

19th International Conference on Genome Informatics (GIW-2008)
Marriott Surfers Paradise, Gold Coast, 1-3 December 2008

**FORUM ON INNOVATION AND COMMERCIALISATION IN
GENOME-SCALE BIOINFORMATICS**

1 December 2008

Expert Panel:

Mr Jeremy Barker

CEO, Queensland Facility for Advanced Bioinformatics (QFAB)

Dr Jill Gray

Manager, Technology & Commercialisation, Department of Tourism, Regional
Development & Innovation, Queensland Government

Professor Ming Li

Founder, Bioinformatics Solutions Ltd (Canada)

Dr Mervyn Thomas (chair)

CEO, Emphron Informatics (Australia)

Professor Limsoon Wong

Founder, GeneticXchange (USA) and Molecular Connections (India)

Bioinformatics grew out of the early genome-sequencing projects, and has now developed into an enabling platform essential for life science research. Advances in technology make it possible to deeper questions, but also present challenges arising from the large volumes of data that must be captured, managed, integrated, analysed and visualised. Addressing these challenges demand innovative bioinformatics and information technology solutions. Organisations are tackling these challenges in a variety of ways, and have applied a range of commercialisation models with varying degrees of short- and long-term success. This forum on innovation and commercialization in bioinformatics brought together representatives from industry, government and academia with experience in the commercialisation of bioinformatics to share their thoughts and experience, and to answer questions from conference delegates.

The panellists first shared with GIW delegates their own diverse experiences with bioinformatics commercialisation and innovation. Mervyn, Limsoon and David described their experiences with commercialisation of bioinformatics research and services and various start-up companies, highlighting commercial strategies that were or were not successful. Jill then presented Queensland Government policies supporting innovation and commercialisation, and Jeremy concluded the opening addresses with a description of his key findings from a Churchill Fellowship-supported international study tour of bioinformatics services provision, and the QFAB experience.

A common theme from these presentations involved the commercial challenges faced in the commercial sector for bioinformatics products, including the nature of the product (*e.g.* software, data or hardware) or service (*e.g.* data curation or provision of skills-based

solutions) to be commercialised. A strength highlighted by the discussions was the sustainability provided by commercial bioinformatics solutions: whereas open-source or in-house bioinformatics can be derailed by loss of key personnel, commercial services can guarantee continuity and quality. It was also noted, however, that open-source solutions can be adequate for some intended uses, and companies have successfully commercialised software in this arena.

The panelists presented a variety of models for bioinformatics commercialisation which had met varying degrees of success. Limsoon contrasted pricing strategies actually used by two different companies: in one, a full product was packaged with a single, expensive price, whereas the second was incremental, with an entry-level price for a basic product and many small increases for additional features; the latter was more successful. Mervyn highlighted the importance of offering cutting-edge products and services in a field such as bioinformatics that changes so rapidly. A skill or technique may be “cutting-edge today, but in six months a commodity”; it is, therefore, imperative for providers to stay at the crest of the wave in order to survive. Ming characterised his company’s strategy as providing cutting-edge services to the more-discerning sector of the market.

Discussions initiated by questions from the floor covered difficulties in assessing the value of research and knowledge-based products to justify government investment in innovation and commercialisation; the importance of preserving commercial value through intellectual property management; managing the potentially competing interests of science and commercialisation; the difficulties in determining an appropriate business model for bioinformatics; and the important role of governments in linking R&D with domestic and international markets. The animated discussion around these and other topics of interest reflect the level of interest in innovation and commercialisation in bioinformatics across a broad sector of the Australian and international community.

The overarching conclusion was that each commercialisation strategy demands a careful assessment of the presented opportunity; no single solution is the absolute answer in every instance, and opportunities can appear, evolve and disappear on a dynamic basis. Astute business judgment determines the blend of nature of the products and/or services that can successfully be commercialised in each case.

The workshop was very well-attended, with no shortage of questions and comments from the audience. Informal discussion continued well after the close of the session.

Specific dot-points:

The challenges:

- What are we selling? (a product / service / expertise?)
- Bridging enabling technologies into traditional sectors
- Innovation as more than just R&D
- Managing growth, maintaining focus

The benefits:

- Market responsiveness

- Sustainability & ongoing development (*e.g.* of software – contrast is with open-source software)

Different models: what has worked

- Service-for-equity

- High-level algorithmics for targeted market (“be the best”)

- Integrated solutions defined by client requirements

- Incremental pricing model – “take small bites” as more features added

- Customised integration of laboratory equipment – requires good service provision

- Information extraction & curation, human post-processing (importance of match with available personnel base – education, skills, temperament)

Different models: what hasn't worked

- Single expensive package – hard to add new customers (consider what level of approval would be needed to purchase – researcher, unit manager, Board)

- Complex licensing agreements

- Difficult user interface, weak documentation – customers don't like

Ideas

- “Many different models – everything works”

- Bioinformatics as an enabling technology beyond biotechnology (clinical trials, environmental data management, defense sector)

- Vital role of government in linking R&D with domestic & international markets