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Response to the Green Paper on securing future innovation and global competitiveness in NSW

About Kantara Consulting

Kantara Consulting works with some of Australia's most exciting biotech companies seeking commercial success and to make a positive impact on the world. Kantara Consulting does this by helping Australian biotech companies fund their commercialisation and by communicating what they do to Government as well as a broader stakeholder network. We are passionate about driving the vibrancy and success of Australia's biotech ecosystem, particularly about improving the support available for the Australian biotech industry.

Promoting innovation and commercial success in the biotech industry

Kantara Consulting welcomes the NSW Government's initiative to understand stakeholder needs to develop NSW's Industry Policy. We would like to share our views on selected questions presented in the Green Paper on securing future innovation and global competitiveness in NSW within the biotechnology sector.

Response Summary

Key transformation forces for the biotechnology industry include:

- ↑ pressure to reduce the time and cost of R&D and commercialisation
- ↑ demand for personalised medicines and curative therapies

These transformative forces increase the need for platform technology and artificial intelligence to be used in early-stage drug discovery as well as increase the demand for cell and gene therapies and supporting infrastructure.

The race to reduce the cost of the R&D process are also creating opportunities for biotechnology companies as pharmaceutical companies are increasingly partnering or acquiring early-stage companies instead of undertaking early-stage research in-house. One key area where the NSW Government support this opportunity is to increase the ability of biotech companies to access government funding programs.

Responses to selected consultation questions

Transformative forces creating challenges and opportunities

Q1. Describe the top two or three transformative forces that will shape transition challenges and opportunities in your industry over the next 10 years.

Top transformation forces that will shape the biotechnology sector over the next decade include:

- Increasing pressure to reduce the time and cost of the Research and Development (R&D) and commercialisation process. R&D returns have been in steady decline throughout the pharmaceutical industry. A recent article in *Drug Discovery and Development* reported that R&D returns decreased to 2% in 2018 from 10% in 2010. Contributing factors to this decline include increasing drug development costs because of higher technical, regulatory, economic and business constraints as well as the need to develop highly innovative new therapies to have a commercially viable new product.
- Personalised medicine is a rapidly emerging transformative approach to healthcare where treatment is tailored to the individual. Personalised medicine relies on identifying and tailoring treatments to the specific genetic traits of an individual. Some personalised medicine approaches utilise a patient's own tissues to develop an individualised therapy (e.g., Car T therapy) while others are based on understanding the differential effectiveness of therapies based on a person's genetic profile. A range of new and transformative therapies arise from a personalised medicine approach, these include cell and gene therapies and tissue-engineered products. New diagnostic techniques will also need to be developed to stratify patients based on their genetic profile.

Q2. What effects do you expect these transformative forces will have on your industry (or on your own business) over the next 10 years?

Increasing pressure for efficiencies in R&D process

To increase efficiencies in the early-stage drug discovery process, companies need to employ technologies able to better predict a successful drug candidate. Hence, over the next 10 years, it will be increasingly important for early-stage biotechnology companies to employ AI technology and / or sophisticated high throughput R&D techniques. Access to highly sophisticated equipment and platform technology throughout the drug discovery process will become increasingly paramount for success. AI is already being utilised throughout the biotech sector such as in drug target identification and to manage clinical data. The requirement to use AI technology will continue to rise throughout the next decade.

The increased need for efficiencies through high levels of specialisation and sophistication in the R&D stage is changing the business model for pharmaceutical companies¹. Increasingly, pharmaceutical companies are partnering or acquiring biotechnology companies with promising technologies rather than having in-house early-stage drug discovery teams. This transformative change has direct implications for the biotech industry, increasing the opportunities and importance for biotech companies within the drug discovery value-chain.

¹ <https://www.drugdiscoverytrends.com/the-marriage-of-big-pharma-and-biotech/>

Increased demand for personalised and curative medicine

The demand for more targeted, personalised therapies will increase the role of genetics as well as regenerative medicines, including cell and gene therapies and tissue-engineered products. Regenerative medicine² embodies the likelihood of revolutionary, lifelong, and curative therapies addressing some of medicine's most challenging and unmet needs and can offer treatment for unmanageable diseases. Some game-changing therapies have the capacity to provide personalised medicine using the patient's own cells to produce a therapy that is genotype-matched, circumventing issues such as immune rejection, and is revolutionary for the healthcare system and beyond.

Business operating environment

Q4. Are there critical constraints across the business operating environment (for instance, related to markets, skills, production capacity, technology, finance capital or infrastructure) that affect the capacity of your industry or business to take up opportunities?

Critical constraints across the business operation environment that affect the capacity of the biotech industry to take up opportunities include a lack of adequate facilities in NSW and limited access to capital.

- **Lack of adequate facilities in NSW:** As a result of the lack of adequate facilities in NSW for biotechnology companies, companies are either outsourcing activities to contractors which are generally overseas or deciding to build their own, custom-made facilities. Both approaches are both time consuming and costly.
- **Limited access to capital in NSW:** Access to current Government funding is often restricted due to eligibility requirements for government funding program which exclude biotechnology companies including:
 - (i) The requirement for industry applicants to be revenue-generating businesses (e.g. the Job Plus Program). This requirement excludes research-focused biotech companies who are often pre-revenue for significant periods of time.
 - (ii) The requirement that the lead applicant on R&D-focussed funding programs be a university or medical research institute. This requirement again excludes research-focussed biotechnology companies. It should also be noted that biotech companies are often not in a position to partner on R&D projects with universities due to IP ownership agreements and other commercial considerations.

Q6. What are the key areas and opportunities in your industry where there are opportunities for NSW Government programs and actions to accelerate ongoing economic growth?

There is an opportunity to better support the NSW biotech industry through enabling biotech companies to be more widely eligible to apply to government funding programs. Additionally, to help support expanding biotech infrastructure in NSW, current government grant programs should:

² <https://www.ausbiotech.org/documents/item/666>

- explicitly include building new or improved R&D facilities as eligible activities manufacturing or infrastructure grant program
- Not require industry applicants to be revenue generating.

The NSW Government's Medical Device Fund has been very effective at supporting the medical device portion of the biotech industry. An opportunity to further accelerate growth in the biotech sector would be to expand this program to include a broader section of the biotech sector such as therapeutics.

Views on current industry programs and actions

Q12. Describe any current programs and actions that have made a notable difference to productivity and competitiveness in your industry?

Despite the requirement to be revenue generating, the NSW Government's Jobs Plus program has supported a significant number of medical technology companies to set-up new biotech facilities in NSW. As previously mentioned, the NSW Government's Medical Device Fund has also been particularly successful in supporting the MedTech portion of the biotech industry and the government should consider expanding this program to the biotech sector more broadly.