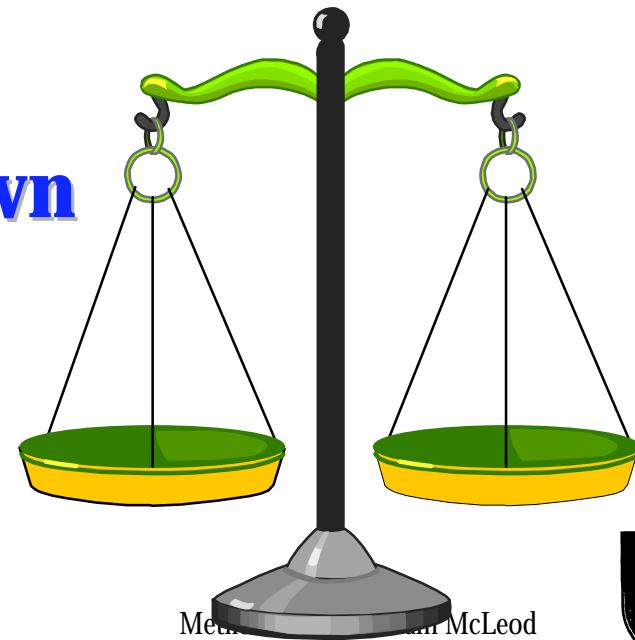


Method Points

Towards a Metric for Method Complexity

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Outline

▲ Methods Engineering

- Definition
- Objectives
- Need for Complexity Metric

▲ Method Modeling

▲ Function Points

▲ Method Points

- Graphic, Tabular and Textual Deliverables
- Task Complexity
- An example(I.E. vs UML)

▲ Suggestions for Future Work



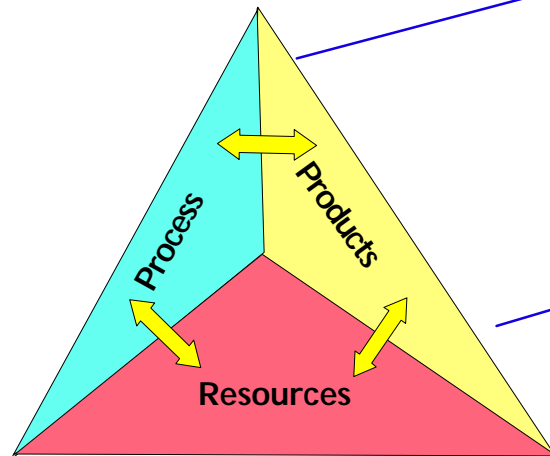
Methods Engineering

- ▲ The process whereby methodologists develop and enhance methods related to information systems in a disciplined way
- ▲ "Method engineering is the coordinated and systematic approach to establishing work methods" - James Odell
- ▲ Objectives
 - Structured, repeatable process for practitioners
 - Integration of techniques -> comprehensive approach -> broader problem
 - Incorporation of more powerful/sophisticated techniques
 - Specification of capable model notation and representation
- ▲ Difficulties
 - Method success dependent upon fit to problem and
 - difficulty of becoming proficient in the use of method
 - Complexity affects ease of use and quality of application
 - BUT no published techniques to measure complexity of methods to make quantitative comparisons
- ▲ Proposal
 - Develop a metric along similar lines to function points for information systems
 - Measure complexity via meta-data not size via deliverables

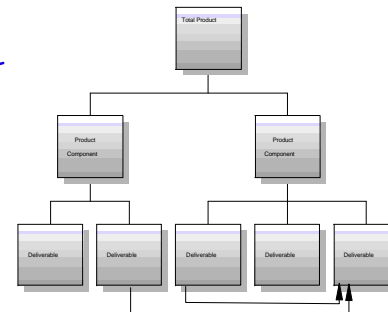


Modeling Methods

McLeod Method Model



Product Facet Node Structure

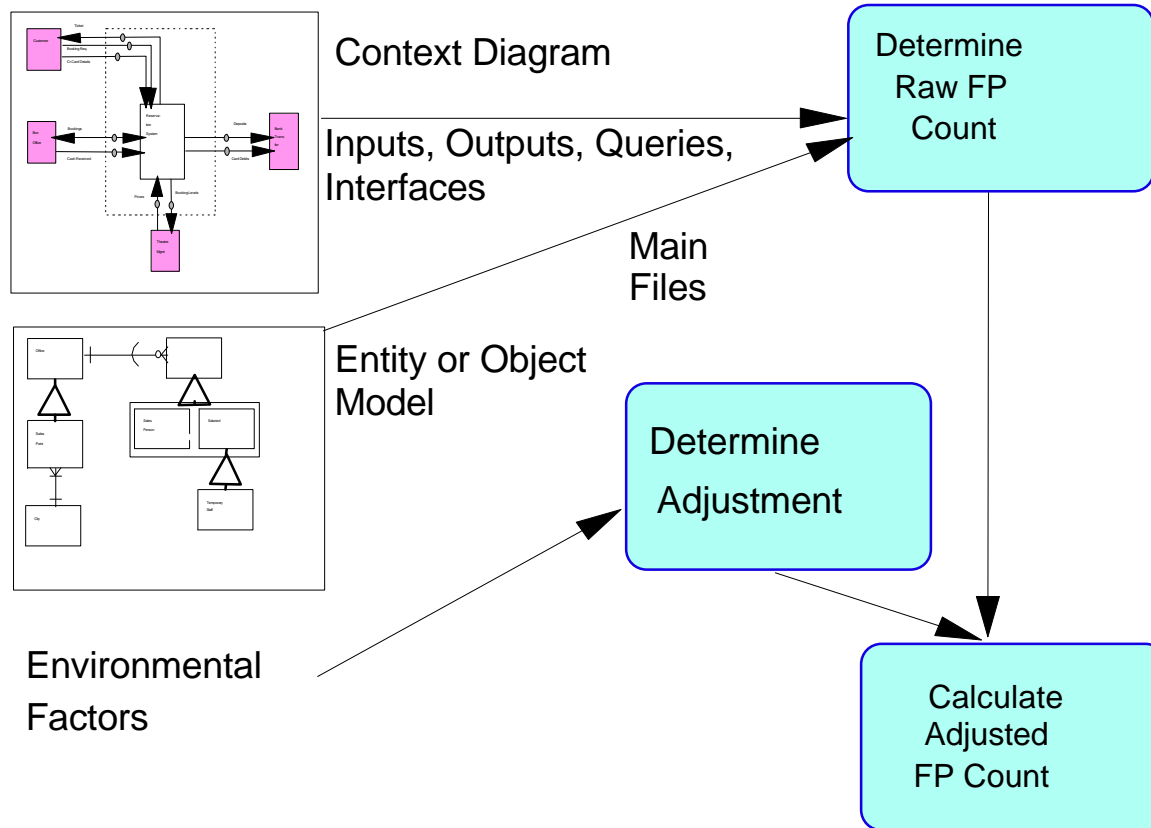


- Product Name
- Parent
- Children
- Prerequisites
- Subsequents
- Representation
- Data Content
- Purpose
- Validation Rules
- Example
- Quality Standards
- Associated Tasks
- Associated Resources
- Permitted States
- Estimating Method
- Tool Support



Function Points

Function Point Calculation



Method Points Process

- ▲ Express the method i.t.o. tasks, resources and deliverables
- ▲ Determine the counts for each type of deliverable
 - Graphic, Tabular, Textual
- ▲ Determine and add the count for task complexity

- ▲ Graphic Deliverables(weight)
 - Symbol types(1), Link types(.5), Embelishments(.5), Decomposition(.5,.5)
- ▲ Tabular Deliverables (Col .25,Embel .25, Decomp .5)
- ▲ Textual Deliverables (Sect .25,Pg .25, Hyperlink .5, Hierarchy .5)
- ▲ Compensate for Task Complexity



An Example: UML vs I.E.

- ▲ Static Structure Diagram vs Entity Relationship Diagram
- ▲ Use Case Diagram vs Context Diagram
- ▲ Static Structure Diagram (Score: 16.5)
 - Symbols: Class, Type, Template, Ternary Association (4)
 - Link types: Interface, Imports, Binary Association, Generalisation, Dependency, Refinement (3)
 - Embellishments: Bound Element, Utility Modifier, MetaClass Modifier, Pathname Modifier, Various on Associations, Details, Constraints, Derived Element, Navigation Expression (7)
 - Decomposition (2.5)
- ▲ ERM (Score: 4.5)



Example Continued

▲ Use Case Diagram (Score: 5.5)

- Symbols: Actors, Use Case (2)
- Link types: Communication, Extension, Uses, Refinement (2)
- Embellishments: Boundary (.5)
- Decomposition (1)

▲ Context Diagram (4)

▲ Findings and field validation

- UML SSD considerable more complex than IE ERD
- Use Case only somewhat more complex than Context
- Practitioners very this

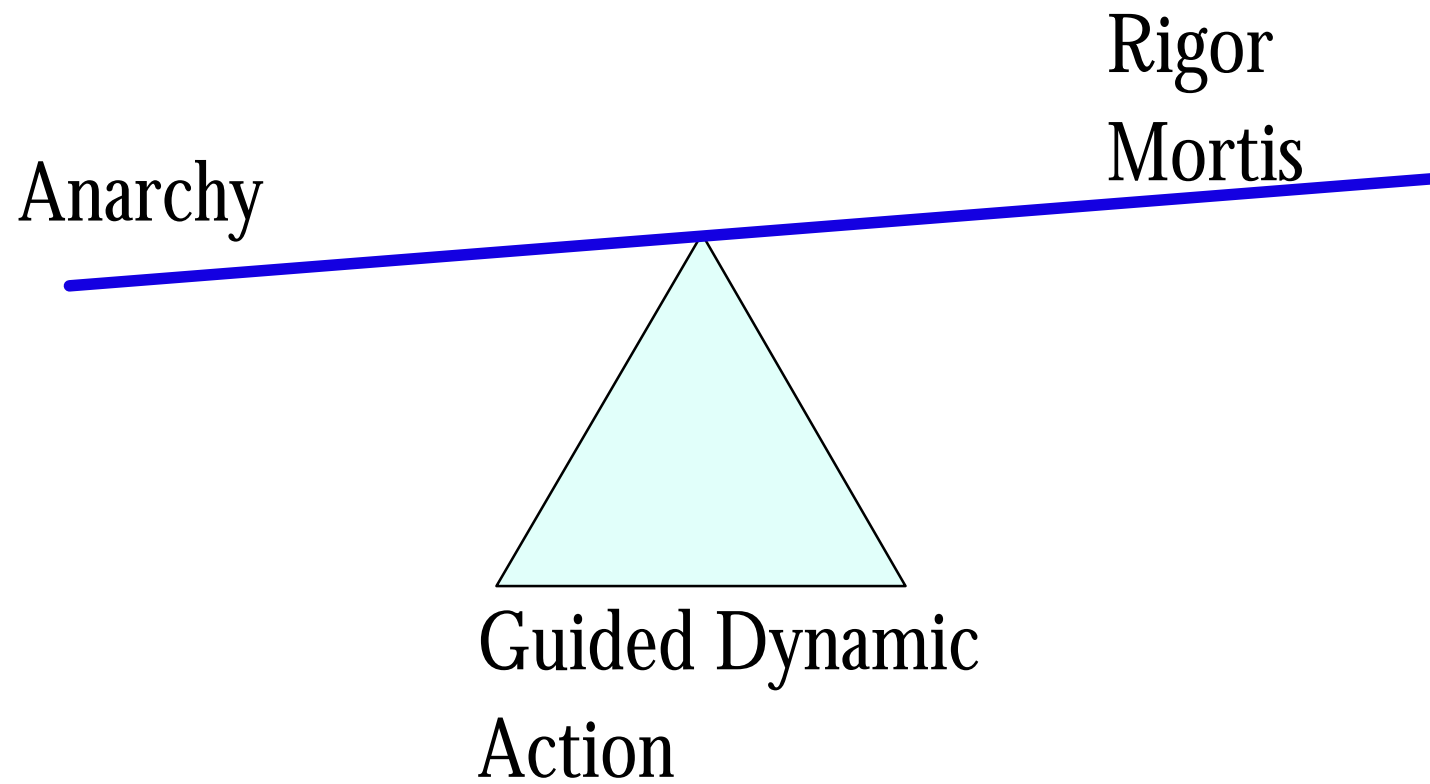


Further Work

- ▲ Complexity is one half of the story
- ▲ also need *comprehensiveness*
 - Lifecycle Coverage
 - Dimensions
 - Integration
- ▲ Adjustment for resource demands
- ▲ Uses
- ▲ Refinement of weights in the model
- ▲ Benchmark = 1 for I.E. improving with time
- ▲ Help me!



LiveMethod



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