

Management Information Systems

30 Years of Information Theory, Practicality and Lessons Learned on One Page

I received my Bachelor of Science in Management Information Systems degree in December 1994 from San Jose State University. Vocabulary has changed in the information domain during the past thirty years, but the underlying fundamentals, semantics, and applicability have not. The following is my personal perspective based on three key principles for anyone responsible for information.

1. Method

Anyone with an information vision will have a methodology to define their strategy. If they cannot describe their methodology, then they cannot communicate. The person who can define each step in the method can also define workflows, whether internal to the organization or interoperability with their eco-system. During my graduation speech to SJSU MIS students a few years back, I recalled the REDI model and the evolved version of APDIO. Plan, Build, Run; choose a model and get going. The benefits of business alignment, risk and resource management and a framework for continuous improvements are the bedrock of a sound information strategy and methodology.

1. Approach

The execution phase of how information is formed, developed, curated, managed, and distributed relies on an understanding of the OSI model. One’s ability to explain how each layer impacts information flow will be in a position to succeed. If you cannot describe what happens to data at the session layer, then you’ll be at the mercy of biased views from network engineers, data analysts, application developers, InfoSec and device manufacturers.

Map each bit to its respective byte. Map each byte to data, whether structured, unstructured or semi-structured. Map data to content, whether text, audio, image or visual. Map content to information using AI. Finally, map the information to the use case and how it will be consumed. Digital Transformation will not take place without a method and approach that the team can follow.

2. Scale

The school of thought for hub and spoke or distributed architectures both have their place. The cost of scaling your capabilities will determine which approach is suitable. The computational cycles required to process digital bits and the associated SLAs will be based on CPU/GPU thread count performance. Everything else - development of code, configuration of services, maintenance and operations - will have room for efficiency gains. These gains are also extended to the emergence of green tech data centers.

The recent advancements in AI, low/no code development, and quantum computing will require the next iteration of *Method*, *Approach*, and *Scale* in order to manage these emerging information systems. Reality is already digitally blurred with XR leading the way with information now represented in voxels and spacetime patches. The challenge is whether the governance, privacy, and Quantum-Resilient cybersecurity measures will keep up with the pace of innovation.

Personally, as an Information Systems practitioner, it’s an exciting time. A few of us took our last University final exams during December 1994 and could only imagine what lay in store for our professional information careers. Here, in December 2024, I look forward to the next wave of information innovation and how the systems that manage it will propel us into a future that is even brighter.