countries: Portugal, United States, Japan and China.

With the implementation of this project, the team was able to improve results in just three weeks. The Service Level Agreement and Response Rate increased, by 11.7% and 9.5% respectively, and the percentage of tickets reopened decreased from 12.5% to 11.0%. The main achievements of this dissertation were not only these metrics improvements but also the dashboards developed that represent a strong basis for present and future needs. On top of that, there was also the opportunity to start developing the foundations for planning and forecasting, the next step in terms of workforce management.

Controlo da equipa de apoio às entregas numa indústria de luxo online.

Resumo

A presente dissertação tem como principal objetivo o desenvolvimento de ferramentas para a medição e controlo das tarefas realizadas por uma equipa de trabalho responsável pelos serviços de suporte de entrega. Devido ao facto das empresa de luxo eletrónico terem vindo a crescer a um ritmo acelerado ao longo dos anos, a qualidade dos serviços oferecidos tornam-se cada vez mais exigente. Com o número de encomendas a crescer continuamente, também há um aumento no número de problemas relacionados com a entrega dos bens. Assim, este projeto foi criado para construir novos relatórios capazes de ajudar a equipa de suporte de entrega da Farfetch a melhorar o seu desempenho.

Após uma rápida análise aos relatórios antigos, muitas dúvidas surgiram no que diz respeito à veracidade e consistência dos dados. Assim, alguns dos indicadores de performance chave foram redefinidos e combinados com novos indicadores de maneira a criar um conjunto de novas *dashboards* capazes de oferecer à equipa melhores relatórios de performance. Estes relatórios são capazes de cobrir a performance de todos os agentes, de maneira individual e coletiva, oferecendo várias opções de visualização e diferentes perspetivas temporais: semanal, diária e horária. Com as novas ferramentas, é possível oferecer informação de qualidade para agentes, supervisores e diretores, permitindo aos elementos da equipa tomar decisões tanto a nível operacional como estratégico com base nos números provenientes das *dashboards*. Todos os relatórios desenvolvidos durante esta dissertação possuem atualizações automáticas e estão disponíveis para todos os elementos da equipa que trabalham em quatro países: Portugal, Estados Unidos, Japão e China.

Com a implementação deste projeto, a equipa foi capaz de melhorar os seus resultados em apenas três semanas. O Nível de Serviço Acordado e a Taxa de Resposta aumentaram, em 11.7% e 9.5%, respetivamente, e a percentagem de *tickets* reabertos diminuiu de 12.5% para 11.0%. As conquistas mais importantes desta dissertação não foram apenas as melhorias nestas métricas, mas também as *dashboards* desenvolvidas que representam uma base forte para as necessidades presentes e futuras. Para além disso, houve também a oportunidade de começar o desenvolvimento das bases para o planeamento e previsão, o próximo passo no que toca à gestão da equipa de trabalho.

Acknowledgments

Firstly, I would like to thank to everyone at Farfetch whom I had the pleasure to work with. In particular, I owe my gratitude to all the Workforce Management and Delivery Support team members who helped me a lot during the entire project. A special note of thankfulness goes to my supervisor Nuno Carvalho for his companionship, technical input and persistent feedback.

I would also like to thank my supervisor at FEUP, Gonçalo Figueira, for the time, patience and valuable input throughout this project. A special mention to all my professors at FEUP for helping me grow and become the person I am today.

Last, but not least, I would like to thank my parents, without whom I would never be able to engage on this amazing adventure. I can certainty say that if it wasn't for them I would not be where I am today.

Table of Contents

Acronyms

WFM – Workforce Management

KPI – Key Performance Indicator

SLA – Service Level Agreement

RR – Response Rate

AVG – Average

CPO – Contacts per Order

VPN – Virtual Private Network

DS – Delivery Support

FF – Farfetch

GMT – Greenwich Mean Time

List of Figures

List of Tables

1 Introduction

Buying clothes online represents today more than a simple commodity. This kind of practice is starting to become a must-have service for any luxury client. The popularity of e-commerce is growing due to the emergence of the Internet, which allowed online selling companies to create a wide set of potential customers.

Merging the traditional habits of luxury boutiques with the new technologies is not an easy task, especially when the physical interaction between the customer and the selling item is no longer present. However, companies like Farfetch have been very successful joining these two different realities: luxurious clothing and online virtual shopping.

Given the high impact that the support teams currently have on the luxury e-commerce companies, measuring and controlling the human capital represents a critical task. Hence, the Workforce Management has to face today tough challenges in order to efficiently improve the quality of the work of these teams.

This dissertation was developed within the Workforce Management team of Farfetch and aims to develop a model for the measurement and control of the Delivery Support team activities. Companies working on this business area need to ensure a good service level concerning the delivery of the goods. Hence, managing the workforce is a must in order to achieve the desired results.

1.1 Workforce Management at Farfetch

Farfetch is one of the most successful e-commerce companies in the world, connecting over 400 luxury boutiques with a wide range of customers spread around the planet. The company is on the market since 2008 and keeps growing year after year, mainly because of the high level of differentiation and market competitivity.

The revolutionary business model of Farfetch is the reason for all the success: creating one single online channel to connect autonomous boutiques with luxury-driven customers. This offers a unique way of selling items with zero inventory risk. In this business model, both end customers and boutiques are Farfetch's customers, and the key strategy is, at the same time, to capture the maximum number of clients to buy the products online and to create partnerships with new boutiques that can bring more value to the company.

All the products sold through Farfetch website are owned by the boutiques. These items, when purchased online, will be collected by a specific courier and delivered to the customer in a given location: at the customer's home or at a pick-up point.

The company's profit comes from a commission per sale, providing the boutiques with a complete e-commerce service and brand recognition. Farfetch offers a full set of solutions, including the purchasing process, fraud check and customer support service.

At the moment, Farfetch operates in seven different countries: Portugal, United States, United Kingdom, Russia, Japan, China and Brazil. The Porto office, where this dissertation was developed, employees more than 600 people at the moment, and is divided in the following departments: Account Management, Black & White, Business Development, Customer Service, Finance, Marketing, Merchandising, Office Management, Operations, Partner Services, Human Resources, Technology, Production and Store of the Future.

During the development of this project, two teams were involved: Workforce Management and Delivery Support. Both teams belong to the Operations department of Farfetch, as illustrated in the following diagram:

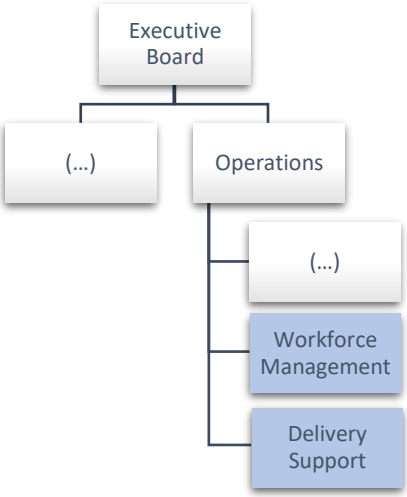


Figure 1 - Farfetch's Structure

Every day, Farfetch agents need to solve problems related with delayed deliveries and many other issues associated with the transportation of the luxury items between boutiques and customers. Hence, the Delivery Support team represents a key part of the entire communication process, directly with the couriers and indirectly with the clients (through the department of customer service). Every decision made by these agents and the way they execute their tasks have a huge impact on the service level, affecting the company global performance.

Taking into account all the effects that the work of these agents may have, it becomes a top priority to help control their work and measure their collective and individual performance. With the previous objective in mind, this project puts both Workforce Management and Delivery Support teams working together to achieve better service level results. The WFM team represents the best choice for this task due to the vast experience in supporting other teams, in particular the customer service and partner service departments.

At the beginning of the project, the numbers used to measure the performance of the agents came from a daily report extracted directly from the tool used for internal and external communication. The methodology used to calculate these numbers is not clear, which generates a lot of doubts regarding the use of these reports as a reliable source. Furthermore, many tasks performed by the team are executed outside the integrated communication tool, and some of them are not even being properly measured. These two difficulties represent the main improvement opportunities in an initial phase of the project, whose concrete objectives are: replicate some of current Key Performance Indicators and create new ones, using a truthful source and known criteria; find a way to measure the performance of the tasks that currently do not have any kind of tracking and translate it into numbers.

Mixing the best tools with the right decisions makes the mission for this project become clearer: start from scratch and build a new framework to help the Delivery Support team, taking advantage of some of the main standard metrics of the WFM team and building new ways to measure specific tasks that have a great impact on the service quality.

1.1.1 Workforce Management Team

The Workforce Management at Farfetch represents a support to other teams within the organization. At the beginning of this project, the WFM team was mainly working with the customer service and partner services departments. Hence, the development of this dissertation represents a new connection and development area for WFM, in this case with the Delivery Support team.

The WFM team is responsible for multiple tasks, as it is possible to observe in the next figure. A more developed analysis on this topic is made in the literature review (section 2).

Figure 2 - WFM Cycle

The tasks presented on the WFM cycle are the following:

- **Forecasting:** the first step is to analyse historical data, which normally comes from the data analysis, and try to find trends and patterns that can be helpful to build the forecasting model;
- **Staffing:** based on the forecasting model, it is necessary to build a staffing plan, specifying the recruitment needs for the different positions;
- **Scheduling:** after selecting the right agents and locations to execute the work, arises the need to allocate each one of them to specific tasks and create the most efficient working agenda;
- **Real Time Management:** supervising the agents in real time allows the identification of possible scheduling gaps and offers quick solutions to solve them. This represents an opportunity to create a balance between workload and staffing, in a short-term viewpoint;
- **Reporting:** the reporting allows the creation of awareness over all the metrics and organization objectives;
- **Data Analysis:** the cycle ends with the analysis of the relevant data. This is also the task that feeds the forecasting and builds a bridge between the end of a cycle and the beginning of a new one.

The WFM team structure in Farfetch is composed by: the global director, head of global WFM, tools admin expert, data analysts, forecasting expert and real-time supervisors. The majority of the team members are currently working in the Porto office, with the exception of three: two of them in the United States and one in China.

1.1.2 Delivery Support Team

The Delivery Support team is responsible for all the communication between Farfetch and the courier companies that deliver the goods to the customers. The main tasks performed by the team help to create communication channels between Farfetch and the couriers in order to solve every kind of shipping-related issue.

Delivery Support works closely with the Delivery Development team, a different section of the operations Delivery department. While the Delivery Support team deals with shipping issues,

the Delivery Development team is responsible for studding new routes and choosing the best couriers to deliver Farfetch's items.

Currently, Delivery Support agents are distributed by four countries: ten agents in Portugal, four in the United States, three in Japan and one in China. This division is shown in the diagram below:

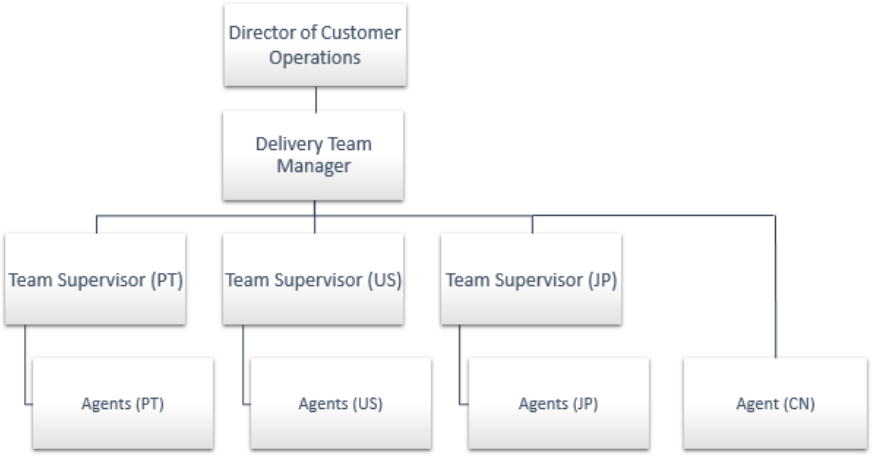


Figure 3 - Delivery Support Team Structure

A deeper analysis into this department shows that all the activities performed in cooperation with the other departments can be translated into the following mission: solving delivery issues and providing 24-hour support worldwide. Many issues may occur in the transportation process: lost shipments, wrong addresses, missing documents and delayed shipments are some of the main difficulties that need to be handled by the agents every day, in order to offer the best possible service to the client. Regarding the main services provided, the team is responsible for guaranteeing same day delivery, collect in store, overnight delivery, yatch delivery services and other kind of services.

The current number of agents working in the Japanese and Chinese offices is low but it is expected to increase over the next months, due to the fact that these two markets have been growing in sales over 100% per year, and forecast indicates that this growth will continue in the future. Besides this, Russia is another country that has been showing an increased order volume, which indicates that it is very likely for the team to have agents working there in the near future.

1.2 Project scope, methodology and structure

The main purpose of this project is to provide the Delivery Support team with the appropriate reporting structure to help measure the team performance. The project contains three major objectives:

- Build a framework in order to measure the performance on a daily basis, to support the agents and give feedback about their work;
- Create dashboards that display results by week of work, to be used mostly by supervisors and managers, and help to manage the team in a more strategic way;
- Build tools to evaluate and give feedback about every agent's individual performance.

This project represents the first interaction between the WFM team and the Delivery Support team, and represents at the same time the initial step for the long-term connection among them. Therefore, Farfetch aims to use this project as an opportunity to create a strong connection

between teams and keep the partnership with future works related not only with controlling but also with planning of the workforce for the Delivery Support team.

Chronologically, the first step for this project starts with the necessity to learn how both Workforce Management and Delivery Support teams currently work. For the WFM team, it was critical to start understanding the main processes and metrics used in the daily support that were already implemented to other teams (exploring the most recent work and replicating some of the existing dashboards to get used with the tools). Regarding the Delivery Support team, gathering information and learning about the processes was only possible with the help of every agent that spared some time to describe their main tasks during a normal working day. This introduction allowed a better understanding regarding the way everything works and was essential to come up with the best solutions to efficiently measure the work being done.

After gathering the necessary information about all the practices and processes, the second step was to start building the dashboards, extracting the data from the databases and organizing the numbers based on the design established. In the end, the last step was to validate the structure and metrics used, receiving important feedback from multiple team members that helped improve the quality of the final work. The project's schedule is illustrated in the following diagram:

Week of the Year	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Workforce Management Intro																				
Delivery Support Team processes																				
Daily Dashboard Design and Implementation																				
Weekly Dashboard Design and Implementation																				
Individual Dashboards Design and Implementation																				
Dashboards Follow-up																				
Thesis Structure - Literature Review																				
Thesis Structure - Writing																				

Table 1 - Project Schedule

In terms of report structure, this dissertation is divided in the following way:

Chapter 2 presents a literature review that supports this report with important research information, useful for the implementation of the project. The main topics explored were: Workforce Management, Luxury E-commerce, Kaizen, Dashboards and KPIs.

Chapter 3 identifies the current situation of the Delivery Support team, mainly in terms of old reporting and KPIs, putting together all the problems found and describing how the action plan for this project was built.

Chapter 4 shows in detail every tool developed during the project, describing step by step how they were built and how they can add value to the company. This chapter also clarifies the necessities that these tools were able to support and how they were used.

Finally, chapter 5 finishes the report with the conclusion of the project, providing the main results obtained and comparing them with the initial objectives of the company. Also, it is mentioned the necessity for future work, because the project represents only the first phase of a long-term partnership between both teams.

2 State of Art

Service-orientated companies now-a-days occupy a large slice of the international market, forcing managers and other senior management leaders to develop new strategies in order to obtain efficient and sustainable businesses. While capital-intensive companies rely on cost and time reduction strategies due to the high volume on machinery used in production, labour-intensive companies have to bet on a more complex and sensitive policy due to the fact that the majority of the working hours have a big dependency on human labour (Kianto, Hurmelinna-Laukkanen, and Ritala 2010).

The Workforce Management represents a crucial department inside any labour-intensive company that seeks good results, because the main focus of this team is to efficiently achieve the objectives while fulfilling all the restricted requirements and needs of a human labour based company (Kassem et al. 2012). The emerging e-commerce businesses are one good example of this type of company, whose main processes rely on human labour that have a big impact on the performance.

Measuring the way people work is not an easy task due to the complexity of translating each person's actions into numbers. Building some good visual tools to display this kind of information, like for example dashboards, is indeed critical, as well as choosing the right KPIs to measure the performance (Bauer 2004). Adding to this, it is also important to know how to share this information, improve the communication and connect personal goals with company's objective. To fulfil this last principle, Kaizen methodology appears as a major instrument that contains all the tools needed to connect people inside teams and improve communication between departments (da Costa 2014).

This chapter addresses some of the main topics presented in the previous description, namely: Workforce Management, Luxury E-commerce, Kaizen, Dashboards and KPIs.

2.1 Workforce Management

Any company that seeks to deliver a high quality service to its customers' needs to know how to manage the human capital, choosing which available employee gets assigned to a specific task (Kassem et al. 2012). Workforce Management is a procedure aligned with the company's mission, goals and objectives that allows the analysis of the present workforce and helps determine the future requirements (An et al. 2007). WFM represents an important factor to all the operational and decision making activities that are necessary to keep a productive workforce and to handle the available resources in an efficient way (Cimitile et al. 2012).

Many of the daily human resources actions are directly influenced by WFM, including recruitment, compensations, training and performance administration (An et al. 2007). These human resources are the ones that deliver the company's services and represent the workforce. In a first approach, the processes handled by WFM are divided in two distinct stages: workforce planning, in charge of predicting the demand and building a forecast for a specific period of time; workforce scheduling, which assigns the available human capital to the existing jobs based on the previous plan (Kassem et al. 2012). The WFM cycle is only complete with the addition of an intermediate phase that stays between the planning and the scheduling: data analysis. In order to attend to the necessity of quick and efficient decision-making, WFM can use database information to build well-defined tools that help the company manage different areas of performance (Cimitile et al. 2012).

In order to optimize the usage of the available workforce and achieve high levels of service, planning is a crucial phase for any organization that should always rely on a well-structured forecast model. Human hours represent one of the parameters with the most impact in the performance of a company that delivers services to its clients. Hence, the forecasting should

take into account absenteeism and other types of unpredictable events related with human workforce, in order to avoid workload spill over and low customer service levels (Shah et al. 2007).

The scheduling and staffing phase for WFM represents a multi-dimensional problem that includes employees' skill and allows space for lunch breaks, short rest breaks and other minor stops (Kuo, Leung, and Yano 2014). During the scheduling stage the team is able to create an agenda that displays when each employee works over the scheduling horizon. Following this schedule there is a real-time adjustment phase that is responsible for taking actions based on actual demand (Wright, Bretthauer, and Cote 2006).

Quantitative methods are being used to capture information directly from databases and allow agents and team managers to identify and analyse key performance indicators. These powerful insights are valuable to keep track of employees' performance, and can be used either to improve their current training courses or to help choosing the right people during the employment process. Taking advantage of analytics in WFM allows companies to learn how to invest money on human capital (Nienaber and Sewdass 2016).

One of the major difficulties for organizations emerges with the need to hire and dismiss workers, in order to keep following the main goals and objectives. Hence, it becomes crucial to use human capital metrics to measure the effects that the investment on the companies' workforce has and how it influences the organizations performance (Nienaber and Sewdass 2016).

Companies that are service-oriented see labour expenses as a major cost due to the type of business in which they operate. Adding to this cost concern, there is also the need for a competitive edge: in order to obtain a competitive advantage, it is critical to maintain a well-skilled workforce, and at the same time to keep the costs low with the maximal profit margin possible (An et al. 2007). However, working towards a more effective workforce model may add additional costs in other areas. This justifies the need to always examine the impact that multiple objectives may have in the decision-making, concerning the resources (Smilowitz, Nowak, and Jiang 2013).

Therefore, Workforce Management represents a critical instrument for any service-oriented business that seeks success. Luxury e-commerce is an example of this kind of business, whose main focus is the human capital: selling expensive and luxurious clothes online requires a high-quality service level, concerning both customer and order support. This specific type of company is addressed in the following topic.

2.2 Luxury E-commerce

Luxury is a concept that means more than a simple product or service. The real definition of luxury includes having an identity, a philosophy and a culture. These attributes translate into challenges in the union between luxury brands and the digital platforms, requiring a unique relationship to obtain good results (Okonkwo 2009). The Internet became a vital channel for any organization to reach customers and luxury brands are no exception. Luxury goods and services are more accessible and the distance between the client and the product is now within a simple click (Radon 2012).

Some luxury brands keep finding barriers with the idea of exposing themselves online, arguing that retaining desire and exclusivity is a difficult task in a classless online world. This big world always brings a mass customer base, which creates another difficult task to luxury brands that are used to target specific niches of customers. Another big concern is related with the lack of physical contact with the products, which puts aside the effect that human senses like the vision, smell and touch have during the purchase. Despite this negative ideas, the reality is that luxury

brands have been successful with online selling platforms, which represent one of the fastest rising distribution channels (Okonkwo 2009).

E-commerce, as a theoretical definition, means the use of a web platform to sell products or services that offers clients the option to make the purchase and payment online. With this tool, the organization can easily arrange the product delivery: electronically, in case the product is digital; through substantial delivery methods using couriers, in case there is a physical product (Wilson and Abel 2002). The online platforms offer a very dynamic opportunity for companies to create new communication channels in order to access customers and deliver the goods (Ricker and Kalakota 1999).

Business-to-consumer (B2C) e-commerce has been growing in the last years due to the increasing number of people that have now-a-days access to the internet from their homes. Customers seek to find an online platform that allows them not only to find the right product in a fast and simple way but also to perform the payment in a secure and comfortable way. It is critical for any organization to deliver a service that fulfils these needs, building the web site thinking about the necessities of the target market and always providing the right amount of information about the products that are being sold (Oppenheim and Ward 2006).

2.2.1 Luxury customers

The Internet represents a path that companies with online platforms use to connect their products and services with the final consumer. This path can be used as advertising channels, ordering processes and customer support (Chaudhury, Mallick, and Rao 2001). Taking into account the big difference between an online and a conventional marketplace, the best option that today's organizations have to capture clients is to create a strong relationship with them based on trust. Hence, it is imperative to reduce the levels of risk during the entire user's web experience. Studies suggest money back policies, positive "word of mouth" and solid partnerships represent some of the top options tactics that organizations should use to increase the levels of perceived trust (Corbitt, Thanasankit, and Yi 2003).

Following the previous idea of customer trust in an Internet vendor, (Chen and Dhillon 2003) adds that organizations must keep the following dimensions: competence, integrity and benevolence. The first one translates the capacity that the organization has to deliver promises made to the customers. Integrity means honesty and reliability covering all the interactions with the final consumer. The last one indicates the capacity to keep customers' expectations high and to show concern for their satisfaction, creating customer retention.

Luxury customers buy exclusive and expensive goods in order to distinguish themselves. Husic and Cicic (2009) says that these luxury consumers act the same way around the globe, and the decision to acquire luxury products happens because these rare and classy items indicate respect and prestige.

Given the distinct taste of luxury buyers and their preference for personalized service and tactile shopping, many people thought that luxury e-commerce would always be an unsuccessful business. This way of thinking changed a lot recently, and today's studies show that consumers are keen on buying luxury items online. Digital tools are transforming the luxury-goods business and forcing almost every luxury organization to use online platforms in order to expand brand visibility and increase sales volume (Dauriz, Remy, and Sandri 2014).

2.2.2 Logistics and delivery support

The number of new opportunities for customer access raises with the presence of online platforms, but new challenges also appear for product fulfilment. Logistic questions related with the picking, packaging and shipping represent a core element of the delivery service and have a direct impact on the success of the supply chain (Ricker and Kalakota 1999). Discovering

the right supplier to fulfil the supply chain requirements is a tough task, demanding studies for product's needs in terms of quality, price, and route tracing. E-commerce applications simplify this kind of research, sparing a lot of time and money and promoting online trades with the reduction of barriers that the traditional methods normally have (Terzi 2011).

The fast growth and big effect of e-commerce had a large impact on logistics that changed significantly compared to that of several decades ago. This modern logistics became an important tool to transform the efficiency of the material flow and reduce delivery costs, contributing to the expansion of the delivery market and promoting new technologies (Yu et al. 2016). Giving this fast growth and, at the same time, the tendency of the worldwide economic evolution, the supply chain becomes highly competitive, forcing organizations to create fast adaptation strategies (Ying and Dayong 2005).

The fast purchase and responsive order fulfilment required for e-commerce today forces companies to create a dynamic supply chain, capable of offering flexibility, due to the constant changes that may occur linked with suppliers, customers, trading partners and even competitors (Nissen 2000). For an organization surrounded by an e-commerce environment, third-party logistics represent an important key to connect customers with the company and deliver the goods. This third party is in charge of the entire logistics design, taking care of the storage, transportation and deliver of the products (Ying and Dayong 2005).

In terms of customer satisfaction and loyalty, there are a lot of factors related with logistics that can affect the feeling that the final consumer has in terms of service delivered. Following Lin et al. (2016), in an e-commerce context, logistics service and e-service quality have a high impact in customer satisfaction. When the delivery channel and the retailer are two distinct organizations, the effort to keep a high-quality service should always be made by the two entities at the same time in order for the customer to receive a full quality experience. In case one of the two fails, the quality of the service is automatically compromised.

Establishing strategic objectives and sharing information about individual and collective goals is not an easy task, requiring a good level and communications and tools that allow people to share information. Kaizen offers enough tools to create channels that fulfil these requirements and allow efficiency creation. Continuous improvement is a fundamental key for success.

2.3 Kaizen – Continuous Improvement

The Kaizen philosophy aims to increase the productivity of a company, always using the available resources in an efficient way. According to da Costa (2014), a Kaizen Management System uses the following main processes:

- KMS philosophy principles: the company should have a good process control and bear in mind a culture of continuous improvement;
- Types of waste: characterized by the Japanese word *MUDA*. The Kaizen philosophy stands for zero waste, eliminating everything that doesn't bring value to the company;
- 5S Methodology: the importance of having a good organization around every workstation. Discipline helps to increase efficiency.
- Normalization: procedures that standardize the best way of handling specific jobs or tasks. Finding the best and quickest way of working creates more value for the company in every aspect.
- Visual Management: the use of images to share important information (security rules, performance indicators, etc.)

The interest in continuous improvement has been growing during the last years, and companies are keen on developing a strong culture around concepts like lean or TQM (total quality

management). Continuous improvement, as the designation suggests, stands for an approach that improves company's performance, in an incremental way, with the main focus on the results for each one of the small steps along the way. A special attention should always be given to the company's capacity for future improvements (Irani and Sharp 1997).

Implementing a continuous improvement philosophy is not an easy task, because everyone should imagine it as an attitude and a culture, not only as a simple tool. According to (Manos 2007), the implementation of lean in the daily jobs and company processes should be divided in three phases: (i) Lean leaner – understanding the simple tools (for example, lean, *MUDA*, 5S and visual management). (ii) Lean achiever: start using the previous instruments in the company and keep implementing more complex tools (for example, TPM – total productive maintenance). (iii) Lean thinker – start treating everyday situations from the lean perspective.

Increasing the number of value-added activities inside an organization should be accomplished with the reduction of waste, and not with an increase of the working hours. Figure 4 explains the difference between these two approaches: increasing the working hours (Figure 1 (b)) represents a bad strategy, because the process of achieving the goal also increases the incidental work and *MUDA*; cut down the volume of incidental work and *MUDA*, improving processes by identifying and reducing the amount of waste (Chen, Li, and Shady 2010).

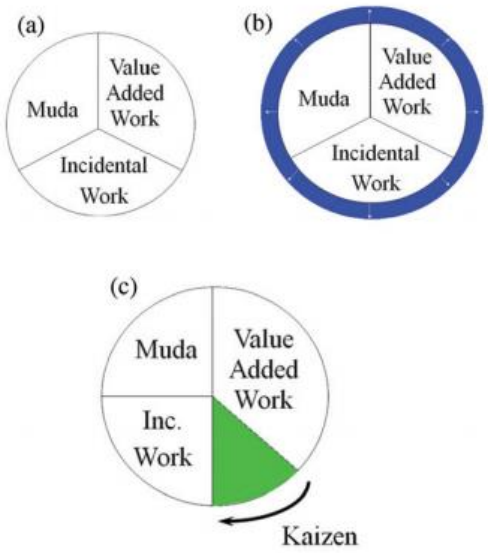


Figure 4 - (a) Composition of worker's time. (b) Effect of an increase in working hours. (c) Effect of Kaizen on composition.

2.3.1 Daily Kaizen

Daily Kaizen is a very common practice inside Kaizen philosophy that is composed by a quick meeting near a white board where all the elements of the team have time to share information with the other colleagues. The information on the white board should include the most important performance indicators that are chosen depending on the areas where that team normally takes action (da Silva Afonso 2012). All these metrics are used to improve the team work and should be seen as a good opportunity to increase transparency and managing performance. The use of a better daily or weekly planning allows team projects not only to become more effective but also to acquire a high level of adaptability. In order to achieve these goals, the Daily Kaizen should be supported by different individual and/or collective steps, tasks and milestones (España, Tsao, and Hauser 2012).

All the members of the team should be present during a Kaizen meeting, including the managers that are essential to help analyse the indicators' values and to identify the main problems and

accomplishments of that day. The focus of the meeting should always be identifying the value that every worker is delivering to the company and also what should be done collectively and individually to keep improving the results (Dias 2012). Concerning the team, this meeting improves communication between all the members and avoids incidents that sometimes occur due to the lack of organization. After the quick reunion, every element should understand all the tasks and objectives for the day and feel motivated to achieve the main goals (da Costa 2014).

In order to successfully implement Kaizen methodologies, an efficient way of showing information should be present. Thus, designing complete dashboards with key metrics is essential. These dashboards should be carefully built because they are responsible for showing to all members of the company the main numbers and performance results for a given period, and the message must always be objective and clear to everyone.

2.4 Dashboards

Dashboards represent a powerful tool that organizations can use to display information, with a high level of personalization and dynamism in terms of data visualization (Few 2006). The main purpose of this instrument is to respond to the high complexity of available data: trying to organize it and at the same time simplifying its analysis. Taking into account this key objective, dashboards can be defined as a small group of organized key performance indicators and performances drivers that translate either short or long term interests for the company or a specific team inside the company (Pauwels et al. 2009).

The information displayed in a dashboard is normally presented with a significant number of visual elements. Generally, this representation is supported by a combination of text and charts, but with a special focus on the latter: dashboards are notorious by the high graphical presence because the use of this kind of instrument, when done skilfully, offers a better efficiency in terms of communication and representation of the data (Few 2006).

Visualization tools like dashboards increase the span of control around a lot of business data. Through the analysis of this data, people can identify possible trends, patterns and irregularities, guiding them on the right way to find important decisions (Brath and Peters 2004). To achieve the goals and discover these decisions, sometimes it is necessary to put together data that comes from different sources that normally is not related. The versatility of dashboards allows analysts and data experts to join this non-related data and create instruments that can help anyone inside the company guide their work and achieve specific objectives (Few 2006).

The main focus of a well-build dashboard should always be the user. Every person, from a senior manager to an analyst, needs access to decent and well-organized information, and that's why this tool must offer a solid design with the right metrics and right visual elements. Furthermore, all dashboards show a unique visual design because there is no secret formula to create the perfect project. It is very uncommon to find a dashboard profile that will answer perfectly to someone's needs, since each particular situation needs specific requirements that in the end will contribute in an exclusive way of adding value to the company (Brath and Peters 2004).

2.4.1 Key Performance Indicators

Key performance indicators represent one of the most important elements present in a data dashboard. It is important to have this kind of measures for performance in order to identify gaps between current and desired performance and at the same time to show the development made to close those gaps (Weber and Thomas 2005). Choosing the right KPIs to use allows companies to measure the business health and guarantee that every member of the organization is well-guided towards the common objectives of the main strategy (Bauer 2004).

The process of building the dashboard and choosing the right metrics starts with the capture of all relevant data needed to calculate every KPI. Gathering data from different tables in a complex database requires a lot of technical SQL skills and detailed knowledge about the table's structure. After choosing the best design for the dashboard and completing the query to retrieve the required data, it is necessary to schedule a refresh calendar, in order to ensure that the content of the dashboard is up-to-date (Orts 2004).

Taking a more strategic look at these metrics, choosing which KPIs should be used is not a simple task. According to (Bauer 2004), in order to select a good collection of metrics, it is important to take into consideration the following criteria: having the available data to calculate the KPI; be able to balance the short- and long-term objectives; guarantee that the selected KPIs are important business drivers; making sure that the chosen metrics help the organization create value as a whole and not only a local optimization.

In short, key performance indicators have to originate from the company goals and aim at improving the business performance in order to pursue excellence. (Shahin and Mahbod 2007) also adds that choosing the best KPIs involves using the "SMART" rule: every KPI should be Specific, Measurable, Attainable and aggressive, Realistic and result-oriented and also Time-sensitive.

3 Delivery Support Team Situation

The rapid growth observed in Farfetch over the last years is easily translated into an increase volume in the number of new clients, new boutique partnerships and order volume received every day. With the increase on sales volume and user interactions, there is also an increase in the number of order processing problems. Adding to this, the agents working for the Delivery Support team experience now a larger variety of transportation related problems, mainly due to the new services that have been implemented by the company in order to create differentiation and amaze customers.

With this increase on the volume and complexity of the work, it gets harder to maintain a high-quality service for the customer and at the same time achieve a good performance level, both collectively and individually. These difficulties justify the need for a more careful analysis and monitoring of the agents' work in order to create process stability and better response to Farfetch fast pace growing and constant change.

All the difficulties explained before led the WFM team to create this project, in order to start building tools to help monitoring and controlling the performance of the Delivery Support team. The WFM team became responsible for full monitoring in terms of daily and weekly reporting and deep analysis on the team's performance evolution. The insights provided are useful to efficiently allocate team agents to specific tasks and to create a future long-term planning for staffing needs.

At the start of the project, the team had a total of 18 agents: 10 of them in Portugal, including the supervisor; 4 in the United States, including the supervisor; 3 in Japan, including the supervisor; 1 in China. The main purpose of this strategic distribution is to try to cover all the different time-zones and deal with specific tasks that only agents in a given location are able to handle.

3.1 Delivery Support Tasks and Channels

The main tasks performed by the Delivery Support agents are always related with transportation issues, and all of the communication, both internal and external, is made through a cloud tool where each of the issues that are being dealt with represent a ticket. A ticket is very similar to an email: when the ticket is opened, all the interactions being performed take place in a small window, where the user can reply and/or see other replies for that same ticket and interact with some other specific fields. Hence, each one of these tickets represent a discussion between two agents from two different teams allowing them to share important information in order to solve the issue that generated the ticket creation.

Although the majority of the work is performed inside the communication tool represented by the tickets platform, there is another critical task done by the agents that is performed outside the platform. The issue that causes this task appears when some of the orders of the company unexpectedly stop in one of the steps of the normal order processing sequence. Due to this particularity, the way the data is extracted to calculate the metrics for these two types of tasks is completely different. Concerning the order stops, the name created to identify tasks related with this issue was Step 4 Stops. This denomination was implemented by members of the Delivery team because it allows a better and easier communication about the issue within and between departments.

3.1.1 Internal and External Communication

All the tickets created in the online communication tool are used to exchange information about an issue with both internal and external teams. The majority of the internal communication is performed with these two teams: customer service, which serves as a bridge between the

Delivery Support agents and Farfetch customers; partner services, which is responsible for the communication with the boutiques. Regarding the external communication, the Delivery Support agents keep interaction with all the courier companies that Farfetch works with and that are responsible for delivering the orders to the final client. An example of the tickets interface is shown on Figure 5.

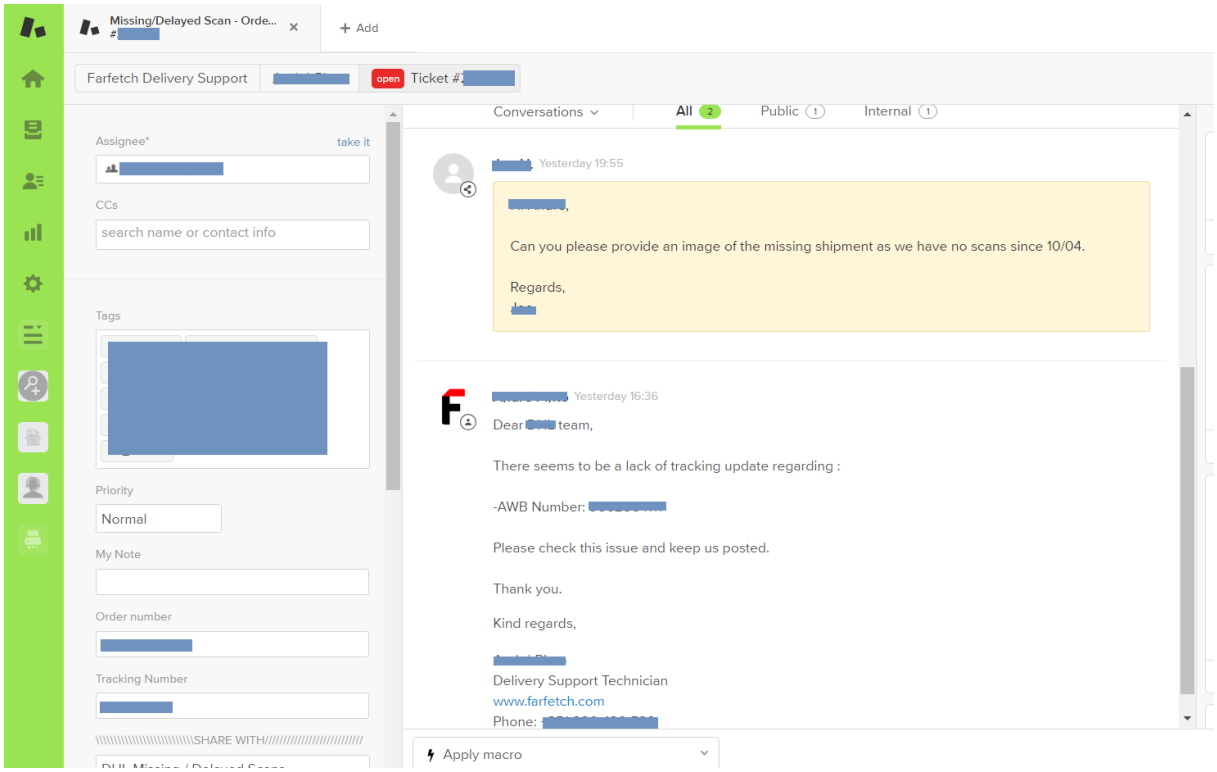


Figure 5 - Communication Tool: Ticket Interface

When a new ticket is created, a new window pops us in order to exchange messages between the two entities involved. The main window's area of the ticket contains the title, subject and all the replies, ordered by date. On the side, several fields related with the issue are presented, in particular the category of the ticket that helps to identify what kind of problem the agents have in hands. Some other important fields also presented are: the assignee, which represents the agent responsible for handling that issue; tags, helpful to categorize and group tickets for analytical purposes; order number, to identify which order originated the ticket.

A very important feature present on this platform is the ticket current status. This status allows agents to know if the ticket is completely new, if it was already solved or if is being handled by someone inside or outside the team. The different status change options are shown in the following figure:

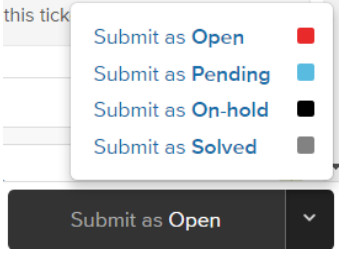


Figure 6 - Status Change Options

The description of each one of the possible status is the following:

- **New:** this status represents a ticket that was just created and there is neither a first reply nor an assigned agent;

- **Open:** a ticket with an assigned agent and waiting for his/her attention;
- **On-hold:** a ticket assigned to an agent but that is waiting for an interaction from other member (internal answer), in order to proceed with the problem resolution;
- **Pending:** a ticket in a similar situation as the previous one, but in this case the assigned agent is waiting for an external answer;
- **Solved:** a ticket whose situation was resolved with success and the agent that solved the ticket does not expect any more interactions. This ticket can be reopened within 30 days after being solved, in case something new related with the previous problem arises and the agent's attention is needed again;
- **Closed:** in case the solved ticket stays 30 consecutive days without any kind of interaction, the status becomes closed and the ticket is no longer available to work on.

In the eyes of an agent, the interface that they normally use to guide the work throughout the day is the main window shown in the tickets platform. This window shows all the tickets assigned to the Delivery Support team, which currently are divided by different views to help identify the type of the ticket and distribute the workload by the agents. Figure 7 shows the main area of the communication tool.

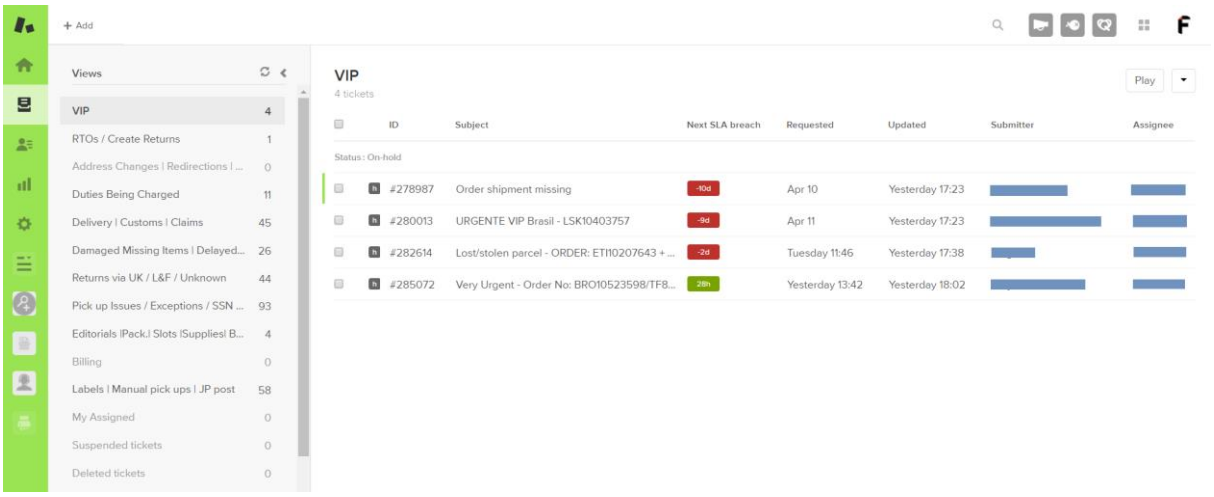


Figure 7 - Communications Tool: Main Area

With this distribution, each one of the agents can filter and select tickets that are assigned to them and keep track of the status and date of the tickets. More than that, they can select any of the present views and work with a specific type of ticket.

3.1.2 Step 4 Stops

As introduced in this chapter, in addition to the online communication tool, there are also other activities performed outside the platform that occupy a significant percentage of time in a normal working day.

The majority of these tasks, named internally as "Step 4 Stops" arise when some orders that normally are sent from Step 4 to Step 5 automatically, on the Farfetch order processor, unexpectedly stay locked in Step 4, requiring manual work.

The order process management is shown in the next figure:

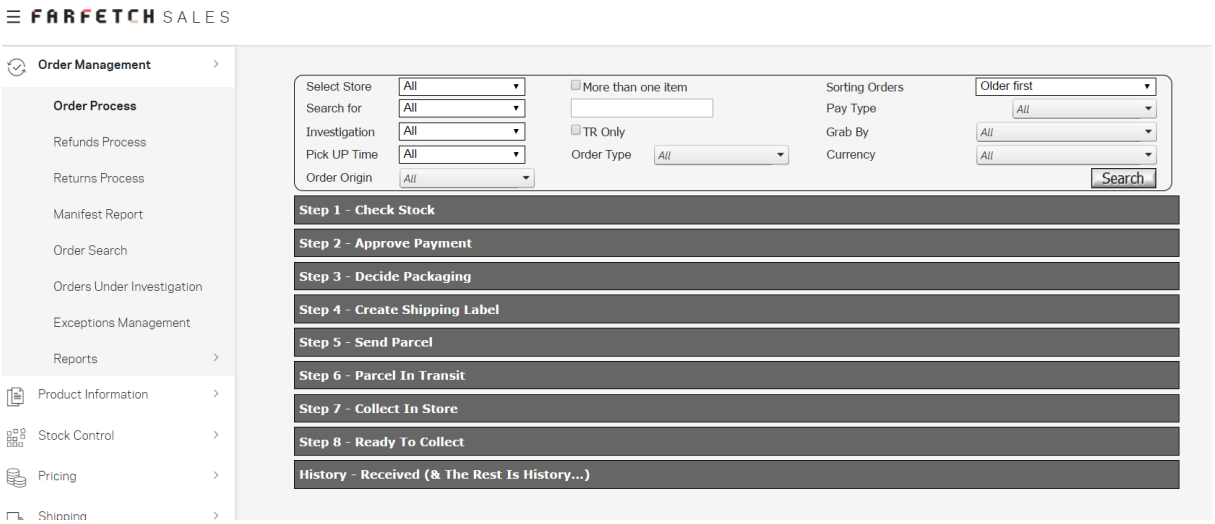


Figure 8 - Farfetch Order Process

The steps from the moment the client places the order online to the moment it is delivered at the shipping address are:

Step 1: **Check Stock** – the boutique is responsible for checking if the requested items are available and ready to ship. In case the chosen boutique fails to have the items available, due to some delay or anomaly in the system, the algorithm automatically selects a second boutique to recheck the item's availability. In case both boutiques fail to have the items in stock, the order is cancelled and the client is refunded.

Step 2: **Approve Payment** – Farfetch has a fraud team ready to filter the orders and make sure that all fraudulent orders are cancelled on time. A whitelist of customers represents a parcel of the orders that are automatically approved, due to all the previous successful orders. On the other hand, there is also a blacklist of fraudulent customers that have their orders automatically cancelled. In case a new client appears, the fraud team attempts to gather all the possible information about the customer (online, through phone calls or email) in order to decide either to approve or cancel the order.

Step 3: **Decide Packaging** – the boutique decides the package that should be used to send the items to the client, bearing in mind all the restrictions and advices given by Farfetch.

Step 4: **Create Shipping Label** – the label required to ship the item is created in this step. If everything is correct, the shipping label is created instantly and the order is moved to Step 5 by the system. In case there are some problems related with the shipping info or with legal restrictions, the order stops in this step until the agents from the Delivery Support team manually deal with the issues and send the order to Step 5.

Step 5: **Send Parcel** – the items are ready to be sent. During this step, in case there is some problem either with the boutique or the courier, an exception is created and the order needs to wait until it is ready to be sent.

Step 6: **Parcel in Transit** – during this step, the order is being shipped and expected to be delivered in a given location. Even with the parcel in transit, the order can be cancelled by the customer, fraud team or boutique, returning to origin.

Step 7 and 8: **Collect in Store/ Ready to Collect** – these steps represent the final stage of the order, when it is finally delivered to the customer.

With the previous description of the order process, it becomes even clearer the importance of measuring the performance of the agents when dealing with issues of Step 4 Stops that currently represent approximately 5% of the total Farfetch orders.

3.2 Previous Reporting

During the initial phase of the dissertation and throughout the analysis of the team's daily routines, the conclusion about available reporting was that the only source of performance insights accessible and used by both supervisor and agents was the Kaizen Board and the two reports that support it. The Kaizen Board is displayed on Figure 9.

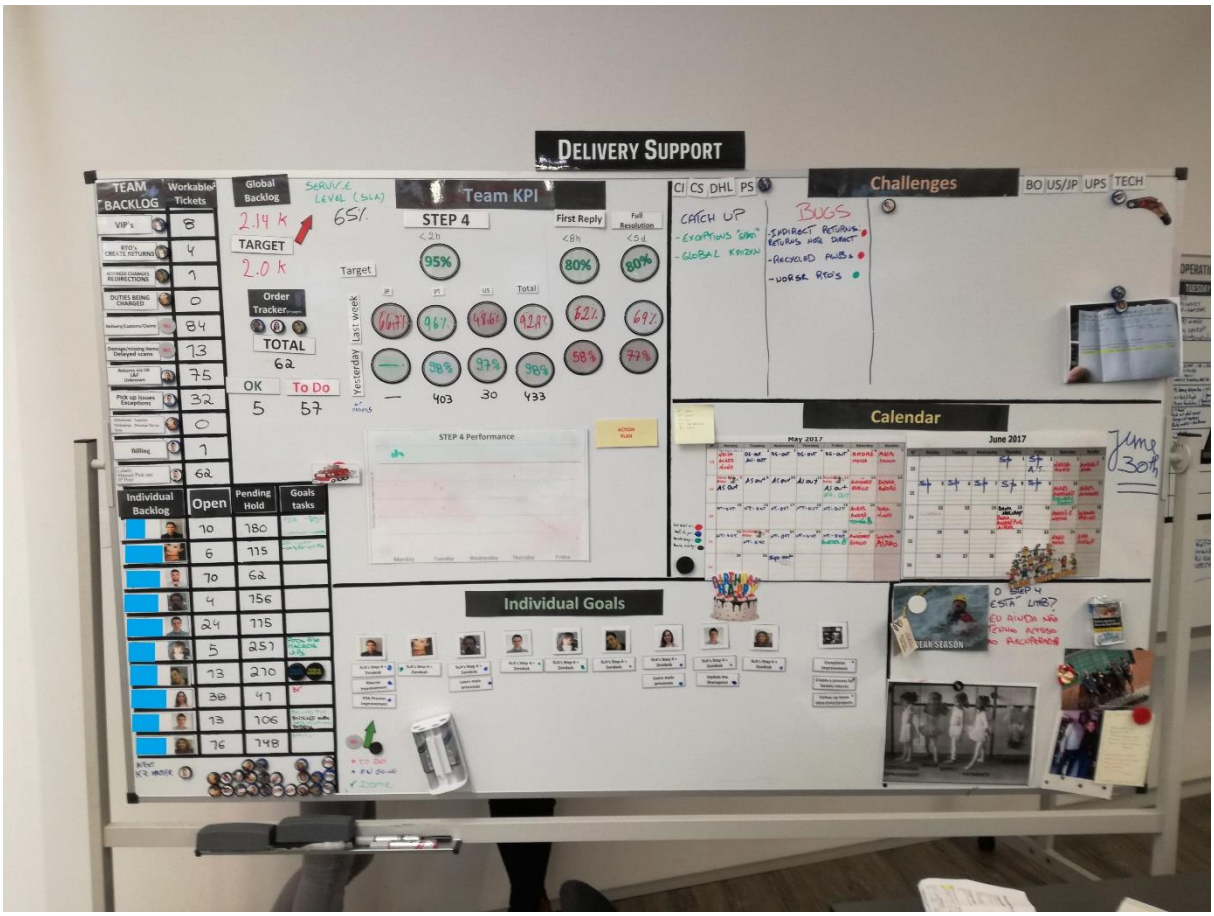


Figure 9 - Delivery Support Kaizen Board

Every day, before starting to work, the team meets during approximately 15 minutes near the Kaizen Board in order to debate about the KPIs from the previous day and discusses the main action plan and objectives for the day. This Kaizen Board that is located near the agents' working area is fed by two different sources: reports directly extracted from the online communication tool; a *Tableau* dashboard containing some service level values related with Step 4 Stops and workload per agent.

The main KPIs for ticket-related tasks came directly from the communication tool reporting. The interface of this reporting is displayed on Figure 10.

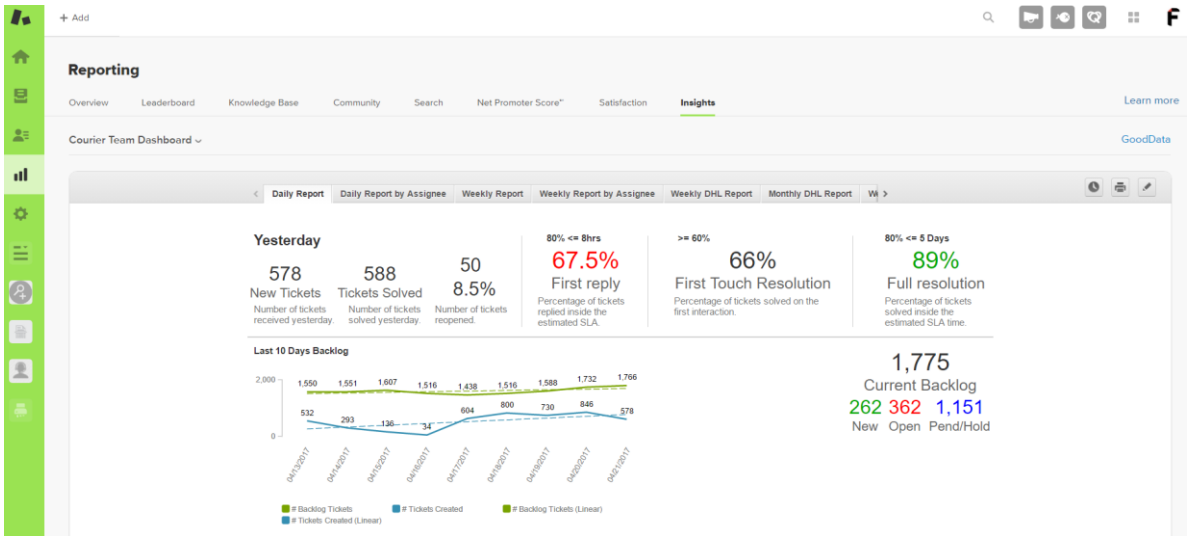


Figure 10 - Source of Tickets' Insights

The first and only dashboard designed by a Farfetch analyst is shown on Figure 11. This was the only source of Step 4 Stops performance data, and contained also a few insights about the workload of the agents.

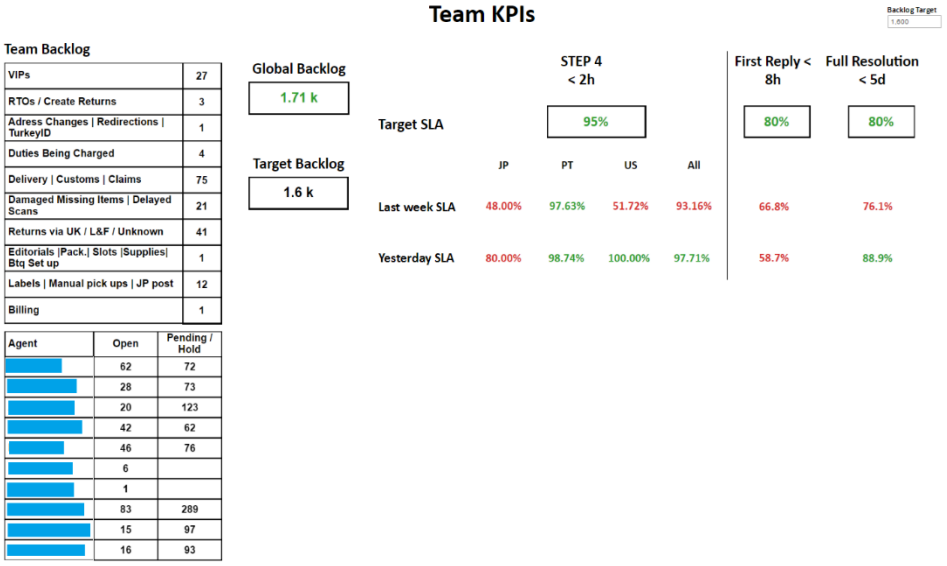


Figure 11 - Dashboard with Main KPIs

Regarding the above metrics, a lot of questions were raised concerning its veracity and consistency. Most of the KPIs present, especially for ticket tasks, were not being properly calculated and some of the formulas and main calculation criteria were not explicit. In terms of metrics for the Step 4 Stops, the dashboard used was built more than two years before this project started and since then no follow-up maintenance was made neither to correct previous errors nor to add new features to support team's needs.

Another big issue was the inconsistency in terms of results shown on the two reports presented: some of the tickets KPIs are calculated on both communication tool reporting and *Tableau* dashboard that normally exhibit different results for the same metric. This problem may come from the formulas that are being used or from the moment the data is being extracted/refreshed. The fact that these results do not match led supervisors and managers to start using different sources to evaluate the same metrics, creating an inconsistent environment around the team performance.

On top of all the issues related with the data accuracy, some other needs emerged concerning the level of detail of the former reporting. Managers of the department and team's supervisors felt the need to access new dashboards with higher level of detail in terms of KPIs and better insights in terms of individual performance of the agents. The available reporting was far from what was actually needed to manage the team efficiently and increase the service level provided.

3.2.1 Tickets – Former Metrics

All the available metrics for the main tickets KPIs that came from existing reports were analysed in order to understand how they were being calculated and the level of detail used on these calculations. The results of this search show that although it is possible to identify the underlying mathematical expressions, no one was able to put any kind of restrictions or filters in the data. Without this feature, it is impossible to extract the necessary information to properly find explanations for unexpected variations or other kind of issues on the performance. In the end, the available performance insights ended up being too generic, without being able to show the necessary depth.

Some of these metrics are relevant for the entire company and are also used by other departments besides the Delivery Support team. The former metrics being used were:

- **Number of new tickets:** the total number of tickets that entered in the online platform in a given period of time. These new tickets represent new issues that appeared to be solved:

$$\text{New Tickets} = \sum Tickets_{\,Status\,=\,New}$$

- **Number of Solved Tickets:** the total number of tickets that were solved by the team. A ticket status is manually changed to solved when the agent assigned to the ticket assumes that the corresponding issue is resolved and there is no need for further interactions:

$$\text{Solved Tickets} = \sum Tickets_{\,Status\,=\,Solved}$$

- **Number of Reopened Tickets:** the total number of tickets whose status were solved but reopened due to a new reply on the ticket from one of the agents involved in the issue:

$$\text{Reopened Tickets} = \sum Tickets_{Previous\ Status\,=\,Solved}$$

- **% Tickets Replied in SLA (<8h):** the percentage of new tickets with a first interaction/comment within 8h. This metric represents the Service Level Agreement and is calculated as the ratio between the number of tickets replied in less than 8 hours and the number of tickets with a reply:

$$\text{SLA } (< 8\text{h}) = \frac{\sum Tickets_{\,First\ reply\ within\ 8h}}{\sum Tickets_{Replied}}$$

- **Number of Backlog Tickets:** the number of tickets that in a given date represent the current amount of work for the team. It is calculated as the sum of the ticket with the following status: new, open, pending, on-hold:

$$\text{Backlog Tickets} = \sum Tickets_{\,Status\,=\,New,\ \ Open,\ \ Pending\ or\ On-Hold}$$

- **% of First Time Resolution:** the percentage of tickets that are solved with a single reply.

$$\text{First Touch Reply} = \frac{\sum Tickets_{\,Solved\ with\ one\ comment}}{\sum Tickets_{Solved}}$$

- **% of Full Resolution Time (<5 days):** the percentage of tickets that are solved in less than 5 days. The resolution time is the interval between the moment the ticket is created and the moment it is solved:

$$\text{Full Resolution Time } (< 5 \text{ days}) = \frac{\sum Tickets_{\,Solved\ within\ 5\ days}}{\sum Tickets_{Solved}}$$

Concerning the targets for SLA, Full Resolution Time and First Time Resolution, all marks were set by the top management, taking into account performance levels from the past and the service quality that Farfetch desires to deliver. The targets for these metrics were:

- SLA (<8h): 80%;
- Full Resolution Time (< 5 days): 80%
- First Time Resolution: 60%

The formulas presented above are the only metrics used by the supervisor and top management to evaluate the team performance in terms of ticket-related tasks. Looking at the former reporting, it is possible to identify right way some barriers: there is no option to divide the KPIs by office; it is not possible to obtain these metrics by category; the performance by agent is very limited; there is no way of comparing the workload that external departments create to the team; the arrangement of tickets by age is very limited, preventing supervisors from having better insights and taking adequate actions.

3.2.2 Step 4 Stops – Former Metrics

Although the metrics and level of detail used for tickets were not enough for the current needs, the analysis done for the Step 4 Stops was even more incomplete. The only metric available was:

- **SLA Step 4 (<2h):** the percentage of orders that are moved manually to the next step within 2h after the error occurred. This metric represents the Service Level Agreement and is calculated as the ratio between the number of order moved in less than 2 hours and the total number of orders moved within a certain period of time.

$$\text{SLA Step 4 } (< 2\text{h}) = \frac{\sum Orders_{\,Solved\ within\ 2h}}{\sum Orders_{Solved}}$$

The SLA target defined for this metric is lower than the one defined for tickets. This is related with the type of task which is completely different: while a normal ticket represents a conversation between two entities in order to solve a problem, an order stopped in Step 4 surely represents a delay on a customer's order and the SLA must be tighter. Hence, the target was to solve 95% of all the Step 4 Stops in less than 2h.

There was only one KPI available for this task because the data present in the database useful to monitor it is rare and forces analysts to build queries a lot more complex than in the case of the tickets platform. Tickets are easier to measure, since the information about creation, interactions and updates is very-well organized in different tables. Hence, the main gap for this task is not the KPI itself, but the given use and the depth of the analysis.

Currently, the SLA for Step 4 Stops is only split by country and by date: separation between offices, where there are active agents; daily and weekly calculation in order to compare current results with the values obtained in the previous day and/or week.

A critical gap found on the former reporting was the absence of a categorization of the error type that made the order stop. There are different causes responsible for Step 4 Stops and a proper categorization can help create a better workload distribution for the agents. Hence, these different types of stops were studied and incorporated on the new reporting, as described on the next chapter.

3.3 Final Overview

After a deep analysis around the data available in previous reporting, the main issue found was the lack of detail of the metrics available. Although the KPIs presented were not enough, the major concern was definitely the absence of enough reporting tools to show the necessary information, help identify problems and support decision making. Adding to this, there were also wrong calculations, mainly due to the absence of any kind of monitoring of the data and dashboards.

Looking at the former data from a time-based perspective, there was no filtering option and it was not possible to analyse information based on different time periods. Hence, executives that sought to take strategic decisions did not have available a visual tool to display performance reported on a weekly basis. Adding to this, the ability to filter data per team was very limited, based only on a SLA split. Moreover, the metrics available for the majority of the agents outside Porto office were even more reduced.

Concerning the individual performance, the only metric present was the backlog by agent. There was no option to analyse other metrics by agent, which made every supervisor's operational decisions a lot harder to execute, mostly in terms of the tasks assignment. One good example of the lack of criteria on the allocation of the tasks was the way the supervisor selected the agent responsible for the Step 4 Stops: every morning, during the Kaizen meeting, the agent chosen for the task was the one with the lowest number of tickets in backlog. This type of assignment shows that the available reporting was not enough to support solid decision-making on the operational level.

Given the high volatility of the tools used to measure performance with a high accuracy, all the visual tools and formulas should be monitored frequently, in order to keep pace with the changes on the working processes and be able to answer properly to the most recent needs. In a company constantly growing, with new services being added regularly, each of the visualization tools should be under constant observation, something that did not exist with the previous reporting.

Taking into account all the topics explained, it was clear that performance metrics and tools had to be improved. The action plan was to start from scratch, slowly removing the old reporting tools and replacing them with new dashboards built in *Tableau*, the main business intelligence and analytics software used at Farfetch. For this, new metrics and analysis had to be implemented and some of the old KPIs were recalculated with a stronger and clearer base. The final goal was to provide senior management with completely new visual tools in order to improve the performance of the team as a whole.

4 Project Implementation

Following the study around the former situation, the project demanded a specific methodology that can be summarized in two main stages: data collection and dashboard development. The data used for the project and creation of all visualization tools was entirely extracted from Farfetch databases using SQL language, with specific queries that allowed to get the necessary information for each one of the KPIs implemented. After gathering the data, the following step was to use the available tools to organize information in a dashboard, with the best possible representation, in order to fulfil all the requirements. This process was replicated for every dashboard created.

4.1 Requirements Gathering

The project requirements started with meetings with managers from the Delivery team that led to the main type of reporting pieces missing. The design phase was only complete after some discussions with the head of the global workforce management that helped to translate the described needs into a first reporting draft. All the effort ended up with the development of the following tools, all built on *Tableau*:

1. **Daily Dashboard:** implementation of a visualization tool with the main metrics for the team, displayed on a daily basis.
2. **Executive Weekly Dashboard:** a summary of the team's weekly performance, with the main focus on the evolution of the main KPIs over the last weeks. This dashboard was created to support top management in strategic decision making.
3. **Hourly Workload Dashboard:** a dashboard focused on the tickets, being refreshed hourly in order to support the agents during their entire working days.
4. **Daily Performance Dashboard:** implementation of a dashboard to summarize the performance and quantity of work done by each one of the agents, refreshed on a daily basis.

All the reports built throughout the project help support all department members, starting from both agents and supervisors that perform the tasks and ending up on top managers and executives. Some of these metrics, mainly the ones refreshed every week on the executive dashboard, are gathered by an analyst that puts them together with other very similar information from other teams, in order to create an overall view of the performance of the entire operations department. This information is regularly sent to the management board of Farfetch that uses it for strategic decision-making purposes.

Although the most used tool for the development of all visualization tools was *Tableau*, due to the fact that the desired result is entirely supported by this software, *Microsoft Excel* was also used in order to quickly study recently extracted data, helping to prepare information for later analysis. Both tools were chosen because they offer vital features that allow to import data directly from SQL queries. All the information used on the dashboards was extracted from the Farfetch databases, using only SQL language.

Taking into account what *Tableau* can offer, the main features required at the beginning of the project were:

- **Filtering options –** allow the user to filter data by time period, office or agent**;**
- **Drill Down ability** – possibility to get access to the full data**;**
- **Refresh Scheduling** – keep all data on the reports updated**.**

4.2 Daily Reporting

The first report built was the Daily Dashboard, due to the fact that this represents the most important and complete tool that can be used by every team member to quickly analyse the most recent situation and also the evolution of the metrics during the most recent days. With this tool, it was possible to measure and control the operational efficiency of the team with a higher accuracy level.

Prior to building the dashboard, a lot of work concerning the data was done, mainly because the old KPIs that were chosen to be used on the new dashboards had to be recycled due to the fact that they were not being correctly calculated. Therefore, every SQL query behind the numbers presented on the new dashboard was built from the scratch.

The refresh scheduling defined for this dashboard was two times a day, in order to obtain the most recent values at the beginning of the day (08:00 - GMT Time), important for the daily Kaizen meeting, and also at the middle of the day (14:00 - GMT Time) to evaluate if the targets defined were being met. Another reason to have this refresh twice a day is to provide updated data to the United States, Japan and China offices.

In terms of old metrics, the KPIs that transited from the old reporting to the new one were:

- **Number of Solved Tickets**
- **Number of Reopened Tickets**
- **SLA Tickets (<8h)**
- **SLA Step 4 Stops (<2h)**

4.2.1 New Metrics

Tickets

Concerning the KPIs presented on the new dashboard, besides reutilizing some of the old metrics, some new ones were created and added in order to allow new data analysis and a better understanding of the quality levels. The new KPIs were the following:

- **Number of Created tickets:** this metric is very similar to the Number of new tickets, but the team decided to change the name in order to differentiate the metric from the status of the tickets "new". The calculation was also re-written, to make sure that only new creations were being taken into account:

$$\text{Created Tickets} = \sum Tickets_{\,Previous\ Status=NULL}$$

- **Backlog Trend:** translates the variation of the backlog between two consecutive periods of time. In this specific case, this measure was used only on the daily dashboard, representing the percentage of backlog increase or decrease when comparing the most recent value with the one from the previous day. The Backlog Trend helps to understand the amount of unsolved cases day over day:

$$Backlog\ Trend = \frac{Backlog_{\,t=n}}{Backlog_{\,t=n-1}} * 100$$

- **Response Rate (<24h):** this new KPI arises as a complement to the Service Level Agreement. It is calculated on a similar way to the SLA, however in this case it is taken into account the number of tickets with a first reply within 24h:

$$\text{RR } (< 24\text{h}) = \frac{\sum Tickets_{\,Replied\ within\ 24h}}{\sum Tickets_{Replied}}$$

- **Full Resolution Time:** this metric transited from the previous reporting, but some changes were implemented in order to allow a bigger range of possible analysis and interpretations. Before the project started, the Full Resolution Time was measured as a percentage of tickets solved within 5 days. As the target proposed did not offer a strong consistency and no reliable decisions were being taken from this measure, the WFM team decided to meet and discuss possible improvements that could be implemented. The final decision was to keep measuring the Full Resolution Time, between the moment the ticket was created and the moment it was solved, but representing the value as an average for a given period of time.

$$\text{AVG Full Resolution Time} = \frac{\sum(Date\ Solved - Date\ Created)_{\ Tickets\ Solved}}{\sum Tickets_{Solved}}$$

- **Backlog – Proactive/Reactive:** this is also a metric that derives from the old reporting, but that adds a new type of analysis. The work performed by the team can be divided in two categories: proactive and reactive tasks. All the reactive work is translated into tasks that cover issues that come from the outside and that appear unanticipatedly, while proactive work is translated into responsibilities that involve anticipating possible issues. A good example of reactive work is solving an issue that the customer service department sent to the Delivery Support team, whereas a proactive task is for instance to keep track of all the Farfetch orders and start an investigation for the ones that seem to be getting late on the delivery schedule. Given this distribution, it was considered critical to divide the backlog in two types:

$$\text{Proactive Backlog} = \sum Proactive\ Tickets_{\ Status\ =\ New,\ \ Open,\ \ Pending\ or\ On-Hold}$$

$$\text{Reactive Backlog} = \sum Reactive\ Tickets_{\ Status\ =\ New,\ \ Open,\ \ Pending\ or\ On-Hold}$$

- **Category Breakdown:** this does not represent a new KPI itself, but a new type of breakdown for some of the existing metrics. The analysis was implemented for the backlog and also for the Full resolution time and aims at having a better sense of the values per ticket category. With the breakdown by category, it is possible to have a better understanding of the KPIs overall values:

$$\text{Backlog Tickets (Category x)} = \sum Tickets_{\ Status\ =(New,\ \ Open,\ \ Pending\ or\ On-Hold),\ \ Category=x}$$

$$\text{AVG Full Resolution Time (Category x)} = \frac{\sum(Date\ Solved - Date\ Created)_{\ Tickets\ Solved,\ \ Category\ x}}{\sum Tickets_{Solved,\ \ Category\ x}}$$

- **Workload:** the workload is the total amount of work that the agents have to deal with for a specific period of time. In this case, all the tasks presented in front of them are translated into: the number of tickets that were created due to new issues and the number of tickets reopened (if a ticket previously solved is reopened, the issue is open again for discussion, representing a new element of workload for the team). The calculation formula is:

$$\text{Workload} = \sum Tickets\ Created + \sum Tickets\ Reopened$$

- **Backlog – Age:** the backlog was divided in different time ranges, depending on their age. The age of the ticket is calculated as the difference between the current time stamp and the moment it was created. The ranges used to divide the age were: 0-1, 1-3, 3-7, 7-14, 14-28 and >=28days. The formula for this calculation is:

$$\text{Backlog Age (Range x1} - \text{x2)} = \sum Backlog_{\ (Age\ Between\ x1\ and\ x2)}$$

In terms of targets, the implemented ones were: it was decided to maintain the value of 80% for the Service Level Agreement; for the Full resolution time that now is measured in hours, no top

value was stablished, because the managers decided to wait and gather a bigger sample of results before fixing a final target; for the Response Rate, as it was expected, it was defined a 95% target which is way more demanding than the SLA.

Regarding the wrong calculations, the most significant changes happened on the SLA formula. The old values presented on the Kaizen board were counting tickets created by members of the Delivery Support team, which is not correct: a ticket created by the team is not expected to receive a first reply from the same person that created that ticket. With this approach, the SLA value displayed before did not correspond to the reality. The new method used, expressed on the query used to extract information for this KPI, recognized this barrier and did not take into account the tickets created by agents of the team.

Step 4 Stops

- **Number of Step 4 Stops Solved:** previously there was no option to visualize the volume of work performed by the agents for the Step 4 Stops. Thus, a new metric was created to count the number of orders manually moved from Step 4 to Step 5. The calculation for this new measure is:

$$\text{Step 4 Solved} = \sum Orders_{Solved}$$

- **Type of Task Breakdown:** the orders that stop in Step 4 always have a specific motive for that stop. Previously, there was no way of knowing the volumes for each one of these types of issues:

$$\text{Step 4 Solved (Task x)} = \sum Orders_{Solved,\ Task\ x}$$

Concerning the division of the Step 4 Stops into different issues, the categorization was made taking into account the following types of stops:

- **To Do:** this type stop is the most common and easy to solve, and only involves issues related with typos performed by the client on the zip code, address or name. These errors do not allow the shipping label to be generated automatically, forcing the agents to manually correct them in order for the order to be shipped;
- **JP Post:** all the orders coming from Japanese boutiques to Japanese customers have to be treated in a different way: the shipping label has to be created manually. Hence, the orders that fulfil this requirement stop in Step 4 and have to be dealt with manually by the agents in Japan;
- **Same Day:** these orders need special attention because the package has to be sent on the same day of the order placement. Since the transportation has to be scheduled manually with the courier, the order stops and waits for manual interaction;
- **Turkey:** orders that are shipped to Turkey have a lot of restrictions concerning the type of material used on the item manufacturing process. This issue requires an investigation to understand if the customer holds the license needed for the transportation. While this process happens, the order remains stopped;
- **US > 2500$:** US citizens have a monetary limit, imposed by law, when ordering from a foreign country. When this limit is exceeded, the orders automatically stop and a solution has to be found for that case;
- **San Marino:** the problems related with these orders are similar to the ones being shipped to Turkey. This country also has some regulation that obligates agents to take care of some licenses and move forward with the order manually;
- **90 Minutes:** this is a service that was implemented by Farfetch during the development of this project. Although there was not much time to analyse this task in detail, every

time this duty is performed by the agents it will be counted and shown on the dashboards. Basically, this service offers the clients a deliver in less than 90 minutes after the purchase.

On top of all the errors described, there are also some stops that are purposely put on hold due to some kind of issue (for example, when the fraud team asks to put a delay on the order to create extra time for a more detailed investigation). The orders deliberately delayed are not taken into account for the SLA, because they represent a special case of Step 4 Stop. Although these orders are not represented on the daily dashboard, they are presented on the weekly dashboard in order to compare their evolution with the volume of Farfetch sales.

Concerning the division described before, there is one that is also not taken into account for the SLA: Same Day delivery. This task is treated differently because it represents a unique service offered by Farfetch that besides its low volume has to be handled with extra care. Due to this fact, it does not make sense to incorporate these specific orders on the SLA calculation.

4.2.2 *Tableau* Dashboard

The visualization tool to display all the metrics described before was entirely designed on a *Tableau* dashboard and divided in sections for better organization and understanding of the different areas of analysis. This dashboard was designed for two reasons: the first one was to automatically replace the two old sources used and start feeding the Kaizen board, allowing the team to use accurate information about the previous days; the second one was to be used as a supporting tool during the entire day for the agents and specially the supervisors in order to support short-term decision-making and lead the team to the proposed objectives.

Due to the fact that some of the tasks for the Step 4 Stops were performed in specific offices, some of the analysis made on that section were breakdown into the 4 countries where the team is present.

The dashboard is presented on Figure 12.

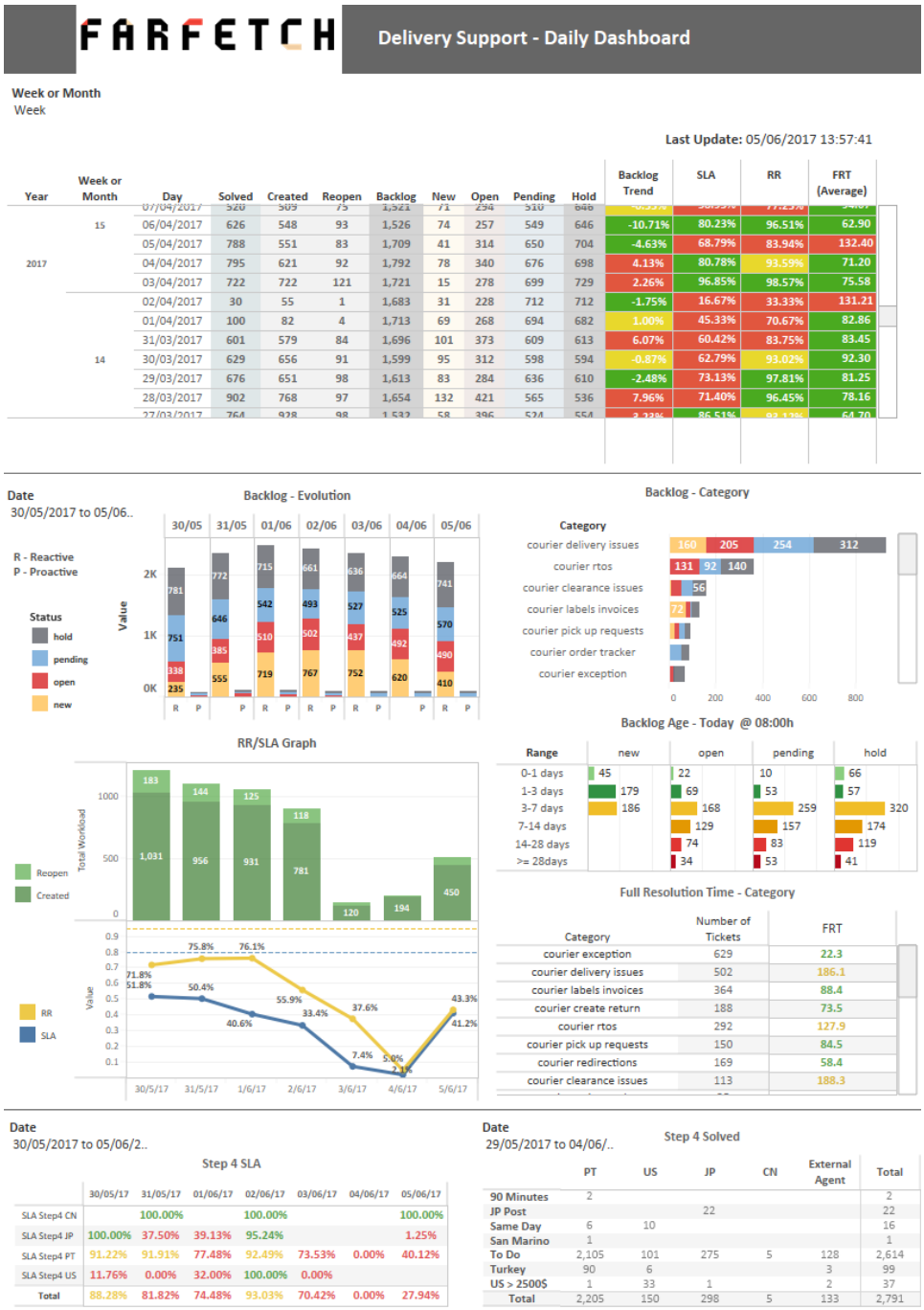
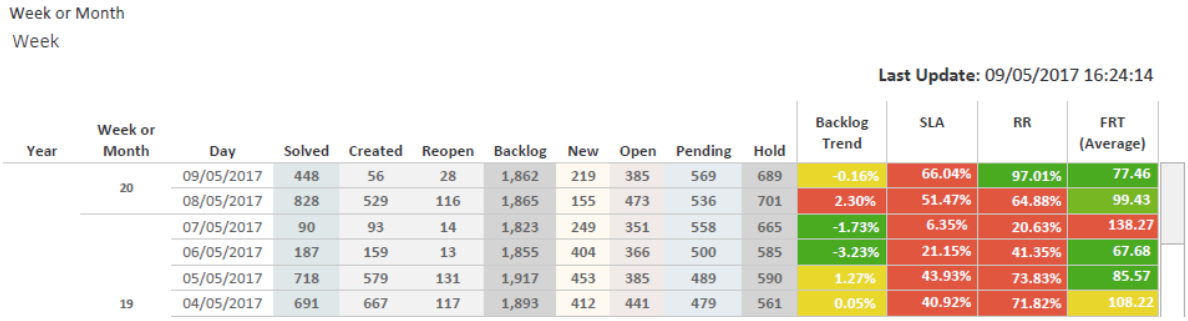


Figure 12 - Daily Dashboard

The data presented on the daily dashboard is divided in 3 different areas:

- **First Layer – Daily Summary:** the top part of the dashboard is entirely filled with a table that summarizes all the main KPIs of the team in terms of tickets;
- **Second Layer / Left Side – Evolution Perspective:** this block gives an overall view of the evolution of the KPIs on a daily basis, with the option to select the interval of dates to use on the analysis;
- **Second Layer / Right Side – Breakdown Analysis:** a deeper look into the KPIs that offer a lot more value when they are categorized;
- **Third Layer – Step 4 Stops Analysis:** an exclusive area for the Step 4 Stops analysis, with the main KPI and the volumes.

First Layer



Year	Week or Month	Day	Solved	Created	Reopen	Backlog	New	Open	Pending	Hold	Backlog Trend	SLA	RR	FRT (Average)
	20	09/05/2017	448	56	28	1,862	219	385	569	689	-0.16%	66.04%	97.01%	77.46
		08/05/2017	828	529	116	1,865	155	473	536	701	2.30%	51.47%	64.88%	99.43
		07/05/2017	90	93	14	1,823	249	351	558	665	-1.73%	6.35%	20.63%	138.27
		06/05/2017	187	159	13	1,855	404	366	500	585	-3.23%	21.15%	41.35%	67.68
		05/05/2017	718	579	131	1,917	453	385	489	590	1.27%	43.93%	73.83%	85.57
	19	04/05/2017	691	667	117	1,893	412	441	479	561	0.05%	40.92%	71.82%	108.22

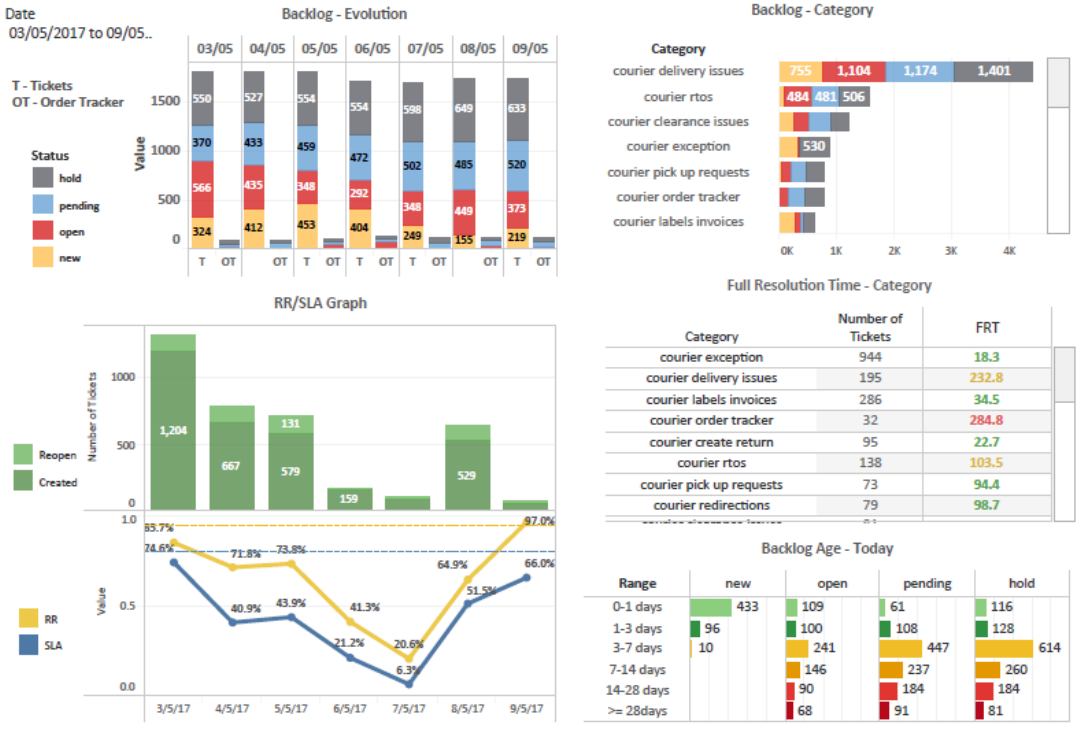
Figure 13 - Daily KPIs Table

The table presented on the top of the daily dashboard is supposed to be the most used instrument from all the tools built during this project, because it is able to summarize on a single row the most important KPIs related with tickets tasks. In terms of organization, the first three columns show information about the date, regarding the year, week or month and finally the day. Some visualization features regarding this table and other analysis are fully described further ahead.

In terms of measures, the first three columns after the "Day" sum the amount of tickets that were solved, created and reopened in that day. The backlog is presented next, divided by the corresponding status: new, open, pending and hold. The values for backlog are extracted for each one of the days always at the same hour (in this case always at 8:00AM GMT-Time) in order to allow a solid comparison between different days. On the other hand, the tickets solved, created and reopened are counted during the day, and the final score will only be available when the day ends.

Regarding KPIs, the first one is the backlog evolution that purely displays the percentage of backlog increase or decrease. The remaining calculations represent the SLA, RR and Full Resolution Time for the day. Similarly to the amount of tickets solved, created and reopened, the final value for this KPIs is only complete at the end of the working day.

Second Layer



Category	Number of Tickets	FRT
courier exception	944	18.3
courier delivery issues	195	232.8
courier labels invoices	286	34.5
courier order tracker	32	284.8
courier create return	95	22.7
courier rtos	138	103.5
courier pick up requests	73	94.4
courier redirections	79	98.7

Figure 14 - Evolution and Categorization of the KPIs

The left side of the second division is focused on the metrics evolution. The same values obtained on the summary table are here translated into graphs that display the KPIs progression over the days. The only difference between these graphs and the table is the division of the total backlog into proactive and reactive work.

On the right, two of the breakdown analysis are focused on the backlog: the first one divides the total backlog by category, showing the amount of tickets in each one of the status; the second one also displays the amount of tickets in each one of the status but divided by age. The first tool allows a better understanding about which are the main issues that are causing more volume of work and their respective status. The second graph can provide good insights about what strategy to follow: create a balance between the age of the tickets that the team is currently dealing with, in order to deliver the best possible service.

On the right side, there is also a table with the amount of tickets (workload) and Full Resolution Time by category. This analysis was done in order to take conclusions about the categories/issues that take more time to solve for being more problematic. The number of tickets is relevant for two different aspects: understand if the size of the sample provided for the calculation of the Full Resolution Time is significant; identify what issues create more workload for the team.

Third Layer

Date
30/05/2017 to 05/06/2..

Step 4 SLA

	30/05/17	31/05/17	01/06/17	02/06/17	03/06/17	04/06/17	05/06/17
SLA Step4 CN		100.00%		100.00%			100.00%
SLA Step4 JP	100.00%	37.50%	39.13%	95.24%			1.25%
SLA Step4 PT	91.22%	91.91%	77.48%	92.49%	73.53%	0.00%	40.12%
SLA Step4 US	11.76%	0.00%	32.00%	100.00%	0.00%		
Total	88.28%	81.82%	74.48%	93.03%	70.42%	0.00%	27.94%

Date
29/05/2017 to 04/06/..

Step 4 Solved

	PT	US	JP	CN	External Agent	Total
90 Minutes	2					2
JP Post			22			22
Same Day	6	10				16
San Marino	1					1
To Do	2,105	101	275	5	128	2,614
Turkey	90	6			3	99
US > 2500$	1	33	1		2	37
Total	2,205	150	298	5	133	2,791

Figure 15 - Step 4 Stops Analysis

The final layer of the daily dashboard is only focused on the Step 4 tasks. The new query used to extract data for these KPIs was built bearing in mind all the exceptions that should not be counted as Step 4 Stops. For example, some orders stop due to software sync errors, problems that should be solved by the Technological department and not by agents from the Delivery Support team. This kind of issues are now being properly removed from the analysis, something that the old reporting was not able to do.

On the left side of the layer, it is possible to study the daily evolution of the SLA in two different perspectives: the first one is the evolution distributed by office; the second is the evolution of the SLA for the entire team, displayed as “Total”.

On the right side, it is represented the volume of tasks performed, divided by both office and type of task. Sometimes, there are a few cases where agents from the team have to ask for help from other department’s members, due to the specificity of the task. Because of this particularity, an extra column “External Agent” was added to count the amount of times these cases occur. When these issues happen, they are not taken into account for the SLA, since that metric should only measure the performance of agents from the Delivery Support team.

4.2.3 Visualization Features

The dashboards built for this dissertation were mainly focused on the data consistency, visualization quality and insights strength, but there were also some visualization features that were purposely added to create more dynamism. Most of these features are also included in the dashboards that are presented in the next section:

- **Hierarchy Grouping**

Some of the data presented on the summary table was put together to create a hierarchy that allows the user to quickly breakdown or group the data displayed, through the plus or minus signs, respectively. An example of this hierarchy is displayed on Figure 16.

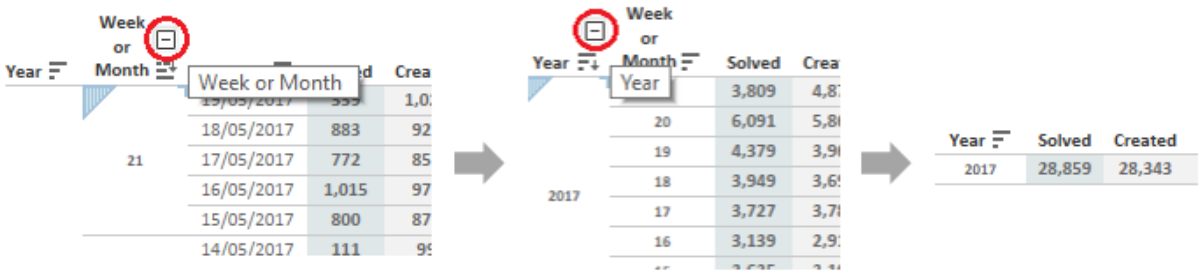


Figure 16 - Hierarchy Grouping Example

- **Data Parameters**

In order to offer the user a higher variety of visualization options, some parameters were added to the dashboards. A parameter allows to pick one of the two or more available variables that will be used to fill a certain column of graphic axis. For the daily dashboard, there is one parameter to choose between displaying data by week or month. An example of a parameter being used is displayed on Figure 17.

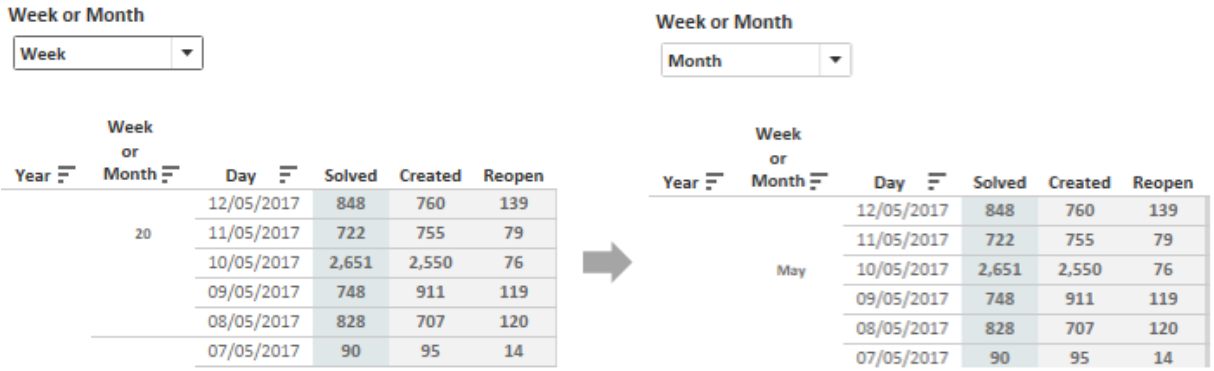


Figure 17 - Data Parameter Example

- **Online Publishing and Refresh Scheduling**

All the reporting developed for this project was published on *Tableau* online platform. This platform already existed and was exclusively designed for the Farfetch analysts to publish their work and make the dashboards available for the members of the company, depending on the level of access. For the Delivery Support team, a new folder was created inside this platform, where currently all the dashboards are available for consultation.

The online publishing feature offers data security, mainly due to the necessary authentication that restricts the number of users that can access the data. In addition to this, the dashboards become available for access outside the Farfetch network, via VPN connection.

Another very critical feature is the automatic update: having the dashboards available online allows to create a refresh scheduling that can be set to any hour or interval of time, fulfilling all the data refresh needs (for the Daily Dashboard, the data sources are updated every day at 08:00 and 14:00 – GMT Time). On top of that, it is also possible to manually demand a data refresh at any time, without interrupting the pre-defined scheduling.

- **Last Update Information**

This feature is a result of the previous one that is presented on the dashboard itself in order to make sure the user knows when the data was updated for the last time. This functionality was also introduced to verify if the refresh scheduling defined was fulfilling everyone's needs, providing the necessary information at the right time. In case the update scheduling is not the best for every user, changes can be made in order to adapt the refresh intervals. The date from the last update was inserted on the top of the dashboards, as shown on Figure 18.

Last Update: 09/05/2017 16:24:14

Created	Reopen	Backlog	New	Open	Pending	Hold	Backlog Trend	SLA	RR	FRT (Average)
56	28	1,862	219	385	569	689	-0.16%	66.04%	97.01%	77.46
529	116	1,865	155	473	536	701	2.30%	51.47%	64.88%	99.43

Figure 18 - Last Update Date

- **View Data/ Drill Down**

In all the dashboards, the user is able to access an option that opens a secondary window with all the rows that contain the information that feeds that cell. This feature allows the user to understand what is being used to calculate each of the available fields and complement the analysis with detailed information. An example of this Full Data functionality is shown on Figure 19.

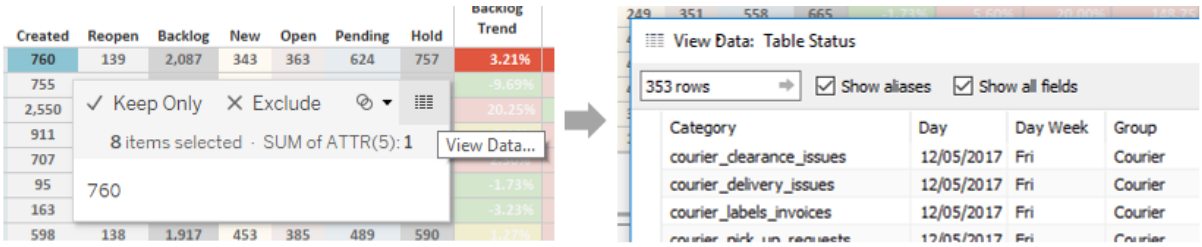


Figure 19 - View Data Example

- **Range of Dates Filter**

The majority of the tools presented on the Daily Dashboard are connected to a filter that allows the user to select a time frame and display information related with only that specific time frame. The user can choose between a specific day, a range of days or pre-defined date filters: for example, "Yesterday", "Last 2 Weeks" or "Last Month".

- **Colour Range**

Depending on the results presented, the metrics were coloured with the implementation of a conditional formatting manually programmed on *Tableau*. With this functionality, the results were displayed with a different background or text colour according to the traffic light pattern. Therefore, results above the target appear in green, results slightly below the target appear in yellow and the ones way below the target are shown in red. This feature is able to generate alerts whenever the performance of the team is over/under the expected.

In terms of visualization features, the dashboard was not only able to meet all the requirements but also to add new options that offer a more complete experience for the final user.

All the data necessary to feed the dashboard was extracted from Farfetch databases, using queries written in SQL language. For the Daily reporting, the queries used were:

- **Del_Solved_Tickets**
- **Del_SLA**
- **Del_Created_Reopened**
- **Del_Step4Stops**
- **Del_Backlog**
- **Del_FullResolutionTime**

Concerning all the queries created to support this dissertation, the code was optimized in order to always get the necessary data at the right time. In order to achieve this, only the necessary number of columns were extracted, together with a well-stablished date interval, depending on the volume of data required for the analysis. This extra care represents a stable basis for future projects and can be translated into more efficient data extractions.

The code for the queries used on the development of the entire daily report is presented on Appendix A.

4.3 Executive Weekly Reporting

The Executive Weekly Dashboard was built right after the daily reporting was finished, taking advantage of the metrics already developed and adding new ones. All the KPIs used on the daily reporting are also present on the weekly reporting, but grouped by week in order to gather insights in a mid-term perspective.

In terms of new reporting elements, some metrics and analysis were created and added to this dashboard in order to support its executive worth. Therefore, some meetings were scheduled with managers from both Delivery Support and WFM teams in order to define what priority modules should be included on this weekly reporting.

4.3.1 New Metrics

Tickets

Regarding the new metrics created for tasks related with tickets, some of them were combined with data from the company's weekly order volume in order to allow supervisors and managers to easily examine the impact that the performance of the team has on Farfetch and vice versa. The new metrics created were:

- **Created/Reopened Tickets Breakdown:** this metric was already used on the daily reporting, however in this case, it was decided to breakdown results by office. This division allows to track the evolution of the tickets volume in each one of the offices.
- **Number of Tickets Comments:** every time an agent writes down an answer and posts it on the ticket, it counts as a comment. Hence, the formula for this metric is:

$$\text{Number of Comments} = \sum Updates\ with\ a\ reply$$

- **Number of Inbound Tickets:** all the tickets that are created by an external entity and shared with the team are considered "Inbound", because they come from the outside. This new metric counts the number of issues that are created by other teams and sent to the Delivery Support team:

$$\text{Inbound Tickets} = \sum Tickets_{\,Created\ by\ external\ agents}$$

- **Number of Outbound Tickets:** this metric is similar to the previous one but counts the tickets that go in the opposite direction. In this case, "Outbound" tickets represent issues that are created by Delivery Support agents and shared with other teams. The formula is:

$$\text{Outbound Tickets} = \sum Tickets_{\,Created\ by\ Delivery\ Support\ Agents}$$

- **Number of Exceptions:** a big percentage of the tickets solved by the team are related with exceptions. Exceptions are issues related with the orders pick up and are divided in two different types: failed pickup that happens when the courier fails to collect an item from a boutique; already picked up, when the item was collected but it is still stuck on Step 5 (in some cases it has to be manually moved to Step 6). Although the team works with a large number of different couriers, on the executive dashboard only the top two are present because they represent more than 90% of the company's total orders. The calculation for this metric is:

$$\text{Exceptions (Type x1, Courier x2)} = \sum Tickets_{\,Excpetions\ Type=\ x1,\ \ Courier=x2}$$

- **Number of Farfetch Orders:** on the old reporting, the only metrics used were all directly related with the team's performance, without any relation with Farfetch overall numbers. This new metric was added to create a connection between the team's main numbers and the volume of sales of the company. The source for this KPI was built and is monitored by members of the Business Intelligence Team, what led to the conclusion that reliable insights could be taken from these numbers. The calculation is simply the sum of all the items sold by the company:

$$\text{Number of Orders} = \sum Orders$$

- **Contacts per Order:** in a similar way to the previous KPI, this new measure also tries to conjugate Farfetch orders with the Delivery Support team performance. In this particular case, the calculation takes into account the total workload of the team and the total order volume of the company:

$$CPO = \frac{\sum Tickets_{Created+Reopened}}{\sum Orders}$$

- **Number of Tickets Created Breakdown by Category:** this breakdown was created in order to analyse the type of ticket that created more workload for the team. While the breakdown by category for the backlog (presented on the Daily Dashboard) allows to analyse what kind of issues are being piled up, this new breakdown for the tickets created can help understand what type of issues have been arising more frequently, allowing preventive-oriented strategies instead of just reactive. The calculation is:

$$\text{Created Tickets (Category = x)} = \sum Tickets_{\,Created,\ \ Category=x}$$

- **Value on Tickets Created:** another way of linking team's performance with overall numbers is through the monetary value presented on the daily issues solved by the agents. Tickets are only created when an issue with a Farfetch order occurs. Hence, it is possible to identify all the orders that originated tickets and measure the total monetary value that was handled by the team:

$$\text{Value on Tickets Created} = \sum Orders\ Value_{\,Orders\ with\ a\ ticket\ associated}$$

- **Average Value by Ticket Created:** with the previous measure, it was also possible to calculate an average value per ticket created:

$$AVG\ Value\ by\ Ticket\ Created = \frac{\sum Orders\ Value_{\ Orders\ with\ a\ ticket\ associated}}{\sum Tickets_{Created}}$$

Step 4 Stops

The weekly dashboard allowed the development of new and important metrics for the Step 4 Stops due to its mid-term perspective. These new KPIs make more sense to be displayed on a weekly or monthly basis, which is why they were only developed for the Weekly Executive Dashboard:

- **Number of Orders Stopped in Step 4:** it was important to count how many orders stopped in Step 4 for a given week in order to study possible causes for an increase or a decrease on the agents' workload for this task. This metric takes into account every kind of stop, intentional or not:

$$\text{Number of Orders Stopped in Step 4} = \sum Orders_{\ Stopped\ Step\ 4}$$

- **% of Orders Stopped with an Error:** this KPI was implemented to measure the percentage of orders that stopped due to a problem with the creation of the shipping label and are translated into situations that must be manually treated by a member of the team:

$$\%\ of\ Orders\ Stopped\ with\ an\ Error = \frac{\sum Orders_{\ Stopped\ Step\ 4\ with\ an\ error}}{\sum Orders}$$

- **% of Orders Stopped with a Delay/Hold:** it was also added to the dashboard a KPI able to measure the percentage of orders that were intentionally stopped and marked with a delay:

$$\%\ of\ Orders\ Stopped\ with\ an\ Error = \frac{\sum Orders_{\ Stopped\ with\ a\ delay}}{\sum Orders}$$

On top of these new KPIs, it was also added the number of stops solved and respective breakdown (first present on the daily reporting) and the SLA for the Step 4 (metric that transited from the old reporting).

4.3.2 *Tableau* Dashboard

The Executive Weekly Dashboard was entirely designed from the scratch, because nothing similar had ever been built before. Overall, the majority of the graphs and tables display information from the previous 5 weeks in order to evaluate KPIs evolution in a mid-term perspective. The main objective of this reporting tool was to have it updated every Monday morning and ready to send to the management of the team, together with a list of important insights. Therefore, managers and executives receive every week an update that explains in detail the major changes that happened on the previous week.

On top of what was explained before about this dashboard main usage, the WFM team also takes advantage of this weekly reporting to discuss some of its main changes during the weekly Kaizen meeting. During this meeting, all the members of the WFM team meet, during approximately 30 min, with the weekly dashboard printed and pinned to the board and discuss all the changes that happened during the previous week. From this discussion, some suggestions for improvement arise, concerning both agents' performance and reporting quality.

The layout of the dashboard is displayed on Figure 20.

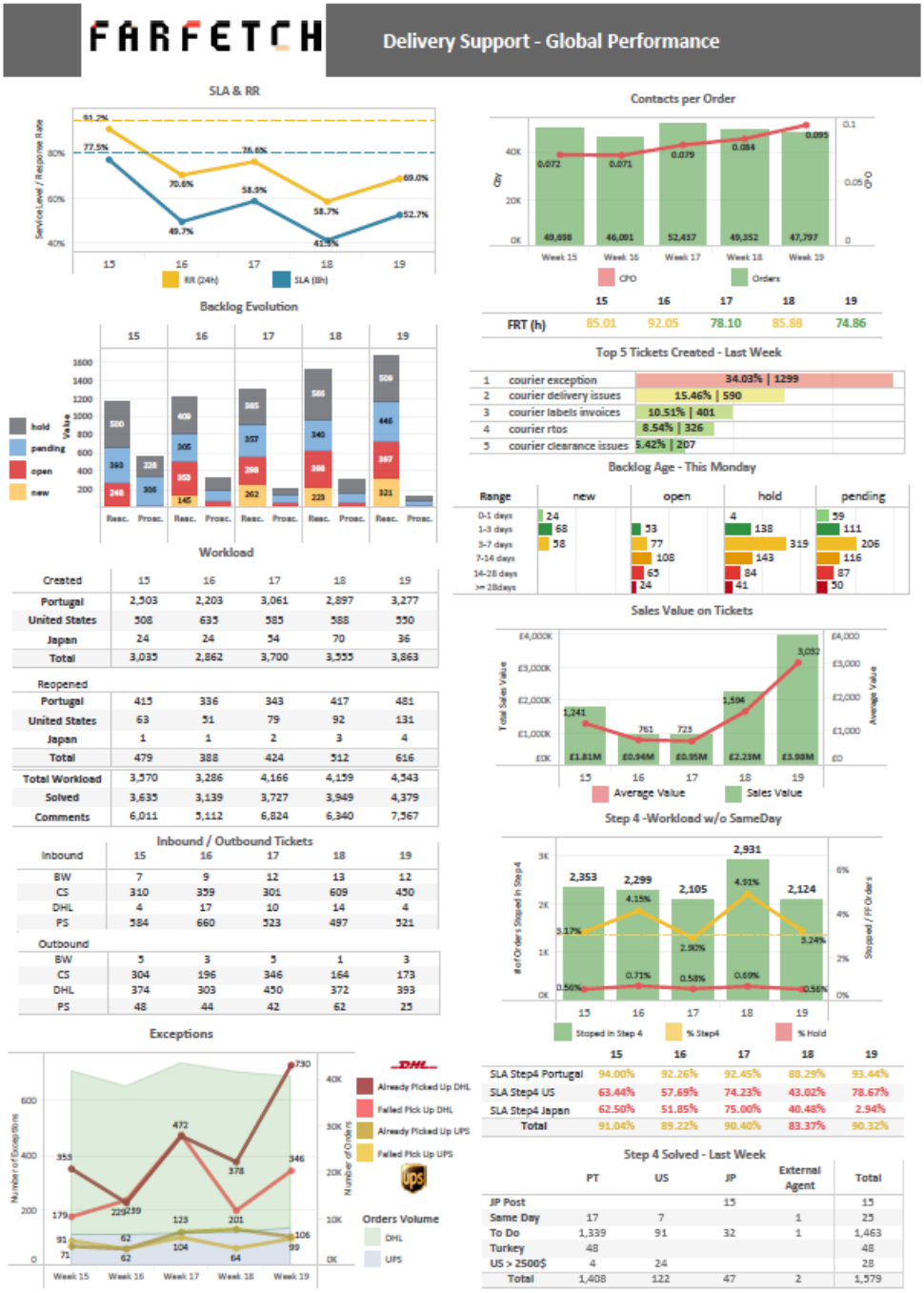


Figure 20 - Executive Weekly Dashboard

Although this reporting is organized differently from the Daily Dashboard, it is also possible to divide it in distinct sections of analysis:

- **First Section - Top Left Corner:** this area is focused on the SLA, RR and Backlog evolution of the team. All these metrics were strategically placed on this position because they are the most important KPIs to be analysed every week;
- **Second Section - Middle Left:** this area contains a resume of the workload that the team received and solved on a specific week, with a division between inbound and outbound interactions with the most important contact points;
- **Third Section - Bottom Left:** the graph presented on this area summarizes the volumes of exceptions and orders received by the two most important courier companies that Farfetch works with;

- **Fourth Section - Top Right:** this specific area includes a big variety of KPIs, concerning the Contacts per Order, Full Resolution Time, created tickets category and backlog age;
- **Fifth Section - Bottom Right:** similarly to the daily reporting, the Step 4 Stops also has an exclusive area due to the big differences between this kind of task and the ones related with tickets. Hence, all the graphs and tables on this area are related with the Step 4 Stops.

First Section

On the top left corner, it is possible to visualize a graph with the weekly evolution of the tickets SLA and RR, which display the percentage of first replies that the Delivery Support team was able to deliver in less than eight and twenty-four hours, respectively. Below the SLA and RR, it was added a graph with the weekly backlog evolution, both reactive and proactive, divided by the ticket status. For this last analysis, the backlog shown is always based on Monday at 8:00h GMT-Time. It was decided to fix this date in order to allow more consistency when comparing values from different weeks.

This section is very similar to the analysis made on the second layer of the Daily Dashboard, the only difference is the temporal perspective being analysed, and, consequently the final user of this tool.

Second Section

The second section of the weekly reporting was built with the main focus on the volumes of work received and delivered by the team. The workload was firstly divided by the tickets that were created and reopened and secondly broke down by office. This measure allows to understand the total volume of work received by the team (tickets created or reopened by other departments and sent to Delivery Support) and created by the team (tickets created and reopened by Delivery Support agents). The sum of the previous fields represents the total workload that should be compared with the amount of tickets solved by the team (metric that is also present on this section). It was also added a row with the total number of comments per week, giving a perception of the number of interactions from the agents on tickets.

In order to complement all the values obtained on the tables described before, a different breakdown of the workload was made: between inbound and outbound tickets. For this division, only the top four main points of contact were chosen. This analysis allows a deeper understanding on what could be the source of an increase or decrease on the workload. Being able to see these numbers can help to figure out action plans for the Delivery Support team, concerning which communication channels should be treated with extra care.

Third Section

This area of the dashboard was exclusively designed to offer a better accompaniment of the volume of exceptions that the team receives every week. Although every issue related with an exception is translated into a ticket, the team picked an agent that exclusively works with this task, during an entire working day. It was due to this specificity and importance that the graph with exceptions was created. On this graph, the lines show the number of exceptions created and divided by type and by the two main couriers. On the background, two areas were added with the amount of orders that Farfetch received from those couriers.

The possibility to display the amount of orders on the graph can be used to find correlations between the number of exceptions received and the number of items transported by that courier. As every exception received represents a ticket, these volumes can also help to understand variations in terms of weekly workload.

A better visualization of the exceptions graph is displayed on Figure 21.

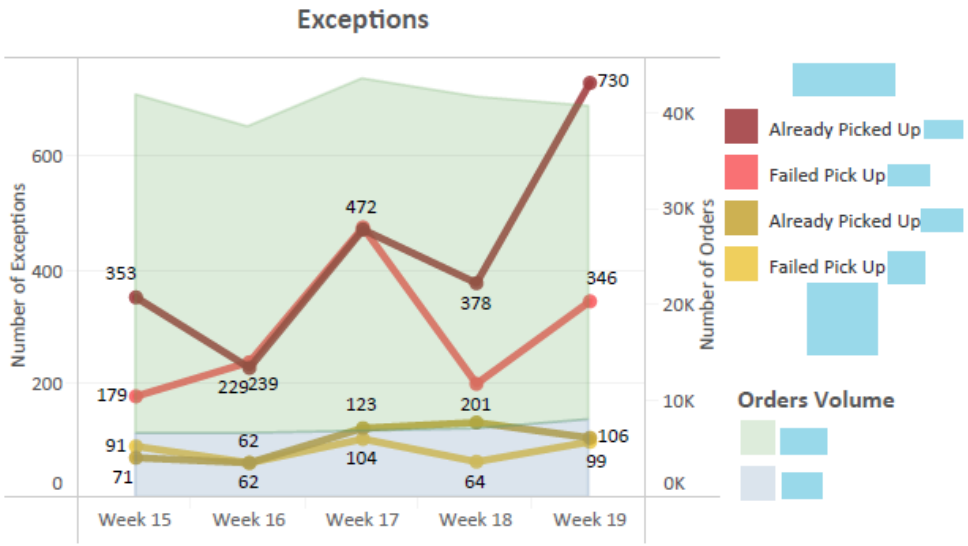


Figure 21 - Exceptions Weekly Evolution

Fourth Section

The fourth section of the dashboard displays a big variety of information, adding new analysis but also replicating and adapting some measurements that are also present on the daily reporting. Starting with the transited metrics, it was added to this new report the Full Resolution Time, but this time on a week over week basis. Also, it is displayed the backlog age, in this case with the same criteria as the backlog evolution: a screenshot of the values at 08:00h (GMT-Time) on Monday of the current week. This allows a better understanding of how many issues are not solved in the beginning of the week.

A bar graph was added to display the top 5 ticket categories with the biggest amount of tickets created on the previous week. It is also possible to view the percentage of each one of these top 5 categories taking into consideration all the tickets that were created over the previous week. These values help to identify the main causes of the previous workload and find patterns that may help developing strategies related with resources allocation depending on the type of issue created.

A new KPI added to this report is represented on the graph with the volume of total orders and Contacts per Order. The CPO is able to evaluate not only the teams amount of work but also the company's performance. This new metric allows external elements to evaluate the amount of issues created by every item sold by the company. In a financial environment, this can help investors decide whether to put money or not in the business, depending on the ability of the company to sell high quantities and at the same time create the minimum possible amount of issues related with the service delivered. Hence, the lower the value of the CPO, the better the company's performance. The graph with the CPO is shown on Figure 22.

Figure 22 - CPO Weekly Evolution

The last graph added on this section was also something completely new that is able to put together tickets with sales value. For this particular case, it was measured the sum of all the money that every single ticket represents based on the corresponding order value. With this metric, it is possible to evaluate how much money, in terms of ticket, the team had to deal with during an entire week. On the graph, there was also added a line with the average value per ticket during every week.

Translating tickets workload into monetary value gives a sense of the percentage of revenue that is associated with delivery issues. This information is used by top managers from Farfetch to take into consideration future changes on the delivery services provided: if the monetary value on tickets increases, studies can be developed by the Delivery Development team in order to find better delivery options. The graph with this information is displayed on Figure 23.

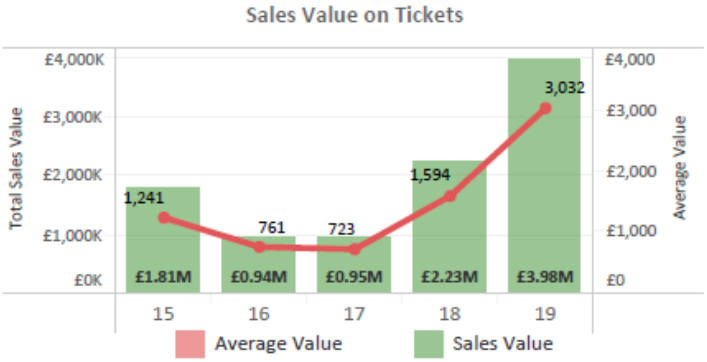


Figure 23 - Sales value in terms of tickets

Fifth Section

The section of the Step 4 Stops contains three different analysis: the workload evolution, the SLA results and the volume of tasks solved. These last two analyses are very similar to the ones presented on the Daily Dashboard, the only change is that the results were displayed with a weekly perspective. The SLA shows values from the last 5 weeks that were also divided by office, in order to evaluate the weekly evolution of the service level delivered by the different agents. The number of tasks solved is also divided by office and shows numbers from the previous week.

The evaluation of the workload for Step 4 was a completely new analysis, designed for the Executive Weekly Dashboard. For this, a graph with the amount of orders stopped in Step 4 was added, in order to evaluate the volume of work that this task is creating for the team. On top of the bar chart with the volume, two lines were also included: the first is the percentage of orders stopped that requested manual work to be solved and that are taken into account for the SLA (every stop excluding the Same Day Delivery and software-related stops); the second is the percentage of orders that had to be intentionally stopped due to some restriction and that also generate extra workload. The graph with this information is displayed on Figure 24.

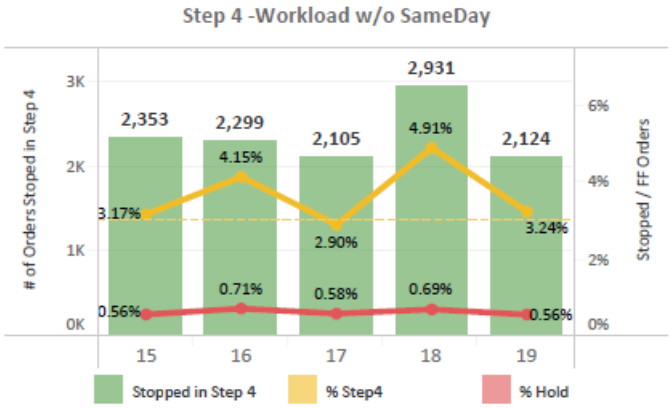


Figure 24 - Step 4 Stops Workload

Regarding the visualization features that this dashboard offers to the end user, most of them are also present on the daily reporting, which were described in detail on the previous section. The only feature not included on the Executive Weekly Dashboard was the possibility to filter the information, due to the fact that this dashboard was built to be used more as a static tool (gather information every Monday to send a report to all managers), the filtering option was not relevant.

On this report, actions performed by the agent working in China were not taken into account given the low workload. As soon as it starts to increase, these tasks should be included in the report.

In order to feed this new report with data, the data sources used were the same as the ones from the daily reporting with the addition of a new one:

- **Del_ShippingRegion**

The code for the query described above can be consulted on Appendix A.

4.4 Individual Reporting

After the development of all the metrics and implementation of the required dashboards for the daily and weekly reporting, the next step of the project was to put together all the KPIs and create new tools able to measure the individual performance of the agents. In order to fulfil this need, two new dashboards were designed with the main focus being the breakdown of the results by each one of the agents of the team.

Until this point, the only metric used to evaluate individual performance was the number of tickets in backlog (open, hold and pending) present on the Kaizen Board. This analysis was not able to offer good insights about each agent's performance and no important decisions could be taken based on these numbers.

4.4.1 Hourly Workload Dashboard

For the individual reporting, the first dashboard developed was focused on the hourly evolution of the backlog throughout the day. Hence, this tool was built manly to support supervisors, offering important information about the status of the work in an hourly basis. Due to the fact that the Step 4 Stops data was more complex and difficult to extract from the database every hour, this new dashboard only contains information about tickets. In the future, with the optimization of the database servers, it will be possible to include every task performed by the agents on this reporting.

Similarly to the daily and weekly reporting, this dashboard can also be divided in multiple areas:

- **First Layer – Hourly Backlog Evolution:** a perspective of the backlog evolution throughout the day, with data available for each hour;
- **Second Layer – Oldest Tickets by Category and Status:** an area composed by three tables that contains information about the oldest ticket by category and status;
- **Third Layer / Left Side – Agents Oldest Tickets:** a table with all the tickets organized by latest updated date, split by agent (ticket assignee);
- **Third Layer / Right Side – Last Hour Tickets:** a summary table with the number of tickets in each of the status, broken down by category.

First Layer

The top layer of the dashboard is focused on the backlog evolution, displaying new values every hour. The information is divided into proactive and reactive backlog, with the option to filter by agent or office.

This kind of information allows supervisors to update the team's current situation on the backlog level and current tickets status. With this, it is possible to update the tasks distribution over the day, assigning specific type of tickets to certain agents in order to find the best workload balance.

Second Layer

The middle area of the dashboard contains a new area where it is possible to find the oldest tickets. The three tables are divided by ticket status and category, as follows: the date of the last update on the first table; the ticket id on the second table (the id is useful to quickly find the ticket on the online communication tool); the agent assigned to the ticket on the third table.

This layer allows supervisors to quickly identify tickets that are taking too long to solve and force the team to accelerate the resolution process. Looking at these tables, it is possible to identify important information about the most problematic situations that compromise the team's performance. The layer is shown on Figure 25.

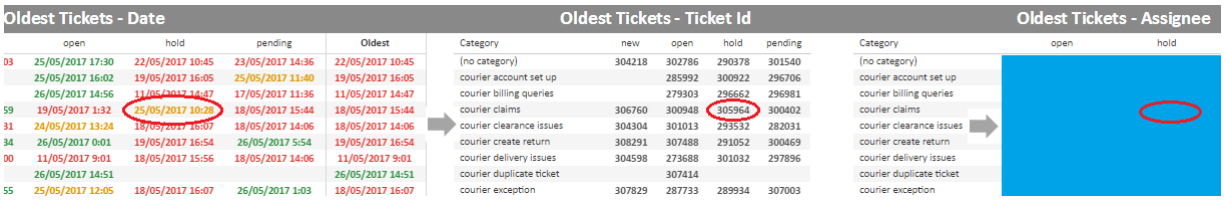


Figure 25 - Oldest Ticket Example

Third Layer

The bottom left side of the dashboard contains more useful data to be used by both supervisors and agents. On the table presented, it is possible to find all the tickets assigned to each one of the agents, ordered by last updated date. With this module, it is possible to see both backlog tickets volume by agent and the ranking for the latest interactions on the tickets. With the information provided on this table it is possible to come up with different strategies, choosing if they should focus either on older or newer tickets. The implementation of a ranking and colour range allows a quicker analysis around each agent's current situation, as displayed on Figure 26.

1	299924	301032	300486	301421	297914	298201	300402	282031	300092	270232	297631	273688	265124
2	299914	283137	303484	289662	290201	297574	301437	301255	301383		279881	306239	257593
3	299913	302470	304365	293387	299878	298181	300177	302158	301382		280543	304423	257594
4	300818	300621	304065	292692	300809	299984	300218	296707	303919		303928	306251	301547
5	301178	302467	299245	275116	304132	302980	300111	297681	306667		306312	307216	301120
6	299439	297906	299355	288617	299726	302708	300202	301196	306301		303946	287733	301611
7	299714	291676	305705	293379	304493	301275	291997	298714	306285		307250	303848	301221
8	300579	292298	305674	302045	304235	293448	297368	285063	303539		307256	306272	301610

Figure 26 - Agent's Oldest Tickers

For this table, taking into account an analysis made on the average time that a ticket normally stays without an interaction, the colour range chosen was:

- **0h - 24h without updates:** Green
- **24h - 72h without updates:** Yellow
- **> 72h without updates:** Red

The values for this colour range were chosen by the team managers.

On the right bottom corner of the page it is presented the last element of the dashboard: a table with the amount of tickets in each status, divided by category. This information is updated every hour, showing the most recent values of the backlog tickets.

After the dashboard implementation, it was created an automatic schedule to send it by email to managers, supervisors and the Workforce Management team. The full dashboard can be consulted on Appendix B.

4.4.2 Individual Performance Dashboard

The last developed visualization tool was the Individual Performance Dashboard. It gathers all the metrics created during the project and displays the data by agent. Hence, the main purpose of this tool is to evaluate the overall performance of each team member.

The metrics used on this dashboard were:

- **Number of Tickets Created**
- **Number of Tickets Reopened**
- **Number of Tickets Solved**
- **Backlog: Proactive + Reactive**
- **Number of Tickets Comments**
- **Step 4 Solved**
- **Number of Step 4 Stops Solved**
- **SLA Step 4 Stops (<2h)**

In order to complement the metrics already created, two new ones were created to be used on this report:

- **Solved Interactions:** although there was already a KPI that measures the number of tickets solved, it is also important to count the number of times an agent changes the ticket status to “Solved”. The fact that a ticket can be reopened implies that the number of solved interactions will always be equal or higher than the number of tickets solved. For example, a ticket that reopens once will have two solved interactions. This measure

is important in order to count the entire work performed by the agents. The calculation of this metric is:

$$\text{Solved Interactions} = \sum Tickets\ Updates_{\,Status\,=\,Solved}$$

- **Edit Time:** the online communication tool has a timer that measures the time that agents spend editing tickets. Hence, it is possible to sum all these editing times and convert it to the number of actual productive ticket hours (the query is presented on Appendix A):

$$\text{Edit Time} = \sum Tickets\ Update\ Time$$

The dashboard is divided in two areas: on the left, there is a table with all the information regarding the agents performance, which can be grouped by date, office and supervisor; on the right, there are graphs with the main metrics evolution.

The most powerful features of this dashboard are the ability to group the information on the table and the filtering options on the top. Concerning parameters, it is possible to select between showing data organized by week or month (also present on the Daily Dashboard) and select between agent or date. In terms of filtering, it is possible to filter by the following variables: Year, Month, Week, Day of the Week, Day, Range of Dates, Agent, Office, Supervisor. These filters can be used individually or combined in order to fulfil the end user needs. On top of being able to filter the data, the end user is also able to group the information, taking advantage of the following hierarchy: Agent or Date > Week or Month > Day Week > Office > Supervisor > Agent. This data structure as well as the distribution of the KPIs is show on Figure 27.

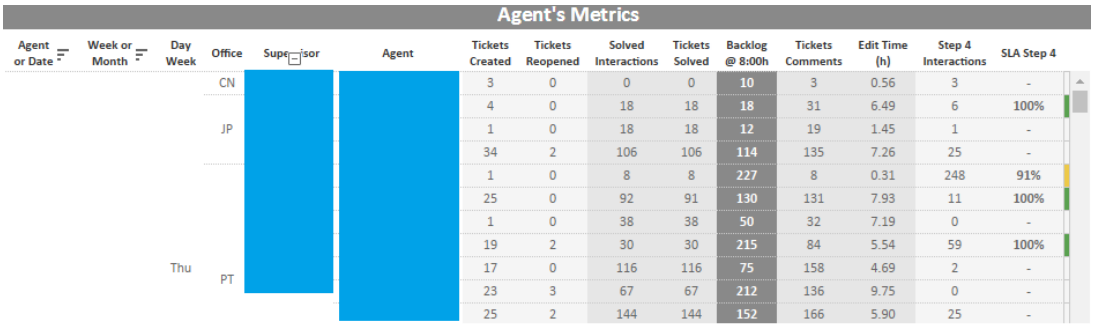


Figure 27 - Individual Performance Table

An important aspect that needs to be mentioned is the tickets SLA exclusion. After some discussions on whether or not this metric should be included on this report, it was decided that it does not make sense to report it on the agent's level. Due to the fact that the allocation of the different ticket types to agents changes every day, it implies that every day agents have to deal with distinct cases and sometimes need to exchange tickets among them. Hence, measuring the individual SLA would not be a fair individual metric.

The graphic areas on the right describe the main evolution metrics over time. This information can also be filtered: by office, supervisor or agent. The entire dashboard can be found on Appendix C.

4.5 Main Achievements

All the work developed during this dissertation was highly based on analytics, with the main focus on the KPIs created and the visualization tools built. Concerning the dashboards, the requirements proposed at the beginning of the project were satisfied with all the new tools developed, being able to fulfil the team's main needs. In terms of KPIs, everything that was added and recycled from the previous reporting created a strong basis to feed every tool and offer the team important information, previously not available.

Table 2 represents a summary of all the KPIs used over the course of the project. In order to complement every KPI characterization, it was added a column with the entity responsible for each metric. This entity is the responsible for the value of each KPI, being: Delivery Support Team, Farfetch or External (it can be a courier, a customer or a boutique).

Table 2 - KPIs Summary

	KPI	Recycled/New	Entity
Tickets	Solved Tickets	Recycled	DS Team
	Reopened Ticket	Recycled	DS Team+FF+External
	SLA (<8h)	Recycled	DS Team
	Created Tickets	Recycled/New	DS Team+FF+External
	Backlog Trend	New	DS Team+FF+External
	Response Rate	New	DS Team
	Full Resolution Time	Recycled/New	DS Team+FF+External
	Backlog – Proactive/Reactive	New	DS Team+FF+External
	Workload	New	DS Team+FF+External
	Backlog – Age	New	DS Team+FF+External
	Inbound Tickets	New	FF+External
	Outbound Tickets	New	DS Team
	Exceptions	New	External
	Farfetch Orders	New	FF
	CPO – Contacts per Order	New	DS Team+FF+External
	Value on Tickets Created	New	DS Team+FF
	Average Value by Ticket Created	New	DS Team+FF
	Solved Interactions	New	DS Team
	Edit Time	New	DS Team
Step 4 Stops	SLA (<2h)	Recycled	DS Team
	Step 4 Solved	New	DS Team
	Orders Stopped in Step 4	New	DS Team+FF+External
	% Orders Stopped with an Error	New	FF+External
	% Orders Stopped with a Delay	New	DS Team+FF

4.5.1 Improved Results

The full implementation of the reporting tools developed took place during the last weeks of the project. The impact on the overall performance was tremendous, achieving improved results right after the team started using the dashboards. Since the implementation of the dashboards occurred only three weeks before the end of the project, the best way to analyse the impact on performance was comparing the results three weeks before and after the implementation. The

three most important achievements were: Service Level Agreement, Response Rate and Percentage of Tickets Reopened.

Concerning SLA and RR, Figure 28 shows the performance improvement after the implementation:

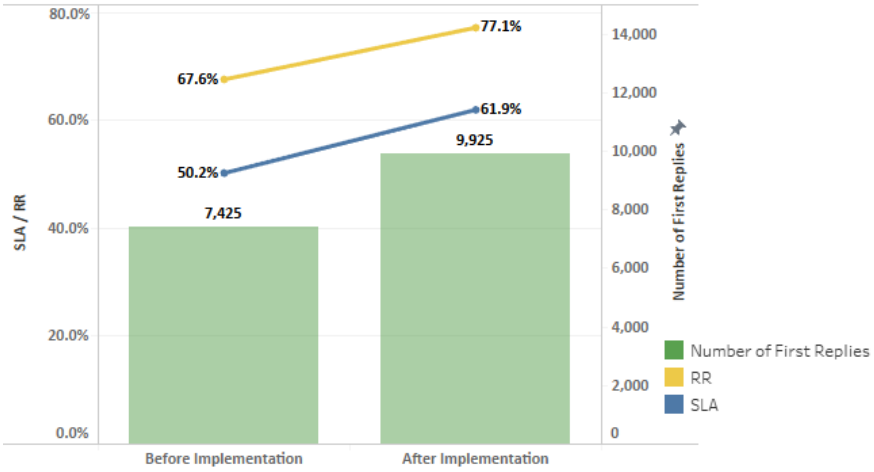


Figure 28 - SLA / RR Improvements

As it is possible to observe, even though there has been a workload uplift of 33.7%, the performance levels still increased. The SLA increased by 11.7% and the RR increased by 9.5%, which indicates that the new tools enabled the team to reduce waiting time for a first reply, improving the overall service quality provided to other Farfetch teams, couriers and also Farfetch customers.

The decrease on the percentage of tickets reopened was another important achievement after the dashboards implementation. This is presented on Figure 29.

Figure 29 - Improvement on the % of Tickets Reopened

The number of tickets reopened is an issue that needs to be looked at thoroughly since it usually represents lack of quality and processes standardization. Even though this metric was not included on the reporting tools, it was used on this analysis to show the importance of the new dashboards:

- **% of Tickets Reopened:** this metric measures the percentage of tickets that reopen after being solved by the team. The calculation is the following:

$$\%\ Tickets\ Reopened = \frac{Reopened\ Tickets}{Demand} * 100$$

Despite the increase on demand that happened right after the implementation, shown on Figure 29, the percentage of tickets reopened decreased by 1.5%. This is a big accomplishment for the team since it represents improvements and efficiency gains. With the new dashboards insights, the team expects to achieve even better results in the future.

Having a big percentage of tickets reopened means that the agents may be solving tickets hastily, without a well-defined resolution criteria. A big number of tickets reopened is also translated into a higher volume of workload that, in the end, compromises the quality of some of the KPIs, for example Full Resolution Time and SLA.

The improvements obtained with only three weeks of usage of the new reports show that the new tools had a positive impact on the team's performance. Having access to the new dashboards and KPIs enabled the team to put into action new working strategies and stablish new goals, both individually and collectively. For instance, with the new data available, the team was able to identified a high volume of tickets in the status "new" with more than 1 day of age. This helped to decrease that tickets volume, improving the SLA and RR.

Since some of the new strategies defined by the management team are focused on mid and long-term plans, it would be necessary to wait a few more weeks to identify further KPIs improvements.

4.5.2 Workforce Planning Foundations

Although the main purpose of this project was to build the necessary tools to help measuring and controlling the workforce for the Delivery Support team at Farfetch, after the majority of the tools were finished and ready to be used, a new study opportunity concerning the team's workforce planning appeared. Besides not being planned, this study adds value to the team and represents a bridge between the tools created and the future needs in terms of planning the number of agents needed and its distributions by office and different type of tasks. The study was proposed by the management team that wanted to understand in detail the distribution of the current workload by office and come up with numbers for future recruitment needs.

For this study, the main focus was to analyse the evolution of the Delivery Support team main results taking into account the division by office due to the specificity that some task can have. In terms of visualization, it was used a colour range based on the traffic lights in order to quickly identify values that stand out. The metrics used were:

- **Tickets Workload:** the tickets created and reopened represent the best way to identify the workload volume;
- **Edit Time:** it measures the time spent working on each issue. Hence, the edit time can help understand the current and future allocation of resources;
- **Full Resolution Time:** this metric is helpful in cases where the supervisor wants to identify what kind of issue is being more problematic: it helps to understand what issues take more time to solve;
- **Orders Stopped in Step 4:** this measures the number of interactions with orders that had to be manually sent from Step 4 to Step 5, which represent a significant number of working hours every day. This volume needs to be taken into account for the daily working demand of the team.

The first stage of the study started with the representation of the total workload by point of contact. These points of contact were defined based on the departments that have a higher volume of communication with the team. On top of that, each analysis was divided by the

offices locations: China, Japan, Portugal and United States. The metrics used on this first approach were: Tickets Workload (both volume and percentage), Edit Time and Full Resolution Time. In addition to the split of these metrics by point of contact, the Edit Time and Full Resolution Time was also divided by ticket category. This last division offers a different perspective on what categories need more time to be handled. An important feature of these analyses is the ability to select the range of dates: with this option, the end user is able to select a specific interval of dates to study (it could be important to compare, for example, the results obtain on low season with the results obtained on high season). All the analysis described are presented on Appendix D.

The second stage was focused on the workload hourly evolution throughout the day. This allows the teams to understand if the current scheduling is able to efficiently cover demand during an entire 24-hour cycle. The representation was built with the option to choose between percentage or volume of workload per hour, as shown on Figure 30.

Workload Hourly Evolution

Percentage (Percentage / Volume)

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Created	JP	4.2%	8.3%	8.2%	5.8%	4.2%	7.3%	9.3%	9.2%	8.9%	5.3%	2.7%	2.3%	2.1%	1.9%	2.3%	2.6%	3.0%	2.7%	2.0%	1.4%
	PT	0.6%	0.5%	0.4%	0.3%	0.3%	0.5%	1.1%	3.8%	7.5%	10.8%	11.1%	10.9%	7.7%	5.9%	10.0%	10.6%	9.3%	5.4%	1.0%	0.4%
	US	2.5%	1.0%	0.5%	0.3%	0.2%	0.2%	0.3%	1.3%	2.1%	2.5%	2.9%	3.4%	2.7%	2.7%	4.9%	10.1%	13.6%	13.3%	11.9%	6.6%
Reopen	JP	2.8%	3.7%	5.6%	3.4%	2.6%	4.4%	6.3%	7.7%	8.7%	10.3%	6.0%	6.1%	3.6%	3.6%	4.0%	4.0%	5.2%	3.1%	2.0%	1.7%
	PT	1.2%	1.5%	1.0%	0.7%	0.6%	0.6%	0.9%	2.9%	6.4%	8.6%	9.1%	9.3%	7.6%	7.6%	9.8%	9.6%	8.3%	5.4%	2.5%	1.7%
	US	4.5%	2.8%	1.5%	0.9%	0.7%	1.0%	1.0%	3.3%	6.0%	6.8%	5.9%	4.0%	3.3%	3.3%	3.2%	5.4%	7.5%	7.3%	6.2%	5.0%

		19	20	21	22	23
Created	JP	1.2%	1.4%	1.6%	2.1%	2.1%
	PT	1.3%	0.4%	0.4%	0.5%	0.7%
	US	4.6%	4.2%	4.4%	3.7%	3.7%
Reopen	JP	1.3%	1.2%	1.4%	1.0%	1.2%
	PT	1.3%	1.2%	1.1%	1.1%	1.1%
	US	5.1%	4.5%	5.1%	5.8%	5.8%

Figure 30 - Hourly Evolution of the Workload

The insights from the previous study should help define the most adequate schedules for the team, taking into account the periods of the day when demand is higher. The main goal is to create a more efficient resource allocation.

The third and final analysis focused on the monthly trends of some of the metrics. Tickets Workload, Edit Time and Full Resolution Time were broken down by office and the data was grouped by month, as displayed on Figure 31.

Workload Monthly Evolution

		2016												2017				
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Created	JP	5.5%	3.0%	4.2%	2.1%	3.1%	3.9%	9.3%	8.3%	6.4%	11.5%	11.5%	5.6%	5.8%	4.5%	1.2%	1.6%	12.5%
	PT	2.4%	3.2%	2.7%	2.8%	4.1%	4.3%	7.2%	7.7%	6.4%	6.9%	10.2%	7.0%	6.7%	5.5%	7.8%	6.6%	8.5%
	US	6.0%	6.1%	4.3%	4.6%	4.9%	4.8%	9.7%	6.5%	5.4%	7.2%	9.7%	5.4%	5.9%	5.6%	5.7%	4.0%	4.3%
Reopen	JP	6.1%	3.8%	5.0%	3.0%	2.7%	4.5%	10.9%	11.8%	9.2%	11.3%	10.5%	8.8%	3.4%	3.4%	0.5%	0.2%	4.8%
	PT	5.4%	4.8%	4.7%	4.8%	4.7%	5.1%	7.3%	9.4%	7.2%	6.7%	9.2%	7.5%	5.4%	4.5%	4.1%	4.2%	4.9%
	US	8.1%	6.7%	6.7%	6.9%	6.9%	5.0%	5.5%	6.6%	5.7%	8.8%	7.5%	6.1%	4.3%	3.8%	4.1%	2.7%	4.6%

Edit Time Montly Evolution

	2016												2017				
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
JP	3.27	4.36	3.69	4.51	4.12	4.02	4.12	5.43	5.96	4.90	3.84	4.21	4.38	4.13	3.98	5.58	4.22
PT	2.88	3.07	2.98	3.12	2.74	2.73	2.58	2.82	2.99	2.88	2.56	2.44	2.60	2.34	2.38	2.44	2.55
US	3.28	3.18	3.11	3.31	3.16	3.78	2.89	3.72	3.90	3.95	3.21	3.38	3.08	3.45	3.56	3.27	3.27

Step 4 Stops Evolution

	2016												2017				
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
JP	704	624	457	286	440	452	557	325	248	445	643	485	649	455	291	274	712
PT	3,686	3,636	3,924	4,200	4,378	6,267	4,829	3,990	3,564	4,422	8,230	6,263	7,814	4,231	5,538	6,385	6,725
US	924	795	974	940	1,228	1,148	1,417	574	743	949	1,089	919	1,061	845	902	749	709

Figure 31 - Monthly Evolution of the main Metrics

The results from this last module can be combined with Farfetch growth values in terms of orders to conclude about present and future recruitment needs and resources allocation, mid and long-term. In order to have a better perception of the recruitment needs, some more studies need to be developed. The research stopped at this point due to the fact that the time period for this dissertation project was not enough to go further into this topic.

One last study was made in order to understand what offices may justify an increased number of resources. Tickets and orders data were combined to understand what countries create more issues for the team. The most intuitive way of representing this study was through a world map representation, as presented on Figure 32.

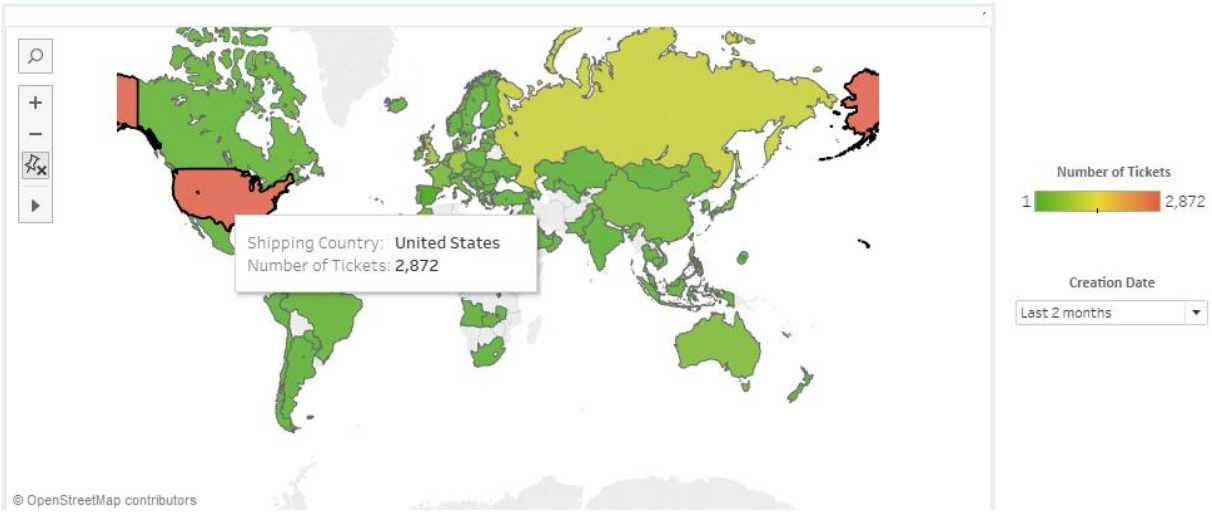


Figure 32 - Countries with more Created Tickets

After gathering all of this information, the next step would be to put together some assumptions regarding the tasks performed by the team and create a final planning model. Since this was not possible to do during this dissertation, a deeper explanation about this topic is done on the next chapter, regarding future works.

Concerning data sources, all the queries used to extract this data were the same ones used previously.

5 Conclusions and Future Work

In such a competitive and demanding environment like the luxury e-commerce industry, it is critical to create and maintain a high-quality service. In order to achieve it, it is necessary to have efficient communication channels. In particular, support services represent a vital piece of the puzzle, because they are responsible for all the communication, either internally between teams or externally with clients and other services providers.

Farfetch aims to deliver the best possible service to all its stakeholders. Hence, there is a constant need to improve the quality of the work in order to fulfil all the expectations. Since the former methods of measuring the quality of the service provided by the Delivery Support team were not consistent and reliable, it was recognized the necessity to restructure the way the performance was being measured.

The main goal was to put together some of the old metrics already being used with new ones created from scratch and create visualization tools able to display the performance of the tasks performed by the team. Also, this project aims to create a stronger basis for Workforce Management in the future.

After the implementation of the dashboards developed during this project, the Delivery Support team has a way to accurately examine the performance with multiple perspectives. Regarding the levels of detail, the dashboards offer the possibility to display information not only with an overall perspective but also split by agent or office. On top of that, the tools offer means of showing important data in different periodicities: hourly, daily and weekly.

The use of the tools developed started generating better results right after the implementation of the dashboards. Comparing the three weeks after the implementation with the three weeks immediately before, the Service Level Agreement increased from 50.2% to 61.9% and the Response Rate increase from 67.6% to 77.1%, even with an increase on the number of first replies by 33,7%. Furthermore, there were also improvements on the percentage of tickets reopened, which decreased from 12.5% to 11.0%, despite the increase of 34% on the workload. Although these tools were implemented late in the process, the results obtained in such a short period of time show the potential that these dashboards have and how likely they are to generate improvements in the near future. Hence, the main goal of this dissertation was the development of the tools and the KPIs themselves, and how they were able to start creating a strong basis for the implementation of a full Workforce Management process.

One of the most relevant limitations found was the difficulty to find a way of measuring the time spent on each of the tasks. In terms of individual performance, it was important to remind both agents and supervisors that it is normal to have very disperse results among them due to the specificity of the tasks performed. In the future, some assumptions should be put in place in order to help creating clusters and enable a proper benchmark. On top of that, there were some restrictions regarding the servers from where the data was extracted that limited the depth of the analysis. Although all the queries used to extract data were optimized, due to some extraction speed limitations, some details were temporarily left aside. With future improvements on the servers, it should be easier to extract more information and improve the data provided to the team.

Concerning the limitations mentioned, there were some features that could be implemented on future work in order to improve the tools and create new areas of analysis. One opportunity could be the expansion of the deepness of the analysis for the daily dashboard, adding the possibility to see information detailed by hour, through the use of the grouping feature. Since all the data presented on the reporting was built to be displayed in GMT time, it could also be important to add new options to visualize information in different time zones, due to the fact that the Delivery Support team also works in China, Japan and United States. Another specific improvement that could be made is a more detailed ticket categorization: currently, the

categorization is the one previously stablished by the managers, but some deeper analysis could be made if these categories offered a higher level of detail.

The following step in terms of reporting would be to create a new dashboard that displays in detail the productivity of the team in a perspective close to real-time. In order to achieve this, future studies can be very helpful to help identify similar works or new research opportunities. Due to the servers' restrictions, this project becomes even more difficult to develop, but with the expected improvements in the horizon it could be possible to create such a tool. This dashboard would show all the KPIs in a single page, being constantly refreshed (first hourly and then starting to introduce shorter interval schedules to test the capacity of the data sources to correctly feed the dashboard with the necessary data). In the end, the final goal would be to transform this intraday dashboard in a real-time wallboard to be displayed in a television near the agents working area. With this tool, all the members of the team would be able to see in real time the evolution of the KPIs, adapting their work if needed in order to achieve the daily target.

The information available on the databases regarding the Step 4 Stops was not enough to build a full base of performance measurements. Although during this project it was possible to measure how many of these tasks were performed (including categorization) and the time between the moment the order stopped and the case was solved (Service Level Agreement), it would be important to measure the amount of time that the agents spend solving each one of these order stops. In order to make this information available on the Farfetch databases, it would be necessary to work together with the Business Intelligence team and also the Technological team. The Technological team would be responsible for introducing new code on the Farfetch order processer platform in order to calculate and save the time spent by the agent every time there is a new interaction in a certain order. The Business Intelligent team would help transferring those editing times to a table on the databases, allowing analysts to extract the data for this kind of study. From this point onwards, it would be possible to select and extract data to show the time spent by the team on each of the Step 4 Stops tasks and have a better productivity picture.

Regarding targets for the KPIs, some of the metrics maintained the objectives stablished previously by the managers, however for others it was not possible to find a reasonable target. In order to define new targets and redefine old ones, the project would need to be in place during a longer period of time in order to gather a big enough sample of results. On top of that, historical studies could be conducted, applying the new calculations developed during this dissertation to a range of dates previous to this project in order to have a better sense of results and trends.

Although some of the planning calculations were already being developed at the end of this dissertation, a lot more should be done in order to support the next steps of the workforce management cycle. In order to enable the team to properly define the future workforce needs, a more detailed study around working hours could be done. A project like this would also depend on the availability of certain data to measure the time of the tasks being performed by the team. The forecasting would be also linked with this analysis, which makes this a long-term project, given the high necessities for historical data.

The Delivery Support team is the one responsible for the communication with the couriers that deliver everything that Farfetch sells. Hence, the performance of the agents working on the courier side has a big impact on the Delivery Support team. Future analysis and reports could be specially designed to study the performance of the main couriers that work with Farfetch. In order to achieve this, partnerships could be stablished with members from the support team of those couriers. All the reports that arise from those partnerships could later be shared with them, together with collective goals that could help both teams improve the quality of their work.

Beyond communicating with couriers, the Delivery Support team also keeps in touch with other support teams within Farfetch. Normally, the issues come from either final customer (Customer

Service) or boutiques (Partner Service). Since it is so important to maintain a good level of communication among the different teams, in terms of reporting, all the KPIs should be standardized. With this dissertation, the Workforce Management team successfully creates a connection with the Delivery Support team, covering now all the reporting concerning the three support teams at Farfetch (before this project, the WFM team only worked with Customer Service and Partner Service). This represents a good opportunity for the WFM team to put together the analysts responsible for the reporting of each one of the teams and create a standardization project that should help each other complement their work, creating a stronger base of performance measurements for the teams as a whole.

The development period for this dissertation was not enough to implement changes on the team's Kaizen Board. As the implementation of the tools occurred late on the schedule, there was no time left to improve the board. Since the new calculations from the dashboards started being used by the team to feed the Kaizen Board, it would make sense to apply some adjustments to the white board in order to create a better tool in terms of organization and visualization.

Farfetch continuous growth demands performance visualization tools with a high level of adaptability. All the tools that were developed fulfil this need, given the high level of detail and multiple features implemented. With the right use and accompaniment, these dashboards are ready to help the business achieve its goals in the future.

The tools developed during this project demonstrate that it is possible to build good reporting tools able to help improve and maintain high levels of quality service. Specially for the luxury e-commerce industry, achieving high performance with the support teams is essential to deliver a good service to the final customers.

References

An, L. J., J. J. Jeng, Y. M. Lee, C. R. Ren and Ieee. 2007. *Effective workforce lifecycle management via system dynamics modeling and simulation*. Proceedings of the 2007 Winter Simulation Conference, Vols 1-5. New York: Ieee.

Bauer, Kent. 2004. "KPIs-The metrics that drive performance management". *Information Management* no. 14 (9):63.

Brath, Richard and Michael Peters. 2004. "Dashboard design: Why design is important". *DM Direct Newsletter*:1011285-1.

Chaudhury, Abhijit, Debasish Mallick and H Raghav Rao. 2001. "Web channels in e-commerce". *Communications of the ACM* no. 44 (1):99-104.

Chen, Joseph C, Ye Li and Brett D Shady. 2010. "From value stream mapping toward a lean/sigma continuous improvement process: an industrial case study". *International Journal of Production Research* no. 48 (4):1069-1086.

Chen, Sandy C and Gurpreet S Dhillon. 2003. "Interpreting dimensions of consumer trust in e-commerce". *Information Technology and Management* no. 4 (2-3):303-318.

Cimitile, M., M. Gaeta, V. Loia and Ieee. 2012. "An Ontological Multi-Criteria Optimization System for Workforce Management". In *2012 Ieee International Conference on Fuzzy Systems*. New York: Ieee. <Go to ISI>://WOS:000309188200096.

Corbitt, Brian J, Theerasak Thanasankit and Han Yi. 2003. "Trust and e-commerce: a study of consumer perceptions". *Electronic commerce research and applications* no. 2 (3):203-215.

da Costa, Pedro Manuel Pinto. 2014. "Apoio na implementação de sistema de melhoria contínua".

da Silva Afonso, André Miguel Castelão. 2012. "Apoio à Implementação da Melhoria Contínua na Indústria Rolheira Amorim & Irmãos, SA", Universidade do Porto.

Dauriz, Linda, Nathalie Remy and Nicola Sandri. 2014. "Luxury shopping in the digital age". *Perspectives on retail and Consumers Goods. McKinsey*.

Dias, Tiago Santos Costa. 2012. "Projeto de Aumento de Produtividade e Redução de Inventário Kaizen Institute Consulting Group", Universidade do Porto.

España, Fernando, C Tsao and Mark Hauser. 2012. "Driving continuous improvement by developing and leveraging lean key performance indicators". *Proceedings IGLC-20, San Diego, Estados Unidos*.

Few, Stephen. 2006. "Information dashboard design".

Husic, Melika and Muris Cicic. 2009. "Luxury consumption factors". *Journal of Fashion Marketing and Management: an international journal* no. 13 (2):231-245.

Irani, Zahir and John M Sharp. 1997. "Integrating continuous improvement and innovation into a corporate culture: A case study". *Technovation* no. 17 (4):199223-206.

Kassem, S., H. Hagras, G. Owusu, S. Shakya and Ieee. 2012. "A Type2 Fuzzy Logic System for Workforce Management in the Telecommunications Domain". In *2012 Ieee International Conference on Fuzzy Systems*. New York: Ieee. <Go to ISI>://WOS:000309188200169.

Kianto, Aino, Pia Hurmelinna-Laukkanen and Paavo Ritala. 2010. "Intellectual capital in service-and product-oriented companies". *Journal of Intellectual Capital* no. 11 (3):305-325.

Kuo, Y. H., J. M. Y. Leung and C. A. Yano. 2014. "Scheduling of Multi-skilled Staff Across Multiple Locations". *Production and Operations Management* no. 23 (4):626-644. <Go to ISI>://WOS:000334306200010.

Lin, Yong, Jing Luo, Shuqin Cai, Shihua Ma and Ke Rong. 2016. "Exploring the service quality in the e-commerce context: a triadic view". *Industrial Management & Data Systems* no. 116 (3):388-415.

Manos, Anthony. 2007. "The benefits of Kaizen and Kaizen events". *Quality Progress* no. 40 (2):47.

Nienaber, H. and N. Sewdass. 2016. "A reflection and integration of workforce conceptualisations and measurements for competitive advantage". *Journal of Intelligence Studies in Business* no. 6 (1):5-20. <Go to ISI>://WOS:000382943100002.

Nissen, Mark E. 2000. "Supply chain process and agent design for e-commerce". Paper presented at System Sciences, 2000. Proceedings of the 33rd Annual Hawaii International Conference on.

Okonkwo, Uché. 2009. "Sustaining the luxury brand on the Internet". *Journal of brand management* no. 16 (5-6):302-310.

Oppenheim, Charles and Louise Ward. 2006. "Evaluation of web sites for B2C e-commerce". Paper presented at Aslib Proceedings.

Orts, Daryl. 2004. "Dashboard Development and Deployment". *Bellevue: Noetix Corporation*.

Pauwels, Koen, Tim Ambler, Bruce H Clark, Pat LaPointe, David Reibstein, Bernd Skiera, Berend Wierenga and Thorsten Wiesel. 2009. "Dashboards as a service: why, what, how, and what research is needed?". *Journal of Service Research* no. 12 (2):175-189.

Radon, Anita. 2012. "Communicating luxury brand exclusivity online". *The Swedish School of Textiles, University of Borås*.

Ricker, Fred and Ravi Kalakota. 1999. "Order fulfillment: the hidden key to e-commerce success". *Supply chain management review* no. 11 (3):60-70.

Shah, M., G. Owusu, C. Voudouris and Ieee. 2007. *Demand forecasting in operational workforce management*. Proceedings of the 2007 IEEE International Conference on Service Operations and Logistics, and Informatics. New York: Ieee.

Shahin, Arash and M Ali Mahbod. 2007. "Prioritization of key performance indicators: An integration of analytical hierarchy process and goal setting". *International Journal of Productivity and Performance Management* no. 56 (3):226-240.

Smilowitz, K., M. Nowak and T. T. Jiang. 2013. "Workforce Management in Periodic Delivery Operations". *Transportation Science* no. 47 (2):214-230. <Go to ISI>://WOS:000318852300006.

Terzi, Nuray. 2011. "The impact of e-commerce on international trade and employment". *Procedia-Social and Behavioral Sciences* no. 24:745-753.

Weber, Al and Ivara Ron Thomas. 2005. "Key performance indicators". *Measuring and Managing the Maintenance Function, Ivara*.

Wilson, Susan G and Ivan Abel. 2002. "So you want to get involved in e-commerce". *Industrial Marketing Management* no. 31 (2):85-94.

Wright, P. D., K. M. Bretthauer and M. J. Cote. 2006. "Reexamining the nurse scheduling problem: Staffing ratios and nursing shortages". *Decision Sciences* no. 37 (1):39-70. <Go to ISI>://WOS:000236223800002.

Ying, Wang and Sang Dayong. 2005. "Multi-agent framework for third party logistics in E-commerce". *Expert Systems with Applications* no. 29 (2):431-436.

Yu, Ying, Xin Wang, Ray Y Zhong and George Q Huang. 2016. "E-commerce Logistics in Supply Chain Management: Practice Perspective". *Procedia CIRP* no. 52:179-185.

APPENDIX A: SQL Queries

Solved Tickets

```
SELECT DISTINCT ZTA.TicketId AS [TicketId],  --Selecting the IDs to count

LEFT(DATENAME(dw,CAST(ZTA.CreatedAt as date)),3) [Day Week],   --Selecting all the info from the date
DATEPART(HOUR,ZTA.CreatedAt) AS [Hour],
LEFT(DATENAME(mm,CAST(ZTA.CreatedAt AS DATE)),3) [Month],
DATENAME(yy,CAST(ZTA.CreatedAt as date)) [Year],
CAST(ZTA.CreatedAt as date) as [Day],

case when datepart(week,dateadd(day,6,ZTA.CreatedAt)) = '53' and month(ZTA.CreatedAt)=1 then 1 else datepart(week,dateadd(day,6,ZTA.CreatedAt)) end as [Week],
ZU.Name AS Agent,

ADSA.Office,

ZG.Name AS [Group],
COUNT(ZTA.TicketID) AS [Solved Interactions],  -- total number of interactions that changed the ticket status to solved
ZTCF.Value AS [Category]

FROM [BI_ZENDESK].[dbo].[Zendesk_Tickets] ZT
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketAudits] ZTA ON ZT.Id = ZTA.TicketId AND ZT.AccountId = ZTA.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketEvents] ZTE ON ZTE.TicketAuditID = ZTA.ID
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Groups] ZG ON ZG.Id = ZT.GroupId AND ZG.AccountId = ZT.AccountID
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketMetrics] ZTM ON ZT.Id = ZTM.TicketId and ZT.AccountID = ZTM.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsCustomFields] ZTCF ON ZTCF.TicketId = ZT.Id AND ZTCF.AccountId = ZT.AccountId AND ZTCF.CustomTicketFieldID IN ('23655909','24602366')
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZU ON ZT.AssigneeId = ZU.Id AND ZT.AccountId = ZU.AccountId
LEFT JOIN BI_ZENDESK.dbo.Zendesk_TicketsCustomFields ZTCF_spam ON ZTCF_spam.TicketID = ZT.ID AND ZTCF_spam.CustomTicketFieldID in ('24477183') and ZT.accountid = ZTCF_spam.AccountId
LEFT JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA ON ADSA.ZendeskUserID = ZTA.AuthorId

WHERE
CAST(ZTA.CreatedAt as date) >= '2017-02-01'   -- Select only 2017
AND ZTA.AccountId = 2

AND ZTE.FieldName = 'status' and ZTE.Value = 'solved'   -- Selecting tickets that are solved
AND ZTCF_spam.Value NOT IN ('exception_spam') -- Code to exclude SPAM

GROUP BY
LEFT(DATENAME(dw,CAST(ZTA.CreatedAt as date)),3),
DATENAME(yy,CAST(ZTA.CreatedAt as date)),
DATENAME(dd,CAST(ZTA.CreatedAt as date)),
LEFT(DATENAME(mm,CAST(ZTA.CreatedAt AS DATE)),3),
CAST(ZTA.CreatedAt as date),
DATEPART(HOUR,ZTA.CreatedAt),

case when datepart(week,dateadd(day,6,ZTA.CreatedAt)) = '53' and month(ZTA.CreatedAt)=1 then 1 else datepart(week,dateadd(day,6,ZTA.CreatedAt)) end,
ZU.Name,
ADSA.Office,
ZG.Name,
ZTA.TicketId,
ZTCF.Value,
ZTA.CreatedAt,
CASE WHEN ZTM.Replies <= 1 then 1 else 0 end
```

Backlog

```
SELECT
[Group],
CTCH.TicketId AS [TicketId],
CTCH.Status AS [Status],

case when datepart(week,dateadd(day,6,CTCH.ExtractionDate)) = 53 and month(CTCH.ExtractionDate)=1 then 1 else datepart(week,dateadd(day,6,CTCH.ExtractionDate)) end as [Week],
Year(CTCH.ExtractionDate) as [Year],
LEFT(DATENAME(mm,CTCH.ExtractionDate),3) [Month],
CTCH.ExtractionHour as [Hour],
LEFT(datename(dw,CTCH.ExtractionDate),3) as [Day Week],
CTCH.ExtractionDate as [Day],

CASE WHEN CTCH.BacklogHour between 0 and 23 then '0-1 days'
WHEN CTCH.BacklogHour between 24 and 71 then '1-3 days'
WHEN CTCH.BacklogHour between 72 and 167 then '3-7 days'
WHEN CTCH.BacklogHour between 168 and 335 then '7-14 days'
WHEN CTCH.BacklogHour between 336 and 671 then '14-28 days'
else '>= 28days'
end as [Range],

CASE WHEN category.Value LIKE '%order_tracker%' THEN 1 ELSE 0 END AS [Order Tracker],
CASE WHEN category.Value NOT LIKE '%order_tracker%' THEN 1 ELSE 0 END AS [Tickets Backlog],

category.Value AS [Category],

CTCH.Agent AS [Agent],

CASE WHEN CTCH.Status = 'new' then 1 else 0 end as [New],
CASE WHEN CTCH.Status = 'open' then 1 else 0 end as [Open_],
CASE WHEN CTCH.Status = 'pending' then 1 else 0 end as [Pending],
CASE WHEN CTCH.Status = 'hold' then 1 else 0 end as [Hold]

FROM [BI_CUSTSERV].[dbo].[Tickets_Carryover_Hourly_Courier] CTCH
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsCustomFields] ZTCF ON ZTCF.TicketID = CTCH.TicketID AND ZTCF.CustomTicketFieldID IN ('23655909','24602366') AND ZTCF.AccountId = 2
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_Tickets] ZT ON ZTCF.TicketId = ZT.Id AND ZTCF.AccountId = ZT.AccountId
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsCustomFields] category ON category.TicketID = ZT.Id AND category.AccountId = ZT.AccountId AND category.CustomTicketFieldId IN ('23655909')

WHERE
CTCH.ExtractionDate >= getdate()-62
```

Shipping Region

```
select *
from (
SELECT distinct ZTCF.value AS [Field],

ZTCF.TicketId AS [TicketId],

SBL.Sigla AS Sigla,
SBP.Nome AS [Boutique Country],
SO.SCountry AS [Shipping Country],
SBL.Nome AS [Boutique Name],
SO.TotalSemShip AS Value,

(CASE WHEN SBL.Moeda = 'GBP' then 1
WHEN SBL.Moeda  <> 'GBP' then
(SELECT TOP 1 SFC.Valor FROM [BI_SYNC].[dbo].FarCambios SFC
WHERE SFC.Para='GBP' and SFC.De= SBL.Moeda and SO.DataCriado >= SFC.DataHora order by SFC.DataHora desc)
else 1 end)*SO.TotalSemShip AS [Value GBP],

CAST(ZT.CreatedAt AS DATE) AS [Day],
LEFT(DATENAME(mm,CAST(ZT.CreatedAt AS DATE)),3) [Month],
CASE WHEN datepart(week,dateadd(day,6,ZT.CreatedAt)) = 53 and month(ZT.CreatedAt)=1 then 1 else datepart(week,dateadd(day,6,ZT.CreatedAt)) end as [Week],
YEAR(ZT.CreatedAt) as [Year],
LEFT(datename(dw,ZT.CreatedAt),3) as [Day Week],
DATEPART(HOUR,ZT.CreatedAt) AS [Hour],

ZT.CreatedAt
, ROW_NUMBER() over (partition by ZTCF.value ORDER BY CreatedAt) as rank
FROM [BI_ZENDESK].[dbo].[Zendesk_Tickets] ZT
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsCustomFields] ZTCF ON ZTCF.TicketId = ZT.Id AND ZTCF.AccountId = ZT.AccountId AND ZTCF.CustomTicketFieldID IN ('24191375')
LEFT JOIN [BI_SYNC].[dbo].[GLBOrderLines] SOL on cast(SOL.orderid as varchar) = case when cast(datacriado as date) >= '2017-03-17' then RIGHT(ZTCF.value,8) else RIGHT(ZTCF.value,7) END

LEFT JOIN [BI_SYNC].[dbo].[GlbOrders] SO on SOL.SiteID = SO.SiteID and SOL.OrderID = SO.OrderID
INNER JOIN [BI_SYNC].[dbo].[Bolocais] SBL ON SO.siteid = SBL.localid AND LEFT(ZTCF.value,3) = SBL.Sigla
LEFT JOIN [BI_SYNC].[dbo].[BoPaises] SBP ON SBP.PaisId = SBL.PaisId
LEFT JOIN BI_ZENDESK.dbo.Zendesk_TicketsCustomFields ZTCF_spam ON ZTCF_spam.TicketID = ZT.ID AND ZTCF_spam.CustomTicketFieldID in ('24477183') and ZT.accountid = ZTCF_spam.AccountId --

WHERE
CAST(ZT.CreatedAt AS DATE) BETWEEN getdate()-45 AND getdate()
AND ZT.AccountId=2
AND ZTCF.value IS NOT NULL

AND ZTCF_spam.Value NOT IN ('exception_spam') -- Code to exclude SPAM

 ) tmp
 where rank = 1
```

Tickets SLA & RR

```
SELECT
ZT.Id AS TicketID,
ZTM.CreatedAt AS CreatedDate,

CASE WHEN DATEDIFF(minute,ZTM.CreatedAt,FirstReply.FirstReplyDate) <= 480 THEN 1 ELSE 0 END as RepliedSLA, -- -- -- SLA

CASE WHEN DATEDIFF(minute,ZTM.CreatedAt,FirstReply.FirstReplyDate) <= 1440 THEN 1 ELSE 0 END as RepliedRR, -- -- -- RR

DATEDIFF(minute,ZTM.CreatedAt,FirstReply.FirstReplyDate) AS [FirstReplyTime],

ZTCF.Value AS [Category],

FirstReply.Agent AS Agent,

CASE WHEN FirstReply.Agent IN ([redacted],
[redacted]) THEN 'PT'
WHEN FirstReply.Agent IN ([redacted]) THEN 'US'
WHEN FirstReply.Agent IN ([redacted]) THEN 'JP'
WHEN FirstReply.Agent IN ([redacted]) THEN 'CN' END AS Office

FROM [BI_ZENDESK].[dbo].[Zendesk_Tickets] ZT
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketMetrics] ZTM (nolock) ON ZT.Id = ZTM.TicketID AND ZT.AccountId = ZTM.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZUS (nolock) ON ZT.SubmitterID =  ZUS.Id AND ZT.AccountId = ZUS.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsCustomFields] AS ZTCF (nolock) ON ZTCF.TicketID = ZT.ID AND ZT.AccountId = ZTCF.AccountId AND ZTCF.CustomTicketFieldID IN ('23655909','24602366')
--LEFT JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA_Submitter (nolock) ON ADSA_Submitter.Advisor = ZUS.Name
OUTER APPLY (SELECT TOP 1 ZTC.CreatedAt AS FirstReplyDate, ZU.Name AS Agent
FROM [BI_ZENDESK].[dbo].[Zendesk_TicketComments] ZTC
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZU (nolock) ON ZU.Id = ZTC.AuthorId AND ZU.AccountId = ZTC.AccountId
LEFT JOIN BI_ZENDESK.dbo.Zendesk_TicketsCustomFields ZTCF_spam ON ZTCF_spam.TicketID = ZT.ID AND ZTCF_spam.CustomTicketFieldID in ('24477183') and ZT.accountid = ZTCF_spam.AccountId

WHERE
ZU.Name IN ([redacted]
)
AND ZTC.TicketID = ZT.Id
AND ZTC.AccountId = 2
AND ZTC.Body <> '.'
AND ZTCF_spam.Value NOT IN ('exception_spam') -- Code to exclude SPAM
ORDER BY ZTC.CreatedAt ASC) AS FirstReply

WHERE
CAST(ZTM.CreatedAt AS date) >= '2016-01-01'
AND ZT.AccountId = 2
AND LEN(ZT.Description) >= '5' -- Ignoring cases when members of the DS team create tickets with the UPS or FEMA name with "." or "-" and the ask for something

-- Ignore tickets created by delivery
AND ZUS.Name NOT IN ([redacted],
[redacted])

AND DATEDIFF(minute,ZTM.CreatedAt,FirstReply.FirstReplyDate) IS NOT NULL
```

Step 4 Stops

```
SELECT *,

CASE WHEN StopedStep4 = 1 AND (([Capt_OK_Date] IS NOT NULL AND [Capt_Err_Date] IS NULL) OR ([Capt_OK_Date] IS NULL AND [Capt_Err_Date] IS NULL)
 OR ([Capt_OK_Date] IS NOT NULL AND [Capt_Err_Date] IS NOT NULL)) THEN 1 ELSE 0 END AS StopedStep4_withoutcapture,
CASE WHEN StopedStep4 = 1 AND Who NOT LIKE '%by FarTop' AND Who NOT LIKE '%Excel%' THEN
        CASE WHEN [Shipping Country] = 'United States' and [Boutique Country] <> 'United States' AND
        ((CASE WHEN [Moeda] = 'USD' then 1
            WHEN [Moeda] <> 'USD' then
                (SELECT TOP 1 SFC.Valor FROM [BI_SYNC].[dbo].FarCambios SFC
                WHERE SFC.Para='USD' and SFC.De= [Moeda] and [DataCriado] >= SFC.DataHora order by SFC.DataHora desc)
            else 1 end)
        *[TotalSemShip] >= 2500) THEN '[US > 2500$]'
        -- WHEN [Hold] IS NOT NULL THEN 'Hold'
        WHEN [ShipType] IN (51,52,53,54,55) THEN 'Same Day'
        WHEN [Shipping Country] = 'Turkey' THEN 'Turkey'
        WHEN [Shipping Country] = 'San Marino' THEN 'San Marino'
        WHEN FlagOrders & 16384 = 16384 THEN '90 Minutes'
        WHEN [PaisId] = 28 THEN 'Step 4 Brazil'
        WHEN ([Shipping Country] = [Nome] AND [Nome] = 'Japan') THEN 'JP Post'
        ELSE 'To Do' END
ELSE 'Normal' END AS [Type],
CASE WHEN StopedStep4 = 1 AND Who NOT LIKE '%by FarTop' AND Who NOT LIKE '%Excel%' THEN
        CASE WHEN [Capt_Err_Date] IS NOT NULL AND Capt_OK_Date IS NULL THEN 'Capture'
        WHEN [Hold] IS NOT NULL THEN 'Hold'
        WHEN [ShipType] IN (51,52,53,54,55) THEN 'SameDay'
        ELSE 'To Do' END
ELSE 'Normal' END AS [Type Hold]
FROM(
        SELECT
        (BOL.Sigla + CAST(GLBO.orderID as varchar(10))) as OrderNumber,
        GLBO.SCountry AS [Shipping Country],
        SBP.Nome AS [Boutique Country],
        BOL.Nome AS [Boutique Name],
        BOL.Moeda AS [Moeda],
        GLBO.TotalSemShip AS [TotalSemShip],
        GLBO.ShipType AS [ShipType],
        BOL.PaisID AS [PaisId],
        SBP.Nome AS [Nome],
        GLBO.DataCriado AS [DataCriado],
        CASE WHEN DATEDIFF(minute,FOL4.date,FOL5.date)>=1 AND FOL5.date IS NOT NULL then 1 else 0 end as StopedStep4,
        DATEDIFF(minute,FOL4.date,FOL5.date) as TimeStopedStep4,
        MIN(SFOL_Error.DateUTC) AS [Hold],
       CASE WHEN (DATEDIFF(minute,FOL4.date,FOL5.date)>=1 AND FOL5.date IS NOT NULL) AND FOL5.Who NOT LIKE '%by FarTop' AND FOL5.Who NOT LIKE '%Excel%' THEN
            CASE WHEN DATEDIFF(minute,FOL4.date,FOL5.date) <= 120 THEN 'Inside SLA' ELSE 'Outside SLA' END
       ELSE 'Not SLA' END AS Step4SLA.
       CASE WHEN (GLBO.SCountry = SBP.Nome AND SBP.Nome = 'Japan') then 1 else 0 end as JPPost,
       CASE WHEN (GLBO.SCountry = 'Japan' AND SBP.Nome NOT IN ('Japan')) THEN 1 ELSE 0 END AS [In Japan],
       CASE WHEN (SBP.Nome = 'Japan' AND GLBO.SCountry NOT IN ('Japan')) THEN 1 ELSE 0 END AS [Out Japan],
       LEFT(DATENAME(dw,CAST(FOL5.date as date)),3) [Day Week],   --Selecting all the info from the date
       DATEPART(HOUR,FOL5.date) AS [Hour],
       LEFT(DATENAME(mm,CAST(FOL5.date AS DATE)),3) [Month],
       DATENAME(yy,CAST(FOL5.date as date)) [Year],
       CAST(FOL5.date as date) as [Day],
       case when datepart(week,dateadd(day,6,FOL5.date)) = 53 and month(FOL5.date)=1 then 1 else datepart(week,dateadd(day,6,FOL5.date)) end as [Week],
       CASE WHEN ADSA.Office IS NOT NULL THEN ADSA.Office
            WHEN ADSA.Office IS NULL AND FOL5.Who LIKE '%by FarTop' THEN 'StoreChange'
       ELSE 'External Agent' END AS [Office],
       CASE WHEN ADSA.Advisor IS NOT NULL THEN ADSA.Advisor
            WHEN ADSA.Office IS NULL AND FOL5.Who LIKE '%by FarTop' THEN 'StoreChange'
            WHEN ADSA.Office IS NULL AND FOL5.Who LIKE '%Excel%' THEN 'Excel Change'
       ELSE 'External Agent' END AS [Agent],
       FOL5.Who AS [Who],
       MIN(SFOL_Capture.DateUtc) as [Capt Err Date],
       (SELECT TOP 1 DateUtc from [BI_SYNC].[dbo].[FarOrderLog] SFOL_Ok
            WHERE GLBO.OrderId = SFOL_Ok.OrderId AND GLBO.SiteId = SFOL_Ok.SiteId
            AND DateUtc >= MIN(SFOL_Capture.DateUtc)
            AND text IN ('Capture Status: Captured')
       ) as [Capt_OK_Date],
       GLBO.FlagOrders,
       FOL4.date AS DateEnterStep4
      FROM [BI_SYNC].[dbo].[GLBOrders] GLBO
      INNER JOIN [BI_SYNC].[dbo].[FarOrderLog] FOL4 (nolock) ON GLBO.SiteID = FOL4.SiteID and GLBO.OrderID = FOL4.orderID and FOL4.LogType = 77  -- status Change: Package OK
      INNER JOIN [BI_SYNC].[dbo].[FarOrderLog] FOL5 (nolock) ON GLBO.SiteID = FOL5.SiteID and GLBO.OrderID = FOL5.orderID and FOL5.LogType = 34  -- Status Change: Ready to Send
      LEFT JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA (nolock) ON ADSA.SalesUser = FOL5.Who
      INNER JOIN [BI_SYNC].[dbo].[bolocais] BOL (nolock) ON BOL.localid=GLBO.siteid
      LEFT JOIN [BI_SYNC].[dbo].[BoPaises] SBP (nolock) ON SBP.PaisId = BOL.PaisId
      LEFT JOIN [BI_SYNC].[dbo].[FarOrderLog] SFOL_Error (nolock) ON  GLBO.OrderId = SFOL_Error.OrderId AND GLBO.SiteId = SFOL_Error.SiteId AND SFOL_Error.text IN
            ('Hold Step 4: Brazil')
      LEFT JOIN [BI_SYNC].[dbo].[FarOrderLog] SFOL_Capture (nolock) ON GLBO.OrderId = SFOL_Capture.OrderId AND GLBO.SiteId = SFOL_Capture.SiteId AND SFOL_Capture.text IN
            ('Capture Status: Capture error', 'Capture Status: Waiting response', 'Capture Status: Refused')
      WHERE CAST(FOL5.date AS date) >= '2017-02-01'
      GROUP BY
      (BOL.Sigla + CAST(GLBO.orderID as varchar(10))),
      GLBO.SCountry,
      SBP.Nome,
      BOL.Nome,
      BOL.Moeda,
      GLBO.TotalSemShip,
      GLBO.ShipType,
      BOL.PaisID,
      SBP.Nome,
      GLBO.DataCriado,
      CASE WHEN DATEDIFF(minute,FOL4.date,FOL5.date)>=1 AND FOL5.date IS NOT NULL then 1 else 0 end,
      DATEDIFF(minute,FOL4.date,FOL5.date),
      LEFT(DATENAME(dw,CAST(FOL5.date as date)),3),   --Selecting all the info from the date
      DATEPART(HOUR,FOL5.date),
      LEFT(DATENAME(mm,CAST(FOL5.date AS DATE)),3),
      DATENAME(yy,CAST(FOL5.date as date)),
      CAST(FOL5.date as date),
      case when datepart(week,dateadd(day,6,FOL5.date)) = 53 and month(FOL5.date)=1 then 1 else datepart(week,dateadd(day,6,FOL5.date)) end,
      CASE WHEN (GLBO.SCountry = SBP.Nome AND SBP.Nome = 'Japan') then 1 else 0 end,
      CASE WHEN (GLBO.SCountry = 'Japan' AND SBP.Nome NOT IN ('Japan')) THEN 1 ELSE 0 END,
      CASE WHEN (SBP.Nome = 'Japan' AND GLBO.SCountry NOT IN ('Japan')) THEN 1 ELSE 0 END,
      ADSA.Office
      ,FOL5.Who,
      CASE WHEN (DATEDIFF(minute,FOL4.date,FOL5.date)>=1 AND FOL5.date IS NOT NULL) AND FOL5.Who NOT LIKE '%by FarTop' AND FOL5.Who NOT LIKE '%Excel%' THEN
      CASE WHEN DATEDIFF(minute,FOL4.date,FOL5.date) <= 120 THEN 'Inside SLA' ELSE 'Outside SLA' END
      ELSE 'Not SLA' END,
      CASE WHEN ADSA.Advisor IS NOT NULL THEN ADSA.Advisor
      WHEN ADSA.Office IS NULL AND FOL5.Who LIKE '%by FarTop' THEN 'StoreChange'
      WHEN ADSA.Office IS NULL AND FOL5.Who LIKE '%Excel%' THEN 'Excel Change'
      ELSE 'External Agent' END,
      GLBO.SiteId,
      GLBO.OrderID,
      GLBO.FlagOrders,
      FOL4.date
) temp
```

Edit Time

```
SELECT

ZTA.TicketId AS [TicketId],
CASE WHEN CAST(ZTE.Value AS INT) <= 1800 THEN CAST(ZTE.Value AS INT) ELSE 1800 END AS UpdateTime,
ZTA.CreatedAt AS CreationDate,
CAST(ZTA.CreatedAt AS DATE) AS CreationDay,
ADSA.Advisor AS Agent,
ADSA.Office AS Office,
category.Value AS Category,

case when (datepart(week,dateadd(day,-1,ZTA.CreatedAt))=53 and month(ZTA.CreatedAt)=1) then 1 else datepart(week,dateadd(day,-1,ZTA.CreatedAt)) end as [Week],
Year(ZTA.CreatedAt) as [Year],
LEFT(DATENAME(mm,ZTA.CreatedAt),3) [Month],
ZTA.CreatedAt as [Hour],
LEFT(datename(dw,ZTA.CreatedAt),3) as [Day Week],
ZTA.CreatedAt as [Day]

FROM [BI_ZENDESK].[dbo].[Zendesk_Tickets] ZT
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketAudits] ZTA ON ZTA.TicketId = ZT.Id AND ZTA.AccountId = ZT.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZU_submitter ON ZU_submitter.Id = ZT.SubmitterId AND ZU_submitter.AccountId = ZT.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZU_requester ON ZU_requester.Id = ZT.RequesterId AND ZU_requester.AccountId = ZT.AccountId
LEFT JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA_submitter ON ZT.SubmitterId = ADSA_submitter.ZendeskUserId  -- Delivery Submitter
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketEvents] ZTE ON ZTE.TicketAuditId = ZTA.Id
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsCustomFields] ZTCF ON ZTCF.TicketID = ZT.Id AND ZTCF.AccountId = ZT.AccountId AND ZTCF.CustomTicketFieldId IN ('22951225')
INNER JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA ON ZTA.AuthorId = ADSA.ZendeskUserId
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsCustomFields] category ON category.TicketID = ZT.Id AND category.AccountId = ZT.AccountId AND category.CustomTicketFieldId IN ('23655909')
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsSharingAgreements] ZTSA ON ZTSA.TicketID = ZT.ID AND ZTSA.Accountid = ZT.Accountid AND ZTSA.SharingAgreementID IN ('20058899','20061475','20072655',
'20072665','20072675','20072725',
'20103463','20114803','20114823',
'20116046','20138206','20138226')
LEFT JOIN BI_ZENDESK.dbo.Zendesk_TicketsCustomFields ZTCF_spam ON ZTCF_spam.TicketID = ZT.ID AND ZTCF_spam.CustomTicketFieldID in ('24477183') and ZT.accountid = ZTCF_spam.AccountId

WHERE ZT.AccountId = 2
AND ZTA.CreatedAt >= '2017-01-01'
AND ZTE.FieldName = '22951225'
AND category.CustomTicketFieldId IN ('23655909')
AND ZTCF_spam.Value NOT IN ('exception_spam') -- Code to exclude SPAM
```

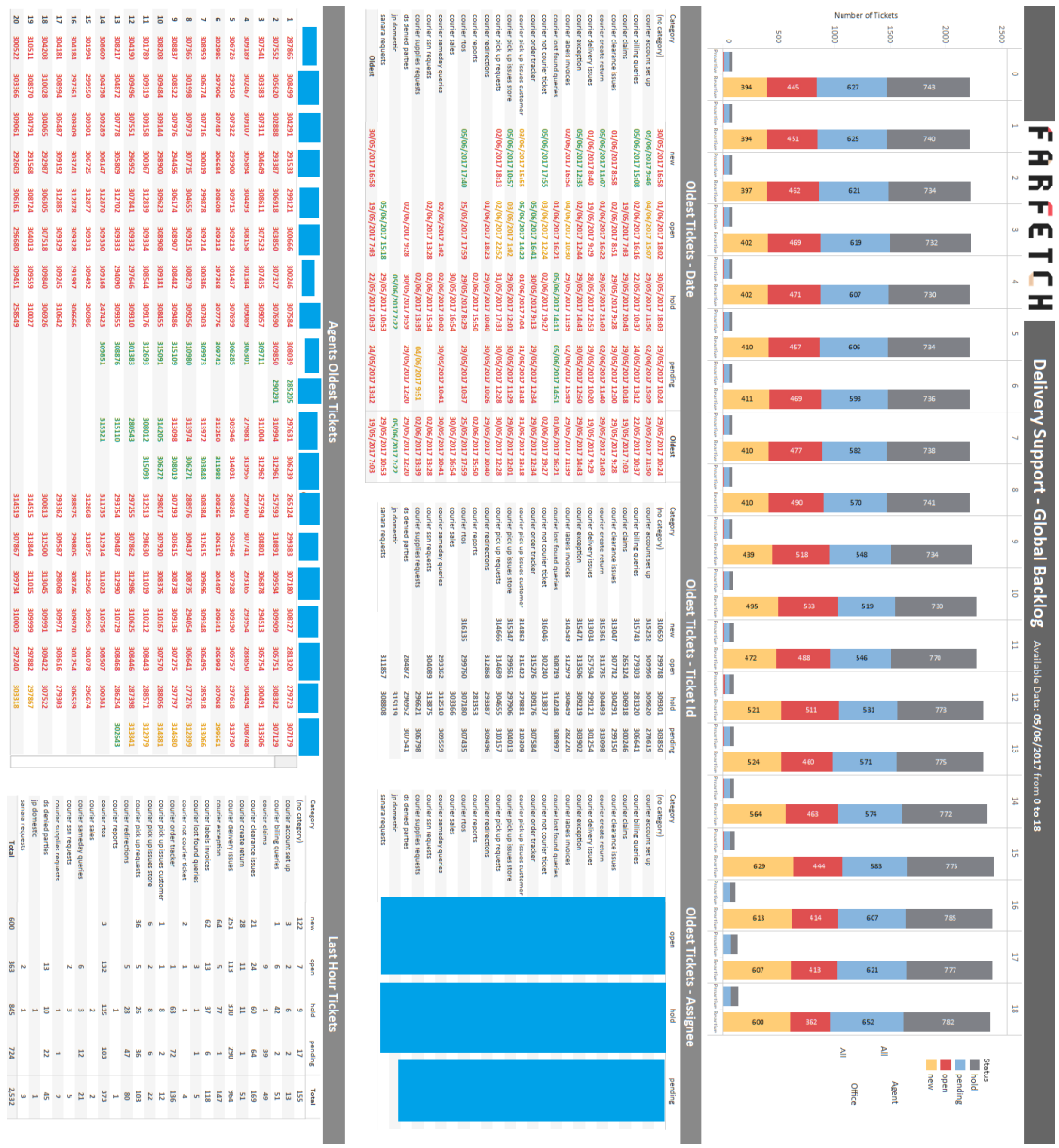
Created & Reopened

```
SELECT DISTINCT
CASE WHEN datepart(week,dateadd(day,6,ZTA.CreatedAt)) = 53 and month(ZTA.CreatedAt)=1 then 1 else datepart(week,dateadd(day,6,ZTA.CreatedAt)) end as [Week],
LEFT(datename(dw,cast(ZTA.CreatedAt as date)),3) [Day Week],
CAST (ZTA.createdat as date) as [Day],
YEAR(ZTA.createdat) as [Year],
LEFT(DATENAME(mm,CAST(ZTA.CreatedAt AS DATE)),3) [Month],

CASE WHEN (ZTA.CreatedAt BETWEEN '2017-03-26 01:00:00.000'AND '2017-10-29 02:00:00.000') OR (ZTA.CreatedAt BETWEEN '2018-03-25 01:00:00.000'AND '2018-10-28 02:00:00.000') THEN
DATEPART(HOUR,DATEADD(HOUR,1,ZTA.CreatedAt))
ELSE
DATEPART(HOUR,ZTA.CreatedAt)
END AS [Hour],

ZTA.CreatedAt AS CreatedAt,
ZT.Id AS [TicketId],

ZTG.Name as [Group],
-- CASE WHEN CCSA.Office is not null then CCSA.Office else 'Null' end office,
ZTCF.Value AS [Category],
CASE WHEN (ZTE.Type= 'change' and ZTE.PreviousValue = 'solved' and ZTE.Value <> 'closed') then 'Reopen'  -- If there is a change and the previous value was solved, it's a reopen
WHEN (ZTE.Type = 'create' and ZTE.PreviousValue = '') then 'Created'                                       -- If the type is create and there is no previous value, it's a creation
END AS [Created or Reopen],
ADSA.Office AS [Office]

FROM BI_ZENDESK.dbo.Zendesk_TicketAudits ZTA
INNER JOIN BI_ZENDESK.dbo.Zendesk_TicketEvents ZTE ON ZTE.TicketAuditID = ZTA.ID
INNER JOIN BI_ZENDESK.dbo.Zendesk_Tickets ZT ON ZT.id = ZTA.TicketID and ZTA.AccountId=ZT.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZU_submitter ON ZU_submitter.Id = ZT.SubmitterId AND ZU_submitter.AccountId = ZT.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZU_requester ON ZU_requester.Id = ZT.RequesterId AND ZU_requester.AccountId = ZT.AccountId
INNER JOIN BI_ZENDESK.dbo.Zendesk_TicketMetrics ZTM ON ZT.ID = ZTM.TicketID and ZT.accountID = ZTM.AccountId
LEFT JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA_submitter ON ZT.SubmitterId = ADSA_submitter.ZendeskUserId  -- Delivery Submitter
LEFT JOIN BI_ZENDESK.dbo.Zendesk_Groups ZTG ON ZTG.ID = ZT.GroupID and ZT.accountid = ZTG.AccountId
LEFT JOIN BI_ZENDESK.dbo.Zendesk_TicketsCustomFields ZTCF ON ZTCF.TicketID = ZT.ID AND ZTCF.CustomTicketFieldID in ('23655909','24602366') and ZT.accountid = ZTCF.AccountId
-- LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZU ON ZT.AssigneeId = ZU.Id AND ZT.AccountId = ZU.AccountID
LEFT JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA ON ADSA.ZendeskUserID = ZT.AssigneeID
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsSharingAgreements] ZTSA ON ZTSA.TicketID = ZT.ID AND ZTSA.Accountid = ZT.Accountid AND ZTSA.SharingAgreementID IN ('20058899','20061475','20072655',
'20072665','20072675','20072725',
'20103463','20114803','20114823',
'20116046','20138206','20138226')
LEFT JOIN BI_ZENDESK.dbo.Zendesk_TicketsCustomFields ZTCF_spam ON ZTCF_spam.TicketID = ZT.ID AND ZTCF_spam.CustomTicketFieldID in ('24477183') and ZT.accountid = ZTCF_spam.AccountId


WHERE
CAST(ZTA.CreatedAt as date) >= '2017-01-01'
AND ZTA.AccountId = 2

AND ((ZTE.Type= 'change' and PreviousValue = 'solved' and ZTE.Value <> 'closed') or (ZTE.Type = 'create' and PreviousValue = ''))
AND ZTCF_spam.Value NOT IN ('exception_spam') -- Code to exclude SPAM
```

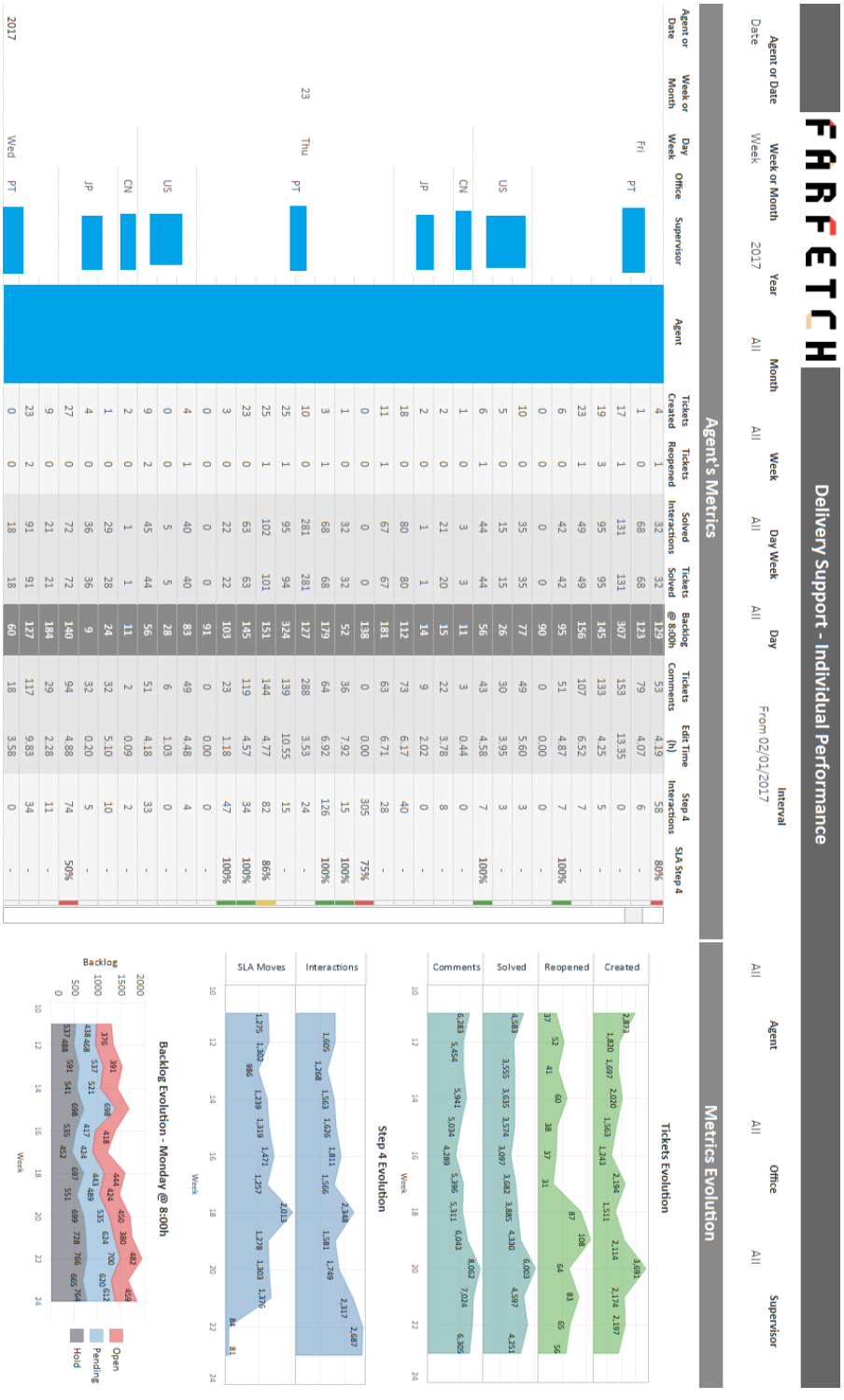
Full Resolution Time

```
SELECT DISTINCT ZTA.TicketId AS [TicketId],

MIN(ZTM.CreatedAt) AS DateCreated,
MAX(ZTA.CreatedAt) AS LastSolved,

CASE WHEN datepart(WK,cast(MAX(ZTA.CreatedAt)+6 as date)) = '53' and month(cast(MAX(ZTA.CreatedAt) as date))= '1' then '1' else datepart(week,cast(MAX(ZTA.CreatedAt)+6 as date)) end as [Week],
LEFT(datename(dw,cast(MAX(ZTA.CreatedAt) as date)),3) [Day Week],
CAST (MAX(ZTA.CreatedAt) as date) as [Day],
YEAR(MAX(ZTA.CreatedAt)) as [Year],
LEFT(DATENAME(mm,CAST(MAX(ZTA.CreatedAt) AS DATE)),3) [Month],
DATEPART(hour,MAX(ZTA.CreatedAt)) as [Hour],

DATEDIFF(minute,MIN (ZTM.CreatedAt),MAX(ZTA.CreatedAt)) AS FullResolutionTime,

ADSA.Advisor AS Agent,
ADSA.Office AS Office,
ZTG.Name AS [Group],
category.Value AS [Category]

FROM [BI_ZENDESK].[dbo].[Zendesk_TicketAudits] ZTA (nolock)
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketEvents] ZTE (nolock) ON ZTE.TicketAuditID = ZTA.Id
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_Tickets] ZT (nolock) ON ZT.id = ZTA.TicketID AND ZTA.AccountId = ZT.AccountId
RIGHT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketMetrics] ZTM (nolock) ON ZT.ID = ZTM.TicketID AND ZT.AccountID = ZTM.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Groups] ZTG (nolock) ON ZTG.Id = ZT.GroupId AND ZTG.AccountId = ZT.AccountID

LEFT JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA (nolock) ON ADSA.ZendeskUserId = ZT.AssigneeId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZUR (nolock) ON ZUR.Id = ZT.RequesterId AND ZUR.AccountId = ZT.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZUA (nolock) ON ZUA.Id = ZT.AssigneeId AND ZUA.AccountId = ZT.AccountId
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_Users] ZUS (nolock) ON ZUS.Id = ZT.SubmitterId AND ZUS.AccountId = ZT.AccountId
LEFT JOIN [ANALYSTS].[dbo].[DeliverySupportAgents] ADSA_submitter ON ZT.SubmitterId = ADSA_submitter.ZendeskUserId  -- Delivery Submitter
INNER JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsCustomFields] category ON category.TicketID = ZT.Id AND category.AccountId = ZT.AccountId AND category.CustomTicketFieldId IN ('23655909')
LEFT JOIN [BI_ZENDESK].[dbo].[Zendesk_TicketsSharingAgreements] ZTSA ON ZTSA.TicketID = ZT.ID AND ZTSA.Accountid = ZT.Accountid
LEFT JOIN BI_ZENDESK.dbo.Zendesk_TicketsCustomFields ZTCF_spam ON ZTCF_spam.TicketID = ZT.ID AND ZTCF_spam.CustomTicketFieldID in ('24477183') and ZT.accountid = ZTCF_spam.AccountId

WHERE ZTA.AccountId=2
AND CAST(ZTM.CreatedAt AS DATE) BETWEEN '2017-04-01' AND getdate()
AND ZTE.FieldName = 'status'
AND ZTE.Value = 'solved'
AND ADSA.Advisor IS NOT NULL
AND NOT (ZT.RequesterID=ZT.AssigneeID AND ZT.AssigneeID=ZT.SubmitterID)
AND ZTCF_spam.Value NOT IN ('exception_spam') -- Code to exclude SPAM

GROUP BY ZTA.TicketId, ADSA.Advisor, ZTG.Name, category.Value, ADSA.Office
```

APPENDIX B: Hourly Workload Dashboard



APPENDIX C: Individual Performance Dashboard



APPENDIX D: Workload Distribution

FARFETCH

Delivery Support - Office Workload Analysis

Day
01/01/2016 to 24/05/2017

Tickets Workload - Volume

Created & Reopened

	CN		JP		PT		US		Total
	In.	Out.	In.	Out.	In.	Out.	In.	Out.	
BW			11	7	762	65	314	37	1,196
CS	8	9	3,964	1,030	29,570	16,405	10,330	5,353	66,669
DHL	3	9	2,179	1,274	24,528	32,690	7,304	3,144	71,131
Drop Ball Test						1,002			1,002
Exceptions	3		1,057		34,247		19,871		55,178
FEMA						1,086			1,086
JP Post			1,010	358	701	2	148		2,219
Notification			372		9,157		6,807		16,336
Operational Costs	4		224		5,144		1,927		7,299
Prod			1	4	9	3	4	8	29
PS	10	5	1,873	349	26,165	9,471	10,587	2,344	50,804
Others		28	243	100	7,632	2,434	1,723	486	12,646
Total	28	51	10,934	3,122	137,915	63,158	59,015	11,372	285,595

Tickets Workload - Percentage Office

	CN		JP		PT		US		Total
	In.	Out.	In.	Out.	In.	Out.	In.	Out.	
BW			0.10%	0.22%	0.55%	0.10%	0.53%	0.33%	0.42%
CS	28.57%	17.65%	36.25%	32.99%	21.44%	25.97%	17.50%	47.07%	23.34%
DHL	10.71%	17.65%	19.93%	40.81%	17.78%	51.76%	12.38%	27.65%	24.91%
Drop Ball Test						1.59%			0.35%
Exceptions	10.71%		9.67%		24.83%		33.67%		19.32%
FEMA						1.72%			0.38%
JP Post			9.24%	11.47%	0.51%	0.00%	0.25%		0.78%
Notification			3.40%		6.64%		11.53%		5.72%
Operational Costs	14.29%		2.05%		3.73%		3.27%		2.56%
Prod			0.01%	0.13%	0.01%	0.00%	0.01%	0.07%	0.01%
PS	35.71%	9.80%	17.13%	11.18%	18.97%	15.00%	17.94%	20.61%	17.79%
Others		54.90%	2.22%	3.20%	5.53%	3.85%	2.92%	4.27%	4.43%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Average Edit Time - Office

	CN		JP		PT		US		Total
	In.	Out.	In.	Out.	In.	Out.	In.	Out.	
BW			4.711	8.100	3.262	1.793	4.573	4.323	3.470
CS	4.643	4.638	5.206	3.587	2.972	1.680	4.349	2.747	2.909
DHL	4.462	3.828	3.727	3.430	2.557	2.212	3.120	3.481	2.521
Drop Ball Test						1.619			1.619
FEMA						2.551			2.551
JP Post			2.228		2.264		1.753		2.196
Notification	4.078		1.847		1.954		1.312		1.551
Operational Costs	3.129		3.989		2.189		3.537		2.586
Prod			3.783	3.541	2.476	3.068	7.683	0.711	2.966
PS	4.715	5.208	5.927	4.209	4.076	2.744	4.328	3.846	3.766
Others		1.844	7.912	1.754	4.519	2.750	6.228	3.855	4.321
Total	4.432	3.139	4.548	3.484	3.130	2.189	3.407	3.236	2.898

Average Full Resolution Time - Office

	CN	JP	PT	US	Total
	In.	In.	In.	In.	
BW		70.7	134.4	87.4	119.4
CS	233.2	123.0	132.8	125.9	130.3
DHL	432.9	185.5	127.3	138.6	133.9
Exceptions	57.8	9.6	16.9	17.3	16.9
JP Post		4.3	6.4	8.1	5.4
Notification			24.1	8.9	12.7
Operational Costs	219.3	215.6	67.3	30.0	60.7
Prod		210.6	197.3	194.8	198.3
PS	24.8	114.2	100.2	50.1	86.6
Others		71.2	53.1	78.8	58.2
Total	135.6	102.8	74.6	53.4	69.6

Average Edit Time - Category

Category	CN	JP	PT	US
(no category)	1.261	5.238	3.219	3.557
courier account set up		8.358	3.543	5.351
courier billing queries		5.346	4.260	4.768
courier claims	1.622	4.654	2.817	2.669
courier clearance issues	2.107	4.534	2.768	3.965
courier create return	3.669	5.936	3.364	3.529
courier delivery issues	3.539	4.617	2.434	3.828
courier duplicate ticket		5.045	2.163	2.651
courier exception	4.078	1.987	2.044	1.429
courier labels invoices	5.632	7.014	5.140	5.621
courier laso issues		7.903	4.339	
courier lost found queries	3.946	5.116	3.594	3.238
courier not courier ticket		3.254	1.766	1.867
courier order tracker		8.279	1.246	3.544
courier pick up issues customer	5.153	4.183	3.632	4.375
courier pick up issues store		4.103	4.008	3.698
courier pick up requests	1.858	3.469	2.920	3.447
courier redirections	5.837	3.524	2.223	3.786
courier reports			2.172	3.725
courier rtos	5.622	3.721	2.443	3.443
courier sales		7.868	3.618	4.170
courier sameday queries		3.075	3.235	3.196
courier sd notification			5.849	0.859
courier ssn requests		3.435	3.109	2.274
courier supplies requests		2.910	2.804	6.728
ds denied parties			1.660	2.327
ds doddle			4.447	0.133
jp domestic		1.328	0.308	
sanara requests			2.082	2.540

Full Resolution Time - Category

Category	CN	JP	PT	US
(no category)		126.6	117.2	116.2
courier account set up		195.4	207.6	57.9
courier billing queries		275.0	398.9	319.7
courier claims		208.3	105.6	68.8
courier clearance issues		177.3	153.5	154.7
courier create return	30.9	25.3	22.3	13.0
courier delivery issues	315.1	229.2	188.4	166.6
courier duplicate ticket		90.0	58.0	55.3
courier exception	57.8	14.4	17.9	20.1
courier labels invoices	84.5	55.6	51.7	40.9
courier laso issues		70.2	6.7	
courier lost found queries	432.9	171.9	247.7	207.3
courier not courier ticket		43.1	58.7	80.4
courier order tracker			153.7	120.8
courier pick up issues customer	75.6	183.4	172.5	146.3
courier pick up issues store		207.6	170.9	174.9
courier pick up requests		14.3	50.4	54.5
courier redirections	12.8	85.4	82.6	85.5
courier reports			21.6	13.5
courier rtos	164.2	159.3	124.9	118.3
courier sales		120.5	108.5	48.7
courier sameday queries		160.8	181.6	96.9
courier sd notification			61.2	1.9
courier ssn requests		52.3	170.7	110.7
courier supplies requests		163.1	106.4	22.8
ds denied parties			357.1	130.6
ds doddle			19.8	
jp domestic		60.0		
sanara requests			54.2	93.6