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# **An Interactive Information Infrastructure**

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Dan Shaughnessey, Blaine Taylor, Walt Turpening**

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**HyperEdge Expert Association Breakfast Presentation**

**A LIVING DOCUMENT**

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# TOPICS

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**Industry Need**

**Activity Modeling**

**Best Practices and Process Modeling**

**Summary**



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## **Industry Need**

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- **10 years, \$3+ Billion spent in Re-Engineering**
- **Unavailable Walking Data Bases**
- **Geotechnical Content**
- **Structure for a Quantitative Accounting of Goodwill, or Intellectual Capital**
- **"Tops-Down" Information Map or "Just-in-Time" Information Structure.**
- **Optimal Cost-Effective Timely Decisions**
- **Interactively Evolving ISO-9000 Environments**

**"There is economic benefit in working in a structured way !  
This is more than business process re-engineering, because  
there are principles behind the re-engineering."**



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# Activity Modeling Uses

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## **Planning:**

- How to attack an exploration play.
- How to produce a field.
- How to exploit by-pass pay opportunities.

## **Documenting:**

- Best Practices.
- Lookbacks.
- Training Materials.

## **Retrieving:**

- Project related Best Practice analogs.
- Knowledge related to a current project.
- Contractor products and services tied to specific activities.

## **Presenting:**

- Project related Best Practice analogs.
- Training Materials.
- On-Line Project status reports.



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# **Interactive Information Infrastructure**

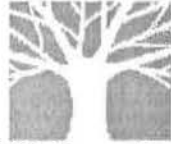
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**Interactive:** Access to data, information, knowledge and wisdom in a time-frame that allows a continuous train of thought.

**Information:** Data in context related to a specific purpose.

**Infrastructure:** The basic framework of a company including offices, computers, and communication channels.

**Synergistically combined these concepts provide an information map of the activities of an organization, enabling real-time access from and updating of smart libraries by every employee, creating a continuous improvement environment that actually uses Best Practices.**



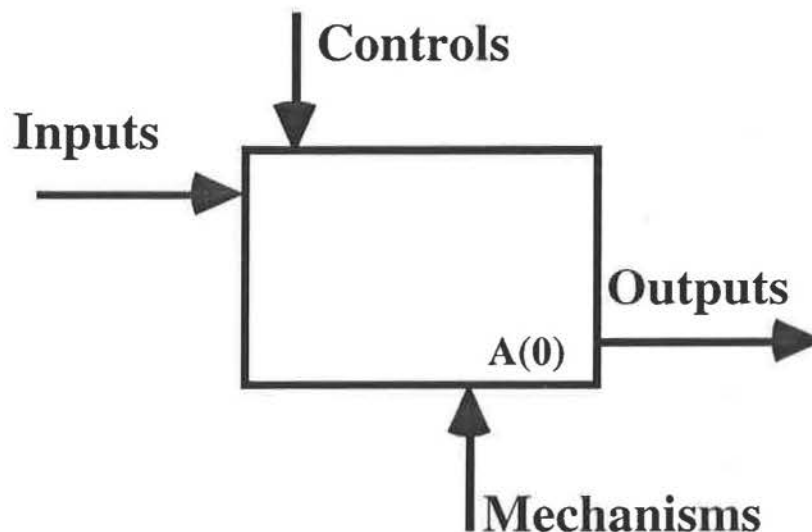
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# IDEF ICOM's

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**IDEF: Information Definition Exchange Format**

**ICOM: Inputs, Controls, Outputs, Mechanisms**

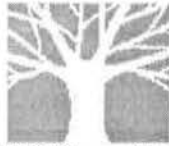


**Inputs:** data or material used to produce the output of an Activity.

**Controls:** data that constrain an Activity, regulating the transformation of Inputs into Outputs.

**Outputs:** data or material produced by or resulting from the Activity.

**Mechanisms:** usually people, machines, or existing systems that perform or provide energy to the activity.



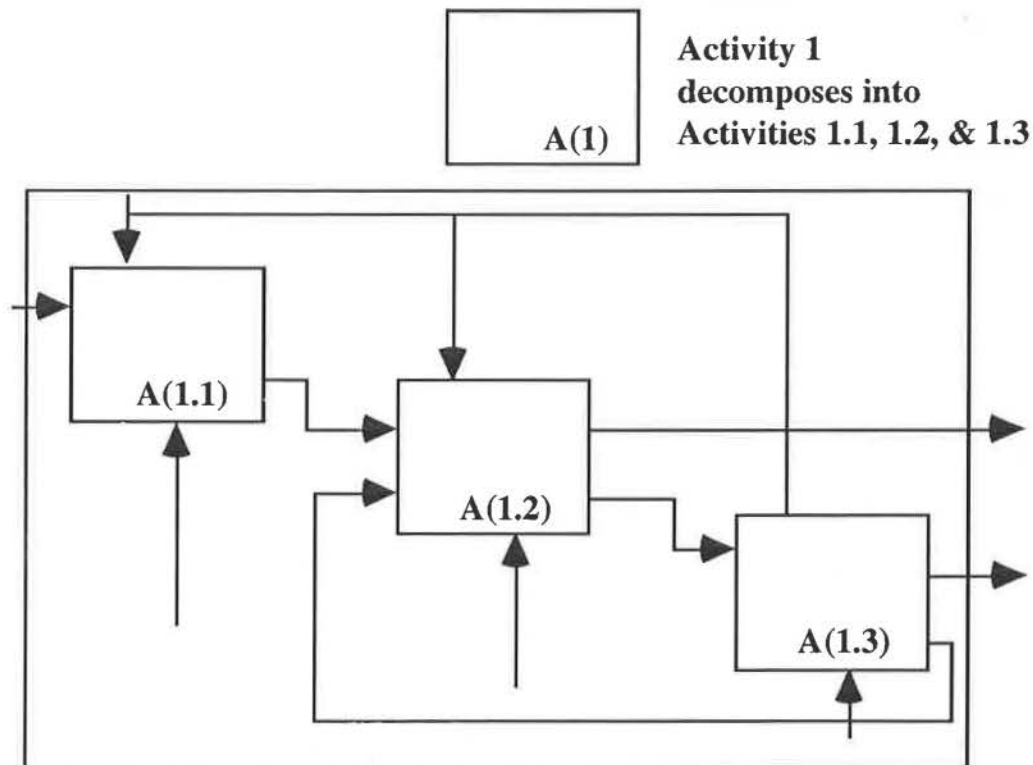
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# Activity Model Components

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**Node Trees:** showing hierarchical relationships.

**Decomposition Diagrams:** illustrating lower-level activities and their information relationships.



**Glossary:** defining terms and labels on the diagrams.

**Explanatory Text:** in paragraph form describing each entire decomposition diagram, including what goes on in each activity and how activities interact.



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# **Flatter Organizations**

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**Need an Information / Knowledge  
Information Management System  
to keep everyone on the same page.**

**Need to replace the routine, repetitive  
activities functions middle-management  
has provided in the past with embedded  
processes / procedures.**

**Information:** Data in context,  
related to a specific purpose.

**Knowledge:** the progressive gathering of bits of  
experience, along with links which associate these  
disparate parts into a unified whole.

**"The Interactive Information Infrastructure"  
provided by a well designed Activity Model has many  
uses because it is built around natural divisions in the  
work processes and looks across the entire company."**

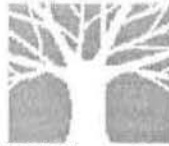


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## **Uses of Activity Model:**

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- **An information map relating business Activities to human and physical resources.**
- **A single point of reference keeping track of available contractor products and services.**
- **A line of accountability from consultant or consulting group to the oil company client.**
- **A place to bring up Best Practice analogs to guide complicated Activities.**
- **A location to store "lookbacks" on documented Activities.**
- **A technical information foundation upon which to build Process Models.**
- **A classification scheme for a Smart Library.**



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# **"Functional" Activity Models**

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- **Geological Sciences:**
  - **Structure\*\***
  - **Stratigraphy\*\***
  - **Petrophysics\*\***
  - **Geochemistry\***
- **Seismology:**
  - **Acquisition\***
  - **Processing\***
  - **Interpretation\***
- **Reservoir Engineering:**
  - **Data Acquisition\***
  - **Pressure/Temperature Interpretation\***
  - **Reservoir Simulation\***
  - **Core Analysis**

\*Completed Activity Model

\*\*Contracted Activity Model



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# "Cross-Discipline" Activity Models

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- **Acquire Assets:\***
  - Opportunities
  - Economics
  - Acquisitions
- **Asset Management:\***
  - Controls
  - Finances
  - Mechanisms
- **Information Management:\***
  - Technology
  - Model
  - Asset
- **Geology:\***
  - Regional
  - Play Fairway
  - Prospect
  - Reservoir
- **Sequence Stratigraphy:**
  - Outcrops and Logs
  - Seismic Stratigraphy
  - Simulation
- **Activity Modeling**

\*Completed Activity Model



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# **Relationship between: Activity Models, Best Practices, and Process Models**

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**Activity Models answer the questions What? and Why?**

**Activity Models are a  
theoretical Information Infrastructure and  
are dependent on:**

- **Domain Expertise**
- **A good Activity Modeler.**

**Best Practices also answer the questions How? and Who?**

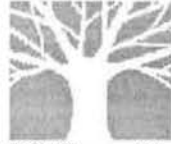
**Best Practices are dependent on:**

- **Skills**
- **Processes**
- **Solutions (Case Histories)**
- **Resources**

**Process Models also answer the question When? and Where?**

**Process Models are dependent on:**

- **Organization**
- **Corporate Culture**
- **Best Practices**
- **Activity Model**



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## **Introductory Pricing\***

### **Activity Models:**

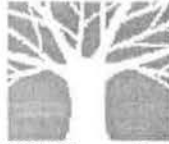
<b>New Functional Models:</b>	<b>\$10,000</b>
<b>Existing Functional Models:</b>	<b>\$ 4,500</b>
<b>New Cross-Discipline Models:</b>	<b>\$20,000</b>
<b>Existing Cross-Discipline Models:</b>	<b>\$ 9,500</b>

**Best Practice:** **\$ 4,000 +/-**

**Process Models:** **\$40,000 +/-**

**Annual Maintenance: 18% of purchase Prices**

**\* A function of development time and does not include software to distribute and review the Activity Model**



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# **Delivery Platforms:**

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**Goal is to use hypermedia technologies like:**

**Acrobat  
EBT  
FrameMaker  
HyperEdge  
Lotus Notes**

**Also can uses spread-sheets:**

**M/S Excel  
Lotus 123  
Wings**

**Or Process Modeling Software:**

**LBMS**

**Or Activity Modeling Software:**

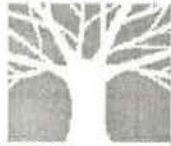
**IDEF Design**



# **HMC Consultants' Responsibilities**

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<b>Activity Modeling:</b>	<b>Charley Rego</b>
<b>Asset Acquisition and Dispersal:</b>	<b>Merrill Littlewood</b>
<b>Asset Management/Strategic Simulation:</b>	<b>Evan Pappas</b>
<b>Best Practices:</b>	<b>Roice Nelson</b>
<b>Environmental Sciences:</b>	<b>Walt Turpening</b>
<b>Information Management</b>	<b>Blaine Taylor</b>
<b>Risk and Economic Analysis:</b>	<b>Laura Kay Ethetton</b>
<b>Seismic Acquisition:</b>	<b>Jeff Hume</b>
<b>Seismic Interpretation:</b>	<b>Dan Shaughnessy</b>



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# Summary

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- **The Oil & Gas Industry need is to make economically feasible decisions optimizing company value and minimizing risk.**
- **Given the typical oil company structure, there is no recognized quarterly shareholder value in managing information. This is currently captured as "goodwill."**
- **The key is to manage information as part of ongoing operations within an interactive information infrastructure.**
- **Activity Modeling provides a framework for the infrastructure**
- **Best Practices provide an environment of continuous improvement.**
- **Process Models optimize activities of a project, division, or business unit.**
- **HyperMedia Partners can help companies build this environment by:**
  - **Selling or Building**
    - **Activity Models,**
    - **Best Practices or**
    - **Process Models**
  - **Providing geotechnical consulting services**

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# **Living Document**

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**This presentation is the introduction of  
a "living document" that will be updated and is  
posted on the INTERNET's World-Wide-Web at:**

**<http://www.hypermedia.com/breakfasts/06Apr95.html>**

**Hardcopy versions are available by request.**