



# THE CHALLENGES AND Solutions for improving UNDERSTANDING OF



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# Content

Foreword	
Message from Aegis Business School	1
1. Introduction	2
2. Evolution of BI (Business Intelligence)	3
3. Current Challenges	4
4. Artificial Intelligence (AI) and Natural Language Generation (NLG)	5
5. Intelligent Narratives for Faster Data Analysis and Interpretation	6
<ul> <li>6. Business Scope</li> <li>BI Reports</li> <li>Performance Analysis</li> <li>Research Reports</li> <li>Customer Engagement</li> </ul>	8 10 11 12
<ul> <li>7. Case Studies</li> <li>A Leading Indian Bank : Performance Analysis, Generating Mobile Banking and Net Banking Penetration Reports and Portfolio Analysis</li> <li>An FMCG Conglomerate: Regional Product Performance Report</li> <li>A Stock Broking Company: Quarterly Analysis Report</li> <li>A Prime Pharmaceutical Company: Performance Report</li> </ul>	18 22 24 26



### Foreword



Neerav Parekh

The Global Business Intelligence (BI) Tool market is expected to grow from \$15.64 billion in 2016 to \$29.48 billion by 2022 with a CAGR of 11.1%. Data scientist and Data Analyst jobs are expected to grow by 28% by 2022 in US. Both points indicate the evolution of companies in the data understanding space. Manually or with a tool, companies are progressively buying into the idea of pulling out insights from their data reserves.

Though the evolution is promising and very much in line with what was expected, it has failed to leap frog with the sudden introduction of Artificial Intelligence in the business world. Artificial Intelligence has not only brought Machine Learning algorithms but also niche technologies like Natural Language Generation (NLG). The capability of a machine to write like a human, yes! A machine can write like a human and has already passed the Turing test.

In the Business World, NLG will do to charts and tables, what alphabet has done to cave paintings, replace. Humans evolved over a few thousand years to move from cave paintings to alphabet. Similarly, Business Intelligence has evolved and is at the juncture to be replaced by a convenient medium - summarised insights.

vPhrase started with the vision to make this transition simpler and help companies embrace the new way of generating and consuming insights.

## Introduction

Business Intelligence (BI) involves the delivery and integration of relevant and useful business information in an organization. It is a set of methods, processes, architectures, applications, and technologies that gather and transform raw data into meaningful and useful insights. It is used to enable more effective strategic, tactical, andoperational insights and decision-making to drive business performance.

Companies use BI to detect significant events, and identify and monitor business trends in order to adapt quickly to their changing environment. A good BI strategy helps gain insights into customer behavior, improve efficiency, gain sales and market intelligence, turn data into actionable information and stay ahead in the competition.

Effective BI tools and strategies have been the major contributors to Amazon's success, making it the largest Internet retailer in terms of revenue and market capitalization, and second in terms of total sales. Their personal recommendation system has consistently proven to be useful in striking a chord with clients. At root, the retail giant's recommendation system is based on a number of simple elements: what a user has bought in the past, which items they have in their virtual shopping cart, items they've rated and liked, and what other customers have viewed and purchased. Amazon calls this homegrown math "item-to-item collaborative filtering," and it has used this algorithm to heavily customize the browsing experience for returning customers. A gadget enthusiast may find Amazon web pages heavy on device suggestions, while a new mother could see those same pages offering baby products. Judging by Amazon's success, the recommendation system works. The company reported a 29% sales increase to \$12.83 billion during its second fiscal quarter, up from \$9.9 billion during the same time last year. BI helps Amazon do data-driven marketing with onsite and email recommendations. Data about the customer is collected and analyzed in order to serve them better by targeting the right customer at the right time with the right product and thus gain customer trust and loyalty. Data collection methods include but are not limited to tracking past buying behavior, quality of customer service calls and social media sentiment analysis.

## **Evolution of Bl**

The biggest leap in the business intelligence history came with the development of the hard drive. Invented by IBM in 1956, hard disk drives allowed for storage of vast amounts of data. This technical innovation served as the foundation for modern business intelligence. Without a digital representation of data, it's hard to use business intelligence tools that look anything like modern ones.

BI solutions in the 90s were extremely expensive. Database administrators had to run complex queries on the database in order to get information. It also took a large amount of time to run a simple query. Once a question was "engineered," one could learn the answer quickly, but only for that question. These systems were not very flexible, and only the biggest companies could afford the budget for these solutions. Since the questions took so long to set up, companies inevitably focused on their core KPIs and nothing else when using BI – which is not conceivable today. Another BI tool, the spread sheet, gained momentum with the advent of personal computers. Most often in the form of Microsoft Excel, the spreadsheet has an intuitive interface, supports basic functions and is easy to learn. However, the spreadsheet is often too detailed to give a quick and comprehensive overview of business data.

OLAP systems gave way to a new generation of BI. OLAP stands for On-Line Analytical Processing, and these OLAP cubes were the precursor to modern real-time analytics platforms. In the past, IT users were the only ones able to access databases. OLAP cubes allowed business users to query a database using simplified tools and filters rather than a command line prompt. They also were faster than data siloes due to the fact that they only read and analysed data, and didn't create new data. These OLAP cubes started being used in the late 1990s after Microsoft developed the MDX language to interact with them.

Over the course of the 21st century, data began to grow exponentially and advanced mechanisms to store this data were introduced. Such data came in various forms – structured or unstructured, and at a high speed in high volumes. It is termed 'Big Data', characterized by the three Vs: volume, velocity and variety. Big Data is processed real-time through frameworks like Hadoop. Contemporary BI systems are able to analyse Big Data due to increase in their processing prowess and flexibility. Real-time processing allows for completely up-to-date information to be used in business decision making. Information is presented in the form of dashboards, which contain graphical elements like pie charts and graphs that show patterns in the data to aid decision making.

# Current Challenges

As per the statistics, about 1.7 megabytes of new information will be created every second for every human being on the planet by the year 2020. Data is growing faster than ever before and with sophisticated mechanisms like the cloud, it can be efficiently collected and stored. However, less than 0.5% of all data is analyzed and used at the moment. This is because organizations have limited time and resources

that can be dedicated to data analysis and interpretation.

Dashboards focus on the company-specific Key Performance Indicators. The graphical elements on a dashboard put forth the big picture but miss out on the finer nuances involved in data presentation, resulting in hidden insights often being missed. Although a huge amount of data with potential value is collected, dashboards don't do much to make the most out of it. Moreover, the manual interpretation of dashboard content requires a certain level of technical expertise and in most cases is biased, erroneous, incomplete and time-consuming.



Dashboards don't do much to help understand data in its totality, extract value from it to uncover insights and translate them into business outcomes. Most often dashboard users wish for the content to be explained quickly in a simple language.

Talking business, organizational productivity goes down when employees have to spend their interpreting dashboards, instead of focusing on higher value activities like strategic planning and decision making. Analysis of loads of real-time data is way beyond human capabilities, which results in losing out on significant current opportunities. Despite heavy investment made, current BI tools don't do as much to help firms realize their full potential and reap benefits. Intelligent Narratives, based on Artificial Intelligence (AI) and Natural Language Generation (NLG), are the solution to this perennial problem. Let us understand AI and NLG to drive the point home better.

Particular applications of Al include expert systems, speech recognition and machine vision. Al can perform tasks such as identifying patterns in the data more efficiently than humans, enabling businesses to gain more insight out of their data.

NLG is a subset of AI. NLG software turns structured data into written narrative, writing like a human being but at the speed of thousands of pages per second. NLG makes data universally understandable and seeks to automate the writing of data-driven narratives like financial reports, product descriptions, meeting memos, and more. The application of such software can be extended by passing its textual output through Speech APIs to generate voice output. Intelligent personal assistants like Siri, Cortana, Alexa and Google Assistant make use of this technology, in conjunction with Speech Recognition and Natural Language Understanding to comprehend the question and its meaning, dissect it, determine appropriate action, and respond back in a language the user will understand.

### Intelligent Narratives for Faster Data Analysis and Interpretation

As mentioned earlier, Intelligent Narratives are the solution to achieving faster, more reliable and automated data analysis and interpretation, and thus better performance. Intelligent Narratives supplement the graphical elements on dashboards and add more value to the information communicated. They give a quick, compelling and coherent account of

the data, present information that matters most to the user and aid faster, better decision making. With narratives, data is presented in the form of stories – in conversational language, and is translated into useful, actionable insights.



Intelligent Narratives are generated as output from NLG platforms like PHRAZOR by vPhrase. The platform automates the analysis of data and presents it in narrative form, cutting down time and cost by a huge amount. Such a platform seamlessly integrates into one's existing system architecture. It is configured with the domain knowledge and technical expertise of the best within the organization. It goes way beyond template-based report generation software and internally works on algorithms that emulate a human expert, albeit in seconds, and with much larger and complex data as input.

Intra-organization, such platforms can be configured to generate reports for everyone, whether it is an asset manager, salesperson, a technical lead or an executive. Also, the reports can be customized as per the level of detail and type of information needed. Reports are generated on the fly by analyzing massive volumes of data, ensuring that insights are buried and current opportunities aren't lost. Intelligent Narratives complement dashboards as seen in the following snapshot:

 The spends of Vaseline decreased by 15.81% in last quarter of 2016 as compared to last quarter of 2015, while the sales increased by 13.69%. HUL spent 32.09% (Rs. 43.84 cr.) of its total spends in 2016 on Vaseline during this period.



- The penetration of Vaseline for Oct-16 to Dec-16 quarter saw a drop of 3.13% as compared to the same period in 2015, when its spends on TV dropped by 4.48%.
- Considering the 2015 and 2016 data, a correlation of 0.8 was seen between TV spends and penetration of Vaseline.
- Vaseline in Dec-16 had the highest Top of the mind value among other brands at 44.2 followed by the Non HUL brands of Boroplus and Nivea at 7.6 each. Vaseline spent Rs. 9.89 cr. on TV and Rs. 0.81 cr. on print and radio in this period, with a drop of 72.26% on print and radio spends as compared to Dec-2015
- Vaseline had the highest value for providing long lasting moisturization in Dec-2016 at 71 which was followed by Nivea in Non HUL brands at 41.6. Vaseline also was the leading brand in this period for healing dry skin with a value of 75.6 followed by Nivea in Non HUL brands at 42.

This is a brand performance report generated by PHRAZOR for a leading skin care product. As we can see, an explanation in conversational language complements the graph, to aid quick and better understanding, and thus faster decision making with respect to the product's marketing.

# Business Scope

### **BI Reports**

Channel Performance Reports:

BARC (Broadcast Audience Research Council) India is an industry body set up to design, commission, supervise and own an accurate and timely television audience measurement system for India. It provides periodic performance reports and rating data to news, entertainment and other

channels. These reports help media houses track their growth and analyze where they stand in the competition. Gigabytes of data is supplied by BARC weekly, out of which data analytics team pulls out insights for each show manager. This activity is time consuming & hence by the time the show managers receive in-depth analysis it is already a new week. Also, considering the overwhelming size of the data, subtle insights are most likely to be missed. For instance, it is difficult to trace back the cause of increased or decreased TRP ratings. Standard reports in use currently put forth the results, without explaining the 'why' behind them. With an NLG platform, we have complementary, automated narratives that explain performance in an intelligible manner, thus providing better insights in seconds. To get a fair idea, consider the following report generated by an NLG platform:

## Week 25 Viewership – Kannada

### TG: Universe | Target - 58875.96

- Star Suvarna saw viewership rise by 34.2 GVMs (20%) as compared to last week. This was
  mainly due to increase in viewership of 6 to 10 PM time slot airing 'GOOD KNIGHT PARIWAR
  AWARDS-2017' (270%) on Saturday and 6 to 9 PM movie 'KFF-MAANIKYA' (126%) on
  Sunday.
- Viewership for Udaya Comedy rose by 10.7 GVMs (18.46%) from last week and was mainly driven by increase in viewership of slot 6 to 9 PM movie 'KFF-KOTHIGALU SAAR KOTHIGALU' (57%) on Saturday.



### Top Programs by Viewership as per TVT

At a glance one, the channel's performance in the current week can be compared with the previous one. The way in which the inclusion/exclusion of certain shows on the channel impact its popularity can also be gauged. The platform can be simply integrated with existing systems via a plugin and can be configured to provide analytical reports based on specified input parameters.

### **Performance Analysis**

Employee Performance Reports:

A sales manager might want to gauge the performance of his team members to help him manage them better, identify areas that need to be worked upon and assign future responsibilities as per their strengths. Going through reports of 30-40 such people and thoroughly analyzing those reports would be quite a task. Also, the sales manager might want to do a periodic evaluation of his own performance. In both these cases, tables, dashboards and graphical elements wouldn't be much help. The same also applies to performance reports of relationship managers and others in an asset management company. NLG platforms can be used to make such performance reports more readable. They step in to robotize the process of data analysis and report writing, saving resources and aiding faster, reliable decision making. The following is a report in a narrative format, explaining a bank's progress in keeping up with its goal of digitizing its operations with net banking and SMS banking, zone wise.

### Overview

- In terms of target and achievement for Net banking, West 1 experienced a decreasing trend since the past three months, decreasing by 3% since August and 10% since July.
- West 1's SMS banking users and unique users exhibited an uneven trend over the 3
  months while the app users exhibited a consistently increasing trend.
- App users increased from 4.02 lac July-16 to 4.09 lac this month resulting in a 1.77% growth.
- SMS banking users and unique users in mobile banking decreased by -2.76% and -0.35% to 3.44 lac and 6.99 lac this month.



### Channel Performance





### **Research Reports**

### Credit Risk Reports:

In the current market conditions, lending companies want to be compliant and completely sure before lending even a dime, but without impacting the business. Companies have thousands of individuals and organizations reaching out to them daily for credit and it becomes difficult to manually make financial analysis reports for risk assessment, audit and compliance at scale. NLG platform with analytics capabilities takes care of the complex number crunching along with narrative based commentary for compliance purpose. A machine generated research report looks like this



Net Profit has been increasing year after year during the review period.

### 2012

Main factors responsible for the growth in Gross Profit in FY 2012:

- Decline in cost of materials and finished goods consumed as a percentage of revenue.
- Decline in purchases for resale as a percentage of revenue.

Nevertheless, this was diminished by growth in salaries and wages, growth in other direct expenditure an growth in sub contract / job work charges.

Main factors responsible for the growth in Operating Profit in FY 2012:

- Growth in gross profit as a percentage of revenue.
- Growth in other operating income as a percentage of revenue.
- Decline in depreciation / amortization and depletion as a percentage of revenue.

Nevertheless, this was diminished by Additional expenses towards community development and donatior which were not present the previous year, growth in loss on foreign exchange transactions and growth in selling and distribution expenses.

Main factors responsible for the growth in Net Profit in FY 2012:

- Growth in interest income as a percentage of revenue.

### **Customer Engagement**

Client Portfolio Statements:

Leading financial services providers send out a quarterly portfolio report to their clients, aiming to give them an overview of their financial health and the state of the investments they have made. These reports are in a tabular format, with all numbers and technical jargon in it, making it difficult and time-consuming for the client to comprehend them

Debt Quality	Purchase Value	Current Value	Purchase Wei	ght % Current	Weight %	Returns	Returns %
Unrated	Rs. 365	Rs. 417	9	8.38%	98.48%	Rs. 52	14.259
AAA	Rs. 6	Rs. 6		1.62%	1.52%	Rs.	0
AA	Rs.	Rs.		0%	0%	Rs.	
Inderlying Port	folio				10207 121		
Instrument Name			Instrument Type	Purchase Qty	Purch	ase Price	Close Date
Axis - Equity Fund (G)		2	Mutual Fund	593.28	593.28 13.4		2014-03-31
Birla SL - Frontline Equity Fund Reg (G)		1	Mutual Fund 2:		0 106.53		2014-03-31
Birla SL - Frontline Equity Fund Reg (G)		1	Mutual Fund	111.03	108.08		2014-03-31
Franklin - India Bluechip Fund (G)			Mutual Fund	409.81		224.50	2014-03-31
HDFC - Equity Fund (G)		2	Mutual Fund 268		269.96		2014-03-31
HDFC - Top 200 Fund - (G)		1	Mutual Fund 110.2		226.73		2014-03-31
HDFC - Top 200 Fund - (G)		Mutual Fund	112.89	112.89 221.45		2014-03-31	
ICICI Pru - Focused Bluechip Equity Fund Reg (G)		I	Mutual Fund	3195.78	3195.78		2014-03-31
IDEC - Premier Equity Fund Reg (G)				2899.84			

In this case, clients need to rely heavily on wealth managers to get a clear understanding. With a Natural Language Generation (NLG) platform in place, clients get the personalized outreach that they expect. Such platforms generate reports that contain narratives which provide explanation in an easy-to-understand manner. The report generated by such a platform looks like the following,



Such narratives empower the client. They give a voice to the data. They are not only self-explanatory, but also present all that the client needs to know, in a language that's simple and comprehensible. They accomplish the actual purpose of sending out a quarterly portfolio statement – improving client engagement, explaining fund performance and communicating to them about how exactly the firm is helping them progress towards their financial goals. This helps them connect better, which goes a long way in client retention and as a result, increased revenue for the financial services firm. If a wealth manager was to provide such a tailored portfolio commentary to each investor, it would mean a great deal of time spent analyzing raw data and writing. The task is an arduous one and scalability would always be an issue. NLG platforms automate the task of analyzing client profiles and generating personalized narratives in conversational language. These platforms are secure, reliable and seamlessly integrate into an organization's existing architecture to produce well-researched output within seconds. They are fed in with the domain knowledge of experts and can be configured to reflect the tone and style of the host organization. With data analysis and report generation now faster, automated and simplified, wealth managers and analysts can concentrate on higher value activities that involve strategic planning and decision making. Bank Statements:

Most people just skim through their bank statements, without putting much thought into how their investments could have been better or how they could have spent more wisely. NLG platforms can analyze bank statements and give people a quick summary of their banking transactions in a manner that is intelligible. Additionally, the customer's investment decisions and spending habits are tracked to notify about deals best suited for them. Such platforms also provide recommendations that would help customers make better investments, plan ahead and save money. Sample the following,

#### Dear Customer,

Your current account balance amounts to Rs.1,402 while your savings bank account balance is Rs. 65,831.

#### Transaction Overview

In total, you have made debit transactions worth Rs. 31.36 Lakh, while credit transactions amount to 9.19 Lakh. 61% of your transactions have been from your bank account, with a value of Rs. 24.75 Lakh, while 39% of your transactions are via Credit card with a value of Rs. 15.8 Lakh.

This quarter your investments amounted to Rs. 5,17,927.95, the breakup of which is given in the table.

Category	Name	Cost(INR)
Insurance	Max Life Insurance	51936.04
Mutual Fund	CMS/ICICI Prudential Mutual Fund	465991.91

Simple actions that can enhance your banking experience:

#### Insurance

We noticed that you paid a Max Life Insurance premium of Rs. 52,000. Have our personal banker visit you and check whether this insurance provides enough coverage for you. \_\_\_\_\_\_\_ is the first bank in India to partner with three of India's leading life insurers – Birla Sun Life Insurance, Tata AIA Life and Aviva Life Insurance Company on a single platform and our bankers are the best people to talk to when it comes to insurance.

#### Internet/DTH Bills

We noticed that you paid internet/DTH bills worth Rs. 16,500. Say goodbye to running out of talk time or missing your favourite shows by recharging your prepaid mobile and DTH connection on the go and at your own comfort with

This form of cross-selling not only benefits the customer, but also helps banks market their schemes well and make more profit.

#### Medical Reports:

NLG platforms are also useful in the healthcare domain. They encourage patients to play a more active role in their medical care by analyzing data about their health and presenting narratives in layman terms to help them grasp better. Picture a sample blood test report like the following,

WHITE BLOOD CELL	8.0	3.9 - 11.1	K/ul
RED BLOOD CELL	5.09	4.2 - 6.0	M/ul
HEMOGLOBIN	16.0	13.2 - 18.0	g/dl
HEMATOCRIT	50.5	38.5 - 54.0	%
MCV	99	80.0 - 100.0	fl
MCH	31.4	26.0 - 34.0	pg
MCHC	31.6	31.0 = 37.0	g/dl
RDW	15.5	11.0 - 15.5	%
PLATELET COUNT	225	140 - 400	k/ul
MPV	9.6	7.5 - 11.6	fl

As we can see, it includes medical jargon and numbers that are barely useful to the patient. All they can make out is whether the various components in their report fall within the healthy, permissible range. Narratives go way beyond this by not only explaining what exactly the terms indicate and their relevance, but also providing suggestions to cure a disease if any and stay healthy. In contrast to the above report, the one generated by an NLG platform would look like this,

### Dear Mohit,

We're happy to inform you that the results of your CBC test, conducted on 16-10-2017, have come out to be perfectly normal.

The White Blood Cell count is 8.0 K/ul, ruling out the possibility of an infection. The Red Blood Cell count is also in the expected range. The MCV (mean corpuscular volume) and RDW (Red cell Distribution Width) are however slightly on the higher side, indicating anemia, liver infections or nutritional deficiencies. Having mineral rich and fortified foods like spinach, tofu, white beans and fried beef liver is suggested, along with vitamin and mineral supplements as appropriate.

The parameters indicating haemoglobin level in the blood are healthy. The

To summarize it, NLG platforms have scope that spans across various sectors ranging from healthcare and banking to education and financial services. Such a platform is like a 'virtual expert' that is well equipped with the analytical skills, domain knowledge and technical expertise to automate the process of data analysis and write lucid reports. It revolutionizes the way data is approached and seamlessly integrates into the organizations existing architecture, while cutting down time and cost tenfold. The output, in the form of comprehensible narratives, is generated within a matter of seconds. The analysis is subject to bias or misinterpretation. Also, underlying insights are uncovered. This kind of a virtual expert can also be configured to reflect the tone and style of one's organization, to generate reports for different hierarchical levels within the organization and outside it, and to present reports having different levels of detail as needed.

# Case Studies

### A Leading Indian Bank : Performance Analysis, Generating Mobile Banking and Net Banking Penetration Reports and Portfolio Analysis

A leading Indian private sector bank which offers a variety of banking products and financial services to corporate and retail customers in areas such as personal finance, general insurance, wealth management, investment banking and

life insurance has been using NLG for performance analysis, generating mobile banking and net banking penetration reports and portfolio analysis.

### **Performance Analysis**

Prior to adopting an NLG solution, Wealth Managers at the bank were presented with dashboards, that contained tables, charts and graphs, intended to highlight their performance. Company was dependent on Wealth Manager's capabilities to use the dashboard and to comprehend the charts and tables. With dozens of client to be managed and each of the client having a custom portfolio, learning to use or using dashboards was of least priority to Managers. They always wanted someone to pull out insights from the dashboards and explain it to them. With the new NLG platform integrated with their systems, the reports include crisp narratives, coupled with statistical summary. This facilitates quick understanding and faster decision making. Here's a snapshot:

### **Overview:**

- You were successful in achieving 4 out of 8 target pointers.
- You successfully achieved targets in Acq, Incremental AUM, Credit Disbursement and Casya Ayb, however failed to achieve targets in MF mobilisation, PMS mobilisation, Revenue and Average AUM.
- You played a key role in helping your team to achieve Credit Disbursement as you generated 86% of your teams actual Credit Disbursement.
- You were the 2nd best performer at achieving targets among your peers.
- You were also among the top 10 performers at achieving targets in your region.
- You are the best performer at generating money in your team.
- P G44 is the best performer at achieving targets in your team and has successfully achieved all the 8 target pointers.
- You were able to achieve the targets in Credit Disbursement and Acq where only 2 people succeeded in achieving those in your team.

### Internet And Mobile Banking Penetration Report

With the advent of internet banking, the focus has been to shift the client base to the digital platform. But getting a user to change his way of using a service requires the company to understand his background, engagement with company, span of engagement, affinity to new way etc. The more data points the company has about the user, the better targeting it can do. With every additional data point the KPIs mapped to the employees increase. While it is important to have a user-friendly, secure and robust application to track all these KPIs, it is also crucial to track its acceptability and arrive at action points based on that. An NLG platform like PHRAZOR, which doubles up as a business analytics platform, springs into action in this case. Given structured data as input, it can analyze and present the patterns observed – namely, the percentage change in the number of mobile and net banking users spread out over a certain time-line, various geographical locations, etc.

 The percentage of Unique, NB and MB users has been increasing since the past three months.



 The growth of Unique, NB and MB users has however decreased compared to the previous month.

The table below gives an overall summary of the performance since the past three months

	No. of Live CRNs	No. of Unique	No. of NB Active	No. of MB Active
Month2	211007	87468	57103	48521
Month1	208032	82797	54441	45735
Month0	184482	72725	47999	40152

### Team Performance

 MSDR24 had the highest percentage of Unique, NB and MB users for the month. DHAR24 during the same period however had the lowest percentage of Unique, NB and MB users.

### Portfolio Analysis Reports

Wealth management and investment banking being the two major services provided, the bank aims to bring value to clients and help them manage their money better. Although its highly skilled asset managers take care of it, the challenge lies in educating the clients about their financial health and investment status. Most clients have a difficult time in understanding finance-related jargon, graphs and numbers on their periodic portfolio report and need to rely heavily on agents to do it for them. It's humanly impossible for professionals to make such easy to understand reports for each of clients or explain the financials over a call or by meeting them. With PHRAZOR presenting all that they need to know in a simpler language, client satisfaction with the bank has shot up as they feel more involved and well informed with respect to their personal growth. The platform also provides investment related recommendations, after close analysis of market performance. Following is a snapshot from the portfolio statement:

### Dear Mr. Kadyan,

Your net worth as per the holdings available with us as on 31-07-2017 has decreased by 40.28% to Rs. 8.99 lac as compared to the previous year. The following chart shows the comparison of your portfolio returns with NIFTY 50 over various time periods.



### Different Instruments you have invested in:

Rs. 5.86 lac of your investment (about 65.15%), which is your highest percentage, has been assigned to Direct Equity. With a total of Rs. 3.13 lac, at 34.85%, the Mutual Fund instrument comes in second. Both of your instruments Direct Equity and Mutual Fund have underperformed providing an annualized return of -13.57% and -62.15%, respectively.

### Asset Types that you have invested in:



### **Direct Equity Recommendations:**

Stock	Sector	Current Holdings (Rs.)	Current Holdings (%)	1m Return (%)	6m Return (%)	1Yr Return (%)	3Yr Return (%)	Action
Tata Motors Ltd - DVR	Auto	82,333.80	9.16	-1.04	-21.54	-19.48	-3.97	SELL
Maruti Suzuki India Ltd.	Auto	77,079.50	8.57	6.79	30.72	62.1	45.07	HOLD
Asian Paints Ltd.	Paints/Varnishes	69,567	7.74	5.01	19.43	4.01	22.6	HOLD
Tech Mahindra Ltd.	Computers	65,492.50	7.28	1.02	-14.72	-20.84	-43.63	SELL
Axis Bank Ltd.	Finance	51,885	5.77	0.53	11.37	-4.98	9.81	HOLD
HCL Technologies Ltd.	Computers	44,440	4.94	4.49	9.88	18.11	-17.01	HOLD
Hindustan Petroleum Corporation Ltd.	Refineries	34,497	3.84	-24.78	-26.53	-69.59	-1.35	SELL
ICICI Bank Ltd.	Finance	33,214.50	3.69	4.08	12.23	14.88	-41.04	HOLD
NBCC (India) Ltd	Construction	31,395	3.49	3.36	-22.77	-15.13	-23.31	SELL
Sun Pharmaceutical Industries Ltd.	Pharmaceuticals	26,585	2.96	-4.11	-15.81	-35.92	-12.39	SELL
Ltd.	Refineries	23,535	2.62	-26.33	-30.9	-20.56	-6.76	SELL
Tata Power Co. Ltd.	Power	18,661.80	2.08	1.61	2.44	13.68	-5.81	HOLD
Punjab National Bank	Finance	16,220	1.8	18.26	19.31	31.39	-44.65	HOLD

Hindustan Construction Co. Ltd.	Construction	8,210	0.91	5.26	-5.31	75.8	1.16	HOLD
Unitech Ltd.	Construction	2,607	0.29	45.32	79.92	21.03	-30.11	HOLD
K.S.Oils Ltd.	NOT TRADED							

### **Direct Equity Additional Recommendations:**

Your portfolio lacks diversification as it has very few stocks. We recommend that a well-diversified portfolio should have stocks such that the top 5 should be no more than 30% of the portfolio and top 10 stocks should be no more than 60% of the portfolio with maximum single sector exposure be no more than 25%. We recommend you to reduce the stock weights because your top 5 holdings account for 38.52% of the

### An FMCG Conglomerate: Market Share Reports

FMCG companies are dependent on data from Market Research companies for competitive intelligence and consumer insights. But this data is not just a excel file with few hundred rows and columns, rather it represents performance of each product in each town for hundreds of parameters. It is an arduous task for central MIS team to make personalised insightful reports for each regional manager. And by the time each manager gets his report the insights are outdated. The concerned FMCG company got an edge over competitors by acting on the insights shared by the vPhrase's NLG platform. The platform gives personalised reports to each manager in minutes of receiving the data. Below are a few snapshots from the output generated by an NLG platform. The performance of various deodorants across different states in India is evaluated based on the growth rate, market share, reception rate, etc.

### Orissa

FOGG had the highest market share value of 26.65% backed by the highest distribution and pull. This month, AXE shares improved by 0.38 percentage points after a loss last month backed by recovery in distribution while pull showed a decrease. FOGG lost -1.85 percentage points shares this month although there was an increase last month, along with a decrease in distribution and pull. WILD STONE came second in terms of market share this month. WILD STONE showed a continuous drop in shares by -3.14 percentage points this month although it saw an increase last month, backed by a decrease in distribution and pull.



### All India

FOGG had the highest market share value of 19.07% backed by the highest distribution and pull. This month, AXE shares improved by 0.35 percentage points after a loss last month backed by recovery in distribution while pull showed a decrease. FOGG showed a continuous drop in shares by -0.28 percentage points this month although there was an increase last month, backed by a decrease in distribution and pull. ENGAGE TOTAL came second in terms of market share this month. This month, ENGAGE TOTAL shares continously dropped by -0.03 percentage points although there was an increase last month, followed by a decrease in pull while distribution showed an increase.



### A Stock Broking Company: Quarterly Analysis Report

A stock broking company in India, which is also the financial services intermediary and subsidiary of a leading private sector bank has its research team analyze all the companies listed on the National Stock Exchange and Bombay Stock Exchange. All the companies listed need to be analyzed on the basis of 35-40 indicators such as Debt/Equity ratio, PE ratio, Market capitalization, EPS, Bid Price, Ask Price, Volume traded, etc. Moreover, such analysis needs to be done on a quarterly basis. Preparing manual reports and this scale is a time-consuming task and not the best use of the talent of financial analysts, which is why it is better left to automation. Having fed the performance indicators into an NLG platform, it churns out easy-to-understand quarterly analysis reports within a matter of seconds. Below are snapshots of the quarterly analysis report generated by an NLG platform for DHFL:



Operating income increased by 9.18% to Rs. 2,365.51 Cr in Q3FY17 when compared to the previous quarter. Also, it rose by 25.53% when compared with Q3FY16. PAT for Q3FY17 was Rs. 244.77 Cr, a rise of 5.23% when compared to Q2FY17 and a rise of 31.66% when compared to Q3FY16. The PAT had been continuously increasing from Q3FY16 to Q3FY17 each quarter.



### A Prime Pharmaceutical Company: Performance Report

Medical representatives in a pharmaceutical company are evaluated based on the number of products they have promoted, the number of visits made to the doctor, etc. Regional managers and zonal managers need to look into the performance of each medical representative under them on a monthly basis. The reception rate and popularity of various medicines too needs to be understood, in order to come up with the appropriate marketing strategy. Also, medical representatives need an easier, quicker way to gauge their own performance onsite. Performance analysis being the time and resource intensive task that it is, an NLG platform comes to the rescue to generate comprehensible reports like the ones below:

# **Sales Performance report**

RBM – GIRISH SHARMA

### **Key Points:**

- CERVARIX Sales when compared to SYNFLORIX Sales is very low even though they have similar number of calls and call durations.
- In your team, AMAR PRAKASH KADAM had the lowest score but had good drug sales, while, GIRISH CHANDRAKANT BHAVSAR having reasonable score had comparatively poor drug sales.
- Among your peer's Y SYED HAFIZ was the best performer for both the drugs despite having the lowest average scores in his team.

### Summary:

- Your team averaged around 72.5 score calculated as per the performance of reps.
- Among the 10 reps working under you, 4 reps were in [> 81] slab.
- 2,328 calls were made by your team out of which 1,838 calls were made for SYNFLORIX drug.
- 2,977 minutes were used to discuss about SYNFLORIX and it sold around 10,815 units.
- While, 583.5 units were sold for CERVARIX and 1,850 minutes used for discussion.
- Among peers you came in at 5<sup>th</sup> position as per average score but you stood at 4<sup>th</sup> position according to SYNFLORIX Sales and at 3<sup>rd</sup> position according to CERVARIX Sales.

 Similar, results can be observed for KEDAR PATANKAR selling around 744 SYNFLORIX units but having the highest score at 86.5.

Rep	Average Score	Number of Digital Calls	Total Call Duration	SYNFLORIX Sales	CERVARIX Sales
DHANANJAY KULKARNI	89.4	340	93405	979.5	69
GOVIND BHOGAL	87.2	348	99019	1217	106
KEDAR PATANKAR	86.6	211	63000	744	12.5
ANIRUDDHA PALANDE	83.3	350	66186	1118.5	40.5
AWADHESH SAHU	79.8	234	57720	1139	86.5
AJINKYA VALAME	73.5	112	23221	1807	72.5
GIRISH CHANDRAKANT BHAVSAR	71.7	123	35734	3.5	2
RAMDAS BHOYAR	69.2	297	35091	1762	98
PRASHANT S GHUGE	68.0	306	36922	824.5	39.5
AMAR PRAKASH KADAM	15.9	7	64	1220	57



# About Vphrase

vPhrase is an Artificial Intelligence-driven enterprise. vPhrase's Al product Phrazor summarises data into a few bullet points. These bullet points highlight the key insights you need for decision making. With Phrazor, you don't have to spend time in analysing numbers or interpreting dashboards, you get your actionable points ready-made.

vPhrase extracts insights from complex and large data sets for leading enterprises for leading organisations in BFSI, FMCG, Pharma, Consulting and Retail. vPhrase was part of the Microsoft Accelerator, Target Accelerator, Nomura Accelerator and SuperCharger Accelerator and is backed by Venture Catalysts, CIIE and Zone Startups.

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