IDME

IDME is a proven versatile tool for rapid user controlled applications development. IDME uniquely enables experts and other experienced personnel to encapsulate their knowledge as a 'Model' enabling this intellectual property to be sold as a separate 'product'. This packaged knowledge is recognised as a substantial benefit to the recipient.

The separation of the subject knowledge in a separate component means that it is no longer necessary to use IT professionals to help maintain this knowledge since it is no longer embedded as code within the application. This is a major difference compared to systems developed by conventional IT technology and methods.

The power of the technology lies in the ease with which the expert knowledge can be captured and structured to support best practice. The technology enables the users, such as clinicians or administrators, who own the system, to implement continuous improvement based on the ability to monitor all observations and interventions and relate outcomes to current practice. For example in health this directly supports an evidence based approach to process improvement in clinical practice.

Since the 'Model' is owned and fully maintainable by the application's owner it is easy for them to keep the model in line with changing requirements and practices without recourse to IT professionals.

IDME has two key components, a Knowledge capture tool called a Modeller and the Application Browser with which end users capture data and report on it.

The modeller enables key users and experts to define the terminology, rules and reports and stores this meta data in the form of a Model that encapsulates the subject matter (business) knowledge. The Application Browser reads the Model which controls the way the application behaves. The application Browser software is therefore is independent of the subject matter and can be used to automate a wide range of requirements based on the content of the Model.

Conventional systems embed the expert knowledge in the form of entity relationship tables and computer code that populate, maintain and report on the data. This development approach is time consuming and expensive to keep aligned with changing business practise.

Thus IDME represents a new paradigm for development and management of knowledge based solutions. Allowing knowledge to be packaged and traded as valuable intellectual property. This has been well demonstrated by the

implementation of maternity care systems Obstetrix in NSW and Matrix and Matis in QLD and ObstetriXTas in Tasmania (see attachment 1). NSW Health and the Mater Health Group have both benefitted from the sale of their versions of the Maternity Care Model.

IDME is the only practical implementation of the theoretical work published in a range of articles from the Good European Health Record to WC3 standards*. This work promotes the concept of two level model design based on archetypes. We solved a range of technical difficulties including:

- Enabling the 'expert user' to define terminology and explicit rules in an encapsulated form
- Presenting the user with a consistent data collection interface that is easy to use and learn
- Providing powerful declarative rules language to develop and test rules
- Enabling expert users to control the order and hierarchy of archetypes and define their grouping to match workflows
- Providing modellers with flexible easy to use tools for extracts and reports
- Integration with best of breed formatting tools eg Crystal Reports or Excel.
- Integration of standard terminology systems to promote and consistency of coding.
- Version management of individual archetypes (eg maintains data integrity throughout the life of a patient's longitudinal record)
- Development of an organisational ontology for branching and display of interrelated archetypes
- Simplifying how expert users define data requirements
- Solving the problem of handling cardinality transient through maximally normalised meta-models

*see Thomas Beale's 21 Aug 2001 paper "Constraint based Domain Models for Future Proof Information Systems"

Market Potential / Proof of Concept / Value To Public Or Government

IDME can easily be adapted to satisfy a vast array of knowledge based requirements.

IDME significantly reduces the cost, time and risk of developing new applications.

IDME's strengths and versatility has been demonstrated by our experience of applying it to a range of clinical requirements. Implemented as a perinatal application (ObstetriX, MatriX, Matrix and Matis Qld Health, ObstetriX Tas) it is widely used in public hospitals by midwives and obstetricians. Furthermore the clinical version of IDME is implemented as a statewide clinical assessment and cost weighting application for NSW Health (SynaptiX) and as an application for delivery of drug and alcohol services for released prisoners for NSW Justice Health (Connections).

IDME is currently being used to develop an Australasian solution for a benchmarking and web based clinical data management system for the University of Wollongong. Meridian is also helping Justice Health build a new rules based visitor management application for using this tool.

Features and Structure of IDME

IDME has a number of key components, Modeller, Browser, Rules Engine, Messaging Engine, Bulk Data Loading and a Reporting Engine.

As mentioned the modeller enables an expert to define the terminology and business rules. The building blocks of the modeller are called 'archetypes' and express concepts. The Report and Rules engines are also accessed from the modeller. The final result of all the definitions is called an Archetype Model.

The Application Browser is used by subject experts and experienced users to record and manage the actual instances of data when using the system. The Browser reads the Archetype Model which determines how the data is collected and makes calculations, issues warnings or alerts based business on rules.
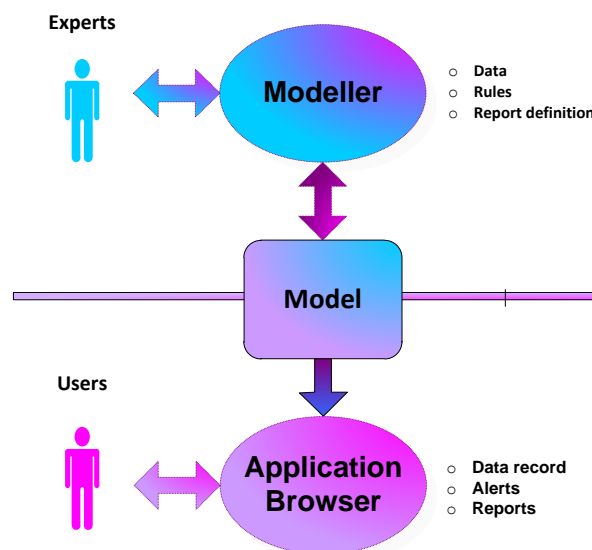
IDME has a consistent easy to use user interface. This leads to significant reductions in the cost of training end users and fewer usage queries in the early deployment stage.

There are multiple user interface options including web or graphical user interface, touch screen and briefcase. This versatility supports mobile devices and portability both within and external to a site and enables data collection at the workface.

A unique version control capability future proofs all data. This provides the preservation of strict integrity of clinical data for all time. Furthermore it enables changes to the clinical knowledge components (the Model) without impacting existing data integrity.

A flexible rules manager uses a standard structured language to capture clinical rules. These rules are verifiable, easily accessible and encapsulated making them easy for the customer to develop and maintain them.

A flexible reporting function is integrated with a widely used reporting tool. The reporter provides both ad hoc and preformatted reports. A range of output formats such as CSV and XML is provided.

The Report and Rules manager are also accessed from the modeller.

User Friendly Simple to use Interface

One of the key aspects of IDME (in its clinical version Clinixian) that helped it to win the NSW 2008 iAward for eHealth was the ease of use and training. The ease of use has paid off in reduced costs of training end users. For many end users the system is intuitive and most find their way around the system without much help needed. One of the reasons for this user friendliness is that the screen layout is consistent throughout the system.

Below is an example of a typical screen.
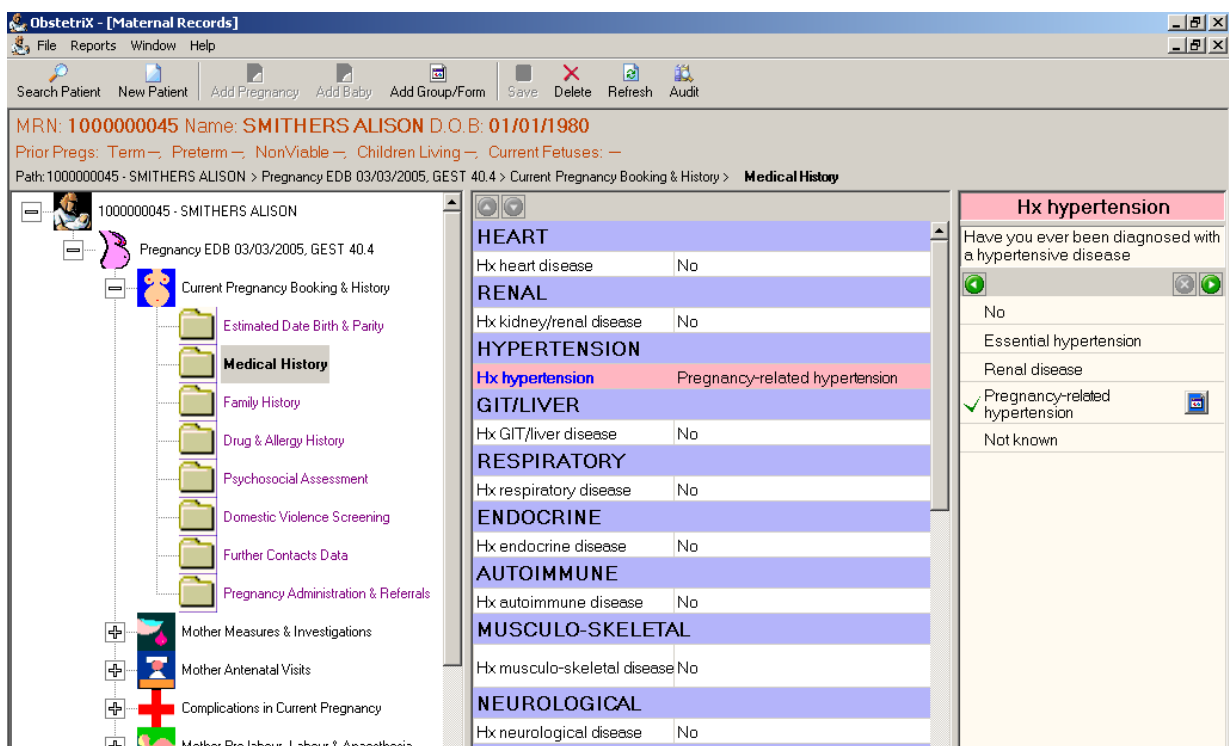
Quality, Versatility and Scalability

IDME has a fully scalable enterprise architecture that enables it to be deployed in a distributed manner and can be used either as standalone, facility, Area/region, State-wide or country wide solution.

IDME (in its clinical version) has been successfully implemented as obstetrics/perinatal applications in NSW, QLD and TAS. These applications now support thousands of midwives and obstetricians. In NSW over 60% of all public hospital births are recorded using ObstetriX. We estimated that there are now well over 1,000,000 longitudinal birth records in these databases. Tasmania has recently implemented ObstetriX as a state-wide central database. The Mater Health group likewise use their version Matrix as a single installation for all their maternity facilities.

IDME is also implemented as state-wide central database for Synaptix (NSW Health) and Connections (Justice Health) and will be a global solution for AROC (benchmarking, credentialing and online data management) currently being developed for University of Wollongong.

A paper based on this technology underlying IDME was presented at HIC 2006 (awarded best paper HIC 2006). Clinixian based on IDME was nominated for the 2008 iAward for eHealth at an early stage of its implementation. Meridian was invited to demonstrate its technology and how it incorporates SNOMED terminology to the National Electronic Health Transition Authority (NEHTA) in Brisbane in 2007.

Three State Departments of Health have recognised its potential by acquiring Clinixian.

IDME is developed using Microsoft .NET and C# and SQL Server technology. Meridian is a Silver Certified Microsoft Partner and is regarded as developer of high quality systems.