



Coming in from the cold:

How national labs are strengthening
links with universities and companies

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Motivation

Growing recognition of the potential value of the expertise and facilities within national research labs for universities and companies as they seek to drive their R&D and innovation efforts. However, national research labs have historically been relatively closed to external partnering, and partners find it difficult to engage.

Focus of session

- Trends & pressures facing national research labs to become more open
- Key barriers facing universities and companies in working with national research labs
- What national research labs are doing to overcome barriers and open up to working with universities and companies

What types of national research labs?

Government funded/directed research labs + Collaborating historically not core to approach + But have facilities, expertise valuable to R&D efforts of U/I

TYPE OF RESEARCH DOMAIN

- NRLs where research at point where opening up to greater engagement is required to develop economic/societal value
- NRLs in domains with significant scale-up challenges facing lab-to-market journey or commercialisation requires significant enabling infrastructure

- Interviews with universities in each country about experiences working with NRLs
- Interviews with decision-makers within NRLs about attempts to strengthen links with universities and companies + review of public documents

NUCLEAR / FUSION RESEARCH



TECHNOLOGIES FOR BIOMEDICAL APPLICATIONS



2021
National Research
Infrastructure Roadmap



Growing pressures to open up

- Mission/challenge-led policies → pressures for NRL to be actively engaged
- Policy priorities to deliver impact from research → increased focus on NRL contributions
- Policy pressures for government-funded facilities to be utilised efficiently
- Shift of key research domains from basic and applied science to emerging commercial exploitation requires closer engagement with industry
- Changing societal pressures creates strong incentives for whole R&D and innovation ecosystem to come together to find solutions (e.g. fusion energy for climate crisis)
- Pressures from industry to leverage not just external knowledge but also facilities and equipment to unlock R&D and innovation potential

Many barriers similar to those facing university-industry partnerships

- Lack of awareness of expertise, facilities and services provided by NRLs
- Perception of too much bureaucracy in forming and delivering engagement
- Negotiation frictions causing agreement delays or deterring partnerships
- Perception of fees being too high
- Contract terms that can be difficult to accept e.g. march-in rights and domestic production
- Unrealistic requests for leveraged funding for some partners/domains

But some barriers more specific to NRLs

- Tensions between core mission delivering on specific government priorities and pressures to commercialise IP
- Shifting government priorities and pressures can lead to mismatches between strategic objectives of NRLs and ability to develop capabilities to deliver
- Increased competition and tension within public research base if roles of NRLs and others (e.g. universities) begin to overlap

What are NRLs doing to open up?



The need for new practices and approaches

- More responsive/agile models of partnership
- More collaborative models assembling partners across lab-to-market journey
- Greater co-location of researchers and embedded labs, and shared infrastructure
- More deliberate & coordinated decisions about where to locate shared facilities
- Building stronger networks with academia, industry, and users to identify engagement opportunities, raise awareness, and increase understanding
- Use of 'roadmapping'-like exercises to assemble system stakeholders to increase awareness/alignment and identify shared innovation opportunities and capability/infrastructure needs

The need to build new capabilities

- Greater attention to potential partner needs when investing in facilities, expertise, and resources
- Developing 'boundary spanning' facilities & researchers able to drive convergence across different fields of research, and research-technology-application journey
- Developing partnership support capabilities to strengthen engagements with industry
- Enhancing approaches to contracting, including streamlining processes, empowering staff to become more flexible, more flexible approaches to IP
- Re-organising internal functions and facilities around key technology platforms to enhance external user access

The need for new funding models to encourage collaborations

- Mission-/challenge-driven programmes aimed at assembling partners from across the system to work together to deliver common set of objectives
- Funding for developing technologies towards commercial application and the commercialisation of ideas coming out of research
- Funding to help NRL researchers seed and grow collaborations with partners
- Funding to underpin targeted calls for proposals to attract academic researchers to deliver projects that leverage the facilities and expertise of the NRL

The need for continuous learning

- Importance of continuous learning and regular evaluations to guide development of facilities & equipment, partnership approaches and support functions
- Significant potential to learn from the experiences of universities and companies who have been collaborating for much longer
- Key lesson from history of UI partnerships is there is no one-size-fits all approach

Experimentation, systematic review, and active learning to guide and adapt strategies and approaches is crucial