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YEDİTEPE UNIVERSITY
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MASTER OF BUSINESS ADMINISTRATION**

**THE IMPORTANCE OF BUSINESS INTELLIGENCE SYSTEMS
AT COMPANIES AND THE PROCESS IMPLEMENTATION OF
BUSINESS INTELLIGENCE SYSTEM IN A FASHION RETAIL
COMPANY**

(GRADUATION PROJECT)

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INTRODUCTION

Nowadays, managing and processing the information becomes very important for the companies and it is a factor to determine competitiveness. Furthermore the core competency and the proficiency of the managers are the most wanted features. Rapid globalization and top-level of competition in the world, it is seen that companies are getting bigger and they are taking a place at the global market. In this sense there are studies to produce knowledge, not to suffer loss, to avoid unnecessary, use to direct well and to enable sustainability.

Today, the markets in which a company operates, quickly understands customer needs and immediately responses is the information they need more than in the past. It is important for the companies that the flow of the information should be frequently and faultless. Accessing the right information in the right time is also important for the companies and for the managers. Decision makers require to reach information they need in the right time and want to help to their decision.

It is obvious that using the business intelligence in the operational functions of companies is the most important factor in the progressive decision. Whereby, business intelligence systems enable to take right decision for the decision-makers. The data gathering with various methods is being analysed through the business intelligence systems and transformed to information. Thus the managers can easily reach the information in the right time and right place.

In the first part of this study it is mentioned about the foundation of the business intelligence systems and their contribution to the increase of decision making. In the second part it is referred what the business intelligence systems are and how to set up them from a typical fashion retailer with details. In this section it will be mentioned about the functions of business intelligence systems that are data modelling, data quality, business intelligence tool and hardware.

FIRTS SECTION

1. THE IMPORTANCE OF BUSINESS INTELLIGENCE SYSTEM AT COMPANIES

In this section, it is mentioned about technical elements of business intelligence systems.

1.1. Basic Concepts in Business Intelligence System

It is talked about business intelligence systems, tool or solutions there are some attributes in this case like data, data warehouse, metadata and BI. Each of these attributes have sub-details but it will not be mentioned because this study has managerial perspective.

1.1.1. Data

Data are a raw material which constitutes the information. It generally occurs from texts and numbers or its combinations. Gathering data has lots of ways such as questionnaire, observation use of sense, reading documents. Raw data can be useful for the decision makers but in order to make the data useful it has to be processed (Gupta Uma G., 1997)⁽¹⁾.

Not only the data (input) should be reached on time be right and trustworthy but also the output should be useful and trustworthy too. However how much a wrong data is processed it may not be useful. For example the errors on the data entry may end up with a great deal of payment in the same invoice and may cause a lot of loss for the business (companies). Low data quality has lots of disadvantages. The time spent for the quality of data is totally (completely) ineffectual. Some of the organizations spend 30-40 percent of their time on confirming data and revision and this means wasting the sources in vain. On the second part of the study it is going to be mentioned about the importance of confirming data on BI implementation process with more details (Gupta Uma G, 1997)⁽²⁾.

1.1.2. Data Warehouse

A data warehouse is a place where data is stored for archival, analysis, and security purposes. Usually a data warehouse is either a single computer or many computers (servers) tied together to create one giant computer system. Data consists of raw data or formatted data. It can be on various types of topics including the organization's sales, salaries, operational data, summaries of data including reports, copies of data, human resource data, inventory data, external data to provide simulations and analysis (Abdullah Ahsan, 2009)⁽³⁾.

1.1.2. Meta data

An essential component of a business intelligence system is the metadata. Metadata are the basic component of data warehouse. Metadata are data. When the data warehouse is set up the last user and managers should reach the information whenever s/he wants. The managers want to know where the data is created which type of data warehouse it is edited where the data comes from and who does it belong to. Therefore another database is needed which includes the metadata.

1.1.4. Business Intelligence (BI)

BI is analysing data to the strategy for specific target and policies that transform raw data into meaningful and useful information for business goals. BI can handle large amounts of information to help identify and develop new opportunities. Making use of new opportunities and implementing an effective strategy can provide a competitive market advantage and long-term stability.

There are main department in a typical company such as marketing, purchasing, finance, planning. Each of department uses own operational systems and creates own data. All data is processed by business intelligence software and finally the result is some of type analysis, understanding, discovering, rethinking and new ideas for the area under study.

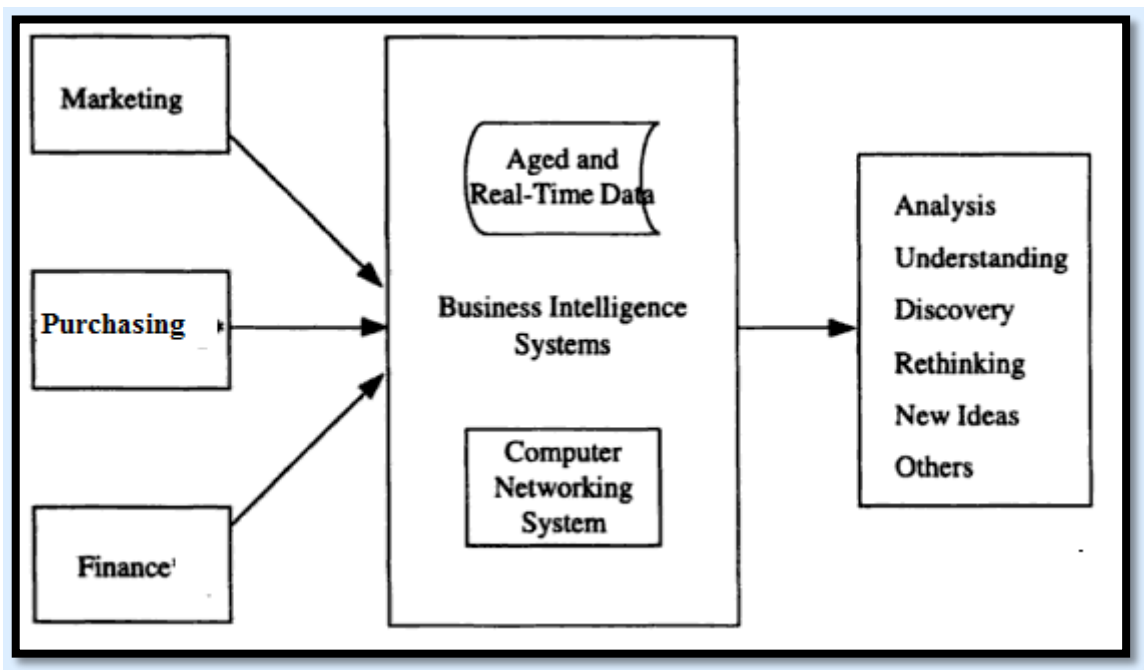


Figure 1: Effective BI System Framework for a Typical Company (Thierauf, Robert J, 2001) ⁽⁴⁾

1.2. Why Organizations Need Business Intelligence Systems?

Nowadays communities' assessing the knowledge, accessing the correct information in a short time supplies power to the information users and beneficiaries. In this context rapid and perpetual information flow is getting more important in the decision-making process prompts the managements to set up a computerized information system (Ventura Ketu, Soyuer Haluk, 2002) ⁽⁵⁾. What are needed today and in the future are new business intelligence systems that enables decision makers to organize, analyse and communicate about corporate raw data (Thierauf, Robert J, 2001)⁽⁶⁾.

The most important reasons why the organizations need the business intelligence systems are written below.

1.2.1. Global competitiveness: The world becomes a smaller place through information technologies. The competition is at an international level that the companies are face to face. For this reason the companies are working for producing high quality products and they are competing with the world markets by increasing the service quality. Globalization is both increases the market share and forces the companies in the global competition. If a company wants to be successful in worldwide it should control and coordinate the products markets people and procedures effectively.

1.2.2. Finding an opportunity in new market: The successful companies are the ones which can identify the opportunities and they should continue this for a long time. Business intelligence systems help the companies to identify the market opportunities.

1.2.3. Improving quality of product and service: Quality is a loadstar concerning products and services to the middle and top manager. Computer helps to implement the companies' quality purposes to the right information right time and right person. (Gupta Uma G, 1996)⁽⁷⁾

There are a lots of benefit having BI systems and BI influencers who have or plan to have a BI tool believe that if we implement a BI system we will gain a lots of advantages to manage their operations. In February 2006, Computerworld invited IT influencers to participate in a survey on business intelligence. According to a survey when organizations that have or plan to have BI systems were asked what benefits they have gained or hope to gain from the BI system, they pointed too many of the benefits.

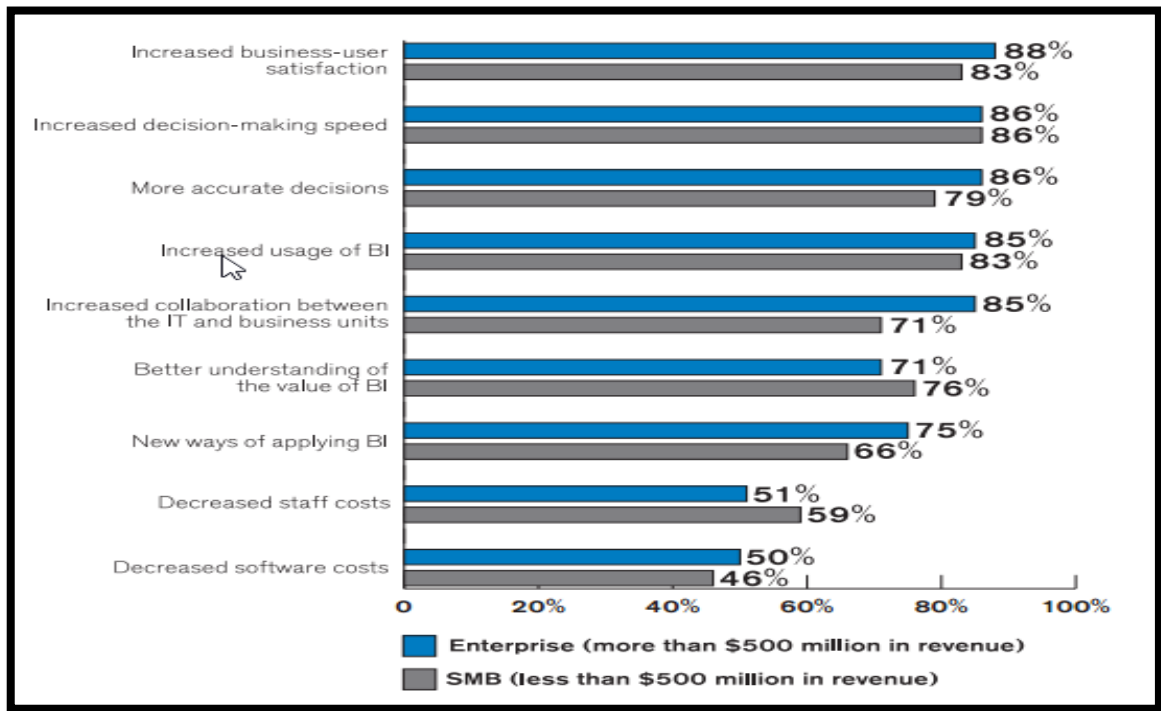


Figure 2: Percentage of respondents ranking the following benefits their company gained (Computer World, 2008)⁽⁸⁾.

A company’s value just is the sum of the decisions it makes and executes. Organizational chart is not important. The secret is to focus on decisions, not structure (Blanco Marcia W., Markins Micheal C. and Rogers Paul, 2010) ⁽⁹⁾. One of the most important facts to use BI systems is that managers develop the skills and behaviour necessary to make and execute decisions quickly and well.

Bill Gates who is tech guru of our times said that the first rule of any technology (such as BI systems) used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.

Briefly companies should be in a form that the information in the business systems are fast and trustworthy adherent the decision of decision-makers in order to keep up at the local and global markets quick supply to the moody demands and have the advantage of competition on their present markets. In this direction the implementation of BI systems gain more importance. In the next part of the study we will be observing what the business intelligence systems are and the process in the foundation of these systems in intense competition moody expectations and demands at the fashion retail sector.

SECTION 2

2. THE PROCESS IMPLEMENTATION OF BUSINESS INTELLIGENCE SYSTEM IN A FAHSION RETAIL COMPANY

2.1.Overview of Fashion Retail Industry

Fashion retailing has been redefined by complexity and speed than past. Lengthening supply cycles and shortening demand cycles make being on trend with the right merchandise stocks more challenging than ever. An increasing number of seasons compounds the need for greater trend and forecasting accuracy. Thousands of possible style, size, and colour combinations must be optimized down to the store level. Shoppers are seeking a personalized experience across every channel of interaction. The skyrocketing availability of more data can lead to better decisions but also more business complexity. Fashion retail industry has more innovative products versus fast fashion product. Such products can enable a company to achieve higher profit margins, the very newness of innovative products makes demand for them unpredictable. In addition, their life cycle is short—usually just a few months—because as imitators erode the competitive advantage that innovative products enjoy, companies are forced to introduce a steady stream of newer innovations. The short life cycles and the great variety typical of these products further increase unpredictability (Fisher Marshall L, 1997) ⁽¹⁰⁾. For this reason, a retail company should implement BI systems in order to manage complexity, unpredictability and competitiveness.

2.2.Business Intelligence Systems That a Fashion Retail Company Should Use

In a fashion retail company the basic purpose is to sell products. In order to sell products it should be planned which products will be bought, how many will be bought and how many will be sold. The production period of the planned products are important points such as which product will be sent to which the store and how many will be sent should be decided. In this context the companies need business intelligence tools.

Below mentioned BI systems are shown as they should be in a typical fashion retail company.

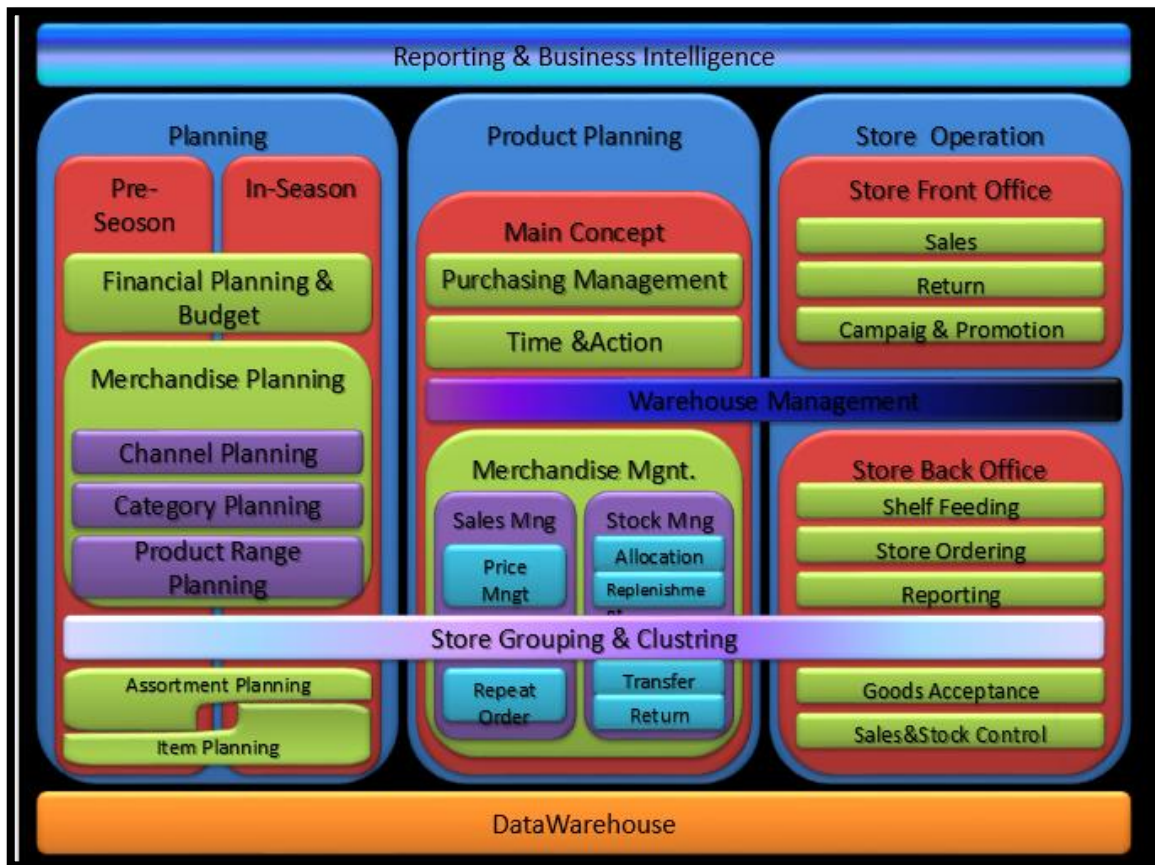


Figure 3: Business Intelligence Systems at A Typical Fashion Retail Company

There is a data warehouse under all merchandising systems, in front of BI tool. A BI tool has connected to data warehouse of all merchandising systems and can be ready for most effective information for decision-makers.

2.3. The Relationship between Business Processes and BI Systems

It is very important for a company to be identified with process flow chart of its business manner. For instance buying process becomes clear with process charts as being systematic at a retail company will make the analyse easier and will make the output of BI systems be liked on the users and top managers. In this context BI systems have an important role on the business process of the companies and well-defined business systems enable simples both on setting up a system and improvement work. Processing maps and organization charts should be done only by thinking of based on process removed unnecessary processed parts shorten the steps of the long process disable the

subjects that are not served to the purpose and should be revised by thinking of customer oriented. The organization which does not make out the problems in the process, does not have the advantage cost, not increase the profitability, not gain favour to the customer, not improve the measurement and evaluation shouldn't waste time with process documentation and hierarchy. At this stage data data's stability its accessibility simplicity manageability and being achieved is very important.

2.4.Data Quality Management

Technology infrastructure is basic requirement to create a healthy data warehouse. The healthy data warehouse requires pure data versus high quality data. As we mentioned previous pages, business intelligence systems do not implement on low quality data. In addition, data quality matters widely and will make a difference between success and failure of an organization's business intelligence solution.

2.4.1. The Importance of High Quality Data for Business Intelligence

A business intelligence application's most important feature is to supply the right information on time in an effective way. Right information cannot be produced where the right data is not existed. For this reason the most important factor of a business intelligence project's accomplish is to have consistent data. We need online or available frequency data flow in order to produce rapid business results by looking data from sales point. Technology in retail not only the cost advantage but also should have a role to increase the reliability of data since our most important decision point is numbers and if the numbers are not correct the decisions will be incorrect.

2.4.2. The Cleaning of Dirty Data before Implementation of Business Intelligence

Whatever the business segment is each company certainly has a data warehouse which includes the operational transaction. A business intelligence project by using the data warehouse can be used as an opportunity of cleaning the dirty and unused parts of basic data. We can separate the data cleaning as raw data cleaning and basic data cleaning like product attributes, store attributes, location, and product hierarchy.

For the cleaning on raw data especially sales stock and CRM data comes to the forefront. Since this data's source is the one which the staff login to the system it is possible that the bad data can flow to the data warehouse. For example lack of information or wrong

information of a customer's name and surname or sales staff's wrong barcode scan that the customer has bought mean data's disorder.

2.3. Subjects before Selecting Business Intelligence Tools

When it is evaluated which business intelligence tool to use, the first determination is the buy or build decision. If the company has talented employee about business intelligence and retail systems knowhow, it can be an option to build it in-house. Another option that is to buy. Clearly, both approaches have its own advantages and disadvantages. For example, it is clearly not practicable to write a relational database from scratch. Therefore, we may have a case where the hardware and the database are bought, but other tools are built from within. In general, deciding which approach to go is dependent on the following criteria; user technical skills, requirements, available budget, time. According to my experience, if your company is operating fashion retail sector, it will be useful to choose 3.party BI tool because of Each BI tools in the business intelligence arena has different functionalities, the criteria for the -the buy or the build- decision is different for each type. At this point, the question is that which business intelligence tool should be selected? There are a number of choices to choose from, some are well-known, and some others not as well-known, but in many cases, an established tool may not be the best fit. For example, if we require a lot of customization, a less well-known tool may make sense as the vendor is often more willing to work with the client to customize the tool. When we are choosing a vendor bought BI tool, we should pay attention these criteria; vendor stability, support and high quality services.

2.4. Actions before Implementation of Business Intelligence Tool

Before implementing a BI tool, it is worth taking different factors into easy to understand before proceeding.

2.4.1. Scoping

Before starting a BI project the content of the established framework needs to be determined. To determine the content the company's made analyses of reporting requirements is an important step. In this period both prior to the passage of BI and after the passing during the process of report RRF needs to be used to create a standard.

Title	RPM Movement Report						
Purpose	To see all movements of a style before and after the replenishment						
Department	Sales Operation And Allocation Team						
Request Owner	Alper Tekin						
Request Date	24.05.2011						
Report Profile							
Number of Users	20						
Usage Frequency	Every day						
Usage Type	With program						
Average Result Set			17 rows	17,000 cells			
Frequency of data update	Every day						
Grid/Graphic	Grid						
Notes	Non						
Report Objects							
Object	Description	Object Type*	Table*	Area*	Optional Display	Fixed Criteria	User Criteria
Department	Product Gender	Attribute	constItemColor	ItemGenderId	X		X
Category	Product Category	Attribute	constItemColor	ItemTextureId	X		X
Group	Product Group	Attribute	constItemColor	ItemGroupId	X		X
Season	Product Season	Attribute	constItemColor	ItemSeasonId	X		X
Style code	Product Code + Product Color	Attribute	constItemColor	Id	X		X
Style Name	Product description	Attribute	constItemColor	ItemDescr	X		X
Phase	Product Phase Code	Attribute	constItemColor	ItemPhase	X		
(*) To be filled by Developer Team							
Content Notes							
Criteria	Description						
Content							
Page-By	Objects in Column						
Objects in Row							
Department	Category	Group	Purchase Order	Entrepot Stocks	Warehouse Stocks	RPM Order	
Season	Style Code	Style Name	First Allocation Order	Dispatch	Order / Dispatch %	Store Stocks	
Phase			Store Sales	Stock Cover			

Figure 4: Report Request Form (RRF)

Each report requirement of the departments is determined from this form. The information on the form will show us what the matrix and attributes are going to be in the report. When these forms are filled for all the reports the content of the BI project will appear. The project team will start working to access the provided information.

2.4.2. Study on Product Hierarchy

Product family tree creates the company's spine and it provides a point of view from reporting to planning in many ways. Product management becomes systematic and it encourages the use of a single language. For this reason forming the product family tree and agreeing on it, is quite important for the accuracy of retail systems. As all the retail systems solutions these are the ones which the product family should allocate time in the process of designing and planning and having the same idea as possible as it can be. During the process of designing the product family the simplest but the most productive

way is to determine the groups without details for you and for your customer and at this stage you can set up a substructure but there may be some differences because of the content of the product by groups of male and females clothing accessories food and non-food or customer's different purchasing behaviour groups; gold silver knitting and weaving. Updating the information used on substructure of stock code and stock number after creating the product family is important for the healthy creation of data warehouse. Today retailers who direct consisted, integrated , normalized and easily accessible data warehouse are in front of their competitors thus a healthy warehouse is pioneer to both planning and planning based on reporting furthermore providing the accuracy of decisions taken. The simplicity of the product family to facilitate the phase of product management should consist of maximum 5 or 6 breakdowns and if you can do there should be 3 or 4 breakdowns. Rest of the data you need should be in the stock card instead of the product family and stay on the product family. Each more detail increases the accuracy but it needs more source.

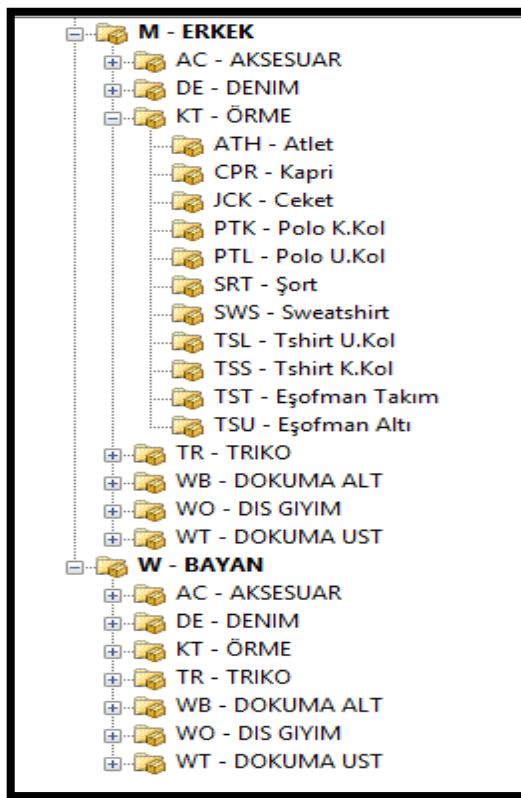


Figure 5: Product Hierarchy Sample for Fashion Retail Company

2.4.3. Study on Location Hierarchy

When a retail company gets bigger sales location start to increase and sales channels start to differentiate. Company managements choose to zone sales points to control the increasing systems. For instance let's think about a fashion retail company in Turkey has stores in different parts of the country in this situation a location can be consisted of from these regions. If there are too many stores in the region an area can be opened under the related region. While doing this close stores should be chosen. After this all the information of stores should be arranged on ERP. As seen below location hierarchy is shown used in a retail company.

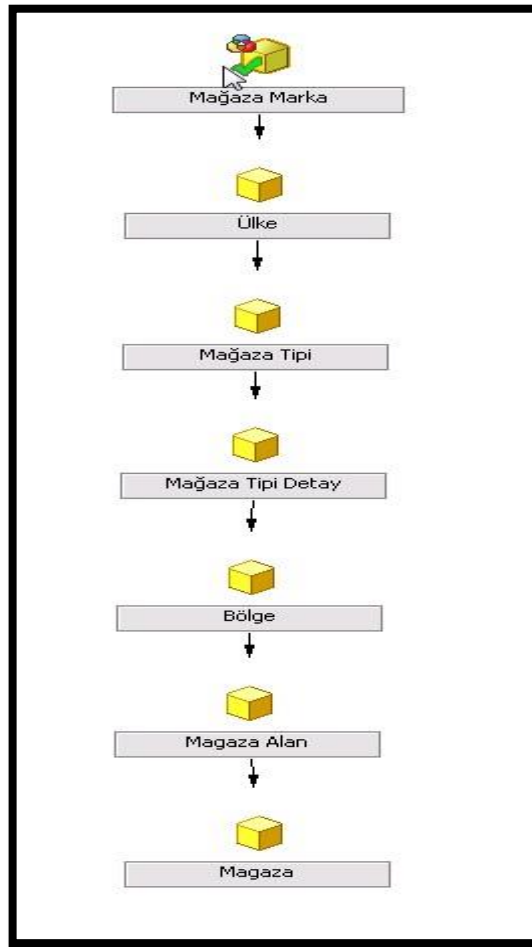


Figure 6: Location Hierarchy Sample for Fashion Retail Company

2.4.4. Study on Time Hierarchy

Before the BI system are set up, it is important to work on the time dimension. While looking at the sales the calendar which a fashion retail company ought to use is the retail

calendar. Nevertheless, department of financial affairs that are the importance member of reporting system use common era. In this point while logical model is getting ready both eras should be used in this model. By this way, it is possible to get the report ready both in two dimension.

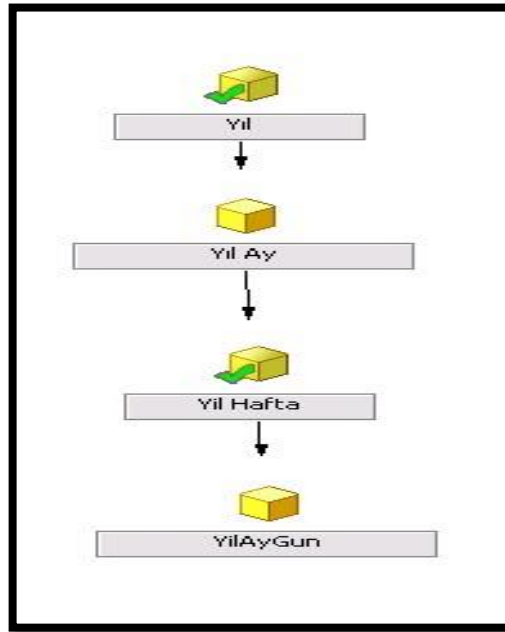


Figure 7: Time Hierarchy Sample for Fashion Retail Company

2.4.5. Study on Multi Brand Structure

Some companies might have more than one brand. These brands may have different ways of doing jobs. For example, in a two branded company when one gives more importance to retail, the other may have more concentrate to wholesale businesses. In this point both brand's point of view to the report needs will change. At this stage of establishing BI system, it is important to determine the brands different needs severely. It enables simplicity in the process of making reports to determine these differences to the project team on the pre-mentioned RRF.

2.5. Technical Working

Up to this part of study it is mentioned about the subjects that should be done before accessing and been analysing to the BI tool. At this level is going to be told about the technical works of the process. At the end of this process the system can open to the end users.

2.5.1. Creating Logical Data Model

A logical data model is a model that is not specific to a database that describes things about which an organization wants to collect data, and the relationships among these things. A logical model contains representations of entities and attributes, relationships, unique identifiers, subtypes and super types, and constraints between relationships. A logical model can also contain domain model objects, or reference one or more domain or glossary models. After logical objects and relationships are defined in a logical data model, you can use the workbench to transform the logical model into a database-specific physical representation in the form of a physical data model.

It is shown a part of logical data model below.

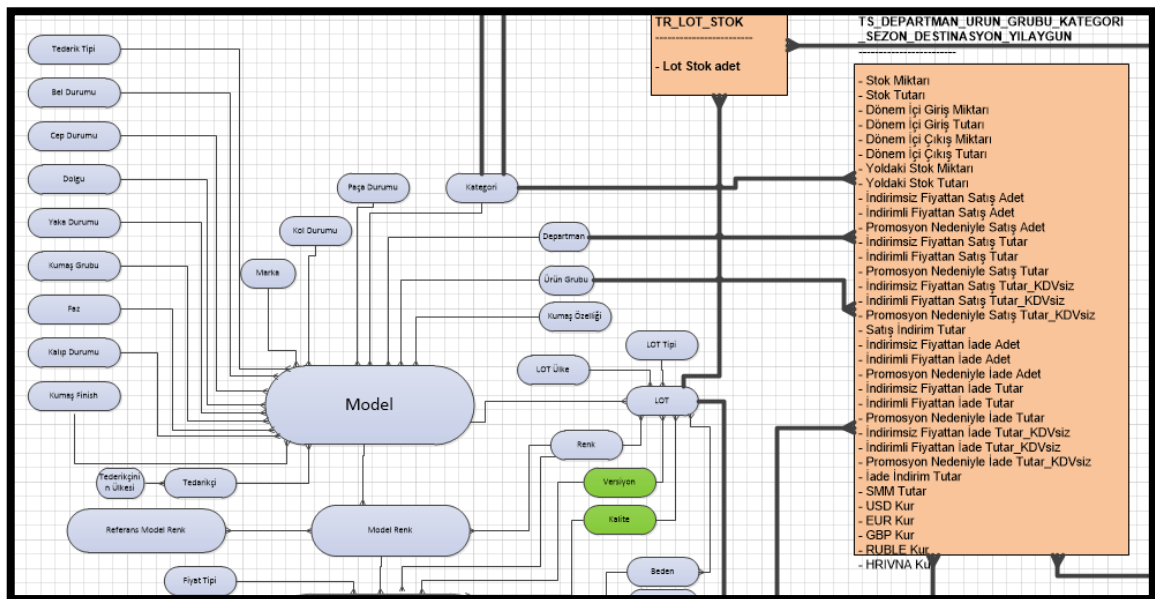


Figure 8: A Portion of Logical Data Model

2.5.2. Creating Physical Data Model

A physical data model is a database-specific model that represents relational data objects (for example, tables, columns, primary and foreign keys) and their relationships. A physical data model (PDM) helps you to analyse the tables, views, and other objects in a database, including multidimensional objects necessary for data warehousing.

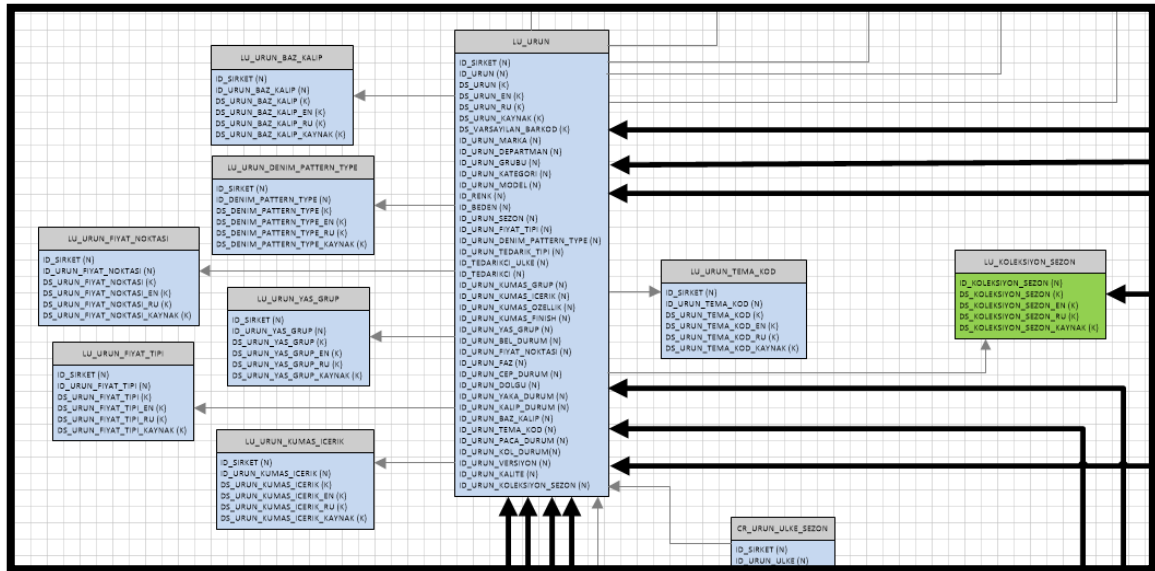


Figure 9: A Portion of Physical Data Model

2.5.3. Creating Fact, Attributes and Metrics

The basic elements of BI system are facts, metrics and attributes. Facts are usually a column in a database table, which is used in a formula of a metric to calculate a value. Metrics are calculated formula used in reports. Attributes are object which is used to group metrics by or to filter on. There are prepared by developer team at the beginning of project. Report objects in the RRF will help developer team to prepare the fact, metric and attribute. They are necessary to make reports.

2.5.4. Creating Hierarchy

Reporting hierarchies allow the developers to setup relationship for purpose of report. These relationships may be more than just a single level with a single parent and single child or more. Hierarchies can use to drill down in the reports. According to reporting needs, developer team should make hierarchies. For example, a product has a lot of

attributes like colour, size, fit, barcode etc. so we can make a product hierarchy that we can use these attributes.

2.5.5. Creating Reports

To make a report is to band together pieces of a puzzle. Metrics, attributes, hierarchies and filters are pieces of a puzzle. Developer team will make requests in the report request form (RRF) at this stage. The end-users might have wanted to add filters or prompts so they should be included the RRF. It is shown a sample of a report below.

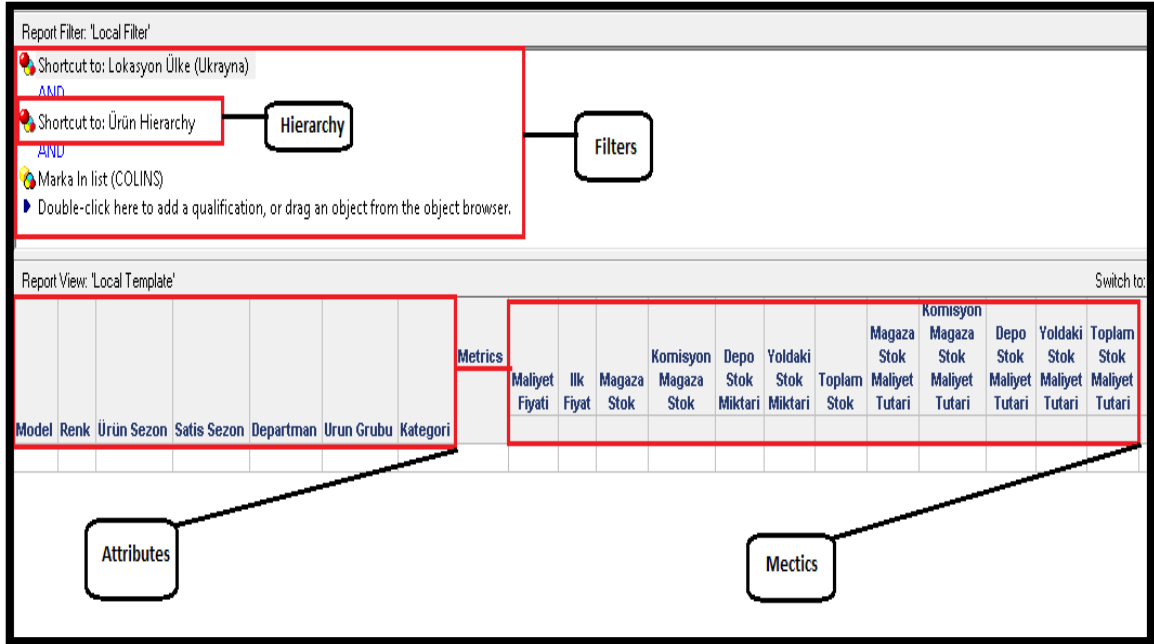


Figure 10: Architecture of a Finished Report

If the report is run we can see the below results of reports.

Model	Renk	Ürün Sezon	Departman	Ürün Grubu	Kategori	Metrics		Komisyon Magaza Stok	Depo Stok Miktari	Yoldaki Stok Miktari	Toplam Stok	Magaza Stok Maliyet Tutari	Magaza Stok Maliyet Tutari	Depo Stok Maliyet Tutari	Yoldaki Stok Maliyet Tutari	Toplam Stok Maliyet Tutari
						Maliyet Fiyati	Magaza Stok									
BCBWN5PKM1095007	19-4013	SS00	W	WB	PNT	28,15	0	0	2	0	2	0,00	0,00	56,30	0,00	56,30
BCBWN5PKM1095026	17-4440	OS08	W	WB	PNT	24,59	0	0	1	0	1	0,00	0,00	24,59	0,00	24,59
CLAACBAGM0663770	19-0303	AW10	M	AC	BAG	113,11	1	0	0	0	1	113,11	0,00	0,00	0,00	113,11
CLAACBAGM0663800	19-0303	SS00	M	AC	BAG	121,74	0	0	3	0	3	0,00	0,00	365,22	0,00	365,22
CLAACBAGM0663810	19-0303	AW10	M	AC	BAG	127,09	1	0	0	0	1	127,09	0,00	0,00	0,00	127,09
CLAACBAGM0664430	19-0812	SS11	M	AC	BAG	196,05	0	0	2	0	2	0,00	0,00	392,10	0,00	392,10
CLAACBAGM0665220	19-1213	SS11	M	AC	BAG	144,50	-1	0	2	0	1	-144,50	0,00	289,00	0,00	144,50
CLAACBAGM0665310	19-0303	SS11	M	AC	BAG	89,53	0	0	1	0	1	0,00	0,00	89,53	0,00	89,53
CLAACBAGM0665960	19-0303	AW11	M	AC	BAG	159,13	1	0	1	0	2	159,13	0,00	159,13	0,00	318,26
CLAACBAGM0665880	19-0303	AW11	M	AC	BAG	130,61	0	0	1	0	1	0,00	0,00	130,61	0,00	130,61
CLAACBAGM0665890	18-0515	AW11	M	AC	BAG	111,97	0	0	1	0	1	0,00	0,00	111,97	0,00	111,97
CLAACBAGM0666250	19-0303	AW11	M	AC	BAG	158,72	0	0	1	0	1	0,00	0,00	158,72	0,00	158,72
CLAACBAGM0666260	19-0303	AW11	M	AC	BAG	125,99	0	0	1	0	1	0,00	0,00	125,99	0,00	125,99
CLAACBAGM0661810	19-0303	SS00	W	AC	BAG	64,03	0	0	1	0	1	0,00	0,00	64,03	0,00	64,03
CLAACBAGM0662600	19-0303	AW00	W	AC	BAG	72,62	0	0	2	0	2	0,00	0,00	145,24	0,00	145,24
CLAACBAGM0663370	13-2806	SS10	W	AC	BAG	72,80	0	0	1	0	1	0,00	0,00	72,80	0,00	72,80
CLAACBAGM0663760	19-0303	SS00	W	AC	BAG	137,65	0	0	5	0	5	0,00	0,00	688,25	0,00	688,25
CLAACBAGM0664510	18-0000	SS11	W	AC	BAG	72,53	0	0	1	0	1	0,00	0,00	72,53	0,00	72,53
CLAACBAGM0664590	11-0103	SS11	W	AC	BAG	150,08	0	0	1	0	1	0,00	0,00	150,08	0,00	150,08

Figure 11: Result of a Finished Report

2.5.6. Testing

Testing is very important part of BI implementations. If the testing is poor or insufficient, it may influence the quality of report results. Testing processes generally can be divided in two sections. One of them is technical testing. This kind of testing is done by IT department. Technical testing consist of a lot of topics. These are coding errors, performance tests, stress tests and operability tests. Last one is end-user testing. End-user check the finished report due to results and finding wrong data. End-user also control the report format their give. Finally, they give the feedback about reports to fix.

2.5.7. Authorising

Authorization is a process which does not have a great importance in BI systems. It becomes a difficult management with this unhealed process report number and with the increase in users when the BI system is activated. There might be some reports only should see by specific departments. If you are a company activated more than one country there might be reports only seen by related countries. In order to manage these situations folder tree method should be used. By this way whole country and sub departments can be authorized in a way to see their own reports. Furthermore when someone new comes to the department, instead of authorizing each report one by one authority to the folder can be done thus authorization can finish in a short period.

2.5.8. Training

End-user training is the last step of BI implementations. First of all, it should prepare the scope of trainee and determine the key user of departments. Number of participant should be twenty at least.

3. CONCLUSION

In this study, it is mentioned about the importance of BI system especially in terms of fashion retail companies. Nowadays, managing and processing the information becomes very important for the companies and it is a factor to determine competitiveness. The markets in which a company operates, quickly understands customer needs and immediately responses is the information they need more than in the past. It is obvious that using the business intelligence in the operational functions of companies is the most important factor in the progressive decision. Whereby, business intelligence systems enable to take right decision for the decision-makers. The data gathering with various methods is being analysed through the business intelligence systems and transformed to information. In addition, companies want to success the global competitiveness in the market, find an opportunity in a new market, and improve quality of products and service. BI systems enable to provide these company's needs. However, companies should ensure a BI tool or should be in process of BI implementation because of these reasons.

4. FURTHER STUDIES

Technology is rapidly growing especially mobile technologies. Companies that implemented BI tool add mobile solutions their system. Mobile technologies contains dashboard, graph and mixture of them for iphone, ipad, and other tablets. It is also important for fashion retail companies because retail sector has dynamic environment. Rapidly actions is characteristic of retail. Last but not least, reaching the information also important for retailer. Based on these data, it can research subject of "benefits of mobile technologies for companies".

5. LIMITATIONS

Although this study was reached its aims and prepare the managerial point of view, so there was some indispensable limitation. First, the implementation of BI tool require wide range project subjects but we applied the limitation because of managerial point of view. Second, there are a lot of elements about BI system. However, we talked about a few

subjects (data, data warehouse, Meta data, BI) otherwise, it would be mentioned more technical.

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