



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

**Report to Council on the
Quality Review of the
Trinity College Institute of Neuroscience
(TCIN)**

25 - 27 April 2016

Reviewers:

Dr Jeffrey Dalley, University of Cambridge Professor

Bernard Conway, University of Strathclyde

Internal Facilitator:

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1. Reviewers' Report

Executive Summary

The reviewers were asked to review the environment of the TCIN rather than the performance of individual principal investigators (the latter in the style of the Research Excellence Framework used in the UK). Over the course of three days, the reviewers carried out a wide-ranging and intensive series of discussions with stakeholders of the Institute, the University and externals.

Now established over fourteen years, the Institute is internationally recognized as a flagship neuroscience institute in Ireland. Its facilities have been seen as an attractor for high-caliber PIs, particularly MRI and there have been successes in attracting major grant investments (e.g., GBHI, GSK, Intel etc.). The grant portfolio is dominated by SFI awards. The Institute is housed entirely in the Lloyd Building but does not occupy it solely, estimated to include twenty-one PIs from a total of forty-six. Approximately fifty per cent of the total PI community contributes overheads directly to the TCIN. The Institute is not in a position to distribute overhead share to PIs.

Key facilities in the Lloyd Building include state-of-the-art multi-modal neural imaging facilities (MRI/EEG), high performance computing, neurobiological laboratories and support for human behavioral and psychological studies. Notably, the Institute is physically located in one building.

The Institute presented its forward-looking strategy emphasizing the importance of the GBHI award and its prospects for attracting PIs and expanding the activity of the Institute. The success of the Institute is entirely driven through the performance of PIs. In particular, the reviewers would like to note the new high quality PIs who have been recently appointed and who will take up their posts in the near future.

Annual support for the Institute arises in part from strategic funding, philanthropic campaigns, revenue from scanning, and small amounts of knowledge exchange. At the present time, the Institute does not have the capability to provide infrastructural support to PIs seeking major or average-sized awards and is in a constrained financial position. A large part of the Institute's current financial constraints are associated with the under-performance of the MRI suite and also what is considered by the reviewers to be a low return of overhead per FTE.

Our report will highlight five areas of concern, including:

1. Governance
2. Strategy
3. Growth of high-performing PIs
4. Institutional metrics
5. Facilities

The recommendations made in this report are necessarily based on the information provided and collated during the review process and may as a result contain minor factual errors, omissions, and possible misunderstandings about local arrangements that exist within and between the Institute and College. However, the overarching assessment and high-level recommendations made in this report are unlikely to be affected by these considerations.

Reviewer Findings and Recommendations

1. Governance

The current Board is no longer effective and should be reconstituted as an International Scientific Advisory Board. The purpose of the Board should be to fulfill the remit as defined by Trinity College's Strategic Plan, and to provide strong scientific vision and direction. The Board should be constituted in a way that secures a financially-sustainable future. We would also recommend that the number of annual Board meetings should reflect this purpose and that membership is based on active participation. We also strongly recommend that the Board co-opt a senior member of the (outward-looking) philanthropic team.

We also recommend that the senior committees of the Institute develop effective communication strategies to engage with the entire PI community, postdoctoral researchers and the student body. Central to this recommendation, the reviewers believe the senior committees have a duty to provide greater transparency over the financial position, performance and revenue streams within their control. The discussions held with PIs revealed a problem in this area despite the best efforts of the Director.

The reviewers recognize the scale of work associated with the Director's post and are concerned that adequate infrastructure around that post is not currently available, and given the fundamentals on translational neuroscience, the activities of the Institute may be too broad for a single Director. We recognize that despite external constraints, the University needs to find adequate mechanisms to incentivize staff to take on leadership roles.

2. Strategy

With the appointment of a new Director and impending election of a new Board Chair the reviewers consider this is an appropriate time to re-evaluate mission statements, scientific objectives and vision. The composition of the Institute should reflect this revised, overarching strategy, which may include the integration of the neural engineering group. The reviewers noted a shift in funding priorities from fundamental/basic neuroscience to clinical/applied neuroscience, which may have impacts on the ability of the Institute to deliver truly effective cross-cutting translational research.

The Institute should have a clear strategy on how to deliver substantive funding to improve the Institute's long-term performance. The reviewers consider this strategy should be effectively communicated to the PI community to provide strong support and direction, ensuring the long-term sustainability of the Institute and the justification for future investment decisions. The implementation of this strategy, including additional administrative support, would be greatly facilitated by the appointment of a dedicated Research Programme Officer (RPO).

To grow the Institute's international reputation and standing a strategy and tactical initiative to form preferred international partnerships should be implemented. The GBHI initiative is a great example and further opportunities to engage in funded relationships that benefit the Institute should be established.

Teaching in Neuroscience was founded around the TCIN and is presently carried out by TCIN PIs. Nevertheless, the teaching of Neuroscience presently requires minimal support by the current TCIN administrative staff and is administered through the Schools. The senior committees of the Institute are encouraged to reflect on the opportunities that would arise by the creation of a Graduate School of Neuroscience, based within, and administered by, the TCIN (e.g. in promoting international visibility; gaining access to competitive funding schemes, and attracting high-caliber national and international students).

3. Growth of high-performing PIs

The reviewers recognize both the scientific and operational value associated by the addition of high-quality new PIs to the Institute. However, there is a lack of a formal appraisal mechanism, mentoring and a strong sense of community. The current success of the Institute is dependent on too few high-performing PIs. We thus recommend that a performance and membership review is urgently undertaken. The Institute should, in parallel, instigate a process whereby it manages its PDRA and PGR communities to the collective benefit of the Institute. Personal development planning should be considered an important element of this recommendation, which should be consistently implemented across PDRA and PGR cohorts to maximize their productivity.

The incorporation of Neural-Engineering into the Lloyd building should be facilitated and accommodated as a priority for TCIN.

4. Institutional metrics

The reviewers strongly recommend that a software system is implemented to capture data dynamically on financial and academic performance (e.g. Symplectic: <http://symplectic.co.uk/products/elements/>) and made accessible to key staff within the institute. IT Services or related bodies should support this endeavour. Such a system would allow senior committees to evaluate connectivity within the Institute, thereby focusing strategic decisions around profitable scientific interactions. The website should be regularly updated to include publications automatically fetched from online resources (e.g. PubMed) as well as information thematic to the Institute, including newsworthy events and the advertising of key facilities in the Institute (MRI/EEG).

5. Facilities

a. Currently the 3T and 7T MRI scanners do not cover their costs and contribute greatly to the financial constraints of the Institute requiring strategic contributions from the College of approximately 250,000 euro annually.

The human scanning facility will benefit from the recent recruitment of high-caliber users. Nevertheless, a financial costing and business model should be developed and implemented. The model should encompass the true cost of scanning and data pre-processing and incorporate mechanisms for invoicing as developed in other College Institutes. Appropriate costing should be applied to internal and external users. If the scanner fails to become viable, an exit strategy looking to consolidate human scanning facilities should be considered. We recommend a three-year continuation of strategic funding to protect this important facility and investment.

b. The animal scanning facility is grossly underused given the size of its investment. To secure the long-term viability of this facility, a critical mass of approximately 6-8 PIs will be required. Funding opportunities must be rigorously pursued, and invoicing must be transparent and levied at an hourly rate sufficient to cover costs. Explicit marketing of this key facility is encouraged to increase revenue streams through external business. We recommend that strategic funding is continued for at least three years but an earlier exit may be necessary if a sufficient number of users are not found. The reviewers recognize that it may become necessary to re-locate the animal scanner to a new environment in the College to widen the community of PIs using this important facility.

c. The EEG recording facility is widely used and is a valuable asset. However, an invoicing system is needed to recover costs associated with internal and external business.

d. The neurobiology laboratories collectively generate high-quality science and publications but are in urgent need of future-proofing to guard against new EU directives on experimental animal research and welfare. The reviewers recommend that the Executive Management Committee reviews current practices in the UK with regard aseptic surgery and minimum standards set by the new EU directives. This imminent shift in infrastructure provision may require a rethink and possible consolidation of experimental animal research more broadly across the College landscape.

e. We strongly recommend that a space review is implemented that accurately reflects the needs of the Institute to grow its revenue-generating potential. This recommendation will in part be influenced by a review of the membership of the Institution and the performance of individual PIs. The present constraints on space are a major barrier to long-term sustainability and should be reviewed urgently, which logically should include a larger footprint in the Lloyd building.

Conclusions

Based on our findings the reviewers conclude that the Institute is “Internationally competitive but with identifiable gaps that need to be addressed: a potential player at an international level”.

We strongly recommend that the University continues to support and invest in this TRI.

Our recommendations have been made in light of the wealth of talent and the capabilities of the PI community contributing to TCIN and its unique status in Ireland. In reviewing the research environment we recognize the fiscal constraints that TCIN and the University have been required to adhere to. Accordingly, we have made recommendations that focus on areas that can strengthen the Institute’s collective identity and mission and that will facilitate the engagement of staff at all grades in fulfilling the delivery of the institutes strategy, success and sustainability.

2. Response to the Reviewers' Report

Following several discussions of the feedback obtained following the TCIN Quality review held in April 2016, we provide below a joint response to the comments and recommendations made in the reviewer report. We express our formal thanks to the reviewers, Jeffrey Daley and Bernard Conway, for their report and the facilitator, Thorri Gunnlaugsson, for his support in the process.

In response to the review, we first note that the review was positive and enthusiastic, highlighting the value of both past and new initiatives enabled by the TCIN. The reviewers' comments on the high quality of new PIs being recruited is particularly noteworthy and indicative of future promise. We also note that their recommendation for strong and continued College support for the Institute is unambiguous. Below, we list specific responses to more critical reviewer observations under the 5 areas enumerated in the review

1. Governance

a) Board

The reviewers recommended that TCIN should form a new board of directors with an external chair. The purpose of the board should be to connect and support interactions for TCIN with potential research funding opportunities available through Industrial, Academic, Philanthropic, Governmental & International partners. The TCIN Director will work with TCIN PIs and with the Dean of Research to suggest appropriate board members from within and outside Trinity to be approached by the DoR. Although the reviewers suggest that the board help provide TCIN's scientific direction, we feel that the scientific direction and mission for TCIN should be principally defined internally, in the process of developing a new Strategic Plan that will be in place by early 2017 (see 2a below).

b) Communication

The reviewers noted the need for greater communication between TCIN leadership and TCIN PIs. The TCIN Director agrees with this criticism. It is agreed that the Director and EMC (Executive and Management Committee) will set up appropriate communication processes with internal and external stakeholders. An annual away day followed by monthly PI lunch meetings is proposed as a starting mechanism for such communication. A key aspect of this communication will be to build and support broad ambition for transdisciplinary and collaborative research activities of scale that will allow individual PI success as well deliver large-scale funding to the Institute and College. There will be increased levels of PI participation in the EMC as well as in TCIN operations and activity.

c) Lack of resources for Director

The reviewers noted the lack of resources for the Director to discharge the scale of work associated with the position. It is true that the Director maintains almost all local and international academic commitments held before assuming the office and that current support staffing is both minimal and overstretched. This issue cannot be addressed satisfactorily given funding limitations in College and TCIN. However, TCIN will seek additional resources from: (a) partial recovery of GBHI indirect costs; (b) Increased MRI &

overhead income; and (c) recruitment of an RPO now 50% funded by College TR&I, in order to recruit additional support staff. The TCIN Director is ready to share specific responsibilities, e.g. Translational Neuroscience, MRI facility management and Industry Engagement, with senior PIs strongly positioned and willing to provide leadership for these activities.

2. Strategy

a) Plan

The reviewers suggest that this is the right time to redefine the mission, aims and scientific objectives for the TCIN and launch an overarching new strategy for achieving these aims through success in winning new funding. This is in complete agreement with observations and vision statements made in the TCIN Self-Assessment document. The TCIN Director will work with PIs to prepare a strategic plan to be launched in early 2017.

b) Funding

The reviewers feel that articulation, communication and strong support of a strategy to win large-scale external funding for TCIN PIs is necessary. They suggest the need for an RPO to support this initiative. In response, we are happy to note that an RPO will be recruited in Autumn 2016, 50% funded by TR&I. A major goal of the RPO will be to interact frequently with individual PIs and PI groups to support the development and submission of additional individual and large-scale research grant applications. We anticipate that there will be applications for ERC, Horizon2020 and Wellcome Trust awards made by several TCIN PIs. These will likely include: for the ERC - Matthew Campbell, Robert Whelan, Tomas Ryan Claire Kelly and Claire Gillian; For H2020 and/or Marie Curie awards - Brian Lawlor, Andrew Harkin, Veronica O'Keane, Arun Bokde, Richard Carson, Mani Ramaswami and Marina Lynch; and for Wellcome Trust awards - Mani Ramaswami, Tomas Ryan and Marian Tsanov.

c) International partnerships

The reviewers observe (as noted in the Self Assessment document) that TCIN should launch a strategic and tactical initiative to form preferred international partnerships. The Director and EMC will look to identify suitable international partners initially in Bangalore, India (NCBS and NIMHANS); The University of Edinburgh, University of Cardiff in Wales and the ETH in Switzerland, with whom there are exciting possibilities for collaborative research as well as the opportunity to seek supporting SFI, EU, and Philanthropic funding.

d) Teaching & education

The reviewers point to our need to reflect on the opportunity and value of building teaching initiatives that could be useful both reputationally and in terms of research. The TCIN Director will work with PIs and relevant schools and the TCIN Board to identify, revitalise or develop undergraduate and graduate educational activities. This process will be linked to new TCIN PI recruitment via multiple schemes.

3. Growth of high-performing PIs

Consistent with reviewer comments, the TCIN Director believes the main goals of the Institute should be to create a sense of community as well as to increase the number of high performing PIs in the Institute. The sense of community will be created in part through improved communication and increased engagement of PIs in strategy development and in part through increased involvement of TCIN admin staff in supporting and coordinating TCIN

PI activities. The quality PI pool will be grown both by recruitment of new ones and by enhancing opportunities and success rates for existing PIs. This will be done through an RPO-led research development programme that will help and drive PIs to pursue diverse funding opportunities including collaborative industrial and international interactions. It will also be done by the recruitment of new ERC funded PIs to Trinity (which may be somewhat easier given the prospect of Brexit). It will also, over a larger time scale, be achieved by increasing the number of strongly research active PIs within the Lloyd Building. The expectations for TCIN PIs and agreed performance targets for TCIN will be formally communicated in meetings. However, the TCIN Director will not conduct individual performance reviews unless necessary to justify difficult space decisions. The DoR and Dean FEMS appreciate the importance of incorporating Neural-Engineering and other key PIs into the Lloyd building and the requirement of additional space to accommodate new PIs.

4. Institutional metrics

The Dean of Research is addressing the need for a software system to address this at a college-wide level.

5. Facilities

a) and b) MRI

A business model has been developed for the MRI centre and will be implemented. It is dependent on successful recruitment of strongly research active PIs who use MRI. At least 4 new PIs have been recruited in the last 12 months. In addition, some level of buffering against major losses from operating the MRI facility can come from providing services to commercial or academic partners outside College. TCIN will expand its search for internal and external MRI users. College will be requested to continue to provide a subvention to support MRI facilities for three years at which point, it should be possible to fairly measure the success of the current strategy.

c) EEG invoicing

We will look at finding suitable systems to invoice for use on the extremely busy and widely used EEG systems.

d) Futureproofing animal research facilities

Senior PIs working with animal models will work with Comparative Medicine to address this issue.

e) Space review

We appreciate that the success of TCIN is linked to the provision of space. The Dean of FEMS supports the transition of the Lloyd building from a space shared by multiple academic units to one that is dedicated to Neuroscience. The timescale for this will be linked to the development of the E3 building and other development activities in College. This may limit the TCIN Directors' ability to incorporate Neural-Engineering and other key PIs into the Lloyd building in the short term.

f) Concluding remarks,

The reviewers rated TCIN as "*Internationally competitive but with identifiable gaps that need to be addressed: a potential player at an international level.*" We hope that a constructive and committed action to address the specific concerns of the reviewers will push TCIN into

the ranks of clearly world leading Neuroscience Institutes. A review of all progress toward this end will be undertaken and renewed annually by the Dean of Research and the TCIN board.

Sincerely,

Mani Ramaswami
Director, TCIN

Vinny Cahill
Dean, FEMS

John Boland
VP and Dean of Research.