ENGAGING IN SUCCESSFUL INTERNATIONAL COLLABORATIONS BETWEEN INDUSTRY AND ACADEMIA
Why is Wikipedia so popular?

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*Articles in the latest edition of EB*
- 65,000

*English articles on Wikipedia*
- 3,890,000

<table>
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<tr>
<td><strong>ENCYCLOPAEDIA BRITANNICA</strong></td>
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<tr>
<td>4,000</td>
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<td>including 110 Nobel Prize winners and 5 U.S. presidents</td>
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<td>751,426</td>
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<td>including your neighbor</td>
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Centre for systems & synthetic biology
RESEARCH & INNOVATION FOR AUSTRALIA'S FUTURE

Nanomaterials
- Clean energy & Environmental protection
- Smart materials

Cell and Tissue Engineering
- Products from stem cells
- Biomaterials for tissue repair

Systems Biotechnology
- Mammalian cell factory
- Engineering cells to make products of the future

Nanobiotechnology
- Early disease diagnosis, prevention & personalised treatment
- Delivery of therapeutics to cells

The University of Queensland proudly acknowledges the financial support of Atlantic Philanthropies and Queensland State Government in the construction of the AIBN Research Facility.
The Systems Biology Approach
Why do they outsource research?
Problem: Building Systems Biology Platforms for industrial applications can be costly, requires specialized know how, dedicated facilities and often entire teams of researchers

Solution: Outsource systems biology needs
We are helping customers benefit from Systems Biology technologies

- Laboratory based projects can be completed in customer labs or through access to state of the art facilities at the AIBN
- Flexible, responsive and customer focused business model
- Track record of delivering commercial development projects
The tetanus vaccine

A process that hasn’t changed in 40 years

Why?
Innovation

• Innovation is a type of collaborative problem solving usually amongst people that have different expertise and different points of view.

• It normally is a process of trial and error, it involves fault-starts and mistakes.
AIM: To increase the output from the current tetanus toxoid manufacturing process through the use of Systems Biology.
Overview of Toxin Production Process

More $\rightarrow$ increased Biomass $\rightarrow$ toxin production
N=20, consistent high OD

Control
+ 0.4 g/L
+ 0.8 g/L
The bio-economy
• Demand for fuels is going up by 20%
• Population is increasing
• We need more food
Feedstock has to be:

Available

So we need a new technology