

BI – Inventory Analysis

March 2010

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(In this article I am continuing the dialogue of the MD of a large company with Mr. Basu who is the head of one of the large Business Units of the company. MD very cleverly and diplomatically shows Mr. Basu how he can reduce his investments in Inventory.)

Basu has been very happy with his team for having created and supported a sales budget which is 50% higher than the actual sales as compared to previous years. Recession fears are reducing, and Basu is hopeful of a good year ahead. He has been congratulated by the MD and has also got a word of appreciation from the foreign collaborator.

He is in a happy frame of mind and doing some well earned day-dreaming when the silence of his room is disturbed by a call on his direct line. Only the MD calls on this line so he is a bit worried and lunges at the phone.

MD's Secretary : Mr. Basu, MD wants an urgent meeting with you on the working capital position. Please come with the last five years data by tomorrow four pm.

Basu : Yes, M'aam, I shall be there.

Now what, Basu thinks. I have given him what he wants in the top line. What does he want now ? MD's phone has the effect of Basu breaking into cold sweat. There is always something which comes up when MD asks for such an urgent meeting.

Basu calls his business analyst and gives him the required directions for making the Working capital report for the last five years. We have been managing pretty well, he thinks. This meeting should not be too bad.

At four pm sharp the next day Basu enters the MD's cabin with a thick folder of MIS reports on Inventory. This time (he thinks) I am going to surprise the MD with the quality information which I have.

Basu : Good afternoon Sir.

MD : Good afternoon Mr. Basu. Trust all is well ?

Basu : Yes Sir. I have extracted the required information on Inventory. I feel our inventory levels are perfectly ok, and in line with our increase in business. I have also compared them with our peers in the industry, and they also have similar inventory levels.

MD : Basu, just because our numbers are similar to those of our competitors, it does not mean that we are right. It is possible that both we and our competitors are wrong.

Basu : Sir, let's see my presentation. I think you will be convinced after that.

MD : Sure Basu.

The first slide shows a Sales Trend for the last 5 years. It shows a YOY growth of about 15% per annum. Competitors' numbers are also shown. They also show a similar growth trend YOY. The next slide shows the inventory levels for the past 5 years. They also show a growth trend of about 15% YOY. Over the period of last 5 years, both the sales as well as inventory have doubled.

Basu : Sir, you can see that the inventory is more or less in line with the growth in Sales. I don't think we can really do anything in this matter.

MD : Mr. Basu, it is really an interesting presentation. May I ask you some personal questions Mr. Basu ?

Basu : Sure Sir.

MD : What is the size of the flat in which you stay ?

Basu : Sir, it's a three bedroom, 1500 sq feet apartment.

(Basu's heart is beating a bit fast now. Is the MD happy with my performance ? Is he going to give me a bigger, better flat ??)

MD : Basu, what is the size of your kitchen ?

Basu : Sir about 10' x 15'. Approximately 150 square feet. (Proudly continuing)..We have fitted a modern modular kitchen there. It is looking very smart. It provides very good and comfortable storage for our family of 5 persons.

MD : That's very good. What happens when you get three or four guests in your home ? Where do you store the additional groceries and vegetables for them ?

Basu : In case we get guests, we don't store the additional groceries and vegetables. But what my wife does is instead of buying once in a week, we buy once in three days. That way

our kitchen space is sufficient. In fact once we had 10 relatives come from our village in Hooghly. That time she had to shop almost daily. So we never had any storage problem.

Mr. Basu is beaming with pleasure at this innovative solution.

MD : Basu, I feel your wife is a very intelligent person. I think I should make her the inventory and purchasing head of your division.

Basu : Why sir ?

MD : By purchasing and consuming on a daily basis, she has managed to cater to the increased the consumption without increasing the inventory. Imagining what would have happened if she had purchased for one whole week. There would have been no place to store the groceries. By using her common sense she solved the problem of providing for the family and guests and yet has no problems in her kitchen.

Basu : Yes she is very smart Sir, but what has that got to do with our inventory levels ?

MD : Basu, what the humble housewife has done in her kitchen, we should try to do in our factories. We should try to reduce our inventories by increasing the inventory turns. By purchase less quantities from vendors each time we reduce our investment in inventories and yet cater to the increased consumption demanded due to increase in sales.

Basu : I did not understand this.

MD : Basu, you are operating on 6 inventory turns in an year. It means that you have about 2 months stock. Two months stock means investment in inventory, more space to store the inventory , more risk due to obsolescence and design changes etc.

I see that your inventory is almost 200 crores, and your sales are about 1200 crores.

Now imagine an ideal condition, just like your wife, that you are to purchase only the daily requirements from your vendors. So you would need only about 4 crores worth of inventory each day ! So you would release 196 crores worth of working capital !! The vendors would deliver the material directly on the shop floor. You would therefore not need the huge warehouse you are using to store your inventories. You could convert that into a shop floor. So the additional investment you have planned for a new factory need not be made.

Basu (dumbfounded) : Yes sir, I see what you are saying.

MD : Good. Such a steep reduction is not immediately possible. I would suggest that you first target for 4 weeks inventory, and then 2 weeks and then 1 week. Even if you have only 1 weeks inventory I will be impressed.

Basu : But Sir, I have almost 35000 items in my stock and almost 20 buyers. How am I to even know where to start to identify the items on which I am to start reduction.

MD : Ah, good question Mr. Basu. For that you need a BI module to help you. Fortunately I had one made for you. (Tongue in cheek) But I am sure your analyst will be able to make a better one.

Basu : Please show me Sir. I have no idea where to start.

The MD opens his laptop and in a few clicks opens a BI module on Inventory. On the projection screen the BI module appears.

Basu is quite flabbergasted. The inventory amount and inventory items seem more or less in line with his business. How does the MD get all this data , he wonders.

MD : Basu, see the first screen. I have arranged all your items in ABC categories (Pareto Analysis). Your most valuable items are classified as A etc. You will see that out of all your items, just 1100 items have got the maximum value. If you concentrate on these items a lot of your problems will be solved.

Microsoft Excel - inv_01_analysis.xls

File Edit View Insert Format Tools Data Window Help

PivotTable

1 Demo Company - Inventory Analysis

2 segment1 (All) FSN_CLASS (All) turns_class (All)

3 segment2 (All) ORG_TYPE (All) new_buyer (All)

4 sub_inv_type (All) sub_inv_sbu (All)

5 item_description (All) ORG_CODE (All)

6

7 Data

8 ABC_CLASS	Iss Val	Value	Nos
9 A-Class	430,628,548	124,353,335	1,155
10 B-Class	213,069,965	44,527,038	3,966
11 C-Class	44,460,245	4,434,320	6,464
12 D-ZeroStock	5,219,262,572	0	21,841
13 Grand Total	5,907,421,330	173,314,693	33,426

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Sheet1 pivot

Ready

Figure 1 : ABC Analysis

Basu : That's true. Just 1155 items have 173 crores in stock.

MD : (Dragging the FSN - fast , slow and non-moving dimension into the report) Now you see that within the ABC class, I have analysed your items by FSN. You see that in the ABC categories you have several items which are slow and non-moving. You need to tackle this.

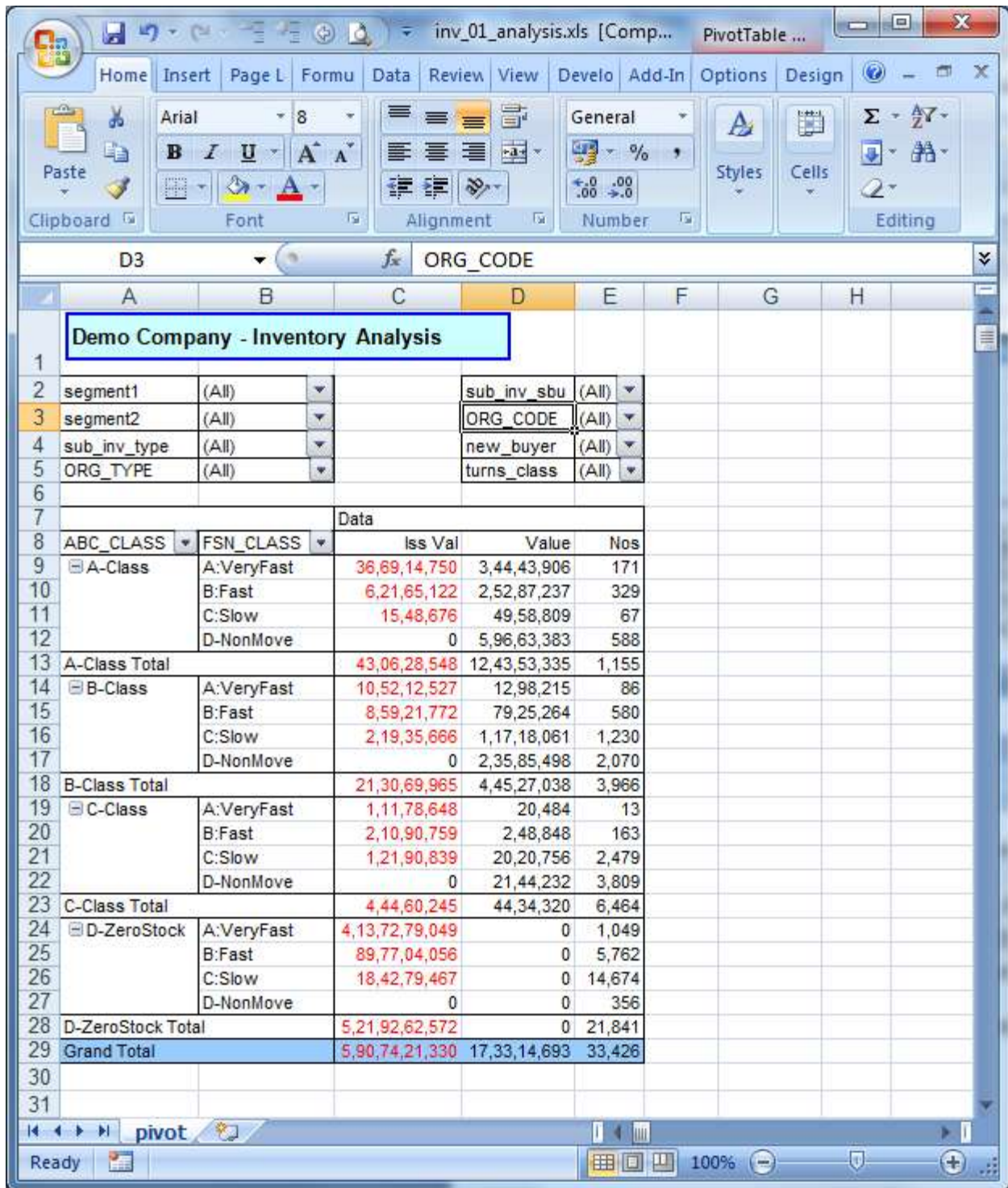


Figure 2 : FSN Analysis within ABC Analysis

Basu : (dropping his jaws) My god, this is fantastic. If I release these 588 items items, I will free up almost 60 crores worth of working capital.

MD : (dropping the buyer code) Now you see the items by their responsibility. You see each buyer has got a handful of items to concentrate on.

Demo Company - Inventory Analysis				Data		
new_buyer	ABC_CLASS	FSN_CLASS	Iss Val	Value	Nos	
Buyer-100	A-Class	B:Fast	4,83,822	2,73,276	2	
		D-NonMove	0	24,54,081	9	
	A-Class Total		4,83,822	27,27,358	11	
	B-Class	B:Fast	51,399	3,258	1	
		C:Slow	6,620	10,344	1	
		D-NonMove	0	58,536	3	
	B-Class Total		58,019	72,137	5	
	C-Class	A:VeryFast	5,54,329	1,976	1	
		C:Slow	14,815	1,840	1	
	C-Class Total		5,68,945	3,817	2	
	D-ZeroStock	A:VeryFast	1,57,38,925	0	11	
B:Fast		89,76,711	0	45		
C:Slow		12,73,964	0	89		
D-ZeroStock Total		2,59,89,599	0	145		
Buyer-100 Total			2,71,00,385	28,03,311	163	
Buyer-101	A-Class	D-NonMove	0	1,16,513	2	
		A-Class Total		0	1,16,513	2
	B-Class	B:Fast	2,95,517	58,352	4	
		C:Slow	2,16,061	1,04,768	13	
		D-NonMove	0	1,76,654	20	
	B-Class Total		5,11,578	3,39,775	37	
C-Class	B:Fast	2,90,062	2,316	2		
	C:Slow	49,863	11,888	11		

Figure 3 : Buyer Responsibility

- Basu : Wow, the report acts like a to-do list. Now I can just send this to the buyers and ask them to act on item. But sir, there is one problem, I still can't see the items on which the buyer is supposed to act.
- MD : (Drops the item description field) See all the items which are in A category and non-moving and belonging to Buyer – 100 are now seen. In fact you can send this report to each buyer and he can drill down himself and check the items.

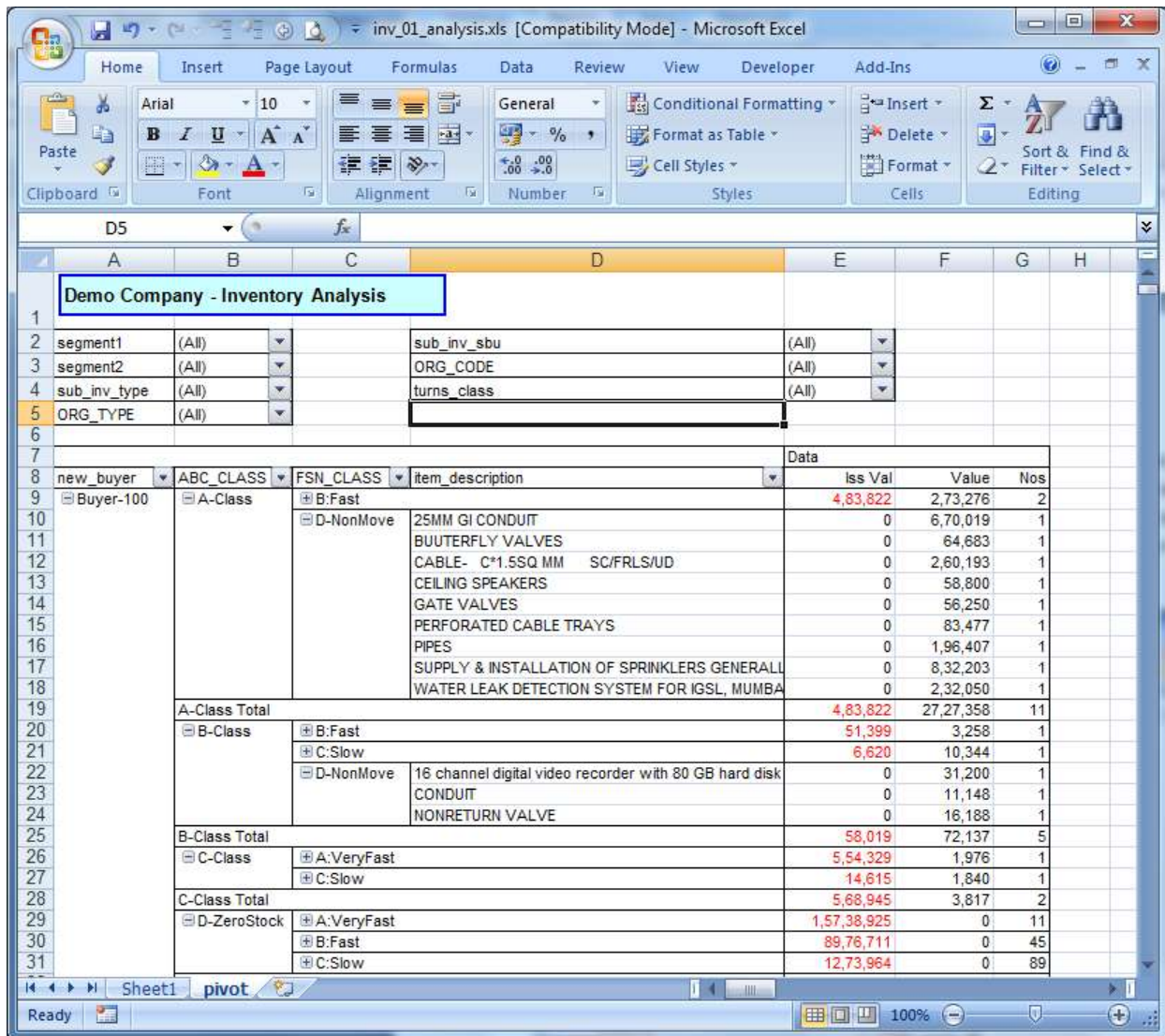


Figure 4 : Item level drill down

- Basu : This is great.
- MD : Similarly you can even check out the items having very low turns.
- Basu : Yes Sir. I saw a dimension in your report called 'turns class'. I am sure it holds the hidden secrets.

MD : (laughs) I see that you have got the hang of this module

Basu : Yes. But I am sure that you have spent a lot of money on this Sir.

MD : Not at all Basu. All that I did was to discuss with the BI developer what I wanted. They design these 'intelligent dimensions'. They say that these dimensions enable the users to quickly identify the problem areas and trigger action. Without such intelligent dimensions, I would have got lost in 35000 items. Now with just four clicks I can identify all non moving items on which you need to act.

Basu : Even then Sir, what is the cost ?

MD : Basu, if you reduce your inventories by half using this tool, then the cost of this tool will get recovered in 2 hours.

Basu : You must be joking Sir,

MD : I am dead serious Basu. I have used simple and easily available technologies, most of which we already have in our company. The front end is in Excel as you can see it. But with dramatic results. If you send this report to your users, you won't even have to train them. They can intuitively read the report.

Basu : Hats off to you Sir, I shall definitely act on this.

MD : Thanks Basu. And my regards to your wife.

On his way out, Basu drops the thick folder which he was carrying in the dustbin. Totally useless and non-actionable, he thinks.

I like to imagine that first of all Basu took flowers for his wife that evening and complimented her. She looked at him suspiciously, but when he narrated the events of the day, she felt happy and appreciated.

He then vigorously implemented this BI module. He strengthened his Material Requirement Planning system. He implemented a strong supply chain module which improved the communication with the vendors and enabled just in time supplies. He was able to get his inventories down to about 50% in three months time.

Both he and the MD were happy men !

BI Design Principles :

When you design BI reports think about the business benefits. Think about not just the reporting aspects, but think about how a business man will look at the report. Is it just another analysis, or is it leading to actionable information which will help the bottom line.

About the Author:



Sanjay Shah (B.Com, CA) is the CEO of Prosys Infotech Private Limited, a Pune; India based company specializing in developing BI solutions on the Microsoft BI Platform. Prosys has developed BI solutions for various companies like Honeywell Automation India Ltd., Alfa Laval India Limited, Kirloskar Group Corporate Office, Kansai Nerolac Paints Limited etc. He can be contacted at sanjay@prosysinfotech.com.

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