iNFS1020 - Digital Work Environment

Week 1: Introduction to Working in Digital Ecosystems

Digital Ecosystems: Network of interconnected digital technologies, platforms and services that interact with each other. Generates value for bzs and consumers. Includes collaboration and competition within participating entities.

- Components of ecosystems (other than users) include digital technologies. They serve as the base for infrastructure as well as various business applications within an ecosystem.
- Examples include social media, cybersecurity, blockchain, cloud, Internet of Things (IoT), AI.
- Value generation is driven by digital technologies and business. Used to digitally transform bzs.

Week 2: Literacy & Knowledge

Oral Tradition: Knowledge transferred through verbal dictation and careful memorisation.

Literacy: The ability to read and write.

- **Wider Sense**: Competence or knowledge in a specified area.
- **Literacy**: Identification, understanding, interpretation, creation, and communication in an increasingly digital, text-mediated, info-rich and fast-changing world (UNESCO, 2024).

Expression VS Consumption of Information (Digital)

- Expression of Digital Info: Mobile phones, cameras, etc.
- Consumption of Digital Info: Data centres, digital platforms/ecosystems.

Technology VS Digital Literacy

- Technology Literacy: Subset of digital literacy. Ability to use, manage and evaluate tech proficiently.
- Digital Literacy: Ability to search and navigate, create, communicate and collaborate, think critically, analyse info and address safety and wellbeing using a variety of digital technologies (DRAFT Digital Literacy Framework 2020, Australian Government).
    - Requires technical, cognitive and social-emotional skills.

Digital Literacy Frameworks: Common language to describe key areas of digital literacy. Provide performance indicators to assess skill levels in each area. Ex: Australian Digital Literacy Skills Framework, European Commission's Digital Competency Framework.

Proficiency Levels: Foundation, intermediate, advanced and highly advanced.

Real Life Example of Digital Literacy Skills

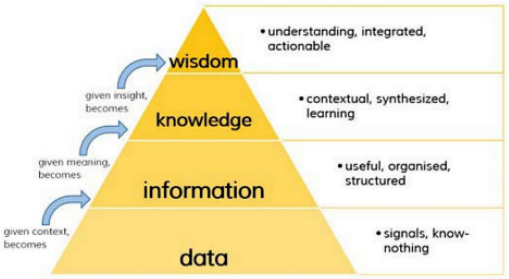
- Excel: Conducting data analysis on large data sets to extract meaningful insights.
- Powerpoint: Creating engaging and accurate presentations that can help guide decision-making.
- Zoom: Facilitating knowledge sharing through online meetings.

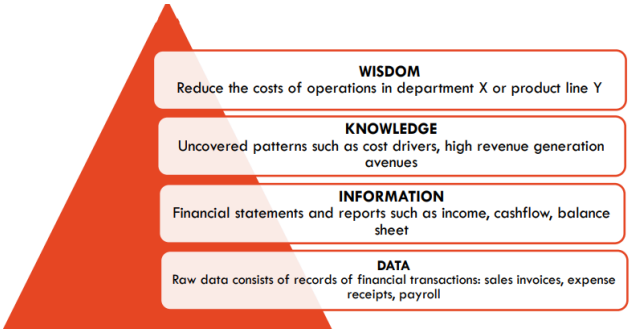
What is Knowledge?

- New for the world
    - Valid: Research (logical, methodical, informed, documented, peer-reviewed).
    - Not Valid: Made-up (dreaming, revealed, speculative, assuming world conspiracy, what one wants to be true, felt, faked, etc).

Data, Information, Knowledge Wisdom (DIKW) Pyramid

- Wisdom (Top): E.g. Australia needs to strengthen the resilience of its agricultural supply chains.
- Knowledge: E.g. Panic buying of fruits and vegetables is leading to increased sales at high prices.
- Information: E.g. Top performing category for Zone 24 was Fruits and Vegetables.
- Data: E.g. Tx 952 $59.00; Tx 953 $99.00.



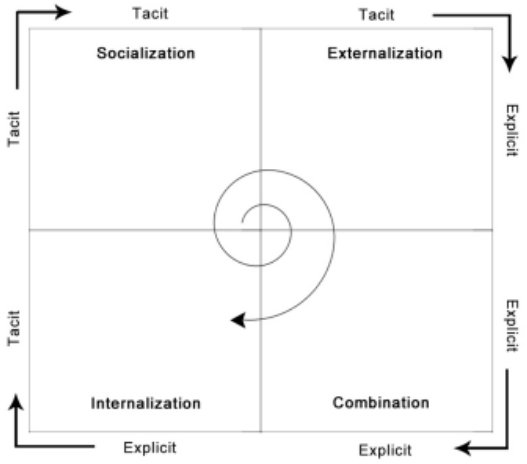


Measurement is the first step of creating data. Quality of measurements determines the quality of data.

Knowledge Creation Processes in Academic World
- Basic Research / Science: Asks fundamental questions.
- Applied Research / Science: Asks/answers more practical questions.
- Proprietary Research: Benefits only the organisation/company (R&D).
- Public Research: Benefits society.

Explicit Knowledge: Everything that can be codified, put into text, figures, reports, files.
Tacit Knowledge: Can't be explicated or accessed but is embodied in the mind (e.g. skills, intuition).

SECI Model (Nonaka & Takeuchi, 1995): Socialization, Externalization, Combination & Internalization
- Expressing the inexpressible. Using Metaphor → Analogies → Models.



Validity of Knowledge
- What is the standard for assessing validity of knowledge?
  - Concept 1: We can't be 100% sure of anything.
  - Concept 2: We can be 99.9999% sure of some things based on overwhelming evidence.
    - Scientific Method: Key concepts in assessing validity of knowledge. Depends on replicability, precision, falsifiability and simplicity of theory.
    - Historical Method: Key concepts in assessing validity of knowledge. Corroboration, eyewitness testimony and archaeological evidence.
  - Concept 3: All knowledge is therefore provisional. Facts can change.

Paradigm Shifts: Major change that replaces the way we think about concepts and practices.

Week 3: Research & Search

Infodemic: Too much information including false or misleading info in digital and physical environments during a disease outbreak.
- Causes confusion and risk-taking behaviours that can harm health.
- Also leads to mistrust in health authorities and undermines the public health response.

Misinformation: False information that's spread due to ignorance, or by error or mistake without the intent to deceive (Australian Electoral Commission).

Disinformation: Knowingly false info designed to deliberately mislead and influence public opinion and obscure the truth for malicious or deceptive purposes (Australian Electoral Commission).
- Inauthentic behaviour is common (e.g. fake socmed accs).

Types of Disinformation (Kapantai et al., 2021)
1. **Fabricated:** Stories that completely lack any factual base, 100% false. Intention is to deceive and cause harm. One of the most severe types of fabrication adopts the style of news articles so recipients believe it's legitimate. Could be text but also in visual format.

2. **Conspiracy Theories:** Stories without factual base as there's no established baseline for truth. Usually explain important events as secret plots by government or powerful individuals. Conspiracies are, difficult to verify as true or false, and they're typically originated by people who believe them to be true. Evidence that refutes the conspiracy are regarded as further proof of the conspiracy. Some theories may have damaging ripple-effects.

3. **Hoaxes:** Relatively complex and large-scale fabrications which may include deceptions that go beyond the scope of fun or scam and cause material loss or harm to the victim. Contain false or inaccurate facts presented as legitimate facts. This category is also known in the research community either as half-truth or factoid stories able to convince readers of the validity of a paranoia-fueled story.

4. **Rumors:** Stories whose truthfulness is ambiguous or never confirmed (gossip, innuendo, unverified claims). This kind of false info is widely propagated on online social networks.

5. **Trolling:** Act of deliberately posting offensive or inflammatory content to an online community with the intent of provoking readers or disrupting conversation.

Dimensions for Identifying Disinformation
- Motivation: Can be financial, ideological, psychological.
- Facticity: Degree to which news and content rely on facts.
- Verifiability: Extent to which info can be verified. Content origin and genuineness.

Disinformation Techniques: Circular Reporting
- One source publishes info, and another source re-publishes it. First source then cites the second source and claims info comes from the second source.
- Deception technique to show a piece of info comes from multiple independent sources implying that the info is credible.
- User generated content is a common contributor of circular reporting (e.g. Wikipedia).

Assessing Validity of Knowledge: Citations are needed, fact check for fake news and identify logical fallacies and distortions.

Tips for Navigating Infodemic
1. Assessing the source
2. Go beyond headlines
3. Identify the author
4. Check the date
5. Examine supporting evidence
6. Check biases
7. Turn to factcheckers

How Logic Works
- **Premise**: Something we can reasonably assume to be true.
    - Ex: Cats are fluffy. Cosmo is a cat.
    - Argument: Premises 1 and 2 collectively imply a conclusion about Cosmo.
    - Conclusion: Cosmo is fluffy.

- **Logical Fallacies**: Mistakes that occur in arguments. Premises do not sufficiently support the conclusion. A factual error in premises does not lead to fallacies.