HC6 ICTSM

- Cost Reduction & Benefit Analysis/ Analytical Techniques? (slide 5)
    - Value Linkage → ROI ; does another department or area obtain a money benefit from the proposed system?
        - Enablers → intermediate benefits → end benefits
    - Value Restructuring
- Slide 7: IT has its effect on physical space→ for example the retail space decreases because there are more virtual stores now due to the e-commerce
- Slide 8: the evolution of paperless office as an inevitable result of technology advances. The introduction of new technologies has often stimulated dynamic interactions between old and new. New technologies are commonly misperceived as total replacements for old ones, when in fact the introduction of a new technology can stimulate a synergy between old and new. Electronic media and printed media complement, and in some ways even reinforce each other. Today, paper remains the most popular document medium because of its credibility, tangibility, and ease of use, portability and compatibility with all imaging devices, such as facsimile units, copiers, printers, and scanners. Despite the enormous popularity of computers and personal digital assistants, along with the improvements in screen technology, mobile computing technology and navigational and input tools, paper usage in the U.S. continues to increase. While paper will not become obsolete any time soon, a shift is occurring in how it is being used.
- VALUE LINKAGE & PRODUCTION FUNCTIONs (Slide 11):

$$f(P_1, P_2, \ldots; R_1, R_2, \ldots; I_1, I_2, \ldots) = 0$$

$$\frac{\Delta P_i}{\Delta I_j}(\leq or \geq 0?) \ \text{and} \ \frac{\Delta R_i}{\Delta I_j}(\leq or \geq 0?)$$

    - P : products, R: resources, I: Information parameter
- VALUE RESTRUCTURING example (zie slide 13 – 17)
- IC-BENEFITS (slide 18 – 21)
    - ***First law: Information is (infinitely) shareable***: Perhaps the most unique characteristic of information as an asset is that it can be shared between any number of people, business areas and organizations without consequent loss of value to each party. Multiple business areas can share information with the same value to each party as if they had exclusive use of the information. From the firm's perspective, value is therefore cumulative rather than apportioned across different users.
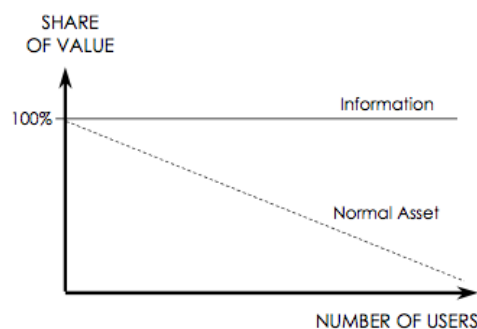

Figure 2. Shareability of Information

In general, sharing of information tends to multiply its value—the more people who use it; the more economic benefits can be extracted from it. A major problem in practice is that there are barriers, both institutional and personal, to sharing of information. "Knowledge is power", and as a result, people do not share information easily. Unfortunately, not only can information be shared, but it can also be infinitely replicated— this is the result of not sharing information. Unfortunately, duplicating information does not double its value ▯▯two copies have the same value as a single copy because no "new" information is created. Duplication leads to no additional value, only additional costs.

o **Second Law: The Value of Information Increases With Use:** Information actually increases in value the more it is used ▯▯that is, it exhibits increasing returns to use. The major cost of information is in its capture, storage and maintenance—the marginal costs of using it are almost negligible.
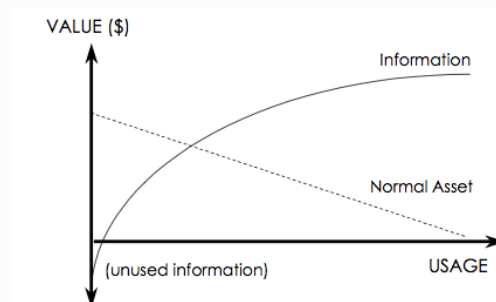

Figure 3. The value of information increases with use

Information has no real value on its own ▯▯it only becomes valuable when people use it. Unused information is really a liability, because no value is extracted from it, and the organisation incurs future costs of storage and maintenance. In many organisations, there is a large amount of information that is collected and stored but never used this represents waste.

However the quality of decision making depends on both the quality of information provided and the ability of decision-makers to interpret the information and use it to take appropriate action ▯▯information literacy.

o **Third Law: Information is Perishable:** *The value of information tends to depreciate*
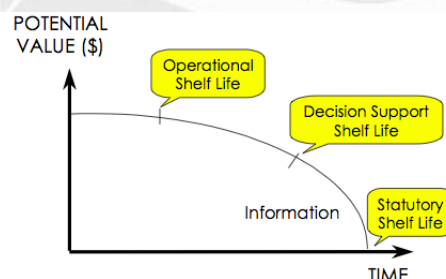

Figure 4. Depreciation of value over time

over time.

Information has a relatively short useful lifetime at the operational level. It has a much

longer lifetime for decision support purposes. Data warehousing provides a mechanism for storing historical information that has exceeded its operational life, and making it available for decision support and analysis.

o **Fourth Law: The Value of Information Increases With Accuracy:** Inaccurate information can be very costly to an organization in terms of both operational errors and incorrect decision making. The level of accuracy required is highly dependent on the type of information and how it is used. Once the accuracy of information falls below a certain level, it becomes a liability rather than an asset. At this point, it becomes "misinformation" and people will stop using it.
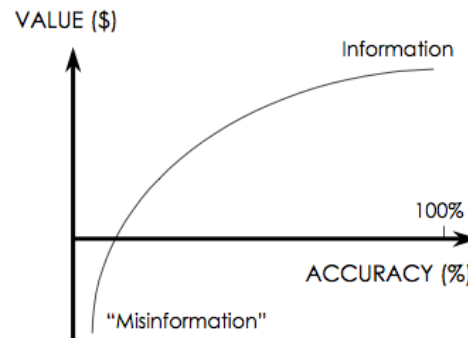

Figure 5. Value increases with accuracy

If decision-makers know how accurate (or inaccurate) the information they are working with is, they can incorporate a margin for error into their decisions.

o **Fifth Law: The Value of Information Increases When Combined With Other Information:** Information generally becomes more valuable when it can be compared and combined with other information. In most organisations, the lack of integration of information in operational systems is a major impediment to producing decision
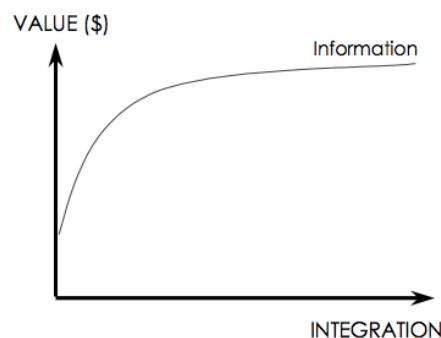

Figure 6. Value increases with integration

support information.

The most important data items for integration purposes are identifiers (to enable the linking of information from different sources about a single object together) and coding schemes (which are used as the basis for aggregating data for management reporting).

- o *Sixth Law: More Is Not Necessarily Better:* The biggest problem in most organizations today is not the lack of information but the overabundance of information. It has been found in practice that decision making performance decreases once the amount of information exceeds a certain optimal point.
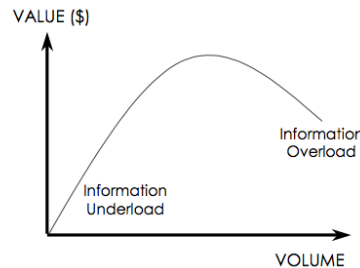

Figure 7. Volume vs Value of Information

  The law of diminishing marginal utility (from economics) says that the more people have of a given commodity, the lower its value to them. This suggests that people believe that "more information is better" and are not aware of their own information processing limits.

  - o *Seventh Law: Information is not Depletable:* However information is self-generating—the more you use it, the more you have. This is because new or derived information is often created as a result of summarizing, analyzing or combining different information sources together.
- Slide 22 Customer satisfaction:
  - o the more you invest, the lower the ROI
  - o focus on tactical and strategic elements
  - o Customer Satisfaction can increase when investing in ICT
- Slide 23: **reversed process:** e.g. order online but pay first before you get your goods
  - o Difference between letting the customer in (which means involving the customer in the whole process) and go into the customer (via the customer value chain)
- Slide 24: How processes improved to an E-business implementation
- Enterprise 2.0 (slide 26 – 27):
  - o 2 dimensional → clusters with several local optima but not 1 optimum anymore → "communities"
  - o 1 dimensional
- THE IMMATERIAL NATURE OF COMMUNICATION : THE VALUE OF "TEAMING" (slide 29 – 34)
  - o **EXAMEN!!! Vergelijk dit met Game Theory!!**
    - Ik denk (dus kan fout zijn ;)) dat bij game theory er maar sprake is van 1 speler per keuze (A of B) en hier zijn er 2 factoren die samengevoegd worden (S & M) vandaar de naam 'teaming'. Ze gaan hier ook werken met expected values en met probabilities en in game theory volgens mij niet?
    - Slide 31 : the case of no information/communication : 14,8 (optie 4) → gelijkenis Game Theory want ze gaan voor Nash Equilibrium en niet voor de Best Solution
    - Slide 32: Perfect Information & Communication → 18,4
    - Slide 33: M1 should act, best option (16,1 > 8,05) ; M2 should always act (weet wel niet hoe ze aan deze warden komen =s)

- Slide 34: 'X→' means that M1 communicates its info to M2
- **EXAMEN !! Berekenen van expected gross score!! (laatste kolom eerste tabel slide 34) + make sure you understand it! interpret the results.**