# The Tool Box of the System Architect

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#### **Abstract**

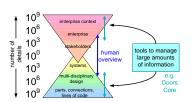
The toolbox of a systems architect is filled with a quite diverse collection of tools. We will discuss the "intellectual" tools, practical low-tech tools, a number of classes of computer assistance tools, and architecting related standards.

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September 6, 2020 status: draft

version: 0.1



### Classification of Architecting Tools

#### noncomputer tools

human-experience-based methods techniques patterns

low tech tools

paper pen yellow note stickers

*facilitation* workshops

#### computer-based tools

borrowed advanced tools

architecting specific tools

general-purpose tools

spreadsheet Excel

drawing Visio

scripting simulation

Python

organization infrastructure configuration management product data management change control

#### standards

process oriented ISO 9000, CMM-I

concept oriented

**IEEE 1471** 

artifact oriented

frameworks notations formalisms

DoDAF SysML

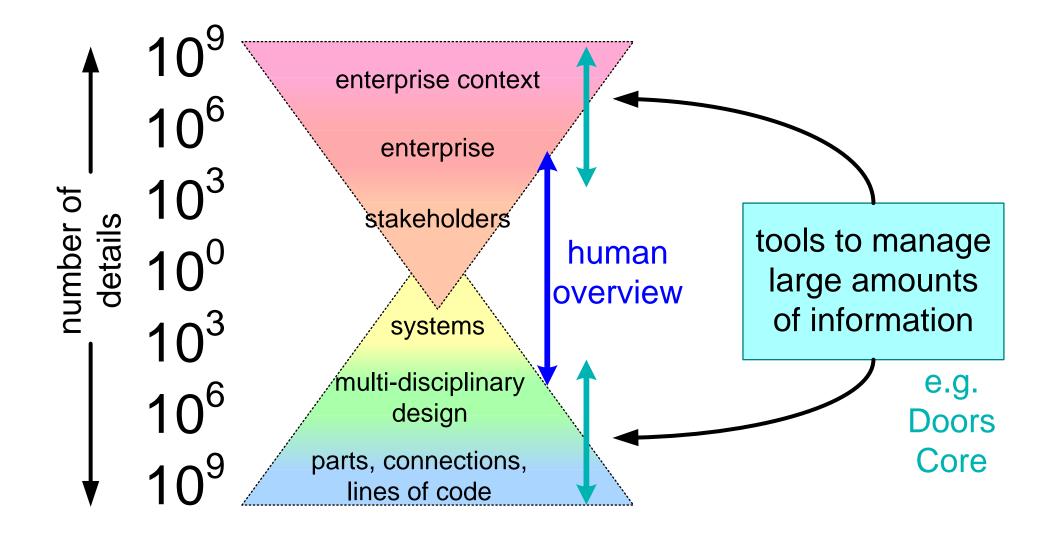


# 4 Quadrant Comparison of computerized and human tools

	humans	tools	
strength	focus on overview identify essentials understand relationships insight, intuition synthesis	tool dominates focus on details no understanding fragmentation	weakness
weakness	limited capacity erroneous behavior incomplete biased	"infinite" storage capacity "infinite" processing capacity complete neutral no errors	strength

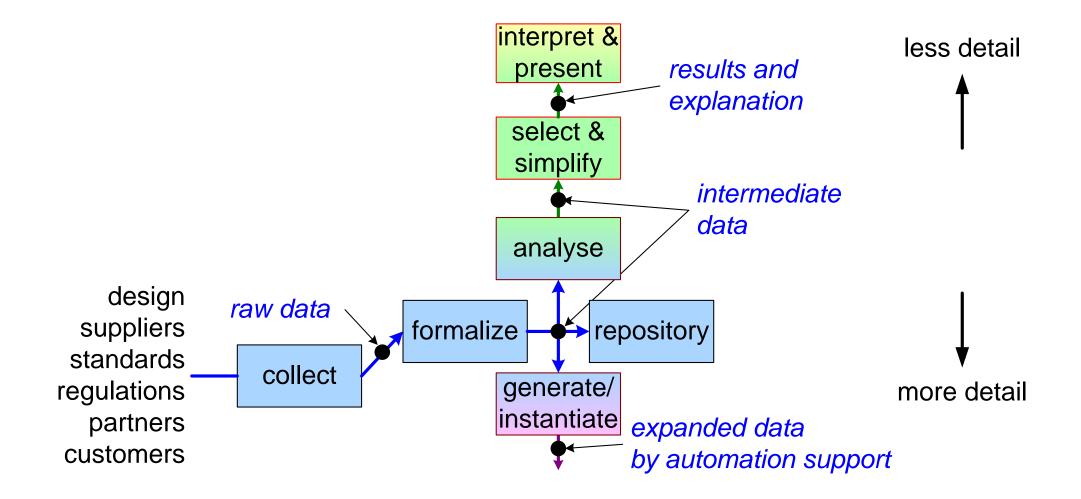


### Tools Support Processing of Large Amounts of Details



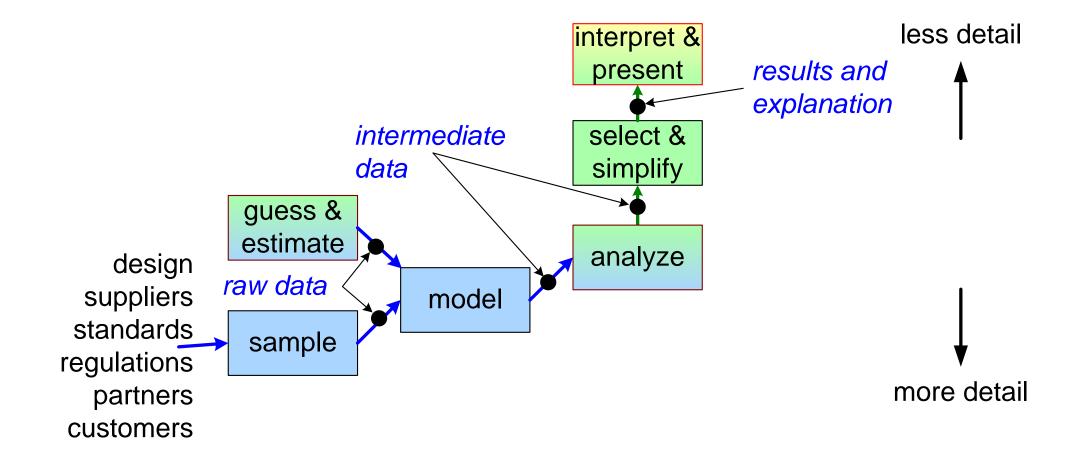


#### From Data to Understandable Information

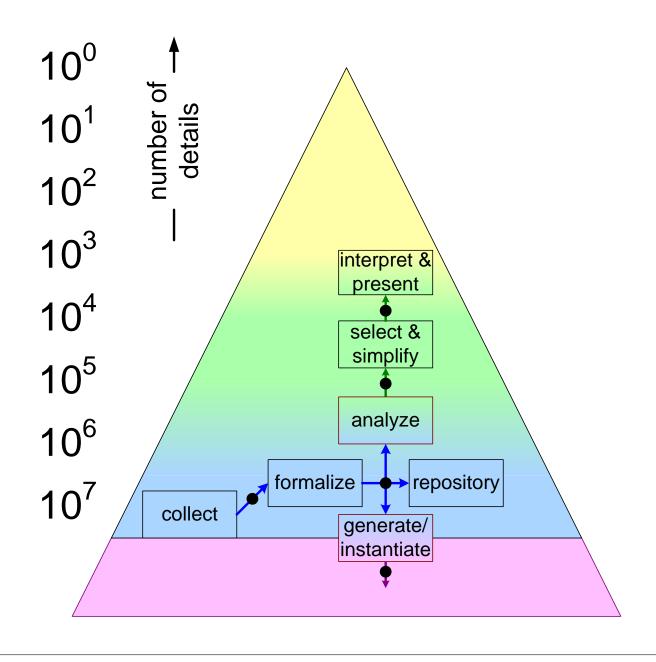




### Data Flow Early in Creation Process



# Data Flow Mapped on Pyramid



system

multidisciplinary

monodisciplinary

generated/ instantiated



### Formality Levels in Pyramid

