

What is IDME?

The Intelligent Data Modelling Engine is a healthcare information management solution for clinicians of any discipline. Meridian delivers a base IDME structure and the customer's 'expert users' complete their own system conforming exactly to their specific requirements.

The concept of a two level architecture and an 'archetype' based approach is not new, however it was probably not fully codified until Thomas Beale of Ocean Informatics introduced a new terminology and identified design elements in the period 1998-2002.

IDME was developed by a team led by Meridian's CTO – David Ashton. The first implementation of the technology was ObstetriX, a complete maternity cycle management system, now used across the Australian NSW public hospital system and beginning to roll out in Queensland.

Whilst ObstetriX utilises the IDME technology, large parts of the solution (the *model*) were designed and built by our client's 'domain knowledge' experts. In this case; the Obstetricians and Midwives.

Since then, Meridian is helping other clients to develop a range of IDME models, covering the complete early life cycle, from conception to early childhood. These include individual modules managing:

- Fertility
- Gynaecology
- Obstetrics
- Neonatal
- Child Wellness

Meridian is also using IDME to develop a complete incident and risk management system.

Why did we develop the IDME?

Over a 15 year period as a software development company, Meridian has seen the frustration experienced by users when system modifications are dictated, either by an advance in medical knowledge, a change in focus, or simply new legislative or management requirements. The client must both seek funding for these tasks and endure what is often a long delay as their request goes into the IT department's queue.

Additionally, unless the system was specifically developed for the user, packaged solutions (particularly overseas developed software) often force an alien way of working on to the users, which is both non productive and requires costly change management.

Finally, Meridian is often approached to scope and cost solutions that turn out to be beyond the budget of the client. This should not be taken to indicate that Meridian's fees are high – they are not, it is simply a reflection of ever shrinking budgets in an increasingly competitive world and the global lack of funding in public institutions.

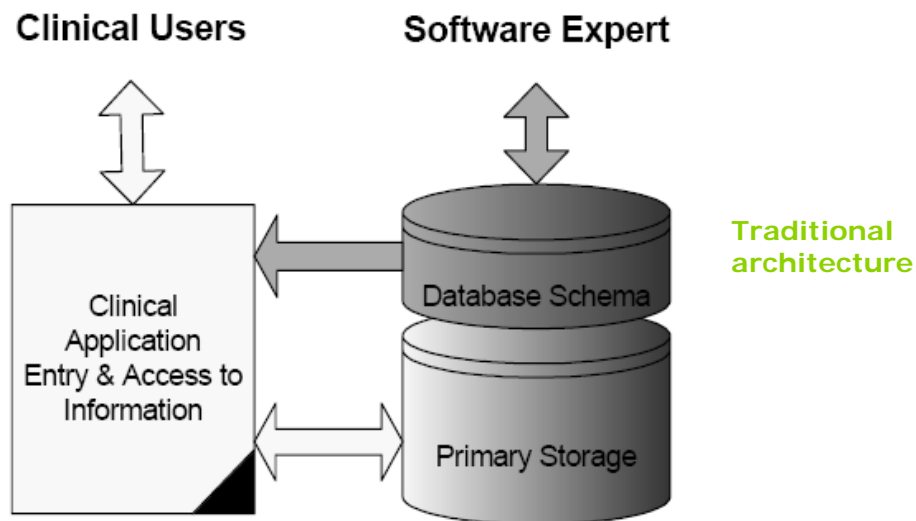
In response to the above three challenges, we developed the IDME.

Archetypes and two level model architecture

The traditional approach to developing an information management solution utilises a single level 'database schema' which sits above the primary storage (database) module and dictates the design and content of the user interface (screens).

Modification of these systems requires expert programmers and is hence both expensive and time consuming, and in some cases, due to the original structure, the requested changes may simply not be possible.

The 'expert' user has access to the user interface however is unable to modify this in any meaningful way. Hence if new data is to be collected, or additional codification of existing data is required, the user must seek professional help.

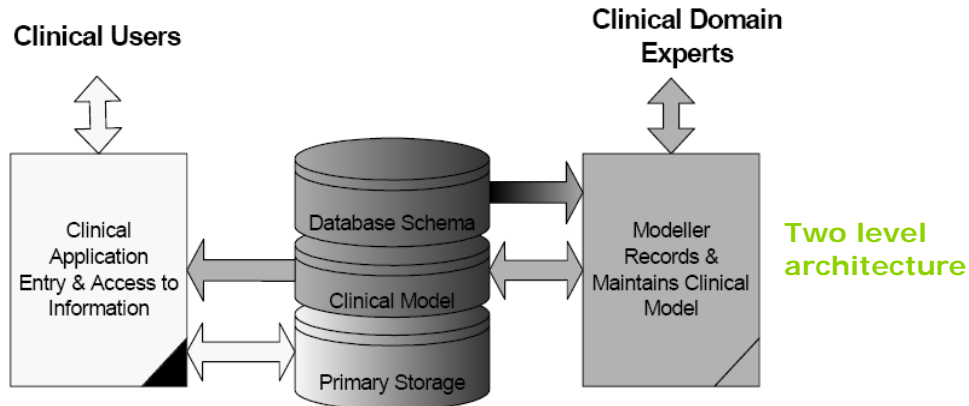


Our Approach

As may be seen below, in the IDME solution we introduce another layer of abstraction: the clinical model.

This new 'model' layer focuses on individual, self contained 'attributes' which are independent descriptions of items defined in the database.

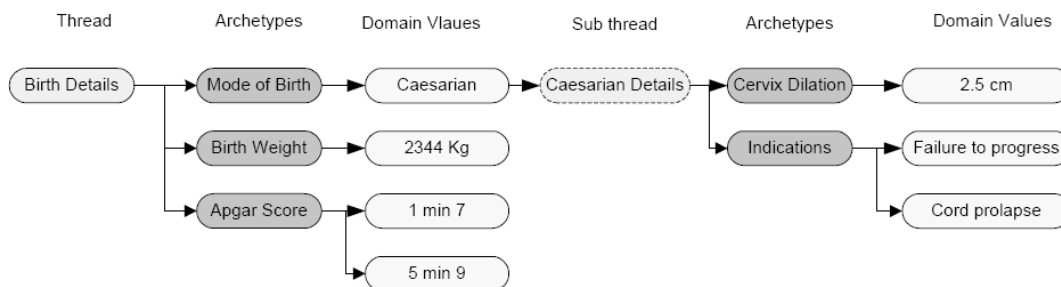
We call the information stored in this new layer 'meta data'



To manage this new set of information, additional software is required and we call this the 'modeller'

Access to this 'modeller' is restricted to 'expert' users only, ie the custodians of what we call 'domain knowledge'.

Central to this two level model is the clinical attribute class or 'archetype'. As the diagram below shows, using an example taken from the ObstetriX product (developed for NSW Health) *birth details* is the name given to this thread, that the expert user defines and creates. The attributes within this thread (*mode of birth, birth weight etc*) – which we call 'archetypes' - are also user defined.



Hence it can be seen that not only does the 'domain knowledge' expert largely design his own solution, but the expert users may maintain and update this solution continuously – without seeking support from IT, and all that may entail.

Whilst the IDME has been used extensively in Healthcare, to manage 'specialities' within a hospital environment, the application of the technology is far wider.

Another advantage of the technology is that an audit trail is maintained of the successive 'model' versions. Queries to the system produce results in context to the version (model) in which the original data was input.

Wherever a solution is required to manage 'domain knowledge' and the users feel that existing information management solutions are only partly in compliance, with their needs, or where the packaged solution is seen as too rigid – seeking to apply its own constraints to the way the enterprise carries out its business – the IDME becomes an attractive option.

Benefits

- ❖ Greatly compressed development cycle – the solution is predominantly already created
- ❖ Lower costs
- ❖ End result is a completely specific solution – exactly to the clients requirements
- ❖ Users maintain and update their systems without requiring IT professionals
- ❖ No need for clinicians to 'educate' IT professionals regarding their speciality – lower costs and truncated development cycle
- ❖ No software defects – no de-bugging. Core IDME system unchanged

