

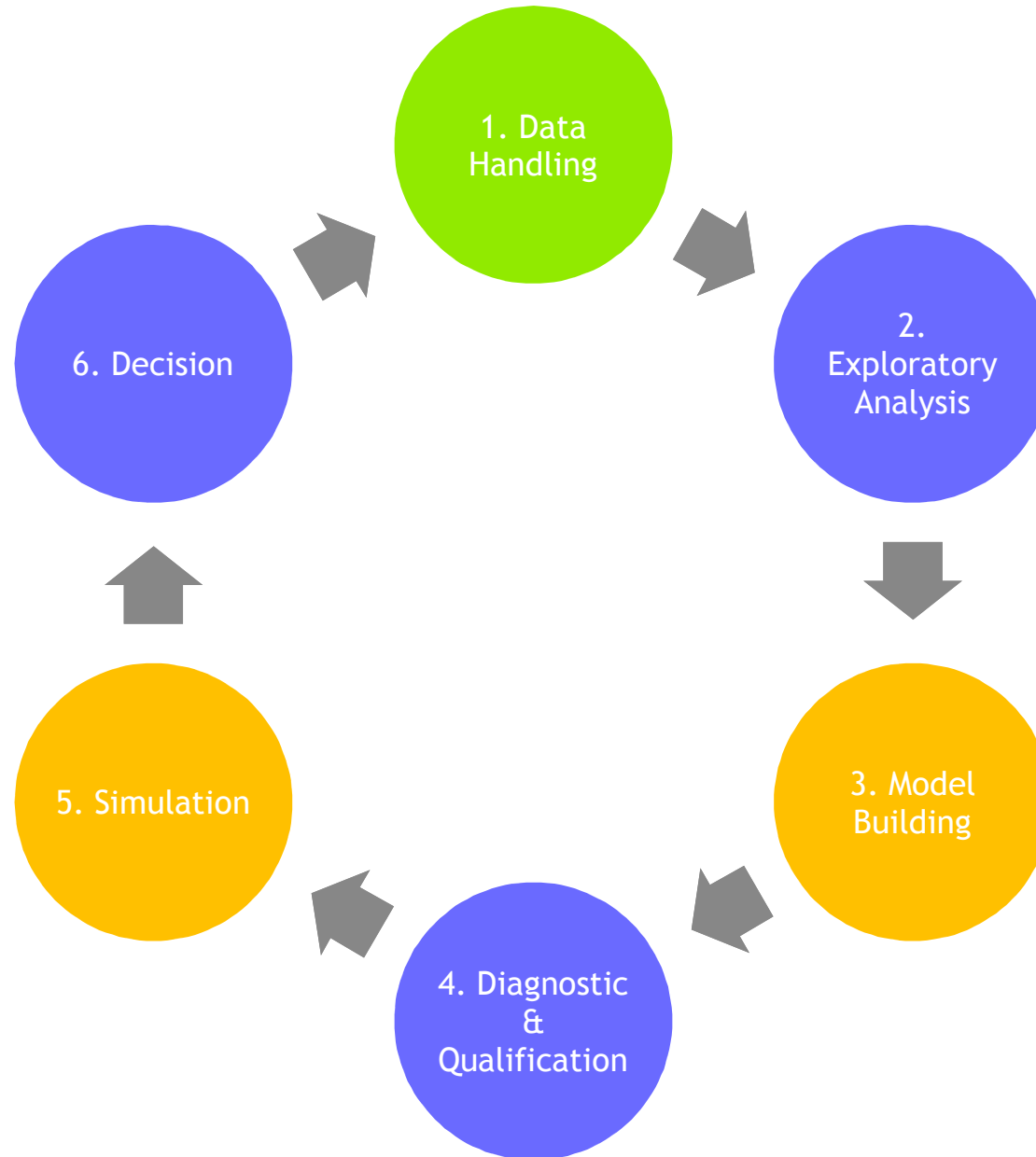
# How Can Pipeline Pilot Help You?

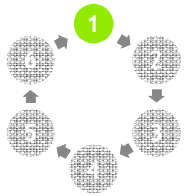
Data Pipelining for

Pharmacokinetic-Pharmacodynamic Modelling

- Help the modeller by giving access to data from different sources allowing
  - Integration of Data & Applications
  - In-depth Analysis
- Capture & deploy best-practice processes
  - Data Sharing & Search Queries
  - Reporting
  - Process Automation

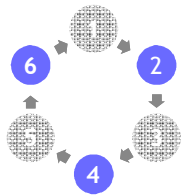
# Typical PKPD Modelling Workflow





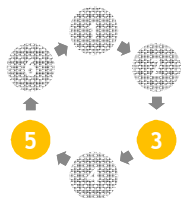
## Data Handling

- From/To multiple disparate sources, Databases or Files
- In-House format checking rules, Logging & Archiving



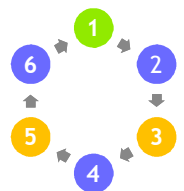
## Exploratory Analysis, Diagnostics & Decision Tool

- Advanced Reporting capabilities, Interactive Forms, Charts
- Output formats: HTML, PDF, PowerPoint, Word, Excel, etc.
- Portlets integration, JavaScript, AJAX, Flash, etc.



## Model Building & Simulation

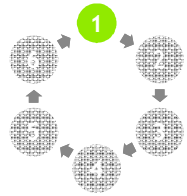
- Application Integration: NONMEM, WinBUGS, Monolix, etc.
- Job Scheduler



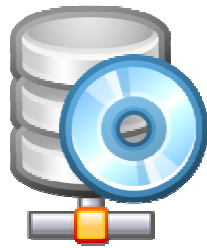
## Plus

- Highly Flexible Visual Programming Language
- Integrates R, SAS, MATLAB, Perl, Java, VBScript, etc.

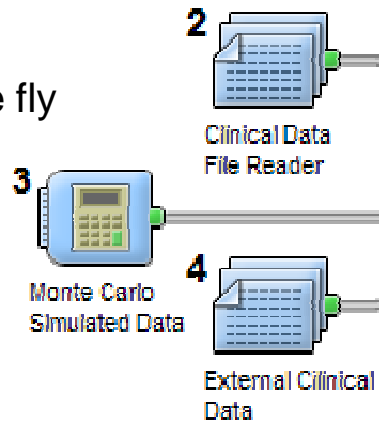
# Data Integration



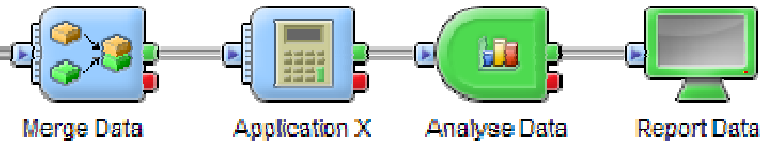
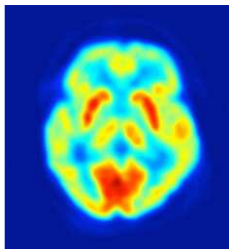
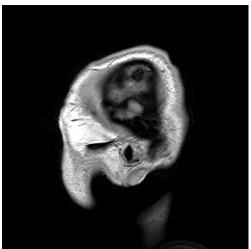
## • Databases

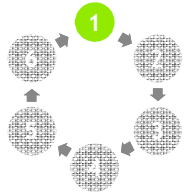


- Stored in Files
- Generated on the fly

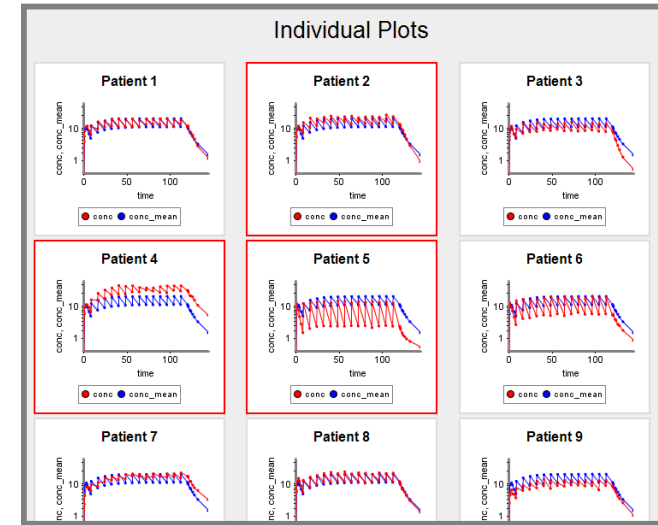
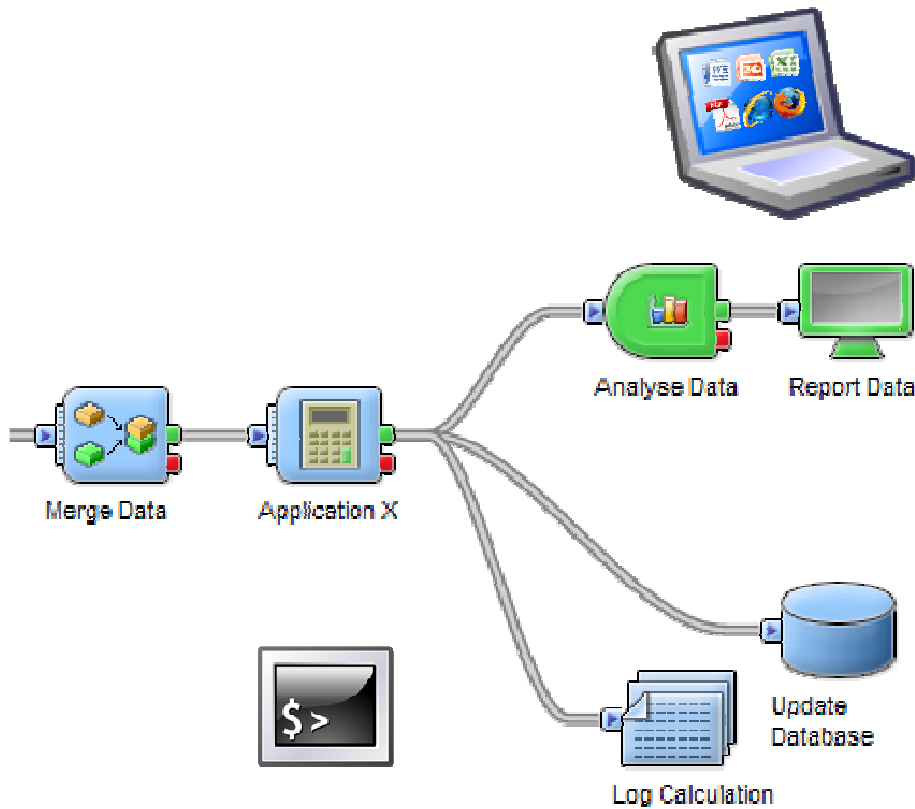


## • Other Data Type

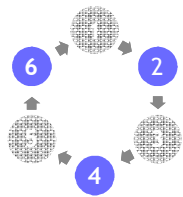




- Data Analysis
- Interactive Report



- Databases
- Reports
- Archives
- Flat Files



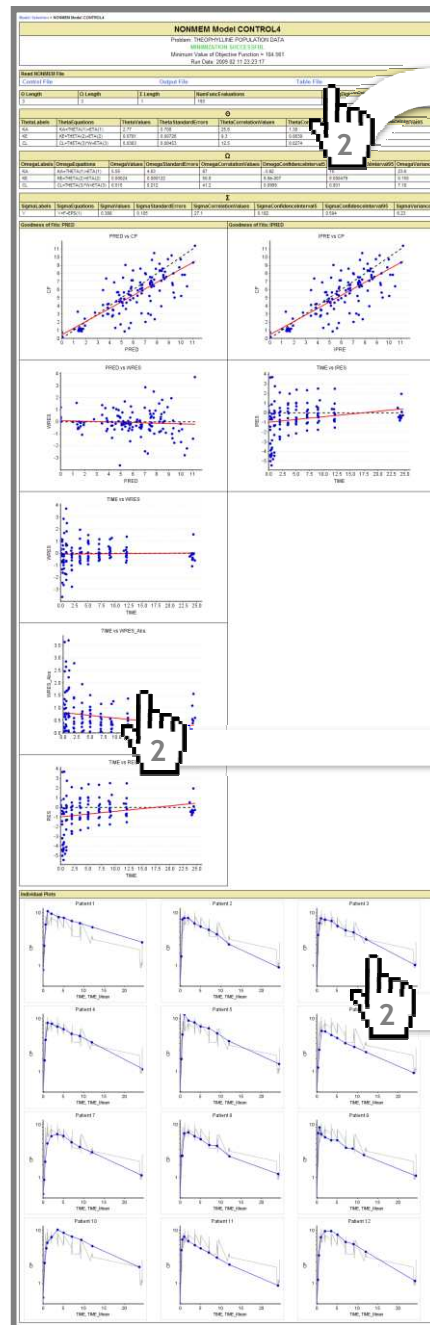
NONMEM Models						
Model Name	Run Date Time	Minimization	Minimum Value of Objective Function	Problem	Q Length	I Length
CONTROL3	2009 02 11 23:23:22	MINIMIZATION SUCCESSFUL	8.840	THEORYLINE SINGLE SUBJECT DATA	3	0
CONTROL4	2009 02 11 23:23:17	MINIMIZATION SUCCESSFUL	104.561	THEORYLINE POPULATION DATA	3	1
CONTROL5	2009 02 11 23:23:18	MINIMIZATION SUCCESSFUL	104.561	THEORYLINE POPULATION DATA	3	1
CONTROL6-boundary	2009 02 11 23:23:19	MINIMIZATION SUCCESSFUL	130.227	THEORYLINE POPULATION DATA boundary	3	1
CONTROL6-error	2009 02 11 23:23:20	PROGRAM TERMINATED BY ODU		THEORYLINE POPULATION DATA error run	3	1
CONTROL6	2009 02 11 23:23:18	MINIMIZATION SUCCESSFUL	104.561	THEORYLINE POPULATION DATA	3	1
CONTROL7	2009 02 11 23:23:18	MINIMIZATION SUCCESSFUL	104.561	THEORYLINE POPULATION DATA	3	1

## 1. Job Explorer

- Run Summary
- Sortable Table
- 🖱️ Select a Run

## 2. Model Report

- Parameter Estimate
- Goodness of Fit
- Individual Plot
- 🖱️ Select a File
- 🖱️ Select a Patient



```

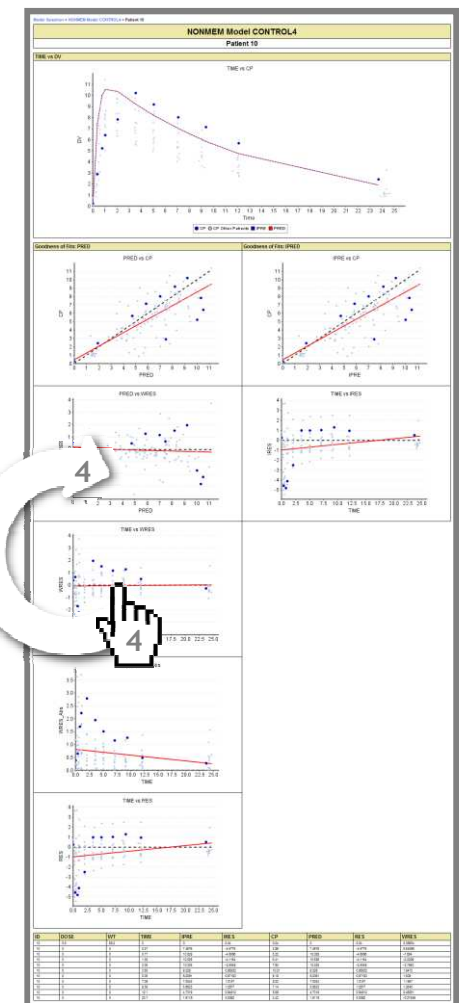
NONMEM Model CONTROL4
Control File: CONTROL.com

$PROB THEORYLINE POPULATION DATA
$INPUT ID DOSE TIME CP=O/P WF
$DATA THEO

$PARAM
P*ETA(1)=MEAN ABSORPTION RATE CONSTANT (1/HR)
P*ETA(2)=MEAN ELIMINATION RATE CONSTANT (1/HR)
P*ETA(3)=RANGE OF CLEARANCE VS WEIGHT RELATIONSHIP (LITERS/HR/KG)
$DOSE=WF*ADJUSTED DOSE (MG/HR)
$PROB=WF*ADJUSTED DOSE (MG)
IF (DOSE.NE.0) THEN
  CSDOSE=WF
  W*WT
ENDIF
KA=ETA(1)+ETA(1)
K1=ETA(2)+ETA(2)
CL=ETA(3)+M*ETA(3)
D=K1-(K1*TIME)-EXP(-KA*TIME)
ENCL=(KA-K1)
P=DOSE*KA/D*D
$PRED=O/P
$ERROR=O/PRED

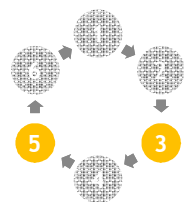
$ESTIMATION METHOD=LS
$COV
$TABLE ID DOSE WF TIME PRED RES FILE=CONTROL4.TXT
$INFO VS DIME BY ID
    
```

## 3. File Viewer



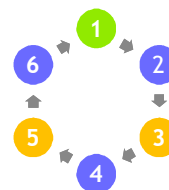
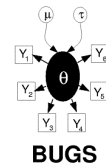
## 4. Patient Report

- Individual Plot
- Goodness of Fit
- Patient Data Table
- 🖱️ Select a Patient



## Modelling & Simulation

- NONMEM
- WinBUGS
- Monolix
- Xpose
- WinNonLin
- PsN
- simCYP
- MC Sim



Plus

- Command Line 
- ORACLE 
- R 
- MATLAB 
- SAS 
- Perl 
- Java 
- Python 
- VBScript 



# Summary

