



## Project Report

Master in Computer Engineering – Mobile Computing

**Consulting Project in Kofax and Microsoft: Analytics/First Mile Capture**

**Clunie, Clifton**

*Leiria, September 9 of 2017*



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**Consulting Project in Kofax and Microsoft: Analytics/First Mile Capture**

Master Project developed under the supervision of Doctor Dulce Gonçalves Professor at School of Technology and Management of the Polytechnic Institute of Leiria.

**Clunie, Clifton**

*Leiria, September 9 of 2017*

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# Resumo

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Um dos maiores desafios que existe nas empresas do nosso tempo consiste em ver o modo como a empresa está em movimento, e ver como a empresa está evoluindo. As grandes empresas tem muito empregados, departamentos e gestores que devem ver como é o desempenho de cada departamento para verificar se estão a alcançar os seus objetivos. O avanço da tecnologia permitiu ao utilizador ter um melhor acesso à informação. Os utilizadores podem aceder à informação através de vários dispositivos, incluindo dispositivos móveis.

As grandes empresas integram os seus sistemas com ferramentas de *Business Intelligence (BI)*. As ferramentas de BI ajudam as empresas a ter uma atualização dos dados a qualquer momento. As ferramentas de *BI* permitem ao utilizador ter uma melhor visão geral das informações, a todos os dados do processo comercial, definidos num painel dinâmico que mostra detalhes em tabelas e gráficos sobre o negócio. Isso permite que o utilizador final tenha uma melhor compreensão do negócio.

O resultado da automatização utilizando este tipo de ferramentas, permite ter mais tempo para se concentrar nos principais trabalhos da empresa e com toda essa recolha de dados, o diretor poderá ver a evolução da empresa.

# Abstract

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One of the biggest issues that exists on companies of our time is to see the way of how the company is moving, how the company is evolving. Big companies have a lot of workers, departments and chiefs officer that must see how it's the performance of each department to see if there are achieving their goals. The advance of technology has allowed the user to have a better access to information. The users can access information from several devices including mobile devices.

Big companies are integrating their system with Business Intelligence tools. BI tools help the company to have an update data at any moment. Business Intelligence allows the user to have a better overview of the information, all the data of the business process are defined on a dynamic dashboard that shows table details and graphics about the business. This allows the end user to have a better understanding of the business.

The result of this application tools has shown that automatized this kind of labor, allows to have more time to focus on the main jobs of the company and with all this data collection the chief officer would be able to see the evolution of the company.



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# List of acronyms

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BI	Business Intelligence
BPM	Business Process Management
DAX	Data Analysis Expression
ETL	Extraction, Transform and Load
IIS	Internet Information Services
IT	Information Technology
KAFC	Kofax Analytics for Capture
KAFTA	Kofax Analytics for Total Agility
KTA	Kofax Total Agility
KOFAX	Digital Information Tool
OLAP	On-Line Analytical Processing

# 1. Introduction

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Every day that passes we see a breakthrough technology, in recent years' technology has evolved significantly. Nowadays the average user can perform various tasks from a mobile device something that a few years ago, was hard to believe. These developments have also evolved globally.

In the industrial sector, you can see a growth that has had thanks to the technology that is used today. These advances have helped process automation, increasing the demands of the general manager who wants to have a perspective on how the business is operating with a tool or set of tools to facilitate manage your business in the best way.

## 1.1. Context

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This document shows the Business Intelligence Case Studies that were developed in the entity known as Latourrette Consulting. This document describes the implementation of Kofax and Microsoft technologies.

In the Kofax area, it was done different cases studies and an implementation in a project with an international client (Bancolombia) were carried out. In the Microsoft area, different cases studies were done and a demo presentation was developed for a local customer (Liberty).

## 1.2. Motivation and Goals

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The objective of the presented solutions is to fulfill the client needs handling analytical reports to have a better overview of the system. Thus, the client can determine failures in the processes and implement improvements to have a better control of the tasks that are assigned to the system.

Solutions were implemented with the aim of helping to understand the data, helping to make decision and managing the system.

When carrying out consultancy work the focus is customer satisfaction and to solve the challenges presented by the client in the fastest, concise and efficient way so that the

customer is comfortable with the service and able to tie the customer to future projects with the company.

## **1.3. Document Organization**

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This document is structured in twelve chapters. Each chapter shows a description of a theme developed on the internship.

The first chapter is the introduction of this document. The context, motivation & goals and document organization are presented in this chapter.

The second chapter is about the host company. In this chapter is presented all the information related to the host company and the tools that the host companies used. Also, shows the company portfolio and the commercial relationships with the company.

The third chapter shows the project training that were done on the host company.

The fourth chapter is about the State of the Art in Business Intelligence.

The fifth chapter shows the case studies that were work in the host company. Also, shows the tools that were used to create these case studies and what was the objective of each case.

The sixth chapter talks about the implementation that was done on the Bancolombia Client.

The seventh chapter shows the demo presentation that was done to Liberty Client.

The eight chapter shows the results and contributions done on the host company.

The ninth chapter is the conclusion of the project.

The tenth chapter is about the future work.

## 2. Host Company Characterization

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This chapter presents a characterization of the company host, where several cases of studies and projects were applied and are going to be shown in this document.

A brief history of Latourrette Consulting will be presented, with the focus of its existence in the business area.

### 2.1. Latourrette Consulting Characterization

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Latourrette Consulting is a consulting company that is responsible for providing technological solutions. This company started providing solutions in digital information area and has gradually expanded to other areas such as document management with the Sharepoint tool. And in Business Intelligence with the analytical tools of Kofax and Microsoft.

This company has two offices, the main office is in Porto, Portugal and the other office is in Leiria, Portugal. The company has a total of approximately 30 persons (Latourrette, 2017).

### 2.2. Clients

---

These are some of the clients:

<b>Clients</b>	<b>Description</b>
<b>Bancolombia</b>	Project on business process development and analytical reporting.
<b>SONAE</b>	They have a document management project.
<b>Liberty Seguros</b>	They have projects with the KTA platform and soon will include a project with the development of analytical reports.
<b>Willis Tower Watson</b>	Project with KTA platform for BPM development.

TABLE 1 – HOST COMPANY CLIENTS

### 2.3. Latourrette Solutions

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These are the business areas that host company offers a solution.

**Solutions:**

<b>Solutions</b>	<b>Description</b>
<b>Enterprise Content Management</b>	Combines analytics, collaboration, governance and processes with anywhere, anytime access to deliver value to your customers, partners, and employees. When used effectively, even complex content becomes your greatest business asset (Latourrette, 2017).
<b>Business Process Management</b>	If your organization is striving to establish automated, consistent, repeatable, and defensible operational processes, then this course is for you. The Business Process Management (BPM) course provide practical guidance to map, standardize, automate, and manage operational processes with the right strategies, tools, and technologies. You'll learn how to implement new ways of working while maximizing ROI (Latourrette, 2017).
<b>Electronic Records Management</b>	Many organizations rely on paper-based principles to manage electronic records but this doesn't work with the growing volume, velocity, and variety of information. The AIIM Electronic Records Management (ERM) course provides you with a thorough understanding of how to best automate the way electronic records are identified, captured and classified. The course covers the entire lifecycle of records, ISO standard 15489, and related concepts with special emphasis on email capture and retention as well as new content types such as social media (Latourrette, 2017).
<b>Information Governance</b>	The volume, variety, and velocity of organizational information is changing the game for governance and compliance. Applying a paper paradigm of policies and processes no longer works - and it certainly doesn't scale. Governance functions must now be automated, and focus as much on defensible disposition as on retention; as much on data extraction as data archiving (Latourrette, 2017).
<b>Managing Records &amp; Ediscovery in Sharepoint</b>	70% of organizations currently use SharePoint – but nearly 50% of them have reservations about its ability to meet their compliance requirements. With the introduction of SharePoint 2013 and Office 365, Microsoft has made significant functionality changes. To optimize their investment in the platform, organizations must now determine the impact that these changes will have on their

compliance and eDiscovery strategy (Latourrette, 2017).

TABLE 2 - HOST COMPANY SOLUTIONS

These are some of the partners that the company has. The solution given by Latourrette are based on tools of the partners.

### 2.3.1. Kofax

Kofax Capture automates and accelerates business processes by capturing all types of documents and forms in paper and electronic format, transforming them into accurate and processable information, and sending them to the main applications, processes and workflows of your company. Whether your information is on paper or electronic files, whether you are in a central office or scattered across offices and offices around the world, Kofax Capture can help you manage it in its entirety.

Thanks to its unparalleled scalability, Kofax Capture is a powerful capture platform adapted to the company that works at the production level. The solution captures information from virtually any source: scanner, multifunction printer, print stream, email, fax, web service or electronic folder. Automates capture-based processes within the organization or where documents are received, regardless of location, source, language, or type.

Regardless of the hardware or business applications you choose now or in the future, you can count on Kofax Capture to capture documents, and index and validate your most important information consistently. (Inc & Kofax, 2017)

#### Tools offer by Kofax:

Tool	Description
<b>Total Agility</b>	This tool is the world's first united smart process application development and deployment platform. Smart process applications are a new category of software designed to support business activities that are people intensive, highly variable, loosely structured and subject to frequent change (Kofax, TotalAgility, 2014).
<b>Total Capture</b>	Kofax Capture automates and accelerates business processes by capturing all types of documents and forms in paper and

	electronic format, transforming them into accurate and processable information, and sending them to the main applications, processes, and workflows of your company. Whether your information is on paper or electronic files, whether you are located in a central office or scattered across offices and offices around the world, Kofax Capture can help you manage it in its entirety (Kofax C. , 2017).
<b>Kofax Transformation Module</b>	This is an add-on to Kofax Capture that streamlines the transformation of different document types into structured electronic information, ready for delivery into business systems and processes (Kofax, Kofax Transformation Module, s.f.).
<b>Kofax Insight Analytics</b>	Kofax business intelligence and analytics products take the value of information to a higher level, by delivering advanced functionality while making your work faster, easier, and more cost effective. These process-aware solutions eliminate the cost and complexity of conventional business intelligence and analytics products while delivering advanced functionality for maximized operational performance and improved decision-making (Kofax A. , 2017).

TABLE 3 - KOFAX TOOL DETAILS

## 2.3.2. Microsoft

Microsoft Corporation is an American multinational corporation, that develops, manufactures, licenses, supports and sells computer software, consumer electronics and personal computers and services. “The new SharePoint is all about getting things done together.” (Microsoft, Microsoft, 2017).

### Tools offer by Microsoft:

Tool	Description
<b>Sharepoint</b>	Is a business collaboration platform, made up of products and software elements that include, among an increasing selection of components, collaboration functions, web

	browser based, process management modules, search modules and a management platform of documents (documentary management) (Sharepoint, 2017).
<b>Azure</b>	Microsoft Azure is a growing collection of integrated cloud services that developers and IT professionals use to build, deploy, and manage applications through our global network of datacenters. With Azure, you get the freedom to build and deploy wherever you want, using the tools, applications, and frameworks of your choice (Azure, 2017).
<b>Microsoft Sql Server</b>	It's a system to manage relational database developed by Microsoft. The language use on Microsoft SQL Server is Transact – SQL (TSQL), this is an implementation of the ANSI that is used to manipulated and recover data, create table and define the relationship between them (SQL, 2017).
<b>.NET Framework</b>	Is a Microsoft framework that emphasizes the transparency of networks, regardless of the hardware platform and allows rapid development of applications. Based on it, the company tries to develop a horizontal strategy that integrates all its products, from the operating system to the market tools (Wikipedia, Wikipedia, 2017).

TABLE 4 - MICROSOFT TOOLS

### 2.3.3. Visioneer

Visioneer is a world-class developer of intelligent imaging solutions that provide a faster and easier way to capture documents and photographs and integrate them with popular Windows and document imaging application. “Visioneer OneTouch Links Simplifying Scanner and Software Interaction” (Visioneer, 2017).

#### Tools offer by Visioneer:

Tools	Description
<b>Vsioneer One Touch</b>	OneTouch is an easy-to-use utility that connects the buttons on your Visioneer or Xerox scanner with a powerful set of



	scanner settings so that with one touch, your document is scanned automatically to email, or Word, or your printer, or simply a file folder. The resolution, color depth, file format and paper size are all preset, but of course you can change them at any time (Inc V. , 2017).
<b>Xerox Document Scanners</b>	This is the scanner that also supports the kofax tool. This is the Xerox brand scanner tool (Visioneer I. , s.f.).

TABLE 5 - VISIONEER DETAIL TOOLS

## 2.3.4. Kofax Training

---

The training was done in Kofax and Microsoft tools. There is a compulsory training that is a **Kofax Essential** main course.

### Kofax Course

#### 1. **Kofax Essential**

This is the main course that must be done in Latourrette Consulting. The strength of the company is on digitalizing of the information. The host company uses the Kofax Total Agility platform, that is a business process management platform. It's mandatory to know how it works this platform (Essential, s.f.).

#### 2. **Insight Analytics**

The Insight training was doing it with the documentation that exists of Kofax Insight. A full installation of the Insight Analytics was done on an environment to know all the part of installation/configuration and to know what are the requirements of the application (Kofax A. , 2017).

### Microsoft Course

#### 1. **Power BI:**

The Power BI training was done with an online documentation. The course was based on videos that show the potential of the tool. A full installation of the Power BI was done, to know what are the steps and the installation requirements of the application (Linkedin, 2016).

**Activities done on the host company:**

	October	November	Dezember	January	February	March	April	May	June	July
<b>Kofax Essential Formation</b>	X									
<b>Kofax Insight Formation</b>	X	X								
<b>Power BI Formation</b>	X	X								
<b>Case Study One</b>			X							
<b>Case Study Two</b>				X						
<b>Bancolombia Client</b>					X	X	X	X	X	X
<b>Liberty Client</b>									X	X
<b>Thesis</b>						X	X	X	X	X

**TABLE 6 - HOST ACTIVITIES**

These are the activities that were done on the host company (Table 6).

This schedule was defined by the advisory. A study of the Kofax Essential, that is the main tool used by the company was mandatory.

The Case Studies were created by the advisory with the focus to apply this knowledge and expertise in real scenarios with clients.

## 3. State of the Art

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This is a comparison of the main Business Intelligence (BI) tools that exist on the market and the tools that the host company offers in BI area (BigData, 2016-2017).

### **Sisense Information**

Is business intelligence application, it's a web application that allows the creation of a cube with information (OLAP), reports and dashboard and has own functions at the level of reports/dashboard that allows creating a greater detail of the data with certain application-specific functions (Information, 2014).

### **Domo**

Allows connection to web applications such as Facebook, twitter, trello, etc. Automatically creates a series of dashboards that allow you to see the behavior of the tool that you want to evaluate. This creates dashboards and reports with the concept of cards, a series of objects that can be details or graphics (Data, 2017).

### **Tableau**

It is a desktop application that allows the creation of reports and dashboards. Connect this to different source formats. Change the data type of the source. The drag and drop so simple allow a friendly way to create reports. It is designed to work naturally with the user(Overview, 2016).

## Tool Comparison

<b>Business Intelligence Applications</b>						
	Power BI	Sap Business Objects	Kofax Insight	Sisense	Domo	Tableau
<b>Desktop Application</b>	X	X				X
<b>Web Application</b>	X	X	X	X	X	X
<b>Multiple Data Sources</b>	X	X	X	X	X	X
<b>Recognize relationship between tables</b>	X	X		X		
<b>Usability</b>	X	X		X	X	X
<b>Reports</b>	X	X	X	X	X	
<b>Dashboards</b>	X	X	X	X	X	
<b>Update database Model</b>	X	X				X
<b>Queries Validation</b>		X	X			
<b>Need permission to access to the reports</b>	X			X		X
<b>Mobile devices View</b>	X	X	X	X	X	X

TABLE 7 – BI TOOL COMPARISON

The aspects that chose to validate the different functionalities of the BI tools have, was based on the need of the modern client. Clients are needing tools that can adapt to mobile devices, create reports/dashboards, share this information with the business organization, and adapt these business processes to business intelligence analytical reports and many other aspects (Table 7).

## 4. Business Intelligence Projects

---

This chapter will show the case studies developed for Business Intelligence development.

The development of this case study was to meet the following objectives:

1. Learn how to use the application
2. Connection in different Data Sources
3. Create Reports
4. Create Dashboard
5. Share reports/dashboards
6. Other functionalities

### 4.1 Case Study One

---

The purpose of this case of study is to learn how to manage and use the PowerBI and Insight application, and see what can be done with these applications.

#### 4.1.1. Power BI

---

**1) Learn How to use the application:**

Power BI has two applications: a desktop application, and a Web application. The web application is more to access for the final reports/dashboards, also allows to develop reports/dashboard. The desktop application gives more functionalities to the developer to create their reports (Figure 1).

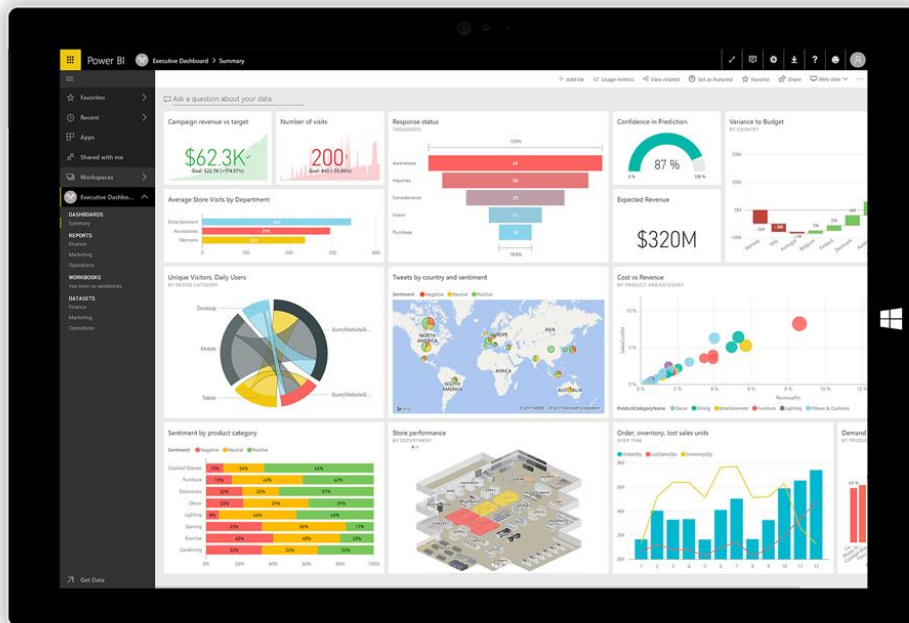


FIGURE 1 – POWER BI TOOLS (MICROSOFT, POWER BI, 2017)

## 2) Connection with different data sources

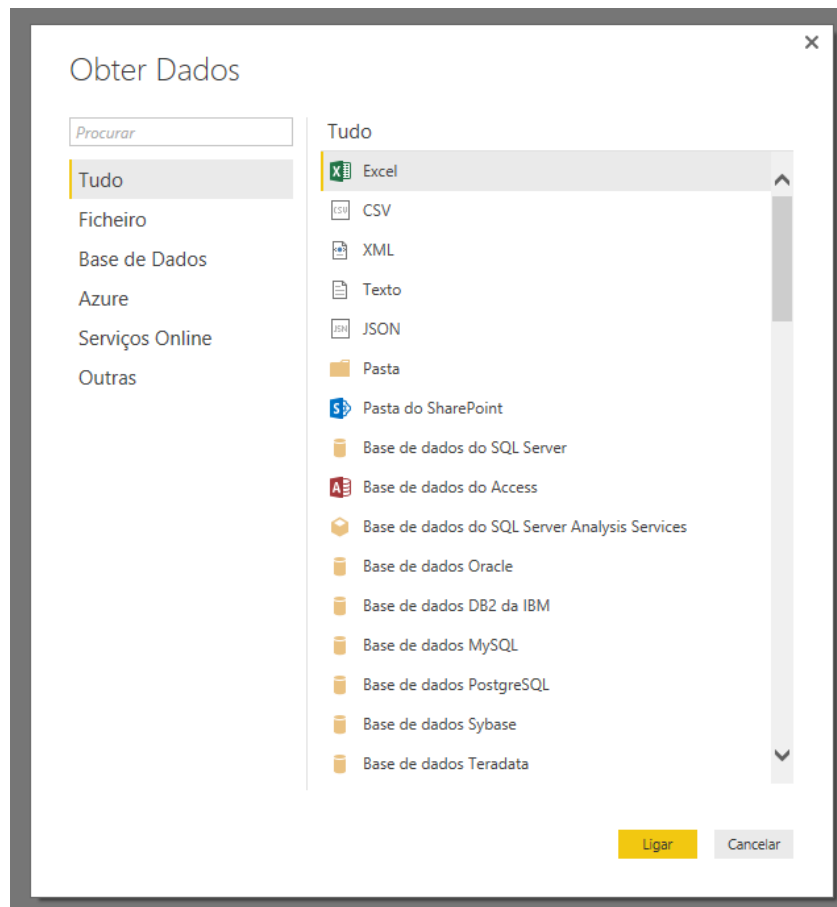


FIGURE 2 – POWER BI DATA SOURCE CONNECTIONS

Power BI allows connections with many different types of databases (Figure 2). When a connection is established Power BI can maintain an update of the reports, to have an automatic update it's necessary to define the correct gateway.

Power BI has 2 types of connections:

1. **Direct Query:** This option creates a real connection between Power BI and the database engine. This is recommended to be done when the data model is too big, because of the live connection that reflects the update of the database.





#### 4) Creation of Dashboards:

The Power BI dashboard is a set of tiles, these tiles are generated by the tool itself and can be grouped in the canvas, the Power BI dashboard is a set of tiles, these tiles are generated by the tool itself and can be grouped in the canvas, the tiles can show graphic bars, circular, etc. can also be table details. The conjunction of tiles forms the dashboard (Figure 4).



FIGURE 4 - POWER BI DASHBOARD

#### 5) Share Reports/Dashboards:

Some examples of how to share Power BI reports are shown below.

Power BI allows sharing the reports by a link that's generated by the Power BI server. The user that owns the reports can manage the activation/deactivation of the link with another resource. With the link to the report, the report can also be embedded in web page (Figure 5).

One of the advantages of share information in Power BI is that the user that is going to receive the report doesn't need an account to access the report (Figure 6).

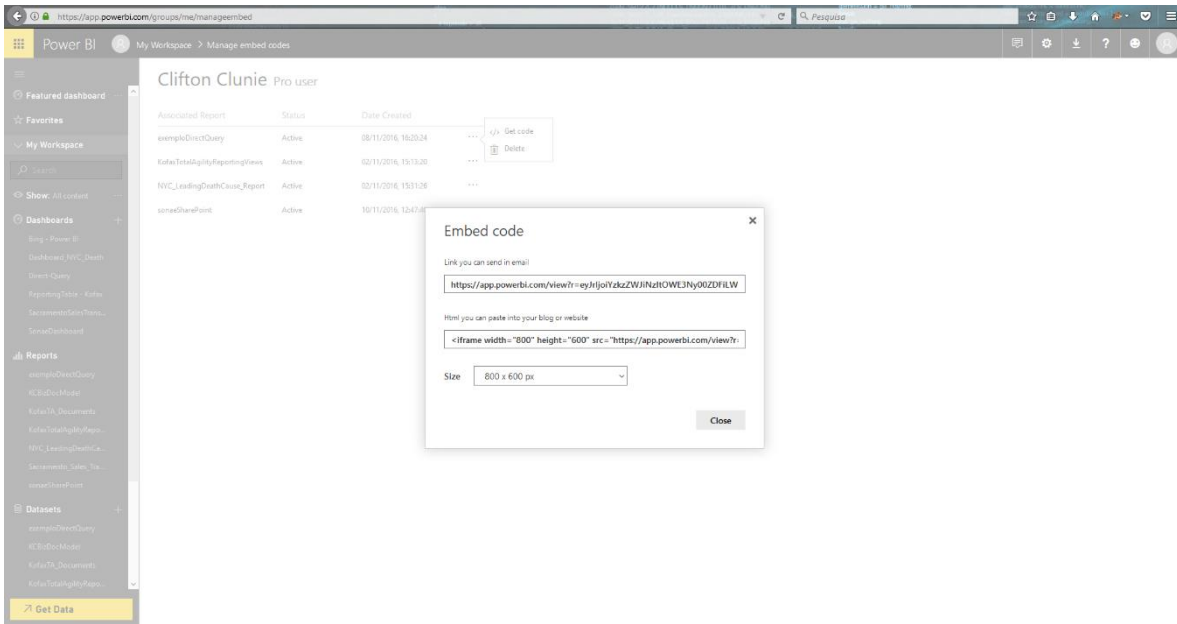


FIGURE 5 - POWER BI SHARE REPORT LINK

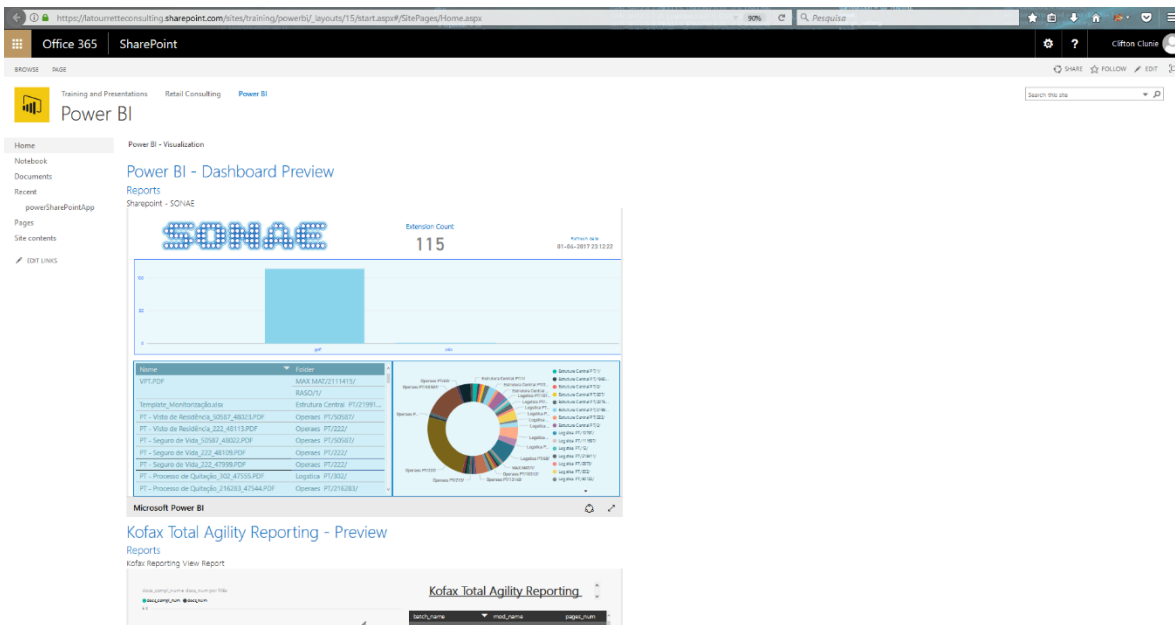


FIGURE 6 - POWER BI EMBEDDED LINK

## 6) Other Functionalities:

This section is going to show specific functionalities of Power BI that were founded on the learning process of the application.

Power BI allows the alteration of the data model. This alteration can be at the level of table creation, field modification and data type. It can be done on the model that has been already preloaded to the tool. Defining the connection type between import and direct query can show limitation on the data model modification.

Power BI uses DAX functions like the excel tools. DAX is a collection of functions, operators, and constants that can be used in a formula, or expression, to calculate and return one or more values. Stated more simply, DAX helps you create new information from data already in your model.

It's quite easy to create a new Power BI Desktop file (Figure 7) and import some data into it. You can even create reports that show valuable insights without using any DAX formulas at all. DAX formulas provide this capability and many other important capabilities as well. Learning how to create effective DAX formulas will help you get the most out of your data. When you get the information you need, you can begin to solve real business problems that affect your bottom line (Iseminger, Power BI, 2017).

Alterations cannot be performed when the connection is Direct query, since as it is a real-

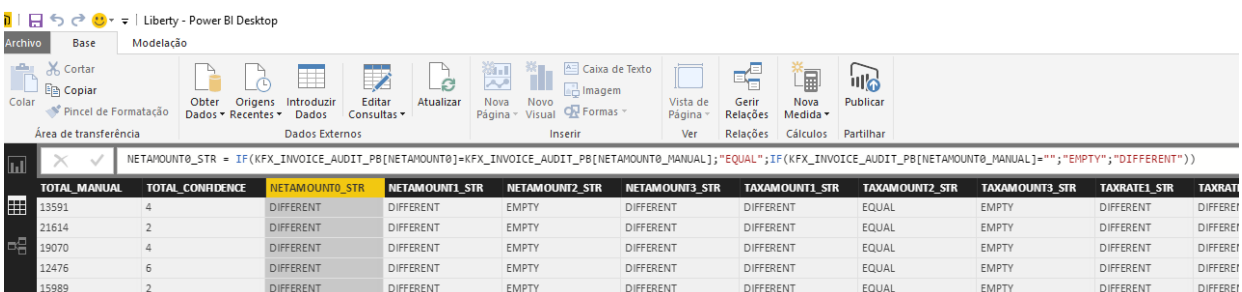


FIGURE 7 - POWER BI DAX FUNCTION

time database connection. It does not allow alteration with the data model.

The import connection allows the alteration of the data model since Power BI makes a copy of the database and works with an independent connection to the one of the database.

There are currently a few limitations in using the Direct Query connection:

- All tables must come from a single database;
- If the **Query Editor** query is overly complex, an error will occur. To remedy the error you must either delete the problematic step in **Query Editor**, or *Import* the data instead of using **Direct Query**. For multi-dimensional sources like SAP Business Warehouse, there is no **Query Editor**;
- Relationship filtering is limited to a single direction, rather than both directions (though it is possible to enable cross filtering in both directions for **Direct Query** as a Preview feature). For multi-dimensional sources like SAP Business Warehouse, there are no relationships defined in the model;
- Time intelligence capabilities are not available in **Direct Query**. For example, special treatment of date columns (year, quarter, month, day, so on) are not supported in **Direct Query** mode;
- By default, limitations are placed on DAX expressions allowed in measures; see the following paragraph for more information;
- There is a 1 million row limit for returning data when using **Direct Query**. This does not affect aggregations or calculations used to create the dataset returned using **Direct Query**, only the rows returned. For example, you can aggregate 10 million rows with your query that runs on the data source, and accurately return the results of that aggregation to Power BI using **Direct Query** as long as the data returned to Power BI is less than 1 million rows. If more than 1 million rows would be returned from **Direct Query**, Power BI returns an error (Iseminger, Microsoft, 2017).

Power BI detects the key fields (Figure 9) that are in the database, this helps to find the relationships that exist between the tables. Also, Power BI helps to prevent relationship errors (Figure 8).

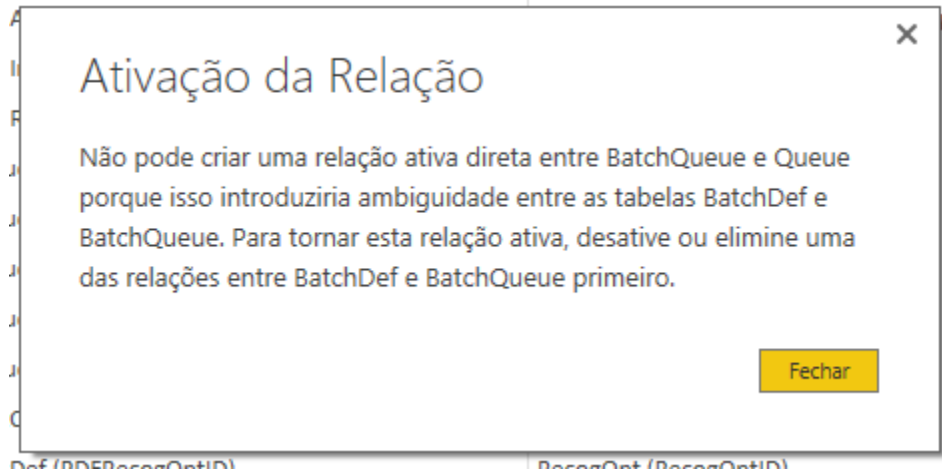


FIGURE 8 - POWER BI RELATIONSHIP WARNING MESSAGE

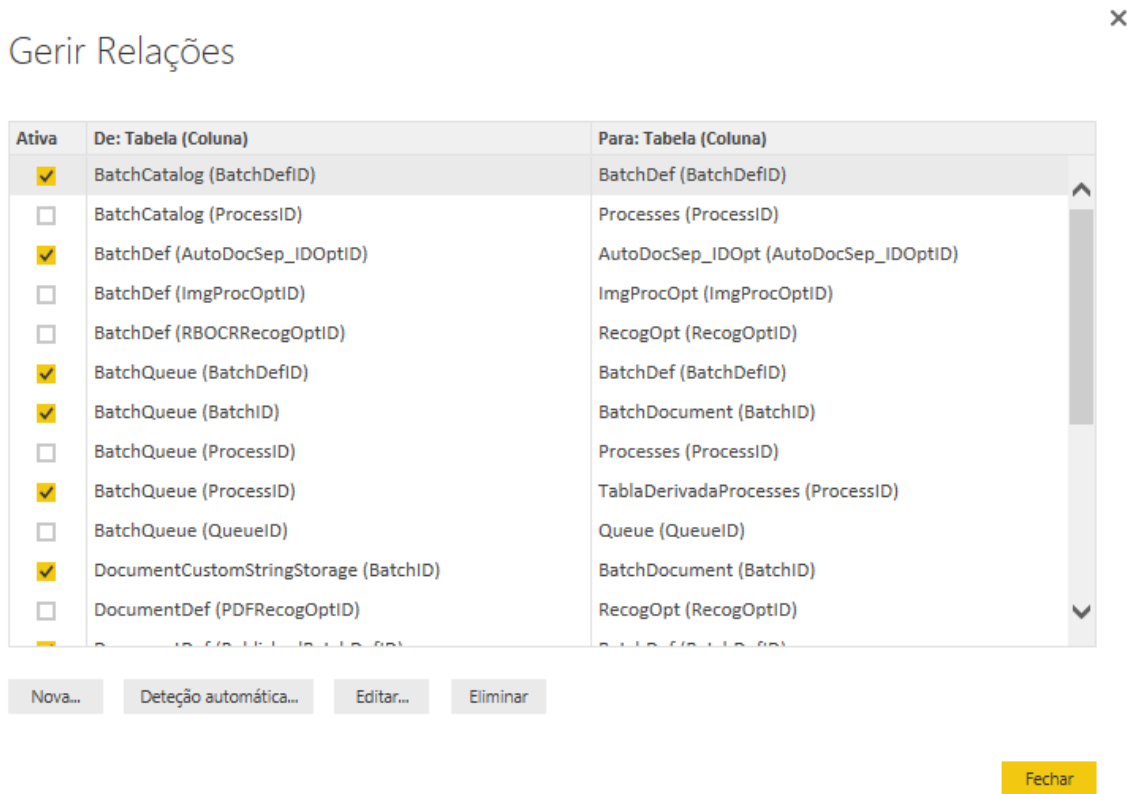


FIGURE 9 - POWER BI RELATIONSHIP

Power BI manages context that can exist on a database model. The user can copy tables (Figure 10) so can establish the correct path between tables. Context is a list of joins that define a logical path through a database model. Power BI helps to solve loops that are caused by multiple fact tables accessing common dimension tables. The joins that belong to a context are the joins from the fact table, leading to all dimension tables that might be needed for that fact.

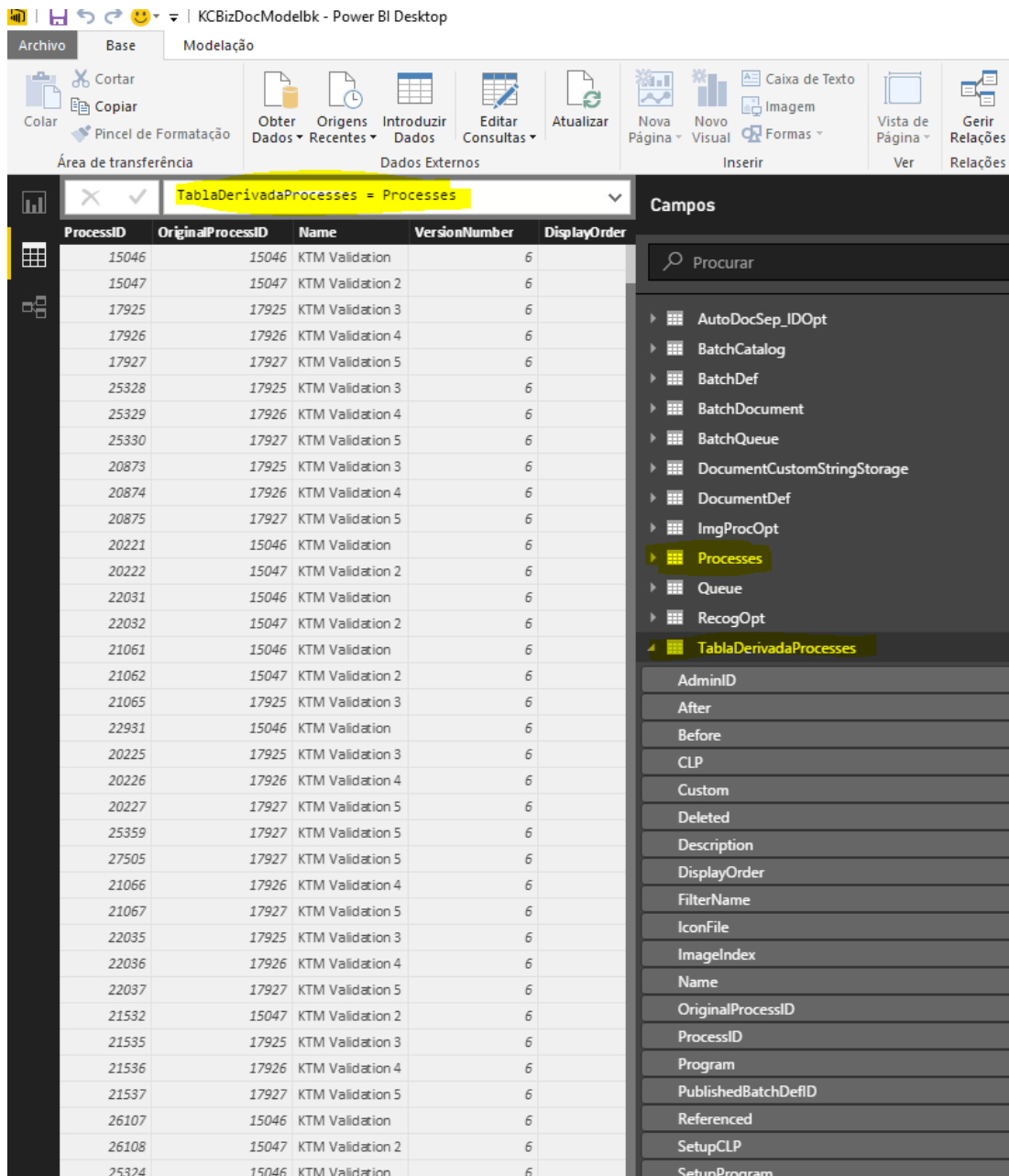


FIGURE 10 - TABLE COPY

One of the new functionalities that Power BI has, is the recognition of fields with coordinate format. An example of this is the image shown in Figure 11. We have raw data (Figure 12) and by the type of map chart, Power BI detects that these fields as coordinates and show this on a map.

Power BI service and Power BI Desktop send Bing the geo data it needs to create the map visualization. This may include the data in the **Location**, **Latitude**, and **Longitude** buckets and geo fields in any of the **Report level**, **Page level**, or **Visual level** filter buckets. Exactly what is sent varies by map type.

- For maps (bubble maps), if latitude and longitude are provided then no data is sent to Bing. Otherwise, any data in the Location (and filter) buckets is sent to Bing.
- Filled maps require a field in the Location bucket; even if latitude and longitude are provided. Whatever data is in the Location, Latitude, or Longitude buckets is sent to Bing (Hart, 2017).

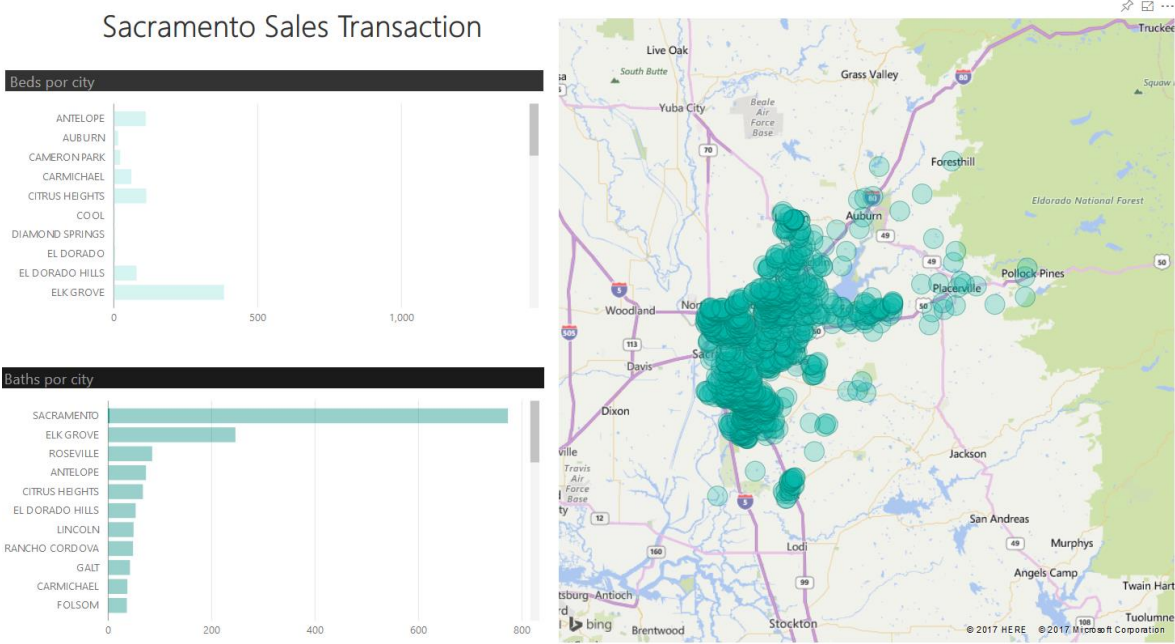
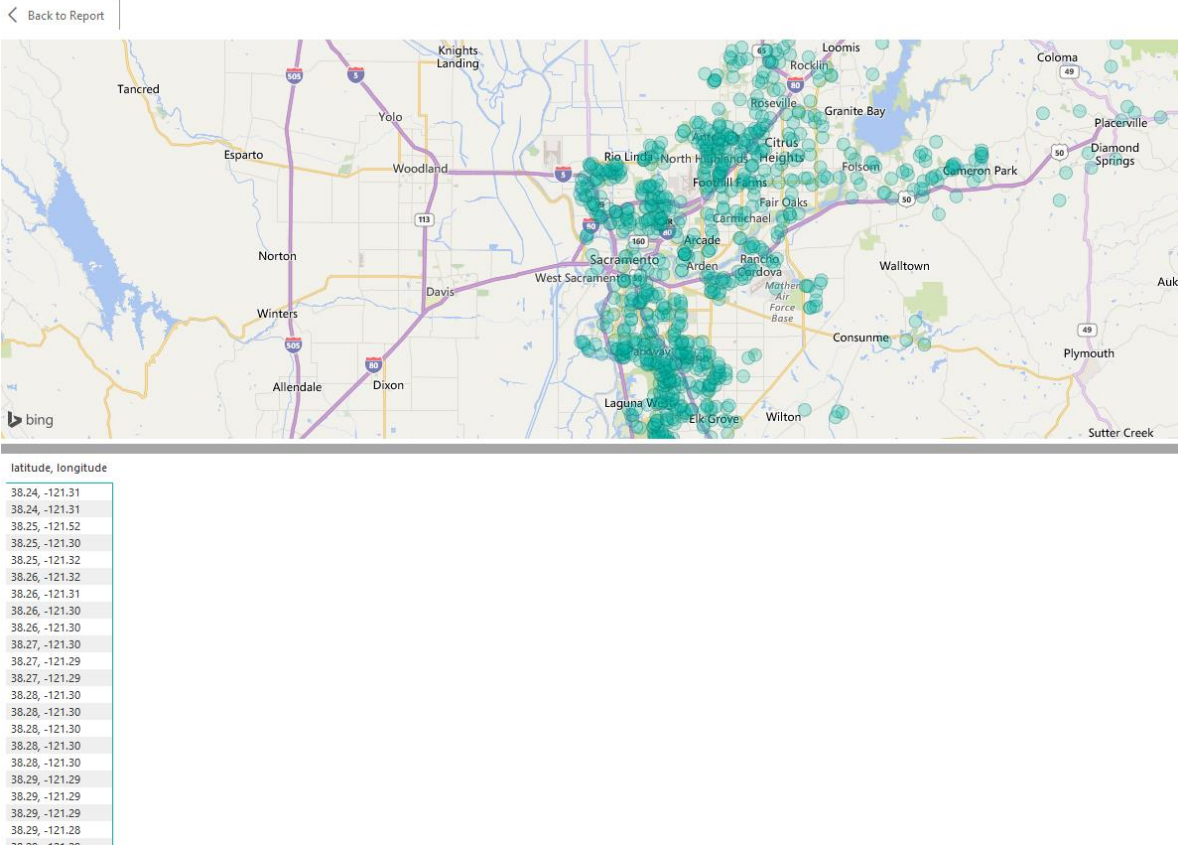


FIGURE 11 – POWER BI LOCATION



**FIGURE 12 - BING MAP**

Power BI can connect with Cortana. Cortana is a Microsoft's intelligent agent. Cortana recognizes natural language (no need to use specific commands) and uses Bing, Yelp and Foursquare as databases (Figure 13). This feature only works for Power BI pro version. The advantage of this, is that allows nontechnical users to create a dashboard through the data model. If you have a report or a dashboard that does not meet the needs of the user, in human language you can make the queries to Cortana and this will create a chart that will answer the user's needs.



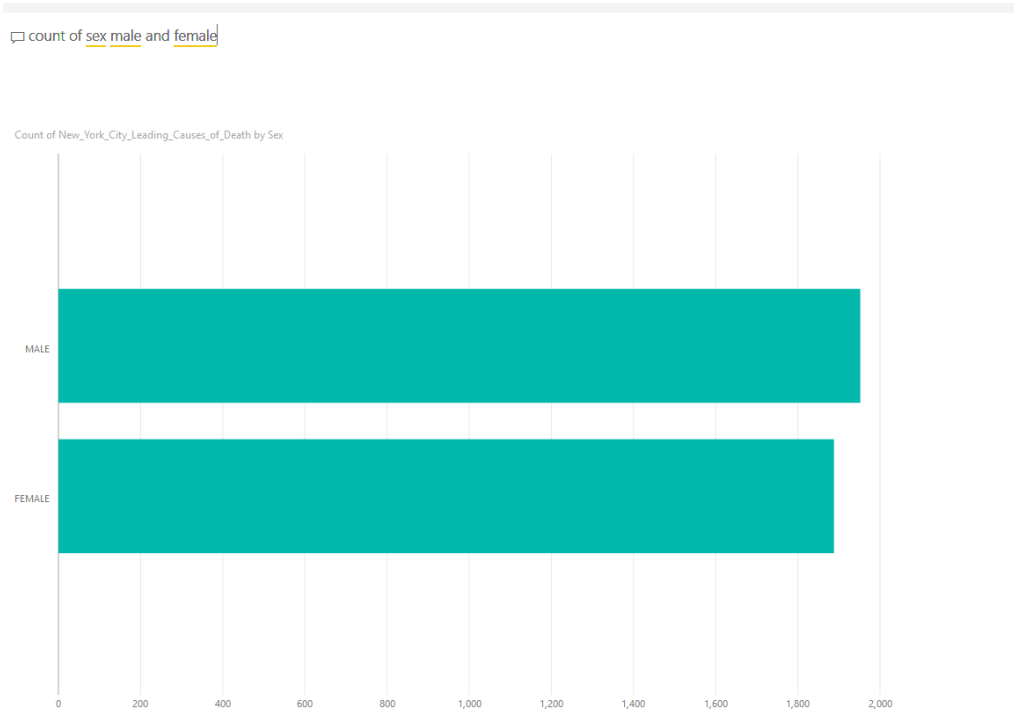


FIGURE 13 - CORTANA

Power BI allows to share reports with Azure (Figure 14). The Azure service must be linked with the reports, so when a query is made to the Azure it retrieves the reports.

For this, it is necessary to have the Power BI application token in Azure (Figure 15). But before this, it's necessary to connect the reports that are created with the tool of Power BI in the Azure.

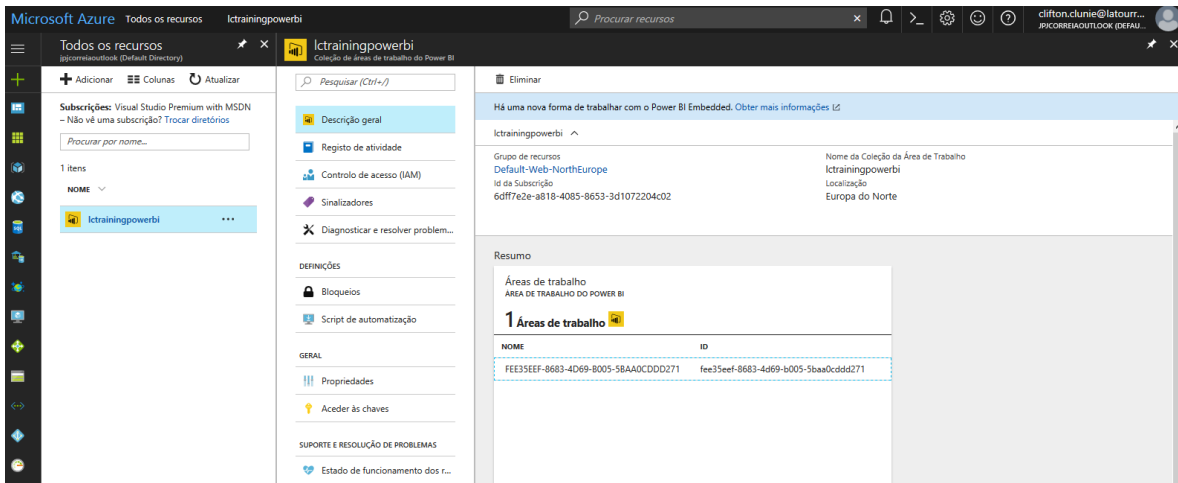


FIGURE 14 - AZURE POWER BI APP

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <!--
3 For more information on how to configure your ASP.NET application, please visit
4 http://go.microsoft.com/fwlink/?LinkId=301880
5 -->
6 <configuration>
7   <appSettings>
8     <add key="powerbi:ApiKey" value="r35zVPG13r4wCCgD/b0uNa+920Nhm7ZU+77FPhn1s16LurIUPJUGwNDUDg75PrEyu+xxQ1bAA1XCJed/iwJUQ=" />
9     <add key="powerbi:ApiUrl" value="https://api.powerbi.com" />
10    <add key="powerbi:WorkspaceCollection" value="1ctrainingpowerbi" />
11    <add key="powerbi:WorkspaceId" value="fee35eef-8683-4d69-b085-5baa0cddd271" />
12    <add key="webpages:Version" value="3.0.0.0" />
13    <add key="ClientValidationEnabled" value="true" />
14    <add key="UnobtrusiveJavaScriptEnabled" value="true" />
15    <add key="ClientId" value="24e41827-50af-42e8-a884-29fd5e16d040" />
16    <add key="ClientSecret" value="p1B*WStz3jajvL1VWpzI7k9mI0hQqSMH2KP2aTRFbDc=" />
17  </appSettings>
18  <system.web>
19    <compilation debug="true" targetFramework="4.5" />
20    <httpRuntime targetFramework="4.5" />
21  </system.web>
22  <runtime>
23    <assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
24      <dependentAssembly>
25        <assemblyIdentity name="Newtonsoft.Json" culture="neutral" publicKeyToken="30ad4fe6b2a6aed" />
26        <bindingRedirect oldVersion="0.0.0.0-9.0.0.0" newVersion="9.0.0.0" />
27      </dependentAssembly>
28    </dependentAssembly>

```

FIGURE 15 - POWER BI TOKENS

Microsoft already has a code that links the reports to the Azure application

This application of Microsoft allows only to link reports that have been done with Power BI desktop (Figure 16).

```

What do you want to do?
=====
1. Provision a new workspace collection
2. Get workspace collection metadata
3. Retrieve a workspace collection's API keys
4. Get list of workspaces within a collection
5. Provision a new workspace in an existing workspace collection
6. Import PBIX Desktop file into an existing workspace
7. Update connection string info for an existing dataset
8. Retrieve a list of Datasets published to a workspace
9. Delete a published dataset from a workspace
0. Get status of import

Workspace Collection Name:

Workspace ID:

Dataset Name:

File Path:

```

FIGURE 16 - MICROSOFT POWER BI APP FOR AZURE CONNECTION

## 6.1) Other Functionalities:

### Advantage:

- Allows connection between Power BI reports and .NET application (Figure 17).

### Disadvantages:

- The reports that are uploaded to the workspace cannot be modify.
- Doesn't show reports with direct query connection.
- Can't be share dashboards.

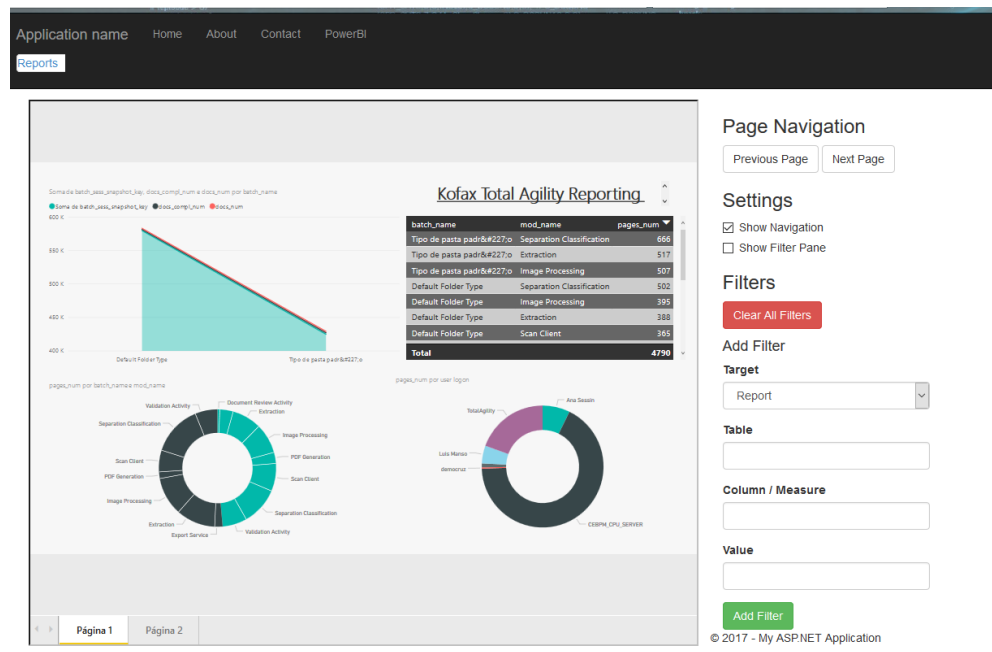


FIGURE 17 - SHAREPOINT APP WITH POWER BI

## 4.1.2. Kofax

### 1) Learn How to use the application:

The Kofax Insight Analytics is a tool offered by Kofax in Business Intelligence area. With the Kofax Insight Analytics, the user can create a dashboard and reports.

Kofax Insight Analytics it's divided into several applications:

#### Administration:

This application has all the administrative configuration. In this application, it's where the project it's created and the connection establishes with the source. (Figure 18)

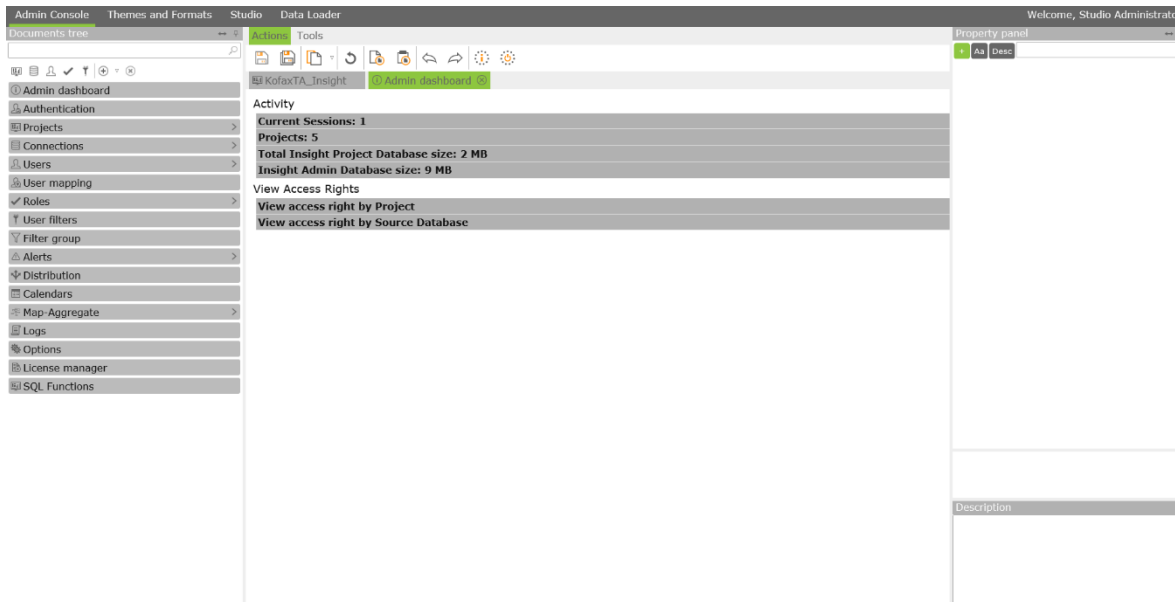


FIGURE 18 - INSIHT ADMIN APP

#### Studio:

The studio application has all the configuration at the project level. The creation of records, metrics, views (dashboard), all this can be done in this application (Figure 19). The studio application allows the developer to create dashboards that would be the group of records and metrics predefined on the project.

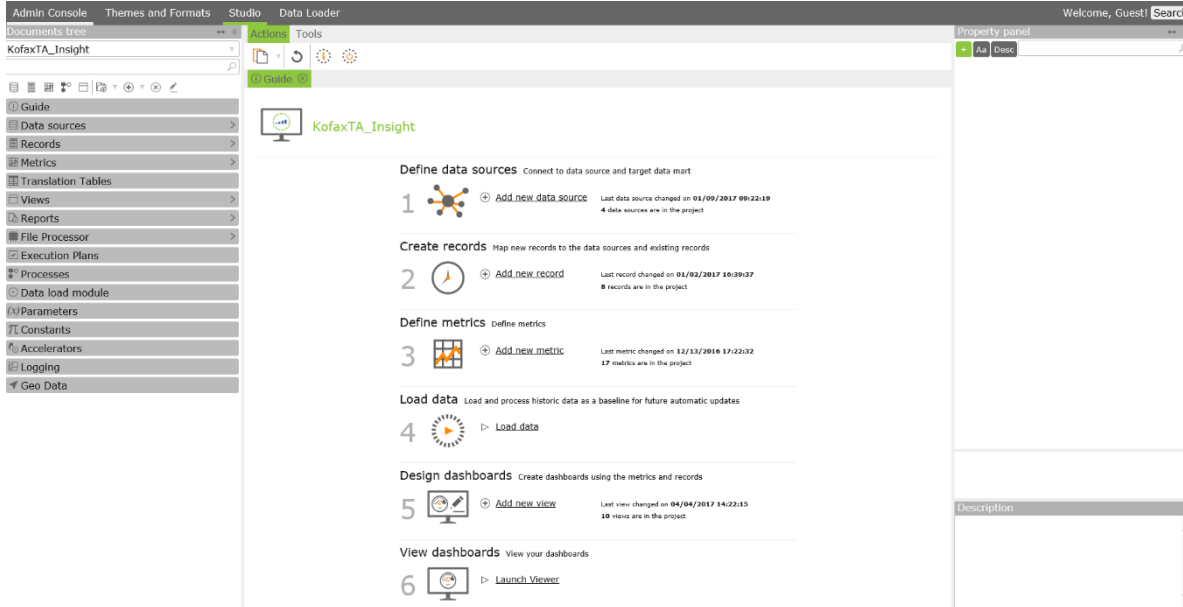
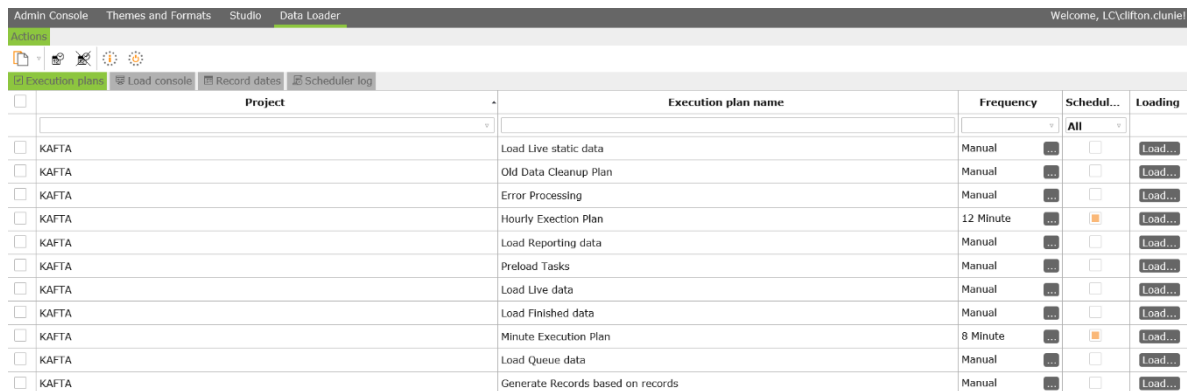


FIGURE 19 - INSIGHT STUDIO APP

## Data Loader:

This application allows the user to set the timing of the data loader. Insight does an ETL to extract data from the TotalAgility database and load in the Insight project database, in this way the tool manages better the data and quicker. The data loader has a lot of options that allows the user to manage the data (Figure 20).



The screenshot shows the 'Data Loader' application interface. At the top, there is a navigation bar with 'Admin Console', 'Themes and Formats', 'Studio', and 'Data Loader'. The 'Data Loader' section is active, showing a toolbar with icons for 'Execution plans', 'Load console', 'Record dates', and 'Scheduler log'. Below the toolbar is a table with the following columns: 'Project', 'Execution plan name', 'Frequency', 'Schedul...', and 'Loading'. The table contains 12 rows of data, each representing an execution plan for the 'KAFTA' project.

Project	Execution plan name	Frequency	Schedul...	Loading
KAFTA	Load Live static data	Manual	All	Load...
KAFTA	Old Data Cleanup Plan	Manual		Load...
KAFTA	Error Processing	Manual		Load...
KAFTA	Hourly Exection Plan	12 Minute		Load...
KAFTA	Load Reporting data	Manual		Load...
KAFTA	Preload Tasks	Manual		Load...
KAFTA	Load Live data	Manual		Load...
KAFTA	Load Finished data	Manual		Load...
KAFTA	Minute Execution Plan	8 Minute		Load...
KAFTA	Load Queue data	Manual		Load...
KAFTA	Generate Records based on records	Manual		Load...

FIGURE 20 - INSIGHT DATA LOADER APP

## Themes and Formats:

This section manages all the themes that are going to be shown on the dashboard. Formats are also managed here; the user can define combination of profiles so they can have a conjunction of themes and formats (Figure 21).

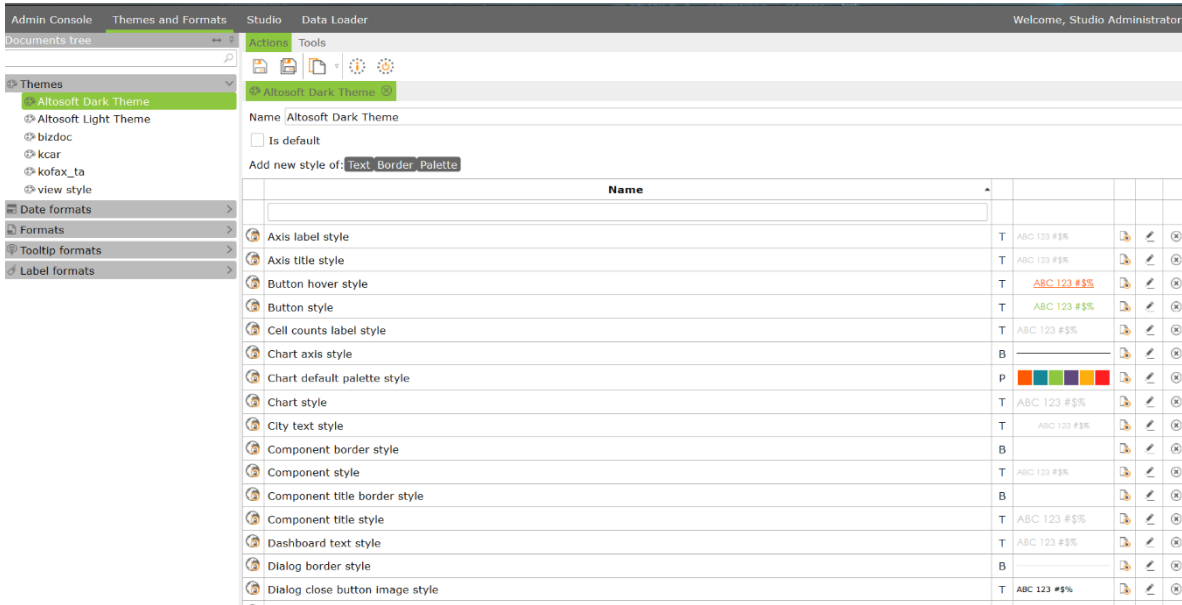


FIGURE 21 - INSIGHT THEME AND FORMATS APP

## 2) Connection with different Data Sources

The connections that can be made in the tool are database relations. One important fact is that a record can be placed as a data source (Figure 22).

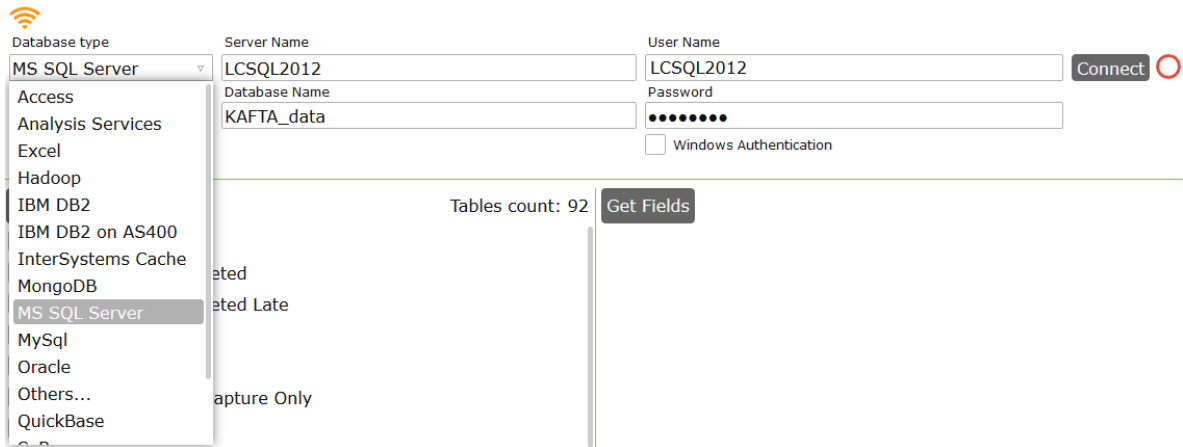


FIGURE 22 - INSIGHT DATA SOURCE CONNECTIONS

## 3) Creation of Reports

For the creation of the reports, it is necessary to create a project. Reporting is an option that gives you the insight but it is a self-generated report that is sent by email.

These are reports that are sent by email. For lack of configuration at the level of the mail server, this task could not be performed.

#### 4) Creation of Dashboard:

Once you have the project created you proceed to create the SQL statements for the metrics and the records they are going to be shown on the view (dashboard). The developer can create records and metrics (Figure 23).



FIGURE 23 - INSIGHT CREATION OF DASHBOARD

#### 5) Share Reports/Dashboards:

The dashboards that are created, are placed in view application. This tool allows the visualization of the dashboards. To have access to this dashboard, the user must be Kofax Total Agility user (Figure 24).



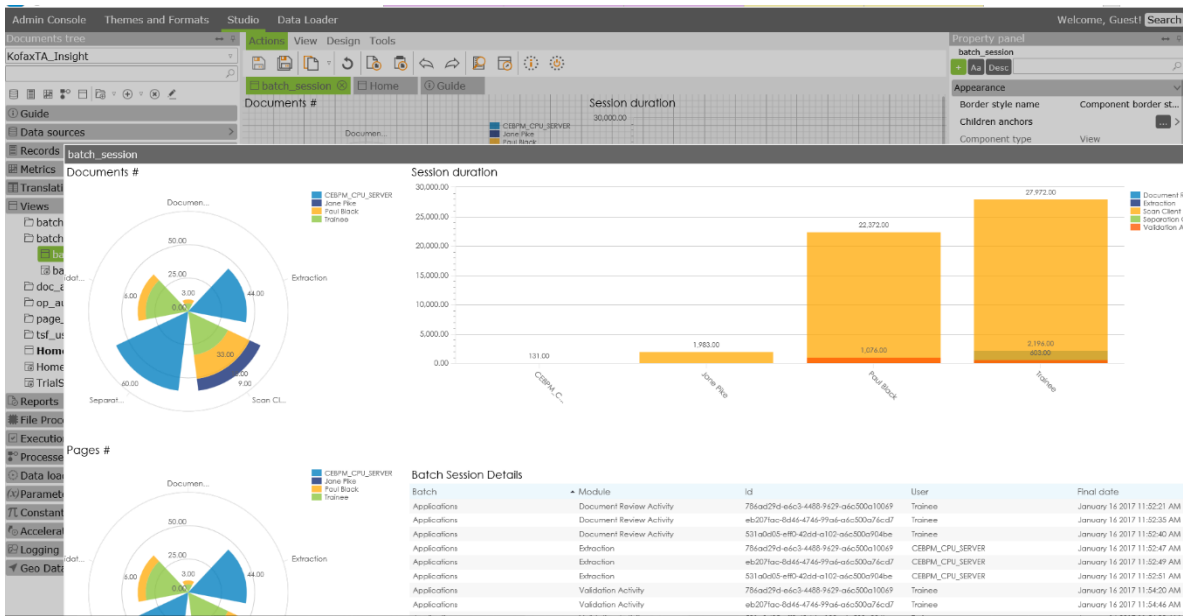


FIGURE 24 - INSIGHT VIEW PREVIEW

## Other functionalities:

When Insight creates a query, this query behaves like a table, allowing the developer to do relationships with this query with other queries or tables (Figure 25). This is a very flexible option offer by Insight Analytics., in this way the forms can be quicker since it's not necessary to load all the table, but only the fields that are included on the query. This is an advantage offer by Insight Analytics.

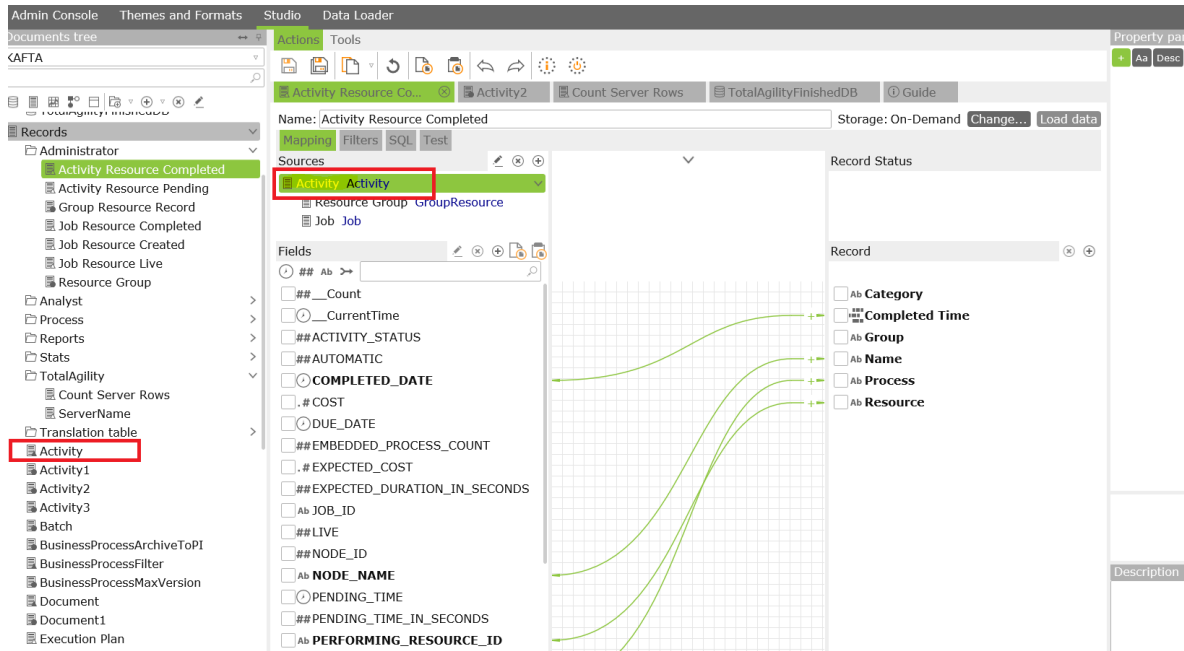


FIGURE 25-QUERY

Insight allows you to test SQL queries that are created. If there is an error, you can debug this error before constructing the report and you can find the source of the error. It also allows manual modifications of queries at the SQL level (Figure 26).

Insight Analytics allows you to test the queries that are created, the developer can check it the relationships are correctly established (Figure 27).

If an error appears, Insight allows you to see how the SQL is built for validation by the user.

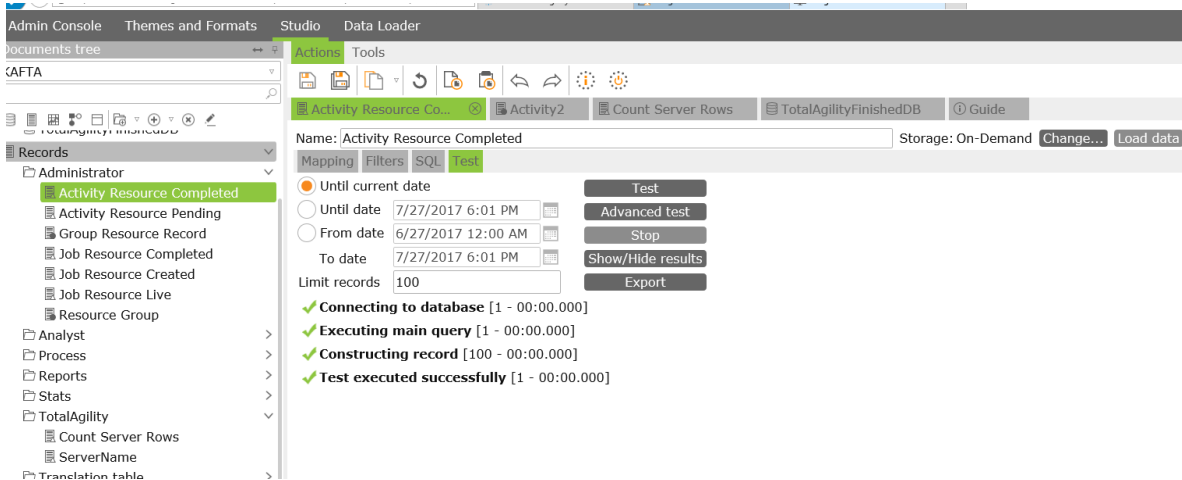


FIGURE 27 - TEST QUERY

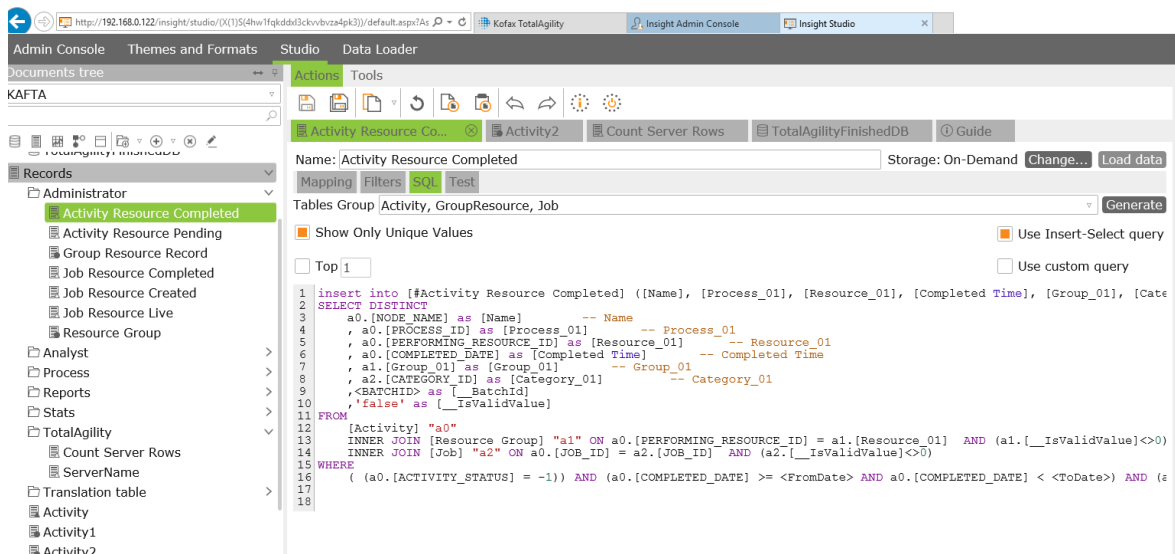


FIGURE 26 - SQL TEST QUERY

One of the discover that where done on the learning process of Insight Analytics, is that project KAFTA developed by KOFAX. Is a project that shows all the processes that are running on the KTA Environment. The project shows all the information regardless the user permission.

The authentication set with Total Agility database allows running this query to only shows the information that the user can see regarding the users' permission defined on the groups.

SQL used to update the dashboard:

```
SELECT CONVERT(VARCHAR(99), RESOURCE_ID,2) FROM AW_LOGGEDON_USER WHERE  
SESSION_ID = CONVERT(binary(16), '<session_id>',2)
```

### 4.1.3. Other Information:

---

#### **Power BI:**

PowerBI allows a lot of type of data source like database, excel files, CSV files, SharePoint, etc.

Power BI Pro is a paid version that gives more options for developers. This version allows creating more complex reports. Power BI Pro also has a certain option that only works with this version, like the Direct Query connection that only works with Power BI Pro.

Power BI also allows to share reports by an Azure application, the user can create a .NET application and link the Power BI app with an application that allows managing the token of the Azure with the Power BI app. With the access of tokens, the user would be able to share the reports through the application.

Power BI Pro gives the option to the user to interact with the dashboard by using Cortana, Cortana is the artificial personal assistance of Microsoft. The user only by inserting normal questions in human language can query information from the dashboard. Cortana can interpret the human language and transform into machines language, showing the request in graphics.

#### **Insight:**

Kofax Insight allows a different kind of authentication. Authentication set by windows Active Directory, Insight Admin or Kofax Total Agility user group.

Depending on the license of the platform the user can create and alter the dashboard. Can also create a new project and develop their own dashboards.

A very important detail that has not to be forgotten is that the KAFTA is only going to show the data of the KTA server that have been running the Reporting services, this service is

running on the KTA server and it's doing an ETL of the data of this server to the Insight Server.

## 4.2. Case Study Two

The development of this case study is to display data from the Total Agility database in the Power BI and Kofax Insight tool. The focus was to respond with these two tools, data that are not found in the KAFTA project.

### 4.2.1. Kofax Total Agility Model

An analysis of the database model managed by Total Agility was done and the tables with the information not found in the KAFTA project were chosen. We proceeded to upload this table to Power BI to see the relationships that these tables have and proceed to report creation (Figure 28).

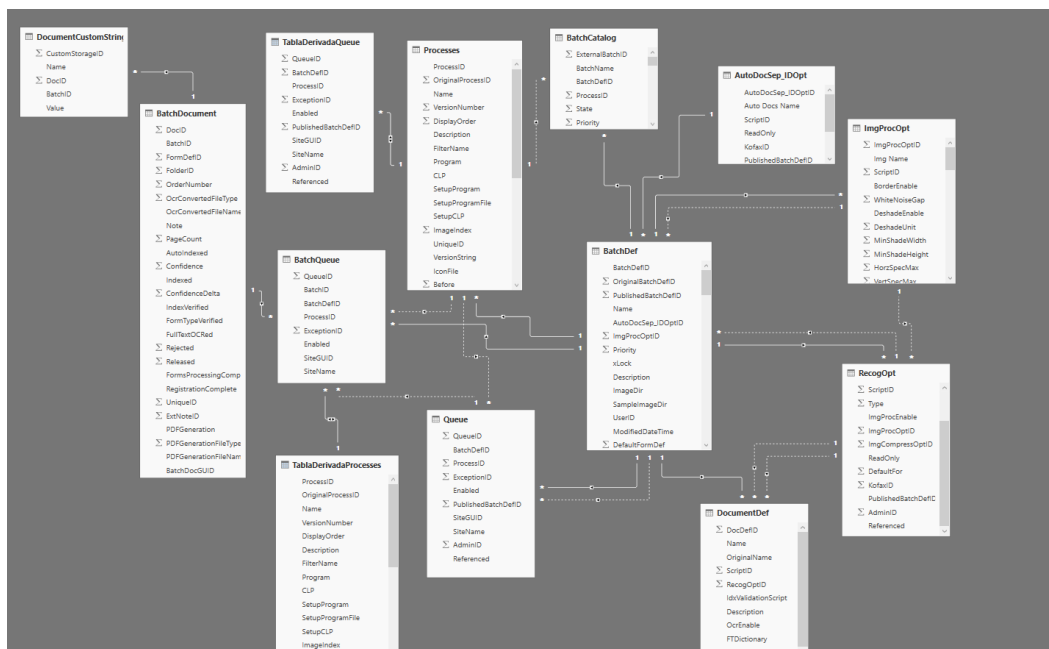


FIGURE 28 - KOFAX TOTAL AGILITY DATABASE MODEL

## 4.2.2. Power BI

A set of reports was built interactively as data found in the main Total Agility database.

The following report shows a graphical set of information about the processes that have been executed in the KTA environment. Displays on a bar graph the total number of executed processes. It also has a graph that shows the comparison of the type of document that has been executed in these processes. You can see a table that shows the detail of the process information (Figure 29).

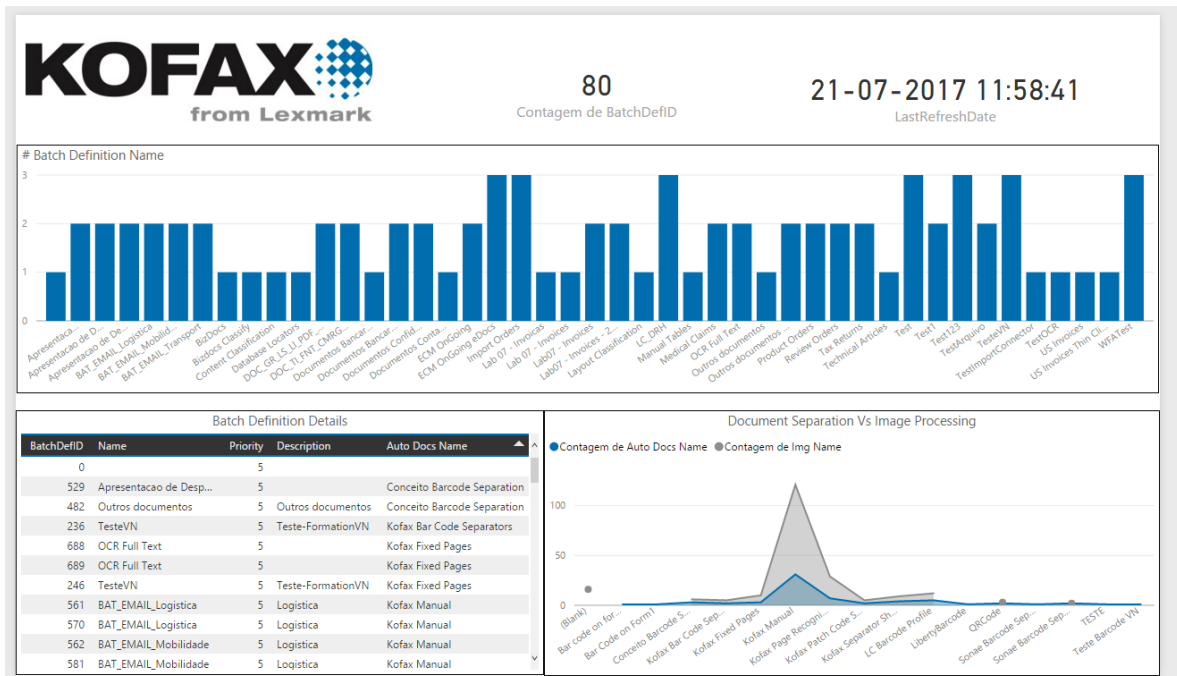


FIGURE 29 - POWER BI PROCESS & BATCH INFORMATION

In this report, you can see a detail of the documents that have been processed. You can see in a graphic set general information of the execution of documents such as rejected documents, those that have been released, etc. Also, has a table with the detail information of the documents (Figure 30).

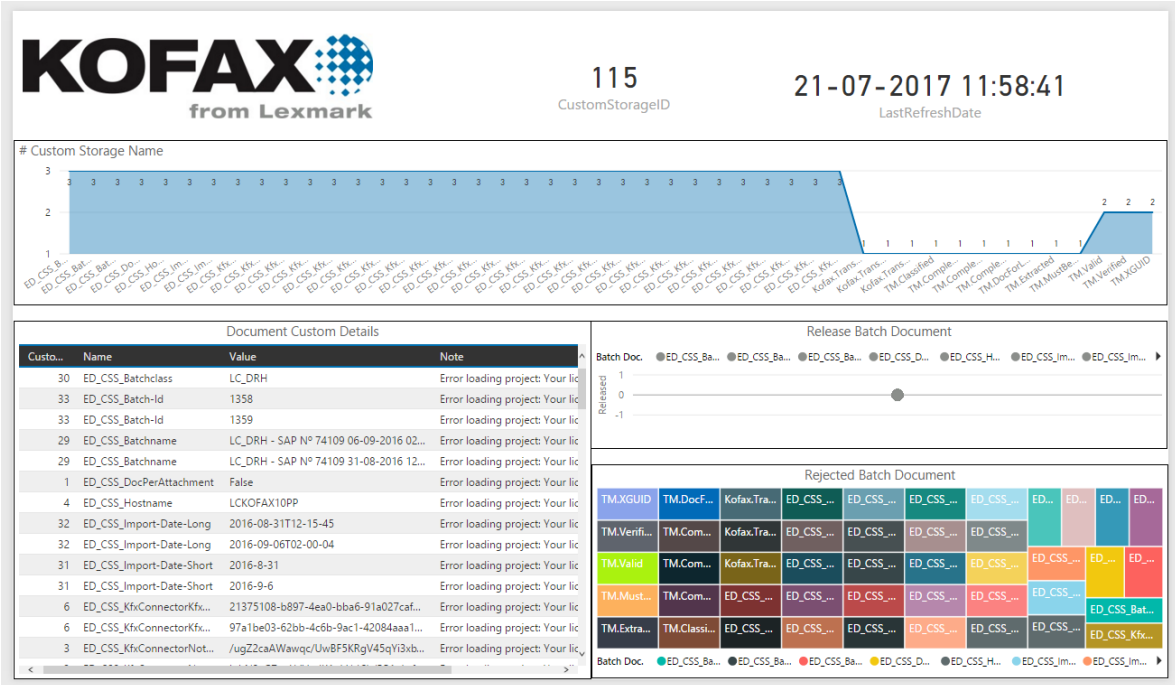


FIGURE 30 - POWER BI DOCUMENT INFORMATION

This report shows all the processes that have gone through the Kofax Queue. It also shows all Queue processes that have been executed. The table at the bottom shows a detail of the execution of the processes (Figure 31).

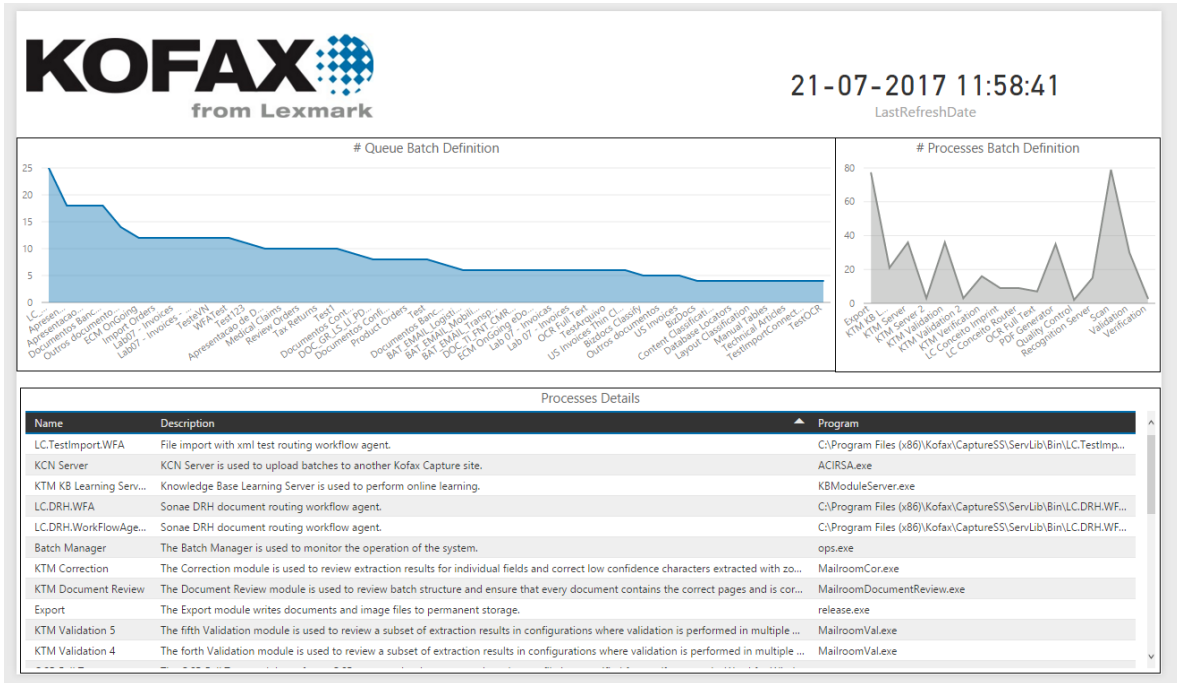


FIGURE 31 - POWER BI QUEUE INFORMATION

This report adds more information about the processes found in the Queue. Displays the number of processes and the state of the processes. In the table, you can see the detail of the information (Figure 32).

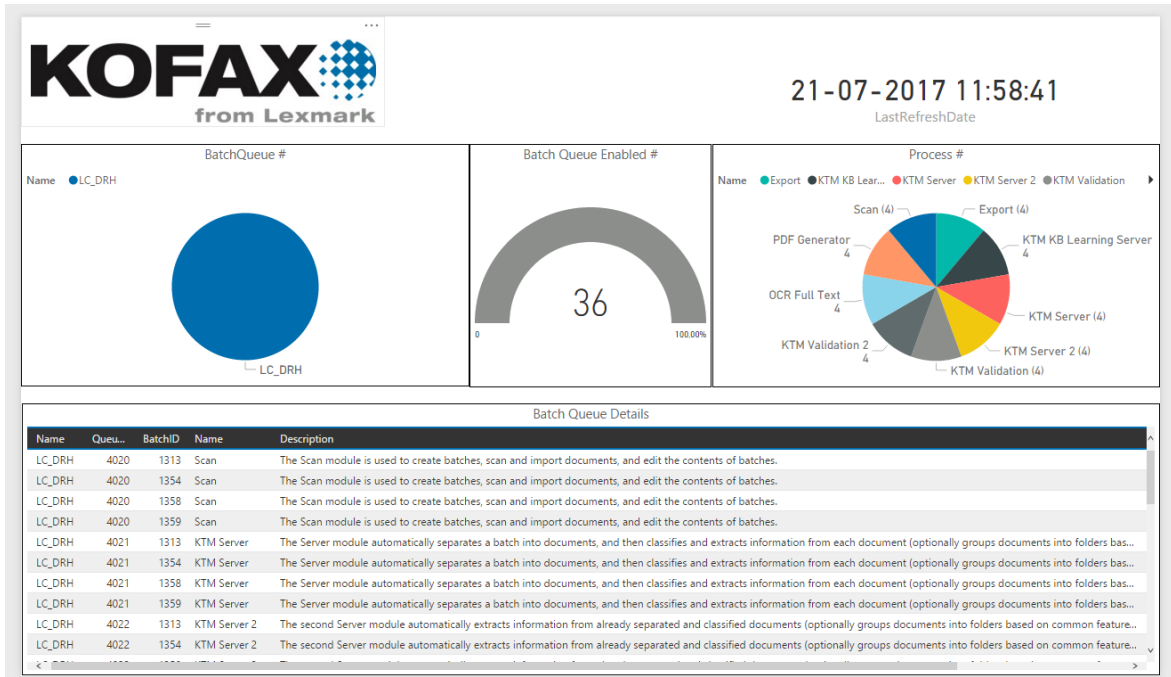


FIGURE 32 - POWER BI BATCH DETAILS



## 4.2.3. Kofax

In this report, we can see general information of the Kofax Total Agility database, information about the Documents, Pages, Session Duration, and batch Session. This is an overview of the information that is accessible through this dashboard.

This dashboard shows an overview of the information that could be obtained from the main KTA database. This dashboard shows information of the documents, the number of pages that have been extracted, the sessions and a detail of the execution of the processes (Figure 33).

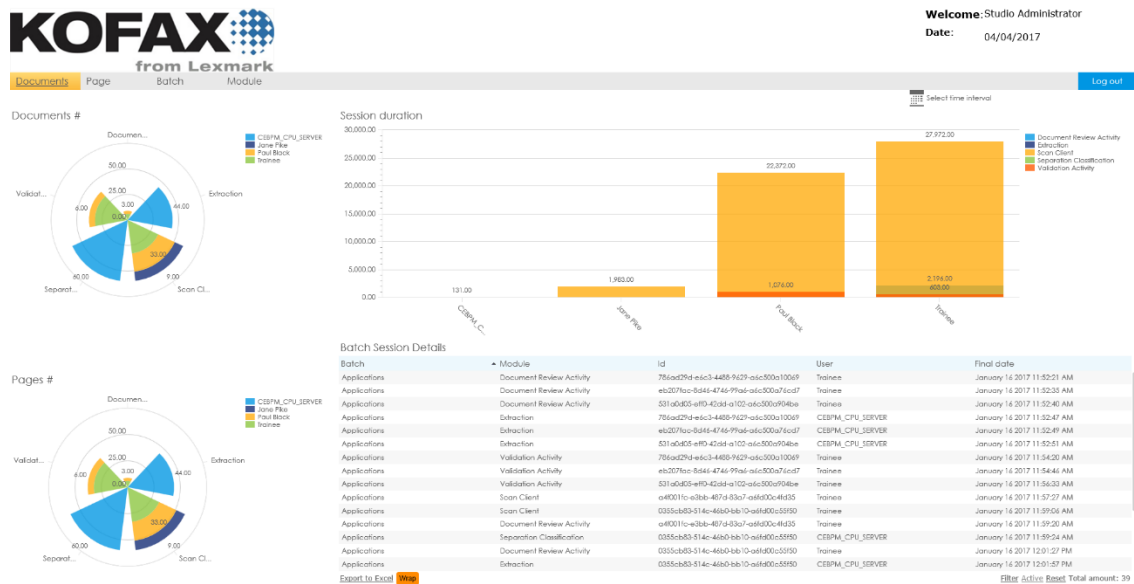


FIGURE 33 - KOFAX TOTAL AGILITY OVERVIEW INSIGHT VIEW

This dashboard shows information from the pages of the documents that have been extracted. Which are the modules that have had more page processing and users who have interacted with the larger volume of documents pages. It also has a table with the detail of the process. (Figure 34).

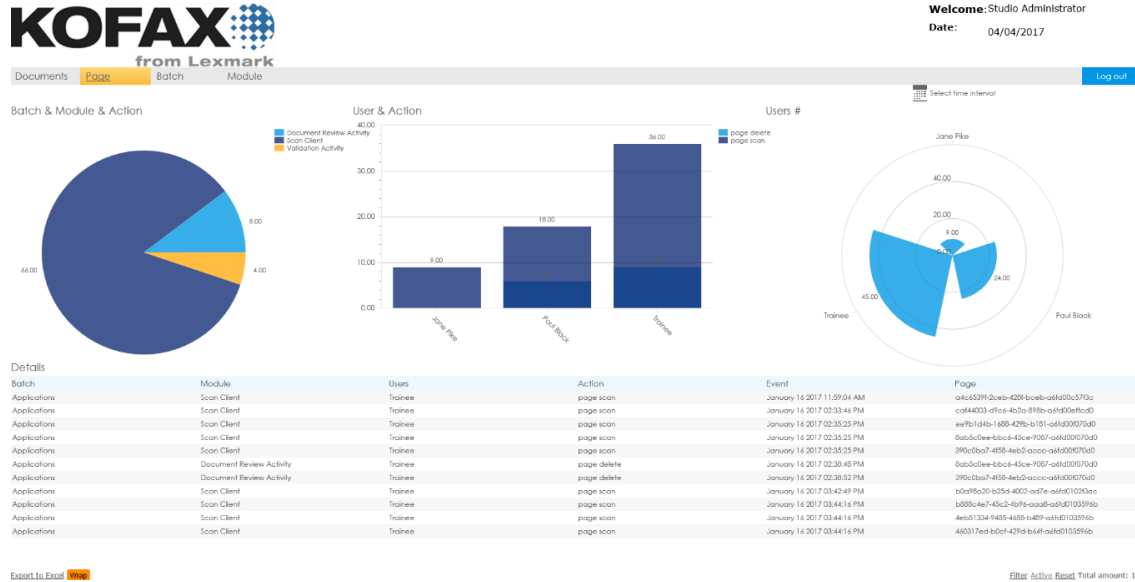


Figure 34 - PAGES INFORMATION

This dashboard displays information about the processes that are running. You can see a graph that compares the actions with the runtime. The time each user has in the execution of the process and the number of processes that are active against the non-active ones. The table on the right shows a detail of the processes (Figure 35).

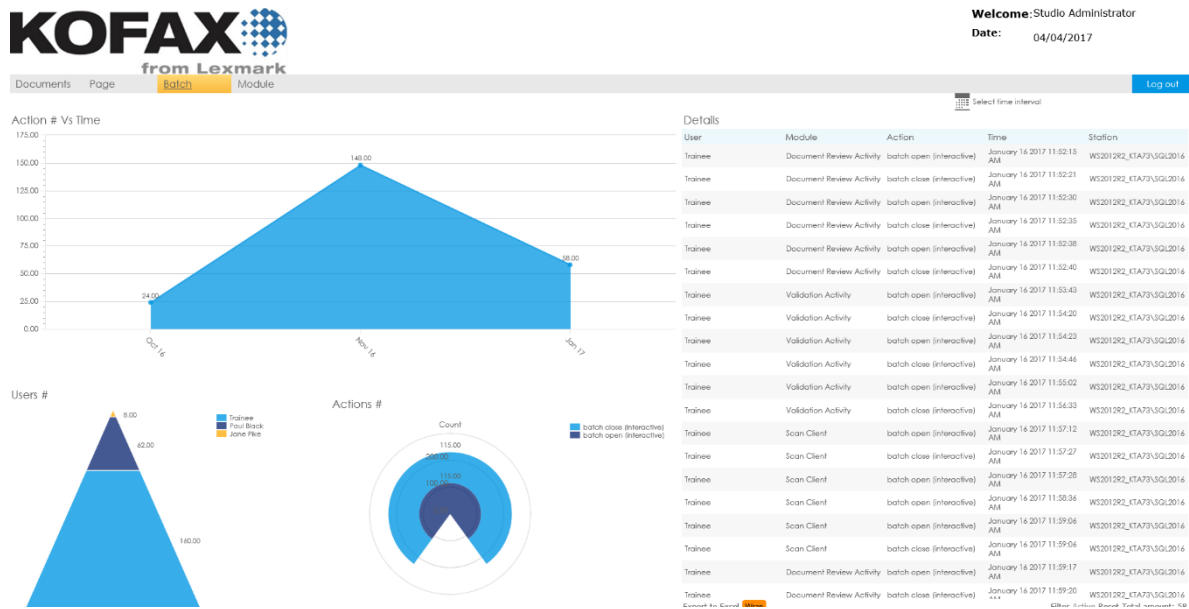


Figure 35 - BATCH INFORMATION

This dashboard displays information on processes that have been deleted. It also shows a comparison of the number of processes that perform some document export. In the table, you can see the detail of the process information (Figure 36).

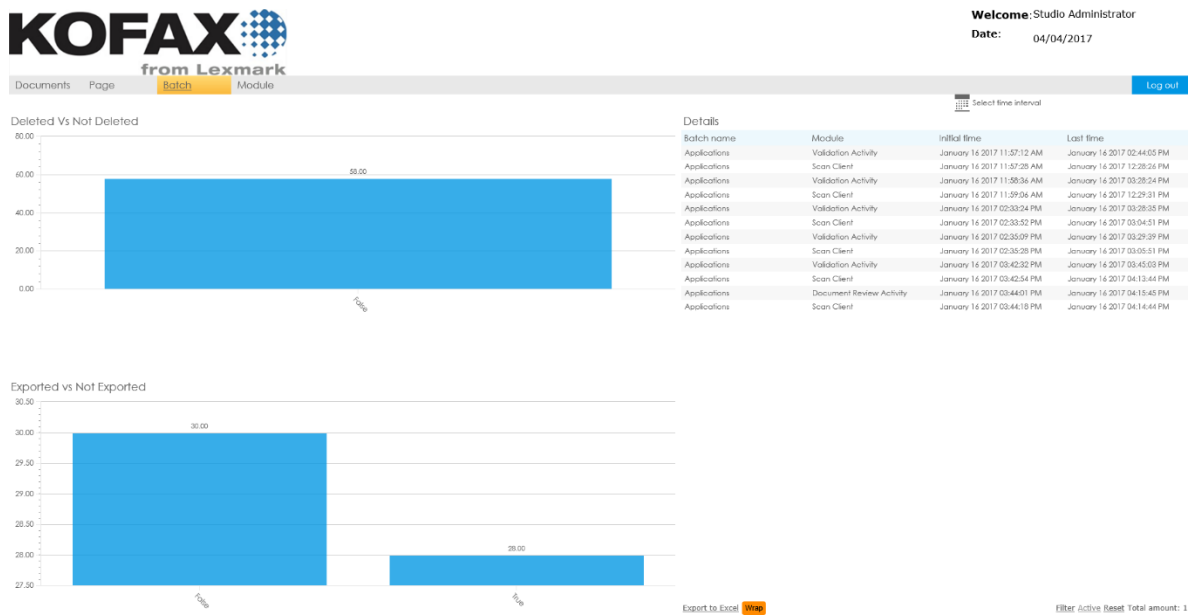


FIGURE 36 - BACTH DETAIL

This dashboard displays information about the modules that are active in the KTA. It has a graph with the number of active users and the duration of your session. It shows the number of fields that have been extracted and a table with the detail of this information (Figure 37).

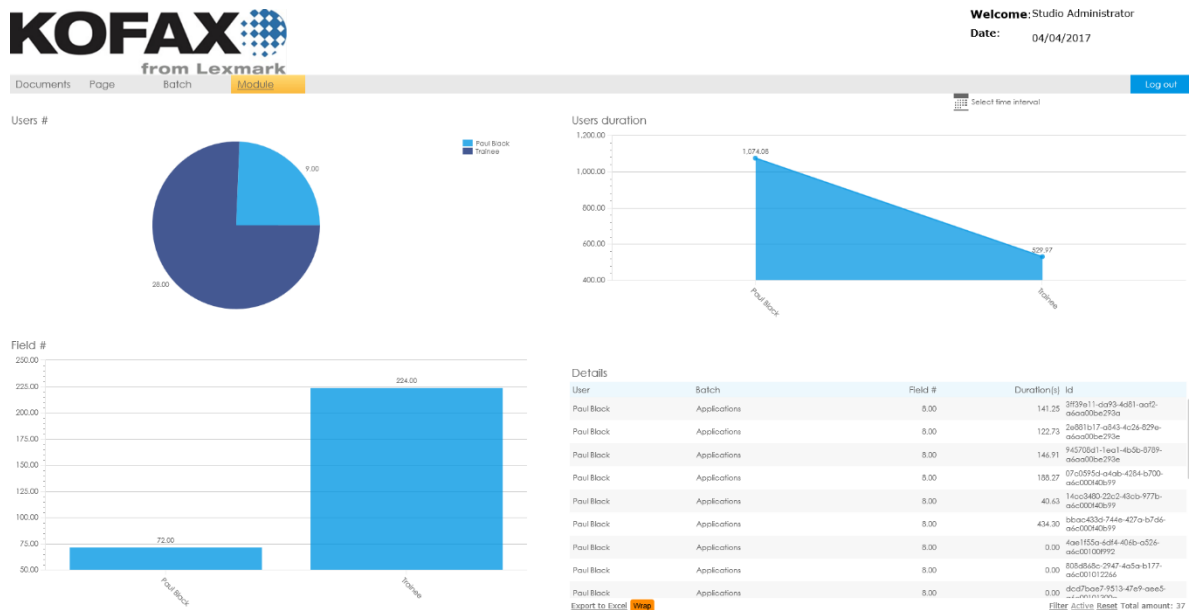


FIGURE 37 - MODULE INFORMATION

## 5. Bancolombia Client

The client needs a tool that would allow overseeing the Kofax running process.

With this need, the installation of the Kofax Insight tool was done on the client. The client doesn't have any Business Intelligence tool, and because of this, the best fit to show analytical reports was the Kofax Insight tool.

The KAFTA project is a package created by Kofax that has already a set of dashboards, these dashboards show all the information related to the process running on the Kofax Total Agility platform. The KAFTA project was configured on the client. The first action was to check the prerequisites that are the server roles at the IIS (Figure 38). Kofax has an installation guide that explains step by step how the installation should be done.

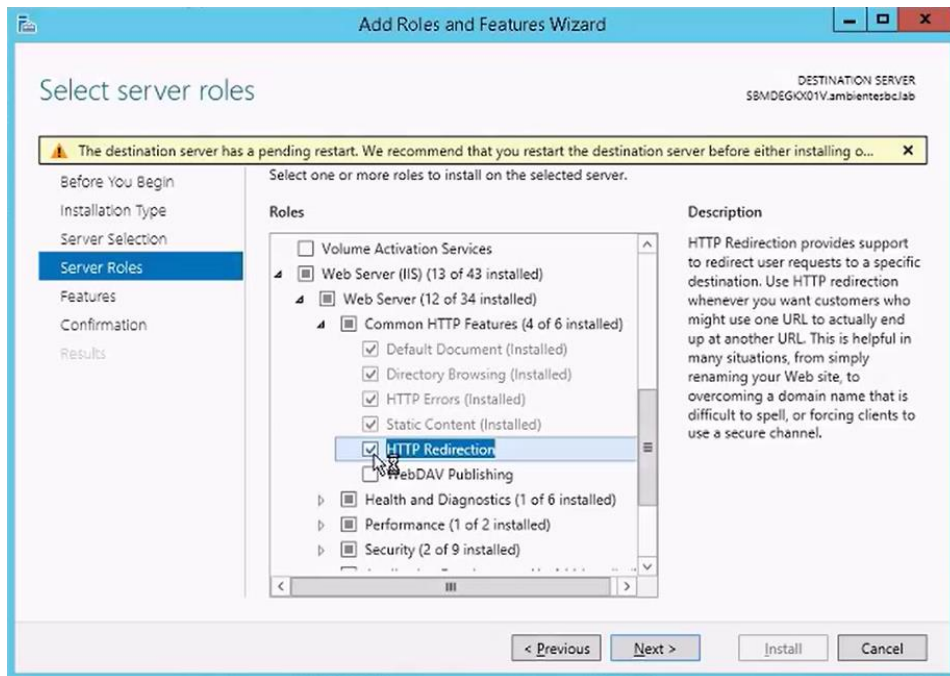


FIGURE 38 - IIS

The next step is to check the SQL permissions. The user to be used for the Insight installation (Figure 39) must have the public and sysadmin roles. Also, this user must have the user mapping on the Total Agility databases, the same database that will be used in the KAFTA project.

With all this information set, we proceed for the installation. The installation can be between 30 min to 45 depending on the hardware of the server.

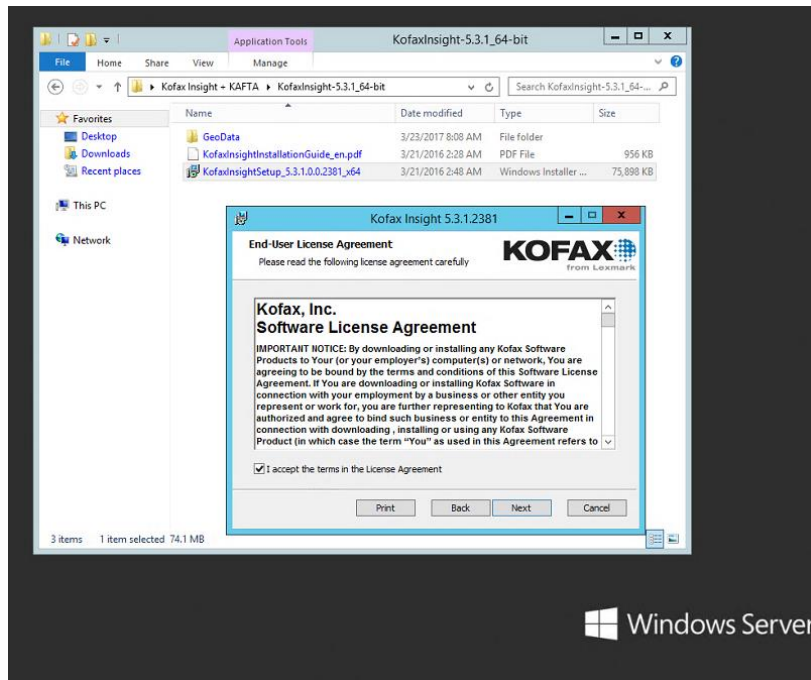


FIGURE 41 - KOFAX INSIGHT INSTALLATION

Once the installation has been done, next step is to set the license of the Insight and finally proceeds to start the KAFTA configuration. (Figure 40).

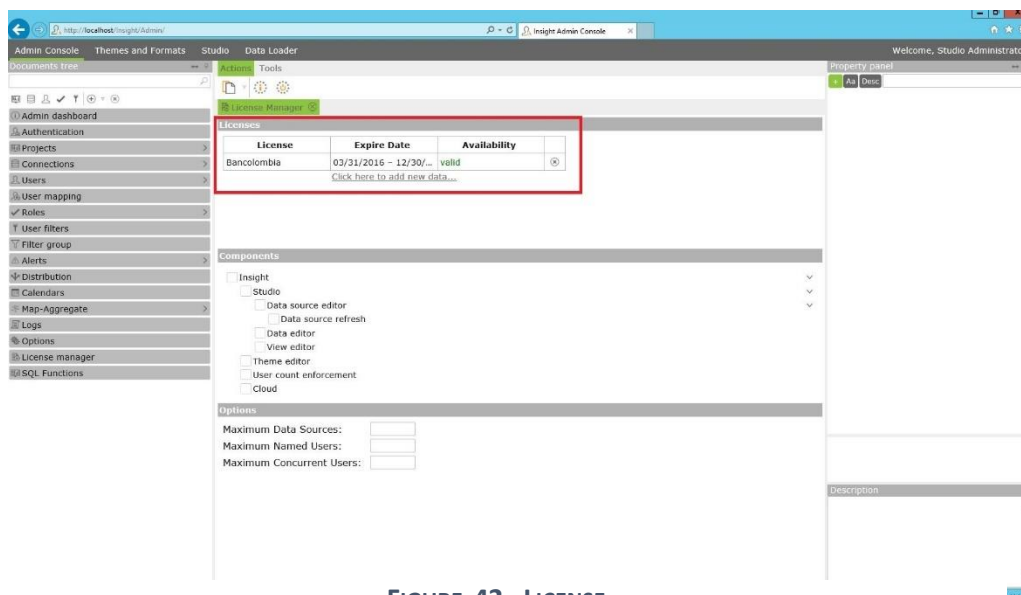


FIGURE 42 - LICENSE

Insight Analytics allows different types of authentication. The configuration that was done on the client was the authentication by KTA. The user can access to the KTA platform and click on the button to see the dashboard of the KAFTA project.

To achieve this, it is necessary to choose the HTTP Request and External Database option (Figure 41) and set some SQL on the user mapping of the Insight Analytics tools (Figure 42).

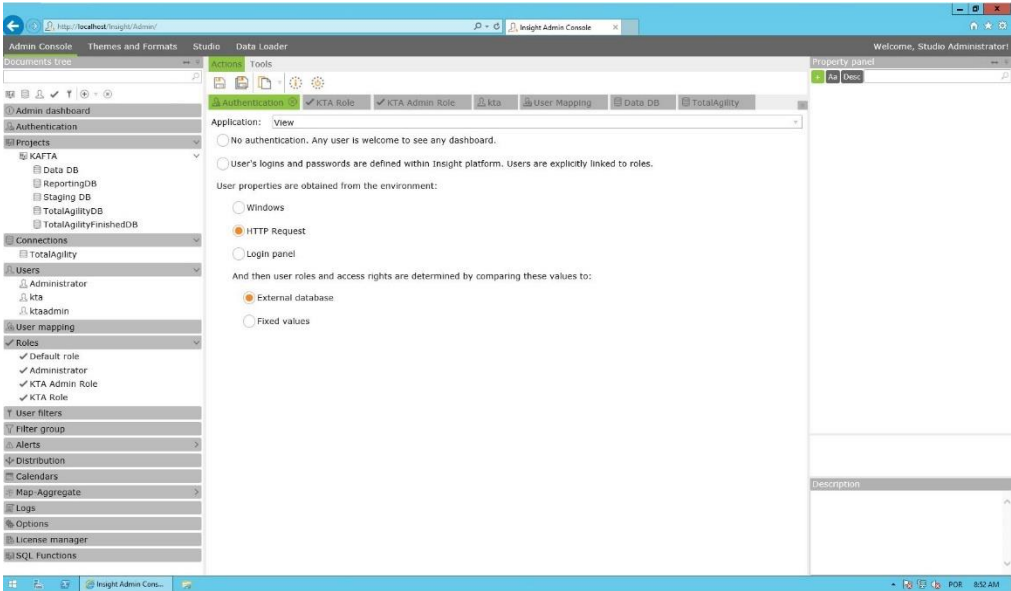


FIGURE 43 - KTA AUTHENTICATION

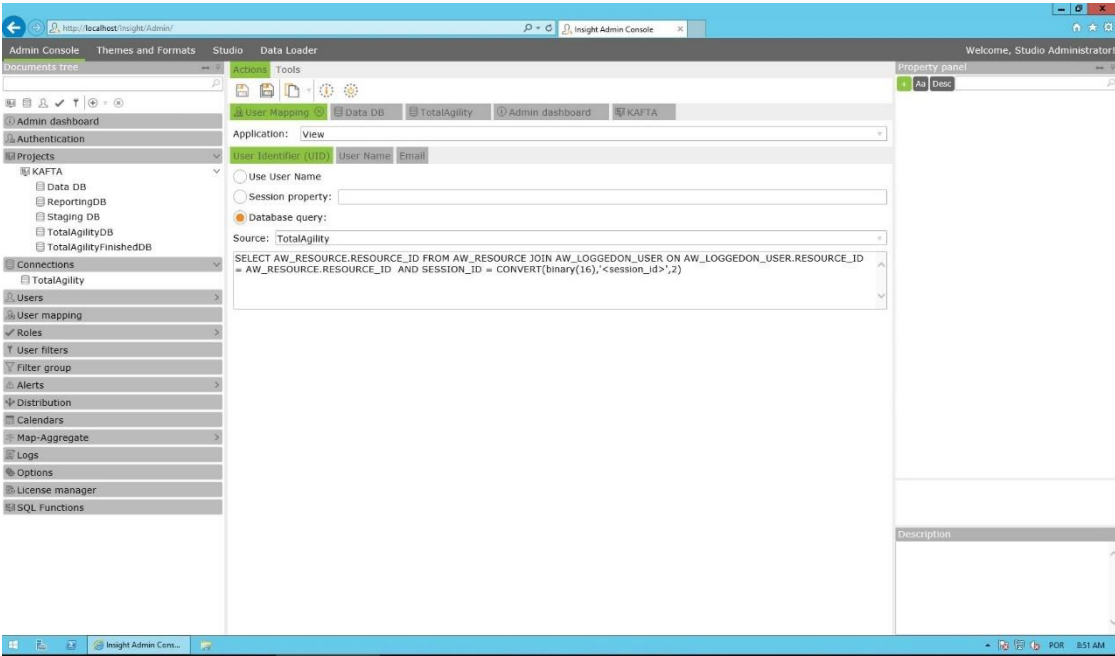


FIGURE 46 - USER MAPPING

Kofax Reporting Services gives system administrators, business process managers, and other stakeholders' important information about Kofax managed business processes. This product serves as the single conduit across many Kofax products, providing centralized storage of historical operational metrics and audit data (Figure 43). It's important to say that this service must be configured with administration permissions.

This service oversees the ETL. When an Insight Analytics project it's created, it creates a project database. This service populates the reporting database. This database already has all the summary of the KTA process and the main information of the process that can be displayed on dashboard/report.

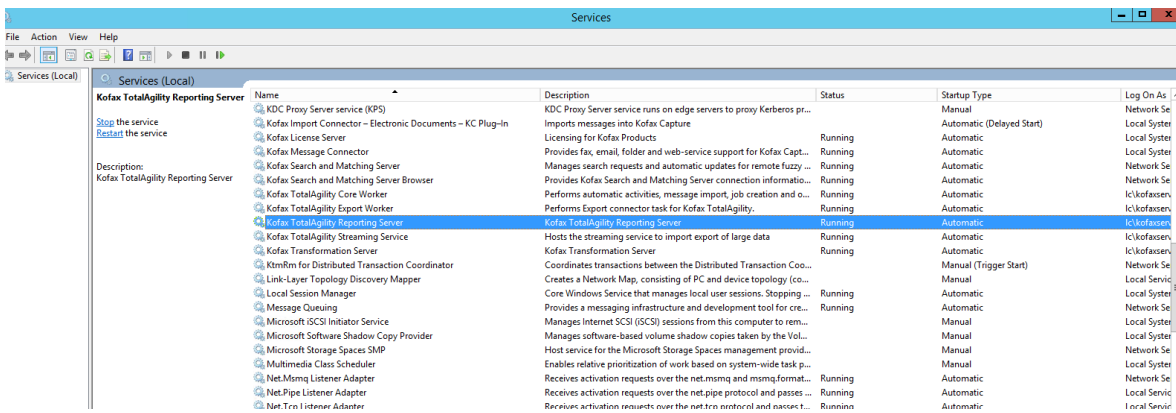


FIGURE 47 - SERVICES

The timing of the ETL can be change, depending on the user need (Figure 44).

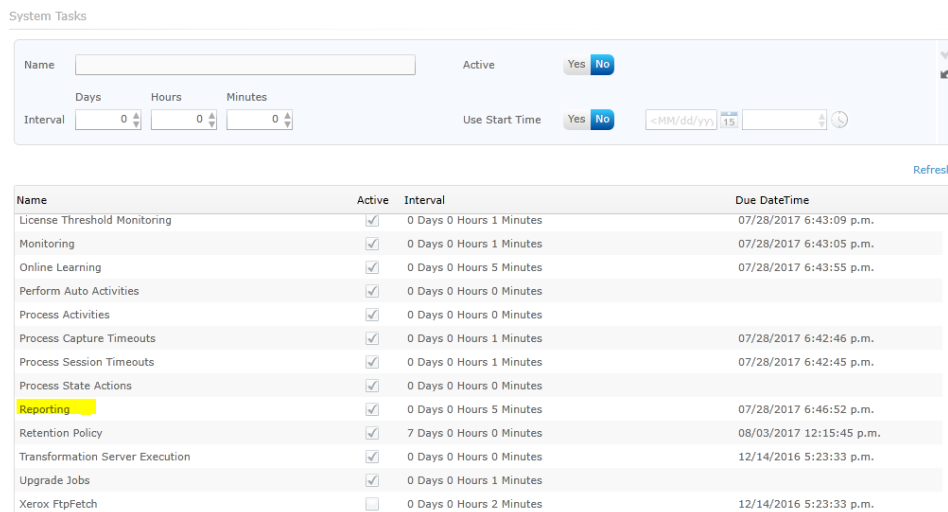


FIGURE 48 - KTA SYSTEMS TASKS

With all these steps configured, the next steps it's to link the KTA with the Insight Analytics Server. For this it's necessary to put the Insight server information in KTA (Figure 45).

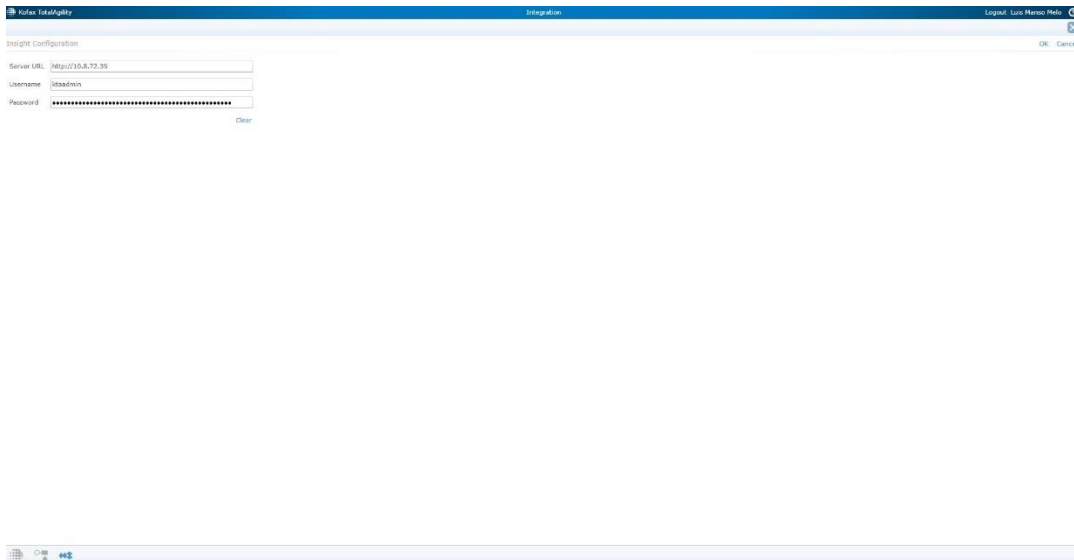


FIGURE 49 - INSIGHT CONFIGURATION

When all the steps above are executed, the KAFTA configuration is done. For this, the user must import the KAFTA project to the Insight Analytics environment.

When the KAFTA project has been imported. It's necessary to update the consolidate file with the information of the environments (Figure 46). The KAFTA project is going to read the configuration of this file.



FIGURE 50 - CONSOLIDATED FILE



With all this information set up, the KAFTA project is ready to run. The next section is going to explain the dashboard of the KAFTA project.

## KAFTA Project

This is the main dashboard, it is a dashboard with a general information that shows us the activities that have been completed today. Several activities found in the Queue, the number of documents and pages being processed. It also shows who is responsible for each of those activities and the activities that have been completed (Figure 47).

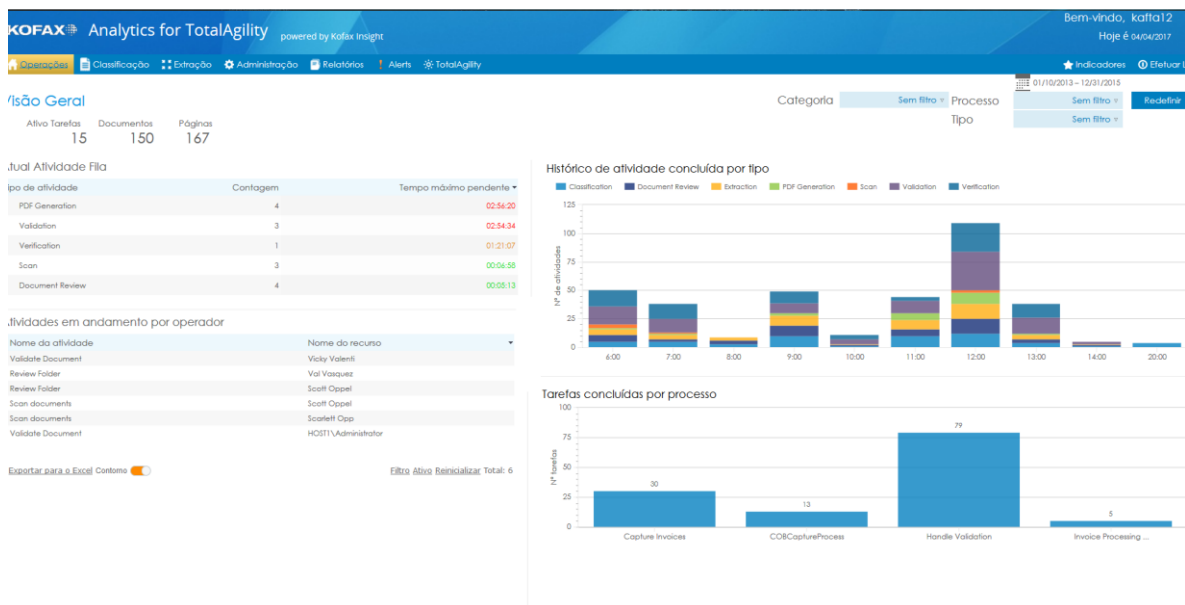


FIGURE 51 - KAFTA OVERVIEW

This dashboard shows all documents that have been rejected. It shows a detail information about the operator and which document, process, and activities are running (Figure 48).

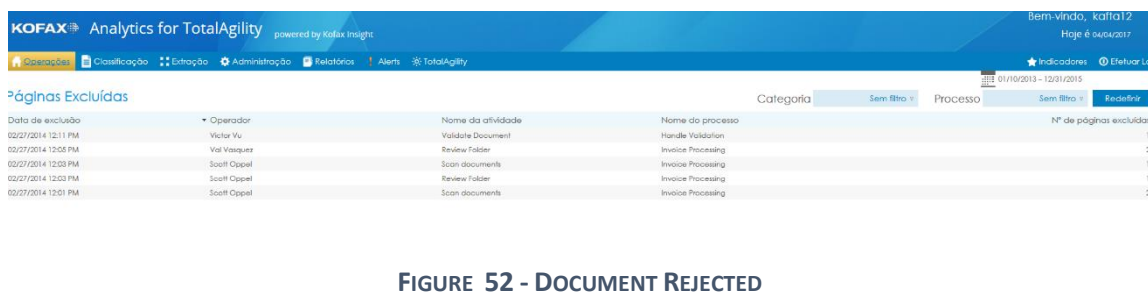


FIGURE 52 - DOCUMENT REJECTED

This dashboard shows all the complete time of the users that are using the KTA platform. It has a graphical comparison that shows the longest time and the shortest usage time. It also has a total amount of time for each activity that has been executed in the KTA (Figure 49).

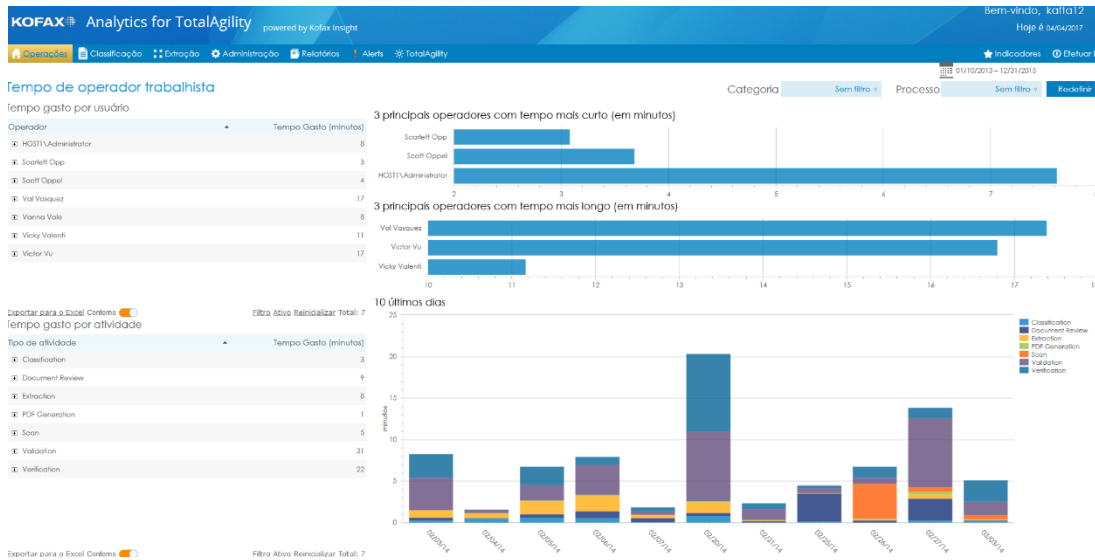


FIGURE 53 - OPERATOR TIME

This dashboard shows the cost information that exists per activity and the cost that exists per KTA user (Figure 50).

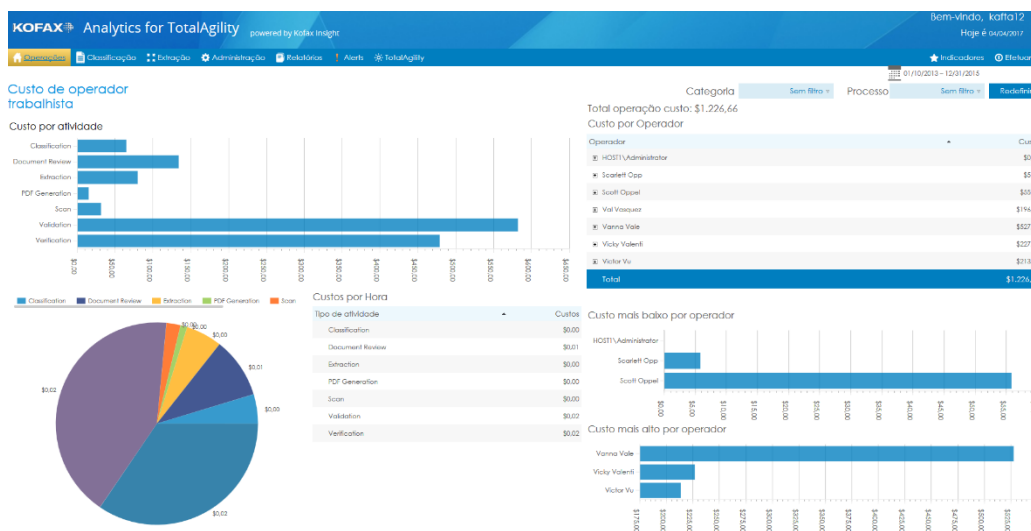


FIGURE 54 - OPERATOR & ACTIVITY COSTS

This dashboard displays information about the user session time. If goals are defined at the process, this dashboard is going to show if the goal of the session time was achieved or not (Figure 51).

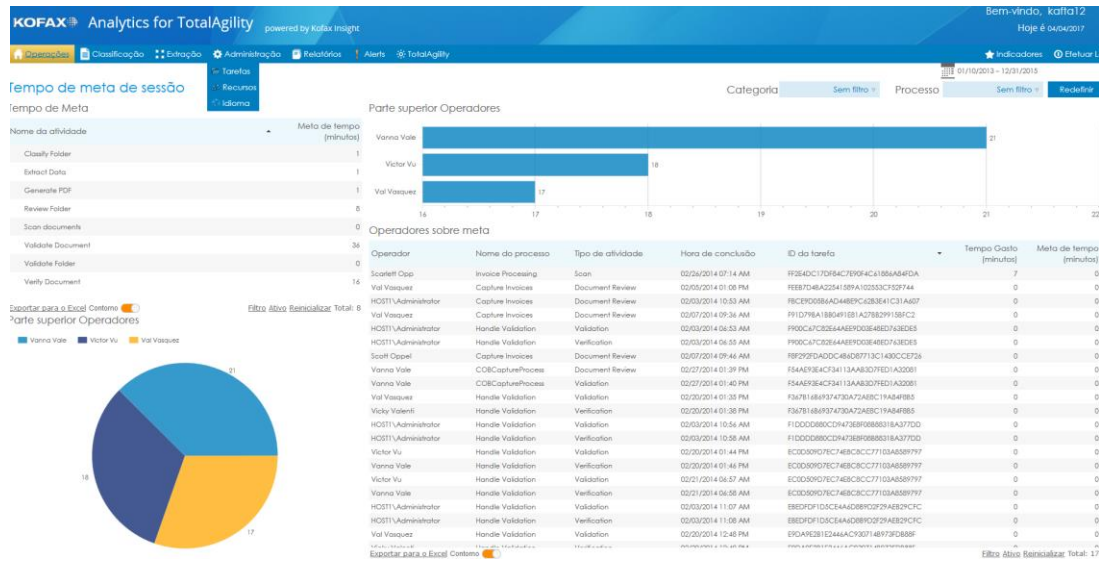


FIGURE 55 - SESSION TIME

This dashboard shows the status of the processes that have been created. Shows the number of processes that exists with high priority and a total of processes that have been executed (Figure 52).

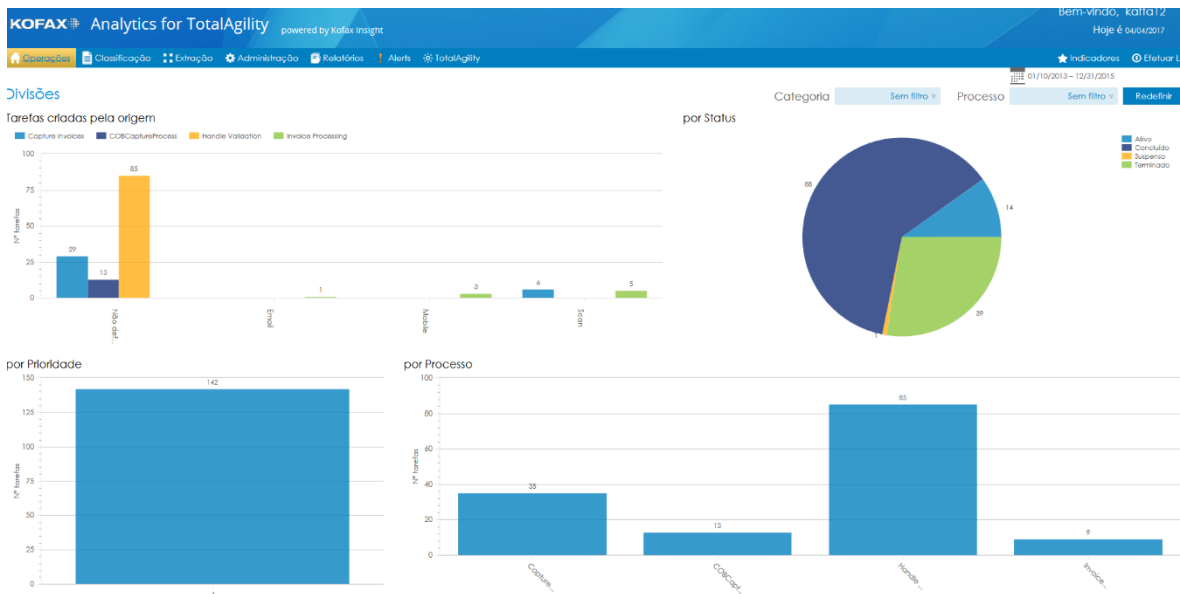


FIGURE 56 - PROCESS STATUS AND PRIORITIES

This dashboard shows an overview of activities that have already been completed. It also shows the execution time and the user average task time (Figure 53).



FIGURE 57 - ACTIVITIES RESUME

When a classification of a document is made in a process, this classification is obtained by an analytics activity, so the analytics can show this information. The first table allows drill down where you can see the origin (Figure 54).

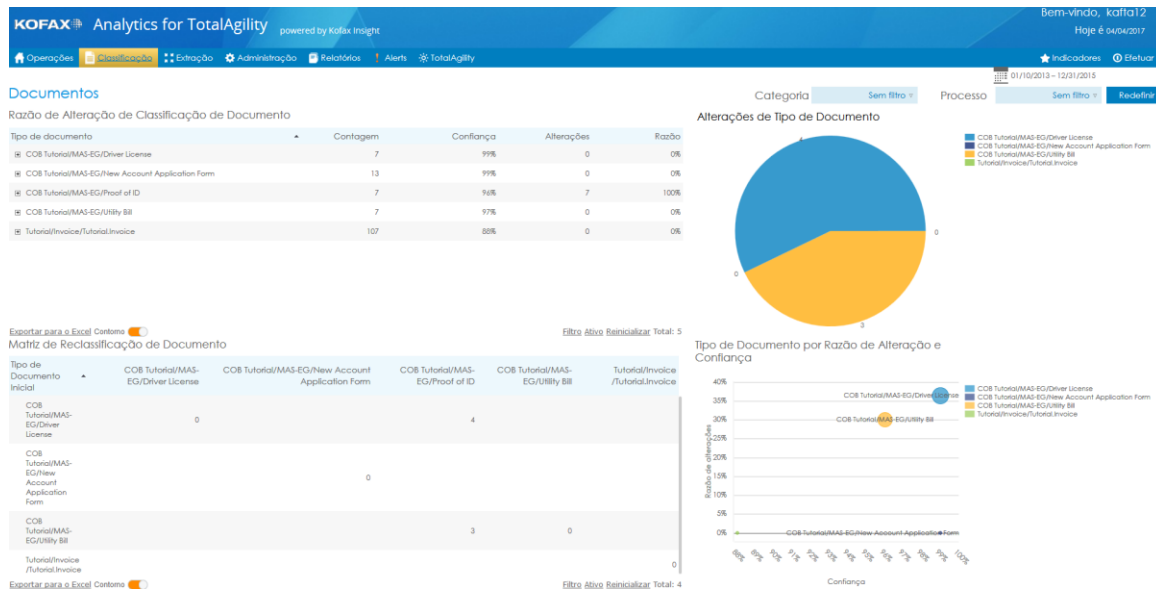


FIGURE 58 - DOCUMENTS CLASSIFICATION

This dashboard shows an overview of the processes that are running. You can see the process time vs. the average cost time (Figure 55).

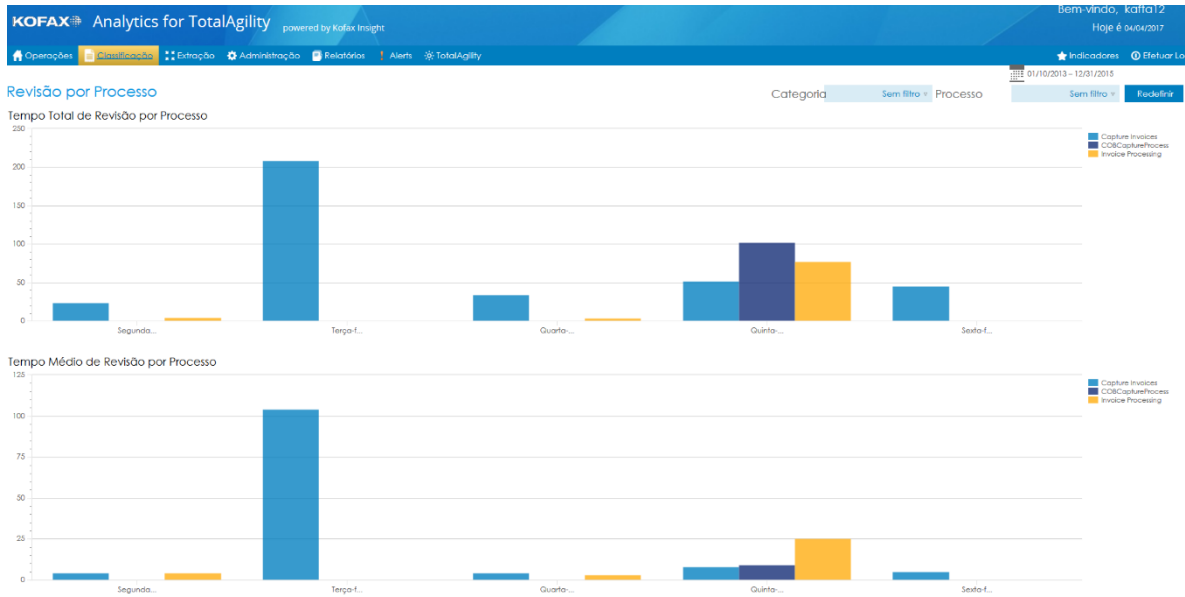


FIGURE 59 - PROCESS RESUME

This dashboard displays the information that is obtained from the user accessing the KTA platform. The dashboard displays the session time and the activities time that have been executed (Figure 56).

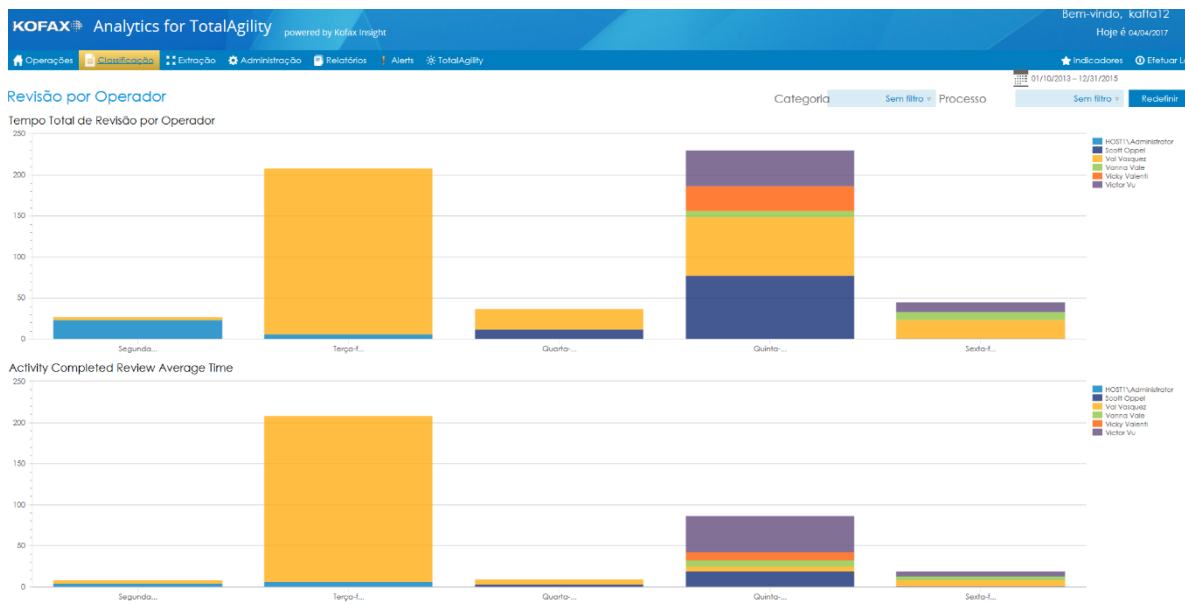


FIGURE 60 - OPERATOR RESUME

This dashboard displays the result of the extraction activity. It can be seen a comparison of the extracted data with the data that has been validated, this allows to detect errors and make improvements. It has a graph that shows the result of fields modified by the process and a table with the detail of the fields that have been modified (Figure 57).

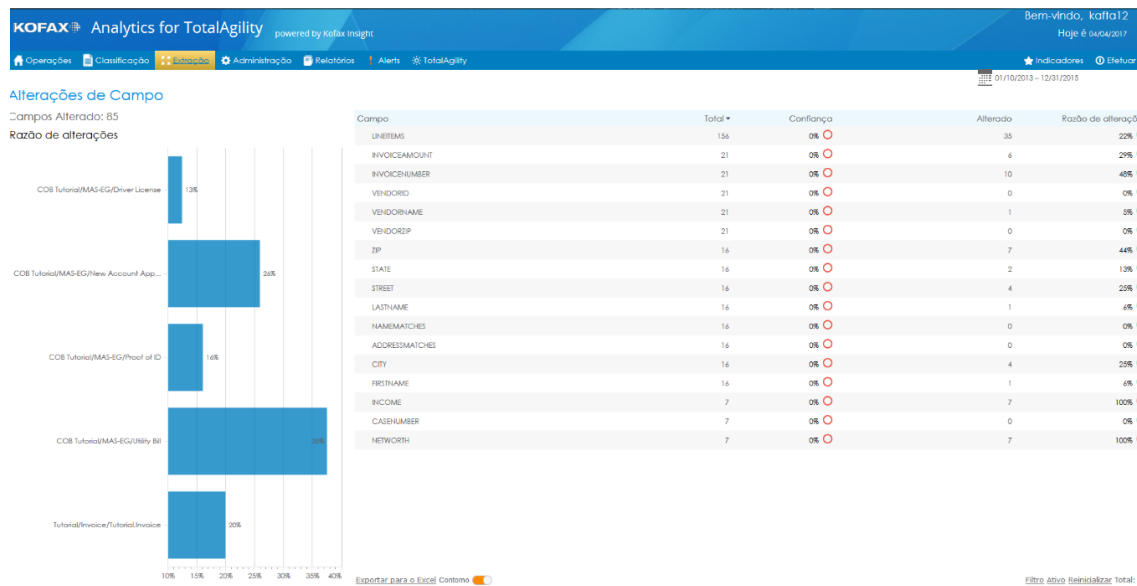


FIGURE 61 - EXTRACTION DETAIL

This dashboard shows the comparison that has the data that have been extracted, with the data that have been validated. It shows in the table the percentage of the processes that have undergone modifications and in a graph which are the fields that have undergone changes (Figure 58).

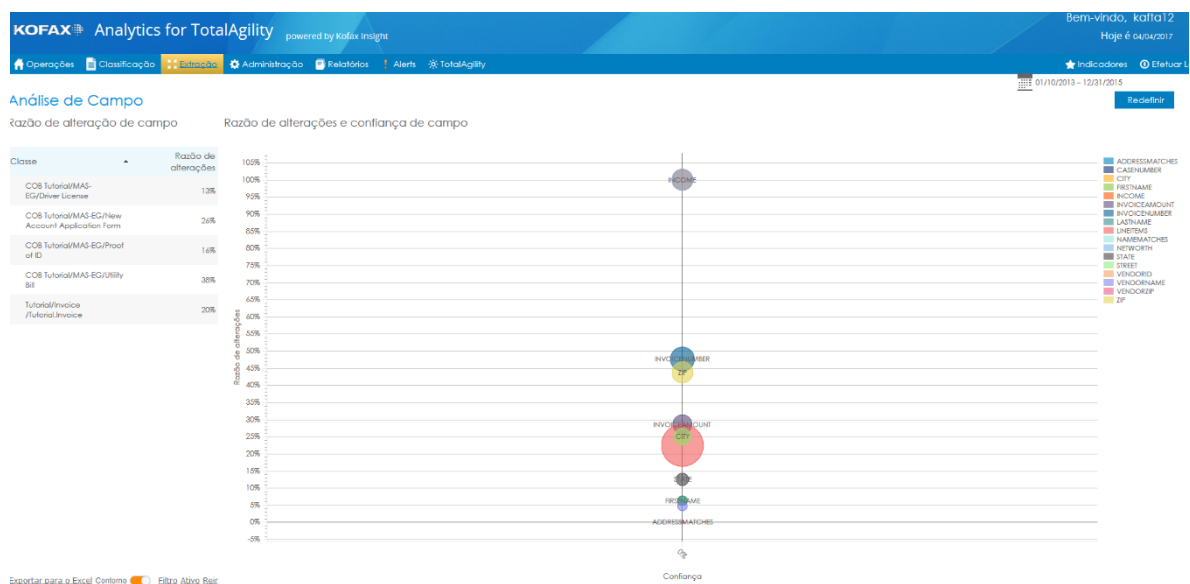


FIGURE 62 - EXTRACTION GRAPHIC INFO

This dashboard shows all the information of the Jobs, shows the information of the Jobs that are active in the KTA queue and a history of all the Jobs that have been executed. Also, has a graph that allows to see the comparison of which jobs have been most executed in the KTA environment (Figure 59).

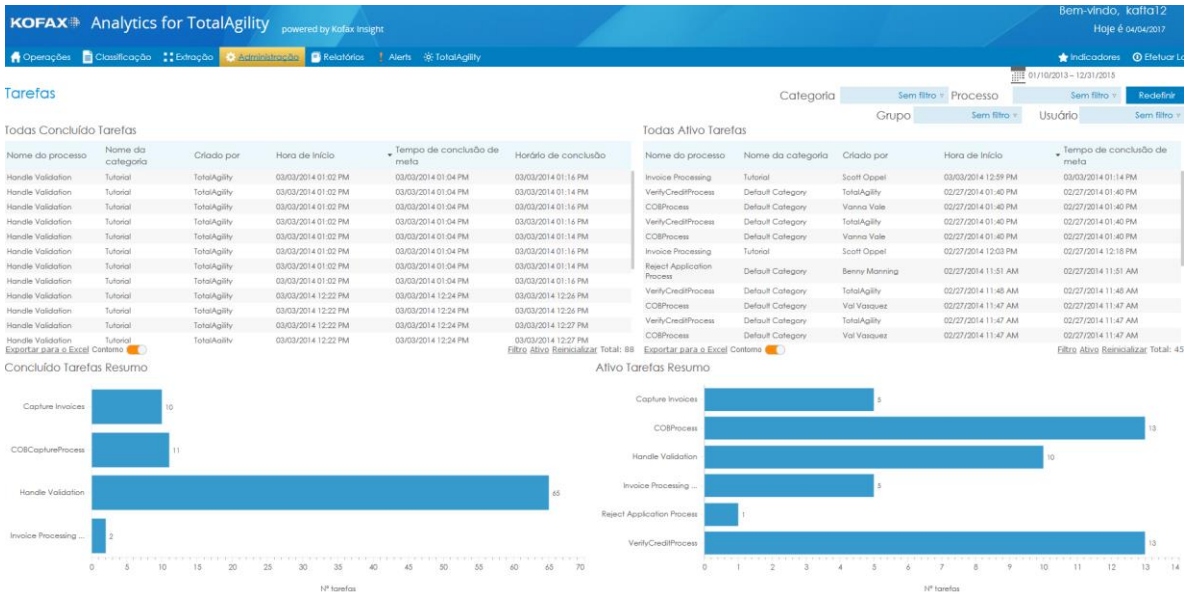


FIGURE 63 - PROCESS EXECUTION

This dashboard shows a summary of which are the numbers of Jobs that has been started by KTA users. And it shows a summary of all the activities that have been executed at the level of Jobs and processes. Also, shows what are the activities that are in the queue (Figure 60).

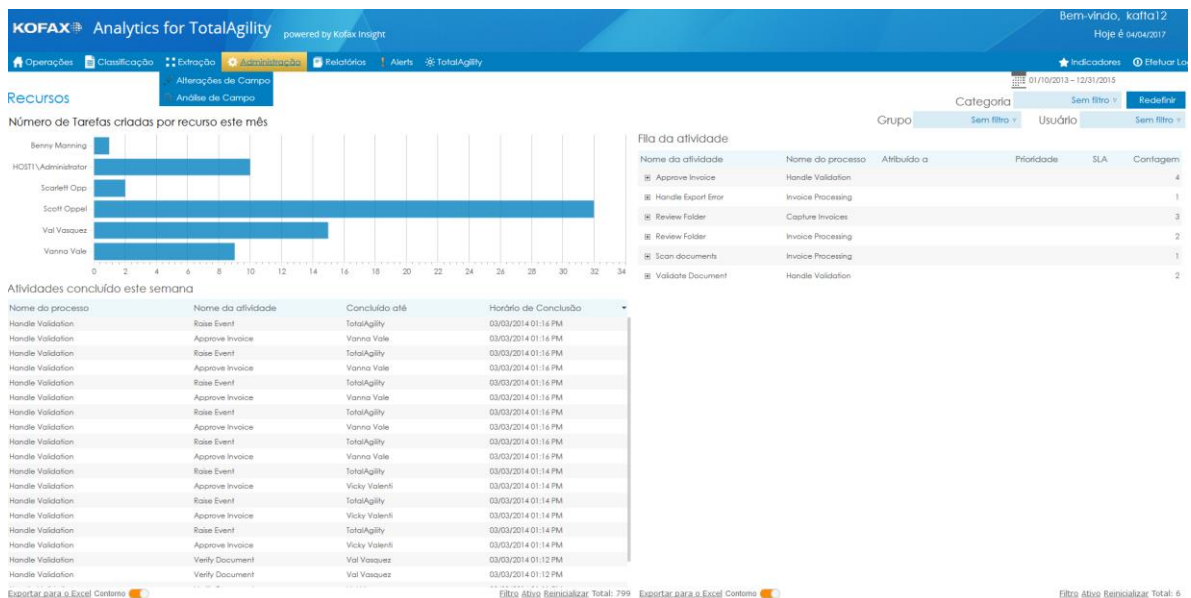


FIGURE 64 - ACTIVITIES DETAILS

This report shows a history of all documents that have shown a problem in the classification. Indicating what was the document, classification time and the type of document that was modified (Figure 61).

Tipo de Documento Inicial	Tempo Classificado	Confiança	Confiante?	Tipo de Documento Revisado	Tempo de Revisão
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:44 AM	81%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:45 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:44 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:45 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:44 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:45 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:44 AM	100%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:45 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:50 AM	81%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:51 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:50 AM	81%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:51 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:50 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:51 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:50 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:51 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:50 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:51 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:50 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:51 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:50 AM	100%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:51 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:50 AM	100%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 06:51 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM	81%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM	81%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM	100%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM	100%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 07:15 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM	81%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM	81%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM	100%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM	100%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 10:53 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 11:06 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 11:06 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 11:06 AM	84%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 11:06 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 11:06 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 11:06 AM
Tutorial/Invoice/Tutorial Invoice	02/03/2014 11:06 AM	99%	True	Tutorial/Invoice/Tutorial Invoice	02/03/2014 11:06 AM

FIGURE 65 - CLASSIFICATION DOCUMENT REPORT

This is a report that has the execution detail of KTA users, showing the number of activities that are executed by each user, number of documents and execution time (Figure 62).

Usuário	Contagem da atividade	Contagem de Documentos	Tempo Gasto (minutos)	Tempo Médio por Processo (minutos)	Tempo Médio por Atividade (minutos)
HOST1\Administrator	37	52	8	0	0
Scarlett Opp	1	1	3	3	3
Scott Oppel	17	39	4	0	0
Vol Vazquez	72	128	19	0	0
Vanma Vale	56	68	10	0	0
Vicky Valenti	36	43	12	0	0
Victor Vu	59	63	24	1	0

FIGURE 66 - USER DETAIL REPORT



## 6. Liberty Client

Liberty is an insurance company that now don't have any business intelligence tools. They have some metrics that are generated by a company each month. These metrics are shown in a pdf so that they can see a global view of the business in this document, they are not able to see the real-time data and historical data.

They want to see information about the Kofax platform but, the information that they were requesting doesn't respond with KAFTA project. In this scenario, the Power BI was shown as an option for analytical, where they can see the actual data and historical data.

Next, it shows the dashboard that was developed with Power BI tool.

We created 3 sample tables to develop these reports. The reports are focused on the insurance area related to car accidents and how the insurance must intercede with its subscribing companies that provide repair services.

In this first report, the user can see the amount of "supplier" that enters Liberty throughout the year, you can also know the territorial location of the suppliers. Detailed information on suppliers can be found in the table (Figure 63).

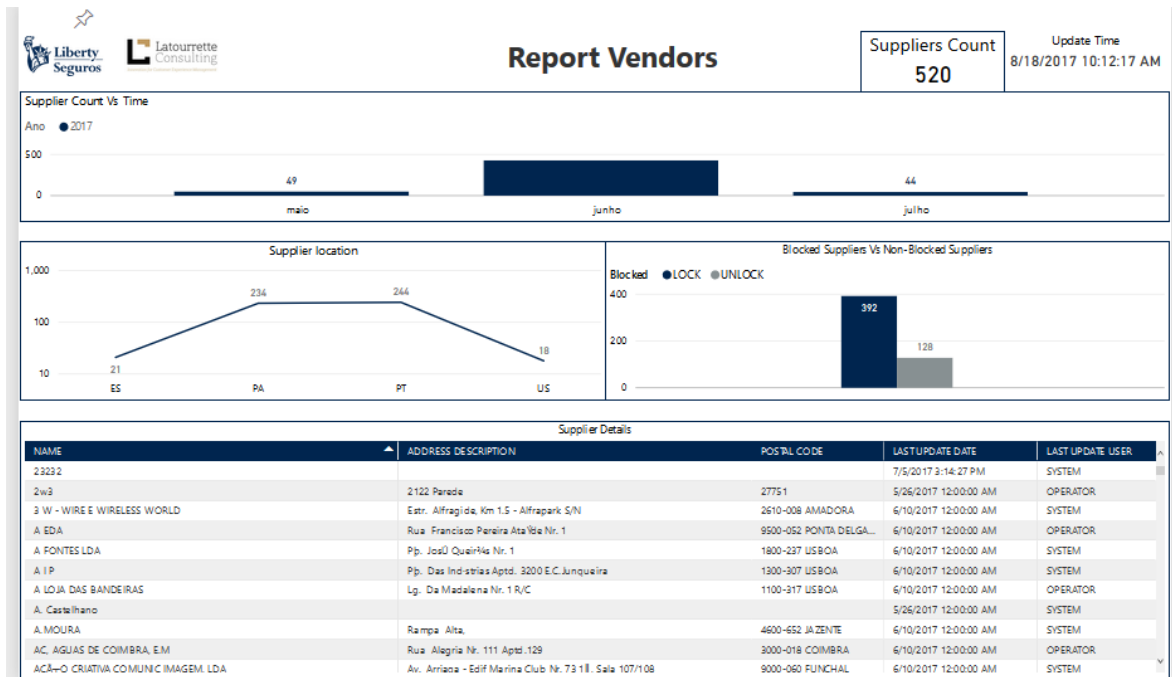


FIGURE 67 - SUPPLIERS INFORMATION

This report shows the number and type of processes that have been executed in KTA. It also shows information about the execution processes throughout the year and you can see which are the users who have started the process and the users who have had to intercede in the process (Figure 64).

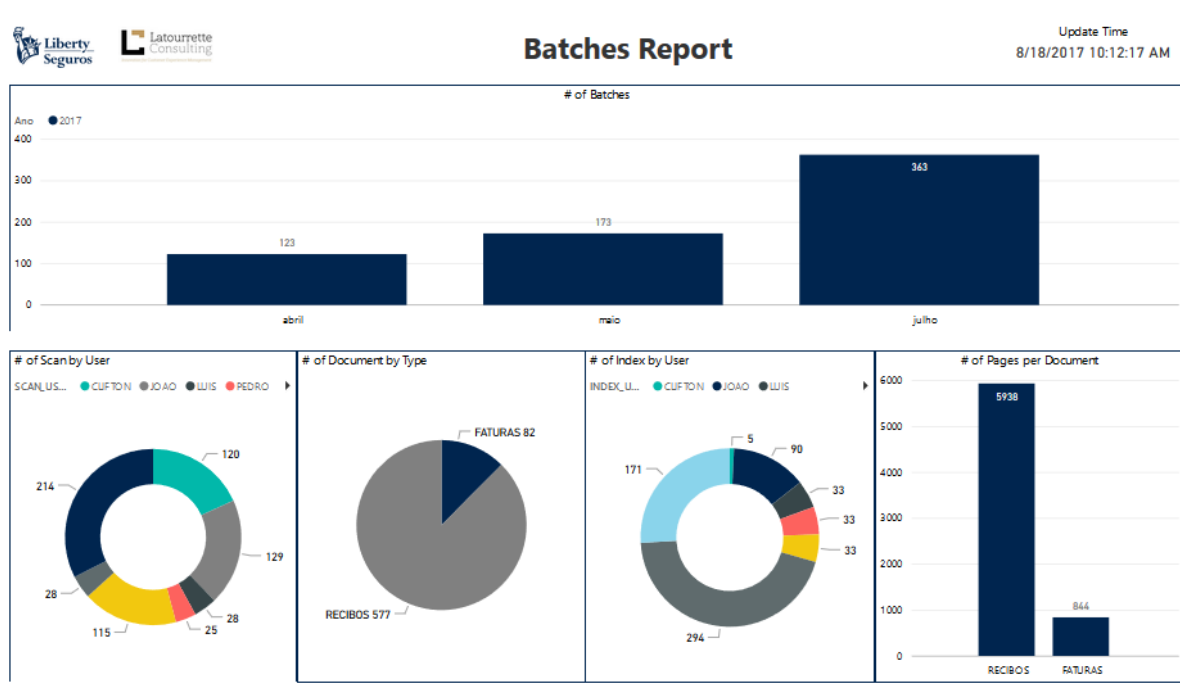


FIGURE 68 - PROCESS EXECUTION

In this report, the detail of the extraction behavior of the fields of the documents being processed, can be seen. Makes a comparison with values that have undergone some alteration with the others that have not had to be altered. Displays a graphic with all the variables (Figure 65).

### Extraction Overview

Extraction Date: 4/3/2017 - 7/5/2017  
Update Time: 8/18/2017 10:12:17 AM

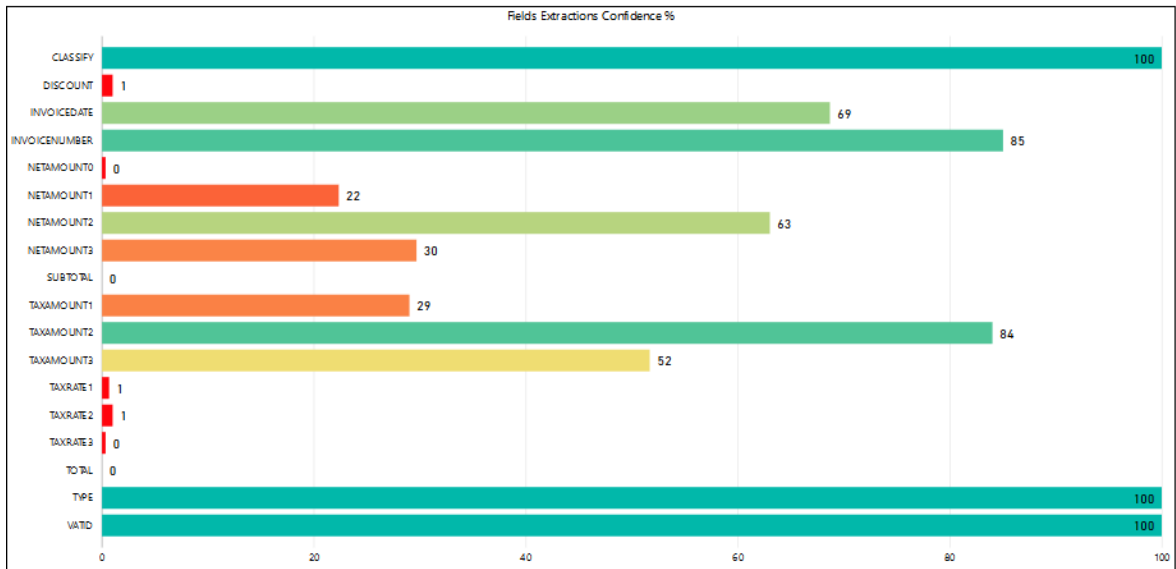


FIGURE 69 - EXTRACTION FIELD

In this report, we can see the detail of the extraction behavior of the fields of the documents being processed. Making a comparison with values that have undergone some alteration with the others that have not had to be altered. It compares all the invoice details (Figure 66).

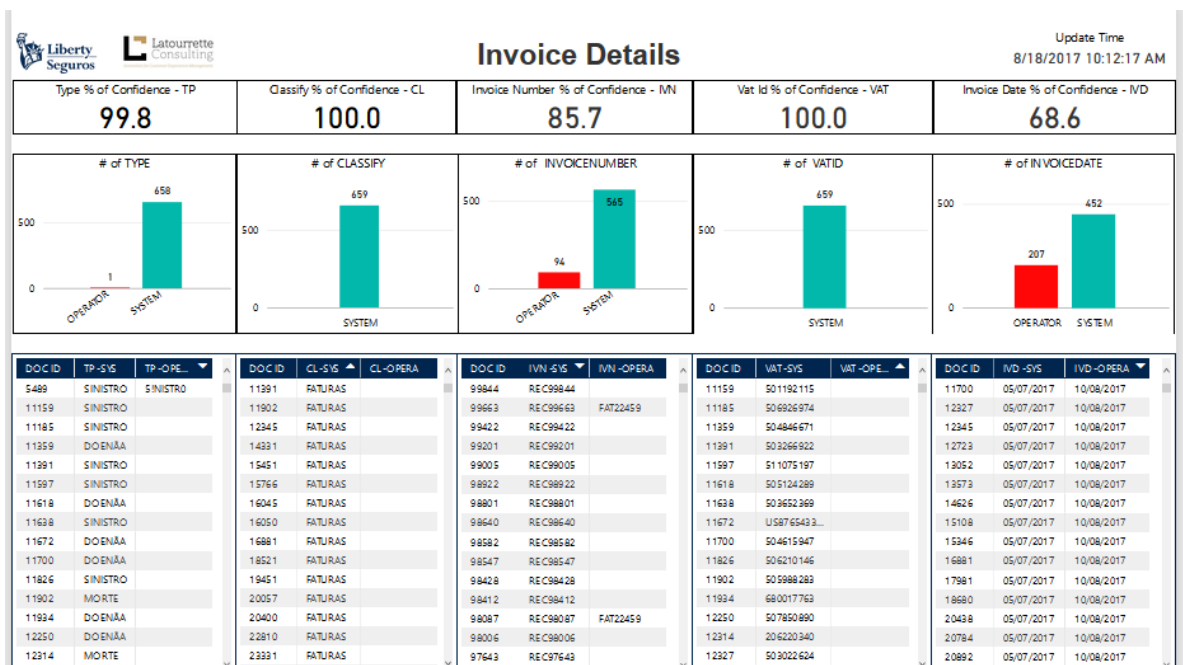


FIGURE 70 - INVOICE DETAILS

In this report, we can see the detail of the extraction behavior of the fields of the documents being processed. Making a comparison with values that have undergone some alteration with the others that have not had to be altered. It compares all the net amount details (Figure 67).

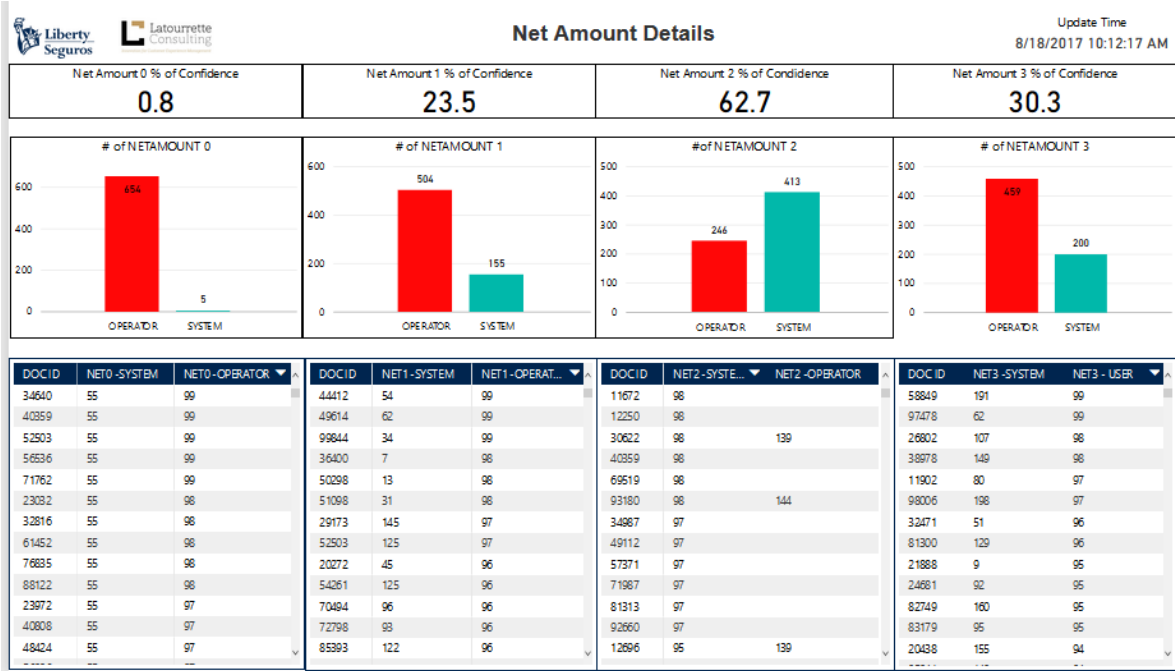


FIGURE 71 - NET AMOUNT DETAILS

In this report, we can see the detail of the extraction behavior of the fields of the documents being processed. Making a comparison with values that have undergone some alteration with the others that have not had to be altered. It compares all the tax amount details (Figure 68).

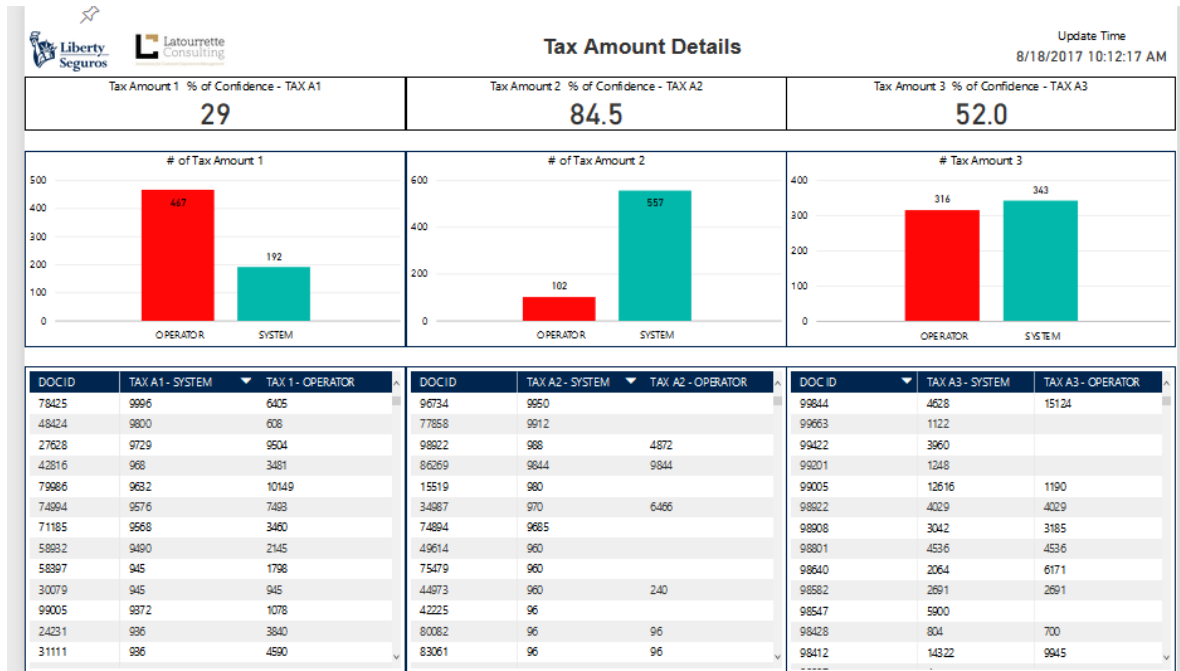


FIGURE 72 - TAX AMOUNT DETAIL

In this report, we can see the detail of the extraction behavior of the fields of the documents being processed. Making a comparison with values that have undergone some alteration with the others that have not had to be altered. It compares all the tax rate details (Figure 69).

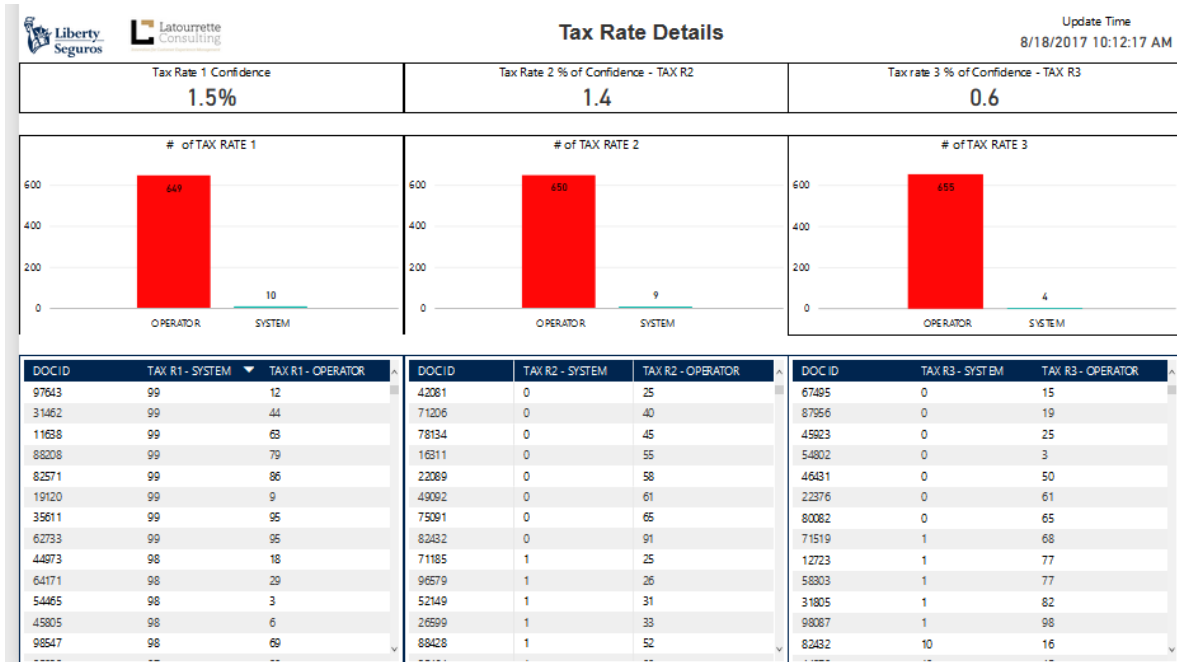


FIGURE 73 - TAX RATE DETAILS

In this report, we can see the detail of the extraction behavior of the fields of the documents being processed. Making a comparison with values that have undergone some alteration with the others that have not had to be altered. It compares total details (Figure 70).

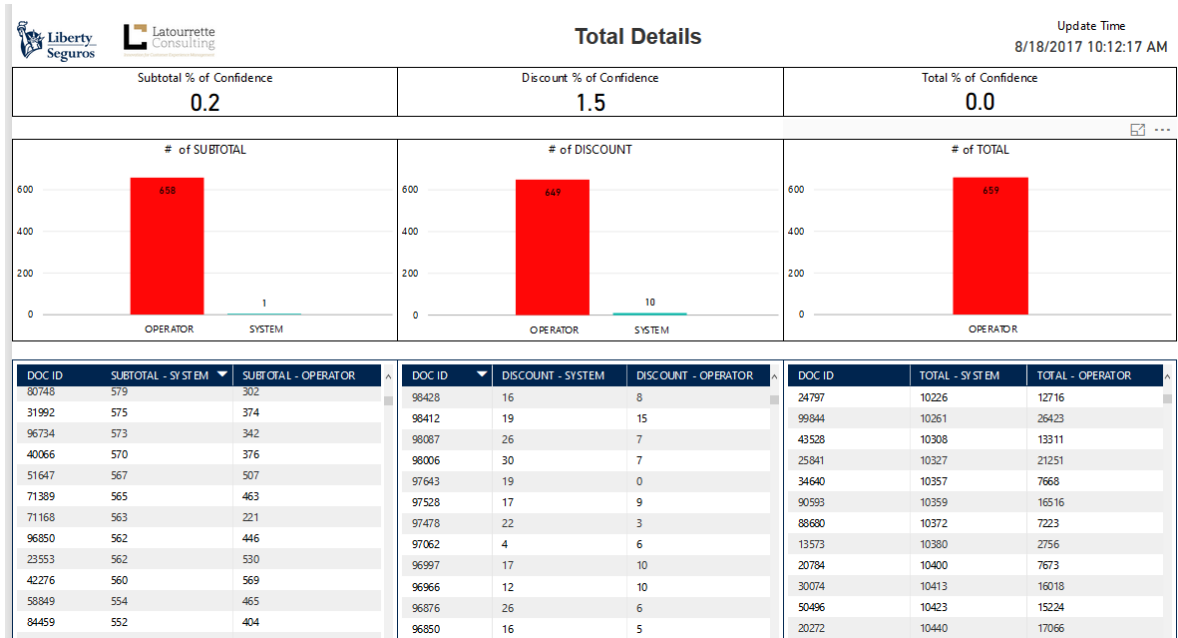


FIGURE 74 - TOTAL DETAILS

## Results and contributions

It was possible to know and learn, how it is used and how to create analytical reports on Power BI and Kofax Insight.

You could see the strength of each of the tools and which can be better adapted depending on the client needs.

The results were a full domain in both tools, allowing this implementation in a client and the development of a demo for presentation.

This is a big achievement for Latourrette Consulting, opening new windows for projects and clients and puts the Latourrette company as a competitor of other companies that develops business intelligence reports.

Latourrette has no experience in BI area, with the knowledge that was acquired, my contribution as part of the Latourrette team is to improve what exists in this area to get a more opportunities on the BI area.

This contributes to the growth of the company; more clients are more projects and jobs. More financial entry to the company allows hiring more human resources, offering a position on the company and growing the Latourrette family.



## 7. Conclusion

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Companies collect a lot of data; this data consists of sensitive information of the companies like business operation and strategies. Sometimes it's hard for the end user to process and understand all this data, in most of the scenarios are raw data.

Interpretation and analysis of this data provide valuable Insight into the business operations. This information can help to improve different areas of the companies and improve the process, reduce cost and create business opportunities.

Business Intelligence is the identification and analysis of company's data. Business intelligence is defined by research as a set of methodologies, processes, architecture, and technologies.

Business Intelligence is the identification and analysis of company's disparate data to extract meaningful information for a more effective decision. Business intelligence uses as a set of methodologies, processes, architecture, and technologies that transform raw data into meaningful and useful information used to enable more effective strategic, tactical and operational insight.

This information is available for the user at any time. And most of this process runs automatic so the end user doesn't depend on a human job to have this information updated. The end user can receive this information, via email, through an application, pdf format, excel format. etc. even the user can access the system and do a refresh to see the last instance of the data.

Analytics gives all the information of the business to the chief executive so can have a global idea of the business.

## 8. Future Work

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Different adaptations to the Business Intelligence tools has been left because of different things like real data and time-consuming.

On future work would be to improve the tools that are offered by Kofax, and the others tools that have been developed by LC.

1. It could be a good solution to optimize the reports offered by Kofax, with a custom version offered by Latourette.
2. A definition of an ETL to other projects that don't use KAFTA.
3. See most bugs that the actual Insight Version has and reported to Kofax, so the next version would be an improvement of the quality of the other one.
4. With Latourette and Microsoft partnership, see the option to create OLAP cubes with Microsoft Server Analysis for a better use of the BI tools.

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