



DATAMINE

Creating Business Value from IDEF0-Based EA Modelling – Making Software More Process Aware

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Outline

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- *Datamine - Background*
- *Mining Challenges*
- *Datamine's Solution*
- *Requirements Analysis using IDEF0*
- *Data Integrity*
- *Benefits of Process*
- *Questions*

Datamine - Background



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- ***UK Based Company – started in 1980's***
- ***Supplier of Software Technology & expertise to Mining Industry***
- ***Regional Offices on all major mining continents***
- ***>80% of staff are graduate mining / exploration trained***
- ***Goal***
 - ***The Datamine Group is the world's leading supplier of technology to the mining industry. Our goal is to become a key business partner for mining companies and consultancies by offering the best products and the best people in every major mining region in the world.***
- ***More information from***
 - ***<http://www.datamine.co.uk/>***

Mining Challenges (1)

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Booming
World
Economy

Raw Material
Shortage

Many
Resource
Companies

The Next
Big Mine

Maximise
Shareholder
Return

Technical
Skills
Shortage

Mining Challenges (2)

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Different commodities

Platinum

Gold

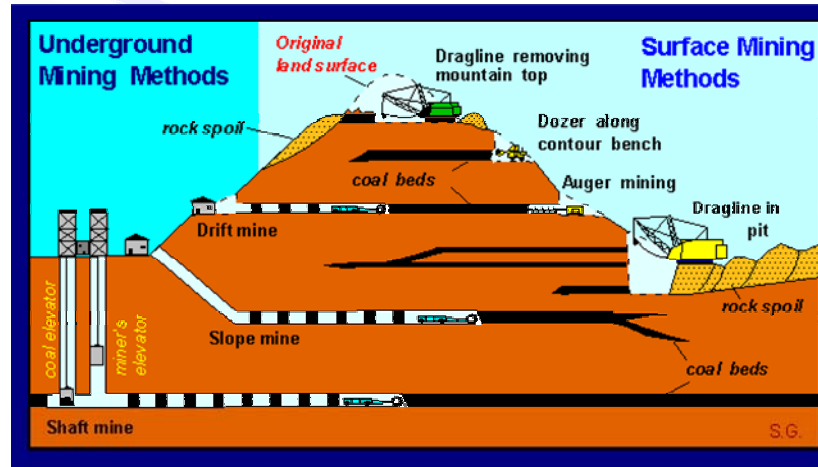
Base Metals

Uranium

Diamonds

Coal etc.

Different Mining Methods



Variable Data Sources

Paper Records

MS Excel Spreadsheets

Various proprietary Database Systems

Mining Terminology

Stopes Rings Development

Drives Waste Reconciliation

Cubbies Ore Exploration

So how do you get a single software suite to support all these challenges ?

Datamine's Solution

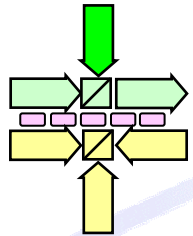
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1. Have a set of modules that cover the whole Mine Planning Cycle
2. Have Process Methodology as a key part of doing work.
3. Use IDEF0 Modelling to perform
 - Requirements Analysis
 - Produce Process Aware Software Solutions

This is known as the **Datamine Enterprise Methodology.**

The Solution for the Mine Planning Cycle

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Open Pit

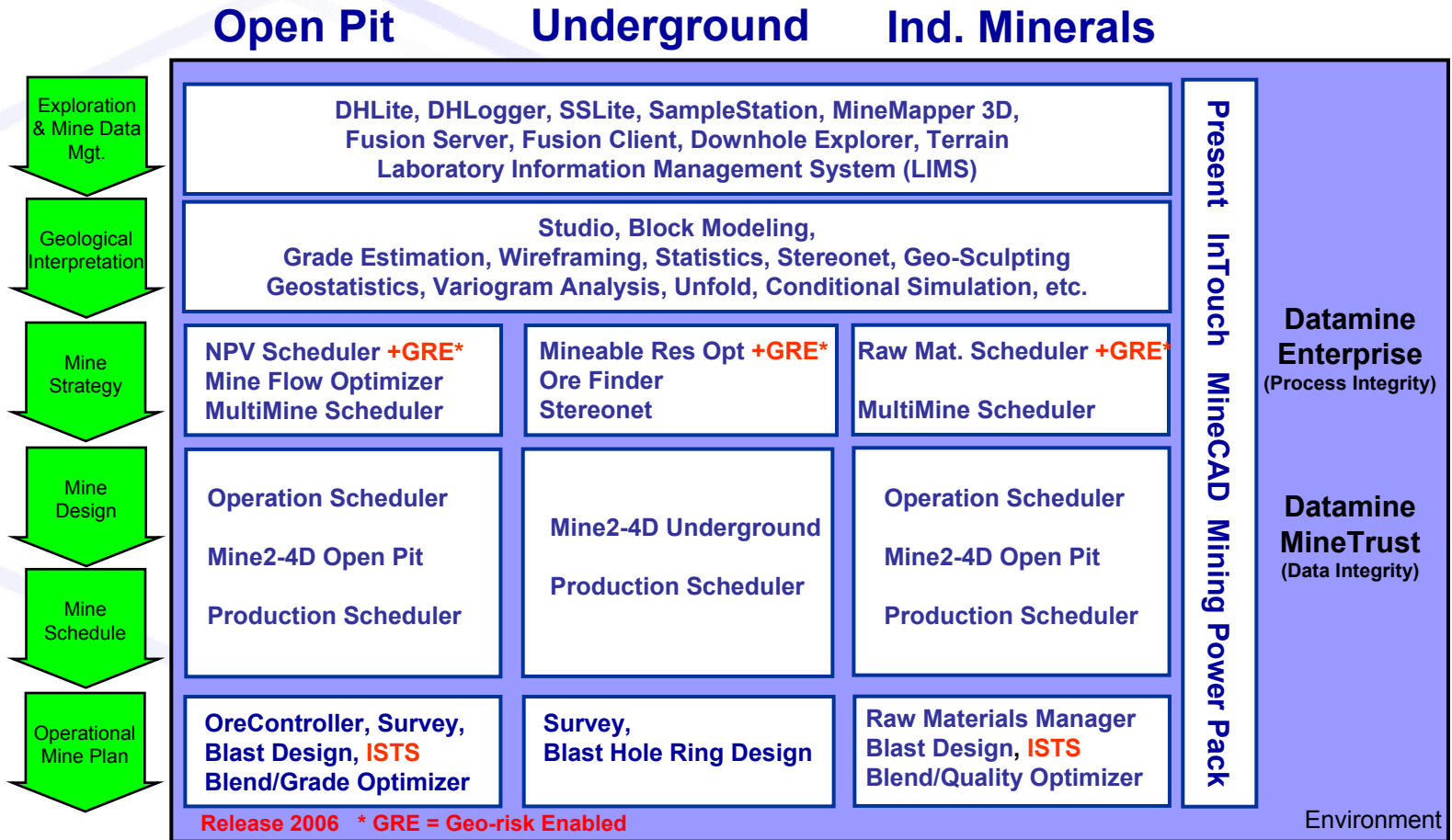
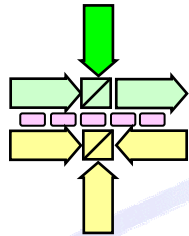
Underground

Ind. Minerals



Operational Process Analysis to Solution Footprint

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Why Capture Requirements?

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- To understand and document work processes within a business
 - Facilitates information flow
 - Introduce business process concepts
- To improve business processes
 - Analyse performance
 - Reduce Costs
- To develop software that is useful and functional to a business
- To provide the business with what is required
- **Datamine want to be in a situation where software**
 - **Is easy to use – intuitive**
 - **Controls processes and to assist in the workload**
 - **Is generated (partly) from designs of operational processes**

Datamine Preferred Analysis Tool

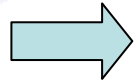
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- The preferred analysis method is IDEF0 – using AIOWin software
- Allows the capture and visual representation of any real world process
- Can be used to model the same functionality from different viewpoints
 - **This is a very important topic**
 - A model is an idealised view of objects, activities, properties and relations designed to imitate the character of a real-world system
 - The power of a model comes from its ability to simplify the real-world system it represents, and to be able to predict facts about that system
- IDEF0 handles complexity by decomposing an activity into finer levels of detail

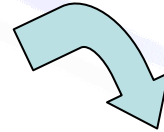
Steps in Requirements Analysis

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Interview
Client



As-Is Model



To-Be Model



Datamine
To-Be
Model

Embellished with information
to allow automatic
generation of code

IDEF0 Model Content

- **Activities** – things that need to be done
- **Mechanisms** – things or persons that act on the activity in order to produce an output. Mechanisms support the execution of the activity
- **Inputs and Outputs** – things that are input and output from the system
- **Controls** – things that constrain the activity to work in a certain way, they specify the conditions required for the function to produce correct outputs. Think of items such as
 - Company standards
 - Guidelines
 - Templates
 - Legends and limits

Common "As-Is" Data Repository

Paper Records

MS Excel Spreadsheets

Various proprietary Database Systems

Desired "To Be" Data Repository

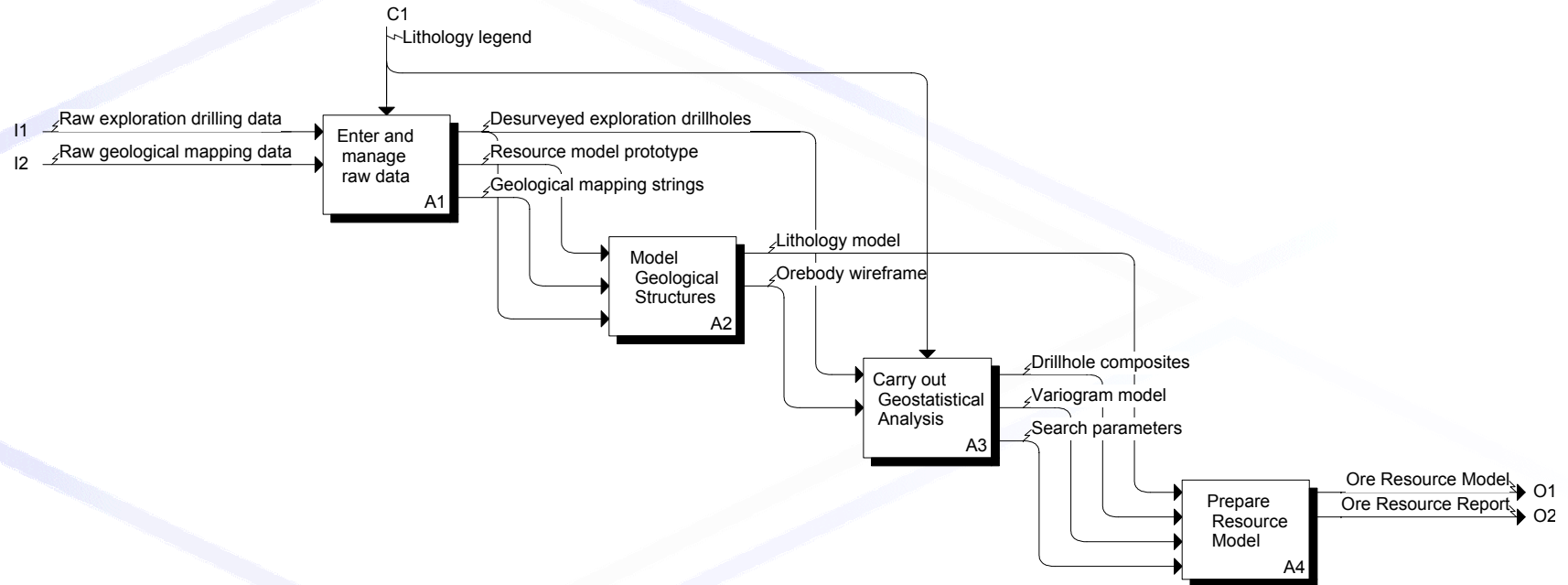
Data stored in a central repository
Accessible at all times

Data storage is within context
Files relating to a particular part of the client hierarchy are stored together

Client data is organised in a way that allows files to be version controlled

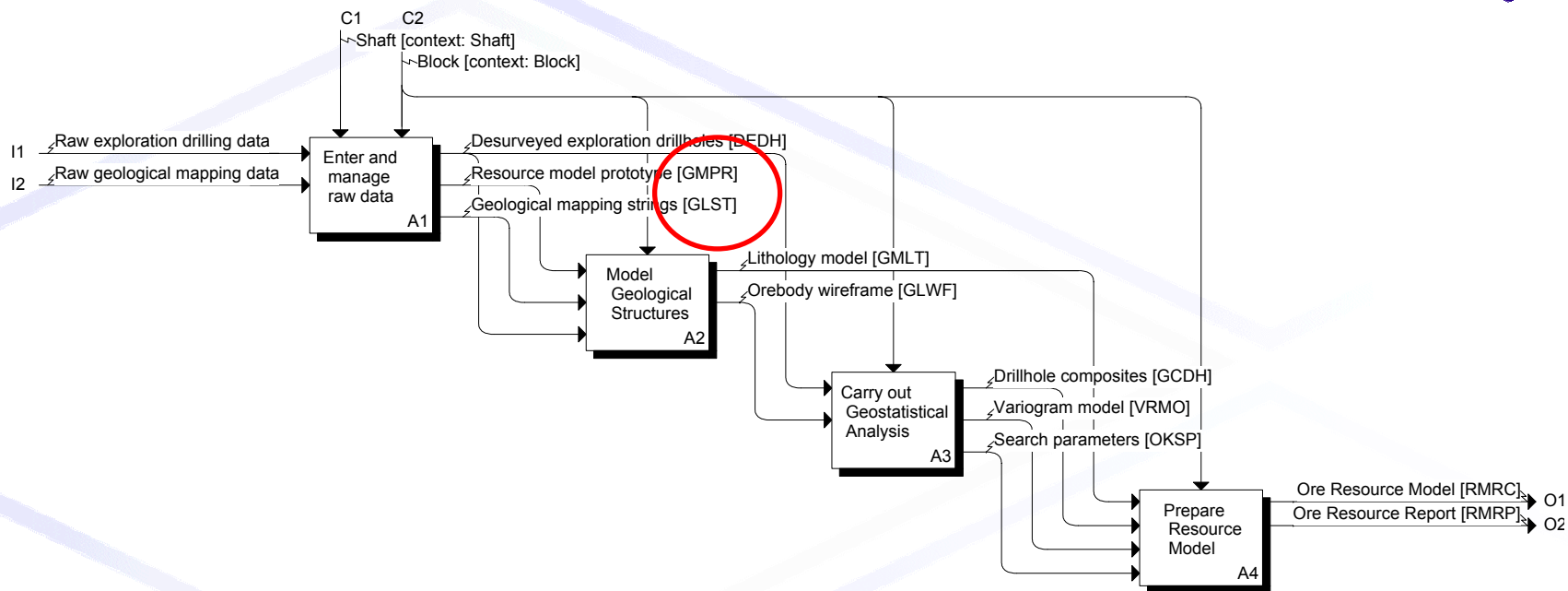
Uses Microsoft Visual Source Safe (VSS) and Mine Trust

Standard IDEF0 Model



Datamine Enhanced IDEF0 Model

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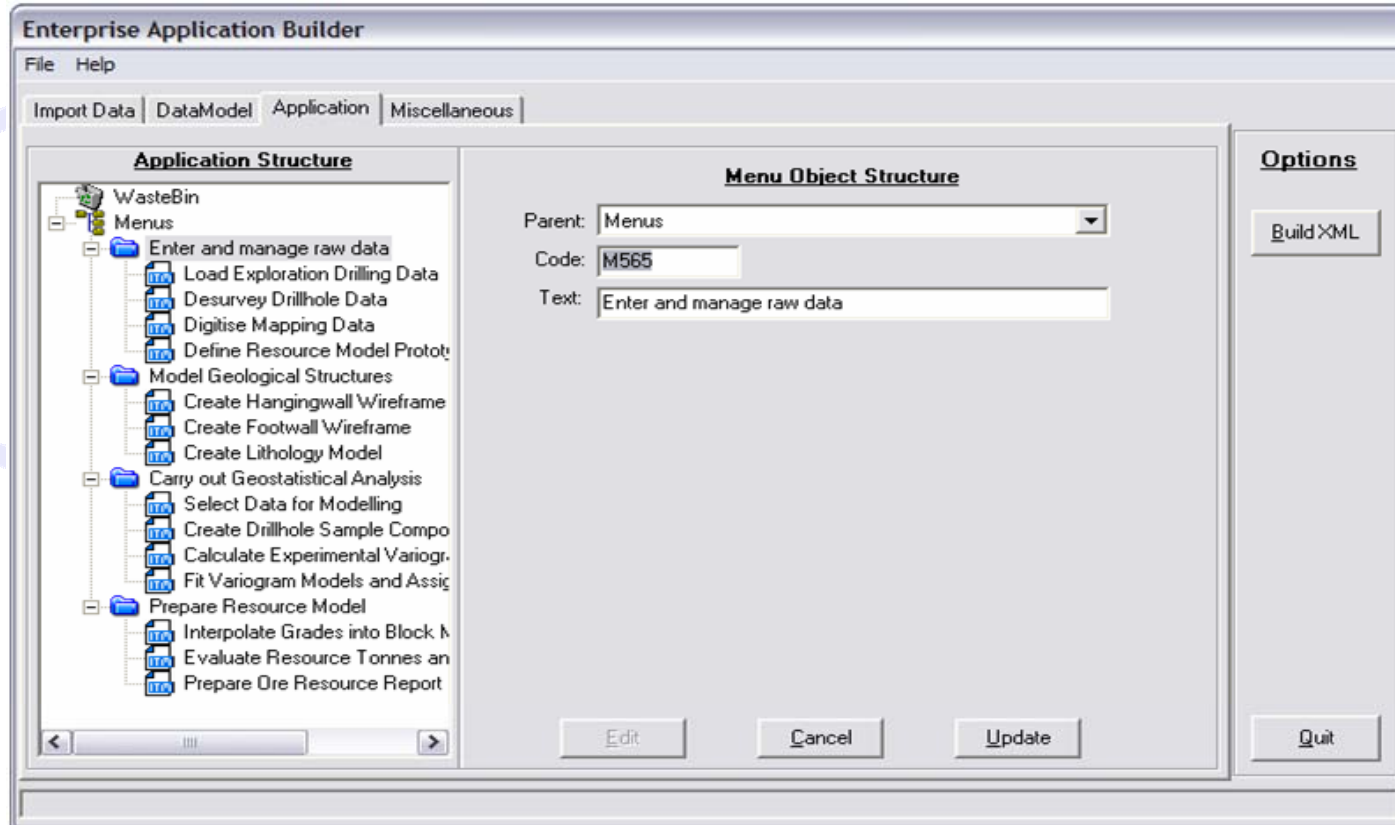
Linking Data Sources to Process Activities

Outputs GMPR, GLST etc are Datamine files, with defined structure and position within the Database

Creating Client Specific Menus

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Linking Processes to Application Menus

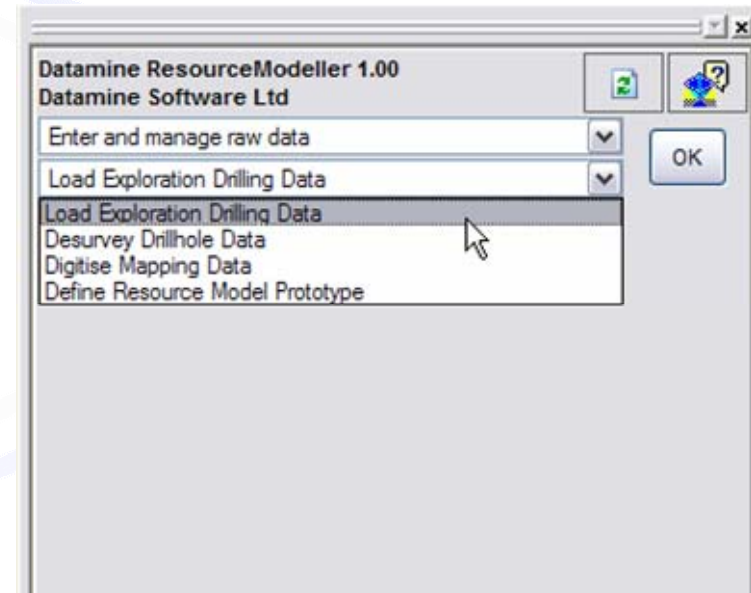
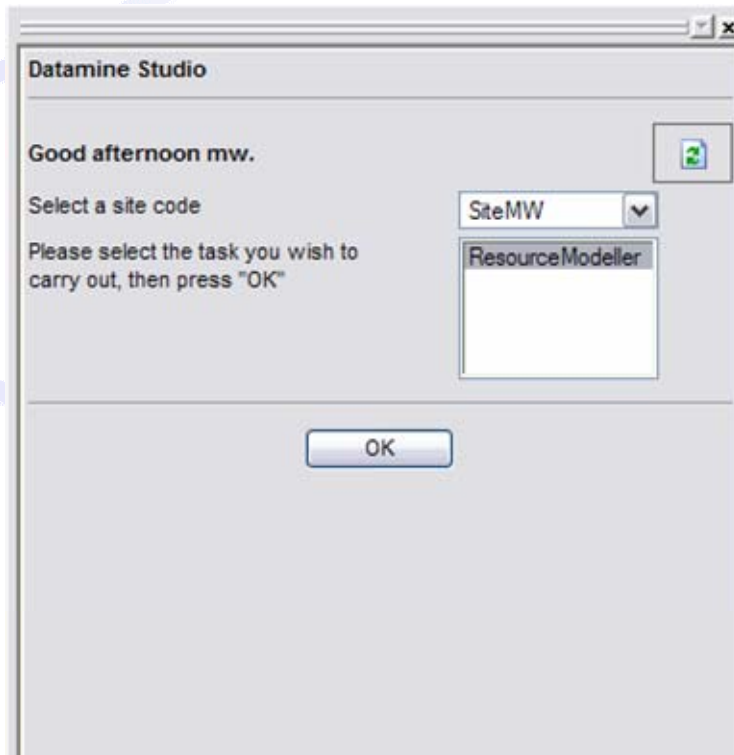


Transfer of IDEF0 Data to Enterprise Application Builder uses XML export functionality from AOIWin & some editing of XML Scripts

Using Client Specific Menus

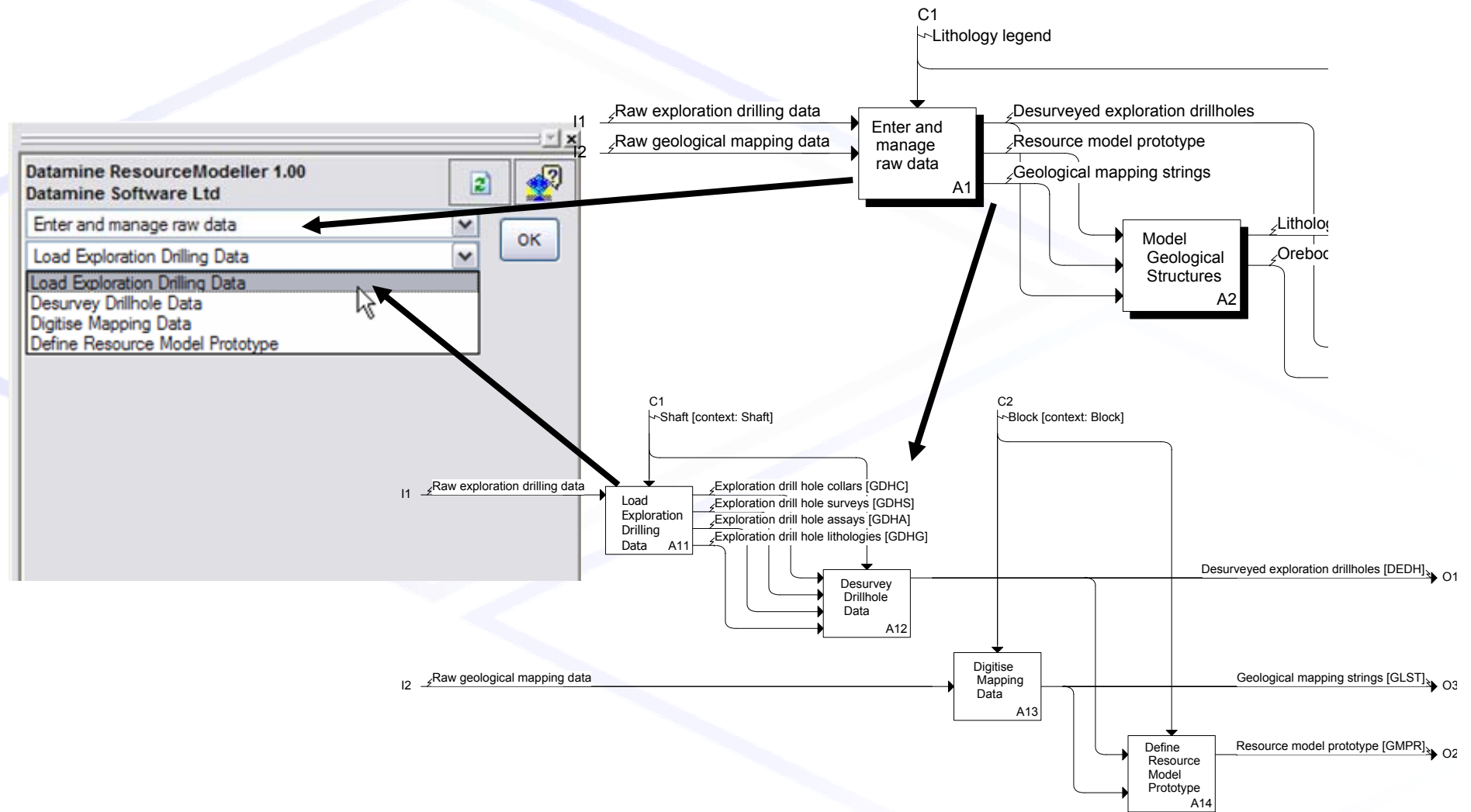
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- Select the Site and Product and click OK
- Select the menu and secondary menu item to display the dialog



User doesn't need to know where the data is stored or what happens – and each time the same action will be undertaken the same way.

Link between IDEF0 & Menus

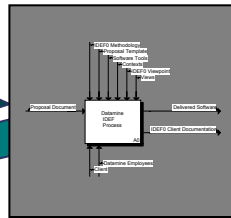


Summary of Process (1)



Requirement capture and analysis of the As-Is and To-Be models

Talking To To-Be Model



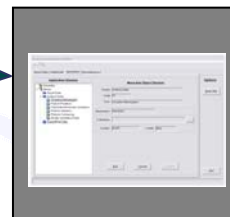
Modelling of the As-Is and To-Be models and generation of the Datamine To-Be model

To-Be Model To Unreadable XML Code

```
* attached_activity_use_id="7247">
<concept_base_cost_info>
<cost_per_time></cost_per_time>
<cost_per_unit></cost_per_unit>
</concept_base_cost_info>
</concept_use>
<concept_use_id="741">
pool_id="240" breakdown_id="0">
<attached_activity
form_type="Output"
attached_activity_use_id="7247">
</concept_use_cost_info>
</concept_use_cost_info>
</concept_use_cost_info>
</concept_use_cost_info>
```

Generation of XML Code from the Datamine To-Be model

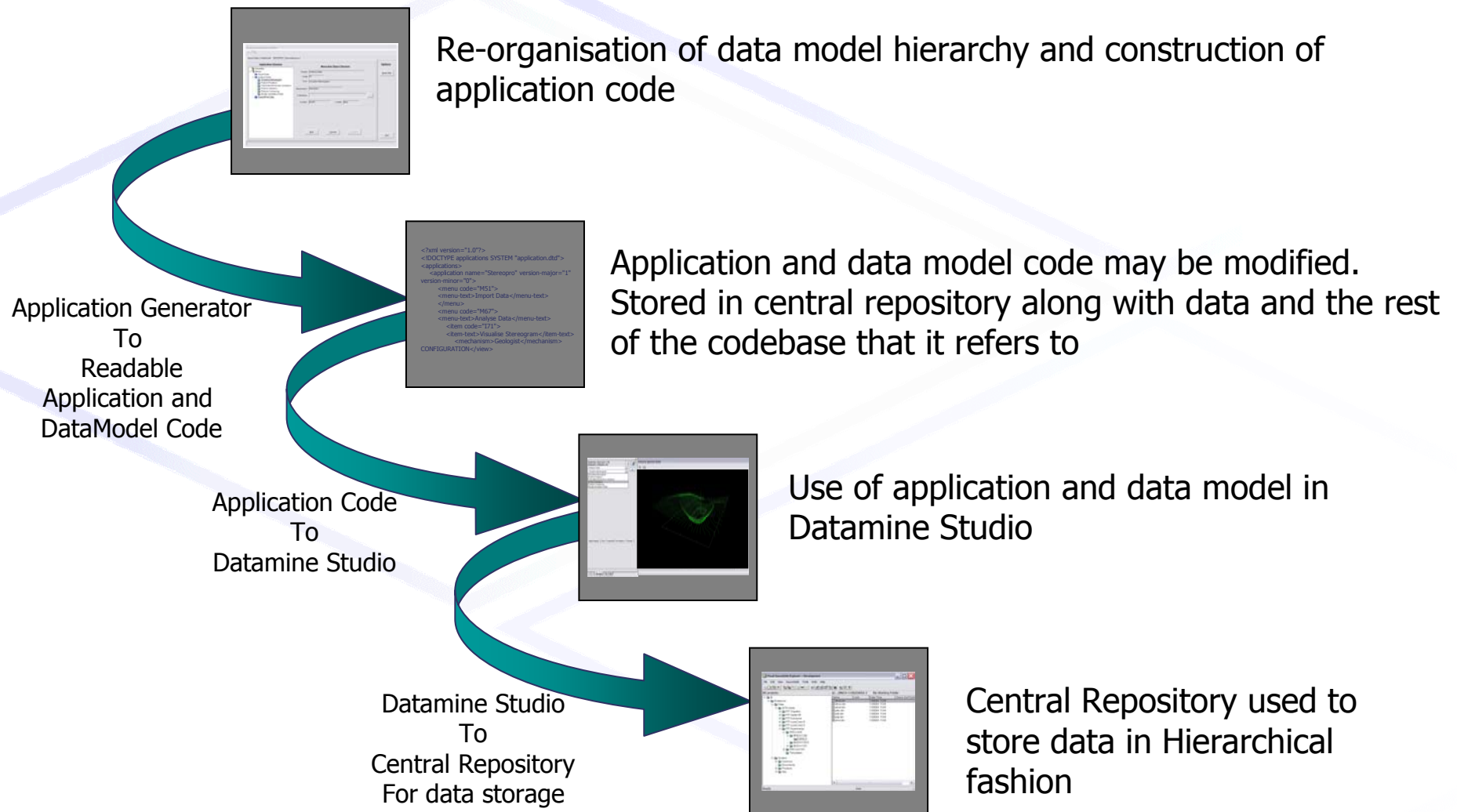
Unreadable Code To Application Generator



Re-organisation of data model hierarchy and construction of the application code

Summary of Process (2)

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Benefits of Process (1)

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- **For Datamine**
- Common method of project assessment
- Projects can be aligned to standard activity listing
- Closer alignment of activities to data sources and software modules
- Single documented database of all Project deliverables
- Quickly identify business improvements by deploying 'To Be' solution
- Monitor actual business improvement vs. expected business improvement
- Model outputs can be used to do peer review of projects by other Datamine OpCo's & training of Consultants.
- '*Datamine Enterprise*' methodology can be rolled out to all projects – not just those using '*Datamine Enterprise*' module.

Benefits of Process (2)

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For Clients

- Often this is the first time their Operating Process has been reviewed and documented.
- Client team can work off the same page as the Datamine Consultants
- Industry Best Practice can be easily shared
- The solution is more likely to fit the Client requirements than if this methodology wasn't followed.
- Process changes can be analysed using IDEF0 Models, BEFORE the software change is made – so Client spends money on the important changes first

Questions

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