

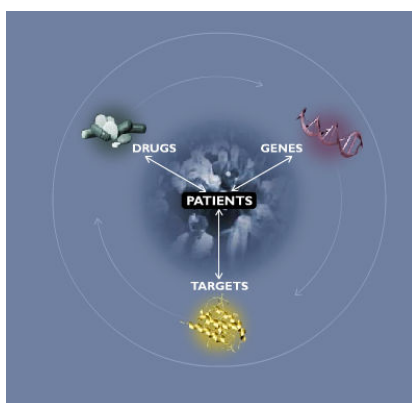


## Integrated Data Pipeline

Oxagen is focused on becoming a significant biopharmaceutical company building a novel drug pipeline based on identifying potential drug targets within the human genome.

### Business Problem

Samples of blood etc can be taken from an individual and analysed in various laboratory processes to provide data on that individual's DNA (genotype).



These results are then quality controlled before being compared to other information about the individual's traits (phenotype), such as how badly they have suffered from a given disease.

Results from families can be compared to establish 'candidate genes' (potential links

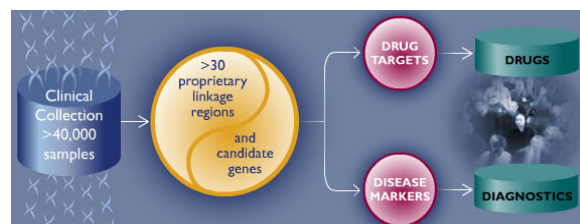
between particular DNA sequences and the propensity to suffer from a particular disease).

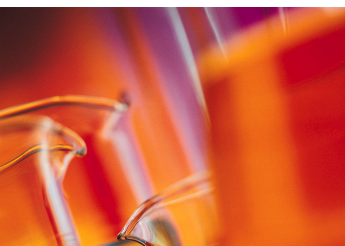
However, in each step of the above workflow, the processing required can be complicated.

Oxagen had previously used a variety of systems to assist with this workflow, often buying 'off the shelf' solutions.

However, they realised that each part of the existing solution suffered from drawbacks. Much effort was needed to refine the provided software to deal with real data, and at each stage in the process it was difficult to transfer information to the next stage.

Oxagen concluded that they required an integrated data pipeline, and asked Tessella to help deliver the solution.





## Solution

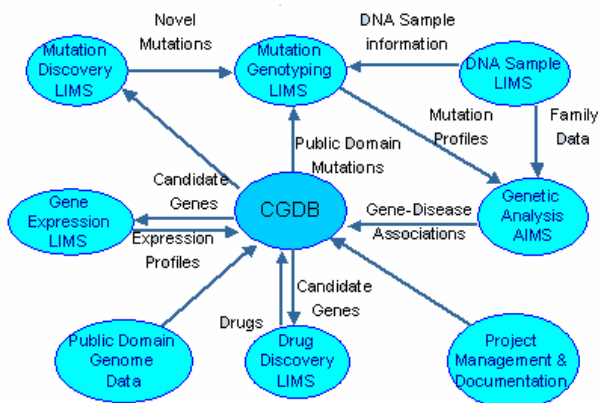
Tessella helped Oxagen create an overall, modular and scalable system design, that addressed the problem as a whole, and provided a clear workflow through all the processes and an auditable record of progress.

The problem was also split down into various modular parts so that different teams could work on the problem at different times.

These sub-projects were then allocated between the various software development staff at Oxagen, with Tessella management and staff helping to fill in the gaps in the available resources.

To ensure that Oxagen staff were kept informed and involved in shaping these developments, Tessella advised on the use of Rapid Application Development teams, which shaped the progress of the individual sub-projects via regular feedback from real users and frequent software releases.

Tessella also advised on a framework for Oxagen management to use, to help maintain control over this ambitious development programme.



## Results and Benefits

The project started in 2001, with a large amount of effort being invested in the first year resulting in clear benefits even in the short term.

Between 2001 and 2004 there were a number of changes to the business priorities, but the integrated data pipeline proved itself to be flexible and scalable and thus able to respond to the challenges.

The end result is a new system that allows data to flow seamlessly through the entire data pipeline, ending in the Candidate Gene Database.

The 'end' of the pipeline is also the start of the next pipeline, as the Candidate Gene Database's contents help Oxagen staff to influence the next set of experiments and to decide on future studies.

The benefits of the project included:

- An increase in efficiency of the data flow throughout the pipeline, thereby reducing the time required for data handling and thus allowing scientists to concentrate on core tasks such as data analysis
- An improved report and data tracking system allows greater auditing and regulation of the data pipeline
- The pipeline has been designed so that it can evolve in the future depending on changing business or scientific needs

The integrated data pipeline is now a central resource in the identification of novel drugs and their targets.

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