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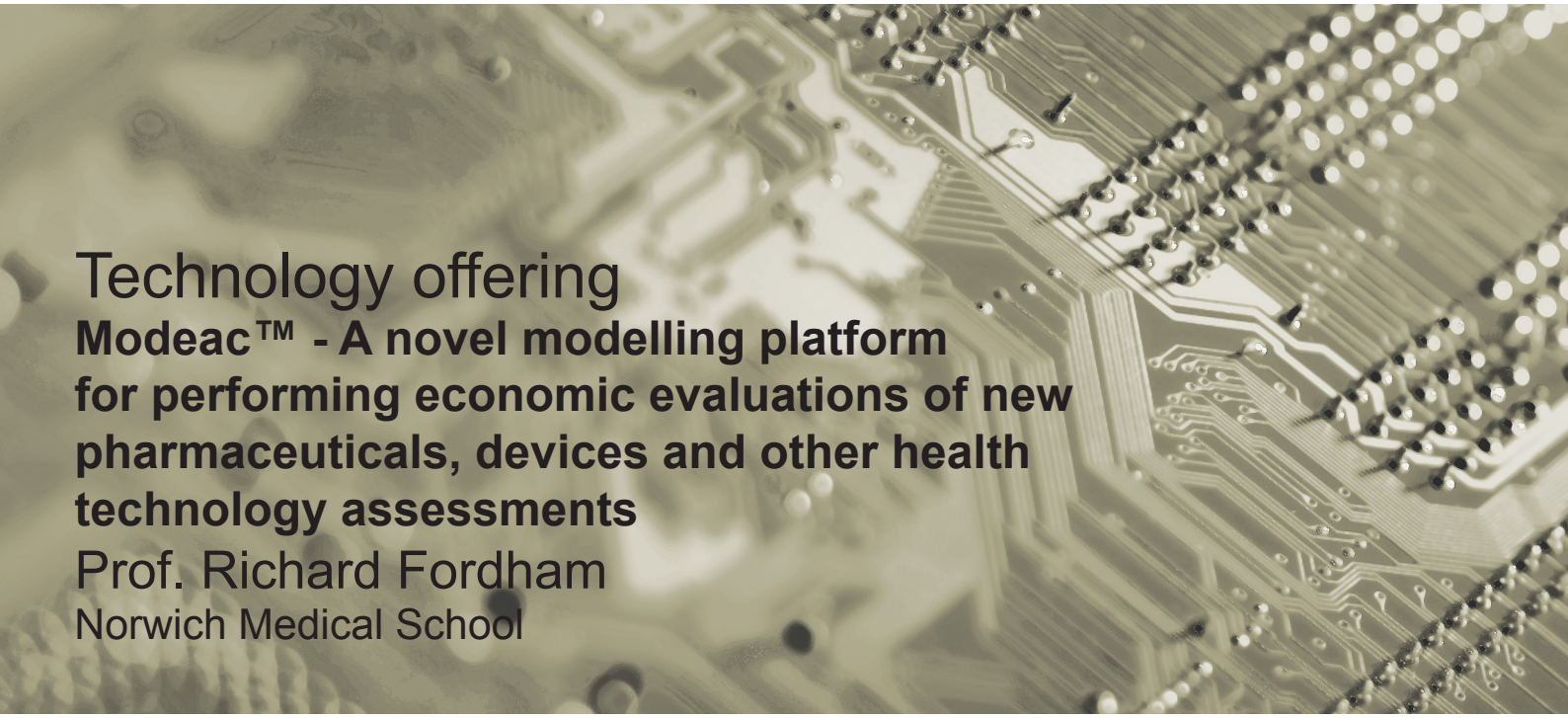

Technology offering

Modeac™ - A novel modelling platform for performing economic evaluations of new pharmaceuticals, devices and other health technology assessments

Prof. Richard Fordham
Norwich Medical School

Modeac™: A novel modelling platform for performing economic evaluations of new pharmaceuticals, devices and other health technology assessments

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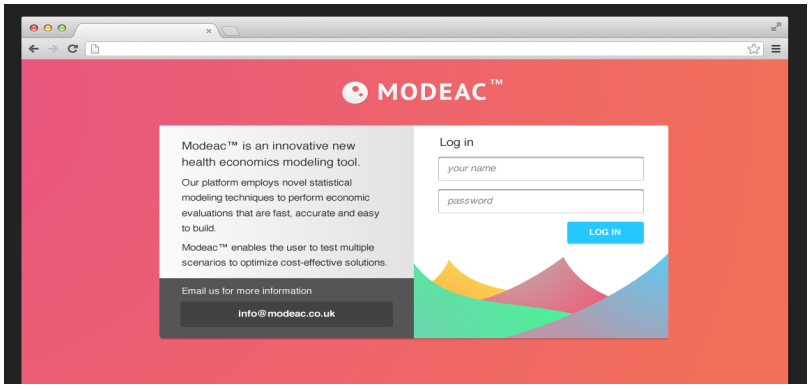
Modeac™ is a new flexible tool for modellers designed to offer the following advantages over current modelling techniques:

- Builds and runs models simply and creatively
- Performs cost-effectiveness analyses faster and more accurately than techniques currently available
- Significantly reduces time required for building and populating models
- Straightforward input of data for non-technical users.



Modeac™: A novel modelling platform for performing economic evaluations of new pharmaceuticals, devices and other health technology assessments

Whether you are a company or consultant wanting to demonstrate the cost-effectiveness of a new product, or a university researcher interested in determining the comparative efficiency of competing health interventions, health economic analysis plays a pivotal role in modern decision analysis.

Background

Health Economic and Computing researchers at the University of East Anglia, Prof. Ric Fordham and Dr Scott Grandison, have developed a ground-breaking new web-based modelling platform that not only increases the accuracy and speed of running economic models but also reduces the time taken to prepare and assemble models from weeks to just a few hours. The system also enables users to test many more potential scenarios than currently possible using existing techniques in order to optimise cost-effective solutions. All the data outputs are available in real-time and assumptions can be interrogated iteratively and models updated as new data becomes available.

Benefits of Modeac™

- Performs cost-effectiveness analyses faster and more accurately than techniques currently available
- Multiple simulations able to be undertaken, making it possible to do many more runs in a matter of seconds, resulting in greater accuracy and opportunities for under-explored options to be investigated
- Significantly reduces time spent building and running economic models.

Intellectual Property

A priority UK patent application has been filed. This software product is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties.

Commercial Opportunity

The team is currently looking for feedback from users of such modelling techniques to test the programme. We are also seeking commercial collaborators and software licensees to develop this opportunity further.

How does Modeac™ compare?

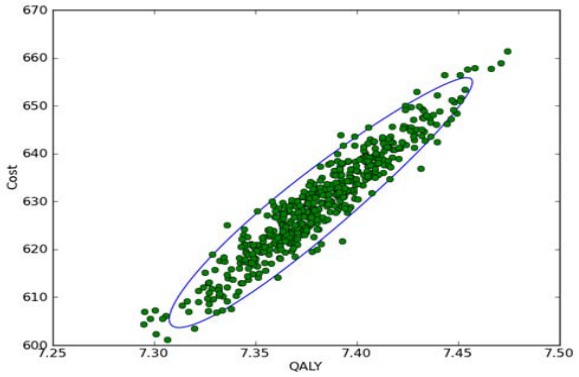
Modeac™'s originators have carefully tested their method against well-known Markov Chain procedures and other related techniques and have shown a high degree of agreement with no statistical difference detected. Importantly their novel modelling platform can execute these results in less than ten thousandth of the time.

Table 1. Execution statistics:
Metrics showing the calculation execution time and accuracy for different population sizes using Modeac™, Markov Chain model (MC) and other related techniques (DES). Results show a 99.7% reduction in model execution time. Furthermore the MC and DES systems will need multiple reruns to ensure statistically significant results are obtained thus delivering a conservative estimate of 10,000-fold speed reduction in execution time.

Table 1. Execution Statistics (in mins)

Population	Execution Time /s (MC)	Execution Time /s (DES)	Execution Time /s MODEAC	Relative Error (MC)	Relative Error MODEAC
100	0.071	0.0417	0.221	2.3	10^{-12}
1,000	0.578	0.454	0.221	1.49	10^{-12}
10,000	5.72	5.398	0.221	0.63	10^{-12}
100,000	65.125	56.827	0.221	0.12	10^{-12}

Figure 1. Sensitivity Analysis:
Cost effectiveness plane showing the range of costs and Quality Adjusted Life Years from a number of Markov Chain model simulations (green dots) and the corresponding 95% confidence interval computed deterministically from a model built using Modeac™ (blue circle).



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