

# EXPLOITING EMERGENT BEHAVIOUR AND RULE ASSOCIATION TO MAKE METHODS SIMPLER

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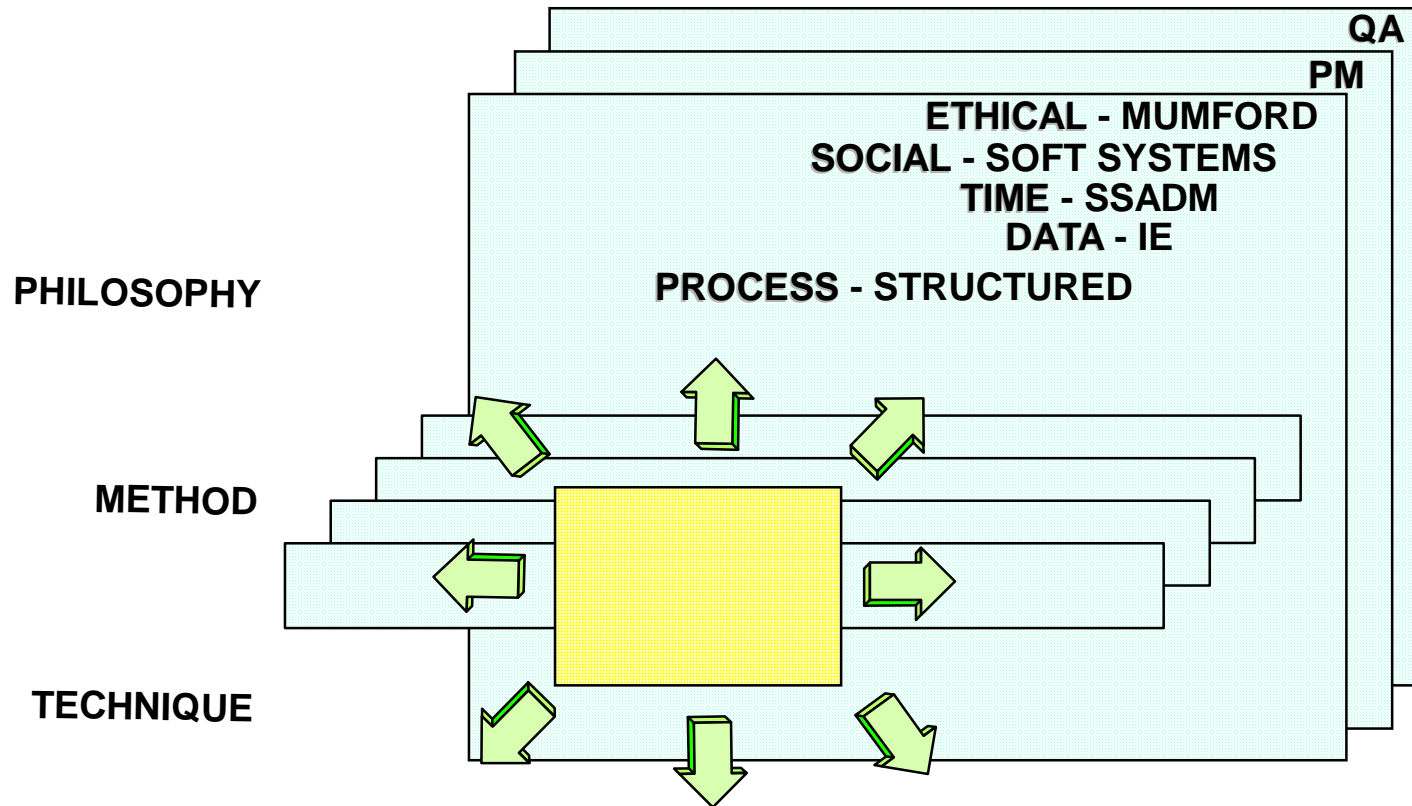


# AGENDA

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- ▶ METHOD SIZE, COMPLEXITY
- ▶ PROBLEMS AND ISSUES
- ▶ METHOD MODELLING AND A PARTIAL SOLUTION
- ▶ SELECTED A-LIFE EXAMPLES
- ▶ METHODS IMPLICATIONS

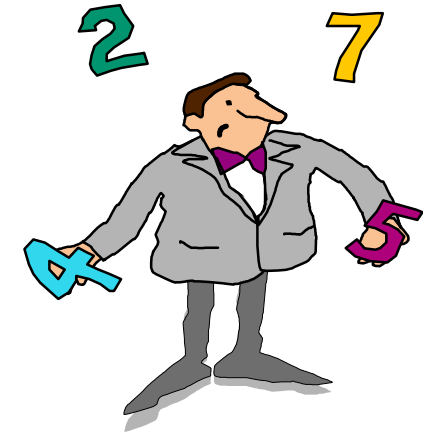
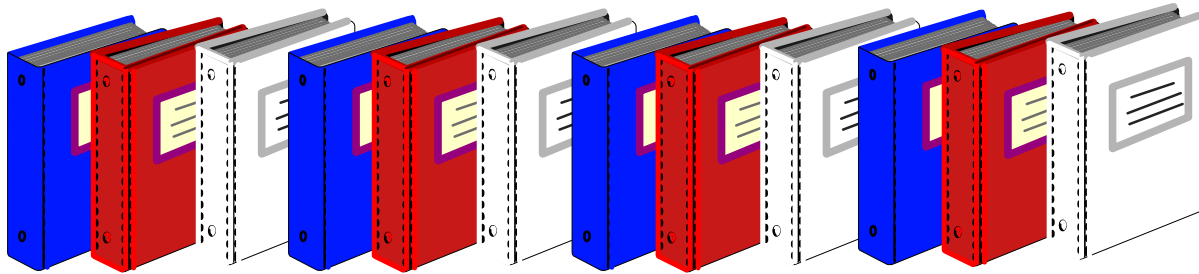
# METHODS BECOME COMPLEX, LARGE



TOOL

STRATEGY REQ DESIGN IMPLEMENT MODIFY RETIREMENT  
EXTENDED HACKATHORN, KARIMI FRAMEWORK

# PROBLEMS GENERATED



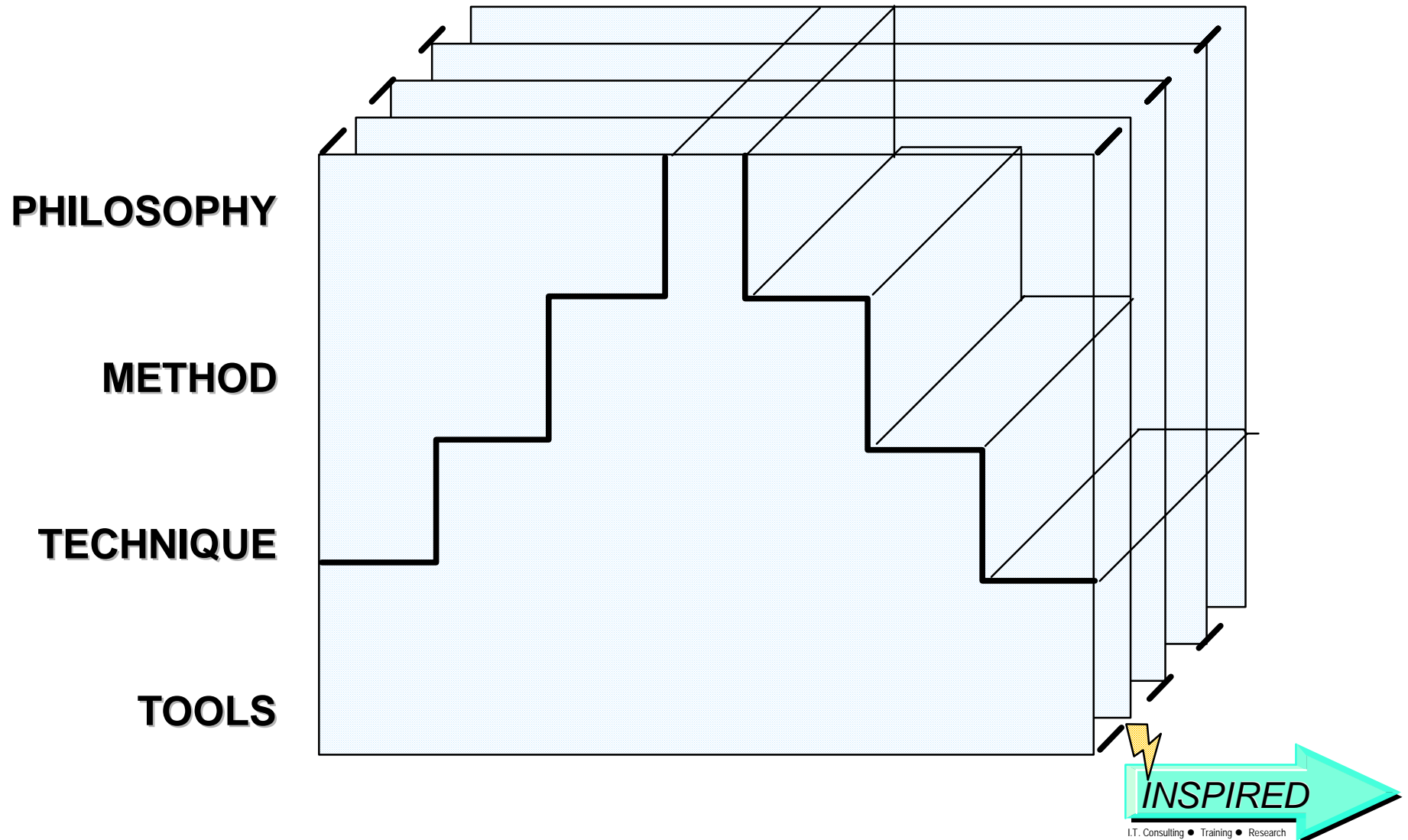
- **Developers Overloaded**
- **Methods**
  - Not taught correctly
  - Not understood
  - Not used
- **Benefits desired not achieved**

## Other Issues

- Method Suitability  
CONTINGENT
- Behaviour of social  
system is EMERGENT

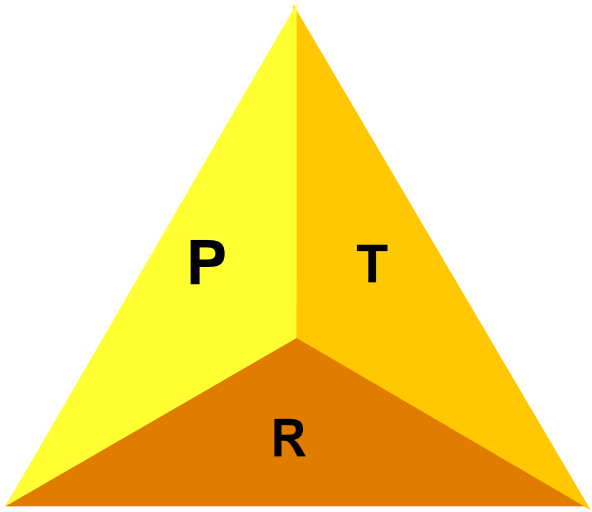
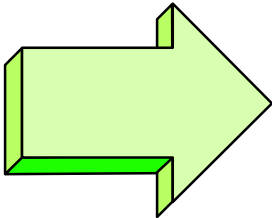
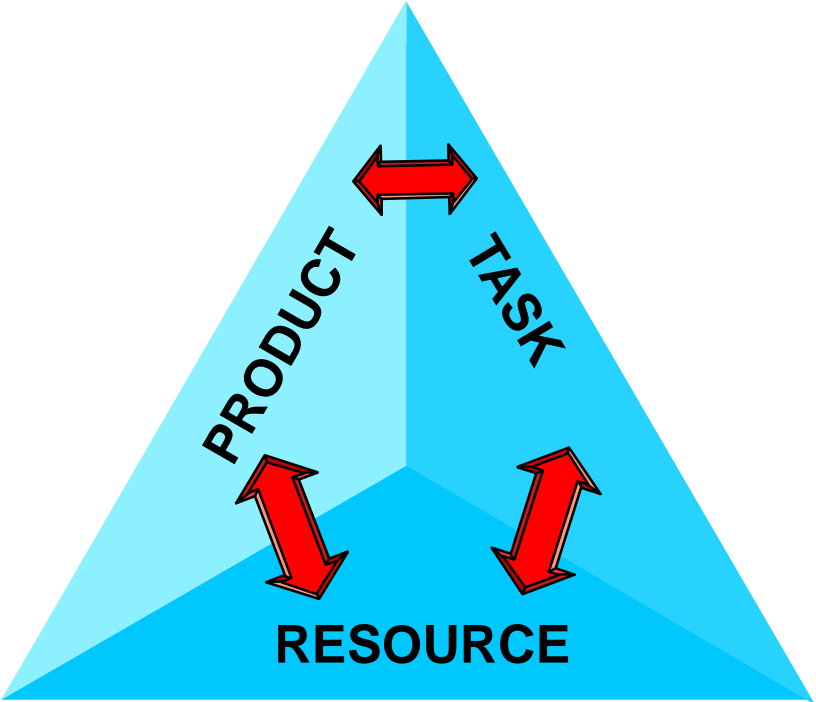
# VOLUME OF INFORMATION NOT UNIFORM

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# EARLIER WORK - PARTIAL SOLUTION

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**"PROJECT METHOD"**

**Organisational Method**



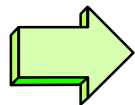
# ARTIFICIAL LIFE INFLUENCES

## "BOIDS" & BATMAN RETURNS



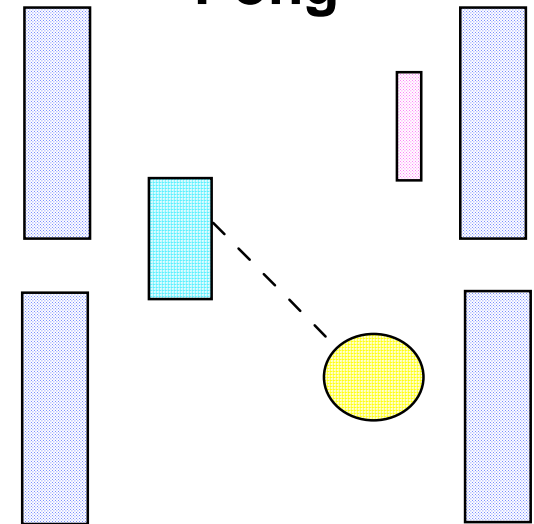
- Craig Reynolds*
- A. Don't descend at more than...
  - B. Don't bump into things
  - C. Stay within... of other boids...

**Small Rule Sets**



**Complex Behaviour**

*Loren Carpenter*  
" Pong "



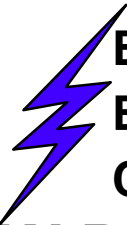
**And Flight Simulator**

- SHARED VISIBLE GOALS
- INSTANT COMMUNICATION FEEDBACK



# IMPLICATIONS FOR METHODS

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- **METHODS ARE A SOCIAL PROCESS**
  - **RULES CAN BE CLUSTERED FOR A TYPE OF PARTICIPANT ( A ROLE PLAYER )**
  - **CORRECT APPLICATION OF**
    - ▶ **RULES OF EXECUTION**
    - ▶ **RULES OF COMMUNICATION**
  - **PARTICIPANTS NEED ONLY KNOW RELEVANT SUBSET FOR THEIR ROLE**
  - **SOME EXECUTION RULES AND MANY COMMUNICATION RULES CAN BE AUTOMATICALLY PERFORMED**
-  **EFFECTIVE EMERGENT BEHAVIOUR OF THE COMMUNITY**

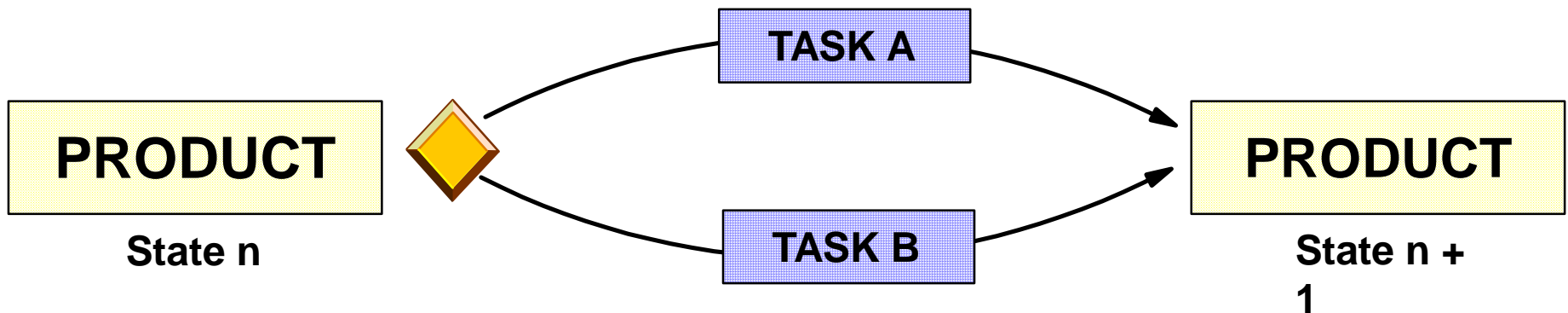
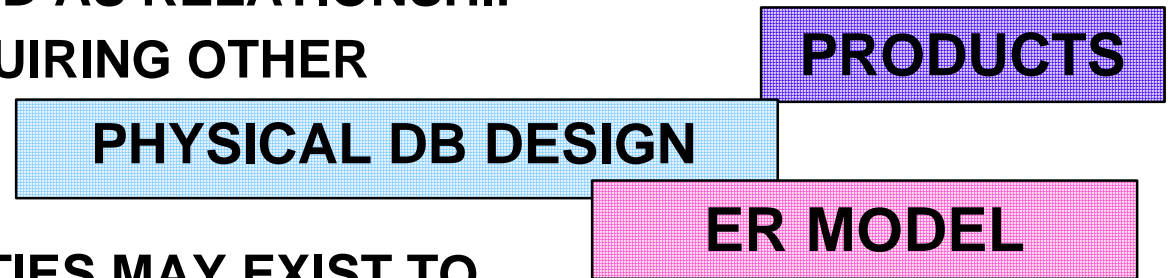
# SAMPLE RULES

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	EXECUTION	COMMUNICATION
<b>ANALYST</b>	<b>ALL OBJECTS AND ATTRIBUTES MENTIONED IN PROCESS MUST BE PRESENT IN THE DOMAIN MODEL</b>	<b>IF A NEW OBJECT TYPE IS REQUIRED FOR AN EXISTING DATABASE, CONSENSUS OF DOMAIN OWNER AND ARCHITECT MUST BE OBTAINED</b>
<b>PROJECT TEAM (PROJECT LEADER)</b>	<b>PROJECT EFFORT IS CALCULATED AS FOLLOWS: <math>E = P^{n/3}</math> WHERE E = EFFORT P = PERSON AND N = TEAM SIZE</b>	<b>IF PROJECT MILESTONE AT LEVEL 1 WILL BE MISSED INFORM LEADERS OF RELATED PROJECTS AND DEVELOPMENT MANAGER</b>
<b>ORGANISATION (AN APPOINTED "RADAR")</b>	<b>MONITOR LIFE OFFICE ASSOCIATION BULLETINS FOR LEGAL AND REPORTING REQUIREMENTS</b>	<b>COMMUNICATE NEW LEGAL REQUIREMENTS TO AFFECTED SYSTEM MANAGERS</b>

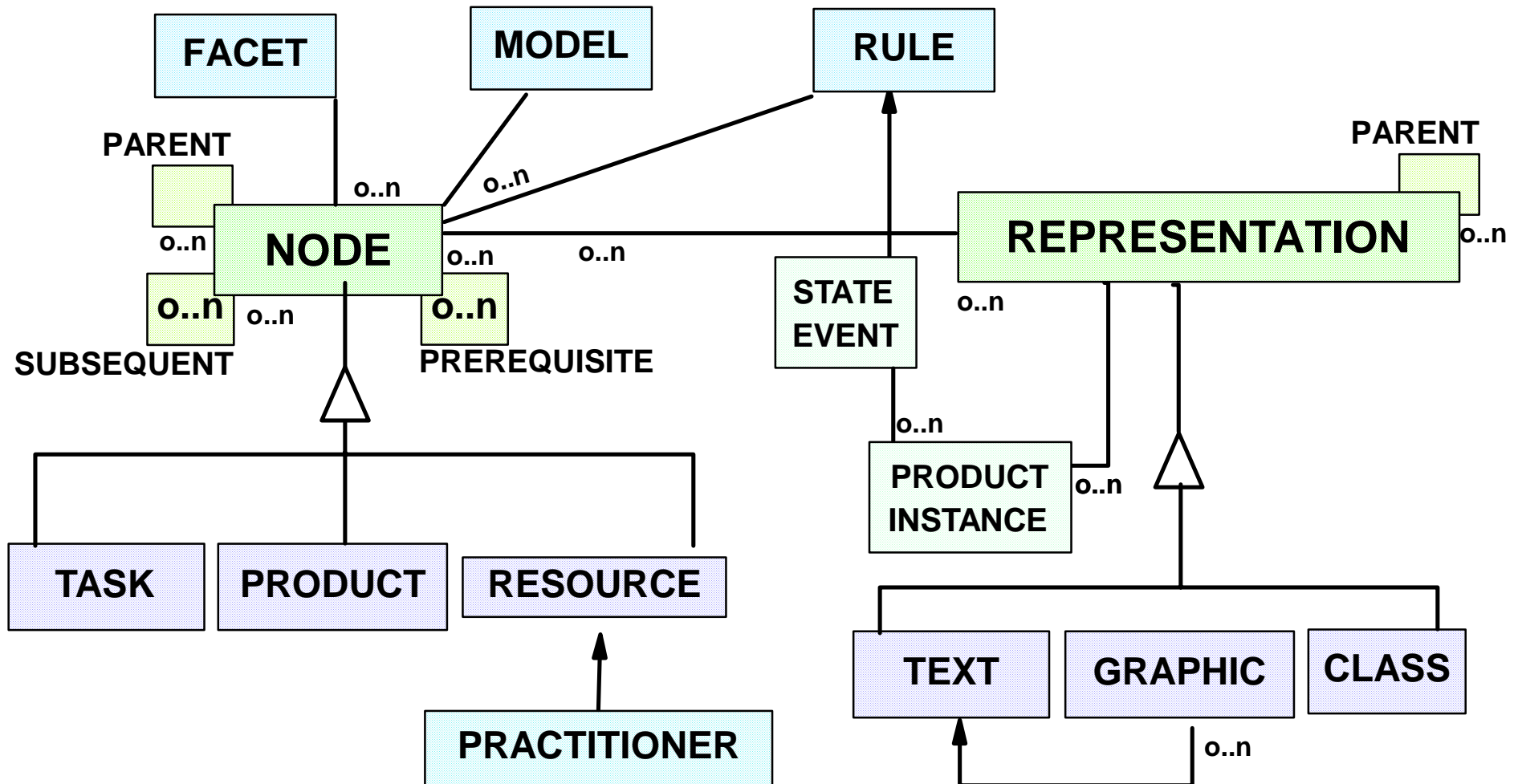
# RULES AND DEPENDENCIES

- DEPENDENCIES EXPRESSED AS RELATIONSHIP BETWEEN PRODUCTS REQUIRING OTHER IN A CERTAIN STATE EG. REQUIRES ATTRIBUTED
- MULTIPLE TASK POSSIBILITIES MAY EXIST TO ACHIEVE TRANSITION



CONTEXT VARIABLE AND RULE(S) MAY DETERMINE WHICH PATH TO CHOOSE  
VARIABLES MAY RELATE TO eg. SKILL LEVEL,  
TYPE OF PROJECT ( eg. IS / REALTIME )  
PROJECT PRIORITIES ( T, C, Q )  
TOOL AVAILABLE etc.

# GENERIC METHOD META MODEL



# OBSERVATIONS

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- **PEOPLE ARE NOT AUTOMATONS**
  - SUPPORT RULE DISCOVERY AS DESIRED
  - INTENT MUST BE COMMUNICATED
  - FEEDBACK ESSENTIAL
  
- **INTER/TRANET TECHNOLOGY, WORKFLOW ARE MAJOR ENABLERS**
  - DATA MUST RESIDE IN A REPOSITORY
  - METHOD DEFINITION AND RULES PLUS ARTIFACTS AND INSTANCES
  - GENERATE DYNAMIC PRESENTATION BASED ON NAVIGATION AND CONTEXT (INCLUDING USER)
  - PROVIDE AUTOMATED COMMUNICATION
  - PROVIDE INSTANT FEEDBACK MECHANISMS
  - ANALYSIS AND DESIGN DELIVERABLES AND METHOD DEFINITION VERSIONED AND CHANGE CONTROLLED

# SUMMARY

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- **RULE BASE FOR PRACTITIONER A FRACTION OF FORMER SIZE**
- **MUCH CAN BE DONE AUTOMATICALLY**  
**esp. COMMUNICATION**
  - **VIA STATE MONITORING AND WORKFLOW / GROUPWARE**
- **METHOD EFFICACY CAN BE TESTED VIA SIMULATION AND ANIMATION**
  - **ALSO A LEARNING AID**
- **INTRANET SUPPORT ENABLES PRACTITIONERS**
- **PROTOTYPE TOOLS UNDER CONSTRUCTION**
- **MUCH MORE RESEARCH REQUIRED!**