BI Aaj Kal !

August 2009

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Introduction

This article is named after a recent hit movie – "Love Aaj Kal". The movie highlights one very important fact viz certain truths like love never change with time.

Management Information Systems (MIS, or BI as techies call it) is one thing about business which will never go away. It may change its form or delivery mechanism. But without MIS nothing will work. I liken MIS to lubricating oil. Oil is very low cost as compared to the investment in plant and machinery, but without this, the entire operations can come to a grinding halt.

Thousands of years ago, Egyptians reported how many slaves had come to work, how many were absent and how many were whipped. Today companies have full HR departments giving probably similar information. Jokes apart, MIS has been, is and will be always there... though it will evolve over time.

We are passing through a very exciting phase of MIS evolution. And this is what I wish to talk about in this article.

I can give you every report out of ERP

Recently a very senior consultant whom we know came to me and said that at one of his client companies the person in charge of the ERP system has declared that they don't need BI, and that he can give every report straight out of the ERP system.

This made me wonder - do people really know what BI is ? Is BI just another fancy reporting mechanism with a lot of visuals and bells and whistles ? I think not. I think modern BI is a quantum jump from traditional MIS. With aid of the new technology and proper application of design principles, modern BI has truly come of age as a decision support mechanism.

For theorists, there are a lot of definitions available on the web. But I would like to drive home the point by a couple of examples.

Traditional BI

Traditionally BI generally consisted of reports generated out of the ERP systems. The user would give a plethora of parameters, and then the system would churn out a report. For every different view, there would be a separate report.

This report would either be a text based report, or an Excel dump of a text based report. People loved the excel dump as they could then format it, make it look good and then send it to their management. Excel tools like text-to-columns, vlookups, excel links, groups etc would be used to generate such reports. Take an example of a large business group which has various companies and having different business lines, The group CFO has to present a Group Corporate Profitability report to its chairman. After a lot of effort, the following report will be made :

9	Bone bront Page Layout Formula	Oata	Revew	View De	veroper /	sid-line				31 - 1		
	A	В	C	D	E	F	Ġ	H	4	1		
1	Profit & Loss									June		
2			_							Rs in mio.		
3	Particulars	CL	irrent Mon	ith	Y	ear To Da	te	For the Year				
4		Actuals	Budget	PY	Actuals	Budget	PY	Estimate	Budget	PY		
5	Inland Sales	1.069.97	963.04	841.35	3.172.53	2,735.12	2 256 31	13,334,21	13.334.21	10,106,11		
6	Export Sales	84.54	103.20	93.16	243.21	288.90	279 79	1,789,85	1,789.85	1.056.57		
7	Inter SBU Sales	129 73	100.43	41.11	322.03	273.32	107.26	1.617.95	1,617.95	631.51		
8	Total Sales	1,284.2	1,166.7	975.6	3,737.8	3,298.3	2,643.4	16,742.0	16,742.0	11,794.2		
9	Operating Income	26.9	30.3	35.6	92.6	77.3	99.2	374.3	374.3	396.4		
10	TOTAL INCOME	1,311.2	1,197.0	1,011.2	3,830.4	3,375.6	2.742.6	17,116.3	17,116.3	12,190.5		
11		1775-034N		228.0.202	Production of the second	Constraint of the		0.000000				
13	Discount & Commission	26.6	21.4	19.2	76.0	63.0	45 7	286.5	286.5	199.3		
14	Material cost	1,199.3	1,060.3	902.9	3,537.3	3,045.2	2.447.5	15,482.4	15,482.4	10,784.4		
15	% to Total Sales	93.4%	92.6%	92.5%	94.6%	92.3%	92.6%	92.5%	92.5%	91 4%		
16	variable SGA expenses	54.2	56.4	41.6	156.1	147.3	126.8	724.7	724.7	581.8		
17	Value added	31.2	39.0	47.5	60.9	120 2	122.5	622.7	622.7	625.0		
18	% to Total Sales	2.4%	3.3%	4.9%	1.6%	3.6%	4.6%	3.7%	3.7%	5.3%		
19	ERE	96.9	94.4	85.2	278.3	287.8	253.5	1,158.9	1,158.9	976.8		
20	Other Mfg. Expenses	35.6	30.3	28.3	93.3	87.9	77.5	369.1	369.1	335.9		
21	Depreciation	24.6	28.4	23.0	74.4	82.6	68.7	405.6	405.6	279.8		
22	Cost of Sales	1,437.2	1,311.1	1,100.2	4.215.5	3,713.8	3,019.7	18,427.3	18,427.3	13,158.0		
23		where										
24	GP	- 126.0	- 114.1	- 89.0	- 385.1	- 338.2	- 277.1	- 1,311.0	- 1,311.0	- 967.5		
26	% to Total Income	-9.6%	-9.5%	-8.8%	-10.1%	-10.0%	-10.1%	-7.7%	-7.7%	-7.9%		
26		1	a mana	-	al arrest	auco	or myana					
	Fixed Selling General & Administration Exp	63.8	72.2	52.7	195.3	215.5	146.3	903,4	903.4	700.6		
28	OPBIT	- 189.7	- 186.3	- 141.8	- 580.4	- 553.7	- 423.4	- 2,214.4	- 2,214.4	- 1,668.0		
29 30	% to Total Income	-14.5%	-15.6%	-14.0%	-15.2%	-16.4%	-15.4%	-12.9%	-12.9%	-13.7%		
	interest	5.0	8.5	4.6	22.1	26.1	142	157.1	157.1	57.7		
	+ H Title Index Phil 85 Ratios			100			- 11			Real Property lies		

Figure 1

Each SBU of the group will send its financials in the pre defined format. One person at the corporate office will link all the sheets and made this cover page which gives the big picture of the entire group. If the chairman asks for the company wise breakup of the sales, there will be a scramble for the underlying sheets. If he wants to study trend over past 3 month, different workbooks will be opened. Finally he will get so frustrated with the speed of response, that he will stop asking info.

When I searched on Wikipedia for the definition of BI, I found this very startling piece of research of Gartner Group : (http://en.wikipedia.org/wiki/Business_intelligence)

A 2009 Gartner paper predicted these developments in business intelligence market.

- Because of lack of information, processes, and tools, through 2012, more than 35 per cent of the top 5,000 global companies will regularly fail to make insightful decisions about significant changes in their business and markets.
- ...

The traditional BI suffers from the following major drawbacks :

Time Consuming	 More time is spent in making the report manually, rather than validating/ analysing the same. The reports are static and therefore limited & unsatisfactory response to Management's questions.
Non Interactive	• Automation based on Excel links or 'vlookups' etc. are not real automation, as information loses its interactivity and intuitiveness.
Person Dependent	 These MIS methods are person dependent and error prone. Manual Intervention in taking data from base systems.
Not Timely	Information may also not be received within the required time.
Insufficient Information	• There is too much data, but too little information out there. Many a times it is not possible to process the data manually.
Poor Security	• MIS and other sensitive data remain in vulnerable locations, making data access and security regulations impossible.

Modern BI

Modern BI does not necessarily mean new and fancy tools. Even with the existing tools you can do wonders. However the approach and design has to change. The above excel based report sent to the chairman, was later converted to a 'modern' report as shown below :

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	Sales		13,673	14,897	11.530	40.065	44,002	34,374	195,445	199,148	196,721	
	Operating income		178	155	163	543	478	484	1,885	1:571	2,259	
	Total Income		12,549	15,145	11,692	41.211	45.331	34,542	197,320	201.020	156,780	
	Dyact Cost		10,138	11,105	8,383	30,108	23.201	24,772	145,252	145:155	114,881	
	Variable 5GA Exper	1965	324	346	273	982	1,082	821	4,625	4,888	3,589	
	Value Applica		3,366	3.696	3,037	10.114	10.968	9,248	47,417	40,553	42,219	
	Employee Cost		919	984	872	2,788	2.907	2,922	11.581	11.595	10,540	
	Other Mitg Expenses	6	396	432	291	1,107	1,272	1.120	5.502	5,000	4,554	
	Depreciation		258	294	245	787	873	745	3.775	3,794	3,898	
	Cost of Sales		12,037	12.142	10,165	30.045	29,405	30.090	170.768	173,905	130,963	
8	Grass Profit		1,612	2.006	1,525	5.367	E.932	4,753	28.565	27,11+	21,817	
	S&M Expenses		745	789	678	2,195	2,258	1,836	8,547	9.550	8,952	
	0/8/7		1,086	1,247	847	2,171	1.863	2,917	17,013	17,558	12,855	
	Finance Cost		167	174	151	588	\$54	432	2,281	2,297	1.850	
	OPET		599	1.073	896	2,657	1150	2,385	14,212	45,351	11,005	
	Non-Op income		815	255	213	1.570	529	561	2.059	1.758	2,003	
	tion-Op Expense		57	74	195	188	215	854	885	543	2,50+	
	Previous Years Inco	orre/Expense	a		1		E.		1	0	0	
	Profit before Tax	1.4.4	2,811	1,254	722	5,014	3,477	2,318	18,988	16:322	86,237	
	Taxation		208	313	177	801	940	eqs.	4.320	4,842	2,421	
	Prott after Tax		2,403	941	543	×413	2,637	1.714	12.675	11/478	13,215	
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So, you may ask, apart from a nice color scheme, what is the difference ? Bill Gates in his book 'Business @Speed of Thought' has mentioned :

"What digital tools do that paper reports cannot is give everyone the ability to ask the next question. Because you never know what that question is. Because you never know what that question is going to be, you need tools that help you explore the answers on your own."

Since you don't know what your chairman is going to ask you, you need a tool like the above. Your chairman wanted to know company wise breakup of sales, just drag the Company dimension next to the sales, and you have company wise sales :

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		III Salea	C01		5,995	5,354	4,552	15,200	15,813	12,854	74,843	74,150	59;912
			002		3.057	3.547	2.312	3,895	30,066	8,827	\$1,105	\$1,106	35.504
			603		883	1.058	992	2,819	3,100	3,056	16,500	16,500	13.347
			C04		1,570	2,047	1,531	4,704	0.633	\$.117	10.676	21,245	10,400
			C05		331	335	143	1,143	1,180	429	1,458	3,458	2,704
			COE		3,210	2,857	2,003	0,540	7.865	8,294	31,433	32,339	27,290
		Sales Tatal	2		10.673	14,993	11,530	40,668	44,852	24,274	196.485	199,148	156,721
		IT Operating Income			676	155	163	243	478	489	1,555	1,571	2.019
		HTstal hosnie			13,848	15.148	11,693	41,211	45,301	34,843	197,220	201.820	156,780
1		H Drect Cost			10,138	11,105	8.383	20.105	23,261	24,773	145,282	148,155	114,501
		WVariable SGA Expenses		_	32#	348	273	992	1,082	821	4,620	4,998	3,999
		H Value Addton			2,366	3,698	3,037	10.114	12,355	8.245	47,412	40,102	+1.710
		B Employee Cost		-	915	964	873	1,790	2,907	2,622	11,593	11,595	10.840
		30 Other 10 fg Excenses		_	398	432	291	1,181	1,277	1,125	1.502	2,082	4,504
		#Depreciation	-	_	255	294	248	787	673	745	3,775	1,794	3.098
		it Cost of Sales		_	12,037	13,142	10.168	14.345	39,400	32,290	172.780	173,966	136,963
		H Gross Profit			1,812	2.008	1.525	1,367	E.532	4,753	28,960	27.114	21,817
		IR S&H Expanses			745	758	875	2,155	2,288	1,858	3,547	3,558	1,362
		H OPBIT			1,088	1,247	847	1.171	1.663	2,817	17,013	17,558	12,885
		Ill Finance Cost			187	174	151	515	±14	432	2,201	2,207	1,850
		HIOPET			095	1.073	695	2,857	3,150	2,365	14,813	1E,351	11,005
	Traffic	HiNon-Os Income		pet	â15	250	213	1.570	525	58 t	2.050	1.723	2 033

Figure 3

He also wanted to know the trend of the past few months. Again drag and drop and here it is :

Home	Incert Page Layout	Pormulat	Data			Develope	r ädd-lr	n Optio		ign		#
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0	Year	2005-08	15		980 (Å	a) +	1	Company A	AI) *	1		
	Account	(48)			SBU Group, 1A	5 ×						
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FTH YTD LE		Voitt	1.27	1.00	FTM_AOP	FTM_PY	YTD_ACT	TTD_AOP	YTD_PY	FTY_LE	FTY_ADP	FTY_P1
	III Sales	It-April		2,507	2,848	2,218	2,507	2,848	2,218	38,671	39,631	31,344
115		\$2-May		2.800	3,108	2,413	5.307	1.967	4,531	38.327	35,530	31,344
		03-June		2.883	3.148	2,582	8,208	8,525	4,193	29,125	34,834	31,344
1120 1100 0001		04-July		2,782	2,845	2,209	12,981	11,950	6,102	38,651	28,830	31,344
		15-August	_	2.682	2,043	2,428	12.873	14,993	\$1,550	38,811	38,830	21,24
	Sales Total			13,073	14,923	11,530	40,868	44,852	34,274	125,485	139,143	156,72
	# Operating Income		_	178	195	163	843	475	469	1,855	1,871	2,05
118 # W # #	E Total Income	1	_	12,849	15,145	11,893	41,211	45.231	34,343	197,320	201,020	158.78
	IE Direct Coal	-	_	10,128	11,105	\$,383	30,108	25,261	-24,773	145,282	148,153	114,001
	III Variable SGA Expenses		_	324	348	273	992	1,082	821	4.820	4,895	3,599
	# Value Addition	1	_	3,365	2,695	3,037	10,104	10,688	9.248	\$7,417	48,182	40.311
	#Engloyee Cost	-	_	\$19	\$64	875	2,784	2,907	2.822	11.581	11,595	10.841
	E Other Mfg Expenses		_	386	432	381	1,181	1.277	1,129	5,582	5,680	4,564
	#Depreciation		_	258	254	248	787	. 872	741	3,775	2,794	3.0H
	H Cast of Sales	1	_	12,037	12,142	10,160	35,845	29,423	30,293	179,760	172.508	138,983
	E Gross Profit		_	1,812	2,006	1,525	E.367	5,932	4,753	28,960	27,114	21,81
	# S&V Expenses	-		745	719	878	2,185	2,256	1,936	3:547	5,556	0.95
	H OPB/T		_	1,068	1,247	\$47	2:175	2,683	2,817	17,013	17,553	12.855
	#Finance Cast	_	_	167	174	151	5†5	514	432	2,201	2,207	1.85
	10 CP57			199	1,673	191	2,657	3,150	2.381	14,813	35,221	11,005
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Figure 4

Not only this, but any permutation and combination of the dimensions given in rows 2 and 3 can be done to generate an infinite amount of views. Soon the Chairman will be answering his own questions ! (Phew , what a relief !)

As you would have noticed, the report is still in Excel ! However the underlying methods have changed.

Such MIS models can be generated for all domain areas, and they can quickly answer questions of your management, and help them in taking decisions based on facts, since facts are now at their fingertips.

Automatic	Automatic data acquisition from ERP/Non-ERP Sources
Database	Storage of raw & processed data in a database server .
Additional Dimensions	Additional data, dimensions and application of business rules to create dimensions not existing in the ERP
Fast & Accurate & Automatic	Fast, Accurate and Automatic Report Generation & Distribution
Interactive	Interactive Reporting – slice, dice, tabulate, graph, filter
Controlled Access	Access control of MIS Data, and easily accessible
Secure	Security of MIS data as it is server based and can be backed up centrally.

The following are the major advantages of the new and modern BI :

BI Design Principle:

When a BI report is being designed it is important to study what the company has been currently doing. Don't try to reinvent the wheel. Go through all the reports which are currently being used. Ask sharp questions, and don't take 'No' for an answer. If in one corner of a report you see a particular number, ask what it means. For all you know it may be a performance measure of the department. As BI designers, we must give the users what they are already getting, and then more. Also remember that just buying a BI tool will not alleviate your problems...it is the design which will make all the difference.

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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