

Business Intelligence Model for Sales Analysis

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As the technology is progressing and the dynamism of business environment is changing, not only the market competition keeps growing but the customers are starting to dominate the approach to the product. These days the supply exceeds the demand by far and we need more information and knowledge in order to build a better product and a product with added value. On the other side, we need to avoid being snowed under enormous amounts of internal and external data. The application of the business intelligence concept allows business systems to use only those pieces of information that, while being presented in the best way, are needed at a particular time to make business decisions. At the same time, if the concept is being implemented properly, the amount of data and information business system employees are receiving is being reduced, while simultaneously the quality is being increased. That is why the main objective of the business intelligence concept is to generate high-quality information business systems need in order to make correct business decisions.

1. Introduction

We live in a time marked by ever-increasing acceleration and mutual interdependency. That is why “the new economy” favours global players who are quick to notice changes and challenges and meet their requirements.

The times when you could build an information system “easily” and “tomorrow”, without a serious approach, are behind us. With the dynamic development of information technologies - data gathering, storage, analysis, processing and use - modern management and communication with the environment start to have a new character. Timely, complete and accurate information is one of the main business resources and is a key for making best business decision no matter what level we are talking about - operational or strategic management, current or long-term business activities.

Processing data, finding hidden relations between them, identifying new possibilities for better business efforts, all these are indispensable factors that help us make the best business decisions. In turn, such decisions are necessary if our company is to survive and grow.

Managing knowledge through business intelligence is a vital element of strategies of successful business systems that want to use information better in order to increase their market share, improve their relations with buyers and customers, increase profitability and hold market advantage over their rivals [1,2].

This paper is elaborating on a concept of sale business intelligence analytic system in a trading firm [3]; this includes:

- Identifying basic decision processes needed to analyze the sale of the company.

- Defining sources of data for the identified processes.
- Implementing data mart, defining its objectives, design and realization.
- Realizing the decision model, describing the way the OLAP tools are being used and presenting developed OLAP models.

The results we get by using the proposed business intelligence system can be used in turn to learn more about the customers and suppliers in order to facilitate negotiations with them, use the existing resources more efficiently, become more competitive and make right decisions needed to attain a better market position - since we always have to keep in mind that the market becoming more global all the time.

2. Identifica of decision models

Today companies are operating in an environment of extreme competition and developed channels of distribution, where more goods are services are available than are needed. In this time of the supply considerably exceeding the demand any increase of production is focused on increasing the amount of data and knowledge in order to produce a better product, a product with added value.

Some companies are trying to gain strategic advantages through more efficient use of existing resources, including their information system. By skilfully using analytical application one can turn data into information needed for making strategic decisions, thereby gaining advantage over his rivals.

The decision-making process is a generic process that can be applied to all forms of organized activities aimed at achieving a predefined goal. Our use of this process can be intentional or unintentional.

When trying to make deliberate decisions people do the following:

- consider all known available options;
- use the greatest available amount of data;
- carefully consider possible costs and benefits of every option;
- meticulously analyze the probability of various outcomes;
- invest the greatest possible amount of rational reasoning based on all abovementioned phases.

We do not analyze different types of data using the same method. It is important to identify the best analytic method to apply to a certain type of data. When the customer demand is defined, including the type of data and the method of data gathering and distribution, the choice of analytic method becomes the key for creating a high-quality decision-making basis. For instance, a simple descriptive statistics can sometime provide a better basis than a sophisticated business econometric model.

Data analysis and ideal problem for OLAP reporting, since the source of data for such a multidimensional analysis can be found in every company's sale invoices.

The realized models that are presented in this paper help understand the relations between all critical aspects of the organizations (costs, income and profit). Once this analysis is understood we can reduce a (possible) deviation between the planned and the real profit by modifying these elements.

Also we can answer the following questions: Which are the best-selling products, what are the most profitable shops, which is the key product as far as sale results are concerned? Has my business practice improved or deteriorated since last year/quarter/month? It is possible to compare similar products over the same time period and that reveals which brands are sought by consumers. These and many other answers make it easier for us to make best business decisions and discover relations that were not obvious before.

3. Data mart implementation

A data warehouse includes a large quantity of data organized in smaller logical elements, data marts. Data marts are usually subsets of logically linked data warehouse information that refers to a certain area.

A data mart that reflects a business segment of a company will enable us to implement an OLAP model. Such a model makes the following analyses possible:

- Analyzing profit, income and sales according to customers, groups of products and years.
- Analyzing sales according to producers, shops and years.
- Analyzing profit according to months and shops in any desired year.
- Analyzing profit according to groups of products, shops and years.
- Doing a comparative analysis of profit according to years, brand groups and customers.
- Analyzing income, profit and cost according to products, shops, regions and years.
- Analyzing profit in successive quarters.
- Analyzing income according to months, products in selected years.

Data marts can be used for exploration, data mining, managed inquiries or on-line analytical processing (OLAP) and they are a direct source of information for end customers. A data mart used for on-line analytical data processing needs to be easily and intuitively accessible by end users. The dimensional model is the best in such cases.

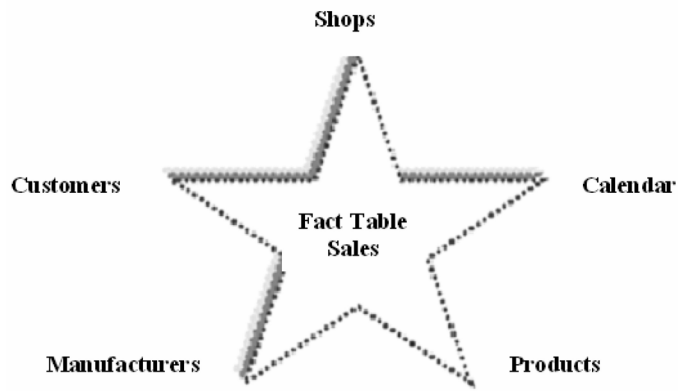
The most frequently used method for managing linked multidimensional analysis data is the star schema. The fact table is in the centre of the schematic. This table contains data for analysis and keys for links with dimension tables. The fact table usually include several million short records. The records in the fact table are compressed in order to improve performance, while the dimension tables have fewer records, but these are bigger. They give additional information for the fact table records by providing description, name and other text values. Every dimension table has a single primary key that directly corresponds to one of the components of a multiple key in the fact table.

In our example (Picture 3.1), the process of producing dimension tables is linked to inclusion of calendars, customers, producers, products and shops. Dimension tables can be organized in hierarchies. Each hierarchy level continues with another hierarchy level. According to [4], we observe the realization of the data mart through the following phases:

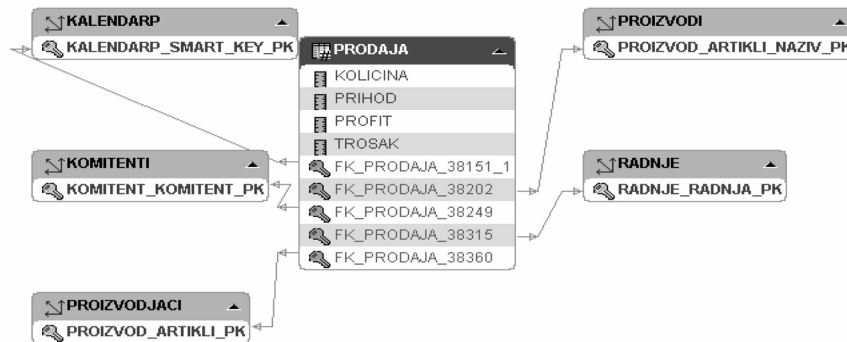
- Definition phase.
- Generation phase.
- Data loading phase.

The definition phase includes definitions of dimensional models and aggregations, generation of data sources and ETL procedures.

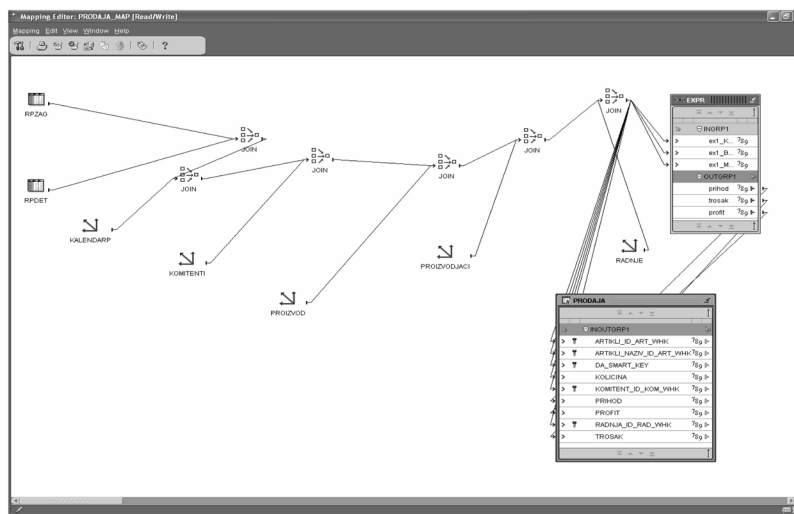
For instance, the star schematics definition looks like Picture 3.2.



Picture 3.1 Star schema 'Sales' 1



Picture 3.2 Star schema 'Sales' 2



Picture 3.3 Mapping the fact table 'Prodaja'

The generation phase includes configuration, validation, script and object generation.

The data loading phase includes a definition of sequence for execution of ETL procedure scripts. Definition of ETL procedure for a fact sales is described by Picture 3.3.

The suggested data mart model is realized through application of Oracle tools: Oracle9i RDBMS, Oracle9i Warehouse Builder [4].

The Oracle Discoverer [5], as part of Oracle's Business Intelligence set of tools, is used for implementing the identified models. Discoverer is intended to provide end users with an easy access to data and allow them to do data analysis and set-up ad-hoc queries [6].

4. Case study

For these analyses we used data from a trade company from Podgorica that sells chemical products in retail shops in six towns and also offers wholesale sale of its products. The Case Study data - for data mart realization we used records from 2005, 2006 and 2007. More than 2,000,000 lines have been imported. The fact of sales contained about 410,000 lines, the mapping procedure was excellent and lasted about 5 seconds.

The observed 4.1 model is analyzing income, profit and quantity categories. On the Page Item level we selected a year (or all of them) and product categories for which we do the analysis. We observe all this in relation with customers, towns or regions. This analysis will provide us with precious data on most profitable groups of products. We can also see which customers buy most of a particular product and this can affect future sales conditions, discounts, special conditions and the way we treat that particular customer. Picture 4.2 shows a graphical presentation of profit according to regions.

Picture 4.3 shows a multidimensional model that is being used for analyzing quantities of sold products according to brands. One of the possibilities (the one depicted here) is to analyze all the years - or we can select one of them. This clearly shows which brands are attractive and which are not accepted by the market. We can also display data on shops. For instance, we notice that only one Elisabeth Arden product was sold in Berane over all three observed years, while 11 Dolce Gabana products were sold in the same store.

One of the realized workbooks can look like the Picture 4.4. Here we do a comparative analysis of profit by month and by shops and we can observe monthly or seasonal oscillations. It is obvious that the central region is dominant as far as profit is concerned and that March is

the most profitable month. This analysis is valid for the entire observed period but if, for instance, we examine only 2006, then July is the most profitable month and the most profitable shop is the Central Depot in the central region (just like in the previous case).

The following OLAP model described by Picture 4.5, is a model of comparative analysis of profit, where select a product group for observed ships in Page Item. In this particular case we analyze profit from sale of the perfume product group. Adding an exception is simple - in this case it excludes the shops where the sale of perfume exceeded 1,000 euros.

The following Picture 4.6 shows a multidimensional model for analyzing income, profit and cost per product, ship, region and year.

The following OLAP model described by Picture 4.7 deals with comparative analysis of profit by quarter. The first quarter profit is compared to the second quarter and so on for two consecutive years, 2005 and 2006. The LAG function is used to realize this model. This function allows us to do this comparison but also to compare a single period of one year with the same period of the next year or following years. We are using the Rank function that enables us to rank the deviation percentage from the greatest increase to the greatest drop in consecutive quarters.

In the abovementioned example we can notice that there is no date for years before 2005 so the column for the preceding period for the first quarter of 2005 is empty, producing the number 1 in the rankings. On the other hand, the profit in the second quarter of 2005 has increased by 20.33 per cent compared to the first quarter of the same year. The rankings show that this is also the greatest single increase in the entire comparative list for consecutive quarters. The greatest loss of profit was in the fourth quarter of 2005 compared to the third quarter - 32.97 per cent.

The next observed model (Picture 4.8) is analyzing profit from sale of perfumes in 2005 by months. The greatest profit was made in September, despite expectations that this would happen in March due to the 8 March holiday. December was the next most profitable month.

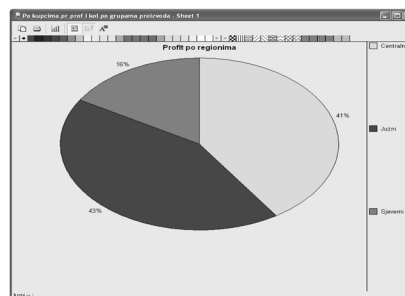
The 4.9 example shows seasonal oscillations. If we examine the Sun sun screen we notice that over half a year (October, November, December, January, February and March) not one item was sold, while the greatest profit, as expected, was made in June and July.

Oracle9i Discoverer Desktop - [Po kupcima pr prof i kol po grupama proizvoda]

Page Items: Da Actual Date Year: 2005 Grupa Naziv Naziv: Parfemi

	Profit SUM	Priloh SUM	Kolicina SUM
Centralni	5,486.86	11,578.09	862.00
Juzni	5,796.01	12,079.39	841.00
BAR	1,137.47	2,307.90	147.00
BELLA DONNA APOTEKA	36.48	96.55	10.00
HYGIA ZU APOTEKA	2.69	6.73	1.00
IN SPE DOO BILJNA APOTEKA ELIKSIR	212.52	424.01	25.00
INTERSERVIS RADOVIC OD	26.54	61.43	6.00
STELLA ALBA APOTEKA SA PO	98.11	162.14	8.00
SVETI IZVOR PEJANOVIC DOO	761.14	1,557.05	97.00
BUDVA	965.43	2,095.26	137.00
B&B	2.83	8.19	1.00
BINGO STR	387.97	813.79	54.00
BURBERRY STR	36.40	78.51	5.00
DULETIC PZU APOTEKA	113.14	219.56	12.00
HEMCO STR	10.73	26.91	4.00
JPU LIJBICA V JOVANOVIC MASE	126.01	349.49	13.00
MATIGOR TRADE DOO	61.50	126.56	7.00
PLIMA NO1 STR	152.32	324.83	31.00
POPOVIC PZU APOTEKA BUDVA	17.69	35.04	3.00
XXXX APONIA ZU APOTEKA	55.84	112.38	7.00
HERCEG NOVI	1,089.66	2,191.83	152.00
ART ZUROVAC I ORTACI OD	44.24	102.38	10.00
JALID OD PARFIMERIA JASNA	53.94	97.71	6.00
KNEZEVIC COMPANY I ORTACI OD	31.85	85.24	21.00
LIMOV RADOVIC OD PARFIMERIA NADJA	419.58	831.83	47.00

Picture 4.1 Analysis of profit, income and quantity of sold items according to customers, groups of products and years



Picture 4.2 Graphical presentation of profit according to regions

Oracle9i Discoverer Desktop - [Po proizvodjacima kolicina i po radnjama]

Page Items: Da Actual Date Year: <All>

	BERANE	BIJELO P	BUDVA	NIKSIC	POGORICA
	COSMETICS	COSMETICS	COSMETICS	COSMETICS	CENTRALNI
	COSMETICS	COSMETICS	COSMETICS	COSMETICS	COSMETICS
	MONTEFAR				
	Kolicina SUM	Kolicina SUM	Kolicina SUM	Kolicina SUM	Kolicina SUM
CAVALLI	3		2		1
CAWA POLAND LTD	10				1
CHANTALLE	5		2		3
CHRISTIAN DIOR	7		1		1
CIOCCARELLI	60	3	15	3	24,738
CITY COSMETICS					5
COLGATE PALMOLIVE	301	26	86	15	227
COLOMER	6	5			3
COLOMER ITALY S.P.A.	175	29	30	7	5,644
COMPROF	11		1	3	1
CONTER SPA	27		8		5
CORSAIR INTERNATIONAL LTD	11	2	16		17,742
COTY HUNGARY KFT	1,002	136	726	65	251,020
DAVIDOFF PARFUMS	2				
DELICARTA SPA	44		34	2	81
DERIK U.S.A.	22		1		219
DILEK AKGUL LTD STL	8			3	11
DOETSCH GRETHER	23	2	2	4	3
DOLCE&GABBANA	11		6		3
DR TAYLOR LTD	32		1	3	16
DUNI	2				28
DURACELL					1
EDELSTEIN	1	1			5
ELICELL SRL					7
ELIZABETH ARDEN	1				3
EMANUELA BIFFOLI	4				
ENERGO TRADE DOO					1,183
ERCOL COZMETICS	192	68	132	10	3,407
EUROCOSMESI	4		6	1	7
EUROITALIA	7				
EUROPAK					2
EUROPROSANI S.P.A.	522				12,611
EUROSALON CG DOO	16			1	3
FAIRNESS	13	1	8	1	10
FAO COSMETICS					196
FARMALOGIST DOO	2				
FENIX	15				2,939

Picture 4.3 Analysis of sold quantities of products according to producers, shops and years

	APRIL	AUGUST	DECEMBER	FEBRUARY	JANUARY	JULY	JUNE	MARCH	MAY	NOVEMBER	OCTOBER	SEPTEMBER
	Profit SUM	Profit SUM	Profit SUM	Profit SUM	Profit SUM	Profit SUM	Profit SUM	Profit SUM	Profit SUM	Profit SUM	Profit SUM	Profit SUM
Centralni	36,378.74	61,077.90	59,214.17	42,402.02	32,270.02	61,489.70	62,120.75	50,883.23	59,659.00	48,221.09	60,265.09	58,513.51
CENTRALNI MAGACIN	34,939.22	61,017.66	52,304.58	41,073.33	32,165.27	60,999.49	61,584.35	49,226.51	59,343.62	47,812.68	59,742.79	58,270.55
COSMETICS MARKET 4 NIKŠIĆ			362.25					487.69				31.99
COSMETICS-MARKET 2 PODGORICA	1,439.53	60.25	6,547.34	36.95		490.21	536.41	1,169.02	315.38	408.42	490.32	242.96
MONTEFARM KONSIGNACIJA				1,291.74	104.75							
Juzni	242.30	39.80	3,862.48			157.80	31.33	947.57	109.21		70.20	289.04
COSMETICS-MARKET 1 BUDVA	242.30	39.80	3,862.48			157.80	31.33	947.57	109.21		70.20	289.04
Sjeverni	705.47	712.79	4,068.27	890.83	836.34	1,014.19	840.68	836.23	889.21	1,023.01	1,155.97	1,115.34
COSMETICS MARKET 5 B.POLJE				1,163.29								
COSMETICS-MARKET 3 BERANE	705.47	712.79	2,904.98	890.83	836.34	1,014.19	840.68	836.23	889.21	1,023.01	1,155.97	1,115.34

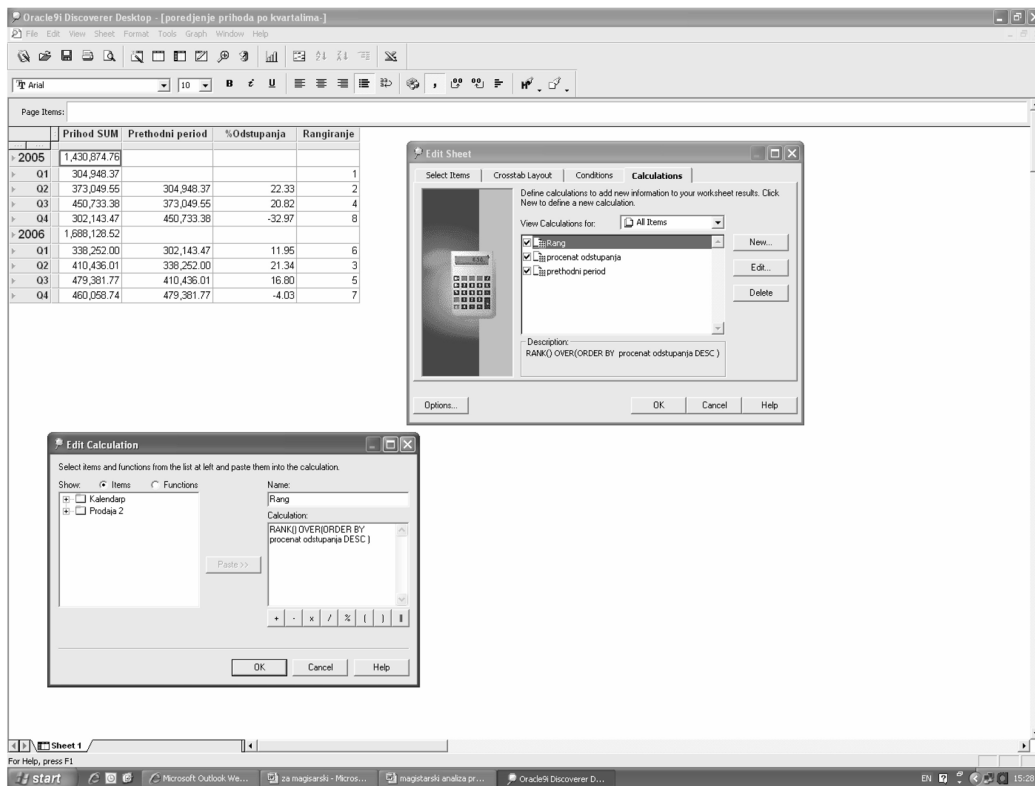
Picture 4.4 Analysis of profit according to months and shops in selected years

	2005	2006	2007
IN CO DOO		12.33	
KAMELIA KTR	153.14	412.96	
KISS STR		52.66	
KORAC VALENTINA		42.92	
KOVACEVIC ANA	2.39		
KUCA HEMJJE DOO	124.15	210.97	
LAURUS KOVACEVIC DOO APOTEKA	26.63		
LEKIC ANGEL DOO	76.73	6.43	
LEKOFARM IVANOVIC OD APOTEKA	4.84		
LISCA-M S.T.R.		36.90	
MARTEX DOO		5.09	
MEDITAS DOO	621.34	946.27	
MIL POP DOO	1,093.37	2,851.38	
MONTEPANO DOO	4.30	34.49	
MPM DOO	153.43	1,054.26	
ORTUS DOO	199.28	220.68	
PANACEJA DOO	22.46	17.79	
PLUS COMMERCE DOO	189.44	74.10	
PRAJD DOO	102.09	75.15	
RAZNATOVIC AD PODGORICA TPC	10.75		
ROSAKS-TRADE DOO		24.44	
RUDOVIC MILENA		35.29	
SLANA DOO	74.69	72.52	
STUDENTSKA ZADRUGA PODGORICA	23.33		
TAAL DOO	6.92	4.12	
TAM KOMERC DOO	69.12		
VENCOR DOO	6.56		
VIVAK DOO	38.41	9.46	
VOLI TRADE DOO	13.68	10.57	

Picture 4.5 Comparative analysis of profit according to years, product groups and customers

	NIKŠIĆ			POGORICA			COSMETICS MARKET 2 PODGORICA			MONTEFARM KONSIGNACIJA		
	Profit SUM	Prihod SUM	Trosak SUM	Profit SUM	Prihod SUM	Trosak SUM	Profit SUM	Prihod SUM	Trosak SUM	Profit SUM	Prihod SUM	Trosak SUM
Deo krema				497.38	1,253.50	756.12	21.27	53.30	32.03			
Deo roll on muski				4,073.29	7,945.68	3,872.40	6.51	16.71	10.21			
Deo roll on zenski	2.51	8.75	6.24	4,369.95	10,836.40	5,697.35	56.39	97.37	61.98			
Deo sprej muski	3.89	10.77	6.88	14,638.62	34,300.59	19,461.97	23.66	67.00	63.34			
Deo sprej unisex	2.50	8.19	5.69	196.08	524.63	326.65	6.42	19.61	13.19			
Deo sprej zenski	21.11	67.72	46.61	6,328.12	14,649.55	8,321.43	61.79	219.43	137.64			
Deo stik muski	4.32	15.71	11.39	732.53	1,467.84	756.32	27.07	79.53	52.46			
Deo stik zenski	6.64	24.17	17.53	0.64	4.29	3.65	23.78	88.29	64.51			
Deplj krema decolorante				1,381.76	3,180.14	1,798.37	1.64	3.56	1.92			
Deplj kreme	0.98	2.20	1.22	6,453.26	22,197.37	13,744.11	6.91	25.50	18.59	101.95	250.75	148.80
Deplj pjana				667.17	1,233.94	786.77	6.55	12.60	6.05			
Deplj trake	2.13	3.65	1.52	35,985.99	69,419.73	32,433.74	33.89	69.74	25.85	391.70	777.23	385.53
Deplj voskovi hladni i topli				1,391.46	3,647.39	2,256.93	1.21	9.92	8.71			
Deterdženti za rublje				7.57	32.88	25.31						
Dječije carape				37.68	86.42	48.74	6.88	14.93	8.05			
Dječije halatop	5.61	12.46	6.85	130.59	304.86	254.28	17.45	39.65	22.20			
Dječije kupa				780.54	2,109.00	1,328.96				4.38	8.53	4.15
Dječije ostale kozmetika							2.48	6.60	6.12			
Dječije mlijeko				79.61	216.65	137.04						
Dječije balzam				291.80	789.74	497.94	1.01	2.12	1.11			
Dječije šampon	1.41	3.84	2.43	3,245.94	8,570.95	5,224.01	1.04	2.12	1.08			
Dječije sapun				253.67	657.21	403.63						
Dječije setovi				16.53	38.79	22.35						
Dnejni ulošci	0.46	1.74	1.28	3,118.83	9,758.77	6,639.95	14.27	49.89	35.62			
Dodaci za aparate				-159.41	649.75	507.16						
Farba sa hidrogenom standard	12.75	32.72	19.97	17,263.85	40,147.30	22,883.45	374.10	1,369.17	995.07			
Farbe decoloranti				305.87	702.98	397.11	3.39	11.29	7.90			
Farbe za kosu				5,657.63	19,349.95	13,692.22	119.21	399.87	280.66			
Fleasio				3,867.55	7,943.95	4,076.40	2.80	6.59	3.79			
Gel protiv komaraca				602.74	1,463.39	860.65						
Gel za ciscenje lica				455.53	1,193.44	737.91	21.40	77.75	56.35			
Gelovi za kosu				6,147.56	16,468.77	10,321.22	62.60	181.13	118.53			
Glodalice				1,187.57	2,458.09	1,270.52	3.45	6.05	2.60			
Gmizoci mositi				11.88	33.52	21.64						
Hidrogen i blani				1,242.47	3,591.52	2,349.05	34.46	108.27	73.81			
Higijena odjece i obuće							2.37	7.86	5.49			
Higijenske gacice za inkontinenciju				515.05	1,607.00	1,091.95						

Picture 4.6 Analysis of income, profit, cost per product, shop, region and year



Picture 4.7 Analysis of profit by quarters

The screenshot shows the Oracle9i Discoverer Desktop interface with a pivot table titled "[Prihod po proizvodima po mjesecima]". The table is filtered for "Da Actual Date Year: 2005". The columns represent months from April to September, with sub-columns for "Prihod". The rows list various product categories and items.

	APRIL	AUGUST	DECEMBER	FEBRUARY	JANUARY	JULY	JUNE	MARCH	MAY	NOVEMBER	OCTOBER	SEPTEMBER
	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod
> Ogrlice		100.08	18.50	51.16	118.79			25.14		0.05	0.08	0.19
> Olovka za nokte	25.75	31.51	12.58		8.81	20.03	47.56	22.14	27.60	15.86	11.45	11.22
> Olovka za obrve	78.68	146.20	93.26	42.28	47.00	92.55	59.49	84.09	129.67	93.40	105.65	65.67
> Olovka za oci	1,002.86	1,854.30	1,662.59	872.80	1,216.07	1,537.33	1,635.83	1,537.37	1,564.04	1,428.32	1,438.36	1,295.23
> Olovka za usne	722.65	1,111.31	869.45	617.79	744.90	919.42	1,198.05	1,033.69	1,033.39	905.43	836.08	904.10
> Omeksivac rublja										72.65	425.75	92.70
> Ostali bebi proizvodi	785.11	925.70	597.67	403.95	518.64	1,144.65	1,247.23	1,836.02	1,091.80	557.18	1,196.97	1,090.92
> Ostali proizvodi od tekstila			65.05							8.31	36.92	
> Ostali proizvodi za lice	424.98	490.26	162.00	184.08	255.64	179.24	307.37	455.37	288.53	225.22	349.39	721.73
> Ostali proizvodi za manikir									4.46			
> Ostali proizvodi za pedikir			0.48									
> Ostali proizvodi za trudnice	12.77	49.16	17.47	115.03	44.34	17.03	1.40	62.52	55.47	8.60	8.60	118.31
> Ostali proizvodi za uljepšavanje											0.88	0.88
> Osvježivac daha	49.69		76.79	46.54	9.96			44.75	13.55	67.33	17.90	
> Pakovanja i maske za kosu	19.66	152.03	350.43		26.86	31.12		28.66	61.87	284.80	63.00	103.92
> Parfem - setovi	344.46	146.68	778.13	515.97	171.99	98.28	59.69	842.26	156.51	1,288.91	3,186.00	56.51
> Parfemi	1,588.43	3,330.83	4,393.87	962.70	599.72	2,330.61	2,236.34	2,042.56	1,210.12	2,296.19	2,336.49	5,589.01
> Parfim after shave	693.84	794.21	640.06	18.40	128.83	188.05	26.15		72.91	149.85	65.74	196.02
> Parfimisana mlijeka i losioni	37.70	270.59	198.26	16.15	26.99	327.87	317.09	124.20	132.90	103.63	66.86	308.47
> Parfimisani deo sprej	293.30	353.01	431.90	43.24	26.42	469.02	534.53	156.73	136.08	264.59	401.42	811.58
> Parfimisani rolioni i stikovi	186.91	216.76	83.51	301.39		43.88	2.25	19.66	20.85	37.57	64.58	564.48
> Parfimisani tus gel	362.40	344.19	230.74	98.96	38.08	156.28	210.32		83.91	99.29	115.04	445.46
> Pelene jumbo	440.64	730.10	365.56	302.26	329.14	20.02	580.00	540.07	715.86	300.09	387.03	449.10
> Pelene maxi	356.98	670.24	933.11	612.52	491.97	493.46	512.36	765.81	405.42	567.38	224.72	532.45
> Pelene midi	131.25	130.21	80.52	167.54	249.81	150.09	145.86	111.02	88.06	233.45	41.10	91.13
> Pelene mini	69.28	69.42	62.69	69.06		106.58	100.33	91.05	59.03	134.17	40.99	
> Pelene za inkontinenciju	3,237.42	3,807.61	5,773.14	3,500.91	4,643.76	3,236.55	3,435.56	5,701.20	2,889.82	3,740.57	3,685.33	3,918.90
> Pincete		1,786.69	502.11			1,484.49	738.94	444.57	2,950.72	477.49	533.60	1,614.04
> Pjena, gel i krema za brljanje	454.87	1,000.64	453.08	31.01	12.40	321.77	46.62	719.45	22.99	344.55	417.02	514.04
> Pjena za odrz. higijene seren.	44.05	8.88		20.63	26.64	26.11	26.37	70.78	14.62		47.36	11.84
> Plazni program			4.60			94.36						
> Podloge za nokte	141.68	390.23	423.39	142.11	70.91	544.82	504.87	218.84	313.81	313.59	379.12	200.06
> Police reklamne				0.00		0.01		0.00				
> Pomada za olaksavanje disanja	2.63	10.53		42.04	15.80	7.90	5.27	21.06	23.69			
> Posuda za farbanje			1.23									2.46

Picture 4.8 Analysis of profit according to months and products in selected years 1

	APRIL	AUGUST	DECEMBER	FEBRUARY	JANUARY	JULY	JUNE	MARCH	MAY	NOVEMBER	OCTOBER	SEPTEMBER
	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod	Prihod
Set za manikir			3.95	63.07	147.17			168.20				
Setovi dekorativne	120.86	718.97	627.34	340.03	71.37	268.67	113.37	1,327.70	482.15	306.21	111.93	421.37
Setovi koz. muski	2,322.42	8,170.33	2,960.31	5,861.95	2,773.17	3,301.10	2,800.74	3,265.83	2,512.58	2,869.94	3,635.49	6,505.98
Setovi koz. zenski	926.77	2,315.63	939.19	4,590.09	1,684.67	1,305.28	1,195.66	4,908.52	1,518.31	571.03	1,218.59	2,666.80
Sir gauda 48%		8,977.51				11,458.14	3,736.21					
Sirup na bazi propolisa	101.32	50.37	29.98	105.59	82.31	78.39	35.28	86.23	66.40	77.61	70.55	31.00
Sjaj za oci	101.87	167.60	263.04	50.50	29.66	185.04	356.40	9.50	203.93	76.88	10.42	41.75
Sjaj za tijelo	621.50					8.40			8.66			
Sjaj za usne	1,518.62	2,003.73	1,875.03	336.67	2,238.06	3,082.10	1,956.15	2,261.59	1,561.36	1,333.93	1,560.56	1,464.60
Sjenka	1,260.62	1,672.82	1,332.50	952.24	1,248.45	1,523.62	1,180.21	1,455.15	1,374.67	959.16	670.22	728.43
Snale klik klak i ostale		8.23	2.69	7.75				12.10	1.80			6.50
Solje i case	376.06	569.64	430.25	256.11	209.83	861.80	581.26	461.12	418.03	285.60	516.03	950.78
Spirale i stapjaci za komarce		25.68				44.23	216.45		5.56			7.25
Sprej na bazi propolisa	6.65				16.61			13.29	9.97			
Sprej protiv komaraca	9.36	694.95	2.98			499.82	352.49		189.68	10.67	5.18	220.07
Stapjaci za sminku		8.17	6.81			7.02			140.02			3.50
Stapjaci za usi	786.20	1,098.26	411.52	555.13	71.25	902.25	739.13	1,574.60	969.64	189.18	215.74	603.01
Stik protiv komaraca	9.01	182.01				563.87	342.25		104.34			
Stipaljka		89.62	114.00	8.75		16.22		14.09	14.09	10.98		19.04
Sumeci vitamini	1,266.07	9.24		876.84	221.46	7.29	584.73	1,648.49	1,077.75			
Sun krema	188.12	167.69	4.96			774.69	1,553.89	126.39	186.70			21.76
Sun mlijeko	23.38	552.55				252.70	3,240.00	619.51				49.73
Sun proizvodj posle suncanja		226.82	4.46			875.98	469.90		105.66			
Sun proizvodj za samotamjenje	62.97		10.08			137.46	311.88	28.14	64.26	19.31	8.54	
Sun stik	124.11	25.62	12.34			75.89	37.75		25.04			12.34
Sun ulje		74.59	3.33			285.65	280.54		86.31			13.16
Sundjeni i mreze za kupanje			3.38	17.59	28.63		34.57	2.09	11.72			
Sundjeni za šminku			1.72									2.54
Švičje			0.80							0.65		
Tablete i tecna punjenja komarci		40.11	6.63			49.12	298.63		28.85			
Tamponi			15.00									
Tonik za lice	345.21	840.60	382.36	289.96	269.74	310.52	224.18	455.98	509.76	431.62	418.75	406.26
Toplomjeni	283.11	105.10	56.78	16.70	300.97	175.30	9.72	914.70	128.39	245.87	512.78	
Torbe i tasne			26.92	17.95								
Traka		229.36	141.53	39.29	30.57	71.93	1.73	5.31	58.87	39.61	3.12	23.49
Tufen	674.45	856.80	396.27	267.77	63.85	489.74	722.56	1,447.49	994.69	474.15	766.96	601.12
Turpije	16.38	119.86	46.49	10.35	2.07	130.22	57.92	10.58	201.47	51.52	50.53	138.00
Turpije za pete	24.06	24.06	12.03	6.01	3.01	180.03	107.98	21.05	47.39		21.05	74.90

Picture 4.9 Analysis of profit according to months and products in selected years 2

These analyses can clearly tell the acquisition department about periods when it is pointless to purchase a particular product or when they should focus on getting new stocks. This is particularly important for products with short expiry date.

5. CONCLUSION

Using business intelligence tools enables us to collect available internal and significant external data in order to transform them into useful information that can help business users make their decisions. Business intelligence systems are focused on improving information access and distribution capabilities, both for those who make and for those who use such systems.

Data based on use of business intelligence tools provide a trade company with an opportunity to identify not only advantages but also problems. Therefore the company can deal with causes in a timely manner instead of having to deal with consequences.

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