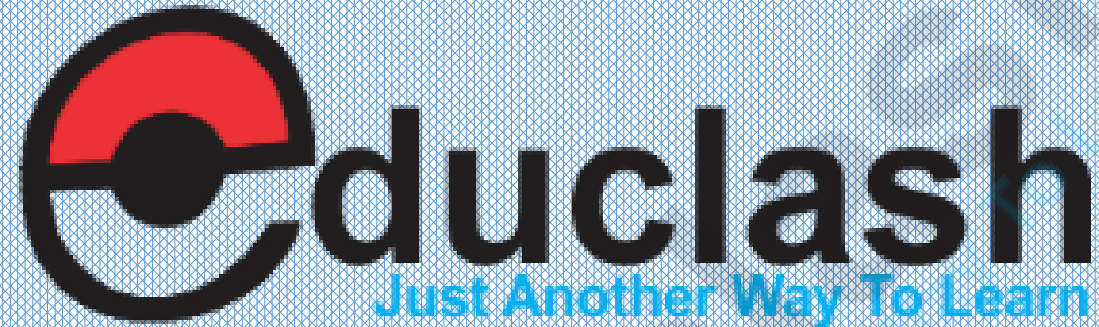


Unit -4



INFORMATION

KNOWLEDGE

BUSINESS INTELLIGENCE

Infⁿ :- Infⁿ is now a days treated as resource of an orgⁿ. Infⁿ play a vital role in D.M. However Infⁿ is not available in ready form. Infⁿ is the processed data.

Infⁿ has some ch^s -

- * Improves representⁿ of an entity
- * Update the level of knowledge
- * Has a surprise value
- * reduces uncertainty
- * aids in D.M.

Quality of infⁿ is depend on the mix of these ch^s.

Concept of Infⁿ :-

- * Infⁿ should follow Commⁿ Theory
- * Presentation of Infⁿ
- * Avoid misuse of Infⁿ
- * Bias in Infⁿ
- * Attribute of Infⁿ

Commⁿ Theory :- Infⁿ should reach from source to destination \bar{c} out any distortion in infⁿ.



* Infⁿ Presentⁿ :- Presentⁿ of the infⁿ is MIS/U-5/02
an art. The data may be collected in best possible way & processed analytically, bringing lot of value in the infⁿ; however, if it is not presented properly, it may fail to communicate anything of value to receiver.

Degree of commⁿ is affected by -

- * the methods of transmission
- * the manner of infⁿ handling
- * the limitations of a receiver as infⁿ processor

The methods used for improving commⁿ :-

(a) Summarisation :- Too much infⁿ always create confusion, misunderstanding & missing the purpose. Summarisation suppresses the noise & distortion.

(b) Message Routing :- The principle of the msg routing achieves the spread of infⁿ to the appropriate quarters. i.e. some infⁿ have meaning to primary user it may require to other users also as a secondary infⁿ so it should be routed to all people in the orgⁿ.

* Avoid misuse of Infⁿ :- Knowledge is a power & an intelligent person in the orgⁿ can misuse this power to achieve personal goals, undermining the final & original goal.

So to avoid the misuse of infⁿ a control is exercised on the content of infⁿ & its distribution
Methods to avoid misuse of infⁿ :-

Methods to avoid misuse of infⁿ :-

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- * Delay delivery of infⁿ
- * change in the format & content of report → provide only needed infⁿ
- * Suppression & filtering of infⁿ of confidential & sensitive nature.
- * Suppress the details & reference of data and infⁿ → make it difficult to collect, & process the data at the user end to meet the personal needs.
- * Truncated or lopsided presentⁿ → make it difficult to read through the infⁿ & avoid its misuse.

Bias in Infⁿ :- While choosing the appropriate method of commⁿ, a care should be taken to see that infⁿ which is processed should not be biased. Some time it happens that some infⁿ gets eliminated because people try to block that sensitive infⁿ which will effect them. To overcome this problem, a formal structure of orgⁿ should be adopted & type of infⁿ & its receiver should be decided by top mgmt.

Some time the presentⁿ of infⁿ will generate bias & may influence the user.

∴ If the infⁿ is presented in alphabetical order & if infⁿ is lengthy, then the attention of a person will be on first few lines.

For a quick grasp, the infⁿ is presented in a graphical format.

Attributes of the Intⁿ :-

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- * The Accuracy in representⁿ :- How closely it represents a situation or event.
- * The Form of Presentⁿ :- Is Intⁿ qualitative or quantitative, graphical or numeric, printed or displayed, summarised or detailed.
- * The frequency of reporting :- How often the intⁿ is needed & how often it needs to be updated.
- * The Scope of reporting :- The coverage of intⁿ in terms of area, and range.
- * The scope of Collection :- Internal for orgⁿ external to orgⁿ.
- * The time Scale :- It may relate to past, current & the future & can cover the entire time span.
- * The relevance to D.M :- How much the intⁿ help to D.M.
- * Complete for Decision Consideration :-
- * The timeliness of reporting :- The receipt of intⁿ on time or when needed is highly useful. The intⁿ arrives late loses its utility.

INFORMATION: A QUALITY PRODUCT - Unit-05/05

Is Infⁿ a Product? why.....

Quality of Infⁿ can be determined by mgr based on, how much contribution it provide to make a decⁿ. & degree of motivation it provides for action.

The quality of infⁿ can be measured on the four dimensions -

- utility
- satisfaction
- error
- bias

* Utility :- utility has four facets

* form :- in a form in which mgr work

* time :-> on time. as & when require

* access :- easily accessible through Online sys

* Possession :- If mgr possess that infⁿ which he needs the utility is high.

Improving the quality through increasing the utility means increasing in cost. so a balance is need to maintained b/w cost & utility.

The concept of utility is subjective to the individual mgr. Therefore the common key to measuring the quality of infⁿ could be -

* Satisfaction :- The degree of satisfaction would determine the quality of infⁿ. Again it depends on individual.

Continue.

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* error :- An error is a serious problem due to error in intⁿ a Decⁿ maker can't take rational Decⁿ. We should ensure that intⁿ should not be processed by using error: full: data.

An error can be crept in on account of various reasons-

- An incorrect data measurement
- An incorrect collection method
- Failure to follow the appropriate data processing procedure.
- Loss of data or incomplete data
- Poor Appⁿ of data validation & Control Sys.

* Bias :- If data has some biased quality then intⁿ processed by this data will have bias.

Parameters of Quality :-> There is no method to determine the quality of intⁿ because an intⁿ can be used by many people in different ways. But if intⁿ possesses all of these following parameters then it can be considered that intⁿ is of good quality.

(a) Impartiality :- An impartial intⁿ contains no bias. The Impartiality creeps in, if the data is collected in preconceived view.

(b) Validity :- Validity of intⁿ relates to the purpose of the intⁿ. Does the intⁿ meet the purpose of Decⁿ making for which it is being collected. An intⁿ may be valid to one & invalid to

to others. The validity is also depend MIS/0-5/07
on how the intⁿ is used.

i.e. Quality is a fun of raw material, the process of manufacturing, the tools applied, the measure of quality assessment, the attitude of people towards the control of quality. However if intⁿ collected take only abt the raw material & process of manufacturing then this intⁿ is not sufficient & hence it is not valid for all decⁿ which is required to control the quality.

(c) Reliability :- Reliability will be effected if data is collected from wrong source. Reliability is also questioned whenever if data is collected from a small segment.

(d) Consistency :- If data is inconsistent then intⁿ can't be consistent..

ex:- fix prodⁿ norms of a factory for 12 mths if factory have shifts & shifts have variable prodⁿ.

(e) Age :- An old Intⁿ does not have any value. Intⁿ should be upto date.

So If an Intⁿ possesses all these parameters can be considered as a good quality Intⁿ

If quality of Intⁿ is good then the decⁿ which is made by the intⁿ will be rational and of high quality.

Hence the good quality Intⁿ improves the Decⁿ making.

Classification of the Infⁿ :- The infⁿ can be classified in a number of ways.

John Dearden of Harvard University classified Infⁿ in following manner

**** Action vs No Action Infⁿ :-** The infⁿ which induce action is called an action infⁿ & The infⁿ which communicates only the status of a situation is called no action infⁿ.

ex :- No stock report calling purchase is action infⁿ
 • Stock ledger showing stock balance & transaction is a Non-action infⁿ

*** Recurring vs non-recurring infⁿ :-**

Infⁿ generated at regular intervals is a recurring infⁿ ex: monthly sales report.

The financial analysis or report on the mkt research study is a non-recurring infⁿ.

*** Internal vs External Infⁿ :-**

The infⁿ which is generated through the internal sources of the orgⁿ is known as Internal Infⁿ
ex: infⁿ abt prodⁿ, infⁿ abt salary of employees

The infⁿ which is generated through the Govt reports, the industry surveys etc is known as External Infⁿ.
ex: Govt rules or policies on Tax etc-er

The Infⁿ can also be classified as in terms of its application -

*** Planning Infⁿ :-** Some standards, norms & specifications are used in the planning of any activity. Hence such infⁿ called planning infⁿ.
 i.e. time standard, design standard & planning infⁿ.

Control Intⁿ :- The intⁿ which shows that a control is needed called Control intⁿ.

Knowledge Intⁿ :- The intⁿ which improves the knowledge of an activity & help in decⁿ making known as knowledge intⁿ. Such intⁿ can be collected through library ^{data} or from research study.

Intⁿ can be classified according to its usage-

* Organisation Intⁿ :- When the intⁿ is used by everybody in the orgⁿ, it is called the orgⁿ intⁿ. ex: emp & pay-roll intⁿ

* Database Intⁿ :- When the intⁿ has a multiple use & appⁿ, it is called the data-base intⁿ. ex: supplier intⁿ

* Functional or Operational Intⁿ :- When the intⁿ is used in the operations of a business it is called the functional or operational Intⁿ
ex: sales or production statistics.

Methods of Data & Intⁿ Collection :-

- Observation :-
- Experiment :- mkt response to a new prod.
- Survey :- Opinion polls, mkt survey
- Subjective Estimation :- expert opinion.
- Transaction Processing :- ledger, stock statements sales reports etc.
- Purchased from Outside :-
- Publication :- Govt. Pubⁿ, Industrial Pubⁿ

If all 3 fails →

VALUE OF THE INFORMATION :-

We know Infⁿ is required to take the decⁿ. Value of Infⁿ will be high if it reduce the uncertainty, risk, so the additional Infⁿ which will reduce risk & uncertainty have some value in Decⁿ making.

Value of infⁿ is the value of change in Decⁿ behaviour, less the cost of obtaining the infⁿ.

If additional infⁿ does not cause any change in D.M. then the value of additional infⁿ is zero.

$$VPI = (V_2 - V_1) - (C_2 - C_1)$$

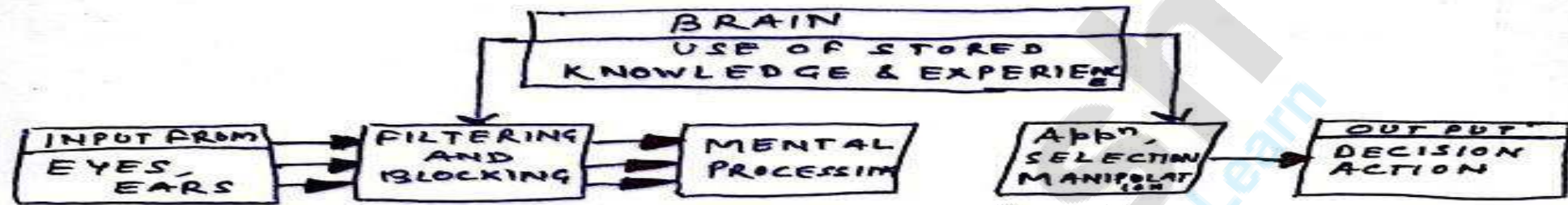
A mgr always feel problem in D.M. whenever the situation is of risk & uncertainty type. If additional infⁿ change these type on certainty then the value of additional infⁿ is high.

If new infⁿ cause a change in decⁿ, then the Value of infⁿ = (Diff b/w value of o/c of old decⁿ & new decⁿ)

Value of infⁿ is also depend upon the person who is using it in D.M. generally Top mgr take strategic Decⁿ so the value of infⁿ to Top mgr would be more. but due to more experience these people require less infⁿ, they can reduce uncertainty by using their experiences.

In MIS, the concept of value of infⁿ is used to find out the benefit of a perfect infⁿ. If the value of Additional Infⁿ is high then sys should provide it, if it is insignificant then it would not be worth to collect the additional infⁿ.

General Model of a Human As an Intⁿ Processor



Whenever mgr. has extra or more intⁿ than it creates problem because he doesn't know which intⁿ is appropriate or relevant so mgrs adopt the method of filtering the intⁿ.

Methods of Filtering :-

⇒ Frame of Reference by using knowledge & experience :-

Consider some product for reference or select only the relevant mkt segment.

⇒ Universally acclaimed normal decⁿ procedure :-

Follow only some fix & v well defined procedure like break-even analysis methods etc.

⇒ Select data based on proven methods :- Use only known decⁿ model.

Some time un-experienced mgrs due to his limitations omit the imp data during processing which leads to a irrational decⁿ.

The filtering process blocks the unwanted data which creates confusion but due to individual differences like choice of filter method may block the imp data.

So the decⁿ making situation is very much depend on individual differences & individual knowledge. Individual differences r. because of →

Manager's Individual Differences :-

Individual differences & because of many factors -

- due to their knowledge
- due to their power
- due to their Analytical mind
- due to their processing power

Every mgr has his own style to perceive data, organize data, process the data as per his frame of reference.

Managerial ability, skills & tools play a considerable role in the Cognitive style of the mgr.

The reasons of individual differences are -

- * Personal Dogmatism :- The degree of faith in belief opinion & past experience
- * Risk Propensity :- The ability to take the risk.
Low Risk or No Risk
- * Tolerance of ambiguity :- The level of clarity required in the intⁿ.
- * Manipulative Intelligence :- Manipulate data & intⁿ using knowledge intⁿ
- * Experience in Decⁿ Mking :- How much experience a mgr have at particular level of D. M.
- * Knowledge of the task, tools & Technology :- Knowledge in the appⁿ of the tools & Technol^y
- * The mgmt level from lower to higher :- Powers at diff level of mgmt & differ.

Summary of Intⁿ Concepts & their Implications :-

Understanding of Intⁿ Concepts is very important & relevant to sys designer - The Concepts are summarised as follows -

* Filtering :- Sys designer sud provide a mechanism to filter data s.t. the decⁿ maker sud not b confused. They sud also take care of that the valid & imp intⁿ sud not be blocked.

* Simon model & its appⁿ :- The designer sud provide that intⁿ which clearly define the exact problem.

* Codes & representⁿ :- The sys designer sud use such coding sys that is easy for the user to interpret & also put intⁿ in such manner that the user can grasp it quickly.

* Highlighting :- Some pts sud b highlighted for easily noticeable by the user.

* Statistical Analysis :- Intⁿ sud provide some statistical analysis & give a measure of statistical significance for user to consider while Decⁿ making.

* Format :- Intⁿ sud present in that form in which user wants to have. User sud not require to do additional processing.

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Cognitive style :- Due to cognitive nature all mngs have different view for the infⁿ so the designer shd provide such infⁿ which can accomodate all style fully.

Learning theory :- user shd get some new infⁿ by which he can learn something. He shd not be overloaded by infⁿ which is already known to him.

Perceived value of data :- Some infⁿ may not have any value for current business operation but in future it may have great value. So designer shd provide the provision of retrieving that unused infⁿ in future.

* Infⁿ Absorption :- Designer shd provide only those infⁿ which can easily understood or grasp by user.

* Individual Differences :- The infⁿ needs of diff mngs will differ so designer shd provide all kinds of reports or infⁿ which r of every level.

System designer shd take care of all these concepts while designing the data gathering & processing systems.

Knowledge and Knowledge Management System

- Knowledge is a set of information which provides capability to understand different situation , enable to anticipate implications and judge their effect, suggest ways and clues to handle the situations.
- Knowledge is not the wisdom and nor the advance stage of information
- Knowledge is a capability to handle a complex situation. More the knowledge , higher is the capability.
- The differentiation between data, information and knowledge is illustrated as-
 - Rainfall record collected everyday is “**Data**”.
 - When this data is processed by region and month , it is an “**Information**”.
 - When this information is analysed using analytical Tools, It reveals rainfall pattern, This Pattern is “ **Knowledge**”.
 - When this knowledge is processed with other relevant variables and information to build a forecasting model to predict the rainfall, the Model is knowledge asset and becomes “Intellectual Capital”(IC).

- **Knowledge is of three types-**

- **Explicit Knowledge-** Explicit knowledge is the one which can be codified and or modeled. Ex: Software product are packaging explicit knowledge.
 - **Tacit Knowledge-**It is intangible and can not be codified. Ex: Consultant and Expert posses tacit knowledge.
 - **Intellectual Knowledge-**This knowledge can be explicit or tacit and can be owned by some body. It is known as Intellectual Asset or capital (IC).
- Knowledge is not a static entity. It improves changes and also obsoletes after some time. In a new business scenario knowledge plays a key role in management.
 - There is a shift in management paradigm. It is no longer only the management of resources of the organization but also that of business partner who are in the organization's network.
 - To manage this shift “KNOWLEDGE” is the key resource of the organization and workplace.

Knowledge Management- KM is the systematic and explicit management of knowledge related activities, practices, programs and policies within enterprises to create a vital knowledge share it with others and improve its content and quality.

KM objective is to develop the best available knowledge (Explicit, Tacit and IC) to make people and enterprise capable as a whole to act effectively to implement various strategies.

Driving force behind the KM

KM is now a days not the luxury but its need due to demand of customer centric business initiatives. The forces which drive KM are external and internal.

- **External Forces**-Business organizations perform in environments that they can not control. Their success depends on how they deal with these forces and still grow. The more impacting forces in external environment are following.
 - **Globalisation of business-**
 - **Demanding customer-**
 - **Innovative competitors-**
 - **Resourceful vendors-**
- **Internal Forces**-Like forces in external environment , there are forces internal to organization which impact business operation. To control negative effect of these forces knowledge initiative are necessary.
 - **Bottlenecks in effectiveness**-It is not physical but tangible, It is capability of anticipating the change in market and environment requiring proactive action to deal with it
 - **Technological capabilities**- Business operation need technology implementation to bring in efficiency and effectiveness like high end information management, advanced search engine etc.
 - **Understanding of human cognitive function**-Knowledge about people, in terms of understanding mental models and associations affecting decision making is essential.

- **Changing Workplace**-Once KM initiatives are in, it would affect the workplace scenario, Visible changes are extensive use of technology, network, supply chain, collaborative work culture and so on. Visible changes but more importantly , affecting the people side of the business are as follows-
 - Configuring interdisciplinary teams for better mix of competencies.
 - Work completion needs more application of conceptual knowledge
 - Work completion needs more collaboration and coordination between people in a network.
 - People show more understanding and involvement in the work due to increased understanding of personal benefits
 - More reliance of models, search engine, embedded decision support systems and knowledge sharing.

As a result, the people in workplace would experience less physical work, more intellectual work, increase dependence on others and collaborative relation among participants.

- **Key aspects of Knowledge Management**

There are four key aspects of knowledge management which are of importance.

- **Accelerating knowledge creation and application-**

In competitive global business economy knowledge is not static it changes dynamically. Obsolescence is its character. It's application also changes. To meet this challenge searching new knowledge and developing knowledge based capabilities to remain ahead in business is a prime need. KM systems are designed for rapid search, formulate and model the knowledge.

- **Converting tacit into explicit knowledge-**

Tacit knowledge is intangible, distributed and possessed by individual employees. KM converts tacit knowledge into explicit through coding, modelling, putting into manuals for acquisition and guidance to the HR.

After conversion to explicit knowledge, it is integrated into processes and systems which deliver goods and services to customer.

- **Build knowledge Assets-IC**

Some of the knowledge bodies are so strategically important for organization's business that they need to be protected taking legal recourse, such as patent, trademarks and rights to use.

In summary, KM involves knowledge generation through creation and acquisition and knowledge application through integration, pooling, replication, storage and identification.

• **Designing for Business Benefits from KM**

- ❑ The trend in knowledge economy is to use KM for business benefit by designing products, services and process.
- ❑ The processes which are largely benefited by KM are the feeder process which contributes to the efficiency and effectiveness of core process like manufacturing, purchasing, delivery and so on.
- ❑ The organizations which treat 'knowledge' as key resource are likely to be benefited most.
- ❑ KM processes put together create organization which is knowledge competent.

Barriers in KM-There are barriers in this process of KM.

- ❖ The biggest barrier is people who suffer from inertia to change, lack of motivation, difficulties in transferring knowledge to new people.
- ❖ The next barrier is management itself, afraid of giving power (knowledge) and sharing power (knowledge) with others.
- ❖ Knowledge management process also suffers from structural barriers namely fragmented organization functional systems and reluctance to change traditional systems.

KM processes are executed through various methods and tools. They are traditional database tools, process modelling tools, work flow/work group management tools, search engines and navigation tools, visualization tools etc.

Using these tools, KM manages knowledge related activities, processes and policies within the enterprise.

Business Intelligence

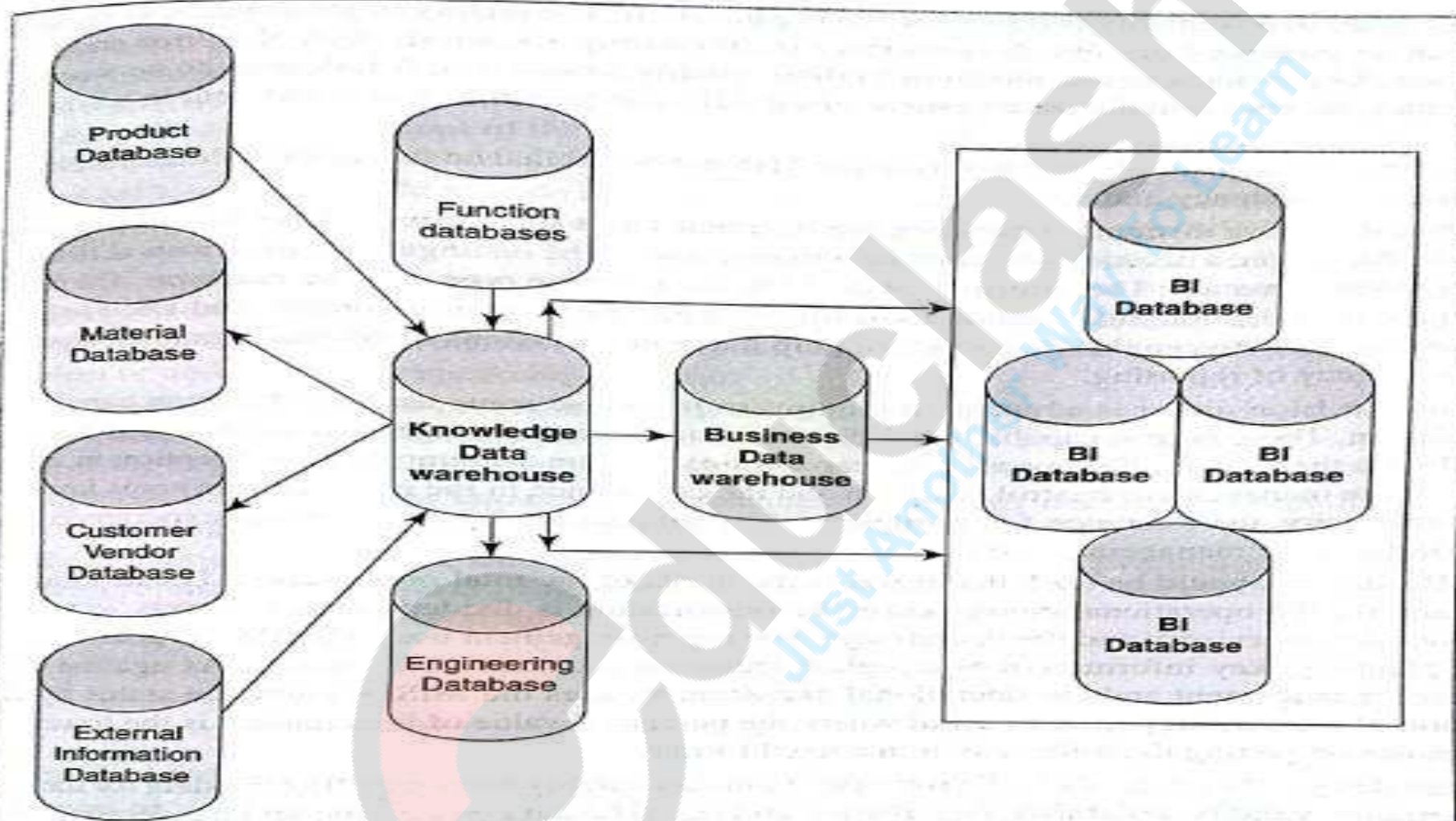
- BI is used for timely, effective decisions and better plan for futures after processing the gathered data and building the rich and relevant information to develop the strategies.
- BI is a terminology representing a collection of processes, tools and technologies helpful in achieving more profit by considerably improving the productivity of an enterprise and its people.
- Bi is an outcome of turning a raw data into intelligent information by analyzing and re arranging the data according to the relationship between the data items by knowing what data to collect and manage in what context.

Business Intelligence definition and concept encompasses following things-

- *Technology and software infrastructure*: An enabler to capture and process the Data, Information, Knowledge.
- *Data bases , data warehouses*: Storing the data of current and future relevance from decision making view point
- Develops and *maintains* knowledge data bases for *all core functions* and for *business at large*.

- BI is a conglomerate of technology structure and of information and knowledge developed and maintained to support the decision making in all together new area of concern and in the case of a new situation.
- BI is developed by putting different, but close context information sets, together to detect or forecast events and bring to surface certain issues.
- BI relies on exploration and analysis of seemingly unrelated information to provide insights, identify trends, discover opportunities, and take proactive decisions.
- In a crisis, the BI is available for ready to use supports in building new strategies to overcome the crisis.
- BI is built keeping a long term perspective of business needs of growth and direction.
- BI is all about converting large amounts of corporate data into useful information, thereby triggering some profitable business action with the help of knowledge acquired through BI analysis.
- A typical BI environment involves business models, data models, data sources, ETL(Extraction, Transformation & Loading) tools needed to transform and organize the data into useful information in the data warehouse, data marts.
- OLAP analysis and reporting tools are used on data warehouse for finding useful information.

Figure shows the difference between data, knowledge and Business Intelligence.



BI is a collection of data and information specifically identified as an intelligent resource developed through dedicated—software and technology infrastructure—for handling new challenges in business management. It is a reservoir of intelligent information ready for just in time use for building new strategies to face the new challenges..

MIS , The Information and Knowledge

- The goal of MIS design should be that, it should provide the surprise value and the information which can reduce the uncertainty.
- The MIS design should be such that it meets the needs of the total organization viz., the top, the middle, the supervisory and the operational.
- MIS design should reduce the noise from the information and should provide a good quality information.
- MIS design should follow the communication theory of transmitting the information.
- MIS design must ensure that the information processes the necessary attributes to improve its utility.
- MIS design should ensure the input data quality by controlling the data for validity, reliability, consistency and age.
- MIS design should also consider the some aspect of human capabilities in decision making.
- MIS design should give regard to organization structure, the culture , the attitude and the strength and weakness of the organization.
- MIS not only should provide information but also support management by providing knowledge necessary at all levels for critical decision., A knowledge generating knowledge management system is now a part of MIS suite.

