Logistics

the Business of space – a data analytic approach

idealanalytics

Ideal-Analytics is a suite of software tools to glean information and therefore knowledge, from raw data.

Self-service, real-time, on-demand ad-hoc analysis and high performance exploration functionality
with plug-ability, scalability & security, available in both SaaS and on-premise model

Transportation although being the most ancient human commercial endeavor has gained the significance of post-modern industry in very recent times and has attracted the attention of the best of the scientific, management and technological brains. Conveyance of any and every sort on surfaces metallic, liquid, air of types ancient, traditional, modern and remotely controlled do all fall under the purview of this endeavor now fully fledged as a veritable industry in all its aspects and paraphernalia. The interesting and distinguishing mark of this industry is in trying to find the various solutions to its problematic in general and issues in particular and individuality.

Two Roads of approach resulting in two types of outcome

Two ways of approach has kind of divided the solution space and they have done so quite inadvertently. The first approach is the traditional techno-business approach of taking stock of the players and stakeholders and then managing each player's concern from their perspective and then integrating them. This is the ERP approach later solved by EDW & data marts. Data marts then are analysed by Data Cubes dealing one fact with various dimensions ending in very attractive renditions in the presentation dashboard.

The Second approach is the post-modern one of viewing the entire business from one abstract commodity-element – the space. Logistics & transportation industry is a space utilization industry. Space bought for a limited time by either goods or passengers. Space again is redefined continuously on the basis of WHO, WHEN, HOW occupies it for HOW MUCH TIME and for WHAT REASON. Answers to these five points determine the price of space in the Logistics business. The only difference and the identifying one with the real estate business is that this space MOVES, moves in a specified ROUTE to a known DESTINATION. These three points are the actual dimensions that describe the FACT – the space. This approach leads to the solution arena through providing number crunching, calculations on the fact through mathematical, statistical, stochastic and predictive techniques – finally rendering in presentation on a dashboard.

Decision making eventually emanates from numbers and wizardry with them, drilling down them and rolling up with respect to different dimensions is the way we know in final rendition, as numbers give always a comparative value measure. Human mind feels comfortable in the deterministic and distinguishing character of numbers than anything. All quality values are most comfortable comprehended when represented in quantities.

Two technological approaches for two paths:

Business Intelligence that developed in this century has come out of the EDW approach where a centralized processing node unifies data from different applications and with different formats. Then again the data is spread around as per the need to the applications; this is that way a method of data transformation and unified approach of the same data. The mainstay of this approach is the huge constellation of data in one instance or database. The major processing, discovery of inter-relations, manipulations are all done in the central database hub called the Enterprise Data Warehouse or Operational Data Store. Portions of this data categorized and grouped as per functions then flow to Data Marts for specific treatment and rendered in different dashboards to interested and concerned departments of the enterprise. A need based culling of these rendered elements can be put together in one canvas and shown to the senior most decision heads, they can if needed drill them down to problem areas or take overall decision from this central canvas. The approach is popularly termed as Business Analytics, trying to poise that all business related queries can be answered through this rendition. It actually behoves on to the actual Business Analysts to take some rendered

element instead of the others and prioritize their choice. A business analyst has to work in collusion with the technology professional in finding out his need.

The second approach is the DATA –ANALYTIC approach where data is fetched directly from where they are generated and updated, without however interposing or disturbing the on-going transaction operation. Then these data are put through desired calculation processing with mathematical rigor in various ways to render into dashboards. The data can be in various formatted – structured or un-structured, in types used in database management systems or in dumped format from other applications. Relations are struck on-line, ad-hoc, on-the-fly and real-time, they are connected and based on formulae they are categorized and given significance to. This data then is rendered to dashboards bringing out similar outcome as a Business Analytics tool would have done. DATA Analytics is thus a redefinition of Business Intelligence through a different and yet smarter path.

Limitations of Business Analytics tools:

Business Analytics being a derived approach of EDW goes through a complex and arduous path of heavy processing. The tools are heavy in terms of processing, cost, effort, support, skill and upkeep. End users who are business analysts and who keep themselves busy in discovering newer rules and inner meaning in their business logic, gets extra burdened to concern themselves with technology implementation and related technical issues. The de-focusing of the business analysts have long bugged the industry and has reduced down the productivity in recent years. This when figured out by the industry leaders, they realized how lagging they are from what was wanted from the industry in pacing up with the newer issues springing up from the field.

Business intelligence tools in end-user industries have been sub-optimally utilized and are now playing ground of consultants and supporting companies at a regularly draining cost of very high proportions. Instead of reaping monetary benefits [IT is supposed to gain dollars through optimization and reducing operational cost in user industries by making systems simpler and smarter and more customer facing] the cost of maintaining such white elephants have proved more faddish and expensive.

Industry started to find all over again in the solution space for solutions that can more elegantly, more smartly solve intricate issues without depending on the consultants and technology companies. The business analysts were looking for freedom with empowerment!

Specific challenges in Logistics industry

Logistics industry is a moving-space utilization industry. The "production function" here is space, that needs to be optimally filled up all the time the space MOVES. The approach of "serving one customer in one instance, in moving her wares from one point to the other" has been a loss making proposition. If the carrier is not fully filled up then the apportioned cost of transport per unit of wares or per person is sub-optimally used- either the customer pays more or some hidden subsidy is gifted to the customer. This will bring down the possibility of repeat order. Judicious decision of keeping the vehicle always filled up and then apportioning the cost of transport to per unit in transport requires judicious choosing of the track, its time, time of duration, fuel cost and other miscellaneous factors. Management science these days have come up with many problems in Linear and integer programming, scheduling, sequencing and variation analysis. All these need to be calculated and through rigorous algebra, but has to be done very fast as the underlying data might undergo change. Additionally, one solution is seldom desired, alternatives need be generated with similar sets

of data with minor and pre-conceived variations in the data set to bring up a solution vector space from where any point or any one vector may be chosen by experienced eyes. If due to some sudden impediments or changes the best solution is not feasible then the next best from within the solution space is looked at. Sifting through all these vectors within the solution space is a simulation exercise impossible to be done manually and computers are essential. All these have to be done almost instantly as the underlying base data might change. Thus we need in this industry a directly hitting very fast solution mechanism where data values are not fixed and rigid but are flexible enough to work from within a possible input data set. Elements of this data set are formed with associations of relative weight called the probability density function or possibility co-efficient giving rise to an expected value. Real life data outcomes are then measured in terms of variations from the expected value and a number in the form of standard deviation would tell us the range of possible error. The assignment to the business analyst is to reduce this error function-value to an irreducible minimum and direct the journey to run within those parameters. Parametric boundaries therefore is essential to take decisions and they can only be rendered by a smart, slick, fast calculating, highly advanced tool and yet the tool must insulate the customer from the pangs of the technology.

A space function has to be integrated with the cost and revenue function of the journey by considering other datasets obtained from the datasets of other players. These datasets have data elements with different formats and they are generally unrelated. These data has to be brought neigh and connected through on-the-fly relation building toward forming some working dataset from which the facts of one such dataset can be measured with respect to dimensions of other data sets and meanings fathomed.

IDEAL-ANALYTICS: Design considerations resulting in the IDEAL solution:

All these challenges and issues thrown up the industry after the first cut experience through Business Analytics solution was put into the consideration vector set. Years of planning from real life data from European and local Indian market was gathered from the experience of the mother company IDEATION Technology Solutions through their pioneering flagship product TRAX- a vehicle tracking and monitoring system. These parameters were then prioritized, weighted and put into design and the product solution development began. In due course the market changes and developments were gathered to bring out a product to run for a while in the future time scale. We have now readied a product tested thoroughly in many industries and especially in this industry, our testing space was ready with us due to our previous product and experience thereof and that our customers were excited to check it out, we always reckoned our customers as our development and business partners. We now have proven results and are offering customers with minimal customization by us and even nominal customization by the end-users themselves, where the business analysts form their own query artefacts, throw their own devised formulae into implementation and reap the results they desire- That is what we aimed for- a Freedom to the customers that would empower them in discovering their own mysteries and not depend upon the consultants or supporting technology companies.

Again our motto and slogan is "Leave your pangs to us and we give you FREEDOM- that is our proposition – our offer- our commodity"!

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Analytics On-Demand

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