

Qlik Wholesale Trade (QWT) Business Intelligence Plan

QlikView Developer Course

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Table of contents

1. QWT BUSINESS INTELLIGENCE PROJECT REQUIREMENTS	II
1.1. BUSINESS NEED	II
1.2. DOCUMENT SUMMARY	II
2. ANALYSIS REQUIREMENTS	III
2.1. KEY MEASURES	III
2.2. KEY PERFORMANCE INDICATORS.....	IV
2.3. KEY DIMENSIONS.....	V
2.4. TRENDS.....	V
2.5. KEY SELECTION FILTERS.....	VI
2.6. SECURITY.....	VI
3. TABLE OVERVIEW	VII
3.1. CUSTOMERS DATA.....	VII
3.2. PRODUCTS DATA	VIII
3.3. CATEGORIES DATA	IX
3.4. SHIPPERS DATA.....	X
3.5. SHIPMENTS DATA	XI
3.6. ORDERS DATA	XII
3.7. ORDER DETAILS DATA.....	XIII
3.8. DIVISIONS DATA	XIV
3.9. EMPLOYEES DATA	XV
3.10. OFFICES DATA	XVI
3.11. SUPPLIERS DATA.....	XVII
3.12. BUDGETS DATA	XVIII

1. QWT Business Intelligence Project Requirements

QWT provides high quality sports and leisure clothing products for men, women, and children to a wide range of wholesale customers located throughout the world. QWT is divided into different Sales offices with Sales representatives that focus on different customers. The products are divided into different categories of clothing.

1.1. Business Need

QWT Business Intelligence should provide summary to detail level sales data analysis through an easy-to-use, yet robust and flexible interface capable of handling multiple levels of user expertise and requirements.

1.1.1. Analysis requirements include:

- Multiple Key Business Indicators (KPI's)
- Sales geographic analysis
- Trend analysis covering a minimum of two years of detailed data.
- Budget to Actual sales comparisons
- Possibilities to make Budget prognosis

Business analysis must include logical integration across multiple business data sources and functional areas. The presentation layer for this analysis should deliver this integrated data transparently to all users.

1.2. Document Summary

This document contains general reporting requirements, key measurements, and available data element types and descriptions. Critical axis dimensions and filters are also listed. It should be noted that not all data elements are located in standard database format.

2. Analysis requirements

This chapter will list the requirements for the users to make the analysis necessary to drive the business. Necessary Key Measures, Key Performance Indicators, Key Dimensions, Trends and Selection filters will be mentioned.

2.1. Key Measures

Key measures are numbers that have a significant impact on the operation of the business.

The following table lists the Key Measures to be included in the analysis application. Some of these measures will require calculation.

No.	Measure	Description
1.1.1	LineSalesAmount	The Net amount of the sale on the [Order Details] level, calculated as: $(\text{UnitPrice} * \text{Quantity}) * (1 - \text{Discount})$
1.1.2	OrderSalesAmount	The Net amount of the Sale on Order level, the LineSalesAmount aggregated up on Order level.
1.1.3	OrderSalesAmount %	The relative percentage of OrderSalesAmount for a single value in a dimension field compared to the total of all other possible values in that field.
1.1.4	CostOfGoodsSold	The cost of the products sold on [Order Details] level, calculated as: $\text{Products.UnitCost} * [\text{Order Details}].\text{Quantity}$
1.1.5	Margin	The Margin for products sold, calculated as: $(([\text{Order Detail}].\text{UnitPrice} * [\text{Order Detail}].\text{Quantity}) * (1 - [\text{Order Detail}].\text{Discount})) - (\text{Products.UnitCost} * [\text{Order Details}].\text{Quantity})$
1.1.6	Total Unit Quantity	The sum of unit quantity over all possible data: Quantity
1.1.7	Total Orders	Count of distinct orders: Order.OrderIDCounter
1.1.8	Total Products Sold	Count of distinct products: [Order Details].ProductIDCounter
1.1.9	Total Employees	Count of distinct employees: Employee.EmployeeIDCounter
1.1.10	SalesPerson	Count of distinct employees responsible for sales: Count of distinct employees responsible for sales: • [Orders].[EmployeeID] inner join to [Employee].[EmpID] - or - • [Employee].[Title] Like "Sal" or "President"
1.1.11	Average Annual Salary	Average of [Employee].[Year Salary]

2.1.1. Business Rules

1. The data should include detailed transaction level data for a minimum of 2 years, and preferably four years.
2. The Sales Force Structure is selectable from the Office City down to the Sales Person. This should allow drill down from the National level

Possible future enhancements:

Market Share

2.2. Key Performance Indicators

Key Performance Indicators (KPI's) are metrics used to reflect the critical success factors of the business. They help the business to measure progress towards the organizational goals.

The following table lists the primary (KPI's) to be included in the analysis application. Ideally, these measurements will indicate compliance with business goals through an overall “dashboard” view, as well as detailed comparisons between company geography, customers, and products.

<i>No.</i>	<i>KPI</i>	<i>Description</i>
1.2.1	OrderSalesAmount Change	The amount of change in Net Sales value from previous year to current year by Customer
1.2.2	OrderSalesAmount Change %	The amount of change in Net Sales value from previous year to current year by Customer expressed as a percentage
1.2.3	Budget – Actual Revenue	The comparison of budget revenue amount to actual revenue amount by year. Actual revenue being OrderSalesAmount

2.2.1. Business Rule

Possible future enhancements:

Market Share

ALERT: Provide Email notification for all products on backorder, along with their backorder amounts ($[\text{Products.UnitsOnOrder}] - [\text{Products.UnitsInStock}] > 0$)

2.3. Key Dimensions

Key Dimensions are used in charts in order to get the correct analysis results.

The following table lists the Key Dimensions to be included in the analysis application.

<i>No.</i>	<i>Field</i>	<i>Description</i>
1.3.1	Customer	Customers.CompanyName
1.3.2	Customer Contact	Customers.ContactName
1.3.3	Sales Office	Office.City
1.3.4	SalesPerson	Employee.[First Name] “ “ Employee.[Last Name] for employees with sales responsibilities
1.3.5	Category Type	From CategoryID field. ID 5 or 6 =Footwear, rest 0 Clothing
1.3.6	Category	Category.CategoryName

2.4. Trends

Trends are used for selections and in charts in order to get the correct analysis results.

The following table lists the Time Dimension Trending to be included in the analysis application.

<i>No.</i>	<i>Field</i>	<i>Description</i>
1.4.1	Order Date	Orders.OrderDate
1.4.2	Day	Day of Orders.OrderDate
1.4.3	Month	Month of Orders.OrderDate
1.4.4	Quarter	Quarter of Orders.OrderDate
1.4.5	Year	Year of Orders.OrderDate
1.4.6	YearMonth	24 Rolling Months from last month of data for Orders.OrderDate. Format should be : MMM-YYYY (e.g. Jan-2007)

2.4.1. Business Rules

1. Drill down of Order Date should be possible from Year to Quarter to Month to Day.

2.5. Key Selection filters

Key selection filters are used for selecting values to perform necessary analysis. The following table lists the Key Selection Filters to be included in the analysis application.

<i>No.</i>	<i>Field</i>	<i>Description</i>
1.5.1	Customer	Customers.CompanyName
1.5.2	Customer Country	Customers.Country
1.5.3	Customer City	Customers.City
1.5.4	Product	Products.ProductName
1.5.5	Category	Catagories.CategoryName
1.5.6	Year / Quarter / Month / Day / Date	Based on Orders.OrderDate
1.5.7	Rolling Month	Based on Orders.OrderDate
1.5.8	SalesPerson	Employees responsible for sales: · Orders.EmployeeID inner join to Employee.EmpID - or - · Employee.Title begins with "Sal" or "President"
1.5.9	Sales Title	Employee.Title begins with "Sal" or "President"
1.5.10	Sales Office	Office.City
1.5.11	Supplier	Suppliers.CompanyName
1.5.12	Division	Divisions.DivisionName

2.5.1. Business Rules

1. Drill down of Order Date time should be possible from Year to Quarter to Month to Day.

2.6. Security

This application will be distributed to employees involved in sales. Each salesperson, however, should not have access to data pertaining to their peers.

There should also be one or more administrators to manage the document. One of the salespersons, James Bosch, is also the Sales Manager of the company, and he should have access to the entire set of data. In addition, the Sales Coordinator in Lund should have access to the data on all salespersons in the Lund office.

3. Table overview

An overview of all the tables in the application is placed in this section. This overview shows the original tables. Alterations may be needed in order to create a good structure when reading the tables into QlikView.

3.1. Customers Data

3.1.1. File Information

Data Type -----MS Access
Database -----QWT.mdb
Table name -----Customers
Estimated Number of Records ----- 100

3.1.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
CustomerID	Autonumber (Long Integer)	Y	Customer ID
CompanyName	Text (40)	Y	Full name of customer
ContactName	Text (40)		Name of primary contact at customer (First Last)
Address	Text (60)		Street or PO Box mailing address of customer
City	Text (20)	Y	City for mailing address of customer
StateProvince	Text (15)		State or Province code for mailing address of customer
PostalCode	Text (10)	Y	Postal code for mailing address of customer
Country	Text (20)		Country for mailing address of customer
Phone	Text (24)		Phone number includes country code or area code
Fax	Text (24)		Phone number includes country code or area code
Division	Integer	Y	Which Division a customer belongs to

3.1.2.1. Business Rules

1. Customers have single contact
2. State / Province code is optional as required
3. Customer data is updated weekly

3.2. Products Data

3.2.1. File Information

Data Type -----MS Access
Database -----QWT.mdb
Table name -----Products
Estimated Number of Records ----- 75

3.2.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
ProductID	Autonumber (Long Integer)	Y	Product ID
ProductName	Text (40)	Y	Full name of product
SupplierID	Long Integer	Y	Link to Supplier
CategoryID	Long Integer	Y	Link to product category
QuantityPerUnit	Long Integer		Count of product per unit
UnitCost	Double – Fixed 2 decimal		Current cost of product, including manufacturing costs plus Selling, General and Administrative (SG&A) expenses
UnitPrice	Double – Fixed 2 decimal		Current unit price (List) of product
UnitsInStock	Long Integer		Number of units in stock as of latest inventory
UnitsOnOrder	Long Integer		Number of units on order

3.2.3. Business Rules

1. Units on backorder defined as $[\text{UnitsOnOrder} - \text{UnitsInStock}] > 0$

3.3. Categories Data

3.3.1. File Information

Data Type -----MS Access

Database -----QWT.mdb

Table name -----Categories

Estimated Number of Records ----- 10

3.3.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
CategoryID	Autonumber (Long Integer)	Y	Product Category ID
CategoryName	Text (25)	Y	Category name
Description	Memo		Category description

3.3.3. Business Rules

1. One-to-many relationship with [Products] table

3.4. Shippers Data

3.4.1. File Information

Data Type -----MS Access

Database -----QWT.mdb

Table name -----Shippers

Estimated Number of Records ----- 5

3.4.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
ShipperID	Autonumber (Long Integer)	Y	Shipper ID
CompanyName	Text (40)		Shipper name

3.4.3. Business Rules

1. One-to-many relationship with [Orders] table

3.5. Shipments Data

3.5.1. File Information

Data Type -----MS Access

Database -----QWT.mdb

Table name -----Shipments

Estimated Number of Records ----- 17,000

3.5.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
OrderID	Long Integer	Y	Link to [Order Details]
LineNo	Integer		Link to [Order Details]
ShipperID	Long Integer	Y	Link to Orders
CustomerID	Long Integer	Y	Link to Orders
ProductID	Long Integer	Y	Link to [Order Details]
EmployeeID	Long Integer	Y	Link to Orders
ShipmentDate	Date		Date for shipment to leave QWT

3.5.3. Business Rules

1. Has a one to one relationship to [Order Details]

3.6. Orders Data

3.6.1. File Information

Data Type -----MS Access

Database -----QWT.mdb

Table name -----Orders

Estimated Number of Records ----- 7,000

3.6.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
OrderID	Autonumber (Long Integer)	Y	Order ID
CustomerID	Long Integer	Y	Link to Customers
EmployeeID	Long Integer	Y	Link to Employee
OrderDate	Medium Date	Y	Date order was placed (DD-MMM-YY)
ShipperID	Long Integer	Y	Link to Shipper
Freight	Double – Fixed 2 decimal		Freight charges associated with this order

3.6.3. Business Rules

1. One-to-many relationship with [Order Details] table
2. Employee link determines company sales by office
3. Orders data is updated daily

3.7. Order Details Data

3.7.1. File Information

Data Type -----MS Access
Database -----QWT.mdb
Table name -----Order Details
Estimated Number of Records ----- 17,000

3.7.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
OrderID	Long Integer	Y	Link to Orders
LineNo	Integer		
ProductID	Long Integer	Y	Link to Products
UnitPrice	Double – Fixed 2 decimal		Product unit price for this order
Quantity	Integer		Quantity of product ordered
Discount	Single – Percent (0 decimals)		Percent discount

3.7.3. Business Rules

1. OrderID must exist in [Orders] table
2. ProductID must exist in [Products] table
3. Quantity must be > 0
4. Discount must be between 0 and 1
5. Discount applies to [Order Details].[UnitPrice]
6. Order Details data is updated daily

3.8. Divisions Data

3.8.1. File Information

Data Type -----MS Access

Database -----QWT.mdb

Table name -----Products

Estimated Number of Records ----- 5

3.8.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
DivisionID	Long Integer	Y	DivisionID
DivisionName	Text (15)		Division name

3.8.3. Business Rules

1. Has a one-to-many relationship with Customers

3.9. Employees Data

3.9.1. File Information

Data Type -----MS Excel
Database -----EmpOff.xls
Table name -----Employee
Estimated Number of Records ----- 50

3.9.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
EmpID	Integer		Employee ID
Last Name	Text		Employee last name
First Name	Text		Employee first name
Title	Text		Employee title
Hire Date	Date (MM/DD/YY)		Date of hire for employee
Office	Integer		Link to Office
Extension	Integer (3 digits)		Telephone extension of employee
Reports To	Integer		Employee ID of Supervisor
Year Salary	Fixed 2 decimal		Annual salary of employee

3.9.3. Business Rules

1. Contains current employees only
2. [Reports To] field is subset of [EmpID] field
3. [Extension] is optional

3.10. Offices Data

3.10.1. File Information

Data Type -----MS Access

Database -----QWT.mdb

Table name -----Office

Estimated Number of Records ----- 5

3.10.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
Office	Integer		Office ID
OfficeAddress	Text		Street or PO Box mailing address of office
OfficePostalCode	Text		Postal code for mailing address of office
OfficeCity	Text		City for mailing address of office
OfficeStateProvince	Text		State or Province code for mailing address of office
OfficePhone	Text		Phone number includes country code or area code
OfficeFax	Text		Phone number includes country code or area code
OfficeCountry	Text		Country for mailing address of office

3.10.3. Business Rules

1. State / Province code is optional as required

3.11. Suppliers Data

3.11.1. File Information

Data Type -----XML

Database -----Suppliers.xml

Table name -----Suppliers

Estimated Number of Records ----- 30

3.11.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
SupplierID	Integer		Supplier ID
CompanyName	Text		Full name of supplier
ContactName	Text		Name of primary contact at supplier (First Last)
Address	Text		Street or PO Box mailing address of supplier
City	Text		City for mailing address of supplier
PostalCode	Text		Postal code for mailing address of supplier
Country	Text		Country for mailing address of supplier
Phone	Text		Phone number includes country code or area code
Fax	Text		Phone number includes country code or area code

3.11.3. Business Rules

1. Suppliers have single contact

3.12. Budgets Data¹

3.12.1. File Information

Data Type -----MS Excel

Database -----Budget.xls

Table name -----Sheet 1

Estimated Number of Records ----- 10

3.12.2. Record Information

Field Name	Data Type (Max Size)	Indexed	Comment
Office	Integer		Office ID
EmployeeID	Integer		Link to Employees
Year	Date - Year (YYYY)		Budget Year
Budget rev.	Integer		Budgeted yearly revenue

3.12.3. Business Rules

1. Office and EmployeeID creates link to Employees table
2. Only Employees that has begun to sell receives a budget

¹ This data file is not used in the exercise, but is included for legacy purposes.